Independent Evaluation Office
GLOBAL ENVIRONMENT FACILITY

Evaluation of GEF Support for Transformational Change

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FULL REPORT

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Independent Evaluation Office

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Foreword

Supporting transformational change is a strategic priority of the Global Environment Facility (GEF), as cited in its 2020 vision statement. In this context, transformational change can be understood as deep, systemic, and sustainable change with large-scale impact in an area of global environmental concern, such as biodiversity, land degradation, and climate change.

The Evaluation of GEF Support for Transformational Change, prepared by the Independent Evaluation Office of the GEF, examines GEF performance and impact during the sixth replenishment period. The evaluation assessed a representative sample of GEF operations that have resulted in transformational change, identified key factors that have contributed to such change, and distilled the lessons learned. The evaluation's purpose is to help improve the identification, design, and implementation of future operations aimed at supporting transformational change. It used a cross-case analysis in combination with a meta-evaluation to assess the conditions and combinations of conditions that have contributed to transformational change.

The evaluation was presented to the GEF Council in May 2017, as part of the Office's Semi-Annual Evaluation Report. The Council took note of the conclusions of the evaluation and endorsed its recommendation. Through this report, the GEF Independent Evaluation Office intends to share the lessons from the evaluation with the wider audience.

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Director, GEF Independent Evaluation Office

Acknowledgments

This evaluation was co-led by Geeta Batra, Chief Evaluation Officer of the Global Environment Facility's Independent Evaluation Office (GEF IEO), and Kseniya Temnenko, Knowledge Management Officer. Core team members were Andres Liebenthal (Senior Evaluation Consultant) and Katya Verkhovsky (Research Analyst), both consultants to the Office.

The evaluation benefited from oversight provided by Juha Uitto, Director of the IEO.

The GEF Secretariat and GEF Agencies were invited to identify recently completed and evaluated interventions for potential inclusion in the review. Several GEF IEO evaluators provided important insights to this evaluation, including Senior Evaluation Officers Carlo Carugi and Baljit Wadhwa, and Evaluation Officers Anupam Anand and Jeneen Garcia. Administrative support was provided by Evelyn Chihuguyu, Program Assistant, and Marie-Constance Manuella Koukoui, Senior Executive Assistant. Jennifer Rubio edited the report, while Nita Congress provided editorial oversight and designed the publication.

The GEF IEO is grateful to all these individuals and institutions for their contributions. Final responsibility for this report remains firmly with the Office.

Abbreviations

ADB	Asian Development Bank
ARPA	Amazon Region Protected Areas Program
CRESP-I	China Renewable Energy Scale-Up Program, Phase I
FUNBIO	Brazilian Biodiversity Fund
GEF	Global Environment Facility
ICEMA	Integrated Ecosystem Management in Namibia through the National Conservancy Network
NGO	nongovernmental organization
PAS	protected area systems
PES	payment for environmental services
PPG	project preparation grant
QCA	qualitative comparative analysis
SLEM-U	Sustainable Land, Water, and Biodiversity Conservation and Management for Improved Livelihoods in Uttarakhand Watershed Sector Project
SPAN	Strengthening the Protected Area Network
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UWEP	Uruguay Wind Energy Programme
WWF	World Wildlife Fund

The GEF replenishment periods are as follows: pilot phase: 1991–94; GEF-1 1995–98; GEF-2: 1999–2002; GEF-3: 2003–06; GEF-4: 2006–10; GEF-5: 2010–14; GEF-6: 2014–18; GEF-7: 2018–22.

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

Executive summary

As noted in the Global Environment Facility (GEF) 2020 Vision Statement, the unprecedented nature of the pressures faced by the earth's ecosystems over the coming decade means that incremental environmental strategies alone will not suffice and "compel the GEF to equip itself to promote transformational change" (GEF 2012). The GEF 2020 Strategy Paper identifies market transformation as one of the areas where a systematic effort is needed to capture lessons learned from past project experience and leverage them to provide guidance for users and scale up the GEF's impact (GEF 2013).

In response, the Independent Evaluation Office has prepared this evaluation. The objective is to review the GEF experience with a representative sample of projects that have generated transformational results, identify key factors in the design and implementation of these operations, and distill the lessons learned. The purpose is to help improve the identification, design, and implementation of future operations aimed at supporting transformational change.

For this evaluation, transformational interventions are defined as engagements that help achieve deep, systemic, and sustainable change with large-scale impact in an area of global environmental concern. The underlying theory of change is that by strategically identifying and selecting projects that address environmental challenges of global concern and are specifically designed to support fundamental changes in—i.e., "flip"—key economic markets or systems, GEF interventions will be more likely to cause a large-scale and sustainable impact, subject to the quality of implementation/execution and supportive contextual conditions.

As a first step, GEF Agencies were invited to identify recently completed and evaluated interventions for potential inclusion in this evaluation. From this candidates list, the evaluation team purposively selected a sample of eight illustrative interventions to represent a diversity of GEF focal areas and responding agencies, with careful consideration to the availability and quality of evaluative evidence. The following interventions were selected through a series of iterative screenings:

- Lighting Africa
- China Renewable Energy Scale-Up Program-Phase I (CRESP-I)
- Uruguay Wind Energy Programme (UWEP)
- Sanjiang Plain Wetlands Protection Project
- Sustainable Land, Water, and Biodiversity Conservation and Management for Improved Livelihoods in Uttarakhand Watershed Sector Project (SLEM-U)
- Namibia—Strengthening the Protected Area Systems (Namibia PAS)

- Amazon Region Protected Areas Program, Phase I (ARPA-I)
- Promoting Payments for Environmental Services and Related Sustainable Financing Schemes in the Danube Basin (Danube PES)

Given this sample, the evaluation team undertook a meta-evaluation based on a desk review of the final evaluation reports for these eight cases to assess the factors and circumstances that have triggered and supported transformational changes. A cross-case analysis, informed by the qualitative comparative analysis approach, supplemented the meta-evaluation; the analysis aimed to identify the necessary and sufficient conditions for GEF interventions to achieve transformational change. The evaluation also attempted to establish which conditions make a difference in specific contexts.

Main findings

What are the necessary and sufficient conditions for the achievement of sustainable transformations? The review of the evaluative evidence concluded that each of the purposefully selected cases can be credited with having made an important contribution to the fundamental transformation of a system or market, thus helping address the root cause of a global environmental concern. In five of the sample cases, the transformation was fully completed in terms of its depth, scale, and sustainability. In the three remaining cases, the GEF intervention had triggered and supported a fundamental transformation, but its financial sustainability had not yet been achieved at the time of project completion, so the transformation could only be deemed as partially completed.

Given the overall satisfactory outcomes of the sample interventions, the analysis focused on the commonalities and differences between fully completed and partially completed transformations. The five completed transformations all involved a fundamental change of a system. They all established a demonstration-and-replication mechanism to trigger and scale up the supported activities and reforms. Finally, all of these cases were satisfactorily implemented and executed, and they were also adequately supported by the policy and economic environment.

The most important distinction among these five completed transformations relates to the strategy for attaining financial sustainability. In three cases, financial sustainability was achieved by harnessing market forces to drive and expand the desired environment-friendly impacts. In the two remaining cases, financial sustainability was achieved by eliciting government budgetary allocations that continue funding the programs and activities established by the project.

The three GEF interventions that supported market transformations—CRESP-I, UWEP, and Lighting Africa—all focused on renewable energy and had the following factors in common:

- **Market-oriented objectives.** Their objectives all aimed at the removal of policy and regulatory barriers to the creation or acceleration of a national- or regional-scale market for renewable energy.
- **Private sector and market response.** They all succeeded in catalyzing a strong private sector investment response that ensured the long-term sustainability and continued expansion of the markets and systems targeted by the interventions.
- **Technological advancement.** They all encouraged and benefited from technological improvements that reduced the cost and improved the quality of the equipment—wind

power systems and solar lamps—needed to competitively deliver energy services for which there was an effective demand.

These three interventions also differed in important ways that highlight alternative pathways to the achievement of market transformation:

- **Government ownership and policy support.** CRESP-I and UWEP were fully owned by the governments, which cofinanced a major share of project costs and were helped to undertake comprehensive system reform that mainstreamed renewable energy into their national energy policy and regulatory framework. Lighting Africa, conversely, did not involve any government funding, and it demonstrated the viability of the market by creating demand, providing market intelligence, developing a quality assurance infrastructure, facilitating access to finance, and limiting government involvement to the removal of trade barriers.
- **Civil society, community, and donor partnerships.** For Lighting Africa, consumer associations, nongovernmental organizations, microfinance institutions, and other social sector partners played a key role in promoting consumer awareness of solar lamps. In addition, GEF funding was supplemented by important contributions from international donor partners. For CRESP-I and UWEP, in contrast, these factors did not play a significant role.
- **Pre-investment activities and intervention size.** CRESP-I and Lighting Africa were major interventions involving about $40 million and nearly $8 million of GEF funding, respectively. UWEP, on the other hand, was a medium-size project supported by a $1 million GEF grant.

The two interventions that achieved financial sustainability through integration into government budgetary processes—Sanjiang Wetlands and Uttarakhand Sustainable Land and Ecosystem Management—both focused on biodiversity and natural resource protection through the development and demonstration of sustainable livelihood approaches to improving the well-being of local communities. These were local-scale interventions characterized by having strong local government ownership and support, as evidenced by governments' willingness to adopt environment-friendly policies and natural resource management practices based on the results of project-supported pilots, and to continue funding and expanding the sustainable livelihood programs from their own budgets.

The three partially completed transformations all involved the conservation of natural resources and protection of biodiversity in environmentally sensitive or protected areas. Two of these—Namibia's Strengthening the Protected Area Systems and ARPA-I—supported systemwide changes on a national scale. The remaining case—Danube PES—successfully demonstrated a market change in a few pilot areas. In all three cases, however, their long-term sustainability continued to depend on donor funding at the time of project completion.

Lessons going forward

The evaluation found the following to be important drivers of change; these should serve as lessons going forward.

- **The level of ambition.** The reviewed interventions each had ambitious objectives—explicit or implicit—to trigger and support a deep, fundamental change in addressing a market distortion or systemic bottleneck that was a root cause for an environmental issue of global concern.

- **Establishing an effective transformational mechanism.** All the interventions helped establish a mechanism—mainstreaming, demonstration and replication and/or catalytic—to scale up and expand the activities supported by the intervention.
- **The quality of implementation and execution.** All interventions were well implemented in terms of the quality of project design, supervision, and assistance by the GEF Agency, and the effectiveness of the executing agency in performing its roles and responsibilities.
- **Harnessing market forces.** Three of the four cases that primarily aimed at market changes successfully elicited a strong private sector response that ensured a deep, financially sustainable transformation. In fact, subject to alignment with project objectives, a strong private sector response was identified as a sufficient condition for achieving a fully completed transformation. This suggests that where there is an opportunity to harness market forces—by addressing the removal of barriers, encouraging sustainable supply, or catalyzing potential demand—it deserves careful attention for the identification and design of an intervention.
- **Size does not matter.** Last, but not least, the eight sample cases illustrate how relatively modest GEF medium-size projects—such as UWEP and Danube PES—can be just as transformational as major, multiphase investment projects such as CRESP-I and ARPA-I.

Recommendation

The GEF should consider developing and applying a framework for ex ante assessments to enhance the impacts of projects or programs that are intended to be transformational. This evaluation has presented an example of a framework that could be applied.

1: Introduction

1.1 Background, objective, and purpose

What is a transformational change?

- In 2016, Uruguay generated about 33 percent of its total electricity needs from wind power, up from 0 percent in 2008.
- Between 2005 and 2015, China's wind power capacity increased from 1.3 GW to 129.3 GW, producing about 3.3 percent of its electricity and avoiding about 82.7 million tons per year of carbon emissions.
- Management effectiveness was improved in about 98 percent of Namibia's protected areas, while estimated populations of lions, leopards, cheetahs, and wild dogs doubled between 2004 and 2012.
- About 1.3 million households in remote, off-grid areas of Africa have purchased quality-certified solar photovoltaic lanterns at market prices through a market transformation scheme supported by the Lighting Africa program.
- About 13 "strict protection" areas totaling 13.2 million ha, and 30 "sustainable use" protected areas totaling 10.8 million ha, were created with the support of the Amazon Region Protected Areas Program (ARPA-I).

These are some of the transformational changes associated with Global Environment Facility (GEF)–supported interventions. These changes are transformational because of their relevance in addressing a global environmental concern, their deep and large-scale impact, and their expected long-term sustainability. In this evaluation, the GEF Independent Evaluation Office reviews the GEF's past experience with a representative sample of such operations to enhance knowledge about how to achieve transformational change.

As first noted in the GEF 2020 Vision Statement, the unprecedented nature of the pressures faced by the Earth's ecosystems over the coming decade means that incremental environmental strategies alone will not suffice and "compel the GEF to equip itself to promote transformational change" (GEF 2012). It further states that the "GEF is uniquely positioned to catalyze the transformational change necessary to help turn around the worrisome trends in the global environment" and will need "to play a leadership role in bringing transformational change. This will be a priority for GEF-7" (GEF 2017). In line with this priority, the GEF 2020 Strategy Paper identifies market transformation as an area where a systematic effort is needed to capture lessons learned from past project experience and leverage them to provide guidance for users and scale up the GEF's impact (GEF 2013).

In response, the Independent Evaluation Office has prepared this evaluation on the GEF's support for transformational change. The objective is to review the GEF experience with a representative

sample of operations that have generated transformational results, identify key factors in the design and implementation of these projects that have contributed to such results, and distill the lessons learned. The purpose is to improve the identification, design, and implementation of future operations aimed at supporting transformational change through the framework presented.

1.2 Methodology and approach

This evaluation is designed to explore the following evaluative questions:

- What are the necessary and sufficient conditions for GEF interventions to achieve transformational change?
- What causal factors make a difference in the outcome?

In this evaluation, transformational interventions are defined as engagements that help achieve deep, systemic, and sustainable change with large-scale impact in an area of global environmental concern.

Specifically, four criteria permit a differentiation between transformational interventions from engagements that are "merely" highly successful, complex, or large in size (IEG 2016):

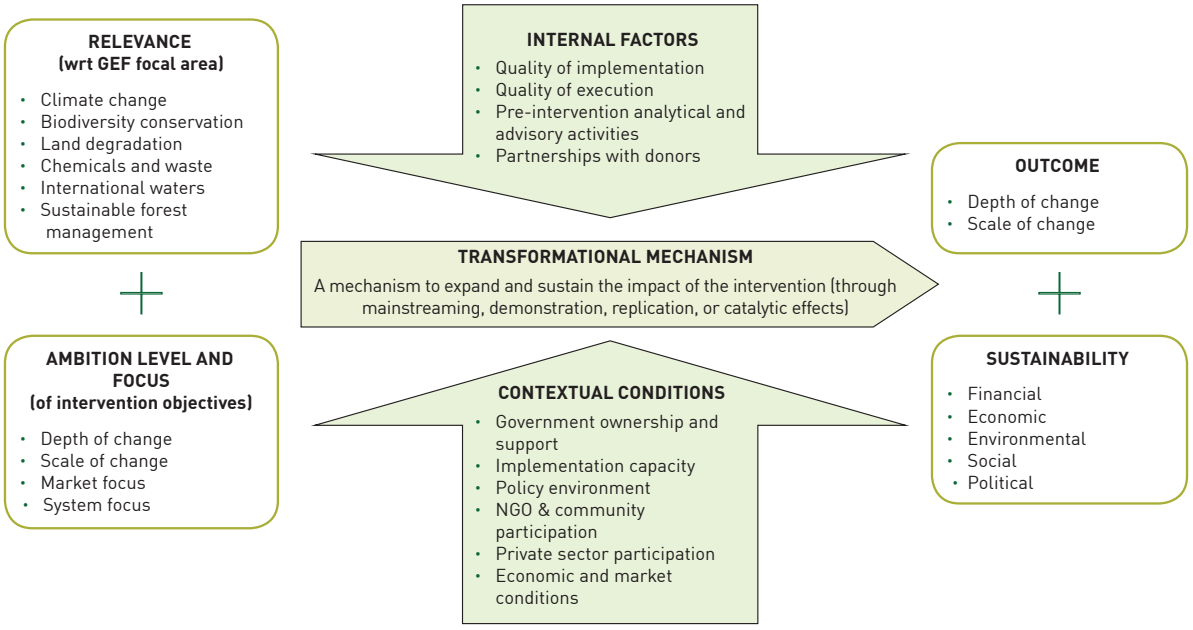
- **Relevance.** The intervention addresses a global environmental challenge such as climate change, biodiversity loss, or land degradation.
- **Depth of change.** The intervention causes or supports a fundamental change in a system or market.
- **Scale of change.** The intervention causes or supports a full-scale impact at the local, national, or regional level.
- **Sustainability.** The impact is financially, economically, environmentally, socially, and politically sustainable in the long term, after the intervention ends.

The underlying theory of change is that by strategically identifying and selecting projects that address environmental challenges of global concern and are specifically designed to support fundamental changes in—i.e., "flip"—key economic markets or systems, GEF interventions will be more likely to cause a large-scale and sustainable impact, subject to the quality of implementation/execution and supportive contextual conditions. An outline of the theory of change, and the main causal conditions and indicators used for this evaluation, is shown in figure 1.1.

As a first step, GEF Agencies were invited to identify recently completed and evaluated interventions (projects, programs, and nongrant instruments), in line with the above criteria, for potential inclusion in this evaluation. About 156 projects were nominated: 93 by the World Bank, 45 by the United Nations Development Programme (UNDP), 14 by the United Nations Environment Programme (UNEP), 2 by the Food and Agriculture Organization of the United Nations, and 2 by the Asian Development Bank (ADB). From this candidates list, the evaluation team selected a sample of eight illustrative interventions to represent a diversity of GEF focal areas and responding agencies, with careful consideration to the availability and quality of evaluative evidence, particularly with respect to the scale, depth, and sustainability of the transformational impacts. The following list of interventions was determined through a series of iterative screenings (the basic project data are shown in annex A):

- Lighting Africa
- China Renewable Energy Scale-Up Program, Phase I (CRESP-I)

FIGURE 1.1 Theory of change for GEF transformational interventions



- Uruguay Wind Energy Programme (UWEP)
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- Amazon Region Protected Areas Program, Phase I (ARPA-I)
- Promoting Payments for Environmental Services and Related Sustainable Financing Schemes in the Danube Basin (Danube PES)

Given this sample of interventions, the evaluation team undertook a meta-evaluation based on a desk review of the final evaluation reports to assess the factors and circumstances that have triggered and supported transformational changes. The review template used to screen and assess the sample interventions is shown in annex B. The meta-evaluation was supplemented by a cross-case analysis, informed by the qualitative comparative analysis (QCA), to identify the necessary and sufficient conditions for GEF interventions to achieve transformational change.[1]

The evaluation also attempted to establish which conditions make a difference in specific contexts.

This report has four chapters. Following this introduction, chapter 2 briefly describes the context

[1] QCA is a theory-driven approach used to identify the conditions or combination of conditions that lead to specific outcomes using Boolean algebra rather than conventional statistics. Among other aspects, the analysis helps to identify necessary conditions that are required for an outcome to materialize and sufficient conditions that can trigger materialization of an outcome without requiring the presence of additional conditions (Befani 2016).

and design of each case, outlining the salient facts and mechanisms associated with their transformational results. Chapter 3 discusses the cross-cutting design features, mechanisms, and contextual conditions that have helped support and sustain transformational changes. Finally, chapter 4 identifies and discusses the necessary and sufficient conditions for these interventions to achieve transformational outcomes and derives appropriate lessons for the GEF moving forward.

2: Eight transformational change stories

How has the GEF supported transformational changes? The eight cases selected for this evaluation each illustrate a different context and approach where GEF support has been closely associated with a transformational change that helped address an environmental issue of global concern. This chapter will briefly describe the context and design of these cases and outline the salient factors and mechanisms most closely associated with the transformational change as they emerge from the evaluation reports.

2.1 Lighting Africa—Promoting Market-Based Solutions to Advance Energy Access

About 600 million people in Africa have no access to grid electricity, and this number is expected to rise to about 700 million by 2030. These people rely on polluting and dangerous sources of lighting such as kerosene lamps, candles, and battery-powered torches. Fuel-based lighting is generally of low quality and expensive, impeding learning and economic productivity.

Given advances in technology and increased competition, portable modern lighting devices have become more affordable. This created an opportunity for people living in off-grid areas to replace kerosene lamps with higher-quality, safer, and more affordable modern lighting products such as solar lamps. However, despite the benefits of solar lamps, the market was not developing as quickly as expected. To understand why the solar lamp market was not developing, the GEF and the International Finance Corporation–World Bank funded a market appraisal in 2007 and identified six barriers inhibiting market growth:

- Consumers did not trust the solar products available. Some solar lamps were already available in the market when the Lighting Africa program began, but many of these products were poorly made and did not work properly.
- Consumers did not know the benefits of solar lamps, how to use them, or where to buy them. Some consumers were unaware that solar lamps existed.
- Manufacturers and designers did not know consumer preferences for the design and function of a solar lamp.
- Supply chain entities did not know each other. Solar lamp manufacturers entering the market to serve lower-income consumers in developing countries did not have an established distribution network and were unsure how to identify reliable distributors.
- Lack of finance was a big problem. Designers and manufacturers, distributors and importers, and retailers needed financing to purchase and move products to the end users. Lower-income consumers needed microloans to help with the upfront cost of purchasing a solar lamp.

- Long customs processes and import tariffs on solar lamps were common concerns among manufacturers who considered importing solar lamps to African markets.

The Lighting Africa program was created to transform the off-grid market by removing these barriers. Its goal was to help catalyze markets for quality, affordable, clean, and safe off-grid lighting and ultimately to create a sustainable commercial platform that would realize the vision of providing 250 million people with modern off-grid lighting by 2030. The overall approach was to demonstrate the viability of the market by providing market intelligence, developing a quality assurance infrastructure, facilitating business-to-business interactions, helping governments address policy barriers, providing business development services, and facilitating access to finance for manufacturers, local distributors, and consumers. The program received about $22 million in donor contributions from 2007 to 2013. The GEF was the largest donor, providing more than one-third of the funds ($7.85 million, GEF ID 2950) (IEG 2015).[1]

In 2014, the final evaluation of the Lighting Africa program concluded that the program had played a crucial role in transforming the market (Castalia Strategic Advisors 2014). The program was effective and made an impact. A few of the key accomplishments follow:

- Through the program's quality assurance efforts, 183 solar lamp models were tested, and 66 of them received the Lighting Africa quality certification.
- The program hosted 1,157 forums during its consumer education campaigns, directly reaching over 36,000 people in Kenya.
- Over 680,000 Lighting Africa-certified lamps were sold in Kenya, 135 percent above the Kenya program's target. Furthermore, almost 2 million lamps were reported to have been sold in other African countries—185 percent above the target. However, as noted in the evaluation, more work is needed to determine the extent to which these sales can be attributed to the program, since this estimate does not take into account a counterfactual of what would have occurred without the program. On the other hand, interviews with retailers, consumers, and manufacturers confirmed that Lighting Africa was a very important influence on market development, so the true impact may well have been higher.

The evaluation also concludes that the benefits achieved by the program were sustainable after donor funding stopped. Basically, interviews suggest that people who have used solar lamps will continue to do so and suppliers will continue to supply. The extent to which the market transformation process itself will continue, however, remains to be seen. While the program has laid the groundwork for continued market transformation through arrangements with an industry association and a Kenyan nongovernmental organization (NGO) to take over and continue the program activities, these organizations are still partially reliant on donor support.

Based on the findings of the evaluation, three main factors were instrumental for the success of the program, and their maintenance will be essential for continuing the transformation:

- The first, obvious success factor was the program's operation in areas where there was

[1] According to GEF's Project Management Information System, the GEF grant was $5.4 million.

proven, strong demand for improved off-grid lighting solutions.

- The second was having a carefully designed set of interventions that simultaneously targeted all major market barriers. Since barriers differ from market to market, the program started with a basic program design, but it tailored the components to target the specific barriers identified in the target countries.
- The third was the program's focus on market transformation. The Lighting Africa program did not fund solar lamps—it funded activities that created effective markets in which consumers spent their own money to buy solar lamps. To sustain this success factor, the ever-present temptation to spend money buying lamps for poor people will need to be resisted, while pro-market interventions—such as microfinance to assist the purchase of solar lamps—will need to be pursued vigorously.

2.2 Scaling Up China's Renewable Energy Sector

In the decades preceding the project, China's energy consumption and the associated carbon emissions had been rapidly increasing and were estimated to continue growing from about 820 million tons in 2000 to 1.1 billion tons in 2010 and more than 1.8 billion tons in 2020. Recognizing that such growing environmental damages were unacceptable, the government's 11th Five-Year Plan (2006–11) incorporated a multipronged energy reform strategy aiming to, among other goals aggressively scale up renewable energy use, especially for power generation.

Against this background, the World Bank and the GEF worked closely with the Chinese government to develop a long-term partnership in support of the goals of the 11th Five-Year Plan and increase renewable energy's contribution to power generation in a sustainable way. The first phase of CRESP-I, approved in 2005, was designed as a programmatic and sectorwide intervention that integrated: (1) a GEF grant (GEF ID 943) of $40.2 million to support the development of the legal, regulatory, and policy framework needed to stimulate demand for renewable energy, improve its quality, and reduce its costs, and to build a strong local renewable energy equipment manufacturing industry, and (2) two World Bank loans (of $87.0 million and $86.3 million) to support pilot investments in wind, biomass, and small hydropower in four participating provinces.[2]

The objectives were ambitious and aimed at major changes in the system and market for renewable energy: (1) to create a legal, regulatory, and institutional environment conducive to large-scale, renewable-based electricity generation, and (2) to demonstrate early success in large-scale, renewable energy development with participating local developers in four provinces.

Five years after project closing, the project performance assessment report (IEG 2017) concluded that CRESP-I had made a substantial contribution to the transformation of China's renewable energy sector from an early piloting and demonstration stage to its status as a global leader in wind energy generation and the manufacture of wind power equipment. From 2005 to 2010, China's installed wind power capacity increased from 1.3 GW to 29.6 GW, greatly exceeding the original 11th Five-Year Plan target of 10 GW. As of 2015, installed wind power capacity had reached 129.3 GW, amounting to 22 percent of global wind power capacity, and to 3.3 percent of China's electric power generation and equivalent to about 82.7 million tons per year of avoided carbon emissions.

[2] The GEF also provided project preparation grants (PPGs) for a total amount of $1.35 million.

These impacts are likely to be sustained, given the government's implementation of a project-recommended tariff policy that delivers attractive financial returns to renewable energy investors and its commitment to further increase the share of nonfossil fuels to 15 percent by 2020, up from 9.4 percent in 2010 and 12.0 percent in 2015.

Key stakeholders consulted for the Project Performance Assessment Report credited CRESP-I with a major contribution to this transformation. In their view, an instrumental role can be attributed to the tariff-related studies, which provided the knowledge and analytical underpinnings for China's replacement of a project-by-project tariff-setting and concessioning system with a national tariff structure that offered attractive and predictable returns to investors, while gradually phasing out the implicit premium over coal-fired generation. Other studies credited with essential contributions supported the clarification of the power grid's dispatching rules and established a methodology for determining the economically optimal targets for renewable energy expansion in various parts of China (based on the avoided cost of environmental damages from coal-fired power).

The main factors that contributed to the project's transformational impact can be summarized as follows:

- The three-way integration of institutional development and capacity building, technology improvement, and investment activities in a single intervention with mutually reinforcing components created the momentum needed to pursue regulatory reforms and overcome the resistance of established interests in the sector.
- The extensive efforts by the World Bank—supported by $1.35 million of GEF project preparation grants (PPGs)—through workshops, study tours, and studies during a multiyear preparation period were essential to achieve consensus and cohesiveness about key policy directions and reforms.
- The project's experience with cost-shared subgrants—where the grant provides 20 to 25 percent of total research and development costs—leveraged substantially greater investments by the implementing counterparts, enhanced selectivity, and built ownership and commitment.
- The long-term, predictable, and financially attractive price signal implemented by the government, as recommended by project-supported studies, provided an effective stimulus for continuing and expanding investments in renewable energy.

2.3 Creating the Wind Power Market in Uruguay

Around the turn of the century, Uruguay's power system was fully dependent on hydropower and imported fossil fuels. Since the country's hydropower potential was practically exhausted, imported natural gas was expected to play a major role in meeting the growth of electricity demand, estimated at about 3 percent annually. Gas-fueled power plants were the preferred alternative, but they had the following consequences: (1) increased dependence on imported energy, (2) transmitted impacts of international gas price fluctuations onto the national economy, and (3) increased emissions of greenhouse gases.

Facing this situation, the government of Uruguay recognized the long-term potential for the development of local energy resources—such as wind and biomass—and established the legal basis and framework for promoting them, but was faced with barriers including the following:

- Insufficient or inappropriate regulations for the installation and operation of wind farms, including grid access and dispatch
- Lack of an enabling policy framework for Power Purchase Agreements between wind power suppliers and the national power company[3]
- Underdevelopment of technical standards, building codes, and environmental guidelines for wind energy systems
- Financially unattractive returns for private wind energy projects
- Insufficient wind energy knowledge and capacity among both public and private sector actors
- Lack of a mandate for the national power company to promote and deploy wind energy systems
- Lack of financial resources and technical equipment to gather data on Uruguay's wind resources

At this point, in 2007, UWEP was launched with the objective of contributing to the elimination of these barriers and the establishment of a 5 MW demonstration project. The project budget included $950,000 from the GEF (GEF ID 2826), $35,000 from UNDP, and government cofinancing of $53.7 million.[4]

The project was designed with activities expressly aimed at removing each of the identified barriers. Specifically, UWEP supported the creation of an enabling policy framework for wind energy, including regulations for construction and operation of wind farms, access and dispatch to the network, technical codes, and financial incentives. It strengthened capacity and business skills to prepare and implement wind energy technology with public and private delivery models. It also addressed technological barriers by providing measuring equipment and implementing a pilot 5 MW wind power plant connected to the grid.

Following UWEP's closing in 2012, the final evaluation report (Rodriguez 2013) concluded that "with the decisive participation of this project, an enabling legal and regulatory framework was established for the development of wind energy in the country. A transparent market for wind power was created and 43.45 MW have been introduced in the country through December 2013, and several projects are in development which by December 2015 are expected to total 990 MW, far exceeding project goals and converting wind power into a major energy source for the country." It was estimated that the directly avoided carbon emissions rose to an estimated 0.86 million tons of CO_2 per year in 2015, from zero in 2007.

As discussed in the final evaluation, the sustainability of these achievements is rated as probable, given the technical and institutional capacity that was developed and the credible financial sustainability of the investments. Key determinants of the project's transformational success include the following:

- The quality of the project's design, which reflected a coherent logical framework from the identification of barriers to the planning for their removal through specific activities, with appropriate institutional arrangements and implementation strategy
- The timing of the project, which came at an unusual moment when the government had made a strong commitment to renewable

[3] In this case the national power company refers to the National Administration of Power Plants and Electrical Transmissions (Administración Nacional de Usinas y Transmisiones Eléctricas).

[4] The project was also supported by GEF PPGs of $500,000.

energy, as reflected in its establishment of an enabling legal and regulatory framework and its willingness to leverage the GEF medium-size project by cofinancing a major share of project costs

- The creation of a competitive and transparent wind energy market with a stable framework for investments and adequate tariff incentives that elicited a strong private sector response
- The project's inclusion and strengthening of a core of wind power specialists at the national power company, who helped with the preparation of technical standards and enabled the company to positively respond to the wind energy development mandate through both its own (public) as well as private investments

2.4 Demonstrating Biodiversity Conservation in China's Sanjiang Plain Wetlands

The Sanjiang Plain Wetlands in China's Heilongjiang Province comprise tracts of biologically rich wetlands and native forests. They support some 37 ecosystems, 1,000 species of plants, and 528 species of vertebrate fauna, including 23 globally threatened species. Ten of these threatened species are waterfowl, such as cranes, storks, and swans, which require extensive, undisturbed wetlands during their migration and breeding seasons. The wetlands' resources and biodiversity are under threat by unsustainable human exploitation, including hunting, egg collecting, and fishing. To halt and reverse the environmental degradation of the area, the Heilongjiang provincial government sought to manage the watersheds and wetlands in an integrated and sustainable way.

The Sanjiang Plain Wetlands Protection Project was launched in 2005 to protect globally significant biodiversity and promote sustainable economic development through support of integrated watershed management and conservation methods. The immediate objectives were to protect natural resources (biodiversity, water, and forests) from continued threats; promote their sustainable use through the integrated conservation and development of selected wetlands and forest areas; and improve the well-being of local communities. The project's expected impact was the removal from the list of threatened species of eight globally threatened species of waterfowl in the Sanjiang Wetlands. The project was supported with a $12 million grant from the GEF (GEF ID 1126), a $15 million loan from ADB, and $25 million of counterpart funding from the government.[5]

Following the project's completion in 2013, the Performance Evaluation Report (ADB IED 2015) concluded that the project had been effective in transforming the status of wetlands into recognized water users and part of the water allocation decision-making process for the preparation of nature reserve master plans and the broader river basin plans. Specifically: (1) wetland water requirements were integrated into the nature reserve, watershed, and water resource management plans of all six targeted nature reserves; (2) the same wetland restoration model was adopted for six additional reserves outside the project area; and (3) the incomes of affected households in each nature reserve were maintained or increased through environmentally sustainable alternative livelihood mechanisms, mainly forest resources management, forest products collection, and wetland ecotourism.

The outcome was inconclusive, however, with respect to the target of increasing the population of native waterfowl species by at least 10 percent, because of inconsistent counting methods, severe

[5] The project was also supported by GEF PPGs of $330,000.

weather, and other factors. Global assessments by the International Union for the Conservation of Nature on these species concluded that the observed improvements in the status of these species could not to any significant degree be attributed to the project, mainly because of the transboundary migratory nature of these species and the fact that the project had no effect on factors in other countries. On the other hand, the project's effectiveness in securing the conservation and rehabilitation of extensive wetland areas was effectively supporting a wide range of flora and fauna, which in turn would encourage the future breeding of the endangered and vulnerable species the project sought to protect.

The evaluation report rated the long-term sustainability of the project's achievements as likely sustainable. The provincial government and the 13 participating counties showed strong commitment to the project and established a special account, funded with a portion of the revenues generated from forest activities, to meet the budget requirements for nature reserve management. They also reflected the required water allocation for wetlands preservation into the province's 11th (2006–10) and 12th (2011–15) Five-Year Plans. In addition, the government of China's ecological civilization policy provides a comprehensive and ongoing national-level commitment to wetland conservation and management.

Based on the findings of the evaluation report, three factors emerge as the most important for the success of the project:

- The project's results chain was logical. Known risks to environmental improvement projects (e.g., inadequate government ownership and inadequate scale of interventions) were effectively addressed at the design stage.
- The key elements of the project had been fed into the government's planning process at an early project preparation phase, so these could be incorporated into the government development plan. This resulted in strong government leadership and ownership for the project, as indicated by the government's willingness to fund a major share of project costs.
- The project was successful in transforming the livelihoods of the affected people from activities that cause environmental degradation to those that support nature conservation. Livelihood activities such as forest management and production, ecotourism, and greenhouse vegetable cultivation continue to provide improved incomes to project-affected people.

2.5 Sustainable Land and Ecosystem Management in India's Uttarakhand State

An estimated 72 percent of India's population lives in rural areas with agriculture being the main, if not the only, source of livelihood. Most farmers remain poor, and about 80 percent of the 260 million people below the poverty line live in rural areas and depend on agriculture for their livelihood. At the same time, the natural resources and ecological foundations essential for sustained agricultural productivity are rapidly degrading. The main causes of land degradation follow:

- Unsustainable agricultural practices
- Unsustainable water management
- Conversion of land for other uses
- Deforestation
- Demographic pressure—human and livestock
- Frequent droughts and failures of monsoons and their link with global climate phenomena

- Industrial, mining, and other activities without satisfactory measures for land degradation prevention and land rehabilitation

In response, the Sustainable Land and Ecosystem Management Program was established in 2007 by the government of India in partnership with the GEF, the World Bank, UNDP, and the Food and Agriculture Organization of the United Nations. At the heart of the GEF's support was recognition that a purely conservationist approach was not likely to work. On this basis, the program focused on finding and promoting innovative approaches that would enable diverse stakeholders to both achieve their economic interest and honor agreed-on principles of ecosystem and biodiversity conservation. The SLEM-U project was launched in 2009 as one of seven GEF-supported projects under the Sustainable Land and Ecosystem Management program. The project was funded with a $7.5 million GEF grant (GEF ID 3471) that provided additional financing to the $77.6 million Gramya I project[6]—an International Development Association credit—begun in 2004.

The project implementation completion report (World Bank 2014), prepared in 2014, concluded that the SLEM-U had successfully demonstrated decentralized water management practices that improved source sustainability, access to water and water security, and farmer livelihoods. Thus, the project had implemented (1) participatory development of microwatershed development plans, (2) land degradation control at the microwatershed level, (3) reduction in pressure and dependence on the natural resource base, and (4) biodiversity conservation and management. These activities built upon and took full advantage of the earlier Gramya I project's investments and implementation capacity, but were not linked to its components.

Specific realized outcomes include the following:

- In terms of enhancing climate change mitigation and resilience in the watershed ecosystem, SLEM-U significantly scaled up alternative livelihood options that would reduce dependence on the natural resource base, such as pine needle briquetting and traditional water mills. Also, the project's forest plantation management and fire control training activities helped reduce fire-affected areas by 61 percent.
- Small and medium landholders benefited from watershed treatment activities—land degradation control and water harvesting—which, combined with the introduction of improved rainfed and irrigated farming practices, such as the cultivation of high-value crops and off-season vegetables, contributed to an average 15 percent increase in the beneficiaries' income.
- Vulnerable groups—including marginal farmers, landless, women, and transhumant populations—benefited from the project's financing of alternative livelihood activities, which increased their income by 30 percent on average.

The sustainability of these achievements is supported by the incentives built into the cost-sharing arrangements established by the project. Thus, the water user groups established by the project can be expected to maintain the water harvesting structures because they themselves are the main beneficiaries and because of their own investment through cost sharing. The alternative livelihood activities are highly likely to continue, as there is

[6] The Uttarakhand Decentralized Watershed Development Project (Gramya I) aimed to improve the productive potential of natural resources and increase incomes of rural inhabitants in selected watersheds through socially inclusive, institutionally and environmentally sustainable approaches.

an effective market demand for most of the goods and works they produce—as of the closing of the project, about 90 percent had been sustained for more than two years. The continuation of project activities is also supported by a 2011 government order that holds the Gram Panchayats (rural local governments) accountable for the sustainability of the assets created by the project. The order is underpinned by a memorandum of understanding signed between the Uttarakhand Water Management Department and the participating Gram Panchayats. On this basis, the implementation completion report rates the risk to development and global environment outcomes as moderate.

Based on the findings of the implementation completion report, the following salient factors contributed to the project's success:

- The focus on participatory, community-based approaches to watershed management, which also involved substantial beneficiaries' cost sharing, fostered local ownership and commitment and helped ensure the long-term sustainability of the assets created by the project.
- The integration of cutting-edge science and technology to improve the watershed treatment activities (land degradation control, natural resource conservation, water harvesting, agriculture demonstrations, and agribusiness development) made an important contribution to the observed increase in farming revenues and incomes.
- The project's extensive investment in strengthening the rural local governments' and water user groups' capacity in participatory decision making, planning and implementation, transparency and social accountability, financial management, procurement, and safeguards enabled these local institutions to successfully manage the massive increase in duties and resources resulting from the fiscal decentralization and community empowerment priorities promoted by the government and supported by the project.

2.6 Strengthening Namibia's Protected Area Systems

Namibia's dryland ecosystems are recognized as a globally significant repository of biodiversity, acclaimed for their species richness, habitat diversity, and biological distinctiveness. For the management of this biodiversity, the country has established a three-tier system, namely state protected areas, communal conservancies, and private reserves. There are more than 20 state protected areas, covering 17 percent of Namibia's terrestrial area (114,000 square kilometers), where most of the country's biomes are represented. There are 71 communal conservancies, covering more than 132,700 square kilometers, where community groups enjoy rights over wildlife and other resources for their own development. In addition, 24 conservancies have been established on private lands, comprising around 1,000 commercial farms.

However, because these areas operated as a patchwork rather than as an integrated system, their conservation potential was being undermined. In addition, the improvement of protected area management effectiveness had been hindered by a number of barriers: a fragmented policy framework, weak institutional capacities, weak human capacities for protected area operations, incomplete bio-geographic coverage, and the absence of tested mechanisms for public-private-community partnerships. Intervention was needed to address these barriers and improve the management of the protected area system as a whole.

Since 2004, the GEF has supported several projects, implemented almost simultaneously over a long period by the World Bank and UNDP, to improve management effectiveness of Namibia's protected area system at different levels and in different ways (table 2.1). They have focused on both national-level processes and systems as well as support to individual protected areas. At the national level, projects have supported the proclamation of new parks, policy development, improved budgeting and financial systems, human resource management systems, the concessioning system, the application of monitoring tools across the protected area system, and the development of approaches to coastal conservation management. At the park level, projects have supported the provision of infrastructure and equipment, the introduction of management plans and work plans, and engagement with park residents and neighbors.

The sustainability of these achievements is supported by the government's decision to mainstream the reforms and programs initiated by the projects, to increase budgetary allocations for protected area management, and to implement market-based instruments such as establishment of concessions and collection of park entry fees for park operations and investments. However, the government still needed to continue to mobilize additional resources from other donor organizations in support of protected area management and sustain the projects' results in future.

As discussed in the Namibia Overview report of the Impact Evaluation of GEF Support to Protected Areas and Protected Area System (GEF IEO 2016), these projects have been successful for a number of reasons:

- First and foremost was the political will and support for conservation in Namibia, which has provided backing at the highest level for the project activities. The government has been supportive of the proclamation of new protected areas and has been willing to increase the overall budget of the Ministry of Environment and Tourism. Project objectives and activities were not designed by external agencies and did not have to be grafted on to the Namibian protected area system. The projects provided technical support for the drafting of new policies and funding for consultative meetings, but all of the policies were initiated by Ministry of Environment and Tourism. As a result, they are fully institutionalized within the ministry and are being implemented.
- Another important factor was the synergies between different projects. There was good cooperation between Integrated Ecosystem Management in Namibia through the National Conservancy Network (ICEMA) and

TABLE 2.1 **Namibia: GEF-supported protected area system interventions**

GEF ID	Project title	Project period
1590	Integrated Ecosystem Management in Namibia through the National Conservancy Network (ICEMA)	2004–11
1505, 4669	Namibia Cost Biodiversity Conservation and Management Projects I & II (NACOMA)	2005–15
2492	Strengthening the Protected Area Network (SPAN)	2006–12
3737	Namibia Protected Landscape Conservation Areas Initiative (NAM PLACE)	2010–present
4729	Strengthening the Capacity of the Protected Area System to Address New Management Challenges	2013–present

Strengthening the Protected Area Network (SPAN) even to the extent that both projects shared the same policy advisor. Personnel from the ICEMA (GEF–World Bank), SPAN (GEF-UNDP), North-east Parks (the German Development Bank, KfW), the World Wildlife Fund (WWF) Namibia program, and Namibian NGOs all collaborated in providing integrated support to park management and community engagement activities.

- In addition, many of the project personnel previously worked in the Ministry of Environment and Tourism. This ensured that project managers and personnel had a good understanding of the ministry, its internal politics, its systems and processes, and the context of individual parks. Several of the project personnel had also previously worked with communities adjacent to protected areas supported by the projects.

2.7 The Amazon Region Protected Areas Program in Brazil

Brazil's Legal Amazon Region occupies about 5 million square kilometers of land, which represents the largest area of remaining tropical rain forest in the world (approximately 30 percent) and is estimated to contain carbon stores of around 120 billion tons. Because the area is still relatively intact, it is thought to exert a significant influence on regional and global climate. The region has been classified into 23 ecoregions and supports biodiversity of global significance. Despite the region's global importance, it is threatened by deforestation associated with economic development dominated by agriculture expansion, ranching, logging, mining, and settlement policies. Poorly planned and managed economic development in the area has contributed to increasing loss of tropical forest, degradation of watersheds, and overexploitation of wildlife and fisheries.

The Amazon Region Protected Areas Program (ARPA) was a three-phase, 12-year program designed to conserve biodiversity of global importance in Brazil's Amazon Region. The program represented an innovative initiative in promoting a public-private partnership and participatory approach at a scale that had never been attempted before in the country. It also provided the framework to bring different levels of government, civil society, and financing partners together in a coordinated and collaborative effort to address and achieve project goals and objectives.

Phase I of the program, ARPA-I, was launched in 2002 with a $30 million GEF grant (GEF ID 771)[7] with the following specific objectives:

- Create 18 million ha in new protected areas (9 million ha of "strict protection" protected areas and 9 million ha of "sustainable use" protected areas),
- Consolidate the management of 7 million ha of existing protected areas, in addition to 9 million ha of the newly created "strict protection" protected areas,
- Establish and operate an endowment fund to meet the recurrent costs of protected areas.

Following the project's completion, the implementation completion report (World Bank 2009a) concluded that ARPA-I had been the most innovative and successful project currently strengthening the protected area system in the Amazon. The project had doubled the amount of the Brazilian Amazon under "strict protection"—from 12 million ha in 2004 to over 25 million ha in 2009. It had also added another 10 million ha in "sustainable use" areas that met two important societal needs—conserving biodiversity and

[7] The project was also supported by a GEF PPG of $350,000.

providing improved livelihoods for traditional forest dwellers. With respect to the "consolidation" of protected areas, however, only about 8.5 million ha of protected areas had reached an advanced stage (80 percent of "consolidation" criteria fulfilled) by the time the project closed in 2008, mainly because of difficulties in meeting minimum staffing requirements (a minimum of five staff in "strict protection" protected areas). On the other hand, the project was successful in establishing an endowment fund of $23.48 million (60 percent higher than the target), including $14.5 million from the GEF, $7.8 million from WWF, and $1.2 million from two private enterprises.[8]

At a broader level, the project had proven that effective protected area creation and management can have a real impact in reducing deforestation and protecting biodiversity as well as the rights of local peoples. The project also showcased that private-public partnerships can break through long-standing bureaucratic and administrative bottlenecks by creating the operational capacity to effectively support field staff.

The federal and state governments provided strong support to the project by creating the protected areas and undertaking a competitive selection process for the hiring of protected area staff. However, the governments faced difficulties in meeting their counterpart funding commitments for the project, which in turn affected the staffing of protected areas. The implementation completion report thus concluded that the sustainability of the project's results was mainly due to continued support from donors and the successful establishment of an endowment fund to partially meet the recurrent cost of protected areas. Even so, government contributions would continue to be necessary and, given some likelihood that the participating agencies' budgetary challenges would continue, the risk to development outcome was rated as moderate.

Based on the implementation completion report, the following can be highlighted among the key factors that enabled the project's success:

- The careful preparation of the project—overseen by an Advisory Committee representing the World Bank, the Ministry of Environment of Brazil, and WWF, and extensively involving local NGOs, aid agencies, and social organizations in the Amazon, including indigenous peoples—which resulted in detailed guidance on the process and criteria for establishing protected areas and the role of public consultation.
- The availability of the Brazilian Biodiversity Fund (FUNBIO) as a partner for the project and manager of the endowment fund. It already had a successful record in implementing the earlier GEF project (GEF ID 126), and ARPA-I strengthened its capacity to enable it to manage the direct flow of resources from the endowment fund to protected area managers.
- The development of the *conta vinculada* (conjoined account) system that allowed a direct flow of resources from FUNBIO to protected area managers. This system avoided the problems often inherent in government bureaucracies while providing ready accountability through an efficient receipt-and-documentation system.

2.8 Promoting Payments for Ecosystem Services in the Danube Basin

According to the International Commission for the Protection of the Danube River, some 80 percent of the historical floodplains in the Danube basin has been lost over the last 150 years. Among the

[8] Figures do not add to total because of rounding.

remaining 20 percent, the areas along the Lower Danube between Bulgaria and Romania and in the Danube Delta still possess a rich and unique biological diversity that has been lost in most other European river systems. They also provide multiple ecosystem services, such as biodiversity conservation, recharging of ground water, water purification, pollution reduction, flood protection, and support for socioeconomic activities such as fisheries and tourism. Many of these wetlands are under pressure from navigation, infrastructure development, and agriculture as the countries are increasingly integrated into the European Union and global economy. Intensification of farming in highly productive areas and abandonment of extensive farming practices in marginal ones could lead to significant biodiversity loss in both countries.

The Danube PES project was launched in 2009 with the objective—as clarified during the midterm review—"to demonstrate and promote Payment for Ecosystem Services (PES) and related financing schemes (FS) in the Danube River basin, and to other international water basins" (Varty 2012). The project was a GEF medium-size project with total GEF funding of about $1 million, cofinancing of $1.2 million from WWF, and in-kind contributions from various partners—government agencies, NGOs, local authorities, and private companies.[9]

UNEP was the GEF implementing Agency, and the project was executed by WWF. The project design was focused at the national levels in Bulgaria and Romania, with some outreach activities in Ukraine, Serbia, and the wider Danube river basin. It also included local-level activities where pilot PES schemes were to be tested and demonstrated.

Upon completion of the project, in 2014, the Terminal Evaluation (Stefanova 2014) concluded that the project had been successful in eliciting the adoption of several national-level PES concepts into national fisheries policies in Romania and Bulgaria, and their testing and implementation in four pilot schemes. Specifically:

- The project designed and introduced a pilot scheme for the sustainable management and harvesting of biomass (mainly reeds) in Bulgaria's Persina Nature Park, including full cost recovery from the sale of pellets and briquettes.
- Working with the Friends of the Rusenski Lom Nature Park in Bulgaria, the project developed and helped implement a scheme to generate funds for the protection and maintenance of the aesthetic value and biodiversity of the reserve from the sale of postcards and other promotional materials.
- The project established a Conservation and Development Fund for Romania's Maramures protected area by attracting sponsorships and donations for local guest houses and tour operators interested in repositioning the area as an ecotourism destination.
- The project mobilized public funds for the implementation of policies for the maintenance of water quality and biodiversity values in the Ciocanesti area along the lower Danube in Romania. The resulting management practices had already led to improved water quality and an observed increase in the number of nesting birds.

Based on the financial, institutional, and sociopolitical support elicited by the project, the evaluation report rated the sustainability of these achievements as moderately likely. There were good prospects for future financial commitments to sustain the project, but many of these potential

[9] The project was also supported by a GEF PPG of $25,000.

resources were still unsecured, especially for the long term.

From the evaluation's extensive analysis of factors affecting the project's performance, the following can be singled out as key contributors to its success:

- A timely and effective midterm review found that the project had been too ambitious in relation to its budget and time frame. On this basis, it recommended and reached agreement on a streamlining of project objectives, a refocusing on priority areas, and the cutting down of less important activities.
- The decision to implement the project without direct government involvement allowed the project to proceed at a time when the relevant agencies were overwhelmed with other requirements. On the other hand, these agencies had been involved in the design and development of the project, and actively participated in capacity building and oversight activities, so that adequate institutional ownership could be established that boded well for the continued adoption, replication, and upscaling of the piloted approaches.
- The mix of project partners was effective and efficient, with each partner making important contributions toward different aspects. Although the project introduced a very new PES concept, the good communication and collaboration between project partners, driven by their interest in and enthusiasm for the project, was instrumental in the successful delivery of project outcomes.

3: Mechanisms and factors of transformation

What will trigger and enable a transformational change? This chapter discusses cross-cutting design features, mechanisms, and contextual conditions associated with the eight sample cases presented in chapter 2 and assesses the extent that they may have helped support and sustain such transformations. Table 3.1 at the end of this chapter presents a summary of transformational attributes and outcomes across all sample cases.

3.1 Depth and scale of project objectives

Did the intervention aim for a transformational change? In line with the proposed theory of change, the depth and scale of a project's objectives is expected to be a factor for the achievement of transformational outcomes. The underlying logic is that the more ambitious the objectives in terms of the depth and scale of the targeted change, the greater the likelihood that such a change could be achieved. In fact, a review of the sample interventions indicates that all of the cases aimed for a fundamental change in the market or system that had been identified as the root cause of an environmental problem. In terms of scale, five of the cases aimed at regional, national or multicountry-level changes, while in three cases the scale was strictly local.

In terms of the focus of the targeted change, four of the cases were primarily aimed at transforming a market (i.e., the supply and demand of goods or services associated with environmental impacts of global concern). In the four remaining cases, the primary focus was on systemwide transformation (i.e., they attempted a more comprehensive approach to modify the functioning of a collection of components [market/economy, public sector, private sector, community] that interact with one another to affect the environment). Here it should be noted that these terms are not intended to be mutually exclusive, since market-focused changes tend to include system changes and systemwide changes can affect the markets, but simply to denote their main orientation.

MARKET FOCUS

A good illustration for the targeting of a market transformation at the country level is the Uruguay Wind Energy Programme, which had the specific objective of contributing to the elimination of existing barriers to the development of commercially viable wind energy market in the country. This objective was underpinned with a suite of activities to support the development of a national policy and regulatory framework, knowledge transfer and capacity building for public and private investments in wind farms, and the installation of a demonstration plant. The Lighting Africa program was similarly ambitious, as it aimed "to leverage the private sector to increase access to affordable modern off-grid lighting devices" (IFC 2013) in all of Africa, beginning with Kenya and

Ghana. Its expected impact was "to create a private sector-based and self-sustaining market for modern and affordable off-grid lighting projects that will directly benefit very low income households and small businesses" (IFC 2013).

A more modest scoping for a market-based approach is exemplified by the Danube PES project, whose objective was "to demonstrate and promote Payment for Ecosystem Services (PES) and related financing schemes" (Varty 2012). This objective was to be achieved through supportive activities to develop and demonstrate models of public and private sector PES in five pilot schemes in Bulgaria and Romania, enhance the capacity of key stakeholders to implement these schemes, and increase information and awareness of PES concepts, schemes, and opportunities.

SYSTEM FOCUS

A good example of an intervention that aimed at system transformation at the country level are projects in Namibia, including the SPAN project, which aimed at "increased management effectiveness of the national protected area network for biodiversity conservation" (Jones 2014). This objective was supported by several projects that supported the proclamation of new parks, policy development, improved budgeting and financial systems, human resources management systems, a concessioning system, and the application of monitoring tools across the protected area system. A similar level of ambition was pursued by the ARPA program, which aimed "to expand and consolidate the protected areas systems in the Amazon region of Brazil" (World Bank 2009a).

More modestly scaled ambition, albeit still aiming at systemic change, is illustrated by the SLEM-U project. Its objective was "to restore and sustain ecosystem functions and biodiversity while simultaneously enhancing income and livelihood functions, and generating lessons learned that can be up-scaled and mainstreamed at state and national levels" (World Bank 2014). While ambitious in terms of complexity, the coverage of the project was limited to selected microwatersheds in one of India's states. Similarly, the Sanjiang Wetlands project aimed at a fundamental transformation of the water and wetlands management system in one province of China. Its purpose was to establish an integrated conservation and development model to protect the natural resources of the wetlands—biodiversity, water, and forests—from continued threats, and to improve the well-being of local communities (ADB IED 2015).

3.2 The transformational mechanism

What mechanism is needed to trigger and scale up the results of the intervention? In the sample at hand, the evaluation identified the following major types: mainstreaming, demonstration and replication, and catalytic effects. In very broad terms, mainstreaming refers to the integration of the practices, policies, and programs promoted by the project into those of the country or local jurisdictions, as appropriate. Demonstration and-replication occurs when the process or transmission channel established by the intervention continues to expand the outcome beyond the initial target area. Catalytic effects encompass externalities that go beyond the intervention, such as synergies and complementarities among different instruments and interventions that lead to impacts greater than the sum of the interventions. These three types are illustrated below with a few examples, but here again it should be noted that in most cases, these mechanisms were not mutually exclusive and, indeed, tended to reinforce each other.

MAINSTREAMING

The successful mainstreaming of environmentally positive policies and programs is perhaps best illustrated by the ARPA-I project, which supported the creation and consolidation of protected areas, and the establishment of an endowment fund to meet a portion of their operational costs. Upon completion, the project had not only doubled the area of Brazilian Amazon under strict protection, but also proven to all major stakeholders—including federal and state governments, local peoples, and NGOs, as well as private sector organizations and international donors—that effective protected area creation and management could have a real impact in reducing deforestation and protecting biodiversity as well as the rights of local peoples. Thus, the federal and state governments were fully committed to implementing the protected areas staffing and management plans instituted under the project, and donors and private enterprises continued to contribute to the endowment fund that covers most of the operating costs of these areas. Largely as a result, the ARPA model continued to be replicated under Phase II of the program.

DEMONSTRATION AND REPLICATION

Most of the projects achieved a substantial demonstration effect (i.e., initial impact): The practices and programs introduced by the project were adopted and replicated in similar contexts across an expanding geographical scope. For example, the integrated watershed management and conservation model introduced by the Sanjiang Wetlands project was adopted by six additional reserves beyond the initial six supported by the project. Another good example is the Lighting Africa program, whose overall approach, initially piloted and successfully demonstrated in Kenya (albeit less successfully in Ghana), is currently being replicated in 10 additional countries in Africa.

CATALYTIC EFFECTS

The most notable examples of a catalytic effect involved the transformation of the market or system for renewable energy development.

- CRESP-I is credited with a substantial contribution to the transformation of China's renewable energy sector from an early piloting and demonstration stage to its status as a global leader in wind energy generation and the manufacture of wind power generation equipment. Against an original target of 10 GW of installed wind power capacity, the policy reforms, capacity building, and technology improvement supported by the project had substantively and effectively catalyzed an actual capacity increase to 29.6 GW by 2010 and 129.3 GW by 2015.
- Similarly, UWEP has decisively supported the establishment of an enabling legal and regulatory framework that catalyzed the creation of the wind energy market in Uruguay, which grew from virtually nothing in 2007 to 43.4 MW by the end of the project in 2013 and was expected to total 990 MW in 2015.
- Finally, Lighting Africa can also be credited with having catalyzed the creation of a commercial market for quality, affordable solar lighting in Africa, that contributed to the sale of 680,000 Lighting Africa–certified lamps in Kenya, and almost 2 million lamps in other African countries by 2014.

Reflecting upon these cases, which include all three renewable energy- and climate change-focused projects in the sample (and none of the others), it would appear that large-scale catalytic effects are likely to be associated with technological improvements whose benefits can be captured by harnessing an effective market demand. Thus, the decline in costs of renewable energy in relation to those of conventional fossil

fuel electricity opened up new and economically feasible market opportunities which the interventions were able to exploit, with their attendant synergistic or catalytic effects. With other types of interventions—such as those focused on biodiversity protection and land conservation—the projects' support for cutting-edge science and technologies appears to have faced greater challenges in capturing and monetizing the related benefits. As a consequence, their achievement of transformational impacts appears to have relied mostly on establishing and mainstreaming institutional support mechanisms, with only partial reliance on market-based approaches.

3.3 Internal factors

What internal factors enabled or constrained the achievement of transformational results? In line with the theory of change, aside from original intent, the effectiveness of the transformational mechanism is bound to be affected by internal and external factors surrounding its implementation. For this evaluation, the internal factors (i.e., factors that are largely under the control of the GEF Agencies) have been grouped into four main types:

- Quality of implementation: primarily covers the quality of project design, as well as the quality of supervision and assistance provided by GEF Agency or Agencies to executing agencies throughout project implementation
- Quality of execution: primarily covers the effectiveness of the executing agency or agencies in performing their roles and responsibilities
- Pre-intervention analytical activities, capacity building, and related projects
- Partnerships with international donors

QUALITY OF IMPLEMENTATION AND EXECUTION

Based on the final evaluation reports, the quality of implementation and execution was rated as satisfactory or better for every project in the sample. This should not be a surprise, since the sample was selected from interventions nominated by the implementing agencies to illustrate the feasibility of transformative outcomes. On this basis, satisfactory implementation and execution can be deemed necessary conditions for the success of transformational interventions. It is thus appropriate to highlight some of the salient features that have driven the quality of these factors, as they emerge from the review of sample cases:

- A comprehensive diagnostic assessment to identify the barriers that need to be addressed to achieve the objectives of the project
- A careful project design that reflects a coherent logical framework of activities to target all of the identified barriers
- The early involvement of a strong executing agency that is ready to own the objectives of the project and is willing to exert the leadership and acquire the capacity and resources necessary to ensure their achievement
- A willingness on all sides to learn, adjust, and adapt the design, scope, and management of the intervention as needed to ensure its success

The review of the sample cases' experience also identified a few areas of weakness with respect to the quality of implementation and execution that deserve greater attention:

- The design of the results framework needs be realistic in terms of the limitations of the interventions. As already noted, the reported impact of Lighting Africa needed to take better account of what would have occurred with a "without

program" counterfactual, and the impact of the Sanjiang Wetlands project was inconclusive because of inconsistent counting methods and lack of monitoring of, and control over, relevant transboundary factors. The original objectives and targets for the Danube PES project had also been too ambitious in relation to its budget and time frame, and a midterm review was needed to streamline and refocus them within a more realistic scope.

- In several cases, the effectiveness of implementation and execution was affected by staff turnover in key positions, sometimes associated with long gaps and a loss of project-specific knowledge and capacity. This points to the importance of ensuring the continuity of key personnel in making project arrangements.
- A few of the projects had delayed or very slow starts because of a lack of consensus and coordination between implementing and executing agencies and other key stakeholders. This highlights the desirability of allowing adequate time and effort for preparation and consensus building ahead of the project to ensure adequate cohesiveness from the beginning of implementation.

PRE-INTERVENTION ACTIVITIES

In almost every case, GEF-funded project preparation activities or predecessor projects in similar areas played an important positive role in facilitating the design and preparation of the transformational interventions.

- The multiyear preparation effort for the CRESP-I project (supported by $1.35 million of GEF project development facility grants) through workshops, study tours, and policy studies was essential to achieve consensus and cohesiveness about key policy directions and reforms to be promoted by the project. The project's design also benefited from the experience of earlier renewable energy projects that were not as successful, but provided valuable lessons.
- The ARPA-I project benefited from an extensive preparation effort (supported by a GEF Block B grant) and the existence of FUNBIO, the Brazilian Biodiversity Fund established under an earlier GEF project, which managed the funding for all project activities.
- The formulation of the Sanjiang Wetlands project was also supported by a GEF Project Preparation Technical Assistance grant that provided all the inputs needed to prepare the project for ADB and GEF financing.

DONOR PARTNERSHIPS

In four cases, the funds provided by the GEF were supplemented with important financial contributions from international donor partners, which enabled the projects to expand their scope and scale. Thus, Lighting Africa received contributions from 12 sources in addition to the GEF, which contributed 36 percent of its $22 million budget (from 2007 to 2013) (IEG 2015). For the Danube PES project, the GEF contributed 42 percent and the WWF 48 percent of the total budget of $2.3 million (Stefanova 2014). In the ARPA-I project, the $84.5 million budget was funded by the GEF (34 percent), KfW (21 percent), the WWF (20 percent), the government (21 percent), and other local sources (2 percent) (World Bank 2009a). The Namibia ICEMA project also benefited from $17.6 million of contributions from five donors (IEG 2012). In the remaining interventions, the GEF's support was supplemented by funding from the implementing agencies and the governments, and in one case by counterpart funding from the government alone.

3.4 External factors

What external factors have enabled or constrained the achievement of transformational results? For the sake of simplicity, in the face of a wide range and diversity of contextual factors that have influenced the outcome of the sample interventions, this evaluation focused on the six most prevalent types:

- Government ownership of and support for the project
- Implementation capacity of local institutions (other than the main executing agency)
- Adequacy of the policy environment
- Civil society and local community participation
- Private sector participation
- Economic and market conditions

GOVERNMENT OWNERSHIP AND SUPPORT

Strong government ownership and support has long been regarded as important, if not essential, for project success. This was confirmed in six of the sample cases, where strong government support was identified as a major contributor to their satisfactory outcomes. Surprisingly, however, the governments had only limited involvement with two of the transformative interventions:

- In the Danube PES project, national government entities' role was limited to participating in the pre-project consultations, capacity building, and oversight activities. The low-level participation of government entities, however, actually facilitated the project implementation, as it enabled the development and implementation of PES schemes in Bulgaria and Romania without requiring institutional staff's direct involvement. It also provided sufficient flexibility for the WWF's Danube PES project team to test different development and implementation approaches for PES schemes outside the heavy governmental protocols.
- The Lighting Africa project was specifically designed to catalyze a private-sector-driven sustainable market transformation. It was not country-specific and did not involve the governments except to discuss policy changes, such as the lowering of import taxes. However, even with relatively limited public policy dimensions, securing buy-in from local governments can greatly reduce risks of governments' setting adverse expectations and incentives. Thus, the program's success in Kenya was facilitated by relatively good support by the government, while in Ghana, the government's focus on grid extension promises and relatively dismissive attitude toward portable off-grid solar solutions likely dampened private sector interest in the market.

LOCAL IMPLEMENTATION CAPACITY

The implementation capacity of local institutions can be expected to play a major role in project outcomes, especially when the activities are spread over a range of sites and local jurisdictions. Thus, the CRESP, Sanjiang Wetlands, Namibia PAS, and SLEM-U projects included targeted activities to strengthen the local institutional capacity, all of which were effective in contributing to the project's success. The ARPA-I project also had a highly decentralized design, focused on the creation and consolidation of protected areas management, but its initial implementation was constrained by ineffective coordination among national, state, and local executing agencies. The midterm review effectively addressed this issue by recommending the creation of multiple working groups involving all institutional stakeholders and the development of an inter-institutional communications strategy.

Finally, UWEP, Danube PES, and Lighting Africa projects did not involve any significant transfer of responsibility to local government entities for any of their activities.

POLICY ENVIRONMENT

The adequacy of the policy environment can be expected to have an important impact on the depth and scale of the reforms promoted by the projects. In two of the projects the policy framework had been supportive from the start, having purposely created an enabling environment for the transformational changes that the projects would help implement. In SLEM-U, for example, the state government had already granted the local rural governments formal legal recognition for watershed development planning and implementation, including land improvement, soil improvement, and social and farm forestry. For ARPA-I, the legal context for the country's protected areas—including the participation of "traditional peoples" in their establishment and management—had already been established a few years earlier, in 2000, with the support of earlier World Bank and donor interventions, mainly the Pilot Program for Tropical Forest Protection in Brazil. ARPA-I provided the momentum to put the concept and methodology, which required the involvement of many government agencies at all levels, into practice and, indeed, to demonstrate its practicality.

In three of the sample cases, the interventions had a major role in helping define and implement the main policies essential for triggering and sustaining the transformational changes:

- CRESP-I can be credited with a strong influence on the development of a supportive legal, policy, and regulatory framework for renewable energy in China. Perhaps most importantly, the project's instrumental role was in funding the analytical studies. On their turn, these studies underpinned the implementation of a long-term, predictable, and financially attractive price signal that provided an effective stimulus for continuing and expanding investments in renewable energy.
- Similarly, UWEP helped Uruguay define and implement a long-term energy policy with an integrated and multidimensional view, including technical, economic, geopolitical, environmental, ethical, and social factors. One of the backbones of the policy is the introduction of renewable energy (solar, wind, and biomass) and energy conservation into the long-term energy development strategy.
- Namibia PAS played an important role in supporting the development of new policies for the Ministry of Environment and Tourism, such as the Policy on Tourism and Wildlife Concessions on State Land, the National Policy on Human-Wildlife Conflict Management, the National Policy on Community Based Natural Resource Management, and the National Policy on Protected Areas' Neighbours and Resident Communities. While all of these policies were initiated by Namibia's Ministry of Environment and Tourism, the projects provided technical support for the drafting of the policies, funding for consultative meetings, and funding for publishing the policy documents.

In the three remaining cases, the interventions played a modest role in strengthening the policy framework needed to support transformational change:

- The Lighting Africa program engaged with governments to discuss policy changes—such as the lowering of import taxes—that were needed to create an enabling environment for the market for solar lamps.

- The Sanjiang Wetlands project was able to influence policy in some ways. The required water allocation for wetlands preservation has been recognized in the 11th Five-Year Plan of the Heilongjiang province. Animal grazing and fishing were prohibited in all nature reserves in the Sanjiang Plain, except for those permitted by laws or regulations, based on proposals made by the project.
- The Danube PES project is credited with having mainstreamed several PES concepts into national fisheries policies in Romania and Bulgaria. On the other hand, while the project coincided with the start of the process of Mapping and Assessment of Ecosystems and their Services at the European Union level, and the expansion of work on the global initiative on The Economics of Ecosystems and Biodiversity, the evaluation concluded that sufficient momentum did not yet exist to optimally propel the project forward from a policy standpoint.

CIVIL SOCIETY AND COMMUNITY PARTICIPATION

Local civil society and community organizations played a key role and made important contributions in four of the sample interventions:

- For Lighting Africa, consumer associations, NGOs, microfinance institutions, and other social sector partners played a key role in promoting awareness of solar lamps. These were the most effective channels for promoting consumer awareness.
- The Namibia PAS projects played a significant role in supporting engagement between park personnel and neighboring communities. Funding for game translocations from protected areas to conservancies proved to be important catalysts for cooperation between park personnel and communities. Because the communal and private conservancies have rights to use and benefit from wildlife on their land, they have a direct interest in cooperating with the protected areas that supply their wildlife.
- SLEM-U had a high level of community participation in its various components, which contributed to its sustainability by increasing the likelihood that the activities will be continued after project completion. This outreach was supported by 55 partner agencies, including NGOs, academic institutions, and the private sector, that provided overall project implementation support, social mobilization, participatory monitoring and evaluation, and technical assistance.
- ARPA-I benefited from contributions from an extraordinarily diverse set of institutional partners. Its philosophy of balancing economic and social needs with the maintenance of biological diversity has played a major role in the Ministry of Environment's planning process and led to the engagement of many representatives of civil society as well as biologists and environmental NGOs.

PRIVATE SECTOR PARTICIPATION

The impact of private enterprises on the effectiveness of the transformational interventions was mainly defined by the extent of their (supply-side) response to the changes created by the project. As expected, the response was strongest where market change was at the center of the interventions. Thus, CRESP and UWEP contributed to the successful transformation of the wind energy market in China and Uruguay, respectively, by addressing the barriers that had constrained the market's development, most importantly by helping establish a feed-in power tariff that made it financially attractive for private investors

to invest in wind energy. The Lighting Africa program helped catalyze the market by, on the one hand, creating awareness and demand for quality, affordable solar lamps and, on the other hand, stimulating the supply chain by providing market intelligence, developing a quality assurance infrastructure, helping government address policy barriers, and facilitating access to finance for manufacturers, local distributors, and consumers.

In three additional cases, the private sector's involvement in the transformational interventions was more modest, likely because of the more limited opportunities for financial gain inherent in the nature of the projects:

- In the Danube PES project, the private sector was represented in the project's steering committee, through various consultations, and as a secondary executing agency for the fish farming pilots, but its motivation was dampened by the economic crisis and by the absence of a supportive legal and regulatory framework.
- The Namibia PAS projects supported the establishment of partnerships between the country's Ministry of Environment and Tourism and private sector stakeholders, such as the Namibia Tourism Board, private tour operators, the National Heritage Council, the Federation of Namibian Tourism Association, and the Namibia Professional Hunters Association. These stakeholders were assessed for their potential contribution to the project, with their roles and responsibilities allocated in a comprehensive stakeholder involvement plan that was articulated in the project document.
- In ARPA-I, private sector groups participated in technical committees and governing bodies involved in the creation and implementation of protected areas as well as the development of standards for the certification of sustainably produced and biodiversity-sound products. Some of the activities were supported through public-private matching grants.

ECONOMIC AND MARKET CONDITIONS

Economic and market conditions had a diverse range of effects. As already noted, major changes in the workings of the market were at the heart of the objectives pursued by three of the interventions—CRESP-I, UWEP, and Lighting Africa—and the market response they elicited played a major role in achieving the aimed-for transformation. In four additional cases—ARPA-I, Sanjiang Wetlands, SLEM-U, and Namibia PAS—stable economic conditions played a positive role by supporting the demand for the incremental products and services delivered by the sustainable practices and alternative livelihood options implemented by the projects. Finally, for the Danube PES project, an ongoing economic crisis appears to have negatively affected the private sector's motivation to become involved and limited the success of the new business and market opportunities created by the pilot schemes.

3.5 Scale and sustainability of transformational outcomes

To what extent have the transformational interventions achieved deep, large-scale, sustainable outcomes? As already noted, all of the sample interventions aimed for a fundamental change in a market or system that had been identified as the root cause of an environmental problem. The nomination and selection process for the sample had also purposely yielded eight interventions that were deemed to have caused or supported such a change. The review of the final evaluation reports indicates that each of these interventions has been associated with deep changes in the market or system it had targeted. The interventions differ,

however, in the scale and sustainability of their transformational outcomes.

SCALE OF OUTCOMES

In five of the cases, the transformations were national or regional in scale, which greatly enhanced the reach of their impacts. Thus, for example, the ARPA-I project is credited with helping to double the area of Brazilian Amazon under strict protection—from 12 million ha in 2004 to over 25 million ha in 2009. UWEP supported the creation of the wind energy market in Uruguay, which supplied about 33 percent of its electricity needs in 2016, up from 0 percent in 2008. The Namibia PAS projects improved the management effectiveness of 98 percent of the country's protected areas, while estimated populations of the lion, leopard, cheetah, and wild dog doubled from 2004 to 2012.

In three of the cases, the transformations were more modest in scale, as they focused on specific target areas within a limited geographic range. Sanjiang Wetlands focused on six nature reserves in China's Heilongjiang Province. SLEM-U was implemented in 20 microwatersheds in India's Uttarakhand State. Danube PES established four PES schemes in selected wetland areas along the lower Danube basin. Overall, as may have been expected, the review simply found that each intervention had reached the scale intended by its objective.

SUSTAINABILITY OF OUTCOMES

While recognizing that sustainability has many aspects, the review found that they could be grouped into three major dimensions: financial, environmental, and sociopolitical. It was also not surprising to find that, given the purposely positive criteria used for the sample selection process, the outcome could in all cases be deemed to be environmentally and sociopolitically sustainable. The only significant differences emerged with respect to financial sustainability, which was rated as highly likely in five cases and moderately likely in the remaining ones.

A common thread among all the cases with a highly likely financial sustainability was that they had been carefully designed to harness the power of market forces and the economic self-interest of key stakeholders, each in its own way:

- CRESP-I supported a feed-in tariff for renewable energies calculated to yield a 10 percent financial internal rate of return for such investments. This tariff provided financial returns attractive enough to encourage state-owned and private companies to accelerate their investing in renewable energy projects. The growing investments have in turn encouraged continuing technological improvements and efficiencies in renewable energy equipment that have allowed the tariff to be gradually lowered, which consolidated its social and political acceptance. While the tariff still reflects a premium in relation to coal-fired generation, the evaluation concluded that it has appropriately internalized the environmental benefits of renewable energies.
- Similarly, the financial sustainability of UWEP is made credible by the fact that the wind power investment licenses were allocated through a competitive bidding process that guaranteed access to the grid. The resulting prices were competitive with those of fossil fuel alternatives and have gradually declined from $110/megawatt-hour in 2014 to a range of $65–85/megawatt-hour, as a result of growing efficiencies and technological improvements.
- For Lighting Africa, the evaluation concluded that, basically, people who have used solar lamps will continue to do so, and suppliers will

continue to supply. There are approximately 11 microfinance institutions in Kenya providing consumer finance for Lighting Africa-certified solar lamps. They are likely to continue providing finance, as they are making money off these loans, and also seem to be taking an active role in promoting and selling solar lamps directly.

- For SLEM-U, the financial risks are deemed to be low because the beneficiaries have an incentive to maintain the water harvesting structures: their own investment through cost sharing. In addition, the sustainable livelihood activities introduced by the project appear likely to be sustained, based on the marketability of the products.
- For Sanjiang Wetlands, the evaluation indicated that nontimber forest product ventures supported by the project have a financial rate of return of 13.4 percent. The executing agencies are setting aside a portion of local county revenues generated from forest development activities; this revenue is deposited in a special fund account to meet the financing requirements for nature reserve management. The governments' commitment to provide adequate funds for the activities supported by the project completion is also assured by these activities' inclusion in the government's Five-Year Development Program.

The three cases for which financial sustainability was only moderately likely tended to be more highly dependent on continuing government budgetary allocations or fundraising from donors, for which prospects were positive, but not assured:

- The financial sustainability of the Namibia PAS projects' achievements is partly supported by the government's decision to increase budgetary allocations for protected area management and to implement market-based instruments such as establishment of concessions and collection of park entry fees to park operations and investments. But it also continues to depend on the government's ability to mobilize additional resources from donors.
- For ARPA-I, the evaluation notes that, although the endowment fund managed by FUNBIO is capitalized, its revenues are not sufficient to meet the total operational costs of protected areas, and the government has not budgeted for sufficient staff to manage the protected areas. Thus, the sustainability of the outcomes remains dependent on the government and international donors' commitment to continued funding.
- For Danube PES, the evaluation concluded that the long-term financial sustainability of the project depended on persuading the European Union and national decision makers to allocate sufficient funds to nature and water conservation activities and to recognize PES and other sustainable financing mechanisms as important tools for securing the maintenance and the restoration of the ecosystems. While there was positive evidence from participating countries in this regard, regional stakeholders remained concerned that reduced European Union funding for conservation activities may hinder the long-term sustainability of the projects.

Overall, the review of sample cases suggests that the achievement of transformational changes is a feasible goal for GEF-supported interventions, large and small. But the quality of the transformational changes can vary, depending on their sustainability. Thus, five of the sample cases—Lighting Africa, CRESP, UWEP, Sanjiang Wetlands, and SLEM-U—can be deemed to have supported a fully complete transformation in terms of its depth, scale, and sustainability. For the other three cases, the transformation was only partially complete.

TABLE 3.1 Transformational attributes and outcomes

	Ambition			Mechanism			Internal factor				External factor						Outcome						
Intervention	Market focus	System focus	Scale of change	Mainstreaming	Demonstration and replication	Catalytic effects	Implementation quality	Execution quality	Pre-intervention activities	Donor partnerships	Government ownership	Local implementation capacity	Policy environment	CSO/community participation	Private sector participation	Economic/market conditions	Market change	System change	Scale of change	Financial sustainability	Environmental sustainability	Social/political sustainability	Transformation complete
Lighting Africa	x	x	x		x	x	x	x	x	x				x	x	x	x	x	x	x	x	x	x
CRESP-I	x	x	x	x	x	x	x	x	x		x	x	x		x	x	x	x	x	x	x	x	x
UWEP	x	x	x	x	x	x	x	x			x		x		x	x	x	x	x	x	x	x	x
Sanjiang Wetlands		x			x		x	x	x		x	x	x			x		x		x	x	x	x
SLEM-U		x			x		x	x	x		x	x	x	x		x		x		x	x	x	x
Namibia PAS		x	x	x	x		x	x	x	x	x	x	x	x		x		x	x		x	x	
ARPA-I		x	x	x	x	x	x	x	x	x	x	x	x	x		x		x	x		x	x	
Danube PES	x				x		x	x		x											x	x	

4: Conclusions and lessons

4.1 Conclusions about necessary and sufficient conditions

What are the necessary and sufficient conditions for the achievement of sustainable transformations? All nominated interventions have explicitly or implicitly aimed to support a transformational change. Each of the purposefully selected cases can be credited with having made an important contribution to the fundamental transformation of a system or market, thus helping address the root cause of a global environmental concern. In five of the sample cases, based on their evaluation reports, the transformation was fully completed in terms of its depth, scale, and sustainability. In the three remaining cases, the GEF intervention has triggered and supported a fundamental transformation, but their financial sustainability had not yet been achieved at the time of project completion, so the transformation could only be deemed as partially completed. Given the overall satisfactory outcomes of the sample interventions, it is of interest to examine the commonalities and differences between fully completed and partially completed transformations.

The five completed transformations all involved a fundamental change of a system (i.e., a comprehensive approach to modify the functioning of a collection of elements [legal, policy, and regulatory reforms; knowledge transfer; technological innovations; capacity building; pilot investments] that interact with one another to affect the environment). All of these interventions established a demonstration-and-replication mechanism to trigger and scale up the supported activities and reforms. Finally, all of these cases were satisfactorily implemented and executed, and were also adequately supported by the policy and economic environment.

The most important distinction among these five completed transformations relates to the strategy for achieving financial sustainability. In three cases, financial sustainability was achieved by harnessing market forces to drive and expand the desired environment-friendly impacts. In the two remaining cases, financial sustainability was achieved by eliciting government budgetary allocations that continued funding the programs and activities established by the project.

The three GEF interventions that supported market transformations—CRESP-I, UWEP, and Lighting Africa—all focused on renewable energy and had the following factors in common:

- **Market-oriented objectives.** Their objectives all aimed at the removal of policy and regulatory barriers to the creation or acceleration of a national- or regional-scale market for renewable energy.
- **Private sector and market response.** They all succeeded in catalyzing a strong private sector investment response that ensured the long-term sustainability and continued

expansion of the markets and systems targeted by the interventions.

- **Technological advancement.** They all encouraged and benefited from technological improvements that reduced the cost and improved the quality of the equipment—wind power systems and solar lamps—needed to competitively deliver energy services for which there was an effective demand.

These three interventions also differed in important ways that highlight alternative pathways to the achievement of market transformation:

- **Government ownership and policy support.** CRESP-I and UWEP were fully owned by the governments, which cofinanced a major share—81 percent for CRESP-I and 98 percent for UWEP—of project costs, and were helped to undertake a comprehensive system reform that mainstreamed renewable energy into their national energy policy and regulatory framework. Lighting Africa, conversely, did not involve any government funding, and it demonstrated the viability of the market by creating demand, providing market intelligence, developing a quality assurance infrastructure, facilitating access to finance, and limiting government involvement to the removal of trade barriers.
- **Civil society, community, and donor partnerships.** For Lighting Africa, consumer associations, NGOs, microfinance institutions, and other social sector partners played a key role in promoting consumer awareness of solar lamps. In addition, important contributions from international donor partners supplemented GEF funding. For CRESP-I and UWEP, in contrast, these factors did not play a significant role.
- **Pre-investment activities and intervention size.** CRESP and Lighting Africa were major interventions involving about $40 million and nearly $8 million of GEF funding, respectively, in addition to extensive preparation activities funded by GEF project preparation facility grants. UWEP, on the other hand, was a medium-size project supported by a $950,000 GEF grant, with only a modest pre-project activity.

The two interventions that achieved financial sustainability through integration into government budgetary processes—Sanjiang Wetlands and SLEM-U—both focused on biodiversity and natural resource protection through the development and demonstration of sustainable livelihood approaches to improving the well-being of local communities. These were local-scale interventions with strong local government ownership and support, as evidenced by their willingness to adopt environment-friendly policies and natural resource management practices based on the results of project-supported pilots, and to continue funding and expanding the sustainable livelihood programs from their own budgets.

The three partially completed transformations all involved the conservation of natural resources and protection of biodiversity in environmentally sensitive or protected areas. Two of these—Namibia PAS and ARPA—supported systemwide changes on a national scale. The remaining case, Danube PES, demonstrated a market change in a few pilot areas. In all three cases, their long-term sustainability continued to depend on donor funding at the time of project completion.

In light of the many permutations of commonalities and differences that characterized the interventions that supported fully completed transformations, a cross-case analysis, informed by the QCA, was used to identify the necessary and sufficient conditions for their successful achievement. The cross-case analysis was undertaken

based on the review's findings on key attributes associated with each sample case and its outcomes, as shown in table 3.1. The cross-case analysis model and application is described in annex C. The findings can be summarized as follows, distinguishing between climate change and biodiversity/resource conservation interventions, as appropriate:

- **Intervention objectives**
  - Aiming at market change is a **necessary** condition for climate change interventions.
  - Aiming at system change is a **necessary** condition for biodiversity/resource conservation interventions (and optional for climate change interventions).
- **Transformational mechanisms**
  - Support for a demonstration-and -replication mechanism or a catalytic effect is a **necessary** condition for all types of intervention.
  - Support for a mainstreaming mechanism is optional for all types of intervention.
- **Internal conditions**
  - A satisfactory or better quality of implementation is a **necessary** condition for all types of intervention.
  - A satisfactory or better quality of execution is a **necessary** condition for all types of intervention.
- **External conditions**
  - A supportive economic or market environment is a **necessary** condition for all types of intervention.

In addition, the following internal and external conditions should also be considered as necessary, albeit not absolutely so, as they were not met in every case:

- Pre-intervention activities played an important role in four out of five cases.
- Strong government ownership played an important role in four out of five cases.
- A supportive policy environment played an important role in four out of five cases.
- Local institutional capacity played an important role in three out of five cases.
- Private sector involvement played an important role in three out of five cases.

Finally, a strong private sector response was identified as a **sufficient** condition for achieving a fully complete transformation. However, this condition emerged only in the context of the climate change interventions. The biodiversity and natural resource conservation interventions did not appear to be able to take advantage of market forces to the extent needed to ensure their long-term financial sustainability.

4.2 Lessons going forward

Based on the review of the eight sample cases' experience and the identification of necessary and sufficient conditions for the achievement of transformational changes, the following lessons emerge:

- **The level of ambition is important.** The reviewed interventions each had ambitious objectives—explicit or implicit—in terms of aiming to trigger and support a deep, fundamental change by addressing a market distortion or systemic bottleneck that was a root cause for an environmental issue of global concern. The analysis found that aiming at market transformation is a necessary condition

for climate change interventions, and aiming at system change is a necessary condition for biodiversity and resource conservation interventions. While, given the small size of the sample, no normative conclusions can be drawn, this finding is consistent with the logic that the more ambitious the aimed-for change, the greater the likelihood that it can be achieved, subject to the necessary conditions identified below.

- **Supporting the establishment of effective transformational mechanisms is important.** All of the sample interventions created and helped establish a mechanism—mainstreaming, demonstration-and-replication, or catalytic—to scale up and expand the activities supported by the intervention. The analysis found that supporting the establishment of a demonstration-and-replication mechanism or a catalytic effect is a necessary condition for all types of interventions. On this basis, it can be concluded that the design and implementation of a transformational mechanism deserves careful attention from the early preparation stages of the intervention.
- **The quality of implementation and execution are important.** All of the sample interventions were well implemented in terms of the quality of project design, supervision and assistance by the GEF Agency, and the effectiveness of the executing agency in performing its roles and responsibilities. On this basis, the satisfactory quality of implementation and execution can be regarded as necessary conditions for the achievement of transformational change.
- **Harnessing market forces is important.** Three of the four cases that primarily aimed at market changes successfully elicited a strong private sector response that ensured the achievement of a deep, financially sustainable transformation. In fact, subject to alignment with project objectives, a strong private sector response was identified as a sufficient condition for achieving a fully completed transformation. This suggests that where there is an opportunity to harness market forces—by addressing the removal of barriers, encouraging sustainable supply, or catalyzing potential demand—it deserves careful attention for the identification and design of an intervention.
- **Size is not important.** Last, but not least, the eight sample cases illustrate how relatively modest GEF medium-size projects such as UWEP and Danube PES can be just as transformational as major, multiphase investment projects such as CRESP and ARPA.

4.3 Recommendation

The GEF should consider developing and applying a framework for ex ante assessments of projects or programs that are intended to be transformational to enhance impacts. This paper has presented an example of a framework that could be applied.

Annex A: Projects selected for the evaluation

GEF ID	Project title	Agency	Focal area	Modality	Country	Year approved	Year completed	PPG (million $)	GEF grant (million $)	Co-financing (million $)
2950	Lighting the "Bottom of the Pyramid"	WB/IFC	CC	FSP	Ghana, Kenya	2007	2013[a]	0	7.85[a]	14.09[a]
943	Renewable Energy Scale Up Program (CRESP), Phase I	WB	CC	FSP	China	2005	2012	1.35	40.22	400.37
2826	Uruguay Wind Energy Programme (UWEP)	UNDP	CC	MSP	Uruguay	2007	2011	.05	0.95	53.78[d]
1126	Sanjiang Plain Wetlands Protection Project	ADB	BD	FSP	China	2005	2013	.33	12.14	40.37
3471	SLEM/CPP: Sustainable Land Water and Biodiversity Conservation and Management for Improved Livelihoods in Uttarakhand Watershed Sector	WB	MF	FSP	India	2009	2013	0	7.49	106.89
1590	Integrated Community-Based Ecosystem Management Project (ICEMA)	WB	MF	FSP	Namibia	2004	2011	.295	7.1	24.35
1505	Namibian Coast Biodiversity Conservation and Management (NACOMA)	WB	BD	FSP	Namibia	2005	2012[b]	.335[b]	4.9[b]	23.84[b]
4669	Namibian Coast Conservation and Management Project (NACOMA), Phase II	WB	MF	FSP	Namibia	2012	2015[b]	0[b]	1.925[b]	5.87[b]
2492	Strengthening the Protected Area Network (SPAN)	UNDP	BD	FSP	Namibia	2006	2012	.35	8.2	38.44
3737	Namibia Protected Landscape Conservation Areas Initiative (NAM PLACE)	UNDP	BD	FSP	Namibia	2010	2016[b]	.1[b]	4.5[b]	16.24[b]
4729	Strengthening the Capacity of the Protected Area System to Address New Management Challenges	UNDP	BD	FSP	Namibia	2013	2018[c]	.1[b]	4.[b]	14.5[b]
771	Amazon Region Protected Areas Program (ARPA)	WB	BD	FSP	Brazil	2002	2008	.35	30.	55.38
2806	Promoting Payments for Environmental Services (PES) and Related Sustainable Financing Schemes in the Danube Basin	UNEP	BD	MSP	Bulgaria, Romania	2009	2014	.025	.96	2.94

SOURCE: Project dates and financial figures are based on the GEF IEO Annual Performance Report data set, May 2016, with these exceptions: a. IEG 2015; b. GEF Project Management Information System, retrieved on April 19, 2017; c. UNDP 2016; d. Rodriguez 2013.

NOTE: BD = biodiversity; CC = climate change; MF = multifocal area. FSP = full-size project. MSP = medium-size project. IFC = International Finance Corporation. WB = World Bank.

Annex B: Template for review of GEF transformational interventions

A transformational intervention refers to a GEF-supported activity (a project, program, integrated approach pilot, or non-grant instrument) that supports the achievement of a deep, systemic, and sustainable change with large-scale impact in an area of global environmental concern.

Name of Transformational Intervention:

1. Transformational Intervention Identification and Rationale for Review

1.1: Briefly identify and describe the GEF-supported activity or cluster of activities that were part of the proposed transformational intervention:

Intervention name/GEF ID(s)[a]	
Recipient country/countries	
GEF grant size/other funding/sources	
Date of approval/closing	
Implementing agency	
Executing agency/agencies	
Other related (complementary/ predecessor/follow-up) interventions	
Sources of evaluative information for this intervention	

a. If a cluster of GEF-supported interventions jointly help achieve transformational change, list them together and answer the following questions with reference to the entire cluster of GEF interventions.

1.2: Rationale for inclusion in desk review sample. Briefly explain why this intervention was selected for inclusion in the review sample, with reference to the following criteria:

Selection criterion	Yes/No
Relevance: The intervention addressed a major driver of environmental degradation.	
Depth of change: The intervention aimed to cause a fundamental change in a system or market identified as a root cause of an environmental concern.	
Scale of change: The intervention caused a local, regional, national, or multicountry impact that changed the trajectory of an indicator relevant to a GEF focal area.	
Sustainability: The intervention's impact is financially, economically, and environmentally sustainable in the long term, following the conclusion of the GEF intervention(s).	
Evaluative evidence: Evaluative information is available to document the above results and their linkage to GEF intervention(s).	

1.3: Relevance for GEF Focal Area

Focal area/strategy/initiative	Indicate the GEF focal area(s) which the intervention has addressed (all that apply)
Climate change	
Biodiversity	
Chemicals and waste	
Land degradation	
International waters	
Sustainable forest management	
Integrated approach pilots	

2. Ambition—Depth and Scale of Aimed-for Change

Identify the focus of the qualitative change the intervention(s) aimed to support, and rate depth and scale of the aimed-for change(s):

Type of change	Depth[a]	Explanation and key indicators (if available)	Scale[b]
Market focus[c] (indicate the "market")			
System focus[d] (indicate the "system")			
Other types of qualitative change			

a. Depth: 1 = no significant change, 2 = modest change, 3 = major change, 4 = fundamental change, NA = not applicable, NOP = no opinion possible.

b. Scale: 1 = local, 2 = regional, 3 = countrywide, 4 = multicountry.

c. Market change: refers to market transformations that influence the supply and/or demand of goods and services in a significant way and contribute to global environmental benefits. Market change may be related to technological changes, policy and regulatory reforms, and financial instruments.

d. Systemic change: a change in underlying causes of system performance that can bring about a better-functioning system. A "system" is a collection of components (market/economy, public sector, private sector, community) that interact with one another to function as a whole (to increase or decrease pressure on the environment).

3. Transformational Mechanism

Discuss which of the following mechanisms/transmission channels were triggered and/or supported by the intervention(s) *(all that apply)* and rate their relative importance for driving the achievement of transformational change:

Mechanism/transmission channel	Rating[a]	Explanation and key indicators (if available)
Mainstreaming[b]		
Demonstration-replication[c]		
Catalytic effects[d]		
Other		

a. Rating scale: 1 = no significant role, 2 = minor role, 3 = major role, 4 = critical role, NOP = no opinion possible.

b. Mainstreaming: when information, lessons, or specific aspects of a GEF intervention become part of a stakeholder's own initiatives, such as laws, policies, regulations, and programs.

c. Demonstration-replication: interventions demonstrate the feasibility/viability of implementing a project/program or of a business model, an innovation, etc., to other market players. The intervention is then copied by other players (magnifying the direct impact of the intervention itself).

d. Catalytic effects: externalities that go beyond the intervention. These may be related to synergies and complementarities among different instruments and interventions deployed. The contribution of the GEF partnership is larger than the sum of its interventions.

4. Internal Factors

Which factors under the control of (i.e., internal to) the GEF's implementing and executing agencies have had a positive or negative effect in enabling the success of the transformational intervention?

Implementing/executing agency input	Explanation and key indicators (if available)	Rating*
Quality of implementation (quality of project design, supervision, and assistance provided by GEF Agency)		
Quality of execution (effectiveness of executing agency in performing its roles and responsibilities)		
Pre-intervention activities		
Donor partnership(s)		
Other internal factor(s) (explain)		

a. Scale: 1 = negative effect, 2 = no significant effect, 3 = modest positive effect, 4 = major positive effect, NOP = no opinion possible.

5. External Factors

Which factors outside the control of (i.e., external to) the GEF's implementing and executing agencies have had a positive or negative effect in enabling the success of the transformational intervention?

External factor	Explanation and key indicators (if available)	Rating[a]
Government ownership		
Local implementation capacity		
Policy environment		
CSO/community participation		
Private sector participation		
Economic and market conditions		
Other external factor(s) (explain)		

a. Scale: 1 = negative effect, 2 = no significant effect, 3 = modest positive effect, 4 = major positive effect, NOP = no opinion possible.

6. Outcome—Depth and Scale

Discuss and rate the extent to which the aimed-for qualitative changes and the aimed-for scale of change were achieved.

Type of change	Depth[a]	Explanation and key indicators (if available)	Scale[b]
Market change (indicate the "market")			
Systemic change (indicate the "system")			
Other types of qualitative change			

a. Depth: 1 = no significant change, 2 = modest change, 3 = major change, 4 = fundamental change, NA = not applicable, NOP = no opinion possible.

b. Scale: 1 = local, 2 = regional, 3 = countrywide, 4 = multicountry.

7. Outcome—Sustainability

Discuss and rate the likelihood that the results of the GEF-supported intervention(s) will be sustained following the conclusion of the intervention(s).

Type of sustainability	Rating[a]	Explanation and key indicators (if available)
Financial		
Economic		
Environmental		
Social/political		

a. Scale: 1 = unlikely, 2 = somewhat unlikely, 3 = somewhat likely, 4 = very likely, NOP = no opinion possible.

8. Emerging Conclusions

Reflecting upon your entries for questions 2 to 7, what were the main mechanisms and factors through which the GEF's interventions succeeded in supporting a transformational change? Identify and explain below, as applicable:

8.1: Internal factors and mechanisms under the control of the GEF and its implementing and executing agencies:

8.2: External factors and mechanisms beyond the control of the GEF and its implementing and executing agencies:

9. Results Measurement

Discuss the extent to which the GEF's evaluation methodologies and systems sufficiently capture the results of the transformational interventions. Note shortcomings of the current monitoring and evaluation system, availability of evaluative evidence, and suggestions for better capturing the impacts.

10. Emerging Lessons

What lessons emerge about the main factors to be considered for a GEF-supported intervention to achieve transformational impact? Consider issues related to the selection, design/structuring, and organization of this intervention. What lessons can be learned about the effectiveness of the different mechanisms/transmission channels used for triggering and supporting transformational changes? What lessons can we learn about different approaches, sequencing, and complementarities of instruments?

11. Questions for Follow-Up:

Please indicate the areas/questions where additional research, interviews, and/or field visits would be desirable to deepen the understanding of the key enablers and constraints for the achievement of transformational changes and their attribution to GEF-supported interventions, and to validate the emerging conclusions and lessons.

Annex C: Cross-case analysis approach

C.1 Introduction and model specification

The evaluation used a cross-case analysis in combination with a meta-evaluation to assess the conditions and combinations of conditions that have contributed to transformational change. The cross-case analysis was informed by elements of qualitative comparative analysis. QCA is a theory-based approach for systematic cross-case comparison to draw causal inferences using Boolean algebra rather than conventional statistics (Befani 2016). QCA was used as an approach to inform the formulation of the theory of change and to refine criteria for the cross-case analysis. QCA was also partially used as a data analysis technique.

As a first step, the evaluation defined the criteria of "transformational change" and the theory of change of transformation based on the literature (e.g., IEG 2016), presented in figure 1.1.

The theory of change provided a basis for specification of the cross-case analysis model to pursue the evaluative questions. As the next step, the template, shown in annex B, was developed and specified questions for the case review.

C.2 Selection process

The GEF Agencies were invited to identify recently completed and evaluated interventions (projects, groups of projects, programs, nongrant instruments) in line with the criteria of the transformational change. There were 156 projects nominated: 93 by the World Bank, 45 by UNDP, 14 by UNEP, 2 by the Food and Agriculture Organization of the United Nations, and 2 by ADB. This candidate list was screened for availability of terminal evaluations and highest outcome and sustainability ratings. Based on this screening, 49 projects grouped into 30 cases were selected for the first review round.

The evaluation team reviewed evaluation reports of the selected projects on the following key criteria: relevance, depth of change, scale of change, sustainability, availability of evaluative information to document the transformational changes, and the changes' linkage to the GEF interventions. Based on this initial review, the evaluation team selected 13 cases comprising 29 projects for more in-depth review.

At this stage, the full list of questions specified in the template was applied for review of transformational interventions. The team reviewed terminal evaluation reports and other available evaluative information. As a result of this in-depth document review, eight cases comprising 13 projects were selected for the evaluation. The cases were selected to represent a diversity of GEF focal areas and responding GEF Agencies, with careful consideration to the availability and quality of evaluative evidence, particularly with respect to the

scale, depth, and sustainability of the transformational changes.

C.3 Meta-evaluation

Given this sample of cases, the evaluation team undertook a meta-evaluation based on a desk review of the final evaluation reports and other evaluation documents prepared by the Independent Evaluation Office of the GEF and independent evaluation offices of the GEF Agencies, including impact evaluations, country-level evaluations, relevant thematic evaluations, project performance assessment reports, and project performance evaluation reports (see bibliography).

C.4 Data calibration for QCA

After review of the meta-evaluation results, the ratings from the review template were translated into fuzzy-set scores for the analysis, ranging from "1" (full membership score, equivalent to rating of "4" in the template) to "0" (full nonmembership score, equivalent to rating of "1" in the template). The crossover point, where there is neither full membership nor full nonmembership, was set at "0.5." For example, if an intervention did not aim for market transformation, then its fuzzy-set membership score was "0." If market transformation was a key focus in the design of an initiative, then its fuzzy-membership score for the market change ambition was "1." The fuzzy-set scores are presented in table C.1.

C.5 Data analysis

The evaluation used fsQCA3.0 software and a visual analysis to assess necessary and sufficient conditions for GEF interventions to achieve transformational change. The results were triangulated with in-depth review of cases.

TABLE C.1 Fuzzy-set scores of transformational attributes and outcomes

	Ambition			Mechanism				Internal factor				External factor						Outcome						
Intervention	Market focus	System focus	Scale of change	Mainstreaming	Demonstration and replication		Catalytic effects	Implementation quality	Execution quality	Pre-intervention activities	Donor partnerships	Government ownership	Local implementation capacity	Policy environment	CSO/community participation	Private sector participation	Economic/market conditions	Market change	System change	Scale of change	Financial sustainability	Environmental sustainability	Social/political sustainability	Transformation complete
Lighting Africa	1	0.75	1	0.25	1	1	1	0.75	1	1	0.25	0.25	0.25	1	1	1	1	0.75	1	1	1	1	1	1
CRESP-I	1	1	1	0.75	1	1	1	1	1	0.25	1	1	1	0.25	1	1	1	1	1	1	1	1	1	1
UWEP	1	0.75	1	0.75	0.75	1	1	1	0.25	0.25	1	0.25	1	0.25	1	1	1	1	1	1	1	1	1	1
Sanjiang Wetlands	0	0.75	0.25	0.25	1	0.25	1	1	1	0.25	1	1	0.75	0.25	0	0.75	0.25	0.75	0.25	1	1	1	1	1
SLEM-U	0	0.75	0.25	0.25	0.75	0.25	0.75	1	1	0.25	1	1	1	1	0	0.75	0	0.75	0.25	1	1	1	1	1
Namibia PAS	0.25	1	1	0.75	0.75	0.25	1	1	0.75	1	1	1	1	1	0.25	0.75	0.25	0.75	1	0.25	1	1	0	0
ARPA-I	0	1	1	1	0.75	0.75	1	1	1	1	1	0.75	1	1	0.25	0.75	0	0.75	1	0.25	1	1	0	0
Danube PES	0.75	0.25	0.25	0.25	0.75	0.25	1	1	0.25	0.75	0.25	0.25	0.25	0.25	0.25	0	0.25	0.25	0.25	0.25	1	1	0	0

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