

Case studies of projects funded by the Green Climate Fund (GCF) in relation to the strategic workstreams of the Warsaw International Mechanism (WIM) for loss and damage



United Nations
Climate Change

(WIM@10

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List of Acronyms

AF	Adaptation Fund
AFD	Agence Française de Développement
ASEG	Action and Support Expert Group
CO₂	Carbon dioxide
COP	Conference of the Parties
EMS	Environmental Management Systems
EUR	Euro
ExCom	Executive Committee
GCF	Green Climate Fund
GEF	Green Environment Facility
GIS	Geographic Information System
ha	Hectare
IAMs	Integrated Assessment Models
INDCs	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
Lao PDR	Lao People's Democratic Republic
LDCF	Least Developed Countries Fund
LDCs	Least Developed Countries
NAPA	National Adaptation Programme of Action
NDCs	Nationally Determined Contributions
NPV	Net Present Value
R&R	Rehabilitation and Reconstruction
SCCF	Special Climate Change Fund
SIDS	Small Island Developing States
t	Tonnes
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
USD	United States Dollars
WIM	Warsaw International Mechanism

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1 Introduction

A tropical coastal scene with a small boat on the water and a forested shoreline. The image is framed by a large, stylized circular graphic that transitions from a light blue gradient on the left to a bright yellow gradient on the right. The background of the entire slide is a solid blue gradient.



Parties provided guidance to the Green Climate Fund (GCF) to continue supporting activities that are relevant to loss and damage and ensure coordination and complementarity in the context of the new funding arrangements.

At COP28, the operationalization of funding arrangements, including a fund, for assisting developing countries that are particularly vulnerable to the adverse effects of climate change in responding to loss and damage were agreed (decision -/CP.28 and -/CMA.5). In addition, Parties provided guidance to the Green Climate Fund (GCF) to continue supporting activities that are relevant to loss and damage and ensure coordination and complementarity in the context of the new funding arrangements (decision -/CP.28 paragraph 15). It is therefore important to understand how vulnerable countries and communities have included loss and damage in climate change related projects in order to address the impacts they are confronting. This report considers how developing countries have accessed funding from the GCF for activities related to loss and damage.

The GCF is mandated to promote the paradigm shift towards low emission and climate-resilient development pathways by providing support to developing countries to limit or reduce their greenhouse gas emissions and to adapt to the impacts of climate change. The GCF Board has set portfolio level targets of investing 50 per cent of its resources on a grant-equivalent basis in mitigation and 50 per cent in adaptation. Further, at least half of its adaptation resources must be invested in Least Developed Countries (LDCs), Small Island Developing States (SIDS) and African States.

While not explicitly part of its mandate, GCF investments are relevant in the loss and damage context. At COP 25, Parties provided guidance to the GCF, “to continue providing financial resources for activities relevant to averting, minimizing and addressing loss and damage in developing country Parties, to the extent consistent with the existing investment, results framework and funding windows and structures of the Green Climate Fund” (decision 6/CMA.2 paragraph 8 and 12/CP.25 paragraph 21).

Since then, the GCF has included examples of its activities, including funding proposals, support through the Project Preparation Facility, and support through the Readiness and Preparatory Support Programme, relevant to averting, minimizing and addressing loss and damage in its annual reports to the COP and CMA. It is important to note that GCF annual reports provide an indicative sample of relevant activities rather than a comprehensive assessment. GCF currently does not provide assistance for emergency response or immediate recovery after an event.

This report provides an analysis of selected approved GCF adaptation projects that are related to the strategic workstreams of the Warsaw International Mechanism (WIM), to show the range of relevant activities that are supported under the GCF to avert, minimize and address loss and damage.

This report provides an analysis of selected approved GCF adaptation projects¹ that are related to the strategic workstreams of the Warsaw International Mechanism (WIM), to show the range of relevant activities that are supported under the GCF to avert, minimize and address loss and damage. The topics covered by these selected projects are non-exhaustive in terms of the coverage of activities as related to the strategic workstreams of the WIM. In addition, the analysis does not include GCF readiness activities and project preparation support activities.

The mandate for developing this report is set out in decision 2/CMA.2 paragraph 39. The CMA requested the Executive Committee (ExCom) to clarify how developing country Parties may access funding from the GCF related to the strategic workstreams of the WIM ExCom. The development of this report is included in the rolling workplan of the Action and Support Expert Group (ASEG) under the WIM ExCom.

The strategic workstreams of the WIM ExCom enhance cooperation and facilitation in five main areas as outlined in Figure 1.

¹ Cross-cutting and mitigation projects are not included.

Figure 1: The five strategic workstreams of the WIM averting, minimizing and addressing loss and damage

 <p>SLOW ONSET EVENTS</p>	<p>Strengthen the understanding of slow onset events and enhance the capacity to address them, particularly at regional and national levels. Slow onset events include increasing temperature, desertification, loss of biodiversity, land and forest degradation, glacial retreat, sea level rise, ocean acidification and salinization.</p>
 <p>NON-ECONOMIC LOSSES</p>	<p>Enhance data collection, knowledge and awareness of non-economic losses, facilitating their mainstreaming in measures at the national level. Non-economic losses refer to a broad range of losses that are not easily quantifiable in financial terms and not commonly traded in markets. Non-economic losses may affect individuals, society or the environment.</p>
 <p>COMPREHENSIVE RISK MANAGEMENT APPROACHES</p>	<p>Enhance cooperation and facilitation in relation to comprehensive risk management approaches (including assessment, reduction, transfer and retention). This enhanced cooperation and facilitation aims at addressing and building long-term resilience of countries, vulnerable populations and communities to loss and damage, including in relation to extreme and slow onset events.</p>
 <p>MIGRATION, DISPLACEMENT AND HUMAN MOBILITY</p>	<p>Enhance cooperation and facilitation in relation to human mobility, including migration, displacement and planned relocation. A Task Force on Displacement was established to develop recommendations for integrated approaches to avert, minimize and address displacement related to the adverse impacts of climate change.</p>
 <p>ACTION AND SUPPORT</p>	<p>Enhance cooperation and facilitation in relation to action and support, including finance, technology and capacity-building, to address loss and damage associated with the adverse effects of climate change.</p>

Source: Respective expert group websites (UNFCCC, 2023a, 2023b, 2023c, 2023d, 2023f)

The report is structured around 3 sections. The methodology used to analyse approved GCF projects is presented in Section 2. Section 3 provides a summary description of the projects and the key findings related to actions supported by the GCF to minimize and address loss and damage in developing countries. The full case studies based on selected approved GCF projects are provided in Annex A, and include the climate hazards and vulnerability addressed, the objectives, interventions, how loss and damage is expected to have been averted, minimized or addressed and financial instruments used.

2 Methodology

The background of the slide features a tropical coastal scene. In the foreground, a small green and white boat floats on deep blue water. The middle ground shows a shallow lagoon with turquoise water and a sandy beach lined with lush green trees. In the distance, a small island or town is visible under a blue sky with scattered white clouds. Overlaid on this scene are three concentric circles: a large light blue circle on the left, a medium white circle in the center, and a smaller yellow circle on the right. The title '2 Methodology' is written in a bold, white, sans-serif font, positioned across the middle of the slide, partially overlapping the circles and the water.



This section provides an overview of the GCF projects selected and the framework used to identify actions related to averting, minimizing and addressing loss and damage associated with climate change impacts.

2.1. Project selection and coverage

Projects were selected across the WIM ExCom workstreams, regions and climate change hazards related to slow onset events and extreme weather events.

Using the examples of activities relevant to averting, minimizing and addressing loss and damage in the tenth and eleventh GCF reports to the COP, the WIM ExCom mapped² indicative GCF-funded projects that include activities related to their five strategic workstreams. This mapping was non-exhaustive. Six GCF approved projects were selected from the indicative list and included in this analysis. Projects were selected across the WIM ExCom workstreams,³ regions and climate change hazards related to slow onset events and extreme weather events, e.g. rising sea level, salinization, rising temperature, drought, heavy rainfall, flooding, hurricanes and tropical storms.



² This report provides an analysis of selected approved GCF adaptation projects that are related to the strategic workstreams of the Warsaw International Mechanism (WIM), to show the range of relevant activities that are supported under the GCF to avert, minimize and address loss and damage.

³ Although effort was made to ensure the five workstreams of the WIM were reflected, none of the selected projects address the workstream on migration, displacement and human mobility in a significant way. However, the project for Senegal on integrated urban flood management does include provisions for the relocation of vulnerable people through the Resettlement Action Plan.

Table 1: Coverage of selected approved GCF projects

PROJECT	PROJECT NUMBER	PERIOD	REGION	LDCS/SIDS	CLIMATE HAZARD ⁴
Senegal: Integrated urban flood management project	FP021	2016 - 2025	Africa	LDC	Flooding caused by heavy rainfall events and sea level rise
Sudan: Building resilience in the face of climate change within traditional rain-fed agricultural and pastoral systems	FP139	2020 - 2025	Africa	LDC	Increasing temperature, rainfall variability, increased episodes of drought
5 Island Countries of the Pacific Ocean: Enhancing climate information and knowledge services for resilience	FP147	2020 - 2026	Asia-Pacific	LDCs/ SIDS	Rising sea levels, extreme waves, tropical cyclones, storms, changing rainfall patterns
Lao PDR: Building resilience of urban populations with ecosystem-based solutions	SAP009	2019 - 2025	Asia-Pacific	LDC	Flooding caused by heavy rainfall events
Cuba: Coastal resilience to climate change through ecosystem-based adaptation	FP157	2021 - 2029	Latin America & Caribbean	SIDS	Tropical storms, rising sea levels, flooding, saline intrusion, drought
Antigua and Barbuda: Resilience to hurricanes in the building sector	FP133	2020 - 2027	Latin America & Caribbean	SIDS	Hurricane, tropical storms, flooding

⁴ Hazard types include extreme temperature, extreme precipitation, drought, wildfire, wind threats, river flooding, coastal flooding, etc.

2.2. Framework used for understanding loss and damage

When mapped to the WIM ExCom workstreams, all of the indicative projects of the GCF were found to include comprehensive risk management in combination with activities related to the other workstreams. Comprehensive risk management is therefore used to further analyse the selected GCF projects and the types of actions funded related to averting, minimizing and addressing loss and damage.

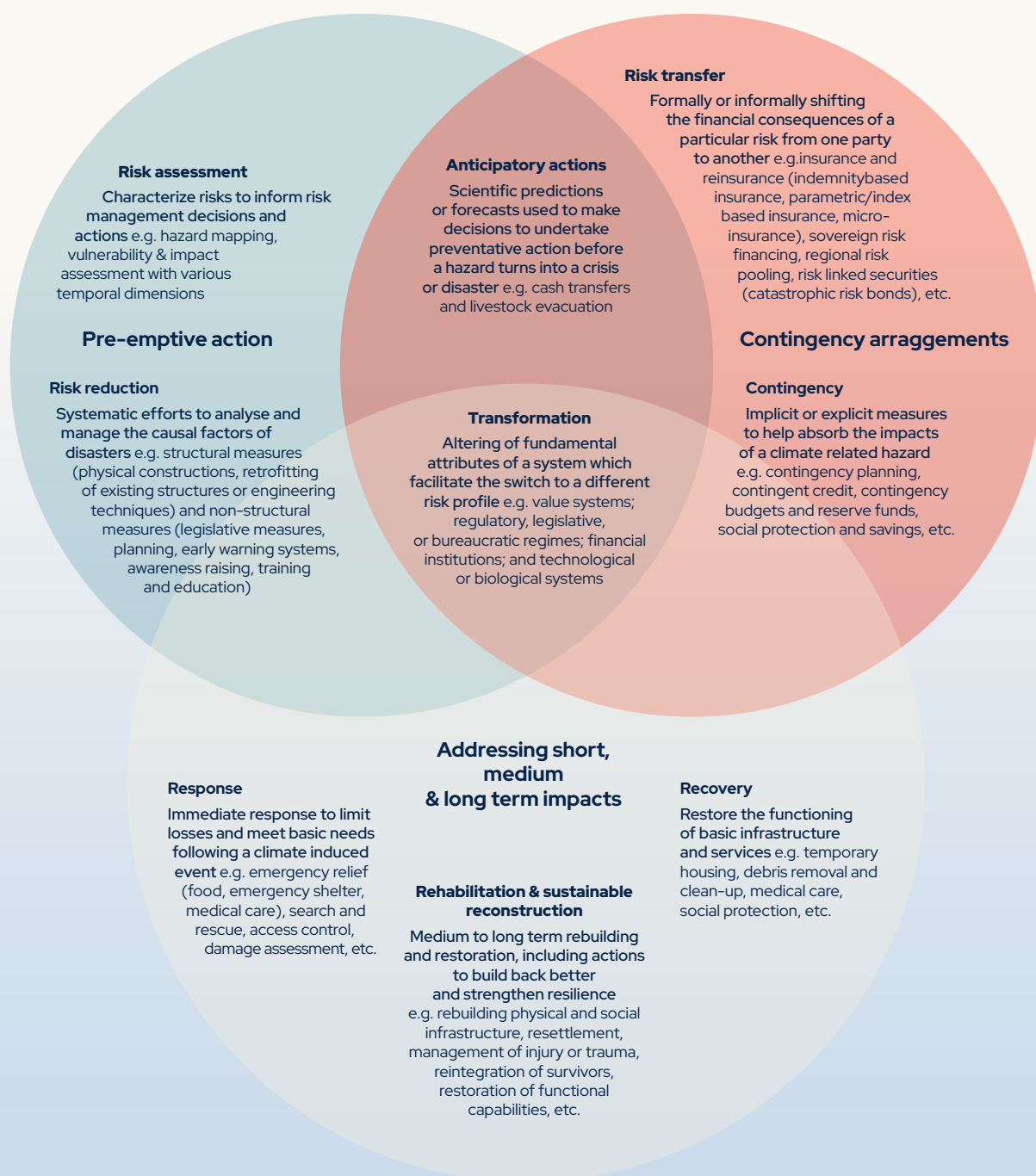
Comprehensive risk management approaches include risk assessment, risk reduction, risk transfer and risk retention (UNFCCC, 2019). Such approaches aim at building long-term resilience of countries, vulnerable populations and communities to extreme and slow onset events. Different conceptual frameworks for comprehensive risk management have been proposed which explicitly account for addressing loss and damage from the impacts of climate change (GiZ, 2019; MCII & GiZ, 2019), with some frameworks facilitating pre-emptive policymaking that come into effect in the post-impacts phase to respond to loss and damage in a holistic manner (Nassef, 2020; Qi et al., 2023; Scottish Government, 2022; UNFCCC, 2023e, 2023g).

This report builds on these existing frameworks to exemplify an array of actions associated with averting, minimizing and addressing loss and damage.

This report builds on these existing frameworks to exemplify an array of actions associated with averting, minimizing and addressing loss and damage, presented in Figure 2. They range from actions that countries can undertake pre-emptively to safeguard at-risk assets, and contingent arrangements to help absorb the impacts if they occur, to 'ex-post' measures, including those to restore, recover, reconstruct and rehabilitate from short-, medium- and long-term impacts, building forward/better toward resilience. The spectrum of these actions for responding to climate impacts covers loss and damage associated with both rapid onset events and slow onset events.



Figure 2: Collection of indicative actions along comprehensive risk management in the context of loss and damage



Source: Developed from the frameworks presented in (MCII & GiZ, 2019; Nassef, 2020; Qi et al., 2023; Scottish Government, 2022; UNFCCC, 2023e, 2023g)



3

Description of case studies and related key findings



Using the six approved projects referred to in Table 1 as case studies, this section presents the key findings and an overview of (i) the actions identified in approved GCF projects as they relate to comprehensive risk management (Table 2 and Box 1) and (ii) the associated financing instruments (Table 3 and Box 2). Further information on the case studies is provided in Annex A, including details of the climate hazards and vulnerability addressed, objectives of the interventions and associated financial instruments, and expected changes to loss and damage.

3.1. Actions funded as they relate to comprehensive risk management

Funding was concentrated on actions associated with pre-emptive action and contingency arrangements. As outlined in Table 2, all projects channelled funding towards risk reduction actions such as drainage infrastructure in Senegal, climate-resilient farming practices in Sudan, early warning systems in the five island countries of the Pacific Ocean, coastal ecosystem-based adaptation in Cuba and climate-proofing measures for priority buildings in Antigua and Barbuda. Most projects included risk assessment actions such as flood risk mapping in Senegal, hydrological assessments in Lao PDR and coastal vulnerability assessments in Cuba.

Contingency planning and finance actions were part of project design in Senegal, Sudan, 5 island countries of the Pacific Ocean and Antigua and Barbuda.

Some funding was channelled towards contingency arrangements. Contingency planning and finance actions were part of project design in Senegal, Sudan, 5 island countries of the Pacific Ocean and Antigua and Barbuda. Risk transfer mechanisms such as insurance and micro-insurance were included in three of the six project proposals; however, related costs were covered by government co-financing as detailed in Box 1.

Anticipatory actions were funded in the 5 island countries of the Pacific Ocean, which supported the introduction of impact-based forecasting. Anticipatory actions were also funded in Antigua and Barbuda through the establishment of protocols and provisions for early action before a disaster or crisis occurs.

Funding was not targeted at actions related to emergency response and immediate recovery. The GCF does not have an explicit mandate to respond to loss and damage and related activities are accordingly not in line with the timeframe compatible to provide assistance for immediate or short-term response or recovery after an event. Recognizing that the GCF continues to make significant improvements to the speed of proposal review processes, the six projects included in our analysis spent 32 months on average in the GCF pipeline before approval. This may be due to several factors, including proposal quality on entry, changing country priorities, and complex processes within the GCF.

Three of the six projects included actions related to medium- to longer-term rehabilitation and reconstruction. This included interventions aimed at the restoration of natural ecosystems in Lao PDR and Cuba, as well as interventions aimed at rehabilitating and constructing water yards and boreholes in Sudan.

All six project proposals indicated the use of “transformational approaches” by supporting a shift towards more integrated approaches or the transformation of policy and institutional frameworks, and included interventions aimed at creating an enabling environment for the effective implementation of comprehensive risk management.



Table 2: Summary of actions along comprehensive risk management relevant to loss and damage in selected GCF case studies

COUNTRY	ACTIONS
Senegal , integrated urban flood management project	<p>ASSESSMENT REDUCTION CONTINGENCY TRANSFORMATION</p> <p>The project applies (i) risk assessment through enhanced understanding and awareness of climate risks, supported by flood risk mapping at the national and local level, (ii) risk reduction through the introduction of structural (drainage infrastructure) and non-structural measures to mitigate flood risk in the Greater Dakar region, (iii) transformation of the national policy framework towards integrated urban flood risk management, and (iv) contingency arrangements and support for the enabling environment, through strengthening governance for flood risk management.</p>
Sudan , building resilience in the face of climate change within traditional rain-fed agricultural and pastoral systems	<p>REDUCTION TRANSFER CONTINGENCY TRANSFORMATION REHABILITATION & SUSTAINABLE RECONSTRUCTION</p> <p>The project uses a combination of (i) risk reduction by increasing the resilience of food production systems and increasing access to water resources, (ii) contingency measures through the establishment of microfinancing schemes to help communities diversify their incomes and cushion climate related shocks, (iii) risk transfer through the establishment of crop insurance programmes, (iv) rehabilitation and reconstruction of water yards and boreholes for drinking water, and (v) transformational approaches and support for the enabling environment through strengthened capacities and knowledge of institutions and communities on climate change resilience and adaptation.</p>
5 Island Countries of the Pacific Ocean , enhancing climate information and knowledge services for resilience	<p>ASSESSMENT REDUCTION CONTINGENCY ANTICIPATORY TRANSFORMATION</p> <p>The project makes use of (i) risk assessment through strengthened ocean information systems, quality management systems and enhanced forecasting systems, (ii) risk reduction through strengthening multi hazard early warning systems, (iii) contingency measures facilitated by enhanced community preparedness and resilience to climate shocks, (iv) anticipatory responses through the introduction of impact-based forecasting, and (v) transformational approaches by facilitating a paradigm shift from reactive to early action.</p>
Lao PDR , building resilience of urban populations with ecosystem-based solutions	<p>ASSESSMENT REDUCTION TRANSFORMATION REHABILITATION & SUSTAINABLE RECONSTRUCTION</p> <p>The project applies (i) risk assessment through hydrological and ecosystem assessments, used to guide planning and action on integrated flood management, (ii) risk reduction by increasing resilience in targeted cities through the implementation of ecosystem-based adaptation, (iii) rehabilitation and reconstruction through the rehabilitation of wetlands and streams, (iv) transformational approaches by catalysing the shift towards integrated climate resilient flood management, and (v) support for the enabling environment by building knowledge and awareness of urban ecosystem-based adaptation and strengthening technical and institutional capacity to support the implementation of urban ecosystem-based adaptation measures.</p>

COUNTRY	ACTIONS
<p>Cuba, coastal resilience to climate change through ecosystem-based adaptation</p>	<p>ASSESSMENT REDUCTION TRANSFER TRANSFORMATION REHABILITATION & SUSTAINABLE RECONSTRUCTION</p> <p>The project applies (i) risk assessment through a more integrated approach to climate information, (ii) risk reduction by strengthening capacity and planning to respond to climate risks and the adoption of ecosystem-based adaptation, (iii) rehabilitation and reconstruction through the restoration and rehabilitation of coastal wetlands, mangroves and swamp forests, (iv) risk transfer, as insurance will be used to protect restoration investments, (v) transformational approaches, as it facilitates a paradigm shift from a reactive, top-down approach to managing climate risks, to one that is locally-centred, drawing on local knowledge and ecosystem-based adaptation measures, and (vi) support for the enabling environment through the development of regulatory and policy frameworks and capacity building.</p>
<p>Antigua and Barbuda, resilience to hurricanes in the building sector</p>	<p>ASSESSMENT REDUCTION TRANSFER CONTINGENCY ANTICIPATORY TRANSFORMATION</p> <p>The project encompasses (i) risk assessment by improving climate information services such as early warning systems and assessing the climate proofing requirements for the building sector, (ii) risk reduction by climate proofing 54 critical buildings, (iii) contingency and anticipatory actions by building emergency shelters and a bunker for emergency supplies during an extreme weather event and establishing protocols for early response, (iv) a transformational shift to proactive development in the building sector, and (v) support for the enabling environment by mainstreaming climate change into the building sector and facilitating access to finance for the upscaling of climate proofing projects.</p>



Box 1: Examples of project risk transfer and anticipatory actions

RISK TRANSFER

Cuba, coastal resilience to climate change through ecosystem-based adaptation

The project aims to strengthen coastal resilience to climate change along Cuba's southern coastline through ecosystem-based adaptation. This will entail the rehabilitation of coastal ecosystems. Restoration investments will be protected from external risks, including extreme weather events, through risk management measures such as climate insurance, fire control management and illegal logging surveillance. The purchase of national insurance, which is triggered when an extreme weather event impacts restoration efforts, will be covered by the government of Cuba as dedicated co-financing.⁵

RISK TRANSFER

Sudan, building resilience in the face of climate change within traditional rain-fed agricultural and pastoral systems

Smallholder rainfed farmers and pastoralists in Sudan are often excluded from formal financial and micro-finance services, including micro-insurance. As a result, they have very limited access to finance that could enhance their productivity and increase their resilience to climate change. Under output area one of the GCF project, micro-financing schemes are to be established through village communities, using the "Sandug" system, a revolving fund that typically involves a group of 10 to 20 women who regularly contribute to the fund. Micro-finance schemes will be aimed at facilitating access to finance for investment in resistant seed varieties, income diversification and helping to cushion the effects of climate related events. Reference is made to the establishment of crop insurance programmes to reduce the risk of financial losses resulting from climate related events. The project proposal states that Sandug schemes will be supported with local or co-financing funds, with no GCF funds allocated to this.

RISK TRANSFER AND ANTICIPATORY ACTIONS

Antigua and Barbuda, resilience to hurricanes in the building sector

The GCF project aims to enhance the resilience of Antigua and Barbuda's building sector to extreme climate events by climate proofing priority buildings and creating an enabling environment for the public and private sector to scale up relevant projects. Alongside other approaches, the proposal integrates contingency and anticipatory actions by building five climate resilient emergency storm shelters as extensions on selected clinics. Storm shelters will be equipped with renewable energy and water harvesting systems to reduce reliance on centralized power and water supply during an extreme weather event. In addition, the project will finance the construction of a climate resilient bunker for the storage of emergency supplies. A formalized communication protocol will be established to facilitate rapid information sharing and early action preceding an extreme climate event. According to the GCF proposal, climate change adaptation will be mainstreamed into public and private financial, insurance and banking sectors to facilitate investment in climate-resilient measures for the building sector. The proposal also states that all insurance activities required under the project will be financed by the Government of Antigua and Barbuda.

⁵ National insurance against climate risks will be purchased by the government of Cuba for the initial eight years of project implementation.

3.2. Financing instruments

An overview of the financing instruments used in the six selected GCF projects is shown in Table 3.

Table 3: Project financing instruments

PROJECT	ACCREDITED ENTITY	GCF (FINANCIAL INSTRUMENTS)	CO-FINANCING (FINANCIAL INSTRUMENTS)	TOTAL (USD)
Senegal, integrated urban flood management project	AFD	Grants (€ 15m)	AFD: Senior loans (€ 50m) Government of Senegal: Equity (€ 6m)	77.5m
Sudan, building resilience in the face of climate change within traditional rain-fed agricultural and pastoral systems	UNDP	Grants (\$ 25.6m)	UNDP: Grant (\$ 0.5m) Government of Sudan: Grant (\$ 15m)	41.2m
5 Island Countries of the Pacific Ocean, enhancing climate information and knowledge services for resilience	UNEP	Grants (\$ 47.4m)	UNEP: in-kind (\$ 0.150m) Governments of the 5 countries: in kind (\$ 2.4m)	49.9m
Lao PDR, building resilience of urban populations with ecosystem-based solutions	UNEP	Grants (\$ 10m)	Government of Lao PDR: in-kind (\$ 1.5m)	11.5m
Cuba, coastal resilience to climate change through ecosystem-based adaptation	UNDP	Grants (\$ 23.9m)	Government of Cuba: grant (\$18.9m) in-kind (\$ 1.4m).	44.3m
Antigua and Barbuda, resilience to hurricanes in the building sector	Department of Environment	Grants (\$ 32.7m)	Government of Antigua and Barbuda: grant (\$4.9m) in-kind (\$ 8.5m)	46.2m

Box 2: Examples of how GCF funding is used to leverage other sources of finance

Senegal, integrated urban flood management project

A GCF grant of EUR 15 million was used to leverage funding from AFD for EUR 50 million and government funding through equity of USD 6 million. The AFD loan will be invested in drainage infrastructure in Pikine Irrégulier Sud, the largest informal settlement in the Greater Dakar region, which is highly vulnerable to flood risk. The EUR 6 million equity from the Government of Senegal will be used to fund the displacement and relocation of vulnerable people through the Resettlement Action Plan.

5 Island Countries of the Pacific Ocean, enhancing climate information and knowledge services for resilience

A USD 47.4 million grant from the GCF was combined with USD 2.4 million of in-kind contributions from the five country governments participating in the project, i.e. Cook Islands (USD 340,352), Niue (USD 538,094), Palau (USD 837,423), Republic of the Marshall Islands (USD 237,364) and Tuvalu (USD 427,249). In all five project countries, co-financing will be provided through contributions of staff time to the project activities. In addition, some countries will provide general office space and equipment, professional or contractual services, travel costs and transportation costs. A further in-kind contribution of USD 150,000 is provided by UNEP, the accredited entity, in the form of staff time for the project management unit.



Funding in the form of grants was used primarily alongside other government funding and other sources of funding. In most cases, government co-financing took the form of in-kind contributions (5 island countries of the Pacific Ocean and Lao PDR) or a combination of in-kind contributions and grants (Cuba and Antigua and Barbuda). The government of Sudan made use of grant financing alone while the government of Senegal made use of equity.

UN agencies and development banks played a prominent role as accredited entities. Antigua and Barbuda was the only project included in our analysis where a government agency (Department of Environment) was the accredited entity. The other projects were managed by UNDP (Sudan and Cuba), UNEP (5 island countries of the Pacific Ocean and Lao PDR) and AFD⁶ (Senegal). Related agencies often make small contributions to management costs through grants or in-kind support, with the notable exception of Senegal, where AFD provided co-financing through a loan of EUR 50 million for investment in drainage infrastructure, described in Box 2.

4. Concluding Remarks

Comprehensive risk management was used to identify the range of actions related to averting, minimizing and addressing loss and damage funded in approved GCF adaptation projects. The preliminary analysis of six approved GCF adaptation projects identified as relevant to the workstreams of the WIM ExCom showed that the main actions funded were related to pre-emptive action, including risk assessment and risk reduction. Some projects covered contingent arrangements and anticipatory actions (e.g. forecast-based finance and establishing protocols and provisions for early action), while none of the projects funded ex-post actions in the immediate aftermath of a crisis or disaster such as response and recovery; however, some funding was dedicated towards medium to longer-term rehabilitation and reconstruction.

Given the evolving support landscape for loss and damage associated with the adverse impacts of climate change, further work is required to enhance understanding on how developing countries can access funding for anticipating and responding to loss and damage from existing arrangements, including the GCF, to enhance coordination and complementarity.

6 AFD is Agence Française de Développement

The image features a tropical coastal scene with a blue sky, turquoise water, and a small boat. The scene is framed by concentric circles, with the word "ANNEX" overlaid in the center. The background is a solid blue gradient.

ANNEX



Annex A: GCF project case studies

Senegal, Integrated urban flood management project⁷ (2016 to 2025), Greater Dakar region, Senegal

Climate hazards and vulnerability: In Senegal, climate change is expected to result in a decrease in the amount of rainfall, alongside an increase in rainfall intensity, a rise in temperature and a rise in sea level. Increased heavy rainfall has led to flooding, which, since 2005, is experienced almost every year during the rainy season (June to October). The rise in sea level has exacerbated the problem in coastal areas, including the Greater Dakar region. This is coupled with increasing vulnerability due to rapid urbanization, with the urban population increasing at an annual rate of 3.9 per cent. Unplanned urban development has resulted in new and/or informal urban areas where most people vulnerable to floods are situated, such as Pikine Irrégulier Sud, the largest informal settlement in the Greater Dakar region.

Objectives of the project: To improve knowledge on floods and flood-prone zones; optimize investment in risk mitigation measures; upgrade monitoring and response for better risk prevention; and strengthen flood risk governance. Transformation of the national policy framework into one that embeds integrated urban flood risk management is expected. The objectives are informed and aligned with the Sendai Framework for Disaster Risk Reduction.

Project components and interventions: The project has four components.

- Component 1 entails the mapping of flood risk in Senegal at the national and local scale in six priority urban areas most affected by flooding. This will involve the development of a comprehensive Geographic Information System (GIS), with a hazard and vulnerability layer. Data and information obtained will be used for flood risk awareness raising and will be disseminated to institutions involved in flood management policymaking and affected populations.
- Component 2 will propose structural and non-structural measures to mitigate flood risk in the most vulnerable urban areas, based on the information obtained from flood risk mapping in component 1. To enhance the effectiveness of public expenditure in drainage infrastructure, tools will be developed for “large scale risk-mitigation infrastructure design”. These tools will be updated regularly and training will be provided to the responsible entities. Component 2 also includes investment in infrastructure in Pikine Irrégulier Sud, aimed at building resilience to flood risk. Information, education and communication services will be provided to the residents of Pikine Irrégulier Sud to ensure acceptance and proper usage of the infrastructure. As some of the population in flood-prone areas cannot be protected by the adaptation and disaster risk reduction measures introduced, the project provides support for the planned relocation of affected people through the Resettlement Action Plan. An estimated 700 people will be affected.
- Component 3 includes real time hazard monitoring through the installation of meteorological and hydrological monitoring tools. There will be capacity building for the responsible entities on forecasting flood risk and the sustainable use of new equipment. Component 3 will entail the development of protocols and capacity building for infrastructure management under extreme rain events.
- Component 4 is focused on the governance of flood risk. It provides support for an integrated approach to flood risk management policymaking, institutional strengthening and capacity building.

Expected changes to economic and non-economic loss and damage: As a result of project activities, USD 8 million per year is expected to be gained owing to the change in expected loss of lives and economic assets.

⁷ Additional project information and documents at: <https://www.greenclimate.fund/project/fp021>

Financial instruments: The project makes use of:

- a EUR 15 million grant from the GCF;
- a EUR 50 million loan from the AFD for the investment in drainage infrastructure; and
- EUR 6 million equity from the Government of Senegal, which will be used to fund the displacement and relocation of vulnerable people through the Resettlement Action Plan (Green Climate Fund, 2017).

Sudan, building resilience in the face of climate change within traditional rain-fed agricultural and pastoral systems⁸ (2020 to 2025) 138 villages located in dryland zones across nine States in Sudan

Climate hazards and vulnerability: Climate change has led to a decrease in mean annual rainfall and the steady increase in average temperatures, which have been associated with increased drought episodes. Subsistence agro-pastoralist and nomadic pastoralist households are particularly vulnerable to droughts, as they derive a large share of their income from crop and livestock-related activities and lack appropriate safety nets. Changes to rainfall and temperatures have in addition been linked to reduced available grazing lands, crop failure, high livestock mortality and increased rural to urban migration. This has led to mounting pressure on pastoral communities, worsening regional conflict over environmental resources.

Objective of the project: To increase climate resilience among agro-pastoralists and nomadic pastoralists, particularly women, who are highly vulnerable to climate change and lack the financial resources to increase their adaptive capacity in dryland areas of Sudan. This is achieved through an integrated approach to agricultural production, water resource management and rangeland management.

Project components and interventions: The main output areas are as follows.

- Output area 1 is centred on increasing the resilience of food production systems and food insecure communities. This involves introducing drought resistant seed varieties (these can better cope with heat, drought, flood and other extremes) of sorghum, millet, groundnut and wheat; sustainable practices in agriculture production at community level; rangeland management practices that reduce stress on communal lands; and the establishment of shelterbelts and agroforestry to improve productivity and reduce environmental degradation. Output area 1 includes establishing micro-financing schemes through village communities, aimed at facilitating access to finance for the investment in resistant seed varieties, income diversification and helping to cushion the effects of climate related events. Crop insurance programmes will also be established to reduce the risk of financial losses resulting from climate related events.
- Output area 2 entails improving access to water for human, livestock and irrigation to sustain livelihoods. This includes the rehabilitation and construction of new water yards and boreholes for drinking water; establishing sand water-storage dams for small scale irrigation; the upgrading and construction of new hafirs⁹ for drinking water.
- Output area 3 contributes to strengthening capacities and knowledge of institutions and communities. This includes training of extension officers and other government officials on climate change resilience and adaptation and building the capacity of beneficiaries to cope with climate change risks and exercise the operation and maintenance of the project interventions.

⁸ Additional project information and documents at: <https://www.greenclimate.fund/project/fp139>

⁹ A hafir is an artificial excavation designed for harvesting rainwater.

Expected changes to economic and non-economic loss and damage: Due to project interventions, the value of economic assets are assessed to be 10 per cent to 25 per cent greater than the counterfactual case. The project intends to achieve zero loss of lives directly due to extreme climate events.

Financial instruments: The project makes use of:

- a USD 25.6 million grant from the GCF;
- a USD 15 million grant from Government of Sudan; and
- a USD 0.54 million grant from UNDP (for programme management) (Green Climate Fund, 2020a).

5 Island Countries of the Pacific Ocean, enhancing climate information and knowledge services for resilience¹⁰ (2020 – 2026)

Cook Islands, Niue, Palau, the Republic of the Marshall Islands and Tuvalu

Climate hazards and vulnerability: The five Pacific Island countries included in the project are facing significant hazards resulting from climate change, such as rising mean temperatures, rising sea levels, warming seas, ocean acidification and deoxygenation, saltwater intrusion, unpredictable and more extreme rainfall, more intense tropical cyclones, flooding and prolonged droughts.

Most island communities live close to the coast, increasing their vulnerability to climate related hazards. Their economies are heavily dependent on the ocean and climate sensitive sectors such as tourism, subsistence farming and fisheries. Their adaptation capacity is limited by structural constraints on their financial and human resources.

Objectives of the project: To facilitate the development of integrated climate and ocean information services and people-centred multi-hazard early warning systems in the Cook Islands, Niue, Palau, the Republic of the Marshall Islands and Tuvalu. The project will address gaps in geographical coverage and capacity required for multiple aspects of climate related risks and hazards, strengthen communication and outreach systems, and establish comprehensive early warning systems for disaster risk management. The project is aligned with the SDGs, the Paris Agreement, the Sendai Framework for Disaster Risk Reduction and the SIDS Accelerated Modalities of Action (SAMOA) Pathway.

Project components and interventions: The project has four components or result areas.

- Component 1 consists of a strengthened delivery model for climate information services and multi-hazard early warning systems covering islands and oceans. The establishment of a sustainable business delivery model for climate services will include developing institutional frameworks, market analyses, financial policies and climate risk knowledge.
- Component 2 involves strengthened observations, monitoring, modelling and prediction of climate and its impacts on islands and oceans. This will be achieved by transforming the five country National Meteorological and Hydrological Services from the World Meteorological Organization's basic category 1 level to its essential category 2 level, development of end to end ocean information systems, quality management systems and impact-based forecasting.
- Component 3 focuses on improved community preparedness, response capabilities and resilience to climate risks. Last mile delivery of early warnings and early action will be facilitated through enhanced warning communication and dissemination, and building preparedness and response capacities. The shift from traditional reactive responses to pre-event early action will be facilitated through the introduction of forecast-based financing.

¹⁰ Additional project information and documents at: <https://www.greenclimate.fund/project/fp147>

- Component 4 focuses on enhanced regional knowledge management and cooperation for climate services and multi-hazard early warning systems. An interactive ICT platform and harmonized data management will be established, synergy between project countries will be optimized, joint learning institutionalized and networking and mentorship promoted during project implementation.

Expected changes to economic and non-economic loss and damage: The introduction of early warning systems through this project intends to reduce the annual average damage to economic assets incurred due to extreme climate-related events by 30 per cent or USD 9.8 million, and reduce the loss of life due to extreme climate-related events to less than 80 per cent or 98 persons.

Financial instruments: The project makes use of:

- a USD 47.4 million grant from the GCF;
- a USD 2.4 million in-kind contribution from the respective governments (USD 340,352 from the Cook Islands, USD 538,094 from Niue, USD 837,423 from Palau, USD 237,364 from the Republic of the Marshall Islands, USD 427,249 from Tuvalu). In all five project countries, co-financing will be provided through contributions of staff time to the project activities. In addition, some countries will provide general office space and equipment, professional or contractual services, travel costs and transportation costs;
- USD 150,000 in kind from UNEP, in the form of staff time for the project management unit (Green Climate Fund, 2020b).

Lao PDR, building resilience of urban populations with ecosystem-based solutions¹¹ (2019 to 2025)

Cities of Vientiane, Paksan, Savannakhet and Pakse in Lao PDR

Climate hazards and vulnerability: Climate change has increased the frequency and intensity of rainfall in Lao PDR, leading to an increase in severe flooding¹² in vulnerable cities along the Mekong River. Most urban and peri-urban flooding events in Lao PDR are related to pluvial flooding, which occurs when rainwater does not drain fast enough into soil and aquifers. There is also some flooding that occurs occasionally when the banks of the Mekong River overflow.

Vulnerability of cities in Lao PDR to flood risk is high due to rapid urban growth, with 40 per cent of the population located in urban areas and an annual urbanisation growth rate of 4 per cent. This has contributed to unplanned urban expansion, characterized by inadequate infrastructure and insufficient consideration of increasing climate related risks. Traditional urban development and expansion has led to increases in the area of impermeable surface, reducing the infiltration of rainwater into the soil and aquifers. In addition, it has led to the degradation of natural ecosystems critical for flood management, such as urban wetlands, natural streams and green areas.

Objective of the project: To introduce an integrated approach to urban flood management in Lao PDR that enhances climate resilience. This is achieved through implementing innovative urban ecosystem-based adaptation measures¹³ and strengthening the integration of flood management strategies into planning frameworks in the Lao PDR cities of Vientiane, Paksan, Savannakhet and Pakse which are most vulnerable to flooding.

The project is expected to catalyse a paradigm shift from hard infrastructure and siloed approaches to integrated, climate resilient flood management.

¹¹ Additional project information and documents at: <https://www.greenclimate.fund/project/sap009>

¹² Flooding is identified as the most frequently occurring climate hazard in Lao PDR.

¹³ Urban ecosystem-based adaptation measures reduce the impacts of pluvial flooding improving infiltration and detention.

Project components and interventions: The project has two components.

- Component 1 builds technical and institutional capacity to plan, design, implement and maintain integrated urban ecosystem-based adaptation interventions for the reduction of climate change induced flooding. This includes building knowledge and awareness of urban ecosystem-based adaptation and strengthening technical and institutional capacity to support the implementation of urban ecosystem-based adaptation measures. This component will support the development of city-level strategies for integrated climate-resilient flood management, informed by hydrological and ecosystem assessments.
- Component 2 focuses on the rehabilitation and protection of ecosystems in response to climate change. To be rehabilitated are the Nong Peung Wetland in Paksan, the Houay Khi La Meng stream in Savannakhet and the Houay Nhang stream in Pakse. Frameworks will be established in partnership with local stakeholders for the sustainable management of these urban ecosystems. In addition, impervious surface areas in the built-up parts of the four cities will be reduced, starting with the introduction of permeable paving technology at demonstration sites at public institutions.

Expected changes to economic and non-economic loss and damage: The wetland and stream restoration achieved through this project is expected to reduce the loss of economic assets due to flooding. Over 20 years, avoided flood losses are estimated to be USD 24.45 million in Vientiane, USD 27.89 million in Paksan, USD 46.24 million in Savannakhet and USD 12.26 million in Pakse.

The rehabilitation of 1,500 hectares (ha) of wetland and urban stream ecosystems is intended to increase the climate resilience of ecosystem services. The value of the ecosystem services generated or protected in response to climate change will be tracked in the project.

Financial instruments: The project makes use of:

- a USD 10 million grant from the GCF; and
- a USD 1.5 million in-kind contribution from the government of Lao PDR (co-financing in the form of staff time, workshops and office space to support project activities) (Green Climate Fund, 2019).

Cuba: Coastal resilience to climate change through ecosystem-based adaptation¹⁴ (2021 to 2029)

Southern coastline, covering 24 municipalities in Cuba

Climate hazards and vulnerability: Cuba is facing adverse challenges related to climate change such as rising sea level and the increased frequency and intensity of extreme weather events, including hurricanes, tropical cyclones and droughts. Vulnerability to climate change hazards and impacts is most prominent in the low-lying southern coast, relatively flat topography, extensive coastal plains and highly permeable karstic geology.

Cuba is characterized by interconnected and diverse landscapes where different ecosystems have traditionally thrived. Healthy ecosystems can act as protective barriers against rising sea level and storm surges, reducing coastal erosion, flooding and salt intrusion; they foster coastal stability. However, pressure associated with climate change has led to the degradation of natural ecosystems. Hard infrastructure projects introduced to mitigate climate change impacts on the country's natural capital and public services, have unintentionally contributed to the further degradation of coastal landscapes.

¹⁴ Additional project information and documents at: <https://www.greenclimate.fund/project/fp157>

Objective of the project: To strengthen coastal resilience to climate change along Cuba's southern coastline through ecosystem-based adaptation, which restores ecosystem nexus and functionality and strengthens the adaptive capacity of local communities. The project will support the mainstreaming of ecosystem management into territorial and national planning and frameworks. The project is expected to achieve a paradigm shift, from a reactive top-down approach to managing climate risks to one that is locally centred, drawing on local knowledge and ecosystem-based adaptation measures.

Project components and interventions: The project has two output areas.

- Output 1 is enhanced coping capacity to manage climate impacts through the rehabilitation of coastal ecosystems. This will include the development and implementation of an ecosystems-based adaptation strategy for increasing the capacity of coastal ecosystems to withstand climate change and strengthen coastal resilience. Hydrological processes will be re-established to restore coastal wetland functions, alongside mangrove and swamp forest rehabilitation for enhanced coastal protection. Restoration investments will be protected from external risks, including extreme weather events, through risk management measures such as climate insurance, fire control management and illegal logging surveillance. Coastal and marine ecosystem protective functions, enhanced as a result of regeneration measures, will be recorded and assessed. In addition, the project will reduce and monitor saline intrusion (during droughts and flooding events) by restoring freshwater drainage in coastal ecosystems and aquifers.
- Output 2 is increased technical and institutional capacity for climate change adaptation in coastal communities, governments and economic sectors. Capacity building will be provided for coastal communities and local stakeholders to increase their knowledge on climate change and related impacts, adaptation action and ecosystem-based adaptation. A knowledge management platform will be established, which will integrate information generated under output area 1, alongside information on existing early warning systems and national datasets. The knowledge management platform will be used to develop climate information products and inform coastal communities on local capacity to manage climate change impacts. The project will facilitate two-way information flow, i.e. upward and downward flows from community to government. Ecosystem-based adaptation approaches will be mainstreamed into regulatory and planning frameworks at the territorial and national level, to increase the long-term sustainability of ecosystem-based adaptation.

Expected changes to economic and non-economic loss and damage: Project interventions using ecosystem-based adaptation expect potential reduced accumulated losses of USD 17.8 million. The project intends to restore 11,427 ha of mangroves, 3,088 ha of swamp forest, and 928 ha of grass swamp, which in turn will improve the health of 9,287 ha of seagrass and 134 km of coral reef crest.

Financial instruments: The project makes use of:

- a USD 23.9 million grant from the GCF (part of GCF funding will be used for the purchase of equipment and technology necessary for the restoration and upgrading of ecosystems); and
- a USD 20.4 million (USD 18.9 million grant and USD 1.4 million in kind) contribution from the government of Cuba (co-financing in the form of grants will support learning spaces and capacity building, dedicated staff, restoration activities and ecosystem monitoring. In-kind contributions include the expansion of monitoring programmes to include the project target areas at the National Institute of Hydraulic Resources). The government of Cuba, in addition, will commit USD 16.5 million for operational maintenance throughout the project's lifetime (Green Climate Fund, 2021).

Antigua and Barbuda: Resilience to hurricanes in the building sector¹⁵ (2020 – 2027)

Antigua and Barbuda

Climate hazards and vulnerability: Historically, Antigua and Barbuda experienced low intensity tropical storms, with hurricanes seldom strengthening above category 3. Climate change has led to the increased intensity of storms, with the return rate of category 4 hurricanes increasing from 1 in 50 years in the first half of the 20th century, to 1 in 10 years in the latter half. The frequency and intensity of storms are strongly correlated with high sea surface temperature, decreasing vertical wind shear in the mid-troposphere during depression development and changes in the La Niña phase of the El Niño Southern Oscillation.¹⁶

There is high vulnerability to high intensity storms as building codes in Antigua and Barbuda were not designed for hurricanes above category 3. High intensity storms therefore have a devastating effect, causing significant damage to housing and infrastructure and disruptions to basic services such as health, education, telecommunications, electricity, water, sewage and waste systems. Structurally insecure community buildings, such as schools, churches, clinics and police stations, serve as unsafe shelters during an extreme weather event, disproportionately affecting vulnerable groups such as women, children, the elderly and the disabled.¹⁷

Objectives of the project: To enhance the resilience of Antigua and Barbuda's building sector to extreme climate events such as hurricanes and tropical storms. This includes strengthening the structural integrity of critical buildings to withstand extreme weather events, increasing community resilience by decentralising power and water supplies, improving climate information services and creating an enabling environment for the public and private sectors to upscale climate proofing projects so that coverage includes all buildings.

A paradigm shift is expected in the building sector, from costly reactive development towards a proactive approach in which buildings are adapted to the changing climate.

Project components and interventions: The project has three output areas.

- Output area 1 will improve resilience and recovery from extreme climate events by climate proofing critical public service and community buildings. This includes:
 - climate proofing measures to enable critical buildings¹⁸ (i.e. hospitals, clinics, police stations, fire stations, schools, important government buildings and storm shelters) to withstand category 4 and 5 hurricanes. This will entail site specific building assessments to determine the extent and cost of adaptation upgrades; the installation of hurricane straps to secure rooftops and hurricane shutters, used to strengthen the structural integrity of buildings; installation of decentralized systems for water and power supplies, making use of renewable energy technologies such as solar PV panels and battery packs for power generation and water harvesting and to reduce reliance on centralized systems, which are vulnerable to disruptions following extreme weather events; installation of energy efficiency equipment; and installation of stormwater drainage solutions to reduce the risk of flooding from heavy rainfall;
 - construction of five climate resilient storm shelters attached to selected clinics. Storm shelters will also have renewable energy and water harvesting systems;

¹⁵ Additional project information and documents at: <https://www.greenclimate.fund/project/fpi33>

¹⁶ These factors create more favourable conditions for the development of high intensity storms

¹⁷ Disaster response efforts following an extreme climate event are hindered by damages to critical service infrastructure such as hospitals, clinics, police stations and storm shelters. Vulnerability is further increased due to insufficient early warning systems, which would allow for early evacuation and the safeguarding of assets.

¹⁸ 54 priority buildings have been selected for climate proofing, representing one-third of the country's public building portfolio of 254 buildings. Of these, 34 priority buildings will have renewable energy solutions fitted, such as solar PV panels and batteries. 14 priority buildings will be fitted with stormwater drainage solutions.

- construction of a climate resilient bunker for the storage of emergency supplies; and
- installation of physical protection measures to reduce the risk to critical IT infrastructure and the development of protocols for the efficient and effective backup of vital information and data preceding an extreme weather event.
- Output area 2 will mainstream climate change into the building sector and relevant financial mechanisms, including public and private financial, insurance and banking sectors. This will include integrating the climate sensitive building code into the 2003 Physical Planning Act and updating the Environmental Management Systems (EMS) plans; enhancing public and private sector access to finance and insurance for climate proofing projects; training relevant government officials and the private sector on operational procedures for the long term monitoring, maintenance and upscaling of climate resilient renewable energy and water harvesting technologies in accordance with the national building code, and; training the local workforce on the installation, operation and maintenance of climate-proofing measures for the targeted buildings.
- Output area 3 will strengthen climate information services to facilitate early action within the building sector to respond to extreme climate events. A centralized online server will be established at Antigua and Barbuda Meteorological Services to enhance the real-time processing of climate data for the early detection of climate threats and the facilitation of impact-based forecasting. A formalized communication protocol will be established to facilitate rapid information sharing and early action preceding an extreme climate event.

Expected changes to economic and non-economic loss and damage: Climate proofing interventions in the building sector are expected to reduce USD 3.34 billion in losses of assets (baseline scenario: economic losses account for USD 6.6 billion per category 4 or 5 event).

Financial instruments: The project makes use of:

- a USD 32.7 million grant from the GCF (most GCF funding – USD 25 million – will be used for climate proofing interventions under output area 1); and
- a USD 13.5 million (USD 4.9 million grant and USD 8.5 million in kind) contribution from the government of Antigua and Barbuda (some of this will be used to cover all baseline costs – including business as usual repairs/ maintenance to buildings that are necessary to ensure sustainability of climate-proofing interventions) (Green Climate Fund, 2020c).

Annex B: Summary table of case studies

TITLE	PERIOD	REGION	COUNTRY GROUP	AMOUNT (USD)	BENEFICIARIES	HAZARD	MOST RELEVANT STRATEGIC WORKSTREAMS				FINANCIAL INSTRUMENTS	OBJECTIVES OF THE PROJECT	EXPECTED CHANGES TO ECONOMIC AND NON-ECONOMIC LOSS AND DAMAGE
							SLOW ONSET EVENTS	HUMAN MOBILITY	CRM ACTIONS	NON-ECONOMIC LOSS			
FPO21 - Senegal, integrated urban flood management project	2016 - 2025	Africa	LDC	77.5m	2.2m	Flooding caused by heavy rainfall events and sea level rise	X	X	Assessment/Reduction/Contingency/ Transformation	Loss of life/health	GCF funds - Grants (€ 15m) Co-financing - AFD: Senior loans (€ 50m) Government of Senegal: Equity (€ 6m)	(i) Improve knowledge on floods and flood-prone zones, risk mitigation measures, (ii) optimize investment in (iii) to upgrade monitoring and response for better risk prevention and (iv) to strengthen flood risk governance. The objectives of the project are in line with the Sendai Framework	As a result of project activities approx. USD 8 million per year is expected to be gained as a result of the change in expected loss of lives and economic assets.
FPI39 - Sudan, building resilience in the face of climate change within traditional rain-fed agricultural and pastoral systems	2020 - 2025	Africa	LDC	41.2m	3.7m	Increasing temperature, rainfall variability, increased episodes of drought	X		Reduction/Transfer/Contingency/ Transformation/ R&R	Loss of life/Health	GCF funds - Grants (\$ 25.6m) Co-financing - UNDP: Grant (\$0.5m) Government of Sudan: Grant (\$15m)	Increase climate resilience among agro-pastoralists and nomadic pastoralists, particularly women, in dryland areas through an integrated approach to agricultural production, water resource management, and rangeland management.	Due to project interventions, the value of economic assets is assessed to be 10% to 25% greater than the counterfactual case. The project intends to achieve zero loss of lives directly due to extreme climate events.
FPI47 - 5 Island Countries of the Pacific Ocean, enhancing climate information and knowledge services for resilience	2020 - 2026	Asia-Pacific	LDCs/ SIDS	49.9m	100,000	Rising sea levels, extreme waves, tropical cyclones, storms, changing rainfall patterns	X		Assessment/Reduction/Contingency/ Transformation/ Anticipatory	Loss of life/health	GCF funds - Grants (\$ 47.4m) Co-financing - UNEP: in kind (\$0.150m) Governments of the 5 countries: in kind (\$ 2.4m)	Development of integrated climate and ocean information services and people-centred multi-hazard early warning systems in the five Pacific Island countries.	The introduction of early warning systems through this project intends to reduce the annual average damage to economic assets incurred due to extreme climate-related events by 30% or USD 9.8 million and reduce the loss of life due to extreme climate-related events to less than 80% or 98 persons.

TITLE	PERIOD	REGION	COUNTRY GROUP	AMOUNT (USD)	BENEFICIARIES	HAZARD	MOST RELEVANT STRATEGIC WORKSTREAMS				FINANCIAL INSTRUMENTS	OBJECTIVES OF THE PROJECT	EXPECTED CHANGES TO ECONOMIC AND NON-ECONOMIC LOSS AND DAMAGE
							SLOW ONSET EVENTS	HUMAN MOBILITY	CRM ACTIONS	NON-ECONOMIC LOSS			
SAP009 – Lao PDR, building resilience of urban populations with ecosystem-based solutions	2019 – 2025	Asia-Pacific	LDC	11.5m	899,600	Flooding caused by heavy rainfall events			Assessment/Reduction/Transformation/ R&R	Ecosystem/health	GCF funds - Grants (\$10m) Co-financing - Government of Lao PDR: in kind (\$1.5m)	<p>Introduce an integrated approach to urban flood management in Lao PDR, that enhances climate resilience. This is achieved through implementing innovative urban ecosystem-based adaptation measures and strengthening the integration of flood management strategies into planning frameworks in the Lao PDR cities of Vientiane, Pakse, Savannakhet and Pakse</p>	<p>The wetland and stream restoration, through this project, is expected to reduce the loss of economic assets due to flooding. Over 20 years, avoided flood losses are estimated to be USD 24.45 million in Vientiane, USD 27.89 million in Pakse, and 46.24 million in Savannakhet and USD 12.26 million in Pakse. The rehabilitation of 1,500 hectares (ha) of wetland and urban stream ecosystems is intended to increase the climate resilience of ecosystem services. The value of the ecosystem services generated or protected in response to climate change will be tracked in the project.</p>
FPI157 – Cuba, coastal resilience to climate change through ecosystem-based adaptation	2021 – 2029	Latin America and the Caribbean	SIDS	44.3m	1.3m	Tropical storms, rising sea levels, flooding, saline intrusion, drought	X		Assessment/Reduction/Transformation/ R&R	Biodiversity, ecosystems, territory	GCF funds - Grants (\$23.9m) Co-financing - Government of Cuba: grant (\$8.9m) in kind (\$1.4m).	<p>Strengthen coastal resilience to climate change along Cuba's southern coastline through ecosystem-based adaptation which restores ecosystem nexus and functionality and strengthens the adaptive capacity of local communities.</p>	<p>Project interventions using ecosystem-based adaptation is expected to reduce potential accumulated losses of USD 17.8 million. The project intends to restore 11,427 ha of mangroves, 3,088 ha of swamp forest, and 928 ha of grass swamp, which, in turn, will improve the health of 9,287 ha of seagrass and 134 km of coral reefs crest.</p>
FPI133 – Antigua and Barbuda, resilience to hurricanes in the building sector	2020 – 2027	Latin America and the Caribbean	SIDS	46.2m	73,200	Hurricane, tropical storms, flooding			Assessment/Reduction/Contingency/ Transformation	Loss of life	GCF funds - Grants (\$32.7m) Co-financing - Government of Antigua and Barbuda: grant (\$4.9m) in kind (\$8.5m).	<p>Enhance the resilience of the building sector to extreme climate events such as hurricanes and tropical storms. This includes strengthening the structural integrity of critical buildings to withstand extreme weather events, increasing community resilience by decentralising power and water supplies on critical buildings, improving critical information services and creating an enabling environment for the public and private sector to upscale climate proofing projects so that coverage includes all buildings.</p>	<p>Climate proofing interventions in the building sector are expected to reduce USD 3.34 billion in losses of assets.</p>

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