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Agenda Item 11

**STUDY ON RESILIENCE, CLIMATE CHANGE ADAPTATION AND CLIMATE RISKS IN  
THE GEF TRUST FUND**

(Prepared by the Independent Evaluation Office of the GEF)

## ABBREVIATIONS

CEO	Chief Executive Officer
CIF	Climate Investment Funds
CoBRA	Community-based Resilience Analysis
COP	Conference of the Parties
COVID-19	Coronavirus Disease 2019
CRS	Climate risk screening
FAO	Food and Agriculture Organization of the United Nations
GCF	Green Climate Fund
GEF	Global Environment Facility Trust Fund
IAP	Integrated Approach Pilot
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IUCN	International Union for the Conservation of Nature
IEO	Independent Evaluation Office
IPCC	Intergovernmental Panel on Climate Change
LDCF	Least Developed Countries Fund
MDB	Multilateral development bank
MTF	Multi-trust fund
OECD DAC	Organization for Economic Cooperation and Development's Development Assistance Committee
OPS	Overall Performance Study
PIF	Project identification form
SHARP	Self-evaluation and Holistic Assessment of Climate Resilience of farmers and Pastoralists
RAPTA	Resilience, Adaptation Pathways and Transformation Assessment
SCCF	Special Climate Change Fund
SPA	Strategic Priority for Adaptation
STAP	Scientific and Technical Advisory Panel
UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
WWF	World Wildlife Fund

## TABLE OF CONTENTS

Abbreviations .....	i
Executive Summary.....	v
1. Key findings and conclusions .....	v
2. Recommendations .....	vii
I. Introduction .....	1
II. Background .....	1
1. Concepts and definitions.....	3
III. Objectives and evaluation questions.....	6
IV. Methodology.....	6
V. Findings .....	8
1. Integration of resilience, climate change adaptation and climate risks in GEF strategies 8	
2. Resilience, climate change adaptation and climate risks in the GEF portfolio.....	16
3. The relationship between integrating resilience, climate change adaptation and climate risks into projects and project outcomes and sustainability .....	30
VI. Conclusions and recommendations.....	37
1. Conclusions.....	37
2. Recommendations .....	39
VII. References .....	40
VIII. Annexes.....	47
1. Comparisons of climate risk screening, adaptation, and resilience strategies between the GEF and other multilateral climate funds.....	47
2. List of reviewed projects with high integration of climate adaptation or resilience.....	49
3. Multivariate probit regression models and results.....	53
4. List of interviewees .....	57

## TABLES FIGURES & BOXES

### TABLES

Table 1. Overview of the definitions of climate risk, climate change adaptation and resilience and how they are used in the context of the GEF. ....	3
Table 2. Case study projects included in this study.....	7
Table 3. Comparison of GEF Agencies' approaches to climate risk screening and integration of climate adaptation and/or resilience. ....	15
Table 4. GEF IEO reviews of climate adaptation and resilience integration in GEF projects .....	18
Table 5. Focal area objectives most addressed in projects with high inclusion of climate adaptation or resilience reviewed for this study.....	20
Table 6. Climate risk screening strategies and guidance of multilateral climate funds, including the GEF.....	47
Table 7. Integration of resilience strategies and guidance of multilateral climate funds, including the GEF.....	48
Table 8. Regression results for project outcomes (resilience measure 1) .....	53
Table 9. Regression results for project outcomes (resilience measure 2) .....	55

### FIGURES

Figure 1. Mentions of climate risk, adaptation, and resilience in GEF programming strategy documents .....	9
Figure 2. Types of resilience mentioned in GEF programming documents .....	10
Figure 3. Mentions of "resilience" in different sections of GEF programming documents .....	10
Figure 4. Timeline of significant events related to the integration of resilience, climate change adaptation and climate risks in the GEF Trust Fund. ....	12
Figure 5. Percentage of GEF projects with terms "adaptation" and "resilience." .....	17
Figure 6. Percent of IEO-reviewed projects with evidence of resilience or resilience thinking in project design, by GEF phase and focal area. ....	19
Figure 7. Number of activities related to climate adaptation or resilience by activity type.....	21

Figure 8: Percentage of IEO-reviewed projects with resilience or resilience thinking and the extent to which resilience was integrated..... 25

Figure 9. Percentage of IEO-reviewed projects with each level of resilience integration by GEF replenishment and focal area. .... 25

Figure 10. Average objectives and outcome ratings for different project types for projects with high resilience inclusion..... 32

Figure 11. Percent of indicators linked with resilience or climate change adaptation in reviewed projects that were fully achieved or on track to be fully achieved. .... 33

**BOXES**

Box 1. Examples of climate risk mitigation measures in GEF-5 and GEF-6 projects ..... 22

Box 2. Example of climate risk screening in GEF-7 ..... 24

Box 3. Findings from LDCF and SCCF evaluations ..... 27

Box 4. Environmental indicators and climate adaptation and resilience: Opportunities and Challenges ..... 34

Box 5. GEF project responses to climate shocks during project implementation ..... 35

## EXECUTIVE SUMMARY

1. Although the GEF Trust Fund (referred to here as the GEF) is not focused on climate change adaptation, there has been growing recognition that the effects of climate change are and will impact GEF's ability to achieve and sustain global environmental benefits. The GEF 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 4, have been included in multi-trust fund projects (combining GEF 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 projects but are most visible in the GEF-6 Resilient Food Systems program which piloted the STAP's resilience, adaptation and transformation guidelines.

2. This study aims to understand how 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. 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 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 projects.

### 1. Key findings and conclusions

3. **When compared to other multilateral funds with a focus on climate change, the GEF 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, 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 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.

4. **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. Multi-trust fund projects bringing LDCF and SCCF adaptation programming together with GEF programming began in GEF-5 and continue into GEF-7. STAP has increasingly focused GEF attention on CRS, culminating in the UNFCCC requesting that GEF address climate risks and then the revised GEF safeguards policy in 2019 that mandated CRS across the GEF. Resilience is increasingly mentioned in GEF programming documents and GEF 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’s work on resilience.

5. **Evidence shows that integration of climate adaptation and resilience into GEF 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.

6. **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 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 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.

7. **The resilience, adaptation pathways and transformation approach (RAPTA) 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.** 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.

## **2. Recommendations**

8. The findings in this report highlight the useful guidance that the GEF has provided to the GEF Agencies on how to conduct climate risk screening for projects, but points to the absence of guidance on risk mitigation measures (paragraphs 28-34 and 40). The evidence also indicates limited monitoring of resilience in GEF projects (paragraphs 5, 34, 50 and 56). 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.
- 2) Improve the monitoring of resilience in GEF projects, with attention to the context of each focal area.

## I. INTRODUCTION

1. 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 the progress toward achievement of the Sustainable Development Goals (SDGs) (Hughes et al. 2021, Workie et al. 2020). Building resilience to a wide range of shocks and disturbances has thus increasingly become critical for development organizations, so that 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 Trust Fund has recognized the importance of integrating climate risks, climate change adaptation, and resilience into its programming.

2. 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, and 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 (OPS-5) which looked into the extent of discussion of climate risks in project design (GEF IEO 2013). However, OPS-5 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 which 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 and will use the term “GEF” to refer only to the GEF Trust Fund.

## II. BACKGROUND

3. **Many of the global environmental benefits that the GEF aims to achieve are vulnerable to climate change.** The main goal of the GEF is to achieve global environmental benefits aligned with the GEF's five focal areas: biodiversity, chemicals and waste, climate change (mitigation), international waters, and land degradation. 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 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 (STAP 2010; STAP 2014). The risks are apparent in all GEF focal areas. Protecting biodiversity will be made more difficult by changes in phenology and changes 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 have to 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.

**4. International conventions have also pointed to the threats from climate change faced by GEF focal areas.** The United Nations Convention on Biological Diversity (UNCBD) 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 (UNCBD 2006). Coral reefs, forests, and protected area systems in highly vulnerable regions and ecosystems are given priority (UNCBD 2008). The UN Convention to Combat Desertification (UNCCD) has noted the linkages between desertification, land degradation, drought, biodiversity loss, and climate change (UNCCD 2013). The UN 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 2019a).

**5. Recognizing these threats, many activities in GEF projects aim to improve adaptation to climate change and resilience as co-benefits, while focusing primarily on GEBs.** 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 projects. Although the GEF 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 (STAP 2020). Examples in the GEF 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.

**6. However, 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 STAP (2020), societal benefits are given less

prominence than global environmental benefits in GEF projects, and potential tradeoffs 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 effects of climate change—increased drought in some areas) is one example (Li et al. 2021).

## 1. Concepts and definitions

7. **The GEF 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 GEF projects, adaptation to climate change, and 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. This study uses these definitions when considering and discussing all three terms.

*Table 1. Overview of the definitions of climate risk, climate change adaptation and resilience and how they are used in the context of the GEF.*

Key term	IPCC definition	Use in the GEF	GEF project example
Climate risks	IPCC (2020) defines “risk” as “the potential for adverse consequences for human or ecological systems.”	<ul style="list-style-type: none"> <li>• Used to discuss both the risks that climate change impacts will have in communities and ecosystems and to global environmental benefit achievement and sustainability.</li> <li>• Climate risk screening evaluates risks specifically to GEF projects and global environmental benefits.</li> </ul>	<ul style="list-style-type: none"> <li>• Project GEF ID 5405 recognizes the risks of climate change to ecosystems that 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.</li> </ul>
Climate change adaptation	IPCC 2021 defines adaptation 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.”	<p>Generally used to discuss helping ecosystems and society address the impacts of climate change <i>through</i> a project or intervention. The GEF does not have a principal objective of climate change adaptation.</p> <p>More specific than resilience—refers to actions that address one or several of the impacts of climate change directly.</p>	<ul style="list-style-type: none"> <li>• 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.</li> </ul>

Resilience	IPCC (2021) defines resilience 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.”	Generally used to discuss helping ecosystems and society cope with the impacts of climate change and other disturbances <i>through</i> a project or intervention. Broader than climate change adaptation—addresses system-level constraints which prevent coping to shocks and stresses including but not limited to climate change.	<ul style="list-style-type: none"> <li>• Project GEF ID 5531 promoted several livelihoods in Haiti such as castor oil production, cultivation of fruit trees and ecotourism to not only take pressure off of natural forests but also to diversify incomes of local communities. Income diversity builds resilience not only to natural disturbances worsened by climate change but also to a range of other shocks that impact certain livelihoods but not others.</li> </ul>
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8. **In the GEF, climate risk screening 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, climate risks are especially considered in terms of the potential impacts on GEF interventions and related global environmental benefits. Projects are screened at the design stage through a climate risk screening (CRS) tool, to assess possible risks to GEF 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.

9. **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 interventions sometimes include such adaptation actions, even if their main goal is to achieve global environmental 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 that the GEF is working to combat, such as climate change–driven cropland expansion (Malhi et al. 2019).

10. **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 2021). However, 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, International Federation of Red Cross and Red Crescent Societies 2014). Additionally, 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 (2019) considers resilience a “positive attribute when it maintains capacity for adaptation, learning and/or transformation.” Similarly, the GEF’s Integrated Approach Pilot 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).

**11. 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 type of 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—and 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<sup>1</sup> to climate change—because these same vulnerabilities are rooted in the social, economic, cultural, and structural characteristics of the system. The theme of resilience has especially 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) noted 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.

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<sup>1</sup> Vulnerability is also a key term in the 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.”

### III. OBJECTIVES AND EVALUATION QUESTIONS

12. This study has two main objectives:

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

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

- (a) What are the different ways in which GEF projects incorporate resilience, climate change adaptation and climate risks into project design?
- (b) 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?
- (c) 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?

### IV. METHODOLOGY

14. This study uses 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 projects, and an analysis of existing GEF IEO and GEF data. These methods are described in more detail in the following paragraphs.

15. GEF corporate documents including the programming directions, STAP guidance, GEF Council decisions, and previous GEF IEO evaluations were included in the document review. Additionally, 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, STAP and GEF Agency representatives along with select research and peer organizations outside the GEF (see Annexes for a full list of interviewed stakeholders).

16. To gather and analyze trends on resilience, climate change adaptation and climate risks in GEF 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 least developed countries, small island developing states, and Africa biomes countries (GEF IEO 2019, GEF IEO 2020a, GEF IEO 2020b). The review categorized projects based on their level of integration of resilience. This data was merged with performance data from the GEF IEO terminal evaluation review database 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 the Annexes).

17. Additionally, a new portfolio review was conducted on a purposive sample of 34 ongoing and completed projects from GEF-5 and GEF-6 which considered resilience or climate change adaptation in their design and for which performance information was evaluative at either project midterm or completion.<sup>2</sup> 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 was gathered.

18. Three case studies were conducted, chosen from projects included in the 34-project portfolio review, which included a mix of project modalities—one Integrated Approach Pilot (IAP) project, one multi-trust fund (MTF) project, and one project receiving only GEF focal area financing (Table 2). One project in each major GEF geographical region (Africa, Asia, and Latin America) was included, and all three projects had either a midterm review (MTR) 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.

*Table 2. Case study projects included in this study.*

GEF ID	Project title	Country	GEF Agency	Focal area(s)	GEF GEF Financing (\$ millions)
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	Multi-Trust Fund: Land Degradation (GEF) and Climate Change Adaptation (SCCF)	GEF: \$0.57 SCCF: \$1.1
5663	Integrated Environmental Management of the Fanga'uta Lagoon Catchment	Tonga	UNDP	Biodiversity, Land Degradation and International Waters	\$1.76
9135	Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience	Ethiopia	UNDP	IAP: Food Security, Biodiversity, Land Degradation	\$11.16

<sup>2</sup> The projects selected for this portfolio review included all multi-trust fund projects (Least Developed Countries Fund or Special Climate Change Fund + GEF) and GEF projects previously identified by the IEO as integrating resilience into a multiple benefits framework (Bierbaum et. al, 2014 considered integration into a multiple benefits framework as the category with the most resilience inclusion of the three categories considered) from GEF-5 or more recent and having a completed midterm review or terminal evaluation available as of April 1, 2021 and all Integrated Approach Pilot projects with midterm reviews as of April 1, 2021. The resulting review included 34 projects (see Annexes for full list of projects included in this review).

The scope of this study is limited for two reasons: the recent requirements to perform climate risk screening in the GEF and the lack of resilience, climate change adaptation and climate risk monitoring data on older GEF projects.

## V. FINDINGS

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

19. **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 the terms to the GEF.** Through an analysis of the 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, GEF 2010b, GEF 2014, GEF 2018a, and GEF 2021b),<sup>3</sup> the term adaptation is used an average of more than 28 times per document while resilience is used on average more than 48 times, with resilience 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, it 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 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, but 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 interventions.

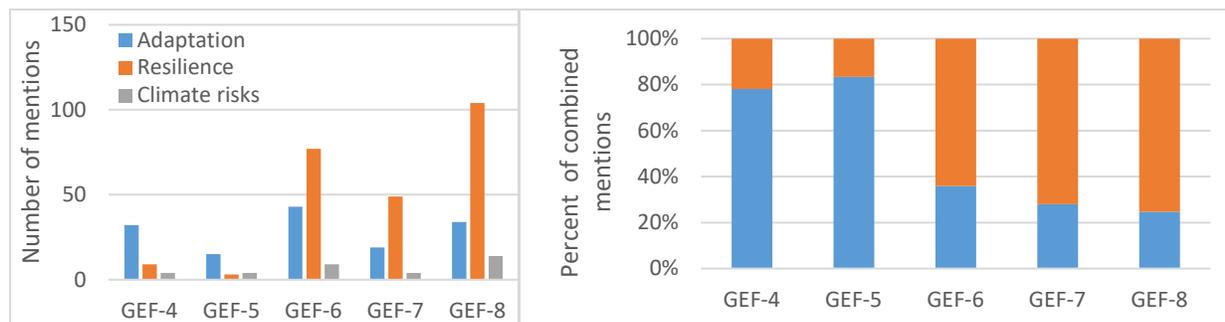
20. **Through the GEF replenishment periods, adaptation to climate change and resilience have been integrated into the programmatic approaches and into focal area results frameworks.** In GEF-5, the corporate results framework includes one strategic goal to “reduce global climate change risks” by both reducing greenhouse gas emissions and “assisting countries to adapt to climate change,” although the corresponding expected results are almost entirely mitigation-based. In GEF-6, one of the global environmental benefits is to support a low-emission 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, the rationale for the programming architecture says that the GEF aims for a “more prosperous, climate-resilient world.” The GEF-8 programming directions claim that through integrated

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<sup>3</sup> The GEF-8 Programming Directions referenced were preliminary as they had not yet been finalized by the time of this study.

programs, the GEF 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, while the main focus is on global environmental benefits.

Figure 1. Mentions of climate risk, adaptation, and resilience in GEF programming strategy documents



Note: the graph to the right considers only mentions of adaptation and resilience. Uses of the terms “risk” and “adaptation” were screened to ensure they pertained to climate change.

21. **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, 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, 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, while at other times clearly several shocks or stresses are implied.

22. **The increasing use of the term “resilience” shows a shift toward more systems thinking in the GEF 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 2), This shift mirrors 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). The IAPs and impact programs represent a more holistic, systems-level, multifocal area approach to GEF 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.<sup>4</sup>

Figure 2. Types of resilience mentioned in GEF programming documents

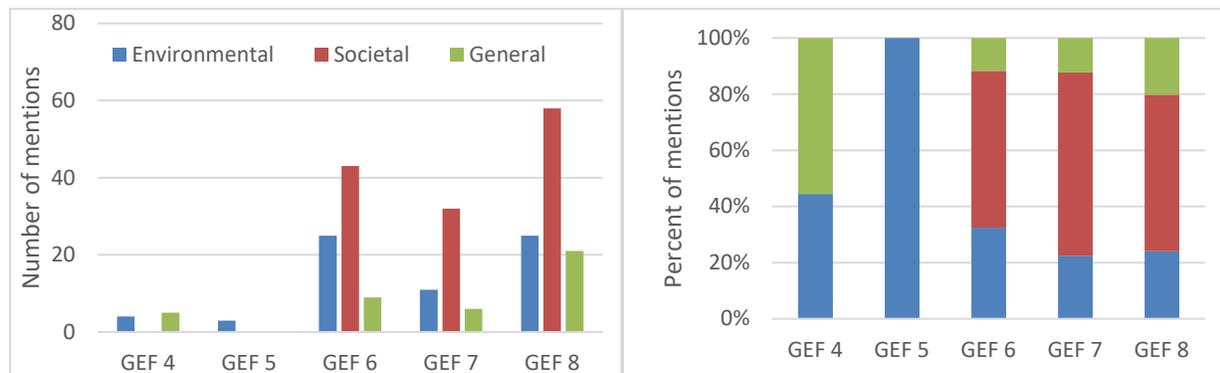
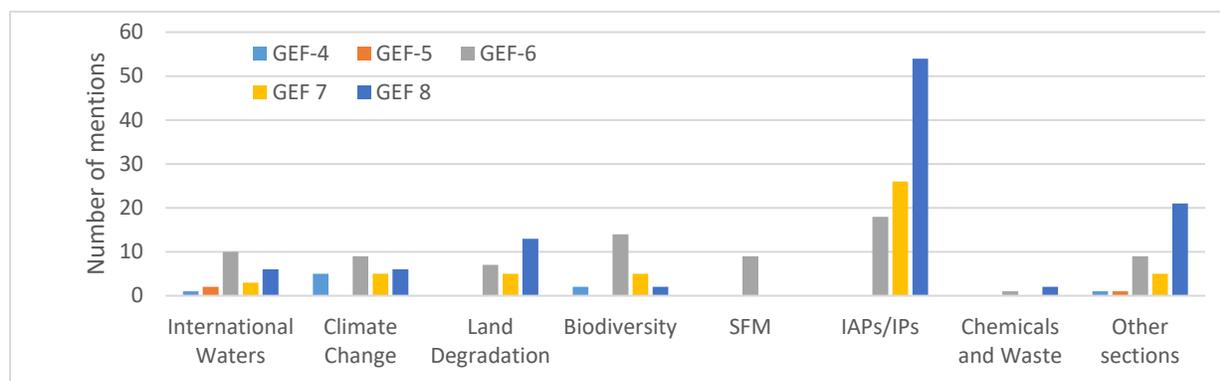


Figure 3. Mentions of “resilience” in different sections of GEF programming documents



23. **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 Green Climate Fund (GCF), while the World Bank manages another set of Climate Investment Funds (CIFs). The main impetus for the creation of the Adaptation Fund, CIFs, and the GCF was to finance climate change adaptation (and mitigation) projects, as distinct from the GEF, which was designed to deliver global environmental benefits that did include climate change mitigation but not adaptation. None of these funds have a CRS policy—although CRS is largely unnecessary because by definition, the

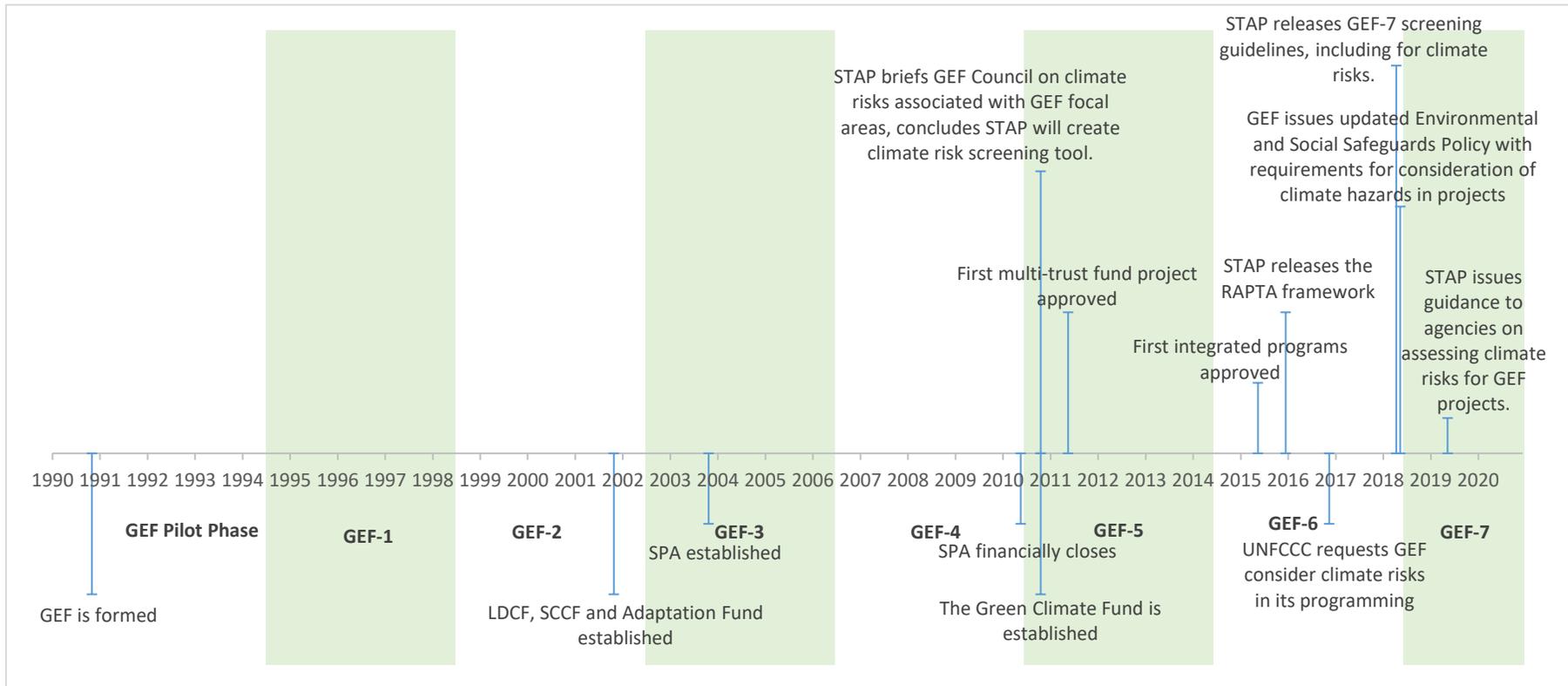
<sup>4</sup> STAP (2021) outlines eight attributes of general resilience: maintaining adequate reserves of key capitals (soil carbon, spare grid electricity, financial reserves, etc), supporting response diversity, investing in social and human capital, applying systems thinking across scales, maintaining appropriate connectivity and promoting adaptive learning.

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 (see Annexes for a more detailed comparison of multilateral climate fund strategies and guidance).

24. 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 Adaptation Fund’s Strategic Results Framework’s main outcomes is “increased ecosystem resilience in response to climate change-induced stresses” (Adaptation Fund 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), which tend to have a broader range of environmental objectives than the multilateral climate funds, do often have CRS and adaptation or resilience integration guidance for their initiatives (GIZ 2019, USAID 2017, Tanner et al. 2007).

25. **The GEF’s early interventions focused on climate change adaptation through the Strategic Priority for Adaptation.** At its Seventh Conference of the Parties (COP 7) in 2001 the UNFCCC created the LDCF and the SCCF, two funds focused on climate change adaptation, and requested that the GEF operate them. Then in COP 8, the Convention 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 SCCF, the GEF established the Strategic Priority for Adaptation (SPA) in 2003 (Figure 4). The SPA aimed to add adaptation financing (\$50 million from the climate change focal area) to projects from other focal areas which were principally aimed at achieving their own global economic benefits. This strategy of the SPA 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 the 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 projects were highly possible. The evaluation recommended that the GEF should “continue providing incentives to carry on the mainstreaming of resilience and adaptation into the GEF focal areas” (GEF IEO 2010). The Management Action Record after the evaluation rated the progress on the recommendation as “medium,” noting the development of multi-trust 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).

Figure 4. Timeline of significant events related to the integration of resilience, climate change adaptation and climate risks in the GEF Trust Fund.



26. **After the SPA ended disbursement, climate change adaptation programming in the GEF Partnership was concentrated in the LDCF and SCCF rather than the GEF.** Around the time that the SPA closed at the beginning of GEF-5, the UNFCCC at COP 13 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 2019a). As part of the response to the GEF IEO evaluation of the SPA, the GEF Secretariat updated the GEF Council in 2012 on their progress in developing a framework to systematically consider climate risks in GEF projects. The proposed framework would have specific screening steps built into the project cycle at the project identification form (PIF) and CEO Endorsement stages (GEF 2012). However, such a framework was not further developed in GEF-5, and at this point the GEF made a strategic decision to concentrate its climate adaptation programming in the LDCF and 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 2010a). The idea of the double increment was not continued; instead, LDCF and SCCF projects focused directly on achieving adaptation benefits and GEF projects focused solely on global environmental benefits.

27. **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, 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 (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 STAP should develop a “rapid climate change risk screening tool” to assess potential climate risks for project proposals. In GEF-6, STAP developed the Resilience, Adaptation Pathways, and Transformation Assessment (RAPTA) framework, which went further to integrate resilience into project design (O’Connell et al. 2015). 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 with addresses the impacts of climate change.

28. **GEF-7 brought an intense focus on CRS in the GEF, spurred by STAP and UNFCCC guidance.** After STAP’s report outlining the risks from climate change to global environmental benefits, the UNFCCC at COP-22 also requested GEF to “take into consideration climate risks in all its programs and operations, as appropriate, keeping in mind lessons learned and best practices” (GEF 2019a). STAP had been carrying out CRS since GEF-5, but it was not required for project design teams (GEF Agencies) until the effective date (July 1, 2019) of the GEF Environmental and Social Safeguards Policy 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 2019b). Following the issuance of the policy, STAP created further guidance to Agencies on how to carry out the CRS (STAP 2019).

29. **The 2019 safeguards policy places the responsibility of CRS on the GEF Agencies, with STAP providing guidance and both STAP and the GEF Secretariat ensuring quality.** According to the 2019 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 2019b). They must also have their own CRS procedure in place to apply to GEF projects. The structure of CRS was generally defined by STAP guidelines after the issuance of the safeguards policy (STAP 2019). The guidance suggests that at 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. 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. STAP completes a screening of projects at the PIF stage to ensure the projects' CRS includes the major elements mentioned in the guidelines.

30. When they review 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 CRS is of high quality. The Secretariat reported in interviews that they judge 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 notes 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) and therefore applies more or less scrutiny to the CRS as the project type indicates.

31. **Agencies have different histories, sizes, and areas of expertise that influence the extent to which they integrate resilience, climate change adaptation and climate risk** (Table 3). Generally, they can be divided into the following groups: 1) Agencies that 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 STAP), 2) Agencies that have integrated some elements of CRS into their portfolio, but the STAP guidance also provided a welcomed framework or came at an opportune time to integrate into existing policies or tools for use across their organization, and 3) Agencies that did not have prior CRS similar to or aligned with 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 GEF guidance or policy. Most Agencies fall in the second group, while two nongovernmental organizations and the national-level Agencies fall into the third group.<sup>5</sup>

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<sup>5</sup> Note that not all national-level Agencies could be interviewed.

Table 3. Comparison of GEF Agencies' approaches to climate risk screening and integration of climate adaptation and/or resilience.

GEF Agency	Climate Risk Screening addressed through safeguards	Strategy addressing climate adaptation and resilience (most recent)	Additional related Tool(s), Guidance, or Reports	Additional Tool(s): Sector or Focus
<b>Group 1: Agencies that addressed climate risk screening (CRS) and integrated resilience before GEF guidance and policy</b>				
<b>ADB</b>	2015 whole portfolio	Strategy 2030 (ADB 2018), climate and disaster resilience as 1 of 7 operational priorities	2017 Aware™ (process underway to replace it)	Risk: (largely) Infrastructure
<b>IDB</b>	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 (2021)	Risk & Resilience: multiple, largely infrastructure
<b>EBRD</b>	2008 started; 2010 whole portfolio	EBRD's Green Economy Transition approach for 2021-25 (2020); climate resilience a key pillar	Internal tool for CRS; covers physical climate risks and carbon transition risks (EBRD 2019)	Risk: finance, physical, other
<b>WB</b>	2014 loans; 2017 all IBRD	Action Plan on Climate Change Adaptation and Resilience (2019)	Risk & Resilience: Multiple CRS sector tools; Climate Change Knowledge Portal (CCKP), Resilience Rating System (2021)	Risk and resilience: multiple
<b>Group 2: Agencies that had addressed some elements of CRS and resilience integration before GEF guidance and policy</b>				
<b>AfDB</b>	2012 started; 2014-2019 rapid portfolio analysis	Climate Change Action Plan of the African Development Bank (AfDB), v2, 2016-2020 (AfDB 2017)	Resilience Booster Tool (developed by the WB under the Africa Climate Resilient Investment Facility) (2021)	Resilience: multiple
<b>FAO</b>	2010 started; 2019 whole portfolio	FAO Strategy on Climate Change (2017)	Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP) (2014, updated 2021)	Resilience: Food security, livelihoods
<b>IFAD</b>	2012 started; 2015 screening tool for whole portfolio	Strategy and Action Plan on Environment and Climate Change 2019-2025 (2018)	Climate Adaptation in Rural Development Assessment Tool (2019)	Resilience: Food security, livelihoods
<b>IUCN</b>	2016 (GEF & 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
<b>UNDP</b>	2015 started; 2021 updated (CRS under development)	UNDP Strategic Plan, 2018-2021 (2017) (seven adaptation thematic program areas)	Community Based Resilience Analysis (CoBRA) (v 2 2017)	Resilience: livelihoods
<b>UNEP</b>	2020 updated, whole portfolio	The Medium-Term Strategy 2018-2021 (2016) (two of seven main priority areas)	Ecosystem-based Adaptation Briefing Note Series (multiple dates)	Resilience: Natural resource management
<b>UNIDO</b>	2015 (GEF & GCF projects)	Medium-Term Programme Framework 2018-2021 (2017) (safeguarding the environment one of four strategic priorities)	Promoting climate resilient industry (2015) (publication)	Resilience & Risk: industry
<b>Group 3: Agencies without CRS and resilience integration prior to GEF guidance and policy</b>				
<b>CI</b>	2017 started; 2019 (GEF and GCF projects)	Protecting Nature to Halt Climate Catastrophe (1 of 3 core program areas)	Resilience Atlas online tool (2015)	Resilience: food security, livelihoods
<b>WWF US</b>	2019 pilot (voluntary)	Climate is one of six high level strategic priority areas (2021)	Climate Change Vulnerability Assessment for Species online tool (2016)	Resilience & Risk: Natural resource management
<p>Note: ADB = Asian Development Bank, IDB = Inter-American Development Bank, EBRD = European Bank for Reconstruction and Development, WB = World Bank, AfDB = African Development Bank, FAO = Food and Agriculture Organization of the United Nations, IFAD = International Fund for Agricultural Development, IUCN = International Union for Conservation of Nature, UNDP = United Nations Development Programme, UNIDO = United Nations Industrial Development Organization, CI = Conservation International, WWF = World Wildlife Fund.</p> <p>Five Agencies were not included in the table. The three GEF national implementing 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 they did not have specialized tools for climate risk screening or specific strategies for integrating climate adaptation or resilience. The other two— Brazilian</p>				

Biodiversity Fund, Development Bank of Southern Africa —did not respond to requests to interview, and there is insufficient information on their websites to understand their CRS and resilience integration measures. Finally, two regional implementing Agencies, Development Bank of Latin America (CAF) and West African Development Bank, were also not included in the analysis/table above. According to its website, the Development Bank of Latin America was in the process of procuring support to develop a climate risk screening tool in 2019. It's unclear whether this work was completed or whether they have a tool/guide/strategy for integrating climate adaptation or resilience either, though they have related programs of work in water and infrastructure, for example. For the West African Development Bank, no documentation was found on their website about their strategies and/or policies related to CRS and/or integrating climate adaptation and resilience.

**32. 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 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. However, 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 STAP) or unclear (about what proof is required to show that the exercise has been fulfilled); meaning additional clarity on meeting the general expectations was still needed.

**33. Inter-Agency collaboration facilitated by the GEF Secretariat and STAP was appreciated by the Agencies.** The Secretariat and STAP also organized a training for Agencies in September 2020 on strategies for completed CRS for GEF 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 was expressed by three Agencies who 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 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 all at once.

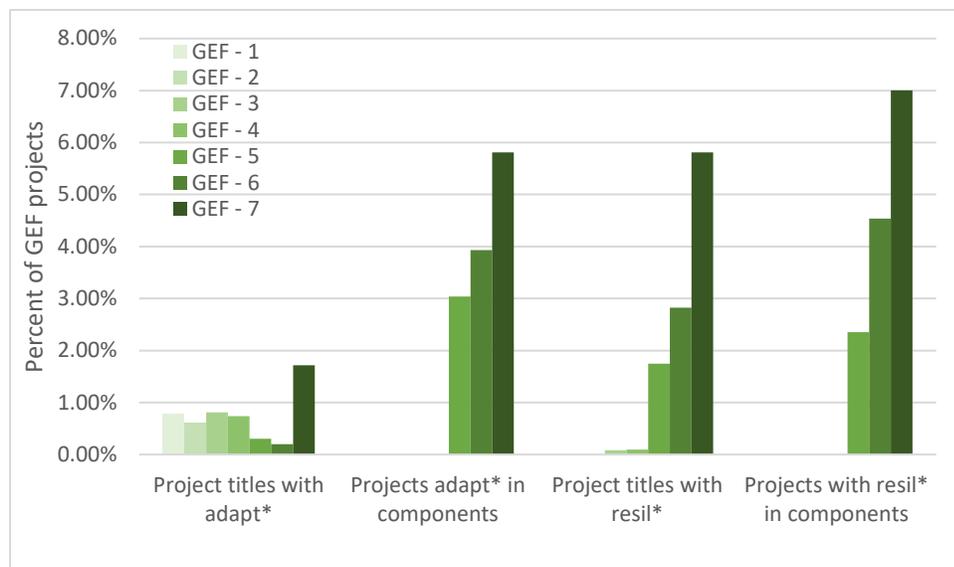
**34. There is no guidance on how monitoring of CRS should be conducted during project implementation.** The safeguards policy states that "significant risks and potential impacts" should be addressed "throughout the design and implementation of projects and programs" (GEF 2019b). However, GEF IEO (2021b) 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 doesn't provide guidance on the structure. Consequently, the monitoring of climate risks is largely left to the Agencies.

## **2. Resilience, climate change adaptation and climate risks in the GEF portfolio**

35. **Before the adoption of the 2019 safeguard policy, many GEF projects identified climate risks, but the CRS was not mainstreamed across the GEF.** STAP (2010) provided the first measure of climate risks in GEF 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 address current variability or risks and 92 percent respond 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 are few in number and were not randomly selected; only projects that dealt with climate-sensitive issues and related global environmental benefits were included.

36. **Consistent with the evolution in GEF strategies, the terms “adaptation” and “resilience” are used increasingly in project titles and components.** Consistent with the evolution in GEF strategies, the use of both “adaptation” and “resilience” is increasing—44 GEF-7 projects (almost 6 percent of all GEF-7 projects) have “resilience” in their title (up from a total of only two 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, is critical in some projects (Figure 5).

Figure 5. Percentage of GEF projects with terms “adaptation” and “resilience.”



Source: GEF Portal.

Note: Component data was only available from GEF-5 to GEF-7. Mentions of adapt\*” were screened to include only mentions related to climate change.

**Fewer than half of GEF projects in portfolio reviews mentioned or took into account resilience in project design.** The IEO did a review of almost 300 GEF-5 projects as part of OPS-5, finding that almost 40 percent of projects “took resilience to climate change into account in their

design,” meaning project documents of these projects addressed “potential major risks, including the consequences of climate change” (GEF IEO 2013) (Table 4).<sup>6</sup> These results are further confirmed by the portfolio review of more 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 multi-focal area (60 percent) projects showing the highest inclusion (Figure 6).

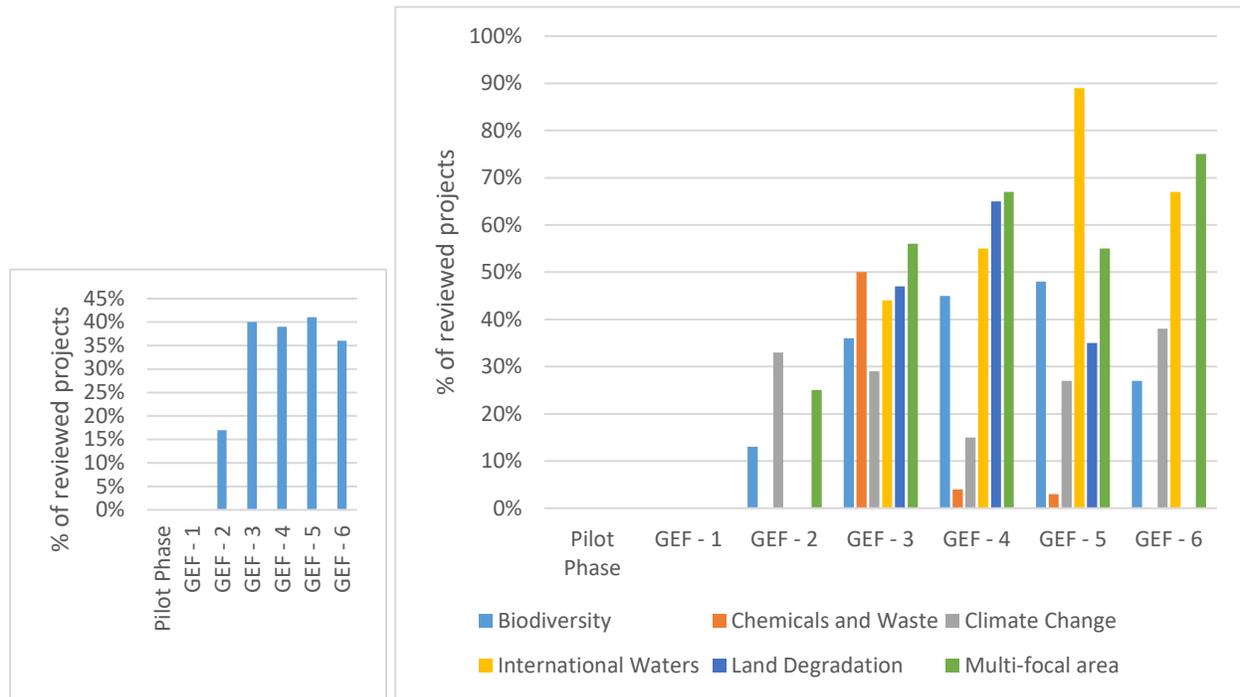
Table 4. GEF IEO reviews of climate adaptation and resilience integration in GEF projects

Document	Period of review	Indicators of inclusion of climate risk, adaptation or resilience	Methodological notes
GEF IEO (2013)	296 GEF-5 projects	<ul style="list-style-type: none"> <li>40% of projects reviewed for quality-at-entry “took into account” climate resilience</li> </ul>	Definition of resilience in this review likely comparable to climate change adaptation.
GEF IEO 2019, GEF IEO 2020a, GEF IEO 2020b	702 projects from Pilot phase – GEF 6	<ul style="list-style-type: none"> <li>38% of GEF projects considered “resilience or resilience thinking” in project design</li> <li>Of those which did, 28% integrated resilience as risk management, 34% as a co-benefit and 38% into a multiple benefits framework</li> </ul>	Included only projects in the three portfolios: Africa Biomes, least developed countries and small island developing states. The definition of resilience likely also included, but was not specific to, climate change adaptation.
GEF Portal/this study	399 GEF 7 projects	<ul style="list-style-type: none"> <li>42% of approved GEF GEF projects “target climate change adaptation as key objective” and 3% as a “principal objective” according to the Rio Markers indicators</li> </ul>	Rio Markers are self-reported by project teams rather than reviewed by a third party (as in the case of GEF IEO and STAP). They are specific to climate change adaptation rather than resilience.

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<sup>6</sup> 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 6. Percent of IEO-reviewed projects with evidence of resilience or resilience thinking in project design, by GEF phase and focal area.



Note: The graphed data include 702 projects.

**37. Most GEF focal areas were commonly represented in the 34 projects with high integration of climate adaptation and resilience reviewed for 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 5). 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.

Table 5. Focal area objectives most addressed in projects with high inclusion of climate adaptation or resilience reviewed for this study

GEF phase 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 LULUCF
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 from reduced forest degradation.
GEF-5 IW-2	Catalyze multi-state cooperation to rebuild marine fisheries and reduce pollution of coasts and Large Marine Ecosystems while considering climate variability and change	Cooperation frameworks agreed 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.

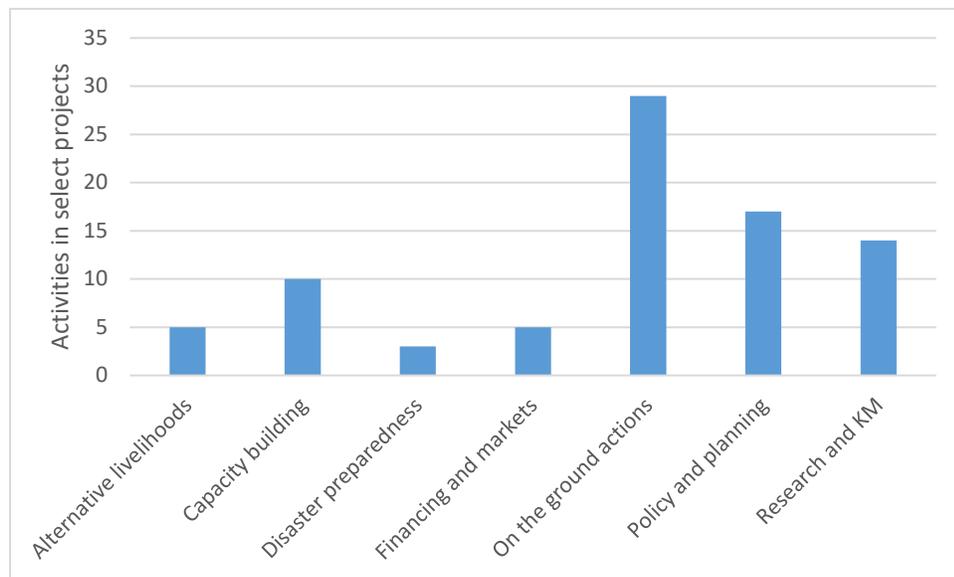
Note: BD = Biodiversity, CCM = Climate change mitigation, FSC = Forest Stewardship Council, IW = International Waters, LD = Land degradation, SFM = Sustainable Forest Management

38. **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 7).<sup>7</sup> 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 agriculture 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

<sup>7</sup> 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.

preparedness interventions, such as early warning systems and financing activities including insurance schemes or risk sharing, were relatively uncommon.

Figure 7. Number of activities related to climate adaptation or resilience by activity type



Note: The number of activities is based on a review of 34 projects.

**39. Flooding and drought were the most common climate change impacts addressed by the projects.** The GEF 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.

**40. Climate change was a common risk included in the design documents of the 34 projects reviewed for this study 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 (see the Methodology section for a detailed description on how these projects were chosen), 71 percent included climate change as a long-term risk to project outcomes in a risk matrix in project design documents while 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 matrices 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 1 for specific project examples).

*Box 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 1-2 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 MTF 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, the project ‘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 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: the project ‘Integrated landscape management for improved livelihoods and ecosystem resilience in Mount Elgon’ (GEF ID 5718), implemented in Uganda noted in their 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, the project ‘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 their 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.

41. 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 n.d.).<sup>8</sup> An analysis of all GEF-7 projects to date (as of August 2020) found that 42 percent of approved GEF 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, because 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 IEO or STAP.

42. **In GEF-7, CRS is mainstreamed, but quality is still uneven across GEF Agencies.** The GEF Secretariat noted that although the new safeguards policy has increased the share of projects performing CRS in GEF-7 compared with earlier phases, both the Secretariat and STAP note that certain Agencies perform more in-depth screenings than others. 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 2).

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<sup>8</sup> According to OECD (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 2. Example of climate risk screening in GEF-7*

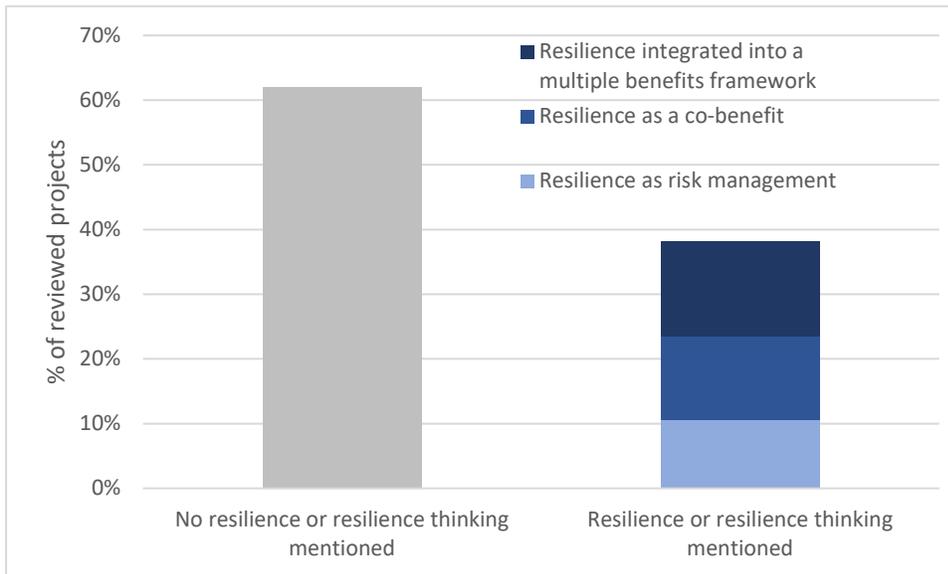
The ‘Sustainable management and restoration of the Dry Forest of the Northern Coast of Peru’ project (GEF ID 10541) implemented by FAO gives an example of the increased CRS implemented in GEF-7. The project completed an initial CRS during the PIF stage (it has not yet completed its project preparation phase-PPG) which goes beyond the simple risk matrices done for GEF-5 and GEF-6 projects (see Box 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. The CRS 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 ND-GAIN 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 to be included. These measures include embracing a more multisectoral, multi-level and multi-stakeholder 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 PPG phase to elaborate an even more in-depth CRS.

**43. 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 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) considered 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 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 (Figure 9). Projects that considered resilience only as risk management dropped from between 40 percent and 50 percent in GEF-2-4 to between 15 percent and 21 percent in GEF-5 and GEF-6, as did projects considering resilience as a co-benefit—from 60 percent in GEF-2 to 24 percent in GEF-6. Multi-focal area projects had the highest share (55

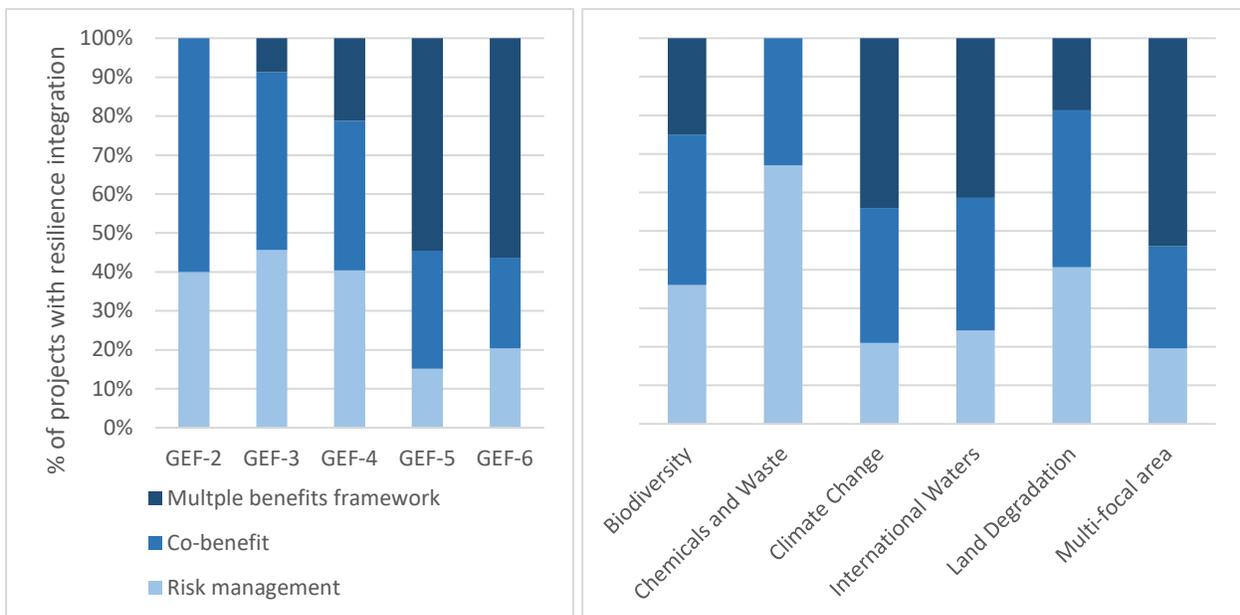
percent) of projects integrating resilience in a multiple-benefits framework, while the chemicals and waste focal area had the highest share (67 percent) of projects that considered resilience only as risk management.

Figure 8: Percentage of IEO-reviewed projects with resilience or resilience thinking and the extent to which resilience was integrated



Note: The graphed data include 702 projects.

Figure 9. Percentage of IEO-reviewed projects with each level of resilience integration by GEF replenishment and focal area.



Note: The graphed data include 266 projects.

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

- (a) **Multi-trust fund projects.** MTF projects combine funding from the GEF and LDCF or 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.
- (b) **Single or multi-focal area projects.** These projects are funded entirely through GEF focal areas and focus on achieving global environmental benefits; however, some also include climate change adaptation or resilience themes if they are deemed key to also achieving the global environmental benefits in the projects' area of thematic and geographical interest.
- (c) **Integrated approach pilot or impact program projects.** IAP and impact program projects, because they are multi-focal area and holistic in design, address resilience as a major theme of the projects.

45. Multi-trust fund projects have commonly been mentioned in GEF strategies and Convention guidance since GEF-5 as a vehicle for integrating adaptation into the GEF. The GEF has cited the use of MTF projects (GEF + LDCF or SCCF) to respond to requests from both the UNFCCC and the UNCCD to integrate climate change adaptation into their programming linked to the conventions (GEF 2019a, UNCCD 2011). The UNFCCC noted the possibility of combining the LDCF and SCCF funds focusing on adaptation with GEF 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 MTF projects were approved in GEF-5 (13 in total) although 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 MTF projects and more than 15 MTF projects have been approved so far in GEF-7 (GEF 2018b).

46. **Multi-trust 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 MTF projects address LDCF or SCCF objectives, and 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 to address multiple benefits more holistically than can be done through GEF focal area projects. However, others noted that the MTF project design process can be more complex because they need to satisfy the requirements of multiple trust funds and meet the trust funds' differing approval processes. The GEF IEO has carried out several evaluations of the LDCF and the SCCF, with some conclusions relevant to addressing climate change impacts in the GEF (Box 3).

*Box 3. Findings from LDCF and SCCF evaluations*

Since 2009, four evaluations of the LDCF and two for the SCCF (with a third ongoing) have been completed (Foreign Ministry of Denmark 2009, GEF IEO 2012, GEF IEO 2014, GEF IEO 2016, GEF IEO 2018a and GEF IEO 2020c). 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 doesn't have a specific cycle as the GEF 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 limits the effectiveness of MTF projects as well, and the 2020 LDCF evaluation noted that this imbalance "hindered mainstreaming adaptation and resilience in GEF Trust Fund projects." As a result, the LDCF and SCCF moved to approving projects in batches based on agreed upon priorities which has helped raise the numbers of MTF projects in GEF-7 compared to GEF-6.

Several evaluations have looked at the LDCF's and 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 GEBs 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 RAR change adaptation and certain GEF focal areas, especially land degradation.

47. Stakeholders of the MTF 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 the SCCF and the land degradation focal area of the GEF created confusion and stress during design but this was ultimately overcome. This project was also the first MTF project implemented by FAO in El Salvador, so staff may have experienced a learning curve. The design team decided to use the MTF format for two reasons: 1) they believed it would make for a more competitive proposal, and 2) the project area they were working in, considered the dry belt of El Salvador, 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.

48. **MTF projects generally have more thorough descriptions in project design documents of the expected climate change impacts on their project areas than GEF focal area projects do.** All the MTF projects reviewed for this study included description of the predicted climate change impacts on their projects' area of intervention in project design documents (PIFs and CEO Endorsement Requests), compared to only 83 percent of IAPs and impact programs and 72

percent of focal area–only projects. Several MTF 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 MTF projects to further address the risks from climate change because of their adaptation funding from the LDCF and SCCF. In comparison to the MTF projects, focal area project design documents from the reviewed GEF-5 and GEF-6 projects tended to have less description of the 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 on measures to mitigate them. This is likely because much of the description of the environmental issues in these projects focused on the focal area–specific threats rather than on climate change.

**49. The Tonga case study project is a positive example of a multi-focal 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 UNDP in Tonga was a multi-focal area project (international waters, climate change, land degradation, and biodiversity) and was 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. The team pointed to the Tonga’s unique ability to use all their resources in select focal areas, which gave this multi-focal area project the flexibility in project design to address climate change adaptation. 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.

**50. 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 2021a). 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 of 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 Resilience, Adaptation Pathways, and Transformation Approach (RAPTA) tool was designed for and piloted in the Food Security IAP leading to resilience design in certain child projects. The GEF IEO (2021a) also pointed out the role of the hub project in the program which has issued guidance on measuring food security resilience indicators (although these are not directly addressing climate change,

they are related in many cases) and monitoring resilience through the use of the self-evaluation and holistic assessment of climate resilience of farmers and pastoralists (SHARP) tool in seven projects.

**51. The RAPTA framework developed by STAP helps Agencies integrate resilience into project design from the concept phase.** RAPTA was designed to help project designers 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 different orders 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.

**52. Stakeholders interviewed as part of the Food Security IAP Ethiopia case study noted 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 that 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.

**53. 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. Multi-stakeholder 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.

**54. 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; and 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.

**55. However, RAPTA is also seen by some as onerous to implement and has largely not been used in the GEF 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).<sup>9</sup> 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 also 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. The relationship between integrating resilience, climate change adaptation and climate risks into projects and project outcomes and sustainability**

**56. Measuring the impact of integrating resilience, climate change adaptation and climate risks on GEF project outcomes and sustainability is challenging due to the lack of counterfactuals and the lack of a long record of monitoring data.** Several limitations become evident in efforts to measure how integration of resilience, climate change adaptation and

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<sup>9</sup> The Queensland government has created a [modified version of RAPTA](#) to inform disaster risk reduction.

climate risks into projects affected project outcomes: the long time it takes for adaptation and resilience efforts 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 focuses 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.

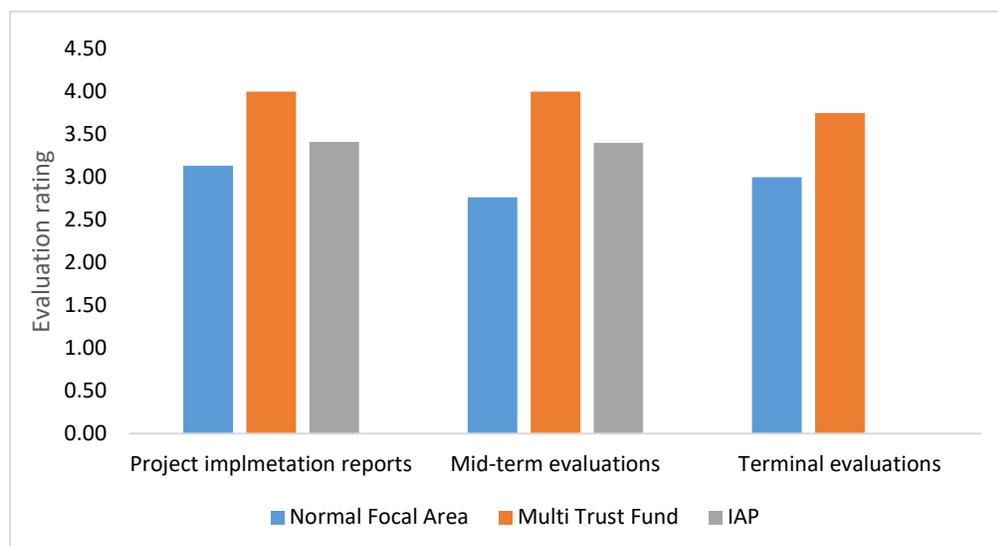
**57. Evidence from completed projects shows a positive correlation between integration of resilience in project design and project outcomes.** To test for correlation between inclusion of resilience in project design and project outcome ratings, data on inclusion of resilience in project design from the previous IEO portfolio review of more than 700 projects was merged with performance data from the GEF IEO Terminal Evaluation Review database, resulting in a dataset of 266 projects for analysis (only projects that were rated for inclusion of resilience and were present in this database 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 2018b). The analysis showed a statistically significant correlation at a 90–95 percent confidence level (all results are shown in the Annexes) between inclusion of resilience or resilience thinking in project design and satisfactory project outcomes. The correlation was found to have a higher confidence level (statistically significant at a 95–99 percent confidence level) for projects which 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).

**58. SPA projects had higher outcome ratings than other GEF 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 rated 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 projects that did include climate adaptation objectives and project success.

**59. Among the GEF-5 and GEF-6 projects with high climate adaptation or resilience integration reviewed for this study, MTF projects had generally 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, MTF projects

on average had higher ratings<sup>10</sup> than focal area and IAP projects for project, implementation reports, midterm reviews, and terminal evaluations (Figure 10).

Figure 10. Average objectives and outcome ratings for different project types for projects with high resilience inclusion



Note: IAP = integrated approach pilot. These results are based on 34 reviewed projects.

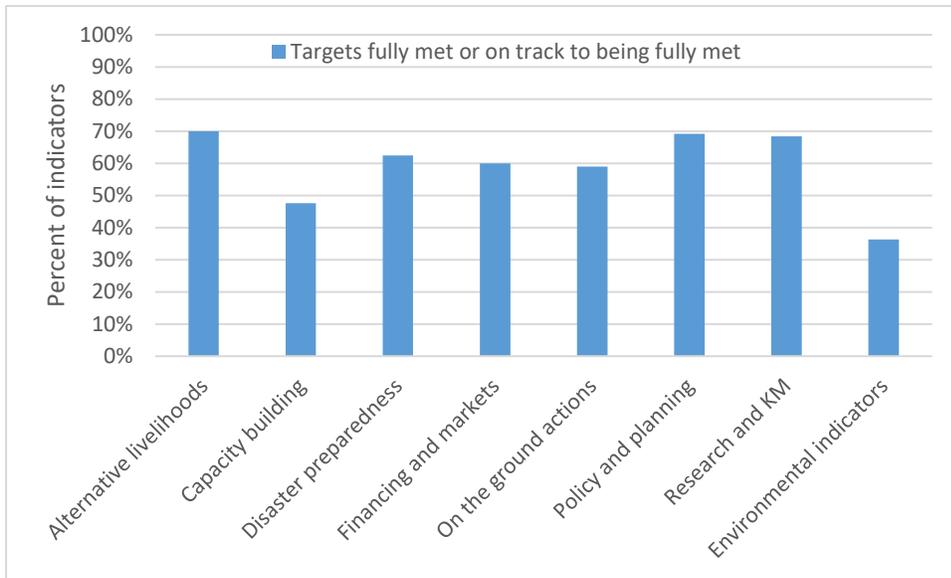
**60. The indicators in GEF projects linked with climate adaptation and resilience most likely to be met were related to alternative livelihoods, policy and planning, and research and knowledge management.** The GEF does not have any mainstreamed project indicators that measure adaptation or resilience specifically when not in an MTF 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<sup>11</sup> 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). Indicators tracking the success of alternative livelihood indicators were the most likely as a category to be met: 70 percent of targets were fully met or on track to being fully met, followed by targets measuring success of policy and planning activity indicators (69

<sup>10</sup> 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, and terminal evaluation ratings are based on achievement of project outcomes.

<sup>11</sup> For the project review in this study, 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.

percent) and research or knowledge management activity indicators (68 percent) (Figure 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 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.

*Figure 11. Percent of indicators linked with resilience or climate change adaptation in reviewed projects that were fully achieved or on track to be fully achieved.*



Note: data from 34 projects reviewed for this study.

*Box 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 GEB 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. However, these indicators are not without disadvantages. They can be difficult to measure and establishing baselines for such indicators is difficult if previous, non-project 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. The 'Implementing a Ridge to Reef approach to protecting biodiversity and ecosystem functions within and around protected areas' project in Grenada (GEF ID 5069) 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 MTR 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. Additionally, stakeholders pointed out that burst sewer pipes, something outside the project's influence, would negatively impact 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 SLM 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.

**61. Several reviewed GEF projects experienced climate shocks during implementation which negatively impacted project outcomes.** Twenty-six percent of the reviewed projects were affected in some way by climate shocks during implementation (see Box 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 like 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.

*Box 5. GEF project responses to climate shocks during project implementation*

Climate shocks during implementation impacted projects in different ways. Several projects experienced drought during implementation which caused loss of planted seedlings, failure to meet vegetation cover improvement targets (see Box 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 which 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-funded component), responding to a drought that occurred prior to project implementation. However, 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 TE said the project “played a role in ensuring stability and reduce the immediate vulnerability of the population” during the drought.

Hurricane Matthew impacted the implementation of two reviewed projects in Haiti in 2016. The 'Increasing resilience of ecosystems and vulnerable communities to CC and anthropic threats through a Ridge to Reef approach to BD 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-impacted areas. The impact of the hurricane caused a decrease in and a 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 TE, the storm caused “significant setbacks” as project staff had to “redirect their efforts towards 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.

62. 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.

63. 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 that were 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. However, climate adaptation and resilience building activities were designed to build capacity and resilience over several years rather than to 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.

64. **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 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 so that not only can the project change course, if necessary, but beneficiaries are prepared for a range of future scenarios. In the case of climate data, this means using a variety of data sources, such as historical climate patterns in addition to global circulation models to uncover a range of scenarios, is preferable (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 disbursements 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).

65. **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 ha and rehabilitated 69 ha 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.

66. Measures were also taken to ensure resilience past project completion. The terminal evaluation for the El Salvador case study project rated the project's 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 benefitting from the rainwater harvesting infrastructure the project helped to 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, though they do not have enough funding to do complete monitoring and are unclear as to whether mangrove extent is increasing or decreasing.

## VI. CONCLUSIONS AND RECOMMENDATIONS

### 1. Conclusions

67. **When compared to other multilateral funds with a focus on climate change, the GEF 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 GCF, Adaptation Fund, LDCF, and 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, 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 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.

68. **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. MTF projects bringing LDCF and SCCF adaptation programming together with GEF programming began in GEF-5 and continue into GEF-7. STAP has increasingly focused GEF attention on CRS, culminating in the UNFCCC requesting that GEF address climate risks and then the revised GEF safeguards policy in 2019 that mandated CRS across the GEF. Resilience is increasingly mentioned in GEF programming documents and GEF 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.

**69. Evidence shows that integration of climate adaptation and resilience into GEF 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.

**70. 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 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 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.

**71. 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.** 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.

## **2. Recommendations**

72. The findings in this report highlight the useful guidance that the GEF has provided to the GEF Agencies on how to conduct climate risk screening for projects, but points to the absence of guidance on risk mitigation measures (paragraphs 28-34 and 40). The evidence also indicates limited monitoring of resilience in GEF projects (paragraphs 5, 34, 50 and 56).. 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
- 2) Improve the monitoring of resilience in GEF projects, with attention to the context of each focal area.

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## VIII. ANNEXES

### 1. Comparisons of climate risk screening, adaptation, and resilience strategies between the GEF and other multilateral climate funds.

Table 6. Climate risk screening strategies and guidance of multilateral climate funds, including the GEF

Fund	Fund-level safeguards policy/strategy	Climate risk screening guidance	Notes
<b>Adaptation Fund</b>	Environmental and Social Policy and Gender Policy (updated 2016); Nothing specific on CRS. Implementing Entity policies apply.	Guidance document for IEs on compliance with the Environmental and Social Policy and Gender Policy (updated 2016); Nothing specific to climate risks.	No specific CRS tool; Implementing Entity policy/tool applies so long as meets ESGP policy.
<b>Climate Investment Funds</b>	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 (Climate Investment Funds n.d.).
<b>Global Environment Facility (GEF)</b>	Policy on Environmental and Social Safeguards (2018) mandates screening of climate change and natural disaster risks. Agency policy applies.	STAP guidance on climate risk screening (2019, 2020); Agency Retreat on CRS (2019, 2020)	STAP guidance sets standard: Agencies (can) offer specific guidance on “how to.”
<b>Green Climate Fund</b>	Environmental and Social Policy (2018); Nothing specific on CRS. Accredited Entity policy applies.	None/no formal guidance. Accredited entity guidance would apply.	The Green Climate Fund has an extensive Risk Management Framework (2017) but nothing on CRS.

Note: CRS = climate risk screening; STAP = Scientific and Technical Advisory Panel;

Table 7. Integration of resilience strategies and guidance of multilateral climate funds, including the GEF.

Fund	Fund-level climate resilience integration approach/strategy	Resilience integration guidance	Other
<b>Adaptation Fund</b>	No fund-level policy/ strategy. Implementing entities' policies/strategies apply. Resilience addressed through AF programming, as a key high-level objective for communities and ecosystems.	None/no formal guidance. Implementing entities' guidance applies.	Adaptation Fund Technical Evaluation Reference Group is working on material to integrate resilience into evaluation and planning.
<b>Climate Investment Funds</b>	No fund-level policy/ strategy. Multilateral development banks' policies/strategies apply. Resilience addressed through Climate Investment Funds' 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.
<b>Global Environment Facility (GEF)</b>	No fund-level policy/ strategy. Agencies' policies/strategies apply. Resilience addressed through GEF programming across most focal areas (chemicals and waste less so).	Voluntary: Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) Framework (STAP, 2016)	Technical Advisory Group discussions have addressed it directly (Feb 2021). "Resilience Atlas" may be an option.
<b>Green Climate Fund</b>	No fund-level policy/strategy. Implementing entities' policies/strategies apply. Resilience addressed through Green Climate Fund programming, especially ecosystems-based adaptation and rural livelihoods.	None/no formal guidance. implementing agencies' guidance would apply.	Potential for resilience to be addressed by Climate Rationale and (paradigm shift) investment criteria.

## 2. List of reviewed projects with high integration of climate adaptation or resilience

Project ID	GEF Phase	Project Title	Lead Agency Name	Country Name	Focal Area Name	Fund Source Name	GEF Financing at CEO Endorsement (\$ million)	Cofinancing at CEO Endorsement (\$ million)
4605	GEF - 5	Management and Protection of Key Biodiversity Areas	World Bank	Belize	Climate Change,Biodiversity	GET	\$ 6.09	\$ 16.00
4631	GEF - 5	Watershed Approach to Sustainable Coffee Production in Burundi	World Bank	Burundi	Biodiversity, Land Degradation	GET	\$ 4.20	\$ 20.80
4639	GEF - 5	Strengthening Management Effectiveness and Generating Multiple Environmental Benefits within and around the Greater Kafue National Park in Zambia	UNDP	Zambia	Climate Change, Land Degradation, Biodiversity	GET	\$ 13.15	\$ 46.94
4839	GEF - 5	Establishing Integrated Models for Protected Areas and their Co-management	UNDP	Afghanistan	Biodiversity, Land Degradation	GET	\$ 6.44	\$ 53.30
5041	GEF - 5	Strengthening Decentralized Management of the Environment to Meet Rio Convention Objectives	UNDP	Guinea	Capacity Development	GET	\$ 0.53	\$ 0.63
5069	GEF - 5	Implementing a "Ridge to Reef" Approach to Protecting Biodiversity and Ecosystem Functions within and Around Protected Areas	UNDP	Grenada	Biodiversity, Land Degradation	GET	\$ 3.03	\$ 15.43
5270	GEF - 5	GGW Natural Resources Management in a Changing Climate in Mali	World Bank	Mali	Climate Change, Biodiversity, Land Degradation	GET, LDCF	\$ 8.43	\$ 13.00
5304	GEF - 5	Sustainable Management of Bycatch in Latin America and Caribbean Trawl Fisheries (REBYC-II LAC)	FAO	Brazil, Colombia, Costa Rica, Mexico, Suriname, Trinidad and Tobago	International Waters	GET	\$ 5.80	\$ 17.20
5380	GEF - 5	Increasing Resilience of Ecosystems and Vulnerable Communities to CC and	UNDP	Haiti	Climate Change, Biodiversity	LDCF, GET	\$ 9.14	\$ 42.50

		Anthropic Threats Through a Ridge to Reef Approach to BD Conservation and Watershed Management						
5381	GEF - 5	R2R: Implementing a "Ridge to Reef" Approach to Protecting Biodiversity and Ecosystem Functions in Nauru (R2R Nauru)	UNDP	Nauru	Climate Change, International Waters, Biodiversity, Land Degradation	GET	\$ 2.64	\$ 8.41
5405	GEF - 5	EAS: Scaling up the Implementation of the Sustainable Development Strategy for the Seas of East Asia	UNDP	Philippines, Timor Leste, Viet Nam, Thailand, Cambodia, China, Indonesia, Lao PDR	International Waters	GET	\$ 10.64	\$ 157.27
5453	GEF - 5	Disaster Risk & Energy Access Management (DREAM): Promoting Solar Photovoltaic Systems in Public Buildings for Clean Energy Access, Increased Climate Resilience and Disaster Risk Management	UNDP	Barbados	Climate Change	GET	\$ 1.73	\$ 30.90
5517	GEF - 5	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	UNDP	Micronesia	Biodiversity, Land Degradation, International Waters, Climate Change	GET	\$ 4.69	\$ 17.89
5531	GEF - 5	Ecosystem Approach to Haiti Cote Sud	UNEP	Haiti	Land Degradation, Biodiversity, Climate Change	GET, LDCF	\$ 6.22	\$ 42.67
5542	GEF - 5	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+)	UNDP	St. Vincent and Grenadines, Suriname, Trinidad and Tobago, Belize, Antigua and Barbuda, Barbados, Brazil, Colombia, Costa Rica, Dominica	International Waters	GET	\$ 12.50	\$ 134.15

				,Dominican Republic,Guatemala,Grenada,Guyana,Haiti,Honduras,Jamaica,Mexico,Panama,St. Kitts and Nevis,St. Lucia				
5550	GEF - 5	R2R Implementing a Ridge to Reef Approach to Protect Biodiversity and Ecosystem Functions	UNDP	Tuvalu	Land Degradation,Climate Change,Biodiversity,International Waters	GET	\$ 3.76	\$ 15.68
5663	GEF - 5	R2R Integrated Environmental Management of the Fanga'uta Lagoon Catchment	UNDP	Tonga	International Waters,Climate Change,Land Degradation,Biodiversity	GET	\$ 1.76	\$ 6.65
6964	GEF - 6	Volta River Basin Strategic Action Programme Implementation Project	World Bank	Benin,Burkina Faso,Cote d'Ivoire,Ghana,Mali,Togo	International Waters	GET	\$ 7.20	\$ 36.14
9123	GEF - 6	Cities-IAP: Sustainable Cities Initiative	World Bank	Senegal	Chemicals and Waste,Land Degradation,Climate Change,Biodiversity	GET	\$ 8.72	\$ 51.78
9135	GEF - 6	Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience	UNDP	Ethiopia	Biodiversity,Land Degradation	GET	\$ 10.24	\$ 144.97
9147	GEF - 6	Sustainable-City Development in Malaysia	UNIDO	Malaysia	Climate Change,IAP Sustainable Cities	GET	\$ 2.75	\$ 20.23
9179	GEF - 6	Adaptive Management and Learning for the Commodities IAP	UNDP	Global	IAP Commodity Supply Chain	GET	\$ 3.98	\$ 5.27
9180	GEF - 6	Reducing Deforestation from Commodity Production	UNDP	Global	IAP Commodity Supply Chain	GET	\$ 14.58	\$ 164.70
9182	GEF - 6	Commodities-IAP: Generating Responsible Demand for Reduced-Deforestation Commodities	WWF-US	Global	IAP Commodity Supply Chain	GET	\$ 8.75	\$ 42.33

4512	GEF - 5	Pilot Asia-Pacific Climate Technology Network and Finance Center	ADB	Regional	Climate Change	GET,SCCF	\$ 10.91	\$ 74.37
4616	GEF - 5	Climate Change Adaptation to Reduce Land Degradation in Fragile Micro-Watersheds Located in the Municipalities of Texistepeque and Candelaria de la Frontera	FAO	El Salvador	Climate Change, Land Degradation	SCCF,GET	\$ 1.52	\$ 6.44
4625	GEF - 5	Shire Natural Ecosystems Management Project	World Bank	Malawi	Land Degradation, Biodiversity, Climate Change	LDCF,GET	\$ 6.58	\$ 72.77
4908	GEF - 5	GGW: Agriculture Production Support Project (with Sustainable Land and Water Management)	World Bank	Chad	Climate Change, Land Degradation, Biodiversity	GET,LDCF	\$ 9.26	\$ 102.25
5220	GEF - 5	PSG: Sustainable Land Management Project 2	World Bank	Ethiopia	Biodiversity, Land Degradation, Climate Change	GET,LDCF	\$ 12.96	\$ 94.66
4775	GEF - 5	Promotion of Climate-smart Livestock Management Integrating Reversion of Land Degradation and Reduction of Desertification Risks in Vulnerable Provinces	FAO	Ecuador	Climate Change, Land Degradation	SCCF,GET	\$ 3.86	\$ 22.16
4880	GEF - 5	Climate Technology Transfer Mechanisms and Networks in Latin America and the Caribbean	IADB	Latin America and Caribbean, Regional	Climate Change	GET,SCCF	\$ 10.90	\$ 56.55
5078	GEF - 5	Conserving Biodiversity and Reducing Habitat Degradation in Protected Areas and their Buffer Zones	UNDP	St. Kitts and Nevis	Biodiversity	GET	\$ 3.37	\$ 17.14
5579	GEF - 5	Mainstreaming Global Environmental Priorities into National Policies and Programmes	UNDP	Palau	Multi Focal Area	GET	\$ 0.55	\$ 0.63
5718	GEF - 5	Integrated Landscape Management for Improved Livelihoods and Ecosystem Resilience in Mount Elgon	UNDP	Uganda	Climate Change, Land Degradation	GET	\$ 1.62	\$ 8.83

### 3. Multivariate probit regression models and results

Table 8. Regression results for project outcomes (resilience measure 1)

VARIABLES	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** (0.235)	0.482** (0.235)	0.576** (0.256)	0.443* (0.255)	0.530** (0.242)	0.457** (0.232)	0.422* (0.235)	0.483** (0.235)	0.482* (0.284)
<i>Control Variables</i>									
Quality of implementation	1.320*** (0.234)	1.322*** (0.235)	1.344*** (0.237)	1.291*** (0.261)	1.357*** (0.238)	1.240*** (0.237)	1.081*** (0.247)	1.333*** (0.236)	1.110*** (0.267)
Quality of execution	1.454*** (0.234)	1.454*** (0.234)	1.446*** (0.233)	1.535*** (0.249)	1.530*** (0.238)	1.472*** (0.237)	1.392*** (0.242)	1.454*** (0.233)	1.564*** (0.261)
GEF grant	-0.00711 (0.0309)	-0.00777 (0.0310)	-0.0117 (0.0304)	0.00190 (0.0337)	-0.0170 (0.0318)	-0.00321 (0.0307)	-0.00464 (0.0345)	-0.00219 (0.0321)	0.0157 (0.0328)
Year of implementation start	0.0378 (0.0299)	0.0376 (0.0303)	0.0383 (0.0292)	0.0187 (0.0329)	0.0359 (0.0295)	0.0249 (0.0299)	0.0236 (0.0314)	0.0373 (0.0299)	-0.00428 (0.0355)
PPG given	-0.0881 (0.293)	-0.0866 (0.291)	-0.0564 (0.295)	-0.0349 (0.315)	-0.0156 (0.297)	-0.0765 (0.296)	0.0615 (0.295)	-0.0890 (0.293)	0.249 (0.322)
Africa region		0.0234 (0.219)							-0.212 (0.258)
SIDS county			-0.307 (0.247)						-0.350 (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)
IW 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

Robust standard errors in parentheses,

\*, \*\*, \*\*\* indicates significance at the 90%, 95% and 99% level, respectively.

Table 9. Regression results for project outcomes (resilience measure 2)

VARIABLES	model 1	model 2	model 3	model 4	model 5	model 6	model 7	model 8	model 9
Resilience integrated as cobenefit or multiple benefits framework	0.562** (0.248)	0.562** (0.248)	0.623** (0.265)	0.650** (0.267)	0.639** (0.251)	0.586** (0.247)	0.580** (0.246)	0.566** (0.248)	0.819*** (0.297)
<i>Control Variables</i>									
Quality of implementation	1.358*** (0.232)	1.358*** (0.232)	1.373*** (0.234)	1.362*** (0.257)	1.399*** (0.237)	1.280*** (0.233)	1.123*** (0.245)	1.369*** (0.234)	1.187*** (0.266)
Quality of execution	1.479*** (0.236)	1.479*** (0.237)	1.473*** (0.236)	1.584*** (0.254)	1.560*** (0.240)	1.510*** (0.241)	1.430*** (0.246)	1.479*** (0.236)	1.661*** (0.274)
GEF grant	0.00248 (0.0302)	0.00248 (0.0304)	1.64e-05 (0.0301)	0.0111 (0.0333)	-0.00579 (0.0311)	0.00612 (0.0297)	0.00599 (0.0332)	0.00723 (0.0323)	0.0260 (0.0340)
Year of implementation start	0.0411 (0.0299)	0.0411 (0.0303)	0.0425 (0.0294)	0.0211 (0.0332)	0.0402 (0.0298)	0.0257 (0.0302)	0.0247 (0.0311)	0.0407 (0.0299)	-0.00396 (0.0368)
PPG given	-0.103 (0.287)	-0.103 (0.285)	-0.0758 (0.290)	-0.0626 (0.310)	-0.0265 (0.291)	-0.0971 (0.290)	0.0323 (0.290)	-0.105 (0.287)	0.199 (0.317)
Africa region		-0.000222 (0.217)							-0.233 (0.264)
SIDS county			-0.240 (0.243)						-0.377 (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)
IW 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

Robust standard errors in parentheses

\*, \*\*, \*\*\* indicates significance at the 90%, 95% and 99% level, respectively.

#### 4. List of interviewees

Name	Organization
Dennis Bours	Adaptation Fund
Noelle O'Brien	ADB
Mwila Musumali	AfDB
Ian Kissoon	Conservation International
Craig Davies	EBRD
Ana Heures	FAO
Jesus Constanza	FAO
Omar Arriola	FAO
Raul Carcamo	FAO
Tommaso Vicario	FAO
Jaime Tobar	FAO/CRS
Liu Lei	FECO
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	IDB
Juliana Almeida	IDB
Terry Cannon	IDS
Dan Schreiber	OECD
Guadalupe Duron	STAP
Tom Hammond	STAP
Anand Patwardhan	STAP/UMD
Jason Veysey	Stockholm Environmental Institute
Jyoti Mathur-Filipp	UNCBD
Neil Pratt	UNCBD
Yibin Xiang	UNCBD
Birara Chekol	UNDP
Jose Padilla	UNDP
Nancy Bennet	UNDP
Phemo Karen Kgomo	UNDP
Srilata Kammila	UNDP
Ta'hirih Hokafonu	UNDP
Wubua Mekonnen	UNDP
Hyunwoo Kim (Noah)	UNFCCC
Anya Onysko	UNIDO

Juergen Hierold	UNIDO
Olga Gordiievaska	UNIDO
Shaanti Kapila	World Bank
Veronique Morin	World Bank
Viviane Wei Chen Clement	World Bank
Heike Lingertat	WWF
Shaun Martin	WWF