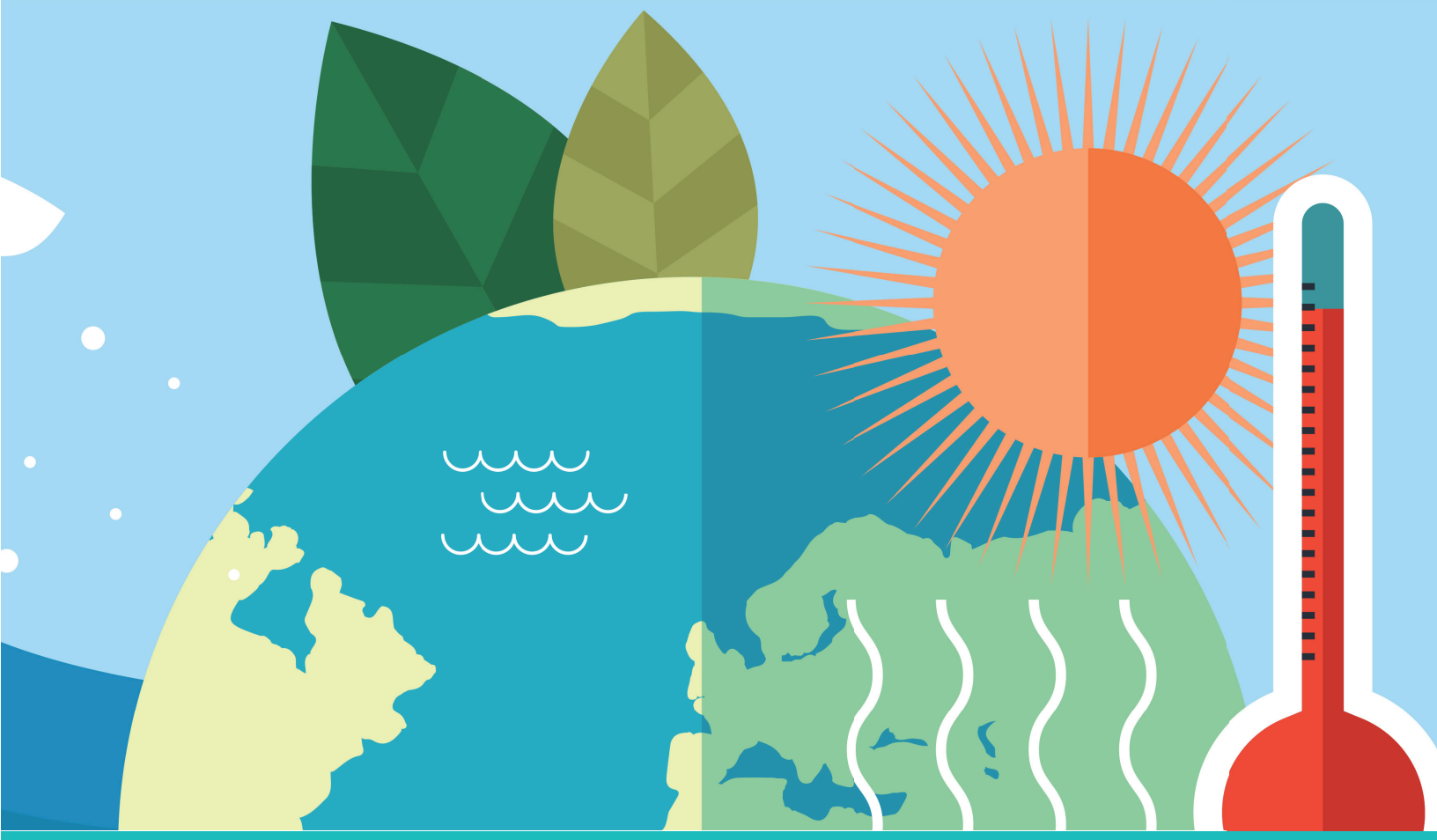
Independent Evaluation Office
GLOBAL ENVIRONMENT FACILITY

# Resilience, Climate Change Adaptation, and Climate Risks in the GEF Trust Fund



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# Resilience, Climate Change Adaptation, and Climate Risks in the GEF Trust Fund

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# Foreword

Although the Global Environment Facility (GEF) Trust Fund has a long history of helping countries take measures to mitigate climate change, it has focused less on adaptation. This does not mean, however, that the effects of climate change are not woven into the GEF's work in various focal areas, from the increased risk of drought contributing to land degradation to the danger faced by biodiverse high-altitude ecosystems to rising temperatures. In fact, climate change also threatens the sustainability of the global environmental benefits the GEF has already achieved. More recently, especially through the integrated programs, it has become clear that achieving environmental results involves improving system resilience, which helps communities and ecosystems respond to disturbances not only made more common or acute by climate change, but also social, economic, and health shocks and stresses, the importance of which was shown clearly during the COVID-19 pandemic.

This study represents a first attempt by the GEF Independent Evaluation Office (IEO) to understand how the GEF Trust Fund integrates resilience, climate change adaptation, and climate risks into its programming and provides evidence on the relationship between addressing these themes and achieving positive project outcomes. It uses a variety of methods, including strategy document review, a targeted review of GEF projects found to have high integration of resilience, statistical analysis using portfolio reviews from previous evaluations, and interviews with case study project teams.

The study was presented to the GEF Council in June 2022. The Council took note of its conclusions and endorsed the management response (annex F) to its recommendations. Through this report, the GEF IEO intends to share the lessons from the evaluation with a wider audience.

Juha I. Uitto
Director, GEF Independent Evaluation Office

# Acknowledgments

Gabriel Sidman, Evaluation Officer in the Global Environment Facility Independent Evaluation Office (GEF IEO), led this study. The team consisted of IEO Evaluation Analyst Molly Watts Sohn, who designed the project portfolio review template and carried out statistical analysis; consultant Margaret Ann Spearman, who led the research and analysis on the GEF's strategy and comparison to other multilateral environmental funds; and consultant Syed Jehangeer Ali, who carried out project review and analysis.

The study benefited from guidance and oversight provided by Juha Uitto, Director of the IEO; quality control and technical input was provided by Geeta Batra, Chief Evaluation Officer and Deputy Director of the IEO. Peer reviewers were IEO Senior Evaluation Officer Anna Birgitta Viggh, Edward Carr of the Scientific and Technical Advisory Panel (STAP), and Anand Patwardhan of the University of Maryland.

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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

| | |
|---|---|
| CEO | Chief Executive Officer |
| COP | Conference of the Parties |
| CRS | climate risk screening |
| FAO | Food and Agriculture Organization of the United Nations |
| GCF | Green Climate Fund |
| GEF | Global Environment Facility |
| IAP | integrated approach pilot |
| IEO | Independent Evaluation Office |
| IPCC | Intergovernmental Panel on Climate Change |
| LDC | least developed country |
| LDCF | Least Developed Countries Fund |
| OPS | overall performance study |
| PIF | project identification form |
| RAPTA | Resilience, Adaptation Pathways, and Transformation Assessment |
| SCCE | strategic country cluster evaluation |
| SCCF | Special Climate Change Fund |
| SIDS | small island developing states |
| SPA | Strategic Priority for Adaptation |
| STAP | Scientific and Technical Advisory Panel |
| UNCCD | United Nations Convention to Combat Desertification |
| UNDP | United Nations Development Programme |
| UNFCCC | United Nations Framework Convention on Climate Change |

**GEF replenishment periods**

**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
**GEF-8:** 2022–26

# Executive summary

Although the Global Environment Facility (GEF) Trust Fund is not focused on climate change adaptation, there has been growing recognition that the effects of climate change are and will affect its ability to achieve and sustain global environmental benefits. The GEF Trust Fund has addressed these effects in different ways, including screening its projects for climate change risks, introducing adaptation co-benefits when feasible and appropriate, and strengthening system resilience against a range of shocks (including those caused by climate change) most notably in some of its integrated programs. Climate risk screening (CRS) was mandated for all projects in GEF-7, with the Scientific and Technical Advisory Panel (STAP) releasing CRS guidelines and the GEF Secretariat launching a successful GEF Agency training and collaboration event. Climate change adaptation activities, first done as part of the Special Pilot on Adaptation in GEF-3 and GEF-4, have been included in multitrust fund projects (combining GEF Trust Fund and Least Developed Country Fund and Special Climate Change Fund resources), mostly since GEF-5 and have generally received high project outcome ratings. Efforts to address more broad system resilience are scattered throughout GEF Trust Fund projects but are most visible in the GEF-6 Resilient Food Systems program which piloted the STAP's resilience, adaptation and transformation guidelines.

This study aims to understand how the GEF Trust Fund has integrated resilience, climate change adaptation and climate risks into its programming and to provide evidence on the relationship between addressing resilience, adaptation and climate risks and project outcomes. The study uses a variety of methods, including review of GEF and peer multilateral fund strategy documents, interviews with key stakeholders, case studies of GEF Trust Fund projects, portfolio review and statistical analysis. A targeted review of 34 projects with high integration of climate change adaptation or resilience was also carried out to better understand the different ways in which adaptation and resilience are included in GEF Trust Fund projects.

## KEY FINDINGS AND CONCLUSIONS

**When compared to other multilateral funds with a focus on climate change, the GEF Trust Fund is in a unique position to integrate climate adaptation and resilience across its diverse set of environmental focal areas.** Because the GEF Trust Fund does not focus on climate change adaptation or resilience as main goals in the same way that several other funds do, such as the Green Climate

Fund, the Adaptation Fund, the Least Developed Country Fund (LDCF), and the Special Climate Change Fund (SCCF), it is not expected to achieve as much in these fields as these peers. This is well understood by the GEF and United Nations Framework Convention on Climate Change (UNFCCC) Secretariats, who point to climate change mitigation rather than adaptation or resilience as the GEF's main goal for the climate change focal area and even the main climate change goal of the impact programs. Nonetheless, there is recognition that climate adaptation and resilience are important and linked to the global environmental benefits, and many stakeholders point to one unique opportunity that the GEF Trust Fund has for inclusion of climate adaptation and especially resilience: to integrate, bring recognition to, and build capacity in climate adaptation and resilience across its diverse set of environmental focal areas. Because GEF focal areas and projects are primarily rooted in and focused on the focal area objectives, they have a unique ability to bring climate adaptation and resilience into a range of environmental projects that may not be in sectors with high capacity and historical consideration of climate adaptation and resilience, such as chemical waste management or reducing ocean plastics.

**Resilience, climate change adaptation and climate risks are increasingly being integrated into GEF strategies and projects, but the definitions of these terms are not quite clear, especially for resilience.** Since GEF-5, recognition of the links between resilience, adaptation and climate risks and the GEF focal areas has increased. Multitrust fund projects bringing LDCF and SCCF adaptation programming together with GEF programming began in GEF-5 and continue into GEF-7. The STAP has increasingly focused GEF attention on CRS, culminating in the UNFCCC requesting that the GEF address climate risks and then the revised GEF safeguards policy in 2019 that mandated CRS across the GEF. Resilience is increasingly mentioned in programming documents and project titles and integrated into projects, especially the integrated approach pilots (IAPs) and impact programs. However, resilience has not been defined outside the IAPs and is used in many different contexts (as is common in development organization strategies beyond the GEF), from the narrow resilience of a specific ecosystem to specific shocks (such as climate change) to the entire planet's resilience to a broad range of disturbances. The wide range of uses of the term makes it difficult to understand and measure the GEF Trust Fund's work on resilience.

**Evidence shows that integration of climate adaptation and resilience into GEF Trust Fund projects is correlated with positive project outcomes.** Statistical analysis clearly demonstrates the positive link between integration of resilience in project design and project outcomes. Similarly, Strategic Priority for Adaptation projects, which integrated climate adaptation into their project components and results framework from the design phase, were found to have higher outcome ratings than other GEF-3 and GEF-4 projects. Case study projects also revealed evidence that integration of adaptation and resilience benefited project design and aided sustainability of outcomes. However, some projects, even with high adaptation and resilience integration, were adversely affected by a range of climate shocks during implementation and generally did not have plans to address or adapt to such disturbances.

**GEF CRS guidance has mostly been viewed positively by Agencies, with the need for greater clarity on the GEF Secretariat quality review of the CRS.** Agencies were generally positive about the CRS guidance from the STAP, especially the breadth of the guidance, which allows Agencies with higher expertise to use their own tools and methodologies. The cross-Agency collaboration organized thus far by the GEF Secretariat and the STAP has been useful, and more was suggested.

The timing of the CRS process has also worked well: the initial screening at the PIF stage is early enough to build risk management into design and avoids the process becoming a post-design retrofitting exercise. However, some Agencies were confused about the quality review of the CRS—specifically, what exact characteristics the GEF Secretariat was looking for when reviewing the CRS—and others felt they had little knowledge on practical measures to put in place to respond to the risk screening.

**The Resilience, Adaptation Pathways, and Transformation Assessment (RAPTA) approach provides the GEF with a tool for integrating resilience into projects and was well received in the pilot phase, though it has not been widely adopted.** The STAP developed RAPTA, tailored for the Food Security IAP, to help GEF projects integrate resilience (including building resilience to the impacts of climate change), adaptation, and transformation into its projects. The early piloting of the framework in the Ethiopia child project was viewed positively: improved stakeholder engagement and systems analysis were noted. However, the framework has not been widely used since and was viewed as difficult to implement due to its complexity.

## RECOMMENDATIONS

The findings in this report highlight the useful guidance the GEF has provided to its Agencies on how to conduct climate risk screening for projects, but points to the absence of guidance on risk mitigation measures. The evidence also indicates limited monitoring of resilience in GEF Trust Fund projects. Therefore, to enhance the integration of resilience, climate change adaptation, and climate risks in the GEF Trust Fund, the GEF should

1. Develop guidance on climate risk mitigation measures; and
2. Improve the monitoring of resilience in GEF Trust Fund projects, with attention to the context of each focal area.

# Introduction

Climate change and other disturbances have forced development practitioners to rethink how development interventions are designed and implemented. The Intergovernmental Panel on Climate Change (IPCC) has clearly shown the detrimental impacts climate change is having and will have in developing countries (IPCC 2021). Consequently, international development practitioners have increasingly recognized the importance of taking climate risks into account in their interventions and include activities to help countries adapt to climate change. Additionally, the COVID-19 pandemic has demonstrated that climate change is not the only shock facing the developing world; it is likely to decrease food security, increase poverty rates, and limit progress toward achievement of the Sustainable Development Goals (Hughes et al. 2021; Workie et al. 2020).

**Building resilience to a wide range of shocks and disturbances has thus become critical for development organizations so hard-fought gains are not reversed by future negative impacts.** Acknowledging the link between shocks and disturbances and achieving its environmental development goals, the Global Environment Facility (GEF) Trust Fund has recognized the importance of integrating climate risks, climate change adaptation, and resilience into its programming.

This study has two main objectives:

- To understand how the GEF Trust Fund has integrated resilience, climate change adaptation and climate risks into its programming
- To provide evidence on the relationship this integration has with project outcomes.

Several GEF Independent Evaluation Office (IEO) evaluations have measured certain aspects of resilience, climate change adaptation, and climate risks in the GEF Trust Fund, such as the GEF-5 Fifth Overall Performance Study (OPS5) which looked into the extent of discussion of climate risks in project design (GEF IEO 2013). However, OPS5 and other earlier IEO studies did not examine the evolution of the GEF's strategy in addressing these topics nor the relationship between resilience, adaptation, and climate risks and project outcomes. This study is the first IEO study that analyzes the GEF Trust Fund's approaches to addressing climate risks and integrating adaptation and resilience into its programming. Previous IEO evaluations have examined climate adaptation in the Least Developed Countries Fund (LDCF) and the Special

Climate Change Fund (SCCF), two smaller trust funds that are managed by the GEF; this study focuses only on interventions financed from the GEF Trust Fund.

## 1.1 Background

**Many of the global environmental benefits that the GEF Trust Fund aims to achieve are vulnerable to climate change.** The main goal of the GEF Trust Fund is to achieve global environmental benefits aligned with its five focal areas: biodiversity, climate change (mitigation), international waters, land degradation, and chemicals and waste. Simply achieving global environmental benefits during project implementation is just one part of the goal—the achievements must also be sustained beyond implementation and into the future. However, global environmental benefits could become more difficult to achieve or sustain, given the threats from climate change.

The GEF Scientific and Technical Advisory Panel (STAP) first pointed to the ways in which global environmental benefits could be affected by climate change in GEF-5 and GEF-6, providing a scientific rationale for addressing these risks (GEF STAP 2010; Mant et al. 2014). The risks are apparent in all GEF focal areas. Protecting **biodiversity** will be made more difficult by changes in phenology and in suitable habitat ranges. **Climate change mitigation** will be hampered by reduced productivity of some clean energy resources (e.g., drought reducing river flow to power hydroelectric dams) and increasing power demands from higher temperatures. The **international waters** focal area will face increased challenges of rising temperatures killing off marine organisms, rising sea levels imperiling coastal habitats and communities, and changes in freshwater ecosystem regimes causing increased demand from all stakeholders for scarcer and less reliable water. **Land degradation** could be hastened by stressed forest ecosystems through drought, temperature change, and increased pests and fire; while farmers will be affected by changes in growing periods and temperature and precipitation regimes. The **chemicals and waste** focal area, although it has fewer identified impacts than the others, could be affected by enhanced volatilization of persistent organic pollutants and temperature rise; and increased wildfires could release more mercury stored in soils.

**International conventions have also pointed to the threats from climate change faced by the GEF focal areas.** The Convention on Biological Diversity and the GEF's responses to the convention have pointed to the climate change vulnerabilities faced by ecosystems and the need to allow species to migrate to areas of future suitability (CBD 2006). Coral reefs, forests, and protected area systems in highly vulnerable regions and ecosystems are given priority (CBD 2008). The United Nations Convention to Combat Desertification (UNCCD) has noted the linkages between desertification, land degradation, drought, biodiversity loss, and climate change (UNCCD 2013). The United Nations Framework Convention on Climate Change (UNFCCC) deals directly with climate change adaptation and has encouraged the GEF to address the issue across different focal areas (GEF 2019b).

**Recognizing these threats, many activities in GEF Trust Fund projects aim to improve adaptation to climate change and resilience as co-benefits, while focusing primarily on global environmental benefits.** Bierbaum et al. (2014) pointed out that the best way to protect GEF investments from climate change is to include activities that build resilience to climate change in GEF Trust Fund projects. Although the GEF Trust Fund does not measure or monitor resilience or adaptation to climate change explicitly, many activities that are designed to deliver global environmental benefits are "win-win" solutions that also result in climate change adaptation or improved resilience (Bierbaum et al. 2014).

Nature-based solutions are a common example, by which natural ecosystems are protected, managed, or restored while also providing societal benefits (GEF STAP 2020). Examples in the GEF Trust Fund include biodiversity projects that create migration corridors to improve biodiversity and also allow species to migrate to more suitable habitat, given climate change; the restoration of mangroves that sequester carbon and mitigate flood effects; and sustainably managed forests that provide alternative livelihoods to climate-vulnerable agriculture (ecotourism, sale of forest products) as well as biodiversity protection.

**Assuming that such win-win solutions will be produced even if they are not actively designed and managed with the adaptation co-benefit in mind creates significant risk of unintended consequences for human well-being and even of maladaptive outcomes.** According to a limited project review from the STAP (2020), societal benefits are given less prominence than global environmental benefits in GEF Trust Fund projects, and potential trade-offs between global environmental benefits and societal benefits are rarely discussed. Some international development projects beyond the GEF have been accused of maladaptation as well, when efforts end up creating more vulnerability rather than resilience to climate change (Eriksen et al. 2021). Reforestation with water-intensive or nonnative species that sequester carbon but decrease the amount of water available for human consumption (thus worsening the effects of climate change–increased drought in some areas) is one example (Li et al. 2021).

## 1.2 Concepts and definitions

The GEF Trust Fund addresses the effects of climate change in its strategy and project documents through three primary mechanisms reflected in the use of these terms:

- Managing climate risks to its projects
- Adaptation to climate change
- Resilience.

Although all three terms are used to discuss addressing the effects of climate change, they differ in meaning. The definitions and use of each as they relate to the GEF are discussed below and summarized in table 1.1. This study uses these definitions when considering and discussing the three terms.

**In the GEF, climate risk screening (CRS) is intended to reduce the possible negative consequences of climate change on global environmental benefits.** Climate risks can be related to potential impacts or human responses to climate change (IPCC 2020). In the GEF Trust Fund, climate risks are especially considered in terms of the potential impacts on GEF Trust Fund interventions and related global environmental benefits. Projects are screened at the design stage through a CRS tool to assess possible risks to GEF Trust Fund interventions and intended outcomes. Actions are then usually taken by project design and implementation teams to manage these risks, sometimes referred to as climate risk management or "climate proofing," to minimize the adverse effects on project results and outcome sustainability. The CRS process is designed to reduce the chances of making a poor investment by not foreseeing and planning around specific climate risks, as well as reducing the risk exposure for the project's targeted assets or beneficiaries/end users.

**Climate change adaptation refers to assisting both human and natural systems in minimizing the impacts of climate change.** Adaptation options include structural, institutional, ecological or behavioral measures that help systems adjust to a changing climate. GEF Trust Fund interventions sometimes include such adaptation actions, even if their main goal is to achieve global environmental

**Table 1.1 Climate risks, climate change adaptation, and resilience definitions and use in the GEF context**

| Term | IPCC definition | Use in the GEF | GEF project example |
|---|---|---|---|
| Climate risks | Risk is defined as"the potential for adverse consequences for human or ecological systems" (IPCC 2020) | • Used to discuss both the risks that climate change impacts will have in communities and ecosystems and to global environmental benefit achievement and sustainability<br>• Climate risk screening evaluates risks specifically to GEF projects and global environmental benefits | Scaling up the Implementation of the Sustainable Development Strategy for the Seas of East Asia (GEF ID 5405) recognizes the risks of climate change to ecosystems that the GEF supports in and adjacent to East Asian seas, including rising sea levels stressing coastal ecosystems and sea temperature change causing coral reef ecosystem die-off |
| Climate change adaptation | Adaptation is defined as "the process of adjustment to actual or expected climate and its effects" in both human and natural systems. In human systems, this adjustment is done "in order to moderate harm or exploit beneficial opportunities" (IPCC 2021) | • Generally used to discuss helping ecosystems and society address the impacts of climate change through a project or intervention<br>• The GEF Trust Fund does not have a principal objective of climate change adaptation<br>• More specific than resilience; it refers to actions that address one or several of the impacts of climate change directly | Shire Natural Ecosystems Management Project (GEF ID 4625) strengthened early warning systems for floods and droughts in the Shire River Valley in Malawi, helping communities adapt to climate change which will likely bring more frequent and more severe floods and droughts to the region |
| Resilience | Resilience is defined as "the capacity of interconnected social, economic and environmental systems to cope with a hazardous event, trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity, and structure" (IPCC 2021) | • Generally used to discuss helping ecosystems and society cope with the impacts of climate change and other disturbances through a project or intervention<br>• Broader than climate change adaptation; it addresses system-level constraints that prevent coping to shocks and stresses, including but not limited to climate change | Ecosystem Approach to Haiti Cote Sud (GEF ID 5531) promoted several livelihoods in Haiti such as castor oil production, cultivation of fruit trees, and ecotourism not only to take pressure off natural forests but also to diversify incomes of local communities; income diversity builds resilience to natural disturbances worsened by climate change as well as to a range of other shocks that affect certain livelihoods but not others |

benefits rather than improving adaptation within ecosystems or communities. However, adaptation actions and actions to achieve global environmental benefits, such as those to mitigate climate change, can be mutually reinforcing, benefiting both natural and human systems. The focal area strategies recognize that conservation of biodiverse natural ecosystems is aided by improving and maintaining the provision of ecosystem services to human populations in and around those ecosystems. Additionally, the impacts of climate change on human populations could cause further environmental degradation the GEF is working to combat, such as climate change–driven cropland expansion (Malhi et al. 2019).

**The meaning of resilience has evolved over time within the literature and the GEF, and it extends beyond adaptation to broader concepts of transformational change.** The term "resilience," deriving from conservation or ecological roots, generally referred to a system persisting, resisting change, or reverting back to historical conditions after a stress or shock (Carr 2019; Peterson St-Laurent et al. 2021). Resilience within human or socioecological systems is more complex than in natural systems because of social aspects. Resilience for some social groups in a system may not translate to resilience for all, and powerful groups may wish to resist change to maintain their social status, potentially sabotaging interventions or reversing resilience gains after implementation is completed (Carr 2019; IFRC 2014). Resistance or resilience may not be positive if the historical state of a system was unacceptable for certain groups or would be susceptible to further, larger disruption in the near future (such as more extreme climate change).

More recently, definitions of resilience include the possibility of **transformational change**, in which systems may need to transform or change their structures or functions drastically to be resilient (IPCC 2014). IPCC (2022) considers resilience a "positive attribute when it maintains capacity for adaptation, learning and/or transformation." Similarly, the GEF's integrated approach pilot (IAP) programs recently aligned their definition of resilience with that used by the Stockholm Resilience Center (2015), which considers resilience as

> the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to develop. It is about how humans and nature can use shocks and disturbances like a financial crisis or climate change to spur renewal and innovative thinking. (GEF 2021a)

**Good practices for building resilience to climate change are the same as those that help achieve broader systems resilience.** System resilience refers to resilience to any of a number of disturbances (shocks or stresses), not just those influenced by climate. In fact, characteristics that make a system vulnerable to climate change impacts are generally the same as those that make it vulnerable to other stresses and shocks. Therefore, these broad system vulnerabilities must be addressed in building resilience to climate change. In this sense, resilience goes beyond adaptation to climate change, requiring a deeper understanding of issues beyond just vulnerability to climate change[1]—because these same vulnerabilities are rooted in the social, economic, cultural, and structural characteristics of the system.

**The theme of resilience has received increased attention as the COVID-19 pandemic and increasing climate shocks all over the world highlight the need to sustainably develop, build back, or transform in such a way that society and ecosystems can withstand disturbances.** IPCC (2014) notes that improving resilience to climate change "includes adopting good development practices that are consonant with building sustainable livelihoods" and that climate-resilient pathways include broader sustainable development. Ecosystems and societies that are more resilient to all shocks (and better able to transform when necessary) are conceptually better able to achieve environmental sustainability. For this reason, resilience is best addressed under a framework of broad systems resilience to ensure systems are prepared for all disruptions, not just those from climate change.

[1] Vulnerability is another key term in discussion of the effects of climate change. IPCC (2021) defines vulnerability as "the propensity or predisposition to be adversely affected," noting that vulnerability includes "susceptibility to harm and a lack of capacity to cope and adapt."

# Evaluation design

## 2.1 Objectives and evaluation questions

This study had two main objectives:

- To understand how the GEF Trust Fund has integrated resilience, climate change adaptation, and climate risks into its programming to help mitigate the effects of climate change on its interventions
- To provide evidence on the relationship between addressing resilience, climate change adaptation, and climate risks and project outcomes.

Within these broad two objectives, the study addresses the following evaluation questions:

- What are the different ways in which GEF Trust Fund projects incorporate resilience, climate change adaptation, and climate risks into project design?
- To what extent has the integration of resilience, climate change adaptation, and climate risks in project design affected the implementation, outcomes, and sustainability of projects?
- How do the GEF's efforts to integrate resilience, climate change adaptation, and climate risks into GEF Trust Fund projects compare with other good practices?

## 2.2 Methodology

This study used data gathered through a variety of methods including a document review and qualitative analysis of strategy and project documents, interviews with relevant stakeholders, three case studies, a portfolio review of GEF Trust Fund projects, and an analysis of existing GEF IEO and GEF data. These methods are described in more detail in the following paragraphs.

GEF corporate documents—including programming directions, STAP guidance, GEF Council decisions, and previous GEF IEO evaluations—were included in the document review. Text analytic tools were used to review the frequency and use of terms related to resilience, climate change adaptation, and climate risks through the GEF replenishment periods. Interviews were carried out with GEF Secretariat, GEF STAP, and GEF Agency representatives along with select research and peer organizations outside the GEF (see annex D for a full list of interviewed stakeholders).

To gather and analyze trends on resilience, climate change adaptation, and climate risks in GEF Trust Fund projects, the study used multiple sources. It took advantage of existing IEO data, including a portfolio review of 702 projects from all GEF replenishments prior to GEF-7 (GEF-4 and GEF-5 were the most represented), which was done in 2018–19 for the evaluations of small island developing states (SIDS), least developed countries (LDCs), and Africa biomes countries (GEF IEO 2019, 2022d, 2022e). The review categorized projects based on their level of integration of resilience. These data were merged with performance data from the GEF IEO terminal evaluation review data set, and statistical analysis was applied to explore the relationship between integration of resilience in project design and project outcome ratings. Results of this analysis are shown in annex E.

Additionally, a new portfolio review was conducted on a purposive sample of 34 ongoing and completed projects from GEF-5 and GEF-6 that considered resilience or climate change adaptation in their design and for which performance information was evaluable at either project midterm or completion.[1] This portfolio review was specifically designed to examine project design and implementation documents more thoroughly for a deeper understanding of how consideration of resilience and climate change adaptation affected project implementation, outcomes, and outcome sustainability. As no performance information is yet available for GEF-7 projects, they were not included in the portfolio review. However, GEF Portal data on inclusion of climate change adaptation in design for GEF-7 projects were gathered.

Three case studies were conducted, chosen from projects included in the 34-project portfolio review. These included a mix of project modalities—one IAP project, one multitrust fund project, and one project receiving only GEF focal area financing (table 2.1). One project in each major GEF geographical region (Africa, Asia, and Latin America) was included; and all three projects had either a

[1] The projects selected for this portfolio review included all multitrust fund projects (LDCF/SCCF and the GEF Trust Fund) and GEF Trust Fund projects previously identified by the IEO as integrating resilience into a multiple-benefits framework (Bierbaum et al. 2014 consider integration into a multiple-benefits framework as the category with the most resilience inclusion of the three categories considered) from GEF-5 or more recently and having a completed midterm review or terminal evaluation available as of April 1, 2021; and all IAP projects with midterm reviews as of April 1, 2021. The resulting review included 34 projects (see annex B).

**Table 2.1 Summary of case study projects**

| GEF ID | Project title | Country | GEF Agency | Focal area | GEF funding (million $) |
|---|---|---|---|---|---|
| 4616 | Climate Change Adaptation to Reduce Land Degradation in Fragile Microwatersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera | El Salvador | FAO | GEF Trust Fund: land degradation<br>SCCF: climate change adaptation | GEF Trust Fund: $0.57<br>SCCF: $1.1 |
| 5663 | Integrated Environmental Management of the Fanga'uta Lagoon Catchment | Tonga | UNDP | Biodiversity, land degradation, international waters | $1.76 |
| 9135 | Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience (IAP) | Ethiopia | UNDP | Biodiversity, land degradation | $11.16 |

**Note:** FAO = Food and Agriculture Organization of the United Nations; UNDP = United Nations Development Programme.

midterm review or a terminal evaluation available at the time of the review. In addition to a more detailed project document review, multiple project and Agency staff for each project were interviewed.

The scope of this study is limited for two reasons:

- The recency of the requirement to perform CRS in the GEF
- The lack of resilience, climate change adaptation, and climate risk monitoring data for older GEF Trust Fund projects.

# Findings

## 3.1 Integration of resilience, climate change adaptation, and climate risks in GEF strategies

**The regular use of the terms "adaptation" and "resilience" in relation to addressing the effects of climate change in GEF strategy documents shows the importance of these terms to the GEF.** The study analyzed usage of the words "risk" and "adaptation" as they relate to climate change and "resilience" across programming strategy documents for each GEF replenishment for which such documents are available (GEF-4 and onwards; GEF 2007, 2010a, 2014, 2018a, 2021b).[1] The term adaptation is used an average of more than 28 times per document; resilience is used, on average, more than 48 times, increasing to more than 100 uses in the GEF-8 programming directions.

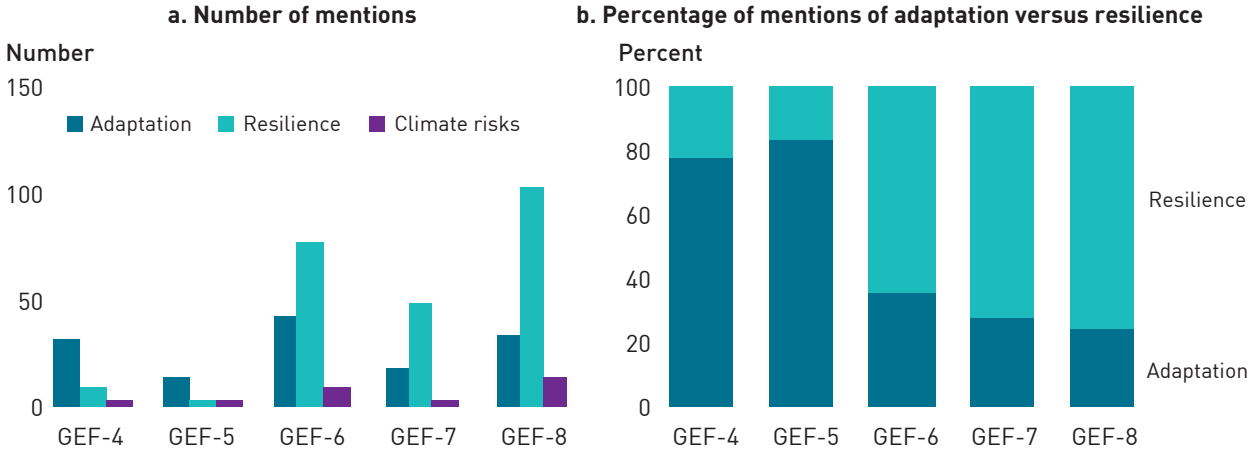
Although tallying mentions in a document is a very rough indication of the level of depth of thinking or degree of inclusion of a concept in a particular GEF replenishment period and strategy documents are not all the same length, this provides a preliminary indication of the importance of the concept for the GEF during a certain replenishment and how GEF thinking has evolved over time. As shown in figure 3.1, the inclusion of the term "resilience" has successively increased over GEF replenishments. For example, in GEF-4, adaptation made up 78 percent of combined mentions of adaptation and resilience; by GEF-8, this had dropped to 25 percent—showing a shift toward resilience in the nomenclature used.

The use of the terms climate "risk" and "impact" has not varied widely through time; these generally denote climate impacts and risks to countries in general rather than risks to GEF Trust Fund interventions.

**Through the GEF replenishment periods, adaptation to climate change and resilience have been integrated into programmatic approaches and focal area results frameworks.** In GEF-5, the corporate results framework (GEF 2010a) includes one strategic goal to "reduce global climate change risks" by both reducing greenhouse gas emissions and "assisting countries to adapt to climate change," although the corresponding expected

[1] The GEF-8 programming directions referenced were preliminary as they had not yet been finalized by the time of this study.

**Figure 3.1** Mentions of climate risk, adaptation, and resilience in GEF programming strategy documents




**Sources:** GEF 2007, 2010a, 2014, 2018a, 2021b.

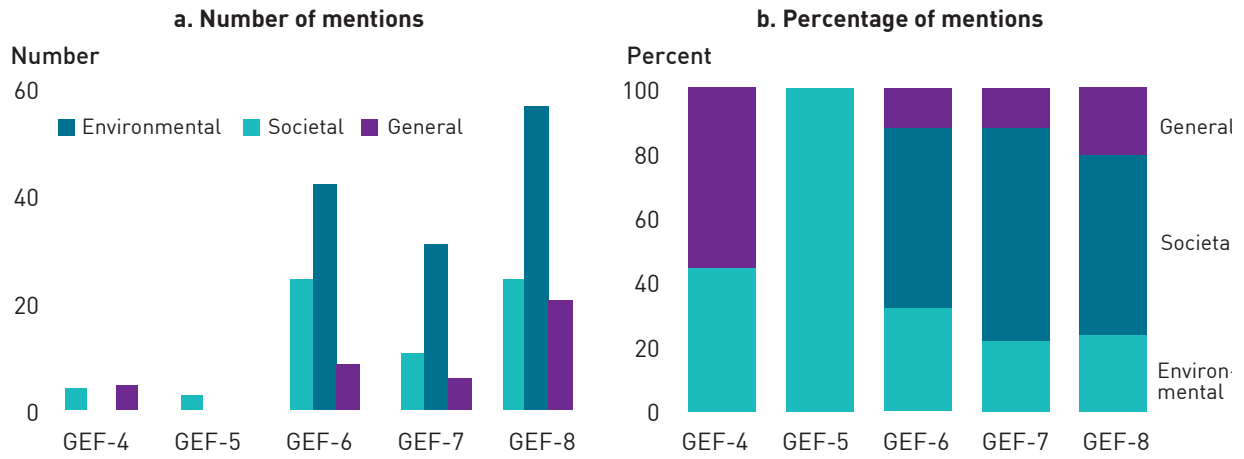
**Note:** Use of the terms "risk" and "adaptation" were screened to ensure they pertained to climate change.

results are almost entirely mitigation-based. In GEF-6 (GEF 2014), one of the global environmental benefits is to support a low-emissions and "resilient" development path—but the only corresponding target is to reduce emissions. Additionally, one of the sustainable forest management objectives is to "maintain flows of forest ecosystem services and improve resilience to climate change through [sustainable forest management]," and one of the IAPs introduced in this replenishment period has the title "Sustainability and Resilience for Food Security in Sub-Saharan Africa." In GEF-7 (GEF 2018a), the rationale for the programming architecture says that the GEF Trust Fund aims for a "more prosperous, climate-resilient world." The GEF-8 programming directions (GEF 2021b) claim that through integrated programs, the GEF Trust Fund will "not only generate [global environmental benefits], but also create innovative pathways for transforming these systems toward sustainability and resilience." Such examples show the importance of both climate change adaptation and resilience for the GEF Trust Fund, while the main focus is on global environmental benefits.

**The term "resilience" is used in many different contexts and diverse ways in GEF programming documents.** As pointed out in STAP (2021), the term "resilience" is used in many ways by the GEF. In the GEF-8 programming directions (GEF 2021b), resilience is used to discuss "resilient recovery" in the face of COVID-19; resilience as a cross-cutting theme; resilient livelihoods, infrastructure, cities, agriculture, forests, and ecosystems; and even a resilient planet. GEF programming documents do not define the terms "adaptation" and "resilience," so it is difficult to determine exactly what is meant each time these terms are used. For example, whether the usage of "resilience" implies resisting change or transforming in the face of change is not usually stated. In many cases, the term is used only in the context of climate change; at other times, clearly several shocks or stresses are implied.

**The increasing use of the term "resilience" shows a shift toward more systems thinking in the GEF Trust Fund rather than climate-focused adaptation actions.** Over time, mentions of resilience have increasingly connoted societal or human systems resilience in addition to environmental or natural systems resilience (figure 3.2). This shift mirrors

**Figure 3.2** Types of resilience mentioned in GEF programming documents



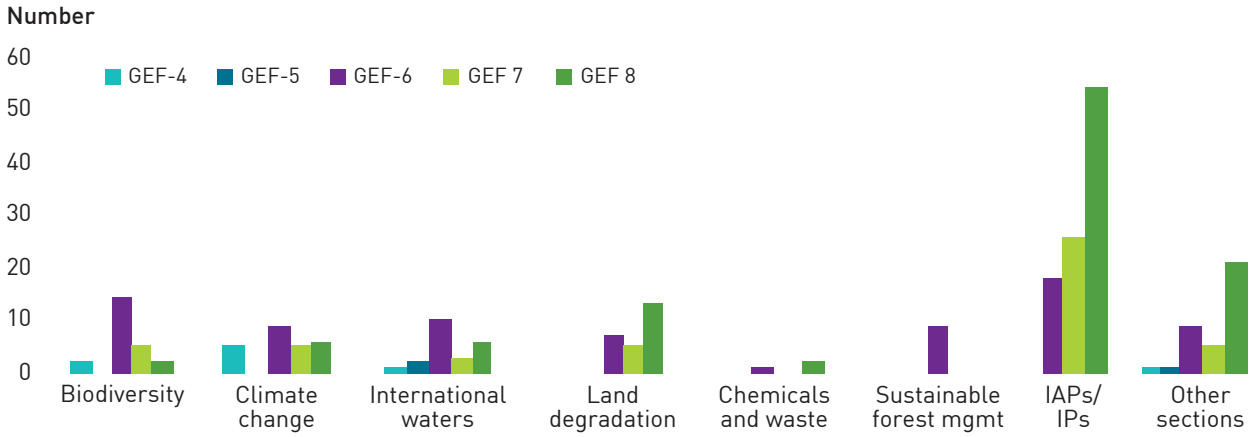

**Sources:** GEF 2007, 2010a, 2014, 2018a, 2021b.

the progression of the environmental development community consensus from dealing with shocks and stresses in which limited adaptation interventions focused on ecosystems to addressing underlying systemic issues (including linkages to human systems) to create resilience to any disturbance, including climate change. This shift can also be seen in the sections in the programming documents where resilience is mentioned. Since GEF-6, the sections on IAPs and impact programs have increased their share of total mentions of resilience (23 percent of all mentions of the term in GEF-6, up to 52 percent in GEF-8), while mentions in the individual focal area sections have not increased significantly (figure 3.3). The IAPs and impact programs represent a more holistic, systems-level, multifocal area approach to GEF Trust Fund programming in which the concept of resilience is well reflected. STAP (2021) also recommends that GEF projects should ensure they do not "avoid undermining general resilience" and defines eight attributes of such resilience.[2]

**In contrast with the GEF, other multilateral climate finance funds have a mandate to focus on adaptation but generally do not have policies or guidelines specific to CRS or offer definitions of resilience.** The GEF is one of three multilateral funds that are UNFCCC climate finance mechanisms, along with the Adaptation Fund and the Green Climate Fund (GCF). The World Bank manages another set of Climate Investment Funds. The main impetus for the creation of the Adaptation Fund, the Climate Investment Funds, and the GCF was to finance climate change adaptation (and mitigation) projects—as distinct from the GEF Trust Fund, which was designed to deliver global environmental benefits that did include climate change mitigation but not adaptation. None of these other funds have a CRS policy—although CRS is largely unnecessary because, by definition, the projects must address climate change adaptation. For example, the GCF has a "climate rationale" for all projects, which provides a justification for investing in the intervention in terms of expected climate change adaptation (or mitigation) benefits. Annex C

[2] The seven attributes of general resilience outlined by STAP (2021) are (1) maintaining adequate reserves of key capitals (soil carbon, spare grid electricity, financial reserves, etc.), (2) supporting response diversity, (3) investing in social, (4) investing in human capital, (5) applying systems thinking across scales, (6) maintaining appropriate connectivity, and (7) promoting adaptive learning.

**Figure 3.3** Mentions of resilience in different sections of GEF programming documents




**Sources:** GEF 2007, 2010a, 2014, 2018a, 2021b.

provides a more detailed comparison of multilateral climate fund strategies and guidance.

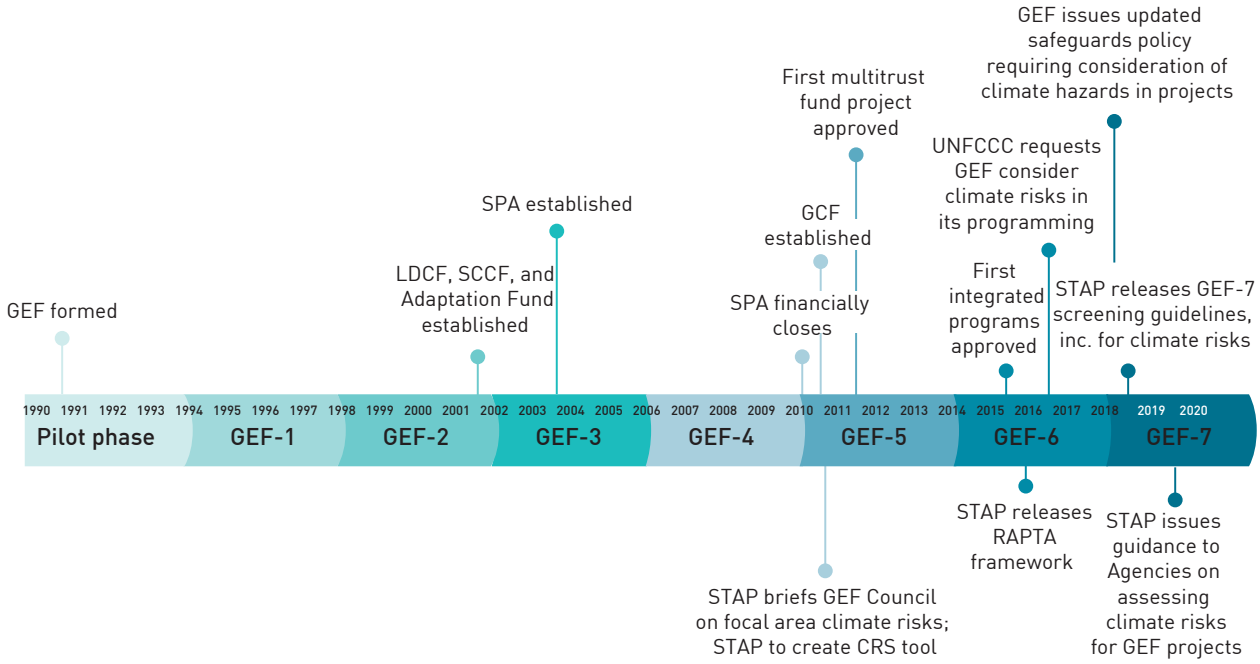
**None of the funds offer a working definition of resilience either, although the language is used quite often in their strategy documents.** One of the main outcomes of the Adaptation Fund's Strategic Results Framework is "increased ecosystem resilience in response to climate change-induced stresses" (AF 2019), while the GCF's paradigm shift objective for adaptation is "increased climate-resilient sustainable development" (Binet et al. 2021). Bilateral funding agencies (as well as multilateral organizations, many of which are GEF Agencies) tend to have a broader range of environmental objectives than multilateral climate funds, and often do have CRS and adaptation or resilience integration guidance for their initiatives (GIZ 2021; Tanner et al. 2007; USAID 2017).

**The GEF Trust Fund's early interventions focused on climate change adaptation through the Strategic Priority for Adaptation (SPA).** At its Seventh Conference of the Parties (COP7) in 2001, the UNFCCC created the LDCF and the SCCF, two funds focused on climate change adaptation, and requested that the GEF operate them. In COP8, the UNFCCC requested that the GEF report in future COPs not only on adaptation in the LDCF and SCCF but also on "efforts to address adaptation in the climate change focal area and to mainstream it into other focal areas of the GEF."

In preparation for operationalization of the LDCF and the SCCF, the GEF established the SPA in 2003 (figure 3.4). The SPA aimed to add adaptation financing ($50 million from the climate change focal area) to projects from other focal areas that were principally aimed at achieving their own global economic benefits. This SPA strategy was a "double increment" concept, in which the first increment to achieve global environmental benefits was funded by the GEF focal areas; the second increment, to ensure the robustness of these benefits in the face of climate change, was funded by SPA funds (GEF 2005).

The GEF IEO evaluation of the SPA noted that projects had difficulty articulating the double increment concept that included both global environmental benefits and adaptation benefits. SPA projects included mostly "no regret" measures that would provide a benefit (development, environment, or adaptation) regardless of climate change—meaning adaptation co-benefits in GEF Trust Fund projects were highly possible. The

**Figure 3.4 Timeline of events related to integration of resilience, climate change adaptation, and climate risks in the GEF Trust Fund**




evaluation recommended that the GEF Trust Fund should "continue providing incentives to carry on the mainstreaming of resilience and adaptation into the GEF focal areas" (GEF IEO 2011). The Management Action Record after the evaluation rated the progress on the recommendation as medium, noting the development of multitrust fund and IAP projects but a lack of follow-up on a framework plan for incorporating climate change resilience in the project design process (GEF IEO 2015).

**After the SPA ended disbursement, climate change adaptation programming in the GEF partnership was concentrated in the LDCF and the SCCF rather than the GEF Trust Fund.** Around the time that the SPA closed at the beginning of GEF-5, the UNFCCC at COP13 requested the GEF to "take fully into account lessons learned" from the SPA to "help inform on how the GEF could best support climate adaptation activities" (GEF 2019b). As part of the response to the GEF IEO evaluation of the SPA, the GEF Secretariat updated the GEF Council in 2012 on its progress in developing a framework to systematically consider climate risks in GEF Trust Fund projects. The proposed framework would have specific screening steps built into the project cycle at the project identification form (PIF) and Chief Executive Officer (CEO) endorsement stages (GEF 2012). Such a framework was not further developed in GEF-5. At this point, the GEF made a strategic decision to concentrate its climate adaptation programming in the LDCF and the SCCF, as mentioned in the GEF-5 Adaptation Strategy: "in order to avoid duplication between the GEF Trust Fund and the new funds, it is proposed to channel all GEF-managed adaptation financing resources through the LDCF and the SCCF" (GEF 2010b). The idea of the double increment was not continued; instead, LDCF and SCCF projects focused directly on achieving adaptation benefits, and GEF Trust Fund projects focused solely on global environmental benefits.

**The STAP began to produce more guidance related to resilience, climate change adaptation, and climate risks starting in GEF-5, paving the way for**

**integrating the concepts into the IAP and impact programs.** At the beginning of GEF-5 in 2010, the STAP issued guidance recognizing that climate change was becoming an important risk to the achievement of global environmental benefits and sustainability across all focal areas and reviewing specific risks for each (GEF STAP 2010). The guidance, which was presented to the GEF Council, recommended that the GEF should mainstream resilience to climate change across the GEF-5 strategy and in the project cycle and that the STAP should develop a "rapid climate change risk screening tool" to assess potential climate risks for project proposals. In GEF-6, the STAP developed the Resilience, Adaptation Pathways, and Transformation Assessment (RAPTA) framework, which went further to integrate resilience into project design (O'Connell et al. 2016). The RAPTA framework included guidelines for integrating resilience and adaptation into project design from the very beginning using an intensive design phase involving broad stakeholder engagement and systems analysis. Although the resilience piece of RAPTA was not designed to be specific to climate change, the framework used the GEF-6 Food Security IAP in Sub-Saharan Africa as a test case that directly addresses the impacts of climate change.

**GEF-7 brought an intense focus on CRS in the GEF, spurred by STAP and UNFCCC guidance.** After the STAP's report outlining the risks from climate change to global environmental benefits, the UNFCCC at COP22 also requested the GEF to "take into consideration climate risks in all its programs and operations, as appropriate, keeping in mind lessons learned and best practices" (GEF 2019b). The STAP had been carrying out CRSs since GEF-5, but it was not required for project design teams (GEF Agencies) until the effective date (July 1, 2019) of the GEF Policy on Environmental and Social Safeguards in GEF-7. The policy required Agencies to "consider systematically in screening" the "short- and long-term risks posed by climate change and other natural hazards" using established methodologies while also addressing significant risks in design and implementation (GEF 2019a). Following the issuance of the policy, the STAP created further guidance to Agencies on how to carry out the CRS (GEF STAP 2019).

**The 2019 safeguards policy places the responsibility for CRS on the GEF Agencies, with the STAP providing guidance and the STAP and the GEF Secretariat ensuring quality.** According to the safeguards policy, Agencies must have in place policies, procedures, systems, and capabilities to ensure they consider climate change and disaster risks in project design processes (GEF 2019a). They must also have their own CRS procedure in place to apply to GEF projects.

The structure for CRS was generally defined by STAP guidelines after the issuance of the safeguards policy (GEF STAP 2019). The guidance suggests that, at a minimum, Agencies have a risk screening process that includes four steps: hazard identification, assessment of vulnerability and exposure, risk classification, and a risk mitigation plan. The STAP suggests a category ranking from low to very high be used to describe a project's level of climate risk and that risk screening cover a minimum of 30 years from the planned project start date. A preliminary risk assessment should be done prior to PIF submission, and projects that are medium or high risk should conduct a detailed evaluation of climate change risks and risk management options prior to CEO endorsement. Different locations, activities, and outcomes should be considered for very high-risk projects. The STAP completes a screening of projects at the PIF stage to ensure their CRS includes the major elements mentioned in the guidelines.

When it reviews project design at the PIF and CEO endorsement stages, the GEF Secretariat ensures that STAP guidelines for CRS are followed in project design and that the CRS is of high

quality. The Secretariat reported in interviews that it judges the quality of project CRS based on the STAP (2019) guidance, ensuring that (1) a screening is done at the PIF stage to identify climate risks, and (2) a comprehensive analysis is done in the project preparation phase prior to CEO endorsement with detailed climate information analysis and further discussion with key stakeholders, including discussion of mitigation options. The Secretariat also noted that some projects and focal areas have lower exposure to climate risks (such as low-carbon transport and energy access or projects supporting enabling policy and regulatory frameworks); it applies more or less scrutiny to the CRS as the project type indicates.

**Agencies have different histories, sizes, and areas of expertise that influence the extent to which they integrate resilience, climate change adaptation, and climate risk.** Generally, they can be divided into the following groups:

- Agencies that have already integrated CRS into their portfolio regardless of the timing of the GEF's policies (the updated 2019 safeguards policy) and guidance (from both the GEF and the STAP)
- Agencies that have integrated some elements of CRS into their portfolio, but the STAP guidance provided a welcome framework or came at an opportune time to integrate into existing policies or tools for use across their organization
- Agencies that did not have prior CRS similar to or aligned with the STAP guidance, and therefore formed new units, practices, or internal processes in order to incorporate this.

Based on this typology, four Agencies developed their own tools and processes for integrating climate risks into projects as part of safeguards prior to the GEF guidance or policy (table 3.1). Most Agencies fall in the second group, while two nongovernmental organizations and the national-level Agencies fall into the third group.[3]

**Agencies are generally positive about the GEF CRS guidance and policies, although there is some confusion about the quality review process.** Feedback from Agency interviews on the STAP's CRS guidance was consistently positive on two points. First, the Agencies appreciated that the CRS guidance sets a succinct standard for expectations across all Agencies. Second, Agencies appreciated that the guidance is flexible (not prescriptive), because many already have their own safeguards and risk screening tools. Setting the basic standard is useful to the extent that it can already be met, and without additional resources or guidance—especially for Agencies with already existing methods for CRS. Four of the Agencies interviewed felt that the feedback from reviews was inconsistent (between the GEF Secretariat and the STAP) or unclear (about what proof is required to show that the exercise has been fulfilled); meaning additional clarity on meeting general expectations was still needed.

**Inter-Agency collaboration facilitated by the GEF Secretariat and the STAP was appreciated by the Agencies.** The Secretariat and the STAP organized a training for the GEF Agencies in September 2020 on strategies for completed CRS for GEF Trust Fund projects. From Agency interviews, it was clear that this type of training and cross-Agency collaboration was appreciated and that more would be welcome. This sentiment was expressed by three Agencies that have technical expertise and their own tools and processes but are open to data sharing and a more streamlined engagement for forming partnerships and collaborative relationships. Agencies with limited expertise in resilience, climate change adaptation, and climate risks

[3] Note that not all national-level Agencies could be interviewed.

**Table 3.1 Comparison of GEF Agency approaches to climate risk screening and integration of climate adaptation and/or resilience**

| GEF Agency | CRS addressed through safeguards | Strategy addressing climate adaptation and resilience (most recent) | Additional related tools, guidance, or reports | |
|---|---|---|---|---|
| | | | Description | Sector or focus |
| **Group 1: Agencies that addressed CRS and integrated resilience before GEF guidance and policy** | | | | |
| Asian Development Bank | 2015 whole portfolio | Strategy 2030 (ADB 2018), climate and disaster resilience as one of seven operational priorities | 2017 Aware™ (process under way to replace it) | Risk: (largely) infrastructure |
| IDB | 2014 started; 2019 whole portfolio | Inter-American Development Bank Group Climate Change Action Plan 2021–2025 (IDB 2021) | In the process of developing a climate risk-resilience tool for the whole project cycle | Risk and resilience: multiple, largely infrastructure |
| EBRD | 2008 started; 2010 whole portfolio | EBRD's Green Economy Transition Approach for 2021–25 (EBRD 2020); climate resilience a key pillar | Internal tool for CRS, covers physical climate risks and carbon transition risks (EBRD 2019) | Risk: finance, physical, other |
| World Bank | 2014 loans; 2017 all International Bank for Reconstruction and Development | Action Plan on Climate Change Adaptation and Resilience (World Bank 2019) | Climate and Disaster Risk Screening Tools; Climate Change Knowledge Portal; Resilience Rating System (World Bank 2021) | Risk and resilience: multiple |
| **Group 2: Agencies that had addressed some elements of CRS and resilience integration before GEF guidance and policy** | | | | |
| African Development Bank | 2012 started; 2014–19 rapid portfolio analysis | Climate Change Action Plan of the African Development Bank, v2, 2016–2020 (AfDB 2017) | Resilience Booster Tool, developed by the World Bank under the Africa Climate Resilient Investment Facility (2021) | Resilience: multiple |
| FAO | 2010 started; 2019 whole portfolio | FAO Strategy on Climate Change (FAO 2017) | Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP) (2014, updated 2021) | Resilience: food security, livelihoods |
| IFAD | 2012 started; 2015 screening tool for whole portfolio | Strategy and Action Plan on Environment and Climate Change 2019–2025 (IFAD 2018) | Climate Adaptation in Rural Development Assessment Tool (IFAD 2019) | Resilience: food security, livelihoods |
| IUCN | 2016 (GEF and GCF projects) | Nature 2030: One Nature, One Future: A Programme for the Union 2021–2024 (IUCN 2021) | Global Standards (and Principles) for Nature-based Solutions (IUCN 2019) | Resilience: natural resource management |
| UNDP | 2015 started; 2021 updated (CRS under development) | UNDP Strategic Plan, 2018–2021 (UNDP 2017b) (seven adaptation thematic program areas) | Community Based Resilience Analysis (CoBRA) (UNDP 2017a) | Resilience: livelihoods |
| UNEP | 2020 updated, whole portfolio | Medium-Term Strategy 2018–2021 (UNEP 2016) (two of seven main priority areas) | Ecosystem-based Adaptation Briefing Note Series (UNEP 2022) | Resilience: natural resource management |
| UNIDO | 2015 (GEF and GCF projects) | Medium-Term Programme Framework 2018–2021 (UNIDO 2017) (safeguarding environment one of four strategic priorities) | Promoting Climate Resilient Industry (UNIDO 2015) | Resilience and risk: industry |
| **Group 3: Agencies without CRS and resilience integration prior to GEF guidance and policy** | | | | |
| Conservation International | 2017 started; 2019 (GEF and GCF projects) | Protecting Nature to Halt Climate Catastrophe (one of three core program areas) (CI n.d.) | Resilience Atlas online tool (2015) | Resilience: food security, livelihoods |
| WWF-US | 2019 pilot (voluntary) | Climate is one of six high-level strategic priority areas | Climate Change Vulnerability Assessment for Species online tool (Advani 2014) | Resilience and risk: Natural resource management |

**Note:** EBRD = European Bank for Reconstruction and Development; FAO = Food and Agriculture Organization of the United Nations; IDB = Inter-American Development Bank; IFAD = International Fund for Agricultural Development; IUCN = International Union for Conservation of Nature; UNDP = United Nations Development Programme; UNIDO = United Nations Industrial Development Organization; WWF-US = World Wildlife Fund–US. Five Agencies were not included. The three national GEF Agencies were invited to interview for this study, but only the Foreign Economic Cooperation Office, Ministry of Environmental Protection of China, replied by email and indicated that it did not have specialized tools for CRS or specific strategies for integrating climate adaptation or resilience. The Brazilian Biodiversity Fund and the Development Bank of Southern Africa did not respond, and there is insufficient information on their websites to understand their CRS and resilience integration measures. Two regional GEF Agencies—the Development Bank of Latin America (CAF) and the West African Development Bank (BOAD)—were also not included. According to its website, CAF was in the process of procuring support to develop a CRS tool in 2019; it is unclear whether this work was completed or whether it has a tool/guide/strategy for integrating climate adaptation or resilience, though it does have related programs of work. No documentation was found on the BOAD website about its strategies and/or policies related to CRS and/or integrating climate adaptation and resilience.

requested additional support (budgetary or technical), because the CRS process is financed through their operational budget.

Agencies tend to set themselves up institutionally for the CRS process and expectations mandated by their largest funders. With few exceptions, all Agency projects follow the same CRS protocol now for GEF projects that they do for their wider portfolio of projects, which is simpler for staff and less expensive. Therefore, they are able to create policies and approaches that meet multiple standards of different funders and the priorities of organization leadership simultaneously.

**There is no guidance on how monitoring of CRS should be conducted during project implementation.** The safeguards policy states that "significant risks and potential impacts" should be addressed "throughout the design and implementation of projects and programs" (GEF 2019a). However, the GEF IEO (2022a) notes that the policy does not require reporting on safeguards through the project implementation reports during project implementation. The STAP guidance on CRS indicates that risk management plans should be developed to manage risks, although it does not provide guidance on the structure. Consequently, monitoring of climate risks is largely left to the Agencies.

## 3.2 Resilience, climate change adaptation, and climate risks in the GEF Trust Fund portfolio

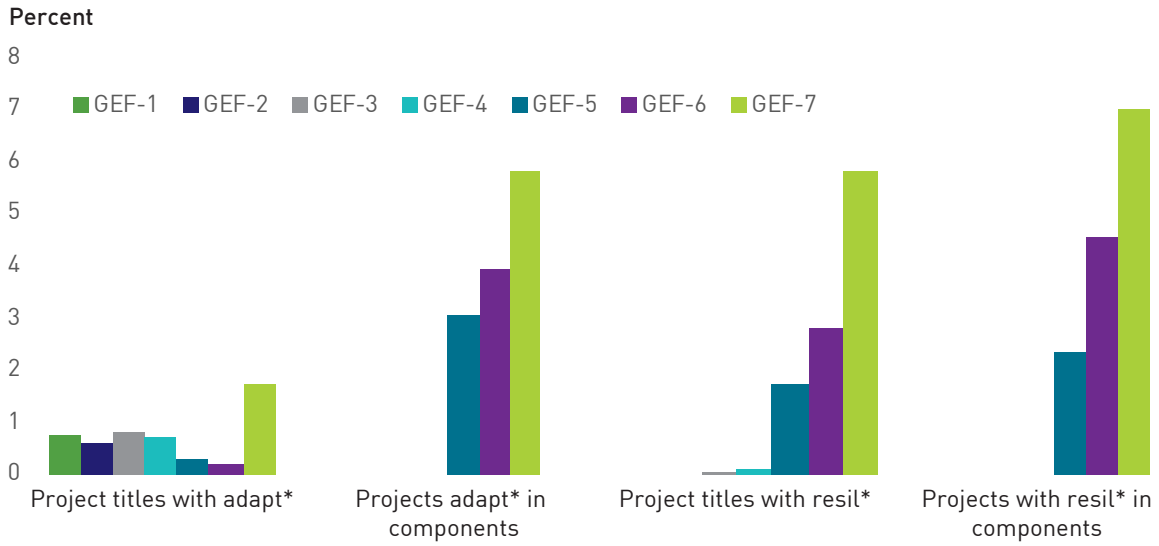
**Before the adoption of the 2019 safeguard policy, many GEF Trust Fund projects identified climate risks, but the CRS was not mainstreamed across the GEF.** STAP (2010) provided the first measure of climate risks in GEF Trust Fund projects when it screened 35 GEF-4 projects to see if they "explicitly address current climate variability or risks" or "respond to future climate change risks." It found that 67 percent of projects addressed current variability or risks and 92 percent responded to future risks, but only 29 percent had "argumentation of climate threats" that were "scientifically sound." This sample may represent an overestimate of addressing climate risks, however, because the projects selected were few in number and were not randomly selected; only projects that dealt with climate-sensitive issues and related global environmental benefits were included.

**Consistent with the evolution in GEF strategies, the terms "adaptation" and "resilience" are used increasingly in project titles and components.** Forty-four GEF-7 projects (almost 6 percent of all GEF-7 projects) have "resilience" in their title (up from a total of only 2 projects from GEF-1 to GEF-4), and 53 projects (7 percent of all GEF-7 projects) use the term in component names. The use of these terms (especially in more recent replenishments) in important locations such as the project title and component names shows that addressing climate impacts—although not a key objective of the GEF Trust Fund—is critical in some projects (figure 3.5).

**Fewer than half of GEF Trust Fund projects in portfolio reviews mentioned resilience or took it into account in project design.** The IEO did a review of almost 300 GEF-5 projects as part of OPS5, and found that almost 40 percent of projects "took resilience to climate change into account in their design," meaning their project documents addressed "potential major risks, including the consequences of climate change" (GEF IEO 2013) (table 3.2).[4] These results are further confirmed

[4] The review did not provide definitions to differentiate resilience to climate change from climate change adaptation, nor did it discuss resilience of systems—and therefore was probably using the term "resilience" in a narrow way similar to the meaning of climate change adaptation. It found that biodiversity was the focal area with the most projects "considering" climate resilience, with 64 percent of its reviewed projects taking climate resilience into account.

**Figure 3.5** Percentage of GEF Trust Fund project titles/components containing the terms "adaptation" and "resilience," by replenishment period of project approval




**Source:** GEF Portal.

**Note:** Component data were only available for GEF-5 to GEF-7. Mentions of "adapt*" were screened to include only mentions related to climate change.

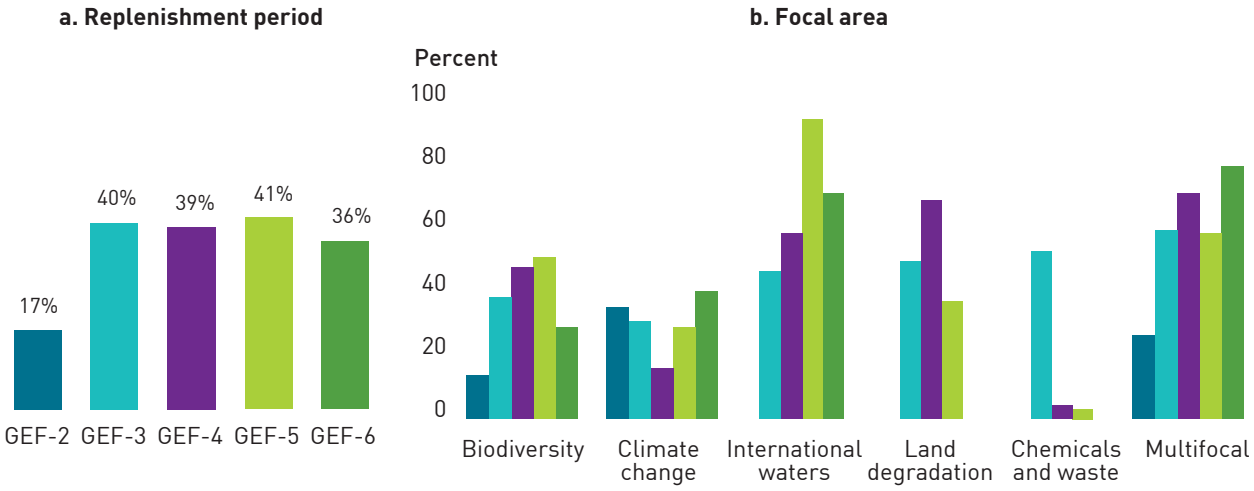
**Table 3.2** GEF IEO reviews of climate adaptation and resilience integration in GEF Trust Fund projects

| Review | Coverage of review | Indicator of inclusion of climate risk, adaptation, or resilience | Methodological note |
|---|---|---|---|
| GEF IEO 2013 | 296 GEF-5 projects | 40% of projects reviewed for quality at entry "took into account" climate resilience | Definition of resilience in this review likely comparable to climate change adaptation |
| GEF IEO 2019, 2022d, 2022e | 702 projects from pilot phase GEF-6 | 38% of GEF projects considered "resilience or resilience thinking" in project design; of those that did, 28% integrated resilience as risk management, 34% as a co-benefit, and 38% into a multiple-benefits framework | Included only projects in three portfolios: Africa biomes, LDCs, and SIDS; the definition of resilience likely also included, but was not specific to, climate change adaptation |
| GEF Portal/this study | 399 GEF-7 projects | 42% of approved GEF Trust Fund projects "target climate change adaptation as key objective" and 3% as a "principal objective," according to the Rio markers indicators | Rio markers are self-reported by project teams rather than reviewed by a third party (as in the case of the GEF IEO and the STAP); they are specific to climate change adaptation rather than resilience |

by the portfolio review of more than 700 projects from various GEF periods up until GEF-6 (with GEF-4 and GEF-5 most represented), which found that 38 percent of projects considered resilience or resilience thinking in project design. The proportion of reviewed projects found to have evidence of resilience stayed more or less the same since GEF-3, with international waters (64 percent) and multifocal (60 percent) projects showing the highest inclusion (figure 3.6).

**Most GEF focal areas were commonly represented in the 34 projects with high integration of climate adaptation and resilience reviewed for**

**Figure 3.6** Percentage of reviewed projects with evidence of resilience or resilience thinking in project design, by GEF replenishment period and focal area




**Source:** Project documents.

**Note:** *n* = 702 projects.

**this study; chemicals and waste was the exception.** Among all focal area objectives included in the reviewed projects, climate change mitigation focal area objectives appeared 34 times, while biodiversity and land degradation objectives appeared 28 times each. A chemicals and waste area objective appeared only once—in a Sustainable Cities IAP project. Among the top objectives, a GEF-5 land degradation objective dealing with land use management appeared 17 times—the most of any objective, although biodiversity, climate change mitigation, sustainable forest management, and international waters objectives were all in the top six (table 3.3). None of the indicators associated with these focal area objectives explicitly measure climate adaptation or resilience. Some, such as area with vegetation cover maintained, could be used to measure elements of adaptation to climate change (because vegetation cover can mitigate the impacts of floods), but fall short of measuring broader systems resilience.

**The 34 reviewed projects with high integration of climate adaptation or resilience included a variety of climate adaptation and resilience–related activities, focusing especially on on-the-ground actions.** Among the reviewed projects, activities deemed to be related to climate adaptation and resilience were categorized into several groups (figure 3.7).[5] The most common climate adaptation or resilience–related activity group was on-the-ground actions in which infrastructure, including natural infrastructure, was constructed or manipulated. These activities, which had the ability to directly lead to climate adaptation, included tree planting, climate-smart agricultural practices, and construction of irrigation systems. Policy and planning activities were also common; these included creating or improving laws and plans related to climate adaptation and resilience or subnational or community land use planning. Disaster preparedness interventions, such as early warning

[5] Project activities were deemed to be related to climate adaptation or resilience if their successful implementation would lead to a reduction of the impact of a shock or stress in the project implementation area caused or worsened by, or predicted to be caused or worsened by, climate change in the future.

**Table 3.3 Focal area objectives most addressed in projects with high inclusion of climate adaptation or resilience reviewed for this study**

| GEF period and objective | Objective | Representative indicator |
|---|---|---|
| GEF-5 LD-3 | Reduce pressures on natural resources from competing land uses in the wider landscape | Area under effective land use management with vegetative cover maintained or increased |
| GEF-5 BD-1 | Improve sustainability of protected area systems | Protected area management effectiveness score as area recorded by Management Effectiveness Tracking Tool |
| GEF-5 CCM-5 | Promote conservation and enhancement of carbon stocks through sustainable management of land use, land use change, and forestry | Number of countries adopting good management practices in land use, land use change, and forestry |
| GEF-5 SFM-1 | Reduce pressures on forest resources and generate sustainable flows of forest ecosystem services | Forest area under FSC certification measured in hectares, enhanced carbon sinks form reduced forest degradation |
| GEF-5 IW-2 | Catalyze multistate cooperation to rebuild marine fisheries and reduce pollution of coasts and large marine ecosystems while considering climate variability and change | Cooperation frameworks agreed on and include sustainable financing, measurable results for reducing land-based pollution, habitat, and sustainable fisheries from local demonstrations |
| GEF-6 SFM-1 | Maintained forest resources: reduce the pressured on high conservation value forests by addressing the drivers of deforestation | Area of high conservation value forest identified and maintained, number of incentive mechanisms to avoid the loss of high conservation value forests implemented |

**Note:** BD = biodiversity; CCM = climate change mitigation; FSC = Forest Stewardship Council; IW = international waters; LD = land degradation; SFM = sustainable forest management.

**Figure 3.7 Number of activities related to climate adaptation or resilience by activity type**


**Source:** Project documents.

**Note:** *n* = 34 projects.

systems and financing activities including insurance schemes or risk sharing, were relatively uncommon.

**Flooding and drought were the most common climate change impacts addressed by the projects.** The GEF Trust Fund projects with high integration of adaptation or resilience reviewed for this study addressed several climate change impacts, the most common being increased frequency and intensity of rain events and subsequent flooding and droughts including resulting wildfires. Habitat range changes were also common among biodiversity projects, and both habitat changes and sea level rise were key among international waters projects. Glacial melt and pests and diseases caused by climate change were rarely addressed compared to the others.

**Climate change was a common risk included in the design documents of the 34 projects reviewed with a high degree of climate adaptation and resilience integration, but less than one-third included specific additional mitigation actions.** Of the 34 GEF-5 and GEF-6 projects with high climate adaptation or resilience inclusion reviewed in depth for this study, 71 percent included climate change as a long-term

risk to project outcomes in a risk matrix in project design documents; only 26 percent identified climate shocks as a risk during project implementation. Eighty-four percent of projects described the climate impacts that would face the region in which the project area was located. More involved CRS processes—as required by the 2019 safeguards policy—were not done for these earlier projects, and inclusion of data from climate change models or uncertainties around temperature or rainfall predictions was rare. Some of these projects that did not include climate risks in their project risk matrixes focused on technology transfer, financial mechanisms, and regional policy rather than on-the-ground implementation, meaning they were likely less directly vulnerable to climate risks. Only 29 percent of projects included a specific and additional mitigation plan to address climate risks beyond what was already included in project activities (see box 3.1 for specific project examples).

GEF-7 brought the beginning of the use of the Organisation for Economic Co-operation and Development's Development Assistance Committee (OECD DAC) Rio markers, in which Agencies classify their projects into three categories based on their integration of climate change adaptation: "does not target climate change adaptation," "targets as a significant objective," and "targets as the principal objective" (OECD DAC n.d.).[6] An analysis of all GEF-7 projects as of August 2020 found that 42 percent of approved GEF Trust Fund projects target climate change adaptation as a significant objective, and 3 percent target it as a principal objective. In one sense, this may represent increasing inclusion of climate adaptation and resilience: The earlier IEO portfolio reviews looked only at whether projects took resilience thinking into account or showed some evidence of it in project design, while the Rio markers show projects that have climate change adaptation as at least a significant objective. The Rio markers are self-reported by project teams, however, so they are less objective than reviews done by an outside body such as the IEO or the STAP.

**In GEF-7, CRS is mainstreamed, but quality is still uneven across GEF Agencies.** Although the new safeguards policy has increased the share of projects performing CRS in GEF-7 compared with earlier replenishment periods, both the Secretariat and the STAP note that certain Agencies perform more in-depth screenings than others. The Food and Agriculture Organization of the United Nations (FAO) and the World Bank were given as examples of Agencies that are leaders in CRS, with both having tools that are used by other Agencies. One FAO project in particular was given as an example of an in-depth, improved CRS (box 3.2).

**Integration of resilience in projects has increased over successive GEF replenishments.** The portfolio review of over 700 projects from previous IEO evaluations further classified the 38 percent of projects that considered resilience or resilience thinking in design into three levels of resilience integration (figure 3.8), based on definitions in Bierbaum et al. (2014): resilience as risk management, resilience as a co-benefit, and resilience integrated into a multiple-benefits framework. Bierbaum et al. (2014) consider resilience as risk management to be a "first-level" consideration along the lines of CRS, in which resilience is viewed purely as mitigating risk to project outcomes. The co-benefit approach uses "win-win" solutions such as

[6] According to OECD DAC (n.d.), an activity is targeting climate change adaptation as a principal objective when the climate change adaptation is "explicitly stated as fundamental in the design of, or the motivation for, the activity." Projects achieving this qualification would promote adaptation in their documentation and as "one of the principal reasons for undertaking" the project, and the project would not be funded if not for the adaptation objective. A project is targeting climate change adaptation as a significant objective when climate change adaptation is "explicitly stated but is not the fundamental driver or motivation for undertaking it," though the project has been "formulated or adjusted to help meet the relevant climate concerns."

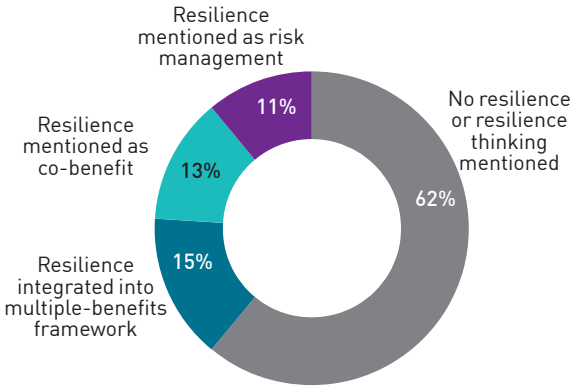
**Box 3.1 Examples of climate risk mitigation measures in GEF-5 and GEF-6 projects**

In GEF-5 and GEF-6, projects were not yet required to go through a specific CRS process. Instead, most included a risk matrix in project design documents (PIFs and CEO endorsement request documents) with one to two sentences on mitigation measures that would be taken to address the identified risks. For the reviewed projects that identified climate change as a risk, many simply pointed to ways that already included project activities would strengthen climate resilience as a co-benefit and thus make the impacts of climate change less acute. This was done especially for the multitrust fund projects, as these already had climate change adaptation built into the project concepts and therefore had less additional need to address climate risks.

Biodiversity focal area projects also took this path in some cases, making the argument that protecting ecosystems through expansion of protected areas also builds climate adaptation as a co-benefit, thus warding off climate risks. For example, Conserving Biodiversity and Reducing Habitat Degradation in Protected Areas and Their Buffer Zones (GEF ID 5078), implemented in St. Kitts and Nevis, aimed to expand and strengthen the protected area system in the country. As a mitigation measure to climate change risk, the risk matrix for the project noted that expanding protected areas "increased their likelihood of persisting in the face of climate change" and allow species "more area in which to find suitable habitat niches in the face of changing climatic conditions." Such protected area expansion was not a direct response to climate risk—instead, it was already a main goal of the project aimed to improve biodiversity.

Other projects responded to climate risks by adding specific considerations or activities to mitigate the impacts of the risks. A pair of climate change mitigation focal area projects provide examples. Integrated Landscape Management for Improved Livelihoods and Ecosystem Resilience in Mount Elgon (GEF ID 5718), implemented in Uganda, noted in its risk mitigation measures that the project would ensure that "interventions are made in communities on geologically stable slopes" to avoid losing investments in areas that are vulnerable to floods, which could increase in frequency and intensity with climate change. Similarly, Promoting Solar Photovoltaic Systems in Public Buildings for Clean Energy Access, Increased Climate Resilience and Disaster Risk Management in Barbados (GEF ID 5453) ensured that its solar power installations emphasized their ability to withstand extreme conditions and that the public buildings on which they would be installed could be used as disaster shelters, where the solar power could provide off-grid electricity in times when the main power grid could be compromised.

**Figure 3.8 Mention and integration of resilience in reviewed projects (%)**




**Source:** Project documents.
**Note:** *n* = 702 projects.

nature-based solutions, which address outcomes related to global environmental benefits but also improve system resilience.

Integration of resilience into a multiple-benefits framework is the highest level of integration, because a systems approach is used in which resilience is linked to other system properties to achieve several objectives and benefits together. Of all the projects that considered resilience or resilience thinking in project design, the share of projects integrating resilience into multiple-benefits frameworks grew steadily over time from none in GEF-3 to 58 percent in GEF-6

**Box 3.2 Example of climate risk screening in GEF-7**

The Sustainable Management and Restoration of the Dry Forest of the Northern Coast of Peru project (GEF ID 10541) implemented by FAO gives an example of the increased CRS implemented in GEF-7. The project completed an initial CRS during the PIF stage (it has not yet completed its project preparation grant phase), which goes beyond the simple risk matrixes done for GEF-5 and GEF-6 projects (see box 3.1). The PIF document does include a risk matrix in which climate risks are detailed, but there is also an annexed document outlining the CRS. This document describes the current climate shocks that exist in northern Peru along with the ranges of predicted temperature and precipitation change (noting uncertainty as well—rainfall may decrease or increase by 2030). It is noted that northern Peru is predicted to endure a higher temperature increase than other regions, and increased drought will cause stress to the dry forests there. There is no specific reasoning given as to why the overall climate risk is rated as moderate for the project, but it is noted that the Notre Dame Global Adaptation Initiative database rates Peru in general as having both a medium amount of vulnerability and adaptive capacity to climate change.

The CRS document also points out activities already included in the project that should improve the dry forest ecosystem's climate resilience and includes recommendations for further measures. These measures include embracing a more multisectoral, multilevel, and multistakeholder governance approach, fomenting data sharing of agroclimatic services between government institutions, and promoting sustainable production practices of the dry forests. The PIF notes that a climate risk specialist will be hired during the project preparation grant phase to elaborate an even more in-depth CRS.

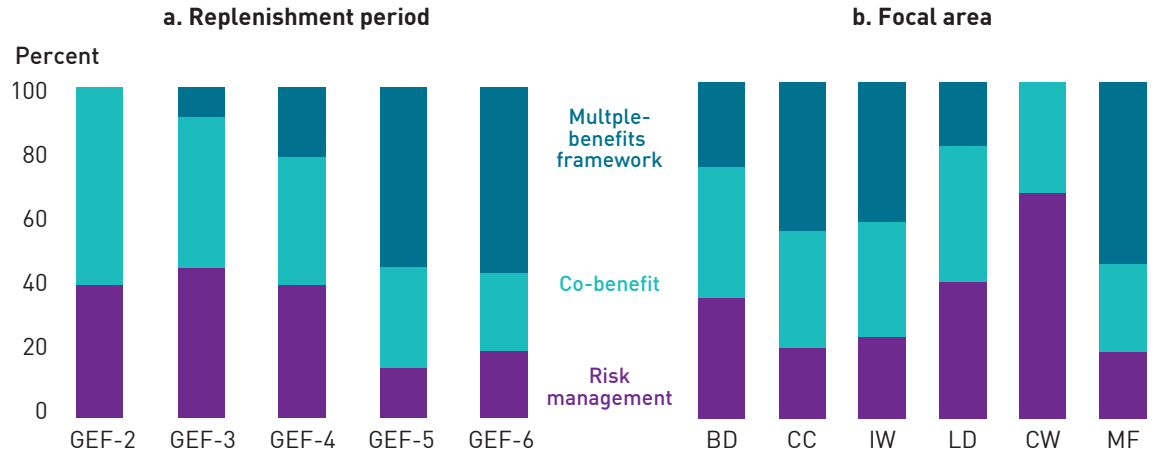
(figure 3.9). Projects that considered resilience only as risk management dropped from between 40 percent and 50 percent in GEF-2 to GEF-4, respectively, to between 15 percent and 21 percent in GEF-5 and GEF-6, respectively, as did projects considering resilience as a co-benefit—from 60 percent in GEF-2 to 24 percent in GEF-6. Multifocal area projects had the highest share (55 percent) of projects integrating resilience in a multiple-benefits framework; the chemicals and waste focal area had the highest share (67 percent) of projects that considered resilience only as risk management.

**Climate adaptation and resilience are integrated to varying degrees in most GEF Trust Fund projects.** There are three major types of projects that integrate climate change adaptation and resilience into project design:

- **Multitrust fund projects** combine funding from the GEF Trust Fund and the LDCF or the SCCF, meaning they aim to achieve global environmental benefits from GEF focal areas and also climate change adaptation goals related to the two other funds.
- **Single or multifocal area projects** are funded entirely through GEF focal areas and focus on achieving global environmental benefits; some also include climate change adaptation or resilience themes if they are deemed key to achieving the global environmental benefits in the projects' area of thematic and geographical interest.
- **IAP and impact program projects**, because they are multifocal and holistic in design, address resilience as a major theme of the projects.

Multitrust fund projects have commonly been mentioned in GEF strategies and convention guidance since GEF-5 as a vehicle for integrating adaptation into the GEF Trust Fund. The GEF has cited the use of multitrust fund projects (GEF Trust Fund and LDCF/SCCF) to respond to requests from both the UNFCCC and the UNCCD to integrate climate

**Figure 3.9** Distribution of reviewed projects by level of resilience integration, by GEF replenishment period and focal area




**Source:** Project documents.

**Note:** *n* = 266 projects. BD = biodiversity, CC = climate change, IW = international waters, LD= land degradation, CW = chemicals and waste, MF = multifocal.

change adaptation into their programming linked to the conventions (GEF 2019b; UNCCD 2011). The UNFCCC noted the possibility of combining the LDCF and SCCF funds, focusing on adaptation with GEF Trust Fund funds supporting climate change mitigation. The UNCCD would then focus on sustainable land management to combat land degradation while also improving climate change adaptation and resilience in communities and ecosystems.

The first multitrust fund projects were approved in GEF-5 (13 in total). Only one was approved in GEF-6 due to funding difficulties for the LDCF and the SCCF, but the GEF-7 adaptation strategy makes common reference to multitrust fund projects; more than 15 multitrust fund projects have been approved so far in GEF-7 (GEF 2018b).

**Multitrust fund projects aim to achieve both climate change adaptation and global environmental benefits and present a unique opportunity for synergies but can also cause complexity in design.** Generally, certain components or activities of multitrust fund projects address LDCF or SCCF objectives; others address GEF focal area objectives to achieve global environmental benefits. In this sense, the project components are divided into adaptation and focal area objectives, although in many cases, as seen in the project review for this study, some activities achieve synergies by addressing both at once. Some stakeholders observed that these present a unique opportunity within the GEF Trust Fund to address multiple benefits more holistically than can be done through GEF focal area projects. Others noted that the multitrust fund project design process can be more complex because the requirements of multiple trust funds must be satisfied and differing approval processes followed. Box 3.3 highlights some GEF IEO findings about multitrust fund projects based on evaluations of the LDCF and the SCCF.

Stakeholders of the multitrust fund case study project Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-watersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera (GEF ID 4616), implemented by FAO in El Salvador, noted the complexity of project design. Having to deal with demands from both

### Box 3.3 Findings from LDCF and SCCF evaluations

Since 2009, four evaluations of the LDCF and two of the SCCF (with a third ongoing) have been completed (EVAL and GEF EO 2009; GEF IEO 2012, 2014, 2016, 2018b, 2022c). Several of these evaluations contain findings that relate to climate change adaptation and resilience in the GEF Trust Fund projects. The most common finding, mentioned in several evaluations, is the limiting nature of the ad hoc funding mechanism for the two small funds, in which replenishment does not have a specific cycle as the GEF Trust Fund does. This limits transparency and reliability of project selection and has led to underfunding, especially in the case of the SCCF. The different funding cycles limit the effectiveness of multitrust fund projects as well, and the 2020 LDCF evaluation noted that this imbalance "hindered mainstreaming adaptation and resilience in GEF Trust Fund projects" (GEO IEO 2022c). As a result, the LDCF and the SCCF moved to approving projects in batches based on agreed-upon priorities, which has helped raise the number of multitrust fund projects in GEF-7 compared to GEF-6.

Several evaluations have looked at the LDCF's and the SCCF's impact on integrating climate adaptation and resilience into the GEF but have come to differing conclusions. The 2016 LDCF evaluation concluded that LDCF projects contribute to GEF focal areas—especially biodiversity and land degradation—and their global environmental benefits, even in the absence of funding from those focal areas. The 2018 SCCF evaluation, by contrast, noted the limited relevance of SCCF projects for the GEF Trust Fund, with the exception of sustainable land management in the land degradation focal area. This points to a more natural linkage between climate change adaptation and certain GEF focal areas, especially land degradation.

the SCCF and the land degradation focal area of the GEF Trust Fund created confusion and stress during design, but this was ultimately overcome. The project was also the first multitrust fund project implemented by FAO in El Salvador, so staff may have experienced a learning curve. The design team decided to use the multitrust fund format for two reasons: (1) to make for a more competitive proposal; and (2) the project area had undergone several recent natural disasters and was considered highly vulnerable to climate change, thus lending itself well to both land degradation and climate change adaptation activities.

**Multitrust fund projects generally have more thorough descriptions in project design documents of the expected climate change impacts on their project areas than do GEF focal area projects.** All the multitrust fund projects reviewed for this study included descriptions of the predicted climate change impacts on their projects' area of intervention in project design documents, compared to only 83 percent of IAPs and impact programs and 72 percent of focal area–only projects. Several multitrust fund projects included data from downscaled global circulation models that gave ranges of potential change in temperature and precipitation regimes for their region. None of the reviewed focal area–only projects had such detail in their project design documents. This finding is likely related to the need felt in multitrust fund projects to further address the risks from climate change because of their adaptation funding from the LDCF and the SCCF.

Compared to the multitrust fund projects, focal area project design documents from the reviewed GEF-5 and GEF-6 projects tended to have less description of strategies to mitigate the impacts of climate change. Often, there was only mention of existing climate-related issues such as droughts and floods but no explanation of how climate would change in the future; or broad statements that climate change would affect ecosystems or regions

without details on the actual impacts or measures to mitigate them. This is likely because much of the description of the environmental issues in these projects centered on the focal area–specific threats rather than on climate change.

**The Tonga case study project is a positive example of a multifocal area project that integrated climate adaptation into its planned project activities during project design.** The Integrated Environmental Management of the Fanga'uta Lagoon Catchment project (GEF ID 5663) implemented by the United Nations Development Programme (UNDP) in Tonga was a multifocal area project (international waters, climate change, land degradation, and biodiversity) and part of the Ridge-to-Reef program. The project design team realized after initial stakeholder consultations that protection of the lagoon's watershed was dependent on adaptation, given the area's high vulnerability to climate change. Activities linked to adaptation included mangrove restoration, coastal fishery and land use management, and ecotourism to provide alternative livelihoods and increased incomes. Some of these elements went beyond adaptation to build system resilience: increasing incomes and providing alternative livelihoods could, if successful, improve the socioeconomic state of certain vulnerable populations, which would make them resilient to a wide range of shocks or stresses.

**Among IAPs and impact programs, the GEF-6 Food Security IAP has had the most direct links to climate adaptation and resilience and has included these elements in design and monitoring.** The GEF IEO completed a formative evaluation of the integrated approach and found varied integration of resilience across several IAP and impact program child projects (GEF IEO 2022b). Among the three IAPs, 52 percent of child projects were found to reference resilience related to climate risks, while 42 percent had resilience-based indicators. The Food Security IAP had higher integration of resilience, with 85 child projects referencing climate resilience and 77 percent reporting resilience-focused indicators. The GEF-7 Sustainable Cities Impact Program was found to have more resilience integrated into design than the GEF-6 Sustainable Cities IAP, including activities to enable cities to adapt to natural disasters, such as flooding, which are expected to become worse with climate change. The RAPTA tool was piloted in the Food Security IAP, leading to resilience design in certain child projects. The GEF IEO (2022b) also pointed out the role of the hub project in the program, which has issued guidance on measuring food security resilience indicators (although these do not directly address climate change, they are related in many cases) and monitoring resilience through the use of the FAO Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP) tool in seven projects.

**The RAPTA framework developed by the STAP helps Agencies integrate resilience into project design from the concept phase.** RAPTA was designed to help integrate resilience, along with adaptation and transformation, into projects from the very beginning to help ensure that outcomes are more robust and sustainable over time (O'Connell et al. 2016). The framework aims at broad integration of systems resilience, not just resilience to the impacts of climate change, but it was designed specifically for the Food Security IAP, in which addressing climate change impacts is a key issue.

There are seven components to RAPTA: scoping, engagement and governance, theory of change, system description, system assessment, options and pathways, and learning. The framework is designed to be used iteratively; different steps can be repeated and done in a different order if necessary. RAPTA is designed to augment rather than replace GEF project design, placing heavy emphasis on understanding the system in which

the project will work and on broad stakeholder engagement.

**Stakeholders interviewed as part of the Food Security IAP Ethiopia case study noted that the unique approach of the IAP allowed for more integration of resilience.** The Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience Food Security IAP child case study project (GEF ID 9135) implemented by UNDP in Ethiopia had unique resilience integration in project design for two reasons. The first reason was that the IAP program allowed for integration of resilience in a way the design team said was not possible through normal focal area projects, because the food security focus lent itself much more to tackling systems-level socioeconomic and landscape issues than, for instance, enhancing biodiversity conservation did. In addressing food security in Ethiopia and many parts of Sub-Saharan Africa, resilience to climate change is an obvious issue to take into account. The second reason was that the RAPTA framework was used in project design.

**RAPTA was piloted in the case study Ethiopia Food Security IAP project, where the project team found it very useful and influential during project design.** According to project documents and project staff, RAPTA had a large influence on the design of the project. The design team organized six field-level assessments to carry out stakeholder engagement, system assessments, and pathway definitions as part of the RAPTA process. According to the design staff, the framework helped them better understand the local contexts and systems before designing specific activities, allowing local community members to be co-designers of the project. This went beyond usual project design, in which designers generally have a preconceived notion of what the solutions to local issues should be. These consultations led the design team to consider more strongly the impact of peace and security on community resilience—from violent extremism to conflict over pastoral resources, the need for nonfarm alternative livelihoods to take pressure off the landscape, and the importance of water availability—which consistently came up as a top issue for local communities.

The result was inclusion of activities related to seasonal enclosures for livestock, inclusion of neighboring communities to manage intercommunity land conflicts, small-scale irrigation, and additional alternative livelihood activities such as flour milling and sheep rearing. Multistakeholder platforms were created at the local level to help manage local activities and increase local ownership of the project. Project staff were very positive about RAPTA, noting that it helped build their capacity to use systems thinking in project design and helped them create a more robust project—even compared to other Food Security IAP projects in neighboring countries.

**The integration of resilience in the IAPs and impact programs has allowed for more flexibility in design and implementation.** The focus in the IAPs and impact programs on resilience to multiple shocks in addition to climate change was useful when the COVID-19 pandemic hit in early 2020. The pandemic was not a climate shock, but as stakeholders have pointed out, it is difficult to predict what type of shocks will arise. Thus, planning for resilience and flexibility generally is key in project design. Additionally, the GEF Secretariat staff noted that through inclusion of resilience in program and project design, the child projects have been able to reach additional climate change adaptation and resilience-earmarked cofinancing from Agencies and outside partners such as multilateral development banks.

**RAPTA is seen by some as onerous to implement and has largely not been used in the GEF Trust Fund beyond the Ethiopia project.** Despite a positive experience with RAPTA for the Food Security IAP project, Ethiopia project staff noted that they

did not use RAPTA to design child projects for the Food and Land Use Food Systems, Land Use, and Restoration impact program in GEF-7, although they are considering its use for LDCF projects in East Africa. Many Agency and GEF Secretariat staff noted that RAPTA is a complex tool that needs specific expertise and heavy intellectual and time investment—therefore, it has not been widely adopted across the partnership (although it is being used in non-GEF contexts, especially by subnational government in Australia).[7]

In Ethiopia, its implementation benefited from the increased attention attached to the piloting process. STAP staff visited the country during the design of RAPTA, getting inputs from some UNDP colleagues who were also on the Ethiopia project design team. Additionally, another UNDP resilience tool, Community-based Resilience Analysis (CoBRA) was designed in the same Ethiopia project areas, so project staff were already familiar with resilience concepts and their application.

Such attention may not be possible on a case-by-case basis if RAPTA were to be broadly adopted across the GEF. Several stakeholders suggested that aspects of RAPTA, or modules, could be used individually for projects or built into PIF and CEO endorsement documents to encourage resilience thinking without the need to implement the entire framework.

## 3.3 Relationship with project outcomes and sustainability

**Measuring the impact of integrating resilience, climate change adaptation, and climate risks on GEF Trust Fund project outcomes and sustainability is challenging.** Several limitations become evident in efforts to measure how integration of resilience, climate change adaptation, and climate risks into projects affected project outcomes: the long time it takes for adaptation and resilience efforts to come to fruition, the relative recency and lack of monitoring data for risk in the GEF, the difficulty of attributing shocks to climate change, the large spatial variability of the impact of disturbances, and the large number of variables that go into making a project successful and achieving outcomes.

This study focused on evidence of correlation or association between projects that did have evidence of integrating adaptation and resilience and outcome achievement and sustainability. Such correlations can be useful for understanding whether projects that do integrate adaptation and resilience into their design or implementation are also successful.

**Evidence from completed projects shows a positive correlation between integration of resilience in project design and project outcomes.** To test for correlation between inclusion of resilience in project design and project outcome ratings, data on inclusion of resilience in project design from the IEO portfolio review of more than 700 projects was merged with performance data from the GEF IEO terminal evaluation review data set, resulting in a data set of 266 projects for analysis (only projects that were rated for inclusion of resilience and were present in this data set could be included). The analysis controlled for factors including year of implementation start, grant size, and country context; as well as factors found to be significantly correlated with satisfactory project outcomes in past IEO evaluations such as quality of project implementation, quality of execution, and realization of over half of initial cofinancing commitments (GEF IEO 2018a).

The analysis showed a statistically significant correlation at a 90–95 percent confidence level

[7] The Queensland government has created a modified version of RAPTA to inform disaster risk reduction.

between inclusion of resilience or resilience thinking in project design and satisfactory project outcomes (see annex E). The correlation was found to have a higher confidence level (statistically significant at a 95–99 percent confidence level) for projects that had integrated resilience in design at a high level (projects categorized as having integrated resilience into project design as a co-benefit or into a multiple-benefits framework).

**SPA projects had higher outcome ratings than other GEF Trust Fund projects of the same time period (GEF-3 and GEF-4).** An analysis of results of SPA project results shows the relative success of the GEF's early climate change adaptation initiative. Ninety-six percent of SPA projects with ratings available were rated in the satisfactory range for achievement of outcomes, and 70 percent in the likely range for sustainability of project benefits. This compares to 80 percent of all other non-SPA projects approved during GEF-3 and GEF-4 rated in the satisfactory range for outcomes, and 63 percent of these projects rated in the likely range for sustainability of benefits. The high ratings of SPA projects point to a correlation between GEF Trust Fund projects that did include climate adaptation objectives and project success.

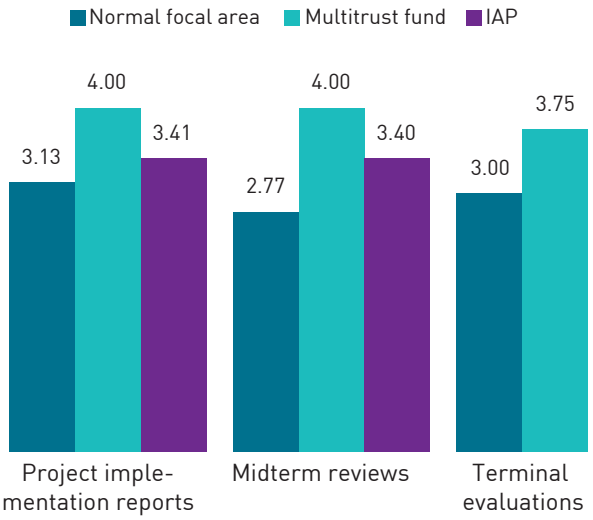
**Among GEF-5 and GEF-6 projects with high climate adaptation or resilience integration reviewed for this study, multitrust fund projects generally had higher project implementation and outcome ratings than focal area and IAP projects.** Across the 34 projects reviewed for this study with high integration of climate adaptation or resilience, multitrust fund projects on average had higher ratings than focal area and IAP projects for project implementation reports, midterm reviews, and terminal evaluations (figure 3.10).[8]

**The indicators in GEF Trust Fund projects linked with climate adaptation and resilience most likely to be met were related to alternative livelihoods, policy and planning, and research and knowledge management.** The GEF Trust Fund does not have any mainstreamed project indicators that measure adaptation or resilience specifically when not in a multitrust fund project. However, some project indicators in the 34 projects with high integration of adaptation or resilience reviewed for this study did measure aspects of adaptation and resilience. Overall, targets for 60 percent of indicators linked to climate adaptation or resilience in the reviewed projects were either fully met according to the terminal evaluation or on track to be fully met according to the midterm review (midterm reviews were only used when terminal evaluations were not yet available).[9] Indicators tracking the success of alternative livelihood were the most likely to be met: 70 percent of these targets were fully met or on track to being fully met; followed by targets measuring the success of policy and planning activity indicators (69 percent) and research or knowledge management activity indicators (68 percent) (figure 3.11). Indicators with the least success in meeting targets were those related to independently measured indicators such as remotely sensed vegetation greenness or water quality (see box 3.4 for examples), which were only 36 percent met or on track to being met; and capacity building activity indicator targets, which were met or on track to being met 48 percent of the time.

[8] Objectives and outcome ratings are based on a five-point scale between highly unsatisfactory (1) and highly satisfactory (5). Project implementation reports rate progress on development objectives and implementation progress. The midterm review rating is based on progress toward project objectives; terminal evaluation ratings are based on achievement of project outcomes.

[9] Indicators were considered to be directly linked with climate adaptation or resilience if they measured the success of an activity that specifically aimed to improve or promote climate change adaptation or resilience to a specific impact of climate change (such as increasing intensity of flood or drought) in the project area. If an indicator's target was altered during project implementation, its completion was based on the most recent target value.

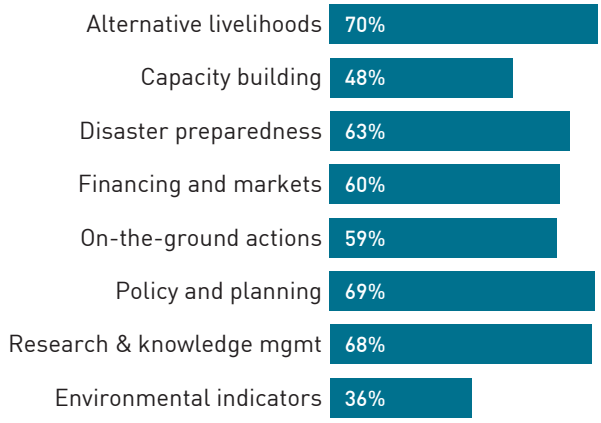
**Figure 3.10** Average objectives and outcome ratings for projects with high resilience inclusion by project type




**Source:** Project documents.

**Note:** *n* = 34 projects. No terminal evaluations are yet available for any IAPs. Objectives and outcome ratings are scored on a five-point scale from 1 (highly unsatisfactory) to 5 (highly satisfactory).

**Figure 3.11** Percentage of indicators linked with resilience or climate change adaptation in reviewed projects that were fully achieved or on track to be fully achieved




**Source:** Project documents.

**Note:** *n* = 34 projects.

**Several reviewed GEF Trust Fund projects experienced climate shocks during implementation which negatively affected project outcomes.** Twenty-six percent of the reviewed projects were affected in some way by climate shocks during implementation (see box 3.5 for examples). These shocks included hurricanes or cyclones, droughts, and wildfires. It is not known whether these shocks were influenced by climate change, but they were the types of shocks that are expected to become more frequent with climate change. Thus, they provide a good test case for understanding whether projects that aim to build climate adaptation and resilience are doing so in the short term. Furthermore, if a project is detrimentally affected by a shock during implementation, its ability to achieve its goals will be diminished, as well its ability to improve resilience for future shocks.

The impacts of the shocks varied from delaying project start-up and provision of supplies to loss of project infrastructure and failure to meet indicator targets. The case study project in El Salvador experienced droughts and pests during implementation that caused several impacts on the project activities and beneficiaries, such as lower maize yields, loss of project-provided seeds and seedlings, and loss of grasses planted for rangelands. These adversely affected completion of project indicators on maize yields and area planted with grass. Project staff noted that they did use some drought-adapted seeds to avoid this issue, but blamed a lack of capacity of the beneficiaries, who did not take the proper steps to manage and prevent die-off of the seedlings.

In the Tonga case study project, the project encouraged ecotourism by building signs and a community center. However, Cyclone Gita damaged the center and destroyed many of the signs during project implementation. Project staff noted that the remains of the signs were later collected by the government after the project was completed and salvageable materials redistributed, although the roof of the community center has not yet been replaced by the community members.

**Box 3.4 Environmental indicators and climate adaptation and resilience: Opportunities and challenges**

Environmental indicators of general environmental health that a project hopes to improve are a good and unbiased way to measure overall trends in environmental degradation and global environmental benefit achievement beyond narrower project objectives or outcomes. In terms of climate adaptation and resilience, they can be a helpful measure of how ecosystems or ecosystem service provision to society threatened by climate change are changing over time. If ecosystems or ecosystem service provision are not changing negatively in ways that are expected by climate change or quickly bouncing back to sustainable levels after climate shocks, this could be an indicator of strong or improved climate adaptation or resilience.

These indicators are not without disadvantages. They can be difficult to measure; and establishing baselines for such indicators is difficult if monitoring was not in place prior to project implementation. Furthermore, trends in environmental indicators are difficult to attribute to project activities, given that they are influenced by many factors, many of which may not be related to the project.

Examples of environmental indicators from reviewed projects show these difficulties.

- Implementing a "Ridge to Reef" Approach to Protecting Biodiversity and Ecosystem Functions within and around Protected Areas (GEF ID 5069) in Grenada hoped to improve turbidity and sediment build-up in marine protected areas, which could show the success of upstream erosion control project activities that improve adaptation to climate change (erosion is expected to increase with more intense storms due to climate change). However, the midterm review noted that the project did not measure turbidity at the project start, so no baseline was established. This was partially due to a lack of equipment to measure turbidity from government partners. Stakeholders also pointed out that burst sewer pipes—something outside the project's influence—would negatively affect turbidity measurements.
- The Establishing Integrated Models for Protected Areas and Their Co-Management project in Afghanistan (GEF ID 4839) aimed to improve vegetation cover in project areas through sustainable land management interventions, which would make the ecosystem and its service provision better adapted to increasing floods and droughts due to climate change. Some areas did see an increase in vegetation cover, but others underwent drought during project implementation leading to a decrease in cover despite project activities.

None of the reviewed projects had a specific emergency response plan in place at project design to deal with the impacts of these shocks on project implementation, though several did have activities related to building resilience among beneficiaries to possible similar shocks in future. This suggests that project design teams regard climate change shocks as occurring in the future but were a lower risk or an unmitigable risk if they occurred during implementation. Climate adaptation and resilience-building activities were designed to build capacity and resilience over several years rather than deal with shocks during implementation; therefore, enough time might not have elapsed for the projects to achieve their goals before being tested by these shocks.

**The evidence indicates the need to build in and encourage flexibility and adaptive management to avoid the detrimental impacts of climate and other shocks.** Because of the uncertainty around both the exact impacts of climate change and the exact nature and timing of the shocks and changes that specific ecosystems and societies will face in

**Box 3.5 GEF Trust Fund project responses to climate shocks during implementation**

Climate shocks during implementation affected projects in different ways. Several experienced drought during implementation, which caused loss of planted seedlings, failure to meet vegetation cover improvement targets (see box 3.3), and diversion of resources.

The Agriculture Production Support Project in Chad (GEF ID 4908) was an example of the latter, where a drought during project implementation caused a diversion of resources from some project components to another that was already designed to provide emergency provisions. This was the only project in which emergency provisions was part of project activities from design (although it was not a GEF Trust Fund-funded component), responding to a drought that occurred prior to project implementation. Another drought caused further diversion of resources to this component. The existence of the component proved useful though, as a system was already in place to provide emergency relief. The terminal evaluation noted that the project "played a role in ensuring stability and reduce the immediate vulnerability of the population" during the drought.

Hurricane Matthew affected implementation of two reviewed projects in Haiti in 2016.

- The Increasing Resilience of Ecosystems and Vulnerable Communities to Climate Change and Anthropic Threats through a Ridge to Reef Approach to Biodiversity Conservation and Watershed Management project (GEF ID 5380) responded to the devastating hurricane by reorienting microprojects to respond to the needs of target populations—for example, by building boats and reforestation and erosion control of hurricane-affected areas. The impact of the hurricane caused a decrease in and delay of project activities.
- The hurricane hit the Ecosystem Approach to Haiti Cote Sud project (GEF ID 5531) less than six months into implementation. According to the terminal evaluation, the storm caused "significant setbacks," as project staff had to "redirect their efforts toward the provision of assistance to local partners, under very difficult circumstances." The project design documents did take note of climate and climate change risks and had disaster risk management and resilience-building activities built into the project design. However, the risk management plan did not include measures to deal with climate shocks so early in implementation.

the future, designing projects to address just one potential future scenario is largely seen as a limited view folly. When dealing with climate data, for example, one global circulation model may point to an increase and another to a decrease in future precipitation for the same location. For this reason, it is best practice to build flexibility, redundancy, and adaptive management into projects and their activities—not only so the project can change course if necessary, but so beneficiaries are prepared for a range of future scenarios.

In the case of climate data, this means that using a variety of data sources, such as historical climate patterns in addition to global circulation models, is preferable to uncover a range of scenarios (Fielder et al. 2021). For projects, this could mean building in scenario analysis to determine solutions that are acceptable for as large a range as possible of future scenarios (Nissan et al. 2019) or building flexible risk-sharing mechanisms, such as insurance, that give beneficiaries access to financing whenever a future shock may occur.

At the project management level, some donors combat uncertainty by including or investing in flexible funding mechanisms that allow quick disbursement of funds if a certain trigger event occurs or if a threshold is crossed. One example often used for climate shocks is a crisis modifier, in which a

development project focused on a climate (or otherwise) vulnerable region or sector maintains a certain amount of funding to be used only if a shock occurs during implementation (Peters and Pichon 2017).

**The case studies demonstrated successes during project implementation with climate adaptation and resilience activities.** The El Salvador project trained technicians and family leaders in reducing risks of climate change impacts—creating microwatershed plans, establishing household gardens, increasing vegetation cover to conserve soil, and increasing water availability through construction of rainwater harvesting reservoirs and tanks. The terminal evaluation for the Tonga case study project noted that the project planted 20 hectares and rehabilitated 69 hectares of mangroves during the project; although sapling survival was below 20 percent, and the mangroves were destroyed to create a park and a road at the end of implementation. The project trained many people in tree planting and monitoring skills, planted fruit tree plantations, and developed community fishery management plans.

Measures were also taken to ensure resilience past project completion. The terminal evaluation for the El Salvador case study project rated its outcomes to be unlikely to be sustainable due to the "lack of a comprehensive exit strategy," noting there were no commitments by local parties to continue the work done by the project. However, project staff still in the country noted that beneficiaries of the project have informed them they are now harvesting from the fruit trees planted during the project, selling moringa seeds from project-planted trees, and benefiting from the rainwater harvesting infrastructure the project helped build. Project staff also noted that watershed committees established during the project are still active.

The terminal evaluation for the Tonga project noted that involvement of local institutions improved the likelihood of sustainability. This still seems to be the case, as the former project manager now works for the government and is able to visit and continue work in former project sites routinely. Community management committees established by the project are still active, and the coastal management plans have been replicated in other communities, according to project staff. One mangrove nursery established by the project is still in use, and the signs damaged by the cyclone have been replaced with different funding. The government now performs mangrove monitoring, although it does not have enough funding to do complete monitoring; and it is unclear as to whether the mangrove extent is increasing or decreasing.

# Conclusions and recommendations

## 4.1 Conclusions

Conclusion 1: **When compared to other multilateral funds with a focus on climate change, the GEF Trust Fund is in a unique position to integrate climate adaptation and resilience across its diverse set of environmental focal areas.** Because the GEF Trust Fund does not focus on climate change adaptation or resilience as main goals in the same way as several other funds—such as the Adaptation Fund, the GCF, the LDCF, and the SCCF—it is not expected to achieve as much in these fields as these peers. This is well understood by the GEF and UNFCCC Secretariats, which point to climate change mitigation rather than adaptation or resilience as the GEF's main goal for the climate change focal area and even the main climate change goal of the impact programs.

Nonetheless, there is recognition that climate adaptation and resilience are important and linked to global environmental benefits. Many stakeholders point to a unique opportunity the GEF Trust Fund has for inclusion of climate adaptation—and especially resilience—to integrate, bring recognition to, and build capacity in climate adaptation and resilience across its diverse set of environmental focal areas. Because GEF focal areas and projects are primarily rooted in and focused on focal area objectives, they have a unique ability to bring climate adaptation and resilience into a range of environmental projects that may not be in sectors with high capacity and historical consideration of climate adaptation and resilience, such as chemical waste management or reducing ocean plastics.

Conclusion 2: **Resilience, climate change adaptation, and climate risks are increasingly being integrated into GEF strategies and projects, but the definitions of these terms are not quite clear, especially for resilience.** Since GEF-5, recognition of the links between resilience, adaptation, and climate risks and the GEF focal areas has increased. Multitrust fund projects bringing LDCF and SCCF adaptation programming together with GEF Trust Fund programming began in GEF-5 and continue into GEF-7. The STAP has increasingly focused GEF attention on CRS, culminating in the UNFCCC requesting that the GEF address climate risks and the revised GEF safeguards policy in 2019 that mandated CRS across the GEF.

Resilience is increasingly mentioned in GEF programming documents and GEF Trust Fund project titles and integrated into projects, especially the IAPs and impact programs. However, resilience

has not been defined outside the IAPs and is used in many different contexts (as is common in development organization strategies beyond the GEF), from the narrow resilience of a specific ecosystem to specific shocks (such as climate change) to the entire planet's resilience to a broad range of disturbances. The wide range of uses of the term makes it difficult to understand and measure the GEF's work on resilience.

Conclusion 3: **Evidence shows that integration of climate adaptation and resilience into GEF Trust Fund projects is correlated with positive project outcomes.** Statistical analysis clearly demonstrates the positive link between integration of resilience in project design and project outcomes. Similarly, SPA projects, which integrated climate adaptation into their project components and results framework from the design phase, were found to have higher outcome ratings than other GEF-3 and GEF-4 projects. Case study projects also revealed evidence that integration of adaptation and resilience benefited project design and aided sustainability of outcomes. However, some projects, even with high adaptation and resilience integration, were adversely affected by a range of climate shocks during implementation and generally did not have plans to address or adapt to such disturbances.

Conclusion 4: **GEF CRS guidance has mostly been viewed positively by Agencies, with the need for greater clarity on the GEF Secretariat quality review of the CRS.** Agencies were generally positive about CRS guidance from the STAP—especially the breadth of guidance, which allows Agencies with higher expertise to use their own tools and methodologies. The cross-Agency collaboration organized thus far by the GEF Secretariat and the STAP has been useful, and more was suggested. The timing of the CRS process has also worked well. The initial screening at the PIF stage is early enough to build risk management into design and avoids the process becoming a postdesign retrofitting exercise.

However, some Agencies were confused about the quality review of the CRS—specifically, what exact characteristics the GEF Secretariat was looking for when reviewing the CRS; others felt they had little knowledge on practical measures to put in place to respond to the risk screening.

Conclusion 5: **The RAPTA framework provides the GEF with a tool for integrating resilience into projects and was well received in the pilot phase, though it has not been widely adopted.** The STAP developed RAPTA, tailored for the Food Security IAP, to help GEF projects integrate resilience (including building resilience to the impacts of climate change), adaptation, and transformation into its projects. The early piloting of the framework in the Ethiopia child project was viewed positively: improved stakeholder engagement and systems analysis were noted. The framework has not been widely used since and was viewed as difficult to implement due to its complexity.

## 4.2 Recommendations

The findings in this report highlight the useful guidance the GEF has provided to its Agencies on how to conduct climate risk screening for projects, but points to the absence of guidance on risk mitigation measures. The evidence also indicates limited monitoring of resilience in GEF Trust Fund projects. Therefore, to enhance the integration of resilience, climate change adaptation, and climate risks in the GEF Trust Fund, the GEF should

1. Develop guidance on climate risk mitigation measures; and
2. Improve the monitoring of resilience in GEF Trust Fund projects, with attention to the context of each focal area.

# Concept note

*This annex has been lightly edited for style and consistency. Its original annexes have been appended to this final evaluation report and the references updated accordingly.*

## A.1 Purpose and objectives

This purpose of this study is to assess how increased attention over time to climate change resilience in the Global Environment Facility (GEF) partnership has affected its interventions. The study's main objectives are as follows: (1) to understand the GEF partnership's approach to climate change adaptation and resilience and how it has evolved over time, and (2) to assess how the incorporation of climate change resilience thinking in project design affects project implementation and outcomes.

## A.2 Background

While the GEF has a history of delivering results in a variety of environmental areas including climate change mitigation, it has become increasingly clear that mainstreaming climate change resilience into activities is essential for ensuring that global environmental benefits in its diverse focal areas are achieved. During the GEF-5 period when climate change resilience began to receive more attention in the GEF partnership, the programming document stipulated that climate change adaptation and resilience work would be funded exclusively through the Least Developed Country Fund (LDCF) and the Special Climate Change Fund (SCCF), while GEF Trust Fund projects would address climate change mitigation.[1] However, as the GEF Scientific and Advisory Panel (STAP) wrote at the start of GEF-5, climate change is a multifocal threat, "requiring both multi-focal approaches and actions within all focal area projects" (GEF STAP 2010).

The report—the STAP's first advisory document focused on climate resilience in the GEF—further concluded that to deliver global environmental benefits, GEF investments "are best protected by adopting approaches that simultaneously address

[1] The second strategic goal of the GEF-5 results architecture was to "Reduce global climate change risks by: 1) stabilizing atmospheric greenhouse gas concentrations through emission reduction actions: and 2) assisting countries to adapt to climate change, including variability" (GEF 2010a). However, a footnote to this goal clarified that the GEF Trust Fund would provide resources toward climate change mitigation, while the LDCF and the SCCF would fund adaptation work—essentially removing the mandate to address climate change adaptation from the majority of the GEF's work.

climate risks and the objectives of focal areas" (GEF STAP 2010).

The STAP advisory document reviewed a sample of GEF-4 projects to gauge compliance with the requirement that climate risks are identified, a requirement in project proposals at the time. The STAP found that considerations of climate risks varied; and that even where projects did identify risks, few supported these risks with analysis and scientific data, while mitigation responses were generic (GEF STAP 2010).

That same year, the GEF Independent Evaluation Office's (IEO's) Evaluation of the Strategic Priority for Adaptation (SPA), the precursor to the LDCF and SCCF funds, found some evidence of an increase in mainstreaming of adaptation and resilience in GEF focal area strategies from GEF-3 to GEF-5 (GEF IEO 2011). It also identified several factors preventing integration or mainstreaming of climate change adaptation and resilience into the GEF's activities, including a lack of mechanisms for operationalization, gaps in scientific knowledge related to potential climate change impacts, lack of incentives within the GEF system to take climate change impacts into account with already limited resources to deal with focal area demands, difficulties in conceptualizing an operational link between adaptation and global environmental benefits, and limited collaboration regarding adaptation between the various GEF-managed funds (GEF IEO 2011).

Integration of climate change resilience into GEF work started slowly in GEF-5 but has since built momentum. In response to the findings of the IEO study noted above, the GEF Council requested the Secretariat to develop and implement screening tools to "serve as a first step to ensure the mainstreaming and targeting of adaptation and resilience, to reduce the risks from climate change in GEF focal areas and its activities" (GEF 2012). The Council also requested the Secretariat to report on its progress at the November 2012 GEF Council meeting.

At the meeting, the GEF Secretariat presented an update on its efforts at enhancing climate change resilience in GEF projects, including a plan to develop a more structured framework for enhancing climate resilience in GEF projects, with more detailed expectations for information to be included at the project identification form (PIF) and Chief Executive Officer (CEO) endorsement stages (GEF 2012). The document noted that the GEF sixth replenishment would provide an opportunity to discuss how GEF focal area strategies could be improved in their contribution to climate change resilience. However, the next steps outlined in this document—which included finalizing a framework document for approval by the GEF CEO as part of the GEF policies and procedures in the GEF project cycle—never took place.

While this framework was never delivered, the GEF-5 period did see other developments toward integration of climate change resilience, the most notable being the introduction of multitrust fund projects, combining climate change adaptation activities funded through LDCF/SCCF with activities funded through the GEF Trust Fund. These projects provided further opportunities for mainstreaming resilience to climate change into the GEF focal areas.

While the GEF-5 programming document made limited mention of climate change resilience and adaptation, the GEF-6 programming directions addressed the issue more directly: "It should also be noted that given the magnitude of the potential adverse impacts of climate change the GEF Council has encouraged the GEF to reflect resilience in its projects" (GEF 2014). The main measure identified to address this call was the introduction of multitrust fund projects noted above. Focal areas strategies also made increased mention of climate resilience, particularly in the descriptions of the

three integrated approach pilot programs designed during the period.

Also during the GEF-6 period, the STAP developed the first in a series of guidance documents, "The Resilience, Adaptation and Transformation Assessment Framework: From Theory to Application" (O'Connell et al. 2015). The report synthesized scientific understanding of resilience in agroecosystems and proposed indicators of land-based adaption and ecosystem resilience. The guidance included a step-by-step method for assessing and reporting on these indicators. This guidance was followed up a year later with a guidance document outlining the RAPTA framework, which offered "practical guidance in how to apply the concepts of resilience, adaptation and transformation in planning projects" (O'Connell et al. 2016). The guidance laid out was aligned specifically with the Food Security Integrated Approach Pilot program, but was designed for use in other sectors as well.

GEF-7 programming directions included more attention to climate resilience, including the acknowledgment that

> climate change affects virtually all natural and economic systems. This interaction between climate change and biodiversity, land degradation, forests, chemicals and waste, and international waters points to the importance of recognizing climate change implications in all GEF-7 focal areas and impact programs by harnessing mitigation options to address them and integrating climate resilience measures to address climate change risks. (GEF 2018a)

According to GEF Agency reporting against the Rio markers,[2] among approved GEF-7 projects, 42 percent of GEF Trust Fund projects target climate change adaptation as a significant objective, and 3 percent as a principal objective (see appendix A.1). Additionally, the Policy on Environmental and Social Safeguards approved by the GEF Council in 2018 required that

> short- and long-term risks posed by climate change and other natural hazards are considered systematically in the screening, assessment and planning processes…based on established methodologies, and significant risks and potential impacts are addressed throughout the design and implementation of projects and programs. (GEF 2019a)

In support of GEF Agencies meeting this requirement, the STAP produced a guidance document on climate risk screening (GEF STAP 2019).

## COVERAGE OF CLIMATE CHANGE RESILIENCE BY THE GEF IEO

Since the GEF began giving more attention to climate change adaptation and resilience in its strategies, the GEF IEO has reviewed projects for inclusion of resilience thinking through two main efforts. As part of the Fifth Overall Performance Study (OPS5), the GEF IEO undertook a review of mainstreaming resilience and adaptation to climate change in the GEF focal areas. The review covered a sample of GEF-5 projects, assessing integration of adaptation and resilience concepts into design at entry, finding that nearly 40 percent of projects reviewed took resilience to climate change into account in their design (GEF IEO 2013). More recently and comprehensively, in 2018–19, the GEF IEO conducted a portfolio review of 870 projects from the pilot phase through GEF-6, which included screening for considerations of climate change risks in project design as part of the joint portfolio review for the least developed countries (LDCs), small island developing states (SIDS), and Africa biomes strategic country cluster evaluations (SCCEs). The review of projects in LDCs and

[2] All GEF-7 projects are required to indicate whether they target climate change adaptation on a three-point scale (0 = does not target, 1 = targets as a significant objective, 2 = targets as the principal objective) using the Rio markers developed by the Organisation for Economic Co-operation and Development's Development Assistance Committee.

the African biomes both found that only 37 percent of non–climate change adaptation projects showed some evidence of climate resilience considerations (GEF IEO 2022d, 2022e). Within the SIDS portfolio, half of the projects reviewed had resilience built into project design (GEF IEO 2019).

Despite these reviews of the number of projects that include resilience thinking in their design, there has not been an effort to understand how increased attention to climate resilience has affected project implementation or outcomes, or how the GEF's inclusion of climate change resilience and climate risks in its projects compares with best practices in the environmental development global community. Such efforts would provide the GEF with key evidence as to how the consideration of adaptation and resilience has translated into actual improvements in the quality of interventions and how to best integrate these themes into future programming.

Along with providing a comprehensive review of the development of the GEF's approach to climate change resilience, this study will attempt to understand the pathway through which increased inclusion of resilience and adaptation in design may affect project implementation and outcomes.

## A.3 Initial evaluation questions

This study will seek to provide evidence against the following initial evaluation questions:

- How has the GEF's strategy and approach to incorporating climate change adaptation and resilience evolved over time?
- What are the different ways in which and to what extent do GEF projects incorporate climate change adaptation and resilience into project design?
- How has the inclusion of climate change adaptation and resilience thinking in project design affected the implementation and outcomes of projects?
- What is the GEF's comparative advantage in the topic of climate change resilience, and how do its efforts to integrate such resilience into GEF Trust Fund projects compare to best practices?

## A.4 Approach

This study will rely on a desk-based review of GEF documents, case studies, and interviews.

### REVIEW OF THE GEF'S EVOLVING APPROACH TO CLIMATE CHANGE ADAPTATION AND RESILIENCE

First, this study will review in detail existing GEF guidance on climate change adaptation and resilience, including the following documents:

- GEF programming directions for GEF-5 and GEF-7 (GEF 2010a, 2014) for mentions of prioritizing links with climate change adaptation or resilience goals, climate mainstreaming or climate risk screening
- STAP guidance related to climate risk screening, climate mainstreaming, and the RAPTA guidelines
- GEF guidance or strategy documents related to climate change adaptation or resilience, and related GEF Council decisions.

These documents will be reviewed to create a timeline of the GEF's strategy and approach to climate change adaptation and resilience to better understand how it has evolved and during which periods major changes were made.

Additionally, documents and reports from the wider climate change resilience and adaptation community will be reviewed to understand best practices

for integrating the themes into development projects. This review will be done looking both at mainstreaming resilience into projects that focus on other topics (such as those covered by the GEF Trust Fund focal areas) and assessing climate risks to project outcomes and performance. The review will include protocols used by the GEF Agencies to better understand how resilience is integrated into their programming strategies and may include interviews of key international experts.

### LINKING RESILIENCE THINKING WITH OUTCOMES

In order to better understand if increased resilience thinking in project design has affected project implementation and outcomes, the existing review of projects for inclusion of resilience thinking that was conducted for the SCCEs, described above, will be used to identify case study projects (see appendix A.2 for definitions of resilience thinking used in the SCCE portfolio review). In line with the scope of this study, the data gathered for the SCCE portfolio review for projects funded by the GEF Trust Fund (including multitrust fund projects with GEF funding) approved during the GEF-5 and GEF-6 periods ($n = 378$) will be used. While the projects are not geographically representative of the GEF portfolio (areas such as Latin America and Eastern Europe are largely unrepresented), they represent a substantial portion of approved GEF Trust Fund projects for the GEF-5 and GEF-6 periods (29 percent and 15 percent, respectively). Projects within this group that were identified by the SCCE portfolio review as including resilience thinking will be further reviewed to gather more information on the level of consideration being given to climate resilience.

Case studies will then be selected based on the level of attention given to climate change resilience in project design and the amount of information available on implementation, outcomes, and sustainability of outcomes. The team will prioritize for case study selection projects that have been closed long enough to gather evidence on sustainability of outcomes postcompletion (ideally two to three years), allowing for analysis of how the inclusion or lack of inclusion of resilience thinking affected not only implementation but also outcomes and sustainability. If a sufficient number of completed projects with terminal evaluations from GEF-5 and GEF-6 are not available, projects that have at least received midterm evaluations will be prioritized next for case studies.

All case study project documents will be reviewed, starting with design documents such as PIFs and CEO endorsement request documents to understand the specific resilience thinking (if any) that was included at the design phase. Project implementation reports (PIRs), midterm reviews, and terminal evaluations will be reviewed to understand how considerations of climate resilience informed implementation and affected results and sustainability of outcomes. If possible, Agency and government staff involved in the project will be interviewed to determine their views on the effectiveness and usefulness of the resilience thinking and how it affected project success. If resilience thinking was not incorporated, interviews will help determine if such design thinking could have improved project outcomes.

## A.5 Stakeholder engagement

Key stakeholders include the GEF Secretariat, the GEF STAP, and the GEF Agencies. These stakeholders will be engaged through interviews and consultation. Interviews with project staff and beneficiaries from case studies will also be undertaken if possible. This study will contribute to the ongoing evaluation of GEF integrated programs and will benefit from feedback from that evaluation's reference group. Additionally, one to two climate change resilience experts will be engaged as key advisors

to the study to provide sector-specific guidance throughout the evaluation process.

## A.6 Evaluation team

The study's task team lead is Gabriel Sidman, Evaluation Officer. Molly Sohn, Evaluation Analyst, will lead the development of the project review protocol, to be assisted by a research analyst consultant. Another specialized consultant will perform research into best practices for integrating resilience into environmental projects. Edward Carr, STAP member, will provide strategic guidance. Anna Birgitta Viggh, Senior Evaluation Officer, will serve as internal peer reviewer. Geeta Batra, Deputy Director and Chief Evaluation Officer, will provide oversight.

## A.7 Timeline

This study will be an input into the OPS7 report to inform the GEF-8 replenishment process.

# Appendix A.1 Status of climate change adaptation Rio marker in GEF-7 projects, by modality

| Status | Enabling activity | | Full-size project | | Medium-size project | | Program framework document | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % | No. | % | No. | % |
| Projects not targeting CCA | 35 | 63 | 124 | 51 | 55 | 63 | 7 | 64 | 221 | 55 |
| Projects targeting CCA as a significant objective | 20 | 36 | 113 | 46 | 31 | 35 | 4 | 36 | 168 | 42 |
| Projects targeting CCA as a principal objective | 1 | 2 | 7 | 3 | 2 | 3 | 0 | 0 | 10 | 3 |
| Total | 56 | 100 | 244 | 100 | 88 | 100 | 11 | 100 | 399 | 100 |

**Note:** CCA = climate change adaptation. Includes all GEF Trust Fund PIF-approved projects; excludes canceled/dropped projects.

# Appendix A.2 Definitions of resilience thinking used in the SCCE portfolio review

## LEVELS OF CLIMATE RESILIENCE IN THE GEF CONTEXT[1]

**Resilience as risk management.** A first level of response emerges from pure risk management considerations: sustained delivery of future global environmental benefits is at risk from climate change. Therefore, projects ought to be screened for climate risks, and suitable risk management measures should be developed and adopted in project design and implementation. This would increase the resilience of the GEF portfolio to climate change. Such a de-risking approach is now being widely adopted by most multilateral and bilateral funding organizations, starting with the development and adoption of screening tools.

**Resilience as a co-benefit.** GEF focal area interventions offer the opportunity of enhancing resilience of human socioeconomic systems to climate change. It is therefore worth seeking resilience co-benefits of GEF focal area interventions, or in some cases, use approaches practiced in other focal areas, specifically for enhancing the climate resilience of human systems. This is the underlying logic of ecosystem-based adaptation, where ecosystem restoration serves as a means for reducing the vulnerability of human socioeconomic systems.

**Resilience integrated into a multiple-benefits framework.** It is increasingly important to develop frameworks and approaches that allow multiple objectives and multiple benefits to be achieved simultaneously across social and natural systems. In this framing, resilience is not seen as an add-on (additional risk to be managed) or a co-benefit, but rather as a system property that needs to be considered together with all of the other system properties, and thus linked to the idea of sustainable development.

## TYPES OF RESILIENCE SYSTEMS THINKING[2]

**Resilience from a systems or engineering perspective (absorptive).** This was the original, relatively narrow, focus of resilience; the ability of a system to bounce back or return to equilibrium following disturbance, referred to by Holling (1973) as "engineering resilience." This comes down to absorptive (coping) capacity, which Cutter et al. (2008, 663) defined as "the ability of the community to absorb event impacts using predetermined coping responses."

**Resilience as incremental change (adaptive).** Adaptive resilience refers to the various adjustments (incremental changes) that people undergo in order to continue functioning without major qualitative changes in function or structural identity. These incremental adjustments and changes can take many forms (e.g., adopting new farming techniques, change in farming practices, diversifying livelihood bases, engaging in new social networks, etc.). These adaptations can be individual or collective, and they can take place at multilevel (intra-household, groups of individuals/households, community, etc.).

**Resilience as transformational change (transformative).** Transformational changes often involve shifts in the nature of the system, the introduction of new state variables, and possibly the loss of others, such as when a household adopts a new

[1] Bierbaum et al. (2014).

[2] Béné et al. (2012).

direction in making a living or when a region moves from an agrarian to a resource extraction economy. It can be a deliberate process, initiated by the people involved, or it can be forced on them by changing environmental or socioeconomic conditions. What the growing body of literature that discusses transformational changes highlights is that the main challenges associated with transformation are not of a technical or technological nature only. Instead, as pointed out by Pelling (2011), these shifts may include a combination of technological innovations, institutional reforms, behavioral shifts, and cultural changes.

# Reviewed projects with high integration of climate adaptation or resilience

| GEF ID | Title | Focal area | GEF Agency | Country | GEF period | Funding (mil. $) | |
|---|---|---|---|---|---|---|---|
| | | | | | | GEF grant | Cofi-nancing |
| GEF Trust Fund | | | | | | | |
| 4605 | Management and Protection of Key Biodiversity Areas | CC, BD | World Bank | Belize | GEF-5 | 6.09 | 16.00 |
| 4631 | Watershed Approach to Sustainable Coffee Production in Burundi | BD, LD | World Bank | Burundi | GEF-5 | 4.20 | 20.80 |
| 4639 | Strengthening Management Effectiveness and Generating Multiple Environmental Benefits within and around the Greater Kafue National Park in Zambia | CC, LD, BD | UNDP | Zambia | GEF-5 | 13.15 | 46.94 |
| 4839 | Establishing Integrated Models for Protected Areas and their Co-management | BD, LD | UNDP | Afghanistan | GEF-5 | 6.44 | 53.30 |
| 5041 | Strengthening Decentralized Management of the Environment to Meet Rio Convention Objectives | MF | UNDP | Guinea | GEF-5 | 0.53 | 0.63 |
| 5069 | Implementing a "Ridge to Reef" Approach to Protecting Biodiversity and Ecosystem Functions within and Around Protected Areas | BD, LD | UNDP | Grenada | GEF-5 | 3.03 | 15.43 |
| 5304 | Sustainable Management of Bycatch in Latin America and Caribbean Trawl Fisheries (REBYC-II LAC) | IW | FAO | Brazil, Colombia, Costa Rica, Mexico, Suriname, Trinidad and Tobago | GEF-5 | 5.80 | 17.20 |
| 5381 | R2R: Implementing a "Ridge to Reef" Approach to Protecting Biodiversity and Ecosystem Functions in Nauru (R2R Nauru) | CC, IW, BD, LD | UNDP | Nauru | GEF-5 | 2.64 | 8.41 |
| 5405 | EAS: Scaling up the Implementation of the Sustainable Development Strategy for the Seas of East Asia | IW | UNDP | Philippines, Timor Leste, Vietnam, Thailand, Cambodia, China, Indonesia, Lao PDR | GEF-5 | 10.64 | 157.27 |

| GEF ID | Title | Focal area | GEF Agency | Country | GEF period | Funding (mil. $) | |
|---|---|---|---|---|---|---|---|
| | | | | | | GEF grant | Cofi-nancing |
| 5453 | Disaster Risk & Energy Access Management (DREAM):Promoting Solar Photovoltaic Systems in Public Buildings for Clean Energy Access, Increased Climate Resilience and Disaster Risk Management | CC | UNDP | Barbados | GEF-5 | 1.73 | 30.90 |
| 5517 | R2R Implementing an Integrated Ridge to Reef Approach to Enhance Ecosystem Services, to Conserve Globally Important Biodiversity and to Sustain Local Livelihoods in the FSM | BD, LD, IW, CC | UNDP | Micronesia | GEF-5 | 4.69 | 17.89 |
| 5542 | Catalyzing Implementation of the Strategic Action Programme for the Sustainable Management of Shared Living Marine Resources in the Caribbean and North Brazil Shelf Large Marine Ecosystems (CMLE+) | IW | UNDP | St. Vincent and Grenadines, Suriname, Trinidad and Tobago, Belize, Antigua and Barbuda, Barbados, Brazil, Colombia, Costa Rica, Dominica, Dominican Republic, Guatemala, Grenada, Guyana, Haiti, Honduras, Jamaica, Mexico, Panama, St. Kitts and Nevis, St. Lucia | GEF-5 | 12.50 | 134.15 |
| 5550 | R2R Implementing a Ridge to Reef Approach to Protect Biodiversity and Ecosystem Functions | LD, CC, BD, IW | UNDP | Tuvalu | GEF-5 | 3.76 | 15.68 |
| 5663 | R2R Integrated Environmental Management of the Fanga'uta Lagoon Catchment | IW, CC, LD, BD | UNDP | Tonga | GEF-5 | 1.76 | 6.65 |
| 6964 | Volta River Basin Strategic Action Programme Implementation Project | IW | World Bank | Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Togo | GEF-6 | 7.20 | 36.14 |
| 9123 | Cities-IAP: Sustainable Cities Initiative | CW, LD, CC, BD | World Bank | Senegal | GEF-6 | 8.72 | 51.78 |
| 9135 | Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience | BD, LD | UNDP | Ethiopia | GEF-6 | 10.24 | 144.97 |
| 5078 | Conserving Biodiversity and Reducing Habitat Degradation in Protected Areas and their Buffer Zones | BD | UNDP | St. Kitts and Nevis | GEF-5 | 3.37 | 17.14 |
| 5579 | Mainstreaming Global Environmental Priorities into National Policies and Programmes | MF | UNDP | Palau | GEF-5 | 0.55 | 0.63 |
| 5718 | Integrated Landscape Management for Improved Livelihoods and Ecosystem Resilience in Mount Elgon | CC, LD | UNDP | Uganda | GEF-5 | 1.62 | 8.83 |
| GEF Trust Fund—IAPs | | | | | | | |
| 9147 | Sustainable-City Development in Malaysia | CC | UNIDO | Malaysia | GEF-6 | 2.75 | 20.23 |
| 9179 | Adaptive Management and Learning for the Commodities IAP | BD, CC | UNDP | Global | GEF-6 | 3.98 | 5.27 |
| 9180 | Reducing Deforestation from Commodity Production | BD, CC | UNDP | Global | GEF-6 | 14.58 | 164.70 |

| GEF ID | Title | Focal area | GEF Agency | Country | GEF period | Funding (mil. $) | |
|---|---|---|---|---|---|---|---|
| | | | | | | GEF grant | Cofi-nancing |
| 9182 | Commodities-IAP: Generating Responsible Demand for Reduced-Deforestation Commodities | | WWF-US | Global | GEF-6 | 8.75 | 42.33 |
| **GEF Trust Fund/LDCF** | | | | | | | |
| 5270 | GGW Natural Resources Management in a Changing Climate in Mali | CC, BD, LD | World Bank | Mali | GEF-5 | 8.43 | 13.00 |
| 5380 | Increasing Resilience of Ecosystems and Vulnerable Communities to CC and Anthropic Threats Through a Ridge to Reef Approach to BD Conservation and Watershed Management | CC, BD | UNDP | Haiti | GEF-5 | 9.14 | 42.50 |
| 5531 | Ecosystem Approach to Haiti Cote Sud | LD, BD, CC | UNEP | Haiti | GEF-5 | 6.22 | 42.67 |
| 4625 | Shire Natural Ecosystems Management Project | LD, BD, CC | World Bank | Malawi | GEF-5 | 6.58 | 72.77 |
| 4908 | GGW: Agriculture Production Support Project (with Sustainable Land and Water Management) | CC, LD, BD | World Bank | Chad | GEF-5 | 9.26 | 102.25 |
| 5220 | PSG: Sustainable Land Management Project 2 | BD, LD, CC | World Bank | Ethiopia | GEF-5 | 12.96 | 94.66 |
| **GEF Trust Fund/SCCF** | | | | | | | |
| 4512 | Pilot Asia-Pacific Climate Technology Network and Finance Center | CC | ADB | Regional | GEF-5 | 10.91 | 74.37 |
| 4616 | Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera | CC, LD | FAO | El Salvador | GEF-5 | 1.52 | 6.44 |
| 4775 | Promotion of Climate-smart Livestock Management Integrating Reversion of Land Degradation and Reduction of Desertification Risks in Vulnerable Provinces | CC, LD | FAO | Ecuador | GEF-5 | 3.86 | 22.16 |
| 4880 | Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean | CC | IDB | Latin America and Caribbean, regional | GEF-5 | 10.90 | 56.55 |

**Note:** *Focal areas:* BD = biodiversity, CC = climate change, CW = chemicals and waste, IW = international waters, LD = land degradation, MF = multifocal. *GEF Agencies:* ADB = Asian Development Bank, IDB = Inter-American Development Bank, UNIDO = United Nations Industrial Development Organization.

# Comparisons with other multilateral climate funds

**Table C.1** Climate risk screening strategies and guidance of multilateral climate funds

| Fund | Fund-level safeguards policy/strategy | CRS guidance | Notes |
|---|---|---|---|
| Adaptation Fund | • Environmental and Social Policy and Gender Policy (updated 2016)<br>• Nothing specific on CRS; implementing entity policies apply | • Guidance document for implementing entities on compliance with the Environmental and Social Policy and Gender Policy (AF 2016)<br>• Nothing specific on climate risks | No specific CRS tool; implementing entity policy/ tool applies so long as meets Environmental and Social Policy and Gender Policy |
| Climate Investment Funds | None/no formal policy; multilateral development bank policies apply | None/no formal guidance. multilateral development bank guidance applies | A scoping note for CRS of Scaling Up Renewable Energy program investments outlines tasks to develop a method (CIF n.d.) |
| Global Environment Facility | • Policy on Environmental and Social Safeguards (GEF 2019a) mandates screening of climate change and natural disaster risks<br>• Agency policy applies | • STAP guidance on CRS (GEF STAP 2019)<br>• Agency retreat on CRS (2019, 2020) | STAP guidance sets standard; Agencies can offer specific "how to" guidance |
| Green Climate Fund | • Environmental and Social Policy (2018)<br>• Nothing specific on CRS; accredited entity policy applies | None/no formal guidance; accredited entity guidance would apply | Extensive Risk Management Framework (2017), but nothing on CRS |

**Table C.2 Integration of resilience strategies and guidance of multilateral climate funds**

| Fund | Fund-level climate resilience integration approach/strategy | Resilience integration guidance | Other |
|---|---|---|---|
| Adaptation Fund | • No fund-level policy/strategy; implementing entity policies/ strategies apply<br>• Resilience addressed through programming, as a key high-level objective for communities and ecosystems | None/no formal guidance; implementing entity guidance applies | Adaptation Fund Technical Evaluation Reference Group is working on material to integrate resilience into evaluation and planning |
| Climate Investment Funds | • No fund-level policy/strategy; multilateral development bank policies/strategies apply<br>• Resilience addressed through programming, especially through the Pilot Program for Climate Resilience | Indirect: Working definition of transformational change (updated 2021) and signals to identify transformational change in the project cycle | The Evaluation and Learning Initiative continues to work on transformational change through the Transformational Change Learning Partnership |
| Global Environment Facility | • No fund-level policy/strategy; Agency policies/strategies apply<br>• Resilience addressed through programming across most focal areas (chemicals and waste less so) | Voluntary: RAPTA framework (O'Connell et al. 2016) | Technical Advisory Group discussions have addressed resilience directly; Resilience Atlas may be an option for helping projects integrate resilience into their design |
| Green Climate Fund | • No fund-level policy/strategy; implementing entity policies/ strategies apply<br>• Resilience addressed through programming, especially ecosystems-based adaptation and rural livelihoods | None/no formal guidance; implementing entity guidance would apply | Potential for resilience to be addressed by climate rationale and (paradigm shift) investment criteria |

# Interviewees

Dennis Bours, Adaptation Fund

Noelle O'Brien, Asian Development Bank

Mwila Musumali, African Development Bank

Ian Kissoon, Conservation International

Craig Davies, European Bank for Reconstruction and Development

Ana Heureux, FAO

Jesus Constanza, FAO

Omar Arriola, FAO

Raul Carcamo, FAO

Tommaso Vicario, FAO

Jaime Tobar, FAO/CRS

Liu Lei, Foreign Economic Cooperation Office, Ministry of Environmental Protection of China

Aloke Barnwal, GEF

Anil Sookdeo, GEF

Chizuru Aoki, GEF

Christian Severin, GEF

Fareeha Iqbal, GEF

Filippo Berardi, GEF

Mark Zimsky, GEF

Ulrich Apel, GEF

Annette Killmer, Inter-American Development Bank

Juliana Almeida, Inter-American Development Bank

Terry Cannon, Institute of Development Studies

Dan Schreiber, Organisation for Economic Co-operation and Development

Guadalupe Duron, STAP

Tom Hammond, STAP

Anand Patwardhan, STAP/University of Maryland

Jason Veysey, Stockholm Environmental Institute

Jyoti Mathur-Filipp, Convention on Biological Diversity

Neil Pratt, Convention on Biological Diversity

Yibin Xiang, Convention on Biological Diversity

Birara Chekol, UNDP

Jose Padilla, UNDP

Nancy Bennet, UNDP

Phemo Karen Kgomotso, UNDP

Srilata Kammila, UNDP

Ta'hirih Hokafonu, UNDP

Wubua Mekonnen, UNDP

Hyunwoo Kim (Noah), UNFCCC

Anya Onysko, United Nations Industrial Development Organization

Juergen Hierold, United Nations Industrial Development Organization

Olga Gordiievska, United Nations Industrial Development Organization

Shaanti Kapila, World Bank

Veronique Morin, World Bank

Viviane Wei Chen Clement, World Bank

Heike Lingertat, WWF-US

Shaun Martin, WWF-US

# Multivariate probit regression models and results

**Table E.1** Regression results for project outcomes: resilience measure 1

| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 |
|---|---|---|---|---|---|---|---|---|---|
| Resilience or resilience thinking in design | 0.480** | 0.482** | 0.576** | 0.443* | 0.530** | 0.457** | 0.422* | 0.483** | 0.482* |
| | (0.235) | (0.235) | (0.256) | (0.255) | (0.242) | (0.232) | (0.235) | (0.235) | (0.284) |
| **Control variables** | | | | | | | | | |
| Quality of implementation | 1.320*** | 1.322*** | 1.344*** | 1.291*** | 1.357*** | 1.240*** | 1.081*** | 1.333*** | 1.110*** |
| | (0.234) | (0.235) | (0.237) | (0.261) | (0.238) | (0.237) | (0.247) | (0.236) | (0.267) |
| Quality of execution | 1.454*** | 1.454*** | 1.446*** | 1.535*** | 1.530*** | 1.472*** | 1.392*** | 1.454*** | 1.564*** |
| | (0.234) | (0.234) | (0.233) | (0.249) | (0.238) | (0.237) | (0.242) | (0.233) | (0.261) |
| GEF grant | −0.00711 | −0.00777 | −0.0117 | 0.00190 | −0.0170 | −0.00321 | −0.00464 | −0.00219 | 0.0157 |
| | (0.0309) | (0.0310) | (0.0304) | (0.0337) | (0.0318) | (0.0307) | (0.0345) | (0.0321) | (0.0328) |
| Year of implementation start | 0.0378 | 0.0376 | 0.0383 | 0.0187 | 0.0359 | 0.0249 | 0.0236 | 0.0373 | −0.00428 |
| | (0.0299) | (0.0303) | (0.0292) | (0.0329) | (0.0295) | (0.0299) | (0.0314) | (0.0299) | (0.0355) |
| PPG given | −0.0881 | −0.0866 | −0.0564 | −0.0349 | −0.0156 | −0.0765 | 0.0615 | −0.0890 | 0.249 |
| | (0.293) | (0.291) | (0.295) | (0.315) | (0.297) | (0.296) | (0.295) | (0.293) | (0.322) |
| Africa region | | 0.0234 | | | | | | | −0.212 |
| | | (0.219) | | | | | | | (0.258) |
| SIDS country | | | −0.307 | | | | | | −0.350 |
| | | | (0.247) | | | | | | (0.346) |
| < 50% cofinancing delivered | | | | 0.321 | | | | | 0.348 |
| | | | | (0.296) | | | | | (0.302) |
| LDC country | | | | | 0.627*** | | | | 0.496 |
| | | | | | (0.234) | | | | (0.309) |
| M&E design quality | | | | | | 0.352* | | | 0.136 |
| | | | | | | (0.212) | | | (0.262) |
| M&E implementation quality | | | | | | | 0.632*** | | 0.678** |
| | | | | | | | (0.236) | | (0.274) |
| International waters focal area | | | | | | | | −0.189 | −0.716** |
| | | | | | | | | (0.290) | (0.350) |
| Constant | −77.18 | −76.78 | −78.18 | −38.90 | −73.91 | −51.46 | −48.97 | −76.25 | 6.514 |
| | (59.94) | (60.68) | (58.61) | (66.05) | (59.24) | (59.98) | (62.99) | (59.98) | (71.09) |
| Observations | 266 | 266 | 266 | 233 | 266 | 263 | 250 | 266 | 218 |

**Note:** Robust standard errors in parentheses. * = significance at the 90% level; ** = significance at the 95% level; *** = significance at the 99% level. M&E = monitoring and evaluation; PPG = project preparation grant.

## Table E.2 Regression results for project outcomes: resilience measure 2

| Variable | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 | Model 9 |
|---|---|---|---|---|---|---|---|---|---|
| Resilience integrated as co-benefit or multiple-benefits framework | 0.562** | 0.562** | 0.623** | 0.650** | 0.639** | 0.586** | 0.580** | 0.566** | 0.819*** |
| | (0.248) | (0.248) | (0.265) | (0.267) | (0.251) | (0.247) | (0.246) | (0.248) | (0.297) |
| **Control variables** | | | | | | | | | |
| Quality of implementation | 1.358*** | 1.358*** | 1.373*** | 1.362*** | 1.399*** | 1.280*** | 1.123*** | 1.369*** | 1.187*** |
| | (0.232) | (0.232) | (0.234) | (0.257) | (0.237) | (0.233) | (0.245) | (0.234) | (0.266) |
| Quality of execution | 1.479*** | 1.479*** | 1.473*** | 1.584*** | 1.560*** | 1.510*** | 1.430*** | 1.479*** | 1.661*** |
| | (0.236) | (0.237) | (0.236) | (0.254) | (0.240) | (0.241) | (0.246) | (0.236) | (0.274) |
| GEF grant | 0.00248 | 0.00248 | 1.64e–05 | 0.0111 | –0.00579 | 0.00612 | 0.00599 | 0.00723 | 0.0260 |
| | (0.0302) | (0.0304) | (0.0301) | (0.0333) | (0.0311) | (0.0297) | (0.0332) | (0.0323) | (0.0340) |
| Year of implementation start | 0.0411 | 0.0411 | 0.0425 | 0.0211 | 0.0402 | 0.0257 | 0.0247 | 0.0407 | –0.00396 |
| | (0.0299) | (0.0303) | (0.0294) | (0.0332) | (0.0298) | (0.0302) | (0.0311) | (0.0299) | (0.0368) |
| PPG given | –0.103 | –0.103 | –0.0758 | –0.0626 | –0.0265 | –0.0971 | 0.0323 | –0.105 | 0.199 |
| | (0.287) | (0.285) | (0.290) | (0.310) | (0.291) | (0.290) | (0.290) | (0.287) | (0.317) |
| Africa region | | –0.000222 | | | | | | | –0.233 |
| | | (0.217) | | | | | | | (0.264) |
| SIDS country | | | –0.240 | | | | | | –0.377 |
| | | | (0.243) | | | | | | (0.359) |
| < 50% cofinancing delivered | | | | 0.398 | | | | | 0.491 |
| | | | | (0.308) | | | | | (0.316) |
| LDC country | | | | | 0.633*** | | | | 0.507 |
| | | | | | (0.233) | | | | (0.315) |
| M&E design quality | | | | | | 0.372* | | | 0.162 |
| | | | | | | (0.209) | | | (0.258) |
| M&E implementation quality | | | | | | | 0.653*** | | 0.685*** |
| | | | | | | | (0.231) | | (0.265) |
| International waters focal area | | | | | | | | –0.185 | –0.706* |
| | | | | | | | | (0.291) | (0.367) |
| Constant | –83.83 | –83.83 | –86.55 | –43.93 | –82.59 | –53.15 | –51.15 | –82.95 | 5.739 |
| | (59.96) | (60.66) | (58.92) | (66.52) | (59.69) | (60.69) | (62.43) | (59.91) | (73.70) |
| Observations | 266 | 266 | 266 | 233 | 266 | 263 | 250 | 266 | 218 |

**Note:** Robust standard errors in parentheses. * = significance at the 90% level; ** = significance at the 95% level; *** = significance at the 99% level. M&E = monitoring and evaluation; PPG = project preparation grant.

# Management response

*This annex presents the management response from the GEF Secretariat to the working document version of this report. It has been formatted but not edited, and all quotations refer to the working document, not the published report.*

## INTRODUCTION

1. The Secretariat welcomes the IEO "Study on Resilience, Climate Change Adaptation and Climate Risks in the GEF Trust Fund." The GEF Secretariat values this informative study, which, through its analysis, findings, and recommendations, aims to understand how the GEF has integrated resilience, climate change adaptation, and climate risks into its programming and to provide evidence on the relationship between addressing resilience, adaptation and climate risks, and project outcomes.

2. The GEF Secretariat is encouraged by the IEO findings that show how resilience, climate change adaptation, and climate risk are increasingly being integrated into GEF strategies and projects. The GEF Secretariat is also encouraged by the IEO's acknowledgment that the GEF guidance on climate risk screening has been viewed as helpful by Agencies and that the cross- Agency collaboration organized thus far by the GEF Secretariat and STAP has been useful.

3. The GEF Secretariat also takes particular note of the finding that evidence shows that the integration of climate adaptation and resilience into GEF projects correlates with positive project outcomes. It is encouraging that, as the study concludes, the statistical analysis demonstrates the positive link between the integration of resilience in project design and project outcomes.

4. The Secretariat is confident that the findings will contribute toward the continued integration of resilience, climate change adaptation, and climate risks in the GEF Trust Fund. This management response focuses specifically on the recommendations and strategies for addressing them in the future.

## RECOMMENDATION (1)

> ***"Develop guidance on climate risk mitigation measures."***

5. The Secretariat takes note of this recommendation. The Secretariat is already taking steps to address climate risk, including concerning mitigation measures. As paragraph 1 of the study

mentions, "Climate risk screening (CRS) was mandated for all projects in GEF-7, with the Scientific and Technical Advisory Panel (STAP) releasing CRS guidelines and the GEF Secretariat launching a successful GEF Agency training and collaboration event."

6. The Secretariat would also like to point to the GEF Environmental and Social Safeguards Policy[1], mentioned in paragraph 28 of the study, which states that "Short- and long-term risks posed by climate change and other natural hazards are considered systematically in the screening, assessment and planning processes described in paragraphs 4.a.–g. above, based on established methodologies, and significant risks and potential impacts are addressed throughout the design and implementation of projects and programs." The Secretariat will continue to apply this Policy to its projects and programs, as well as to mid-term reviews and terminal evaluations, and to report annually to Council on its progress.

7. Recognizing the importance of providing specific guidance and support to promote consistency in the application of the 2019 STAP guidance, the GEF Secretariat, together with STAP and the World Bank, organized a technical training for Agencies on climate risk screening on September 17, 2020.[2] Additional guidance on climate risk screening was developed by STAP and the GEF Secretariat for this training, which included specific content and examples relevant for each of the GEF focal areas.

8. As the 2019 STAP guidance on climate risk screening sets out, Agencies are to outline in project documents if "resilience practices and measures to address projected climate change and its impacts have been considered" and how they will be addressed.[3] GEF Agencies, who are in charge of project design and close to the project stakeholders, are therefore best positioned to develop context-specific climate risk mitigation measures and adjust the project design to ensure that the variety of climate risks that a project can face are adequately factored in.

9. Going forward, the GEF Secretariat will continue facilitating inter-Agency dialogue during GEF-8 in order to enhance cross-pollination on best practices in climate risk-responsive project design of GEF operations.

## RECOMMENDATION (2)

***"Improve the monitoring of resilience in GEF projects, with attention to the context of each focal area."***

10. The Secretariat takes note of this recommendation.

11. As clearly noted by the IEO study, the GEF Trust Fund is not focused on climate change adaptation or climate resilience. As these are not explicit objectives of the GEF Trust Fund's programming, the project results framework does not include adaptation or climate resilience specific indicators.

12. Furthermore, the IEO report also notes that, "several limitations become evident in efforts to measure how integration of resilience, climate change adaptation and climate risk into project affected project outcomes." Such limitations

[1] The GEF Policy on Environmental and Social Safeguards is available here: https://www.thegef.org/sites/default/files/documents/gef_environmental_social_safeguards_policy.pdf

[2] The proceedings of the training are available here: https://www.thegef.org/events/gef-and-world-bank-training-climate-risk-screening-and-climate-change-knowledge-portal

[3] The 2019 STAP Guidance on Climate Risk Screening is available here: https://www.thegef.org/council-meeting-documents/stap-guidance-climate-risk-screening

include most notably: (i) "the long time it takes for adaptation and resilience efforts to come to fruition," (ii) the "difficulty of attributing shocks to climate change," and (iii) "the large spatial variability of the impact of disturbances."

13. These considerations and limitations highlight the challenges of directly monitoring climate resilience or adaptation benefits of the GEF Trust Fund projects. Notwithstanding these challenges, there are existing provisions within the project monitoring system that can potentially enable the capture and reporting on any aspects of climate resilience in GEF projects.

14. The existing project monitoring system, as sets out in the GEF Policy on Monitoring, includes the Project Implementation Report (PIR), Mid-Term Review (MTR), and Terminal Evaluation (TE).[4] This provides Agencies the framework to report information related to the project implementation results and challenges, including with respect to the identified climate risks based on the climate risk screening process. In addition, the GEF Guidelines on Project and Program Cycle Policy establish that Agencies have to include an update on issues related to Environmental and Social Safeguards (ESS) in the MTR and TE.[5]

15. Furthermore, the GEF-8 replenishment negotiations were clear in requesting the GEF Secretariat to work toward streamlining the GEF project cycle into a more comprehensive and integrated framework and to implement efficiency measures, in line with the IEO OPS-7 recommendations.[6] The OPS-7 recommendations on administrative processes noted that "the preparation and approval of GEF projects can take many years, given the substantial requirements, processes, and procedures. To be more dynamic and transformative, the GEF will need to adjust these processes so funds can be accessed, and projects move toward implementation, more readily— particularly in the post-pandemic period".[7] The GEF Secretariat's Management Response to this recommendation indicated the clear commitment by the Secretariat to revisit, over the coming months, its suite of policies, procedures, operations, and guidelines to determine what adjustments need to be made to streamline the project cycle and increase efficiency.[8]

16. Therefore, rather than adding any new measures to monitor climate resilience benefits, the Secretariat will strengthen the use of the existing policy provisions in order to improve the monitoring of resilience in GEF projects, and within the context of the limitations articulated above. The Secretariat will work with GEF Agencies to identify ways to collect more granular information through the existing reporting systems on how climate risk mitigation measures are being incorporated in GEF project design and, when possible, indicating if any impact can be observed with respect to the influence that such mitigation measures may have had on the project outcomes.

[4] The GEF Policy on Monitoring is available here: https://www.thegef.org/sites/default/files/council-meeting- documents/EN_GEF.C.56.03.Rev_.01_Policy_on_Monitoring.pdf

[5] The GEF Guidelines on Project and Program Cycle Policy are available here: https://www.thegef.org/council-meeting-documents/guidelines-project-and-program-cycle-policy-2020-update

[6] Please see GEF/R.08/32, Revised Policy Recommendations, available here: https://www.thegef.org/sites/default/files/documents/2022-04/GEF_R.08_32_Revised_Policy_Recommendations.pdf

[7] The IEO OPS-7 Recommendations are available here: https://www.thegef.org/council-meeting-documents/table-all-ops-7-recommendations

[8] The GEF management response to the IEO Final Report of OPS7 is available here: https://www.thegef.org/sites/default/files/documents/2021-12/EN_GEF.C.61.10_Management_Response.pdf

## CONCLUSION

17. The findings and recommendations from this evaluation are useful in continuing to build on the ongoing efforts to ensure that considerations about climate risks and climate resilience are embedded in the GEF project cycle, from conceptualization to advanced design, to implementation. The study has also shed light on the fact that the integration of climate change adaptation and resilience in GEF projects is correlated with positive project outcomes.

18. Together with STAP and GEF Agencies, the Secretariat will continue to strengthen inter-Agency dialogue and exchange of best practices, view the view of identify, compile and validate emerging lessons for dissemination as a public good. In addition, the Secretariat will improve the monitoring of resilience in GEF projects through the strengthening of existing reporting requirements in this regard.

19. The GEF Secretariat will track progress on the implementation of each of the recommendations, and report this progress to Council, through the IEO's standard Management Action Record.

# References


ADB (Asian Development Bank). 2018. "Strategy 2030: Achieving a Prosperous, Inclusive, Resilient, and Sustainable Asia and the Pacific." ADB, Manila.

——— . n.d. "Environmental Safeguards." Asian Development Bank, Manila.

Advani, N.K. 2014. "Climate Change Vulnerability Assessment for Species." World Wildlife Fund, Washington, DC.

AfDB (African Development Bank). 2017. "Africa Thriving and Resilient: The Bank Group's Second Climate Change Action Plan, 2016-2020 (CCAP2) Africa Thriving and Resilient: The Bank Group's Second Climate Change Action Plan, 2016–2020 (CCAP2)." AfDB, Abidjan.

AF (Adaptation Fund). 2016. "Guidance Document for Implementing Entities on Compliance with the Adaptation Fund Environmental and Social Policy."

——— . 2019. "Strategic Results Framework of the Adaptation Fund."

Béné, C., R. Godfrey-Wood, A. Newsham, and M. Davies. 2012. "Resilience: New Utopia or New Tyranny? Reflection About the Potentials and Limits of the Concept of Resilience in Relation to Vulnerability Reduction Programmes." IDS Working Paper 405. Institute of Development Studies, Brighton.

Bierbaum, R., M. Stocking, H. Bouwman, A. Cowie, S. Diaz, J. Granit, A. Patwardhan et al. 2014. "Delivering Global Environmental Benefits for Sustainable Development." Report of the Scientific and Technical Advisory Panel to the Fifth GEF Assembly. Global Environment Facility, Washington, DC.

Binet, S., M. de Bruijn, D. Horikoshi, R. Kim, B. Lee, M. Markrich, P. Mwandri et al. 2021. "Independent Evaluation of the Adaptation Portfolio and Approach of the Green Climate Fund." Evaluation Report No. 9. Independent Evaluation Unit, Green Climate Fund, Songdo.

Carr, E.R. 2019. "Properties and Projects: Reconciling Resilience and Transformation for Adaptation and Development." *World Development* 122: 70–84.

CBD (Convention on Biological Diversity). 2006. "Decision Adopted by the Conference of the Parties to the Convention on Biological Diversity at its Eighth Meeting." UNEP/CBD/COP/DEC/VIII/30.

——— . 2008. "Report of the Global Environment Facility." UNEP/CBD/COP/9/9.

CI (Conservation International). n.d. "Protecting Nature to Halt Climate Catastrophe." Conservation International, Arlington, VA.

CIF (Climate Investment Funds). n.d. "Assessing Climate Change Risk of SREP Investments." Scoping note. CIF, Washington, DC.

Cutter, Susan L., Lindsey Barnes, Melissa Berry, Christopher Burton, Elijah Evans, Eric Tate, and Jennifer Webb. 2008. "A Place-based Model for Understanding Community Resilience to Natural Disasters." *Global Environmental Change* 18 (4): 598–606.

EBRD (European Bank for Reconstruction and Development). 2019. "Environmental and Social Policy (ESP)." EBRD, London.

——— . 2020. "Green Economy Transition Approach 2021–2025." EBRD, London.

Eriksen, S., E.L.F. Schipper, M. Scoville-Simonds, K. Vincent, H.N. Adam, N. Brooks, B. Harding et al. 2021. "Adaptation Interventions and Their Effect on Vulnerability in Developing Countries: Help, Hindrance or Irrelevance?" *World Development* 141.

FAO (Food and Agriculture Organization of the United Nations). 2017. "Strategy on Climate Change." FAO, Rome.

EVAL and GEF EO (Evaluation Office, Ministry of Foreign Affairs and Global Environment Facility Evaluation Office). 2009. "Operation of the Least Developed Countries Fund for Adaptation to Climate Change: Joint External Evaluation." Ministry of Foreign Affairs of Denmark, Copenhagen.

Fielder, T., A.J. Pitman, K. Mackenzie, N. Wood, C. Jakob, and S.E. Perkins-Kirkpatrick. 2021. "Business Risk and the Emergence of Climate Analytics." *Nature Climate Change* 11 (February 8): 87–94.

GEF (Global Environment Facility). 2005. "Operational Guidelines for the Strategic Priority 'Piloting an Operational Approach to Adaptation.'" GEF/C.27/Inf.10. GEF, Washington, DC.

——. 2007. "Focal Area Strategies and Strategic Programming for GEF-4." GEF Policy Paper. GEF, Washington, DC.

——. 2010a. "GEF-5 Programming Document." Sixth Meeting for the Fifth Replenishment of the GEF Trust Fund. GEF/R.5/31/CRP.1. GEF, Washington, DC.

——. 2010b. "Revised Programming Strategy on Adaptation to Climate Change for the Least Developed Countries Fund and the Special Climate Change Fund." GEF/LDCF.SCCF.9/4/Rev1. GEF, Washington, DC.

——. 2012. "Enhancing Climate Change Resilience in GEF Projects: Update on GEF Secretariat Efforts." GEF/C.43/Inf.06. GEF, Washington, DC.

——. 2014. "GEF-6 Programming Directions." Extract from GEF Assembly Document GEF/A.5/07/Rev.01. GEF, Washington, DC.

——. 2018a. "GEF-7 Replenishment Programming Directions." Fourth Meeting for the Seventh Replenishment of the GEF Trust Fund. GEF/R.7/19. GEF, Washington, DC.

——. 2018b. "GEF Programming Strategy on Adaptation to Climate Change for the LDCF and the SCCF GEF Programming Strategy on Adaptation to Climate Change for the LDCF and the SCCF." GEF/LDCF.SCCF.24/03. GEF, Washington, DC.

——. 2019a. "Policy on Environmental and Social Safeguards." SD/PL/03. GEF, Washington, DC.

——. 2019b. "United Nations Framework Convention on Climate Change Guidance from the Conference of the Parties and Responses by the Global Environment Facility." GEF, Washington, DC.

——. 2021a. "GEF-6 Integrated Approach Pilot Programs: Synthesis of Experiences and Emerging Lessons from Addressing Key Cross-cutting Issues."

——. 2021b. "Strategic Positioning and Programing Directions." First Meeting for the Eighth Replenishment of the GEF Trust Fund. GEF/R.8/02/Rev.1. GEF, Washington, DC.

GEF IEO (Global Environment Facility Independent Evaluation Office). 2011. *Evaluation of the GEF Strategic Priority for Adaptation*. Evaluation Report No. 61. Washington, DC: GEF IEO.

——. 2012. *Evaluation of the Special Climate Change Fund*. Evaluation Report No. 73. Washington, DC: GEF IEO.

——. 2013. "Adaptation to Climate Change." OPS5 Technical Document #19. GEF IEO, Washington, DC.

——. 2014. "The Least Developed Countries Fund: Review of the Implementation of NAPAs." Unedited. GEF IEO, Washington, DC.

——. 2015. "Management Action Record 2014." GEF IEO, Washington, DC.

——. 2016. *Program Evaluation of the Least Developed Countries Fund*. Evaluation Report No. 106. Washington, DC: GEF IEO.

——. 2018a. *GEF Project Performance and Progress to Impact*. Evaluation Report No. 112. Washington, DC: GEF IEO.

——. 2018b. *Program Evaluation of the Special Climate Change Fund*. Evaluation Report No. 117. Washington, DC: GEF IEO.

——. 2019. "Strategic Country Cluster Evaluation (SCCE): Small Island Developing States." GEF IEO, Washington, DC.

——. 2022a. *GEF Institutional Policies and Engagement*. Evaluation Report No. 150. Washington, DC: GEF IEO.

——. 2022b. *GEF Integrated Approach to Address Drivers of Environmental Degradation*. Evaluation Report No. 154. Washington, DC: GEF IEO.

——. 2022c. *Least Developed Countries Fund: 2020 Program Evaluation*. Evaluation Report No. 147. Washington, DC: GEF IEO.

——— . 2022d. *Strategic Country Cluster Evaluation of the Least Developed Countries*. Evaluation Report No. 142. Washington, DC: GEF IEO.

——— . 2022e. *Strategic Country Cluster Evaluation of Sahel and Sudan-Guinea Savanna Biomes*. Evaluation Report No. 141. Washington, DC: GEF IEO.

GEF STAP (Global Environment Facility Scientific and Technical Advisory Panel). 2010. "Enhancing Resilience to Reduce Climate Risks: Scientific Rationale for the Sustained Delivery of Global Environmental Benefits in GEF Focal Areas." GEF/C.39/Inf.10. GEF, Washington, DC.

——— . 2019. "STAP Guidance on Climate Risk Screening." GEF/STAP/C.56/Inf.03. GEF, Washington, DC.

——— . 2020. "Nature-based Solutions and the GEF." GEF/STAP/C.59/Inf.06. GEF, Washington, DC.

——— . 2021. "Making GEF Investments Resilient: Information Brief." GEF/STAP/C.60/Inf.04. GEF, Washington, DC.

GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). 2021. "Climate Risk Management: Promising Pathways to Avert, Minimise, and Address Losses and Damages." Global Programme on Risk Assessment and Management for Adaptation to Climate Change. GIZ, Bonn.

Holling, C.S. 1973. "Resilience and Stability of Ecological Systems." *Annual Review of Ecology and Systematics* 4: 1–23.

Hughes, B.B., T. Hanna, L. McNeil, D.K. Bohl, and J.D. Moyer. 2021. *Pursuing the Sustainable Development Goals in a World Reshaped by COVID-19*. Denver and New York: Frederick S. Pardee Center for International Futures and the United Nations Development Programme.

IDB (Inter-American Development Bank). 2021. "Inter-American Development Bank Group Climate Change Action Plan 2021–2025." IDB, Washington, DC.

IFAD (International Fund for Agricultural Development). 2018. "Strategy and Action Plan on Environment and Climate Change 2019–2025." IFAD, Rome.

——— . 2019. "Climate Adaptation in Rural Development (CARD) Assessment Tool." IFAD, Rome.

IFRC (International Federation of Red Cross and Red Crescent Societies). 2014. *World Disasters Report 2014: Focus on Culture and Risk*. Lyon: IFRC.

IPCC (Intergovernmental Panel on Climate Change). 2014. *Climate Change 2014: Impacts Adaptation and Vulnerability. Working Group II Contribution to the Fifth Assessment Report of the IPCC*. New York: Cambridge University Press.

——— . 2020. "The Concept of Risk in the IPCC Sixth Assessment Report: A Summary of Cross-Working Group Discussions." Guidance for IPCC authors.

——— . 2021. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. New York: Cambridge University Press.

——— . 2022. "Summary for Policymakers." In IPCC< *Climate Change 2022: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, pp. 3–33. New York: Cambridge University Press.

IUCN (International Union for Conservation of Nature). 2019. "Global Standards (and Principles) for Nature-based Solutions." Multiple reports. Gland, Switzerland.

——— . 2021. "Nature 2030: One Nature, One Future: A Programme for the Union 2021–2024." World Conservation Congress, Gland.

Li R., H. Zheng, P. O'Connor, H. Xu, Y. Li, F. Lu, B.E. Robinson et al. 2021. "Time and Space Catch up with Restoration Programs that Ignore Ecosystem Service Trade-offs." *Science Advances* 7 (14).

Malhi, Y., J. Franklin, N. Seddon, M. Solan, M.G. Turner, C.B. Field, and N. Knowlton. 2019. "Climate Change and Ecosystems: Threats, Opportunities and Solutions." *Philosophical Transactions B* 375 (1794).

Mant, R., S. Woroniecki, E. Väänänen, and V. Kapos. 2014. "Review of GEF Climate Resilience." UNE-World Conservation Monitoring Centre technical report prepared for the Global Environment Facility Scientific and Technical Advisory Panel. United Nations Environment Programme, Cambridge, UK.

Nissan, H., L. Goddard, E. Coughlan de Perez, J. Furlow, W. Baethgen, M.C. Thomson, and S.J. Mason. 2019. "On the Use and Misuse of Climate Change Projections in International Development." *WIREs Climate Change* 10 (3).

O'Connell, D., B. Walker, N. Abel, and N. Grigg. 2015. The Resilience, Adaptation and Transformation Assessment Framework: From Theory to Application." CSIRO, Australia.

O'Connell, D., N. Abel, N. Grigg, Y. Maru, J. Butler, A. Cowie, S. Stone-Jovicich et al. 2016. "Designing Projects in a Rapidly Changing World: Guidelines for Embedding Resilience, Adaptation and Transformation into Sustainable Development Projects." Version 1.0. Global Environment Facility, Washington, D.C.

OECD DAC (Organisation for Economic Co-operation and Development Development Assistance Committee). n.d. "OECD DAC Rio Markers for Climate Handbook." OECD, Paris.

Pelling, Mark. 2011. *Adaptation to Climate Change*. New York: Routledge.

Peters, K., and F. Pichon. 2017. "Crisis Modifiers: a Solution for a More Flexible Development—Humanitarian System?" UKAID and ODI, London.

Peterson St-Laurent, G., L.E. Oakes, M. Cross, and S. Hagerman. 2021. "R-R-T (Resistance-Resilience-Transformation) Typology Reveals Differential Conservation Approaches across Ecosystems and Time." *Communications Biology* 4 (39).

Stockholm Resilience Center. 2015. "Applying Resilience Thinking: Seven Principles for Building Resilience in Social-ecological Systems."

Tanner, T.M., S. Nair, S. Bhattacharjya, S. K. Srivastava, P. P. Sarthi, M. Sehgal, and D. Kull. 2007. "ORCHID: Climate Risk Screening in DFID India." Institute of Development Studies, Brighton, UK.

UNCCD (United Nations Convention to Combat Diversification). 2011. "Report by the GEF on its Strategies, Programmes and Projects for Financing the Agreed Incremental Costs of Activities Concerning Desertification." ICCD/CRIC(10)/23.

——. 2013. "Improving Mechanism to Facilitate Regional Coordination of the Implementation of the Convention." Decision 3/COP.11.

UNDP (United Nations Development Programme). 2017a. "Community Based Resilience Analysis (CoBRA) Implementation Guidelines." Version 2. UNDP, New York.

——. 2017b. "UNDP Strategic Plan, 2018-2021." UNDP, New York.

UNEP (United Nations Environmental Programme). 2016. "The Medium-Term Strategy (MTS) 2018-2021." UNEP, Nairobi.

——. 2022. "Ecosystem-based Adaptation Briefing Note Series." UNEP, Nairobi.

UNIDO (United Nations Industrial Development Organization). 2015. "Promoting Climate Resilient Industry." UNIDO, Vienna.

——. 2017. "Medium-Term Programme Framework (MTPF) 2018-2021." 1UNIDO, Vienna.

USAID (US Agency for International Development). 2017. "Climate Risk Screening and Management Tool." Online resource.

World Bank. 2019. "Action Plan on Climate Change Adaptation and Resilience: Managing Risks for a More Resilient Future." World Bank, Washington, DC.

——. 2021. "Resilience Rating System: A Methodology for Building and Tracking Resilience to Climate Change." World Bank, Washington, DC.

Workie, E., J. Mackolil, J. Nyika, and S. Ramadas. 2020. "Deciphering the Impact of COVID-19 Pandemic on Food Security, Agriculture and Livelihoods: A Review of the Evidence from Developing Countries." *Current Research in Environmental Sustainability* 2.

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Within the GEF, the Office facilitates cooperation on evaluation issues with professional evaluation networks; this includes adopting evaluation guidelines and processes consistent with international good practices. We also collaborate with the broader global environmental community to ensure that we stay on the cutting edge of emerging and innovative methodologies.

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