Enhancing Climate Resilient Development in Vulnerable Countries –

Draft Progress Report on Resilience to Climate Change & Way Forward

GFDRR
Global Facility for Disaster Reduction and Recovery

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Executive Summary

Climate and environmental conditions are changing at an unprecedented pace, and planning development and managing risks cannot be done without accounting for climate change. The likelihood and intensity of heat waves, heavy precipitations and floods, drought, or windstorms are affected by climate change, and historical data can no longer be used as reliable predictors of future risks. As a result, development plans, policies, and projects are now facing new challenges and need to be identified and designed considering climate change and its impacts on natural risks, using new methods and models. For example, any new urbanization or transportation project in a coastal city needs to consider sea level rise to ensure that it will not create unacceptable risks (or excessive flood protection costs) in the future. All new buildings, from schools and hospitals to residential houses, need to consider increasing heat waves and (often) windstorm risks to prevent large retrofit costs in a few decades. With large uncertainties on future climate conditions, large potential additional costs, and limited resources and capacity, doing so is not easy. All countries and development institutions need to change their way of doing business and use new data, tools, and methodologies to make better informed decisions and design more resilient development.

The Resilience to Climate Change (RCC) cross-cutting theme of the Global Facility for Disaster Reduction and Recovery (GFDRR) was established in 2014 to support GFDRR's mission to: *facilitate implementation of the Sendai Framework for Disaster Risk Reduction, and to contribute to the acheivements of the Sustainable Development Goals and the Paris Agreement, by ensuring that all development policies, plans, and investments - including post-disaster reconstruction - are designed to minimize disaster risks and build the resilience of people and economies to climate change***.** RCC supports GFDRR's mission through its objective **to enhance climate resilient development in vulnerable countries.** Activities under RCC cuts across all GFDRR's geographic regions, strategic areas of engagement and thematic initiatives. Examples of activities include technical assistance to strengthen the capacity and coordination of disaster risk management and climate resilience institutions to reduce fragmentation of finance and increase efficiency; support to national hydrological services to improve the quality of weather, climate and hydrological information and services; integration of climate and disaster risk management in development strategies and policies; and development of knowledge and tools to support better informed decision-making under high uncertainty. All of these activities help vulnerable countries to access international and development resources to make their development more climate resilient.

The activities are supported by providing small grants combined with technical assistance, just-in-time support, development of analytical products, innovative tools and knowledge-sharing activities. As such RCC has three main instruments to deliver on its objective to **enhance climate resilient development in vulnerable countries:** technical and implementation assistance; just-in-time support including for demand-based capacity building; and analytical work.

The growing importance of resilience to climate change is evident across GFDRR's portfolio. The proportion of grants addressing climate resilience have been steadily increasing and remains on the rise. In FY15, 41 percent of all approved grants that year addressed climate resilience. This increased to 62 percent in FY16. As of February 1, 2017, 79 percent of all grants approved this fiscal year address climate resilience. The high increase in approved grants addressing climate resilience demonstrates that GFDRR has been highly successful in jointly addressing climate and disaster risks in its activities.

The demand for climate resilient investments and technical support keeps growing and countries need help to tap into global climate funds to ensure that this demand is met. At present, four of the five global funds supporting adaptation investments are over committed, and the Green Climate Fund is still at early stages of programming. The recent replenishment of the World Bank's fund for the poorest (IDA18) has made available significant level of funding specially for fragile and small states and small islands. However, countries will need support to access these resources and get access to additional finance for climate resilient development.

With extensive experience in providing technical expertise, analytical support and financial assistance on disaster risk management, climate change adaptation and development, GFDRR is well-positioned to influence the landscape of disaster resilient development within the World Bank and

other global climate funds. To meet the high demand from vulnerable countries, GFDRR aims to deepen and scale-up its engagement on RCC to reach the objective to **enhance climate resilient development in vulnerable countries.** Four priority areas have been selected to further advance on the climate resilient development agenda (i) Support transformative policies and strengthen institutions; (ii) Enhance access to financial resources for climate action; (iii) Scale up climate action in high-impact areas such as energy, transport, water management and land-use including agriculture, ecosystem-based adaptation and coastal resilience; and (iv) Increase the support to the development of knowledge and piloting of innovative methodologies and tools to make better-informed decisions, considering future changes in climate conditions under high uncertainty.

This report presents an update of progress made in integrating resilience to climate change in GFDRR's portfolio and outlines how GFDRR intends to scale up its engagement on climate resilient development moving forward. Section I provides an overview of the RCC cross-cutting theme and GFDRR's comparative advantage. Section II reports on grants approved in FY17 and provides an overview of GFDRR's activities and progress. Section III presents the proposed FY18 portfolio and GFDRR priorities on climate resilience. Section IV summarizes the key challenges and opportunities, and section V sets a roadmap for the way forward in scaling up RCC.

Resilience to Climate Change as a Cross-Cutting Theme

B**uilding resilience to climate change is an inherent part of GFDRR's mission to** ***'facilitate implementation of the Sendai Framework for Disaster Risk Reduction, and to contribute to the acheivements of the Sustainable Development Goals and the Paris Agreement, by ensuring that all development policies, plans, and investments - including post-disaster reconstruction - are designed to minimize disaster risks and build the resilience of people and economies to climate change'***.

Established in 2014, the RCC cross-cutting theme, permeates across all GFDRR's, geographical regions, strategic areas of engagement and thematic initiatives. Through RCC, GFDRR helps integrate climate and disaster risks into development policy and planning and ensures that all resilient investments consider existing and future climate and disaster risks. The engagement on RCC has been spearheaded by a dedicated contribution from the Swiss Agency for Development and Cooperation Global Program for Climate Change (SDC-GPCC) to GFDRR's Multi-Donor Trust Fund (MDTF), to be fully disbursed by May 2018.

RCC's objective is to **enhance climate resilient development in vulnerable countries.** All activities supported under RCC aim at: (i) improving identification and understanding of climate and disaster risk; (ii) avoiding the creation of new risks and reduce existing risks; and (iii) improving warning and management of disasters at national, local and community levels.

GFDRR activities supporting resilience to climate change fall into the following categories:

a) **Technical and Implementation Assistance:** Activities that apply technical knowledge, analysis and/ or operational tools to address climate resilient challenges within an operational context. These would involve technical assistance tasks executed by either the World Bank, recipient governments or other development partners. For example, in India, GFDRR has provided technical assistance to a World Bank financed investment program to protect India's coastal communities from climate and disaster risks by supporting early warning systems to ensure last-mile connectivity for rural and remote villages, and support the building of 270 cyclone shelters to be used in the event of a disaster. GFDRR supported the inclusion of community inputs in the design of the multi-purpose shelters. Moreover, 600 communities were supported to develop hazards, risk and vulnerability assessments to inform the local disaster management plans.

b) **Just-in-time Capacity Building and Advice (JITs):** JITs are small grants (up to US$ 50,000) for rapidly deployed specialized advice or training requested by a client country, to help the countries address specific climate resilience and weather related disaster risk management issues, or to strengthen the institutional capacity of the country. For example, GFDRR is supporting the World Bank in the organization of a workshop aimed at enhancing client government's capacity to better understand and identify policy options to increase the housing sector's resilience to weather-related disasters and climate change. This assistance has been requested by the Governments in Colombia and Guatemala as the countries' housing stocks has been hit hard from weather-related disasters. Such rapid grants are critical when project teams identify—for instance through the World Bank risk screening tool—that their project is exposed to climate risks, but do not have the expertise and resources to re-design the projects so that climate change is considered and risks are reduced.

c) **Analytical Products:** Supporting high-priority analytical work focusing on climate resilience including Best Practice Notes such as the Knowledge Notes produced for small island states on what the Small Island States Resilience Initiative (SISRI) is, how to support and manage population retreat from at-risk areas and building resilience through social protection. Additional Knowledge Notes are under development based on the key building blocks for resilient developed by SISRI and applicable to small island states.

Since its inception, GFDRR has worked across multiple sectors, gathering experiences and extensive knowledge on what works and what does not work to integrate climate and disaster resilience into development. As such, GFDRR has proven that it has the capacity to combine disaster risk management and climate resilience expertise to support vulnerable countries. This is done by providing timely support to prepare and support the implementation of high quality resilience-focused projects that support policy changes and investments in climate resilience. The projects are developed in close coordination with the countries and implemented by government institutions—thus ensuring that they meet the needs identified in the Nationally Determined Contributions (NDCs) and help build capacity for direct implementation.

By supporting countries in building pipelines for resilient investments and combine multiple financing sources, GFDRR helps reduce fragmentation of financing and thereby increase the efficiency. GFDRR grants and technical support have helped prepare and co-finance investments funded by World Bank's International Development Assistance (IDA) and the International Bank for Reconstruction and Development (IBRD). Hosted by the World Bank, GFDRR occupies a unique niche that allows to influence large development investments on resilience with small financial contributions, technical assistance and analytical support. In addition to IDA and IBRD funds, GFDRR has also helped leverage funding from other climate funds such as the Climate Investment Funds (CIF), The Global Environment Facility (GEF) and more recently the Green Climate Fund (GCF) and Climate Risk and Early Warnings Systems Initiative (CREWS). As such, GFDRR has helped bringing resilience to scale.

GFDRR supports vulnerable countries to enhance their climate resilience in various ways. For example: **Dedicated support is provided to small island states as they are particularly exposed to increasing frequency and intensity of weather-related events and climate change.** Through SISRI, GFDRR provides institutional, technical and operational support; helps countries increase the scale and efficiency of their investments; promotes knowledge and produces relevant analytical products; and maintains a Community of Practice bringing together practitioners and centers of expertise to share practical solutions and challenges on climate and disaster risk management.

In Bangladesh, GFDRR is currently supporting a US$ 200 000 technical assistance project to build the institutional capacity of the Bangladesh Water Development Board (BWDB) to mitigate the impact of storm surges and salt water intrusion in coastal polders. The grant will develop a comprehensive climate resilient coastal embankment management strategy. **This support is informing a US$ 400 million project financed by IDA and CIF on coastal embankment that will help upgrade Bangladesh's embankment system and increase the area protected by polders from tidal flooding and frequent storm surges.** The project will also help reduce poverty as around 8.5 million people will benefit through agriculture development, job-creation and food security.

GFDRR has played a significant role in raising awareness and understanding of climate and disaster risk management in Malawi by providing evidence and trainings to government officials and enabling resilient recovery after disaster events. GFDRR's activities have informed large-scale World Bank investments of over US$ 205 million in the country. The engagement began in 2008 with the publication of an analytical report identifying the strengths, weaknesses, and needs of existing programs and practices. Since the report, GFDRR has supported the Government of Malawi in institutional capacity-building activities and targeted analytical studies on climate and disaster risk management. Two studies on integrating flood and drought risk reduction with the country's development policies and strategies influenced a US$125 million World Bank project that is improving land and water management in Malawi's Shire River Basin. The project is expected to benefit 430,000 people. GFDRR has also helped the Government of Malawi develop a multi-sectoral post-disaster recovery framework for planning, financing, implementing and monitoring recovery and reconstruction taking climate resilience into account in addition to providing trainings as part of its capacity-building efforts in the country.

GFDRR has also provided technical assistance to the Africa Regional Hydromet Program by advancing the preparation and the implementation of country investments. It has also supported the initiation of the global hydrological services assessment of African countries. The support has helped mobilize US$ 22.5 million in finance to Mali through GCF and additional US$ 10 million to the Democratic Republic of Congo from GEF and CREWS. **This grant is therefore helping increasing African countries readiness for extreme weather and hydrological events, by improving their early warning and risk information systems.**

GFDRR has also a proven track record at generating "public goods" that contribute to more resilient development, such as the ThinkHazard! tool—which provides practitioners that are not experts on climate and disaster risk with simple information on the natural hazards that can affect their projects—or the GeoNode—a repository where everybody can access georeferenced dataset on natural hazards in a harmonized format.

Moreover, GFDRR also supports analytical products to fill critical knowledge gaps. In 2016, GFDRR published the Unbreakable report that provides a tool to measure resilience at the country level and to identify opportunities to build the resilience of the population, looking at multiple instruments from building standards to early warning system and social protection. Presently, GFDRR is supporting the creation of an online platform so that non-expert practitioners can use the tool, and the development of country-level versions of the tool with subnational details (e.g., at the provincial level in the Philippines and at the district level in Sri Lanka) to support investment decision-making or the development of scalable safety nets.

Box 1: How GFDRR supports countries accessing international climate resilience and development expertise and resources: *The case of Marshall Islands*

GFDRR is supporting the Republic of Marshall Islands (RMI) through the Pacific Resilience Program (PREP) - a series of projects to strengthen Pacific Island countries' resilience to natural disasters and climate change and the Small Island States Resilience Initiatives (SISRI).

RMI is exposed to a variety of climate and disaster risks, including droughts, coastal hazards such as erosion flooding related to king tides and storm surges, tropical storms and to a lesser extent typhoons. Climate change is expected to result in changes in sea level rise which will accelerate coastal erosion, increase coastal inundation and salinization of freshwater resources.

The Ebeye Island in RMI is faced with three specific challenges: high population density; high levels of poverty; and high and increasing impacts of climate change for an atoll island. There are few options to make the population, economy and the coastal areas climate resilient. Given that they are so far from main centers of expertise, it is also hard to get experts into the area to bring the best knowledge available. An overwhelming challenge is the limited source of aggregates (building material) to strengthen any coastal areas through an infrastructure option.

In FY17, GFDRR provided technical assistance through a grant of $250,000 which brought in an international firm that has provided such support in the African coast. The firm carried out detailed modelling, data collection and analysis working closely with the World Bank, GFDRR and the Government. They carried out a risk and vulnerability assessment and then pre-design of some options that can be used for making coastal areas on atoll islands more resilient. This includes better management of what natural habitats there are, but also looking at importing aggregates for some hard protection options for areas that are highly vulnerable to storm surge and sea level rise based on the results on the modeling work. The work also considered the possibility of using dead coral and the costs and benefits associated with that versus bringing in aggregates. This work is currently informing a US$ 50 million investment program with the objective to strengthen early warning systems, climate resilient investments in shoreline protection, and provide immediate and effective response to an eligible crisis or emergency.

The approaches developed for Ebeye area can be easily transferred to other atoll islands within RMI (and will during the project implementation, for Majuro, the capital) and elsewhere. A Knowledge Note is currently under development to ensure that the lessons learned and knowledge obtained are shared with other small island states.

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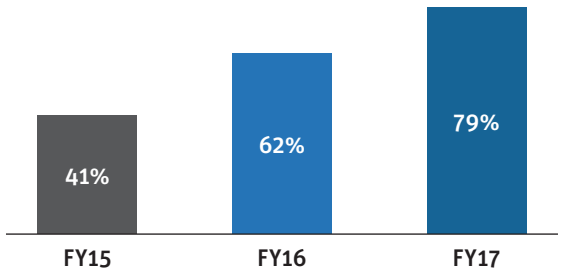
FY17 Portfolio Review: Integrating Resilience to Climate Change

The growing importance of resilience to climate change is evident across GFDRR's portfolio. This is reflected in the increasing number of approved grants that address climate resilience across all GFDRR's financing windows. **79 percent of the approved grants in FY17 have a specific intent to address climate resilience. This is the highest percentage of new grants approved in a fiscal year addressing climate resilience. The increase is significant when compared with the approved grants for FY15 where 41 percent of the grants address climate resilience and FY16 with 62 percent of the approved grants addressing climate resilience.** The approved grants in FY17 reflects the increased demand for climate resilience investments and technical assistance, bolstered by the signing of The Paris Agreement in December 2015. It also mirrors GFDRR's commitment to jointly address climate and disaster risks into development.

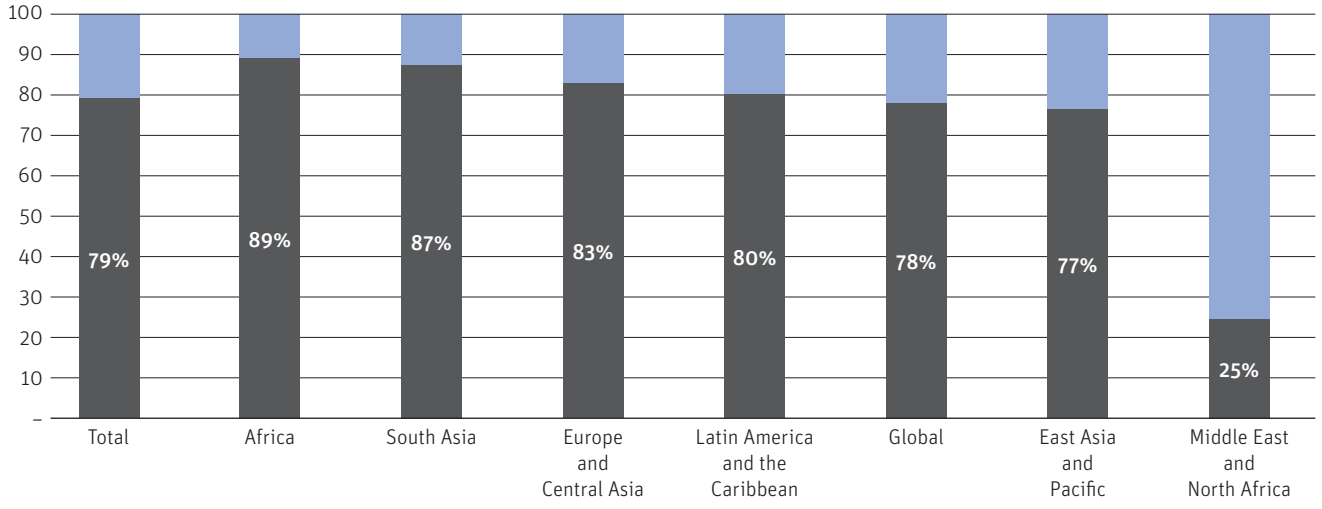
54 of the 68 approved grants by GFDRR so far in 2017, address climate resilience. The grants are under implementation in 56 countries across all regions and across sectors. Additionally, GFDRR also supports global grants that support all the regions. An example of this is the support to **climate-smart transport** aimed at decreasing the vulnerability of transport services and infrastructure to climate variability and change. GFDRR is funding a three-year program of knowledge services on climate smart solutions for green transport. An additional global grant will promote climate and disaster resilient rails development through the synthesis of good-practice in considering resilience in all phases of rail project development. Through these grants, GFDRR is helping the World Bank reaching its US$ 2 billion target on climate resilient transport investments by FY20 as outlined in the World Bank's Climate Action Plan.

Figure 1: Proportion of Approved Grants Supporting Resilience to Climate Change from FY15-FY17



On **resilient water supply and sanitation,** GFDRR is supporting knowledge development, exchange and dissemination on disaster and climate-resilient water supply and sanitation, with a particular focus on emergency preparedness and business continuity planning. Japanese and global expertise, knowledge and experience on resilient design, operation and maintenance will be leveraged to ensure access to the best global knowledge.

Figure 2: Proportion of Approved Grants supporting Resilience to Climate Change by Region in FY17



Africa

A significant proportion of GFDRR's climate resilience grants concentrates in Africa, reflecting the region's high vulnerability to the impacts of climate change. Climate variability and change is already affecting the region significantly and the future impacts of droughts, floods and storm surges could push millions of people further into poverty as the economy is based on rain-fed agriculture and millions of people live in drought and flood prone zones in urban areas.

The region lacks data on climate and weather risks. As such, GFDRR is helping African countries to gather, analyze and communicate risk information, including open data access and building capacity for better-informed policies. For example, in FY17, GFDRR is financing:

4. **Open Data for Resilience Community Mapping in Uganda and Niger.** This project would engage university students, local civil society/non-governmental organizations, innovation hubs and local government to map highly vulnerable areas. The data would be used in community preparedness training and drills and to support the national government to develop disaster responsive social safety nets in the event of climate and disaster shocks.
5. **Mobile Weather Stations in Mozambique, Tanzania or Uganda.** This project will provide very low-cost, open-source, and locally built weather stations to communities who do not have access to weather data and forecasts from national government at resolutions useful for decision making. Communities would be trained on the use and maintenance of the weather stations and how the information can be used for planning and emergency preparedness purposes.

A significant part of GFDRR's portfolio for FY17 focuses on hydromet projects which is a high priority in the region. For example in Botswana, the Democratic Republic of Congo (DRC) and Zambia, three grants are improving the quality of weather, climate and hydrological information and services. GFDRR is also supporting the World Bank Africa Hydromet Program, a flagship investment program aiming at investing approximately US$ 600 million for modernization of 15 countries' hydrological and meteorological services and systems, as well as for the strengthening of their early warning and response systems.

As many of the African countries are facing greater coastal climate risks, **GFDRR is increasing its support to coastal protection solutions**. For example, in Senegal, GFDRR is developing a disaster risk information system including a study for coastal climate change vulnerability assessment, climate change adaptation strategies, and investments resilience in selected tourism areas. The objective is to enable the integration of climate resilience in local and national tourism development plans in the coastal areas. GFDRR is also supporting the design of the national inter-ministerial crisis coordination center. In FY17 GFDRR will also support a regional flagship study to better understand the climate risks of African coastal cities looking at sea level rise, coastal erosion, storm surge risk, and urban flood issues in 10 African cities.

GFDRR has approved several grants addressing **adaptive social protection to specifically provide financial protection to the poorest and most vulnerable to the impacts of climate change in African countries** in FY17. One of the grants is supporting a synthesis report benchmarking African countries within and outside the region focusing on key issues, interventions, and lessons learned from current DRM and social protection instruments used against disaster and climate shocks. The report will also provide guidance on developing integrated response systems for these shocks. Other grants are strengthening social protection systems through forecast-based-financing in the Sahel and support to the Governments of Lesotho and Swaziland in designing the building blocks of a safety nets system capable of responding to shocks and strengthening the resilience of poor households. GFDRR is also supporting several assessments on the impacts of climate change on poverty to inform pro-poor targeted interventions, including a study on the impacts of climate change and disasters risk on poverty in Greater Accra metropolitan area in Ghana.

An additional grant approved in FY17 are currently preparing **Climate and Disaster Risk Management Multi-Sectoral Investments Plan in five African countries**. The objective is to integrate climate and disaster risk considerations into the countries' development strategies, priorities and investments and to leverage funding for the countries.

South Asia

The South Asia Region (SAR) is highly exposed and vulnerable to water related hazards such as floods, drought, tropical cyclones and thunderstorms. By 2050 an estimated 246 million city dwellers in the region will be living in cyclone-prone areas. Bangladesh, India, the Maldives, and Sri Lanka are at high risk from projected sea level rise that may cause displacements, saltwater intrusion and loss of agricultural land in their coastal areas. GFDRR's engagement in the region has been growing over the last five years, through

Box 2: Enhancing climate resilience for vulnerable coastal communities in São Tomé and Príncipe

São Tomé and Príncipe is highly vulnerable to climate variability and change, coastal and flash flooding, and sea level rise. GFDRR is therefore supporting the Government on increasing its adaptive capacity to improve participatory risk planning, monitoring, adaptation planning and project design activities for vulnerable coastal communities. The support is informing a first 5-year phase, US$ 4.1 million Adaptation to Climate Change Program financed by GEF/LDCF and implemented by the World Bank. A second phase of US$ 12 million is under preparation with the aim to scale-up the pilot activities to an additional 7 communities including institutional capacity-building. This will be co-financed by GEF/LDCF and IDA, implemented through the West Africa Coastal Areas Resilience Investment Program (WACA).

São Tomé and Príncipe's strategy on coastal communities and climate resilience has been to manage voluntary population retreat from coastal areas at risk to safer, higher ground. This has been addressed through a participatory approach identifying at-risk areas and vulnerable groups. Satellite imagery and models to estimate areas at risk of erosion and flooding, were used to raise awareness of the hazards and the potential damages, and expansion areas were delineated with lots earmarked for the most vulnerable households in the communities. The communities have been involved in each stage of the retreat process ensuring the ownership and success of the population retreat.

This project has offered valuable lessons on how to manage retreats through community engagement and leadership. It has therefore become a model for the Small Island States Resilience Initiative (SISRI) and the US$ 600 million regional investment program under WACA. Based on the lessons learned, GFDRR is supporting a gender-sensitive inclusive social framework that will be integrated in WACA for engaging communities at all stages on climate resilience activities including planned coastal retreats/relocations, climate resilient community development and alternative livelihoods.

GFDRR is further deepening its engagement in São Tomé and Príncipe through a recently approved grant that will produce high resolution Digital Terrain Models of the most vulnerable communities using drones as well as maps describing evolution of shorelines, building exposure and vegetation, using satellite imageries. The objective is to improve hazard assessment models of coastal and river flooding, to inform future coastal green and grey investments and to provide reference information to monitor the evolutions of the shoreline due to the coastal protection works and environmental changes. Local experts will be trained to perform such monitoring (both with drones and satellite imageries) and the communities will continue to be involved through empowering participatory approaches.

technical assistance that has improved investment planning by incorporating the present and future impacts of climate change. The impacts of climate change on the region are expected to rise resulting in economic, social, and environmental damage that will undermine poverty reduction efforts and economic growth.[1] GFDRR has played a key role by initiating and maintaining country level dialogue on climate and disaster risk management, which has resulted in an increase in demand for support to build climate resilience in the region.

Close to 90 percent of the grants approved for South Asia in FY17 address climate resilience. In addition to supporting a regional grant on hydromet and climate services in South Asia, GFDRR has prioritized to deepen its climate resilience engagement in Bhutan this fiscal year as the country is one of the most climate and disaster-prone countries in the region and particularly exposed to hydro-meteorological hazards such as floods, flashfloods, landslides, glacier lake outburst floods, windstorms and cyclones. **Climate variability and change are expected to have significant impact on the countries' crucial socio-economic sectors such as agriculture, hydropower, tourism, transport, infrastructure and water.** Subsequently, GFDRR has approved three grants that will strengthen Bhutan's capacity for hydromet services and disaster preparedness in FY17. The grants will also promote regional collaboration as the weather patterns impacting Bhutan are trans-boundary and requires transboundary solutions. Additionally, GFDRR is funding a project to reduce the impact of climate change on critical transport infrastructure for communication, connectivity and livelihoods in Bhutan and Nepal. Increased application of risk information in public policy and investment planning and risk reduction measures for flooding and landslides disasters in the transport sector, are central activities supported under this grant.

Afghanistan is highly prone to natural hazards such as floods, landslides, avalanches and droughts. The country takes second-place, surpassed only by Haiti, on number of deaths from natural disasters between 1980 and 2015. The country also faces significant impacts of climate change and disasters that will affect the country's economic growth and already low socio-economic development. GFDRR is therefore supporting a project with the aim to integrate natural hazard and climate risk information into planning and decision-making for key sectors in the country. The project will also promote risk informed Community Driven Development (CDD) by supporting participatory risk mapping to ensure resilient community infrastructure. This project is helping to inform a US$ 628 million investments with the aim of improving the delivery of core infrastructure and social service through local community development councils.

Since 2008, GFDRR has supported disaster resilience in Sri Lanka by strengthening government capacity to generate and share risk information; help reduce the country's vulnerability to climate risk; and support the development of disaster risk financing. In FY17 GFDRR is increasing its engagement in the country. As climate change is expected to increase the frequency and impact of hydro-meteorological hazards, GFDRR recently approved an additional grant to the country. The grant will support the development of a Community Landslides Risk Mitigation Action Plan to reduce the landslide risk associated with localized and seasonal floods in poor communities who live in high-hazard areas.

Projects in the pipeline for FY17 include a project that will support the Government of Pakistan to implement its national climate change policies including the country's NDCs. The grant will also facilitate the World Banks' engagement with the country on climate change to deliver on regional and corporate climate change commitments. This will be done through investment support that includes integrating of climate risks in the Government's strategic frameworks.

Europe and Central Asia

In Europe and Central Asia, climate and disaster risks are mainly due to poorly maintained public infrastructure such as roads, schools, and hospitals. Floods and landslides are a significant problem in almost all countries in the region. Over the past few years, GFDRR has supported national governments to adopt a proactive approach to climate and disaster risk management through investing in risk analytics and building institutional capacity of governments. **The integrating of climate and disaster risks considerations in sectors such as transport are considered as the next steps in the region.**

In FY17, GFDRR has approved five grants supporting resilience to climate change in Europe and Central Asia. Two of the grants support **resilient transport** and aim to increase the climate resilience of Georgia and Bosnia and Herzegovina's road network by assessing the vulnerability of the countries' roads to climate change and improving relevant transport institutions climate resilience planning. In Moldova, GFDRR is helping to strengthen national decision-making and planning for weather and climate risk management by improving hydro-meteorological service delivery and utilization of weather and climate information.

[1] Asian Development Bank (2013) https://www.adb.org/sites/default/files/publication/42811/assessing-costs-climate-change-and-adaptation-south-asia.pdf

GFDRR is continuing to support Serbia on its efforts to build disaster resilience. As such, the country is getting support to a resilient recovery component to institutionalize Post Disaster Needs Assessments (PDNA) and Disaster Recovery Frameworks (DRF) that includes the integration of climate resilience measures. The objective is to increase the capacity of Serbian national and local governments to respond to and assess damages, losses and needs caused by natural disasters using the PDNA methodology and to promote resilient recovery processes using the DRF methodology. The grant is supporting a component in the US$ 10 million program *Serbia National Disaster Risk Management Program*. The program was established after the 2014 floods that imposed large financial costs in the **energy and the agriculture sector** as well as on the flood protection infrastructure.

In Central Asia, GFDRR is supporting a regional project to enhance awareness of and advance climate and disaster resilience in Kazakhstan, Turkmenistan, Tajikistan, Kyrgyz Republic and Uzbekistan by promoting a strategic level dialogue with the governments on possible disaster risk management activities and policies. The technical assistance includes capacity building activities to understand the fundamentals of climate and disaster risk management **and is informing the region's economic development activities in agriculture, energy and water**. The activities financed under this grant aim to catalyze and support the preparation of a possible regional DRM investment in the region.

Projects in the pipeline for FY17 includes support to a regional multi-hazard early warning advisory system that will improve lead-time, accuracy and resolution of early warnings of hydro-meteorological hazards in Bosnia and Herzegovina, Serbia and Croatia.

Latin America and Caribbean

In Latin America and the Caribbean, where and how people build is leading to a rise in economic losses caused by natural disasters and the impacts of climate change. The urbanization and population increase has resulted in a growing number of people, homes, and public infrastructure that are exposed to natural hazards and climate change. More than half of the region's GDP is exposed to the effects of two or more natural hazards. GFDRR's has supported the integrating of climate and disaster risk management across sectors at the sub-national and national levels of governments since its inception. Advanced risk assessments and supporting financial resilience have also been areas of focus in the region.

In FY17, GFDRR has approved four grants with climate resilience components. One of the approved grants is supporting the World Bank's "*Risk Mitigation and Emergency Recovery Project"* in Ecuador to reduce the potential effects of the **El Niño** phenomenon and the Cotopaxi volcano. The grant will also support the recovery of basic and production services in affected areas in case of an eligible disaster in **the water and flood protection sector, agriculture, livestock, aquaculture, and fisheries sector, transport sector and the health sector.** The proposed investments and activities will benefit 4 million inhabitants of the regions living at risk of an imminent disaster potentially caused by natural disasters and climate change.

On financial resilience, a grant has recently been awarded to build physical and fiscal climate and disaster resilience of the Dominican Republic to ensure shared prosperity **by supporting policy reforms, and strengthen the institutional and legal framework of the country**. The grant is supporting the preparation of a US$ 100 million Development Policy Loan with a Catastrophe Deferred Drawdown Option (CAT-DDO), a World Bank disaster risk finance instrument that increases fiscal resilience in the aftermath of a disaster and promotes the implementation of DRM policies. Moreover, in Colombia GFDRR is helping to strengthen the functioning of social protection instruments and systems to rapidly respond to the needs of the poor and those emerging vulnerable groups due to increasing climate and disaster risks. The technical assistance is supporting the diagnostic, review and redesign of social protection interventions and tools to better respond and prepare for disaster and emergency scenarios.

Finally, GFDRR has approved a regional project in Central America. The objective is to support national and local governments to better understand climate change and disaster resilience of their urban systems across multiple sectors, identify policy actions and specific priority investments projects that can be implemented by cities to further enhance resilience at the municipal level.

Projects in the pipeline for FY17 include support to increase the **energy resilience** of Eastern Caribbean states from extreme weather and climate risks by implementing an integrated risk management approach. Energy resilience is a major priority for the Eastern Caribbean states as it is an imperative for the countries' economic growth, sustainable development, and poverty reduction.

East Asia and the Pacific

GFDRR has been deeply engaged in developing comprehensive disaster risk management programs in East Asia and the Pacific, as the region is the most disaster-stricken region in the world, facing a variety of natural disasters and impacts of climate change. The small island states in the Pacific are particularly exposed to natural hazards and climate change impacts, such as cyclones, floods, droughts and rising sea levels. Since 1950, natural disasters have affected approximately 9.2 million people in the Pacific Islands, causing approximately 10,000 reported deaths, and resulting in approximately US$5 billion in associated damage costs.[2] **Dedicated support to small island states continues to be a priority for GFDRR.** Through the Safer Schools Program, GFDRR is supporting the small islands Samoa, Tonga and Vanuatu in developing a prioritized climate and disaster resilient investment plan including identifying and implementing entry level investments to strengthen the resilience of school infrastructure to climate and disaster hazards. This grant is supporting and informing the Pacific Resilience Program (PREP).

78 percent of the approved grants in FY17 in East Asia and the Pacific address resilience to climate change. This year, GFDRR has increased its engagement in Vietnam as the country is one of the most hazard-prone in the East Asia and Pacific region, with droughts, severe storms, and flooding causing substantial economic and human impacts. GFDRR has been engaged in Vietnam since 2007 by supporting the country´s transition toward an integrated climate and disaster risk management system. In FY17, GFDRR approved a grant to support a Rapid Damage and Needs Assessment following the 2016 floods. GFDRR is also helping Vietnam to enhance the resilience of Mekong Delta Region in addition to increase the country's drought resilience more broadly. The activities provide strategic support and will leverage on-going and pipeline investment projects in the country. Previous GFDRR support has already helped Vietnam leverage substantial World Bank investments in DRM. For example, the Managing Natural Hazards Project for Vietnam (US$150 million) aims to strengthen weather forecasting, early warning systems, and government capacity for risk planning and mitigation.

Middle East and North Africa

The Middle East and North Africa region is faced with intersecting risks of natural hazards, rapid urban growth and conflict. Water scarcity, climate change and rapid urbanization have aggravated the impact of natural hazards in a region where 3 percent of its surface area is home to 92 percent of the population. Historically, most countries in the Middle East and North Africa have approached disaster risk management focusing on post-disaster relief and recovery activities. GFDRR has therefore supported the countries to better understand climate and disaster risk in order to strengthen institutional climate and disaster risk management frameworks.

Nevertheless, the demand for climate resilience projects in the Middle East and North Africa continue to be lower than the other regions. In FY17, **GFDRR has approved four grants of which one supports climate resilience**. In Morocco, GFDRR, the World Bank, and the Swiss Government have been working together to build a proactive and integrated disaster risk management and resilience system informing a US$ 200 million resilience program financed by the World Bank based around three components; promoting institutional reform and capacity building; scaling up disaster risk reduction activities; and improving disaster risk financing and insurance. All the components are considered essential for increasing Morocco's climate and disaster resilience.

[2] The World Bank (2016) http://www.worldbank.org/en/news/press-release/2016/07/28/climate-and-disaster-resilience-must-play-greater-role-in-pacific-planning-and-development

Box 3: Small Island States Resilience Initiative (SISRI)

Small island states are among the most exposed and vulnerable countries to the effects of climate change. In 2014, GFDRR and the World Bank launched SISRI with the objective of helping up to 24 countries in the Caribbean, Pacific and African/ Indian Ocean reduce climate and disaster risks. SISRI is supporting countries in preparing a pipeline of climate and disaster resilience investments and scaled-up financing; develop and disseminate knowledge and support a community of practice both internally in the World Bank and externally amongst small islands states practitioners.

In FY17, GFDRR, the World Bank and the Organization for Economic Co-operation and Development (OECD), launched a report during the COP22 in Marrakech on the financial landscape of climate and disaster resilient development in SIDS. It highlighted the complexity and the key trends of the global financing architecture from bilateral and multilateral agencies and the difficulties SIDS face when trying to access this funding.

One of the findings was that despite increasing climate risks, only 14 percent of development aid for vulnerable small island states addresses climate change and natural disasters. The report calls for more coordinated, predictable and long-term financing for climate and disaster risk tailored to the needs of small islands. It also advocates for strengthened enabling policies and institutions in SIDS to ensure more effective management of funds for climate risks.

Moving the Agenda Forward—Addressing Climate Resilience in FY18

The FY18 Work Plan reflects GFDRR's commitment to enhance climate resilience into development of vulnerable countries. In addition to addressing climate resilience and contribute to the implementation of the Paris Agreement, the planned projects have been selected based on whether they (i) respond to a request from a vulnerable country; (ii) contribute to the goals of the Sendai Framework; (iii) ensure technical soundness in their design; and/or (iv) demonstrate high potential for impact either because they inform development financing or support policy change.

At present, there are 82 planned grants from all GFDRR's financing windows in the pipeline for FY18. Close to 65 percent of the grants (53) will address climate resilience and will be implemented in nearly 50 countries across all regions. Based on past experience, this proportion is likely to increase as the RCC team works with the grant recipients to ensure that the climate resilience angle is integrated in all relevant projects. Through this planned portfolio, GFDRR is working to address several challenges and opportunities identified in previous RCC reports such as addressing institutional challenges, research and activities addressing climate change and poverty, and broadening sectoral focus.

Close to 70 percent of the planned global grants will address climate resilience. These grants will support the thematic initiatives, global technical assistance projects and analytical products such as SISRI and the Hydromet Program. GFDRR's web-based tool Think Hazard will continue to be supported and upgraded. The tool considers the impacts of disasters on new development projects and highlights how each hazard may change in the future because of climate change. GFDRR will also organize the 2018 Understanding Risk Forum that will bring together 800 practitioners and experts to share knowledge, form partnerships, and learn about innovations in climate and disaster risk management.

In FY18, GFDRR will also introduce an improved methodology to account for grants that contribute to climate resilience. The aim is to improve reporting from beyond the intent to address climate change risks, to monitor specific actions and impacts on climate resilience. Continued support will also be provided to support the improvement and harmonization of measuring resilience in the World Bank.

Africa

As reflected in the African countries' NDCs, funding needs for adaptation are already high due to climate-related hazards such as drought, floods, and storm surges which are already affecting many African countries. The funding needs for Africa are expected to increase even further given the projected impacts of climate change in the region. Consequently, **all planned grantsSaharan Africa will address climate resilience**. As Africa is experiencing increasing coastal risks, GFDRR will support improved coastal protection in the region. Planned grants include technical assistance for improved coastal resilience in West Africa through the WACA program that is expected to leverage two IDA18 operations. The continued support to improve hydro-meteorological systems in the region will be an important building block to understand coastal and city resilience in Africa. GFDRR will therefore continue to support the Africa Hydromet Program, mainly through the CREWS initiative with engagements in DRC and Mali. Moreover, support to analytical products will also be provided to better understand the poverty impacts of climate and disaster shocks on the urban poor and to support city-level efforts on increasing resilience.

The proposed grant *"Strengthening of DRM and Integrating of Disaster and Climate Resilience in Ethiopia"* is expected to enhance the disaster risk management systems and climate resilience of the country **by strengthening the capacities and coordination of disaster risk management, environment and climate change institutions**. GFDRR has helped enable disaster risk management efforts in Ethiopia since 2007 through country-specific and regional grants to Sub-Saharan Africa. Most of the support from GFDRR has focused on drought preparedness and response while ensuring food security. The Government in Ethiopia has requested support to further establishing climate and disaster risk management policies, strategies, and institutions in addition to integrating climate and disaster risk management into sector development planning. This grant is therefore responding to their request and needs.

Through GFDRR´s Inclusive Community Resilience program, a planned grant will improve Kenya´s devolved counties capacities to implement locally-led climate and disaster resilience activities using a community-driven approach

to strengthen sector systems and improve coordination for better climate change and DRM planning, budgeting, monitoring and evaluation and citizen engagement. Attention will be given to ensure the active participation of women in the community-based data collection/analysis and prioritization of investments to adequately capture and address gender-specific issues.

Latin America and Caribbean

Latin America and Caribbean is exposed to climate-related hazards such as glacial retreats, landslides, droughts and hurricanes which are expected to become more frequent and intense due to climate change. As such, **80 percent of the planned projects in Latin America and the Caribbean intends to address climate resilience.** The proposed analytical product *"Measuring the Impacts of Climate Change and Disasters on Poverty"* will assess how natural hazards, specifically floods and landslides further exacerbate poverty levels amongst vulnerable people in select high-risk areas in Brazil, Dominica, Dominican Republic, Haiti and Saint Lucia. This grant is expected to inform five World Bank investments of at least US$250 million. The planned project *"Reducing Debris Flow Risk for Infrastructure Resilience"* will assist the Government of the Commonwealth of Dominica to better manage risk from debris flow and outburst of landslide dams, identified as causes for major infrastructure failure during Tropical Storm Erika in August 2015. The grant is expected to inform the World Bank´s US$39 million *"Disaster Vulnerability and Recovery Project "*.

Additional grants addressing resilience to climate change in the FY18 pipeline include support to increase Dominican Republic's technical and institutional capacity in disaster and risk financing to improve financial resilience against climate and disaster shocks, and support to strengthen the social protection systems in Colombia as a climate and disaster risk mitigation mechanism.

South Asia

The South Asia region is extremely vulnerable to climate change. The World Bank has estimated that climate change could bring 63 million people below extreme poverty by 2030. As such, **two-thirds of the planned grants in South Asia will build resilience to climate change.** The planned grant on coastal resilience in Bangladesh, India and Sri Lanka will undertake analysis to address the impacts of coastal infrastructure on the economy, livelihood, production, social and resilience capacity of the countries. This grant will continue to consolidate coastal resilience in the countries. Moreover, knowledge exchange among Government representatives and technical experts with contributions from Japanese experts will also be facilitated. An additional proposed grant will also support drought risk assessments and disaster risk financing in Sri Lanka, which builds on GFDRR's existing engagements in the country.

In Bangladesh, GFDRR will support the integrating of climate and disaster resilience in climate-smart agricultural practices and health for a more resilient population facing more intense and frequent events such as floods, droughts and increased salinity. The proposed grant *"Integrating Social Inclusive Resilience in South Asia"* will improve the resilience of vulnerable groups in Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka by integrating social inclusiveness in the areas of climate and disaster risk management. This grant will inform the South Asia DRM portfolio of the World Bank.

East Asia and Pacific

As the East Asia and Pacific region includes some of the most vulnerable countries to climate change, including small island states, climate resilient development is a key priority in the region. **53 percent of the planned FY18 grants in the East Asia and Pacific Region will build resilience to climate change.** The consolidation of existing engagements will continue to be a priority in the region as it helps improve coordination and increase the scale and impact of climate and disaster risk management interventions. The planned grant "Climate Resilient Transport" will develop or strengthen the spatial and sectoral planning capabilities in a selection of Pacific islands and will contribute to build climate resilience through better designed transportation infrastructure that integrates climate considerations into planning and constructions. The project is expected to support and inform ongoing and future investments aimed at **making transport networks climate and disaster resilient.**

GFDRR has also planned to fund a study on atoll islands in the Pacific with the aim of developing a long-term strategy for the islands to manage risks from sea level rise, storm surges and wave overtopping along with pressures from increasing population and overexploitation of resources. Other planned grants include projects in Indonesia, Mongolia and the Philippines covering risk reduction investments and integrating of climate and disaster resilience in livelihoods.

GFDRR will continue to support gender equality and women's empowerment in line with the Gender Action Plan in the region. As such, two proposed grants will specifically

address gender dimensions. The project in Papua New Guinea (PNG) will build women's resilience to environmental, economic and social shocks in PNG through entertainment education. In Tonga, GFDRR will support enhancing women's employment and skills for responding to natural disasters and the impacts of climate change.

Middle East and North Africa

Up to recently, the demand for climate adaptation in the Middle East and North Africa has not been high compared to other regions. However, the demand has increased for FY18. Many of the countries in the region are expected to be affected by climate change, with severe impacts on agriculture, livelihoods and food security. **Three of five planned (43 percent) of GFDRR grants are expected to address climate resilience in FY18**. One of the planned grants will strengthen the systems for resilient recovery in Morocco, Lebanon, Jordan, Tunisia and Algeria by position the countries to conduct their own Post Disaster Needs Assessments (PDNAs), develop country specific guidelines for conducting PDNAs, develop baseline data for PDNAs and provide technical support to streamline and clarify institutional mechanisms for post disaster recovery. The project will be part of an ongoing government engagement process to build capacity to deal with climate change affected disasters.

Another planned grant will improve hydromet services in Morocco, Egypt, Lebanon, Jordan and Kuwait. The outcomes are expected to contribute to mobilization of resources in advance of climate-related disasters and **enhanced productivity in sectors such as agriculture, water, health, energy and transport**. The project will also strengthen "last mile" connectivity to ensure appropriate understanding and use of information by enhancing end-to-end early warning systems reaching down to the municipal and community level.

Europe and Central Asia

43 percent of the planned grants for FY18 in Europe and Central Asia will address climate resilience. The region has increasing adaptation needs due to higher temperatures and extreme events such as drought, floods, heat waves and windstorms. Climate and disaster resilient infrastructure will continue to be a priority in the region. The planned grant *"Broadening Resilient Infrastructure and Business Continuity in Turkey"* will conduct an infrastructure risk assessment incorporating climate change features in scenario-based planning. Additionally, the grant will integrate business continuity planning in several productive sectors such as transport and energy. GFDRR will also continue to support the regional program on Safer Schools to promote climate and disaster resilient school infrastructure.

Another proposed grant will support the completion of a national risk assessment of floods and other hydro-meteorological risks, as well as provide capacity building and standardization of post disaster needs assessment in Belarus. These would be used to inform a potential disaster risk financing strategy in addition to help prepare an investment project for strengthening the overall disaster and climate resilience management system in the country. The operationalization of Multi Hazard Early Warning in South East Europe will continue to be supported in FY18.

Figure 4: Proportion of Planned Projects Contributing to Climate Resilience by Region in FY18

Region	Expected engagements in FY18	FY18 engagements specifically addressing RCC	% of new grants addressing RCC
Global	19	13	68%
Africa	13	13	100%
East Asia and Pacific	15	8	53%
Europe and Central Asia	14	6	43%
Latin America and the Caribbean	5	4	80%
Middle East and North Africa	7	3	43.%
South Asia	9	6	67%
Total	**82**	**53**	**65%**

Challenges and Opportunities

The demand for climate resilience investments and technical support keeps growing as countries work to implement the goals of the Paris Agreement. To respond to the increasing needs, GFDRR will increase the use of available funds to assist countries to jointly address climate and disaster risk resilience, and to ensure resilience investments are designed taking into account dynamic and future climate risks. GFDRR also has an opportunity to contribute to the implementation of the World Bank Climate Action Plan by supporting the integration of climate and disaster risk across all development sectors including in energy, transport, water and land-use in order to bring resilience to scale.

In addition, GFDRR will promote nature and ecosystem-based solutions, such as wetlands, forests and mangroves, as effective alternative to build resilience. Case studies – for instance in Colombo, Sri Lanka – have shown that nature-based solutions are sometimes much better at building resilience in a context of deep uncertainties, can reduce upfront costs and investment needs, and generate not only benefits in terms of risk reduction, but also large co-benefits (e.g., wetlands contribute to clean water and reduce needed investment in water treatment, can generate revenues from recreations with natural parks, and protect biodiversity).

Many developing countries lack capacity to access climate funds and combining financial resources for greater impact. Developing countries still have difficulties to navigate the complex procedures and highly fragmented landscape of climate financing. This comes at a high transaction cost, poses additional stress on the capacity of the countries and undermines efforts to building climate resilience and maximize impact. In this context, GFDRR will continue to provide specialized assistance and just-in-time financing to help countries build a pipeline of investments combining multiple financing sources to improve efficiency. GFDRR will also continue to help Ministries of Finance and other national agencies to "cross the desert" of climate resilience financing, building their capacity, strengthening their institutional and coordination mechanisms, and helping them to ultimately manage national programs under a single set of procedures. Furthermore, GFDRR will also provide readiness support to countries for direct access accreditation to global climate funds.

The uncertainties of climate change require new tools, refining climate parameters and measuring resilience better to help countries plan for resilience. There remain critical knowledge gaps on how to measure and incorporate climate and disaster resilience in many vulnerable countries. Support to analytical products will continue to be key to inform policies and investments. Moreover, the uncertainties of climate change require new methodologies tools to help countries plan, design and implement climate resilience measures and to take risk-informed decisions in a highly uncertain context. GFDRR will continue supporting the implementation of decision-making under uncertainty methodology in multiple projects and initiatives, helping countries access the state-of-art expertise and knowledge including through the Society for decision-making under deep uncertainty[3], created through a GFDRR and World Bank initiative.

Results visibility, monitoring and evaluation of resilience will also continue to be an important part of GFDRR's work. GFDRR has developed a resilience indicator tool that combines data on hazard, exposure and vulnerability including data on poverty to allow decision-makers to compare a wide range of policies. So far, the tool has been applied in 120 countries and will continue to be rolled out going forward. GFDRR has also supported several projects with the aim of improving and harmonizing measurement of resilience and will continue to support this work moving forward.

GFDRR aims to address key challenges on climate resilience development in the years ahead, to further bring resilience to scale. Opportunities to do this include: (a) bringing programs to the scale necessary to help countries achieve the goals of the Paris Agreement and the Sendai Framework targets; (b) supporting client countries to implement the resilience objectives specified in their NDCs; (c) ensuring development policies and investment plans integrate disaster and climate risks and account for future risks and climate variability; (d) Increasing the support to countries on decision-making under uncertainty; and finally (e) improving and harmonizing resilience measurements.

[3] http://www.deepuncertainty.org/

Scaling Up Resilience to Climate Change

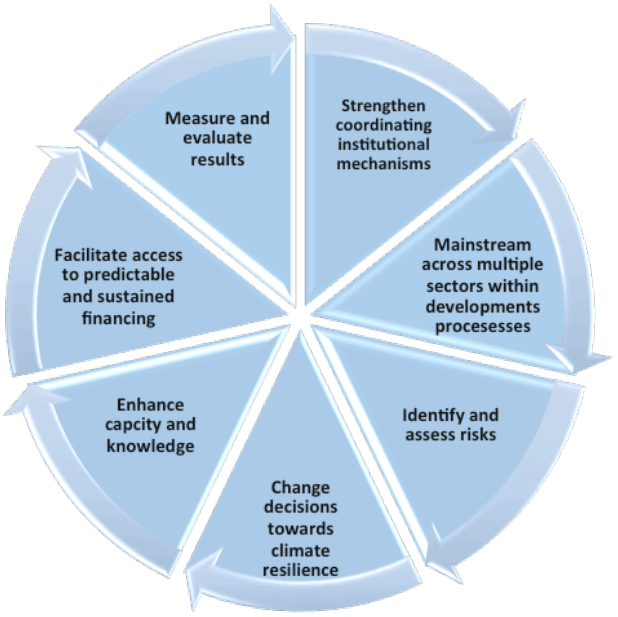
As outlined in the Sendai Framework, and echoed in the Paris Agreement, adopted under the United Nations Framework Convention of Climate Change, making development resilient to climate and disaster risk is urgent and the demand is increasing due to the high needs. As the uncertainties of climate change keep increasing, historical trends of climate patterns no longer serve as good predictors, making the pursuit of climate resilience ever more challenging.

To mobilize sufficient investments for climate resilience, the international community will need to maximize leveraging from a range of financial sources through strong partnerships. GFDRR has already proven that it is uniquely positioned to contribute to scaled-up efforts by combining expertise in disaster risk management, climate resilience and development. The Secretariat will therefore continue to provide timely support to prepare and implement high quality resilience-focused projects that support policy changes and investments. The projects will be developed in close coordination with the countries – thus ensuring that they meet the needs identified in the Nationally Determined Contributions (NDCs)[4] and other national plans. The support from GFDRR will also help build capacity for direct implementation.

RCC will continue to be a cross-cutting theme for GFDRR. However, the Secretariat will focus on scaling up actions in areas with the potential of achieving high-impact and ensure maximum leverage of GFDRR resources to maximize impacts on development patterns. Through RCC, GFDRR will focus on four priority areas aligned with the Paris Agreement and the goals established in the World Bank Group Climate Change Action Plan 2016-2020. It will rely on strategic use of technical assistance, just-in-time support and analytical products to catalyze larger investments or policy development operations from a combined range of funding sources, consistent with the priorities of the countries´ NDCs and other national plans to achieve the objective of **enhancing climate resilient development in vulnerable countries**.

GFDRR has developed three financing scenarios for the further implementation of RCC: (i) A base scenario where the funding is kept at the current level; (ii) a middle scenario of an additional USD 20 million and; (iii) a high scenario of an additional USD 50 million[5]. The scenarios show what GFDRR can achieve by 2023, which is the year when the countries´ first global stocktaking on the NDCs will take place.

Figure 5: Framework for Integrating Climate Resilience into Development



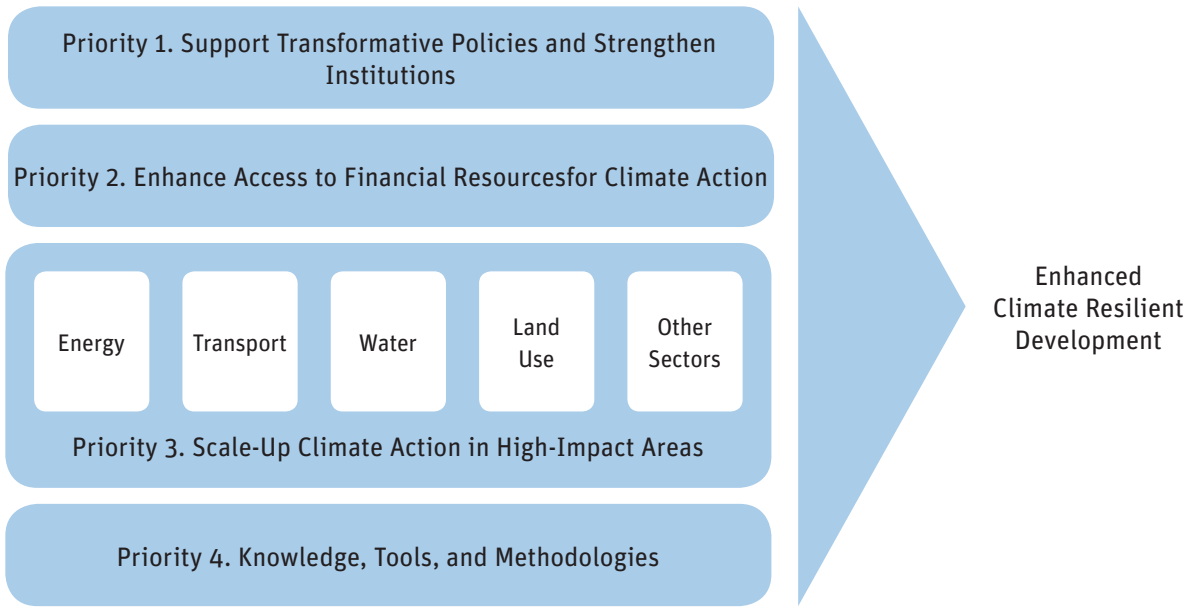
To ensure that all GFDRR´s work contribute to climate resilient development, through RCC, GFDRR will use the climate resilient development framework that was developed jointly with the World Bank in 2013 as a contribution to the loss and damage discussions under COP19 in 2013, illustrated in Figure 5.

The framework above shows the process of how to integrate climate resilience into development. The elements outlined in the figure occur in parallel and interact with each other. Many of the tools and instruments predominantly used by the disaster risk management community (risk identification, risk reduction, preparedness, financial protection and resilient reconstruction) are also key to climate resilient development and therefore integral in GFDRR's support to climate resilience. Through RCC, GFDRR combines the complementary

[4] In cases where a country's NDCs does not fully reflect the National Adaptation Programmes of Action (NAPAs), the support will also be closely aligned with the countries´ NAPAs.

[5] See Annex B for details of the various financing scenarios.

Figure 6: GFDRR's Priority Areas to enhance climate resilient development in vulnerable countries



disciplines and brings the disaster risk management and climate resilience together, as jointly addressing disaster and climate risk is the key to resilient development.

The four priority areas for scaling up climate resilience integrates the two disciplines and thus ensures climate and disaster resilient development. The priority areas are: (i) Support transformative policies and strengthen institutions; (ii) Enhance Access to Financial Resources for Climate Action; (iii) Scale up climate action in high-impact areas; and (iv) Increase the support to the development of knowledge, tools & methodologies. Combined, these priority areas will achieve RCC's objective to **enhance climate resilient development in vulnerable countries**. Figure 6 illustrates how these priorities are linked to each other and the section below explains how GFDRR plans to implement RCC to contribute to climate resilient development for vulnerable countries and people. **A full overview of the proposed outcomes and outputs for the priority areas are provided in Annex A.**

Priority 1. Support Transformative Policies and Strengthen Institutions

In the field of climate and disaster resilient development, the roles of institutions are the most important albeit being the most difficult part of the process often because of the multi-sectoral nature of climate and disaster risk in addition to unclear divisions of roles and responsibilities and low capacity in the institutions. Moreover, many countries have governance systems that are divided by sectors and the climate change and disaster risk management agendas have normally been driven by new and weak ministries (World Bank 2013:14). Lack of/or weak legal frameworks and regulations on climate and disaster risk management is also still a challenge. Several countries have taken several steps to strengthen institutions, coordination amongst them, and develop and improve policies to better plan and implement climate and disaster risk management activities in the countries. However, there is still high demand for support in these areas for the countries to increase resilience and achieve their climate commitments as outlined in the Paris Agreement.

Activities under this priority area will support institutional strengthening and reforms, – by integrating climate and disaster risk considerations into development policies, strategies, regulations plans and programs. Awareness-raising and capacity building to promote risk-informed decision making will also be supported.

Priority 2. Enhance Access to Financial Resources for Climate Action

Leveraging resources for resilience investments is fundamental to **enhance climate resilience in vulnerable countries.** This priority would focus on strategic use of technical assistance, just-in-time support and analytical products to catalyze

larger investments or policy development operations from a combined range of funding sources, consistent with the priorities of the countries´ NDCs with the aim to increase access to climate and development finance for vulnerable countries; reduce the fragmentation of finance and increase efficiency and support the innovations of climate resilience financing operations such as Program for Results and Debt-for-Resilience Swaps.

Priority 3. Scale-Up Climate Action in High-Impact Areas

As a cross-cutting theme, RCC aims to integrate disaster and climate risks into all development operations across sectors. GFDRR will continue these engagement. However, through RCC, GFDRR will deepen and scale up climate action in areas where the demand for addressing resilience to climate change and the potential for impact is high to enhance climate resilient development in vulnerable countries.

The demand from countries to support energy resilient investments and policy operations are increasing as the sector is facing multiple threats from the impacts of climate change. GFDRR is in conversations with the World Bank Energy Global Practice to explore ways to increase **energy resilience** to extreme weather events such as storms, landslides, floods and extreme temperatures; changes in water availability, as it affects hydropower and bioenergy and thermal plants operated through shore energy infrastructure. The sector also faces challenges from extraordinary seasonal temperatures

Box 4: Climate-Smart Land Use: Areas for Targeted Support

CLIMATE-SMART AGRICULTURE

According to the Shock Waves report, studies indicate that climate change could result in global crop yield loss as 5 percent in 2030 and 30 percent in 2080, even accounting for adaptive measures. The same report concludes that agriculture is the key driver for climate change´s impacts on poverty and that climate-smart agriculture can increase productivity and resilience. As such, GFDRR in collaboration with partners, aims to scale up the efforts for increased resilience in the agricultural sector. The World Bank has an ambition of scaling up climate smart-agriculture and has committed to 100 percent of agriculture operations being climate-smart by 2019. The institution will therefore develop climate-smart agriculture profiles and investments plan for at least 40 countries by 2020, and implement various climate-smart agriculture programs that integrate risk assessment and management.

ECOSYSTEM-BASED ADAPTATION

Ecosystem-based adaptation is increasingly being considered a strong method to address climate and disaster risks as it can address a broad range of risks such as drought, storm, floods, landslides and hurricanes. It may also be more cost-effective and accessible by rural and poor communities than grey infrastructure. In some instances, widely used "hard" engineering solutions have contributed to exacerbate coastal erosion, especially when implemented poorly. Several small island states are also facing severe challenges around lack of building materials for construction and with high costs on import of large volumes of material.

GFDRR is increasingly being involved in the field of ecosystem-based adaptation and has recently provided support to help develop an interactive platform to allow sharing of nature-based adaptation projects. The aim is now to scale up in partnership with other institutions such as the World Bank. The institution has a goal to ensure that 50 percent of adaptation projects include ecosystem-based adaptation measures by 2020 and GFDRR can support the achievements of these goals. As ecosystem-based adaptation is a relatively new scientific field, the support to research and analytical products to extend the knowledge base and address knowledge gaps will also be supported.

COASTAL RESILIENCE

Coastal climate risks are increasing due to sea level rise, coastal flooding, intensification and increased frequency of cyclones, extreme waves, storm surges and coastal erosion. Consequently, GFDRR is experiencing an increase in demand to address coastal risks, and especially from Small Island States where most of the population live in coastal areas and the low-lying deltas in Sub-Saharan Africa and Asia. As such, GFDRR plans to support a range of coastal management protection projects and activities. An example of this is the support improved coastal protection by advancing on the West Africa Coastal Adaptation Program (WACA).

that can change energy demand patterns and rising sea levels that will affect coastal and off-shore energy infrastructure. Conversations are also ongoing with the World Bank Transport Global Practice to promote **resilient transport** and reduce infrastructure failure and service disruptions due to climate change as the demand from countries are increasing to get support in this area.

As **resilient water management** is key to achieve the climate objectives agreed in Paris and has been identified as key in countries NDCs on adaptation, GFDRR is increasing its efforts to promote **resilient water management** and aims to scale up its work in this area. Moreover, **climate-smart land use** is crucial for resilience and poverty reduction. It is also considered as one of the primary tools to control exposure to hazards. GFDRR will therefore support activities on risk-informed planning and management of land use and have selected three areas for targeted support that are highly inter-linked: **Climate-smart agriculture; eco-system based adaptation and coastal resilience. Resilient water management** is also key to achieve results under this priority area.

Priority 4. Knowledge, Tools & Methodologies

Supporting access to the best global knowledge to inform policies and investments is key to achieve the objective of RCC. This priority underpins the other priority areas and will support generation, synthesis and dissemination of knowledge, tools and methodologies to support climate resilience development and scaling up of relevant partnerships and resources. Analytical support to fill critical knowledge gaps will continue to be funded. Additionally, through RCC, GFDRR will increase support to the development and piloting of innovative methodologies and tools to make better-informed decisions, considering future changes in climate conditions and the uncertainty that surround them. The objective is to provide countries – and all practitioners involved in development planning or project design – with better data sets, models, tools, and decision-making methodologies, to increase the resilience of all investments.

GFDRR plans to participate, contribute and in some instances, take the lead on key external events related to climate and disaster risk management such as COP23 and the UNISDR Global Platform for Disaster Risk Reduction. GFDRR will also facilitate the participation of vulnerable countries to these events. The objective is to increase and accelerate the financing to climate resilient development. New and strengthened coalitions and partnerships in these events will also be key as strong partnerships are essential to achieve GFDRR's climate resilience objective of enhancing resilient development. GFDRR will therefore also continue to partner with various climate and development funds for co-investments and build pipelines on resilience. This will be done by working closely with the World Bank (IBRD/IDA) to influence the expected increase in climate finance and other partners such as the IMF, GEF, CIF and CREWS.

Annex A: Matrix on Outcomes and Outputs for Scaling-up RCC

Overall objective of RCC: Enhance Climate Resilient Development in Vulnerable countries

Priority 1 – Support Transformative Policies and Strengthen Institutions			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
1. **Transformative policies on climate and disaster risk management have been developed and/or improved at national and sub-national level**			➢ New legal framework for climate and disaster risk management have been developed and implemented ➢ Quality of policies, laws and regulations on climate and disaster risk management have been improved ➢ Key policies, laws and regulations on climate and disaster risk management have been harmonized
2. **Countries have translated their NDCs into action (targets, policy interventions, investment plans and financing plans)**			➢ National Development strategies have been amended to include NDCs ➢ Prepare multi-sectoral investments plan ➢ Risk reduction investments plans ➢ Support the development of targets on NDCs ➢ Support the development of policy interventions on climate and disaster risk management ➢ Support the development of financing plans for NDCs
3. **Climate and disaster risk considerations have been integrated into countries/ cities core development planning**			➢ National Development strategies and other planning documents have been amended to include NDCs ➢ Tracking national budgets to measure progress of integrating climate resilience
4. **Climate and Disaster Risk Management have been integrated in key sectors such as energy, transport and climate-smart land use at national and sub-national level**			➢ Outputs reflected under priority 3
5. **Institutions mandated with DRM and climate resilience have been strengthened at the national and sub national level**			➢ Capacity development of line ministries on management, coordination and monitoring ➢ Increase transparency and governance in decision-making on climate and disaster risk management ➢ Strengthen institutional set ups and arrangements ➢ Prepare and/or revise operational manuals for ministries
6. **Coordination amongst sectors and/or agencies mandated with DRM and climate resilience has improved at the national and sub-national level**			➢ Capacity development of line ministries management, coordination and monitoring ➢ Strengthen institutional set ups and arrangements (including coordinating mechanisms) ➢ Prepare and/or revise operational manuals for ministries

Priority 1 – Support Transformative Policies and Strengthen Institutions			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
7. **All grants under priority area 1 have conducted a gender analysis and/or considered existing gender analysis and 50 percent of the grants have included specific actions to address gender**			➢ Gender analysis conducted an/or existing gender analysis considered in all grants ➢ Specific gender actions have been included in 50 percent of the grants
8. **Stakeholders at all levels of society have been consulted in all of the grants and 50 percent of the grants include specific actions on collaboration, participation and empowerment of stakeholders[9]**			➢ Consultations with stakeholders have been conducted in all grants ➢ Specific actions on collaboration, participation and empowerment of stakeholders have been included in 50 percent of the grants

Priority 2 - Enhance Access to Financial Resources for Climate Action			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
1. **Vulnerable countries have accessed climate and development finance**			➢ High-quality resilience-focused investments have been prepared ➢ Implementation of climate resilience investments have been supported ➢ Co-financing technical assistance projects with other sources of funds ➢ Support direct access accreditation for vulnerable countries
2. **Fragmentation of climate and development finance is reduced in vulnerable countries**			➢ Multiple financing sources combined ➢ Reduce fragmentation of finance and increase efficiency by supporting country-led coordination and harmonization of financial and technical assistance from donors ➢ Increase national capacity to absorb and use resilient funds more efficiently and support a move towards country-led resilience programs
3. **Innovative climate resilience financing operations have been developed**			➢ Resilience Development Policy Operations, Program for Results, Debt-for-Resilience Swaps, Green/Blue Bonds ➢ Support dialogue on consideration of vulnerability in eligibility for concessional financing (in partnership with Small States Forum, IMF and other partners) ➢ Engage in the international community´s dialogue on access to climate finance through analytical products, participation in key events etc.

[6] GFDRR uses the World Bank definition of citizen engagement: Two-way interaction between citizens and governments or the private sector. The spectrum of citizen engagen includes consultation; collaboration/participation and; and empowerment. See Strategic Framework for Integrating Citizen Engagement in World Bank Group Operations (20

Priority 3 – Scale Up Climate Action in High-Impact Areas			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
1. **Enhanced climate resilience in vulnerable countries' transport sector**			➢ Assessments of the vulnerability of the countries´ transportation infrastructure to climate change with a focus on extensive risk and changes in mean climatic parameters and extremes ➢ Improve relevant transport institutions climate resilience planning ➢ Promote, update or design transportation infrastructure that integrates climate considerations into planning and constructions ➢ Promote, develop and improve resilient building codes and standards for the transport sector ➢ Retrofitting of existing transport assets ➢ Support new technologies for construction, maintaining and repairing transport infrastructure ➢ Improve institutional arrangements for maintenance ➢ Training and awareness raising for transport engineers, operators and maintenance staff in vulnerable countries
2. **Enhanced climate resilience in vulnerable countries' energy sector**			➢ Support energy assets vulnerability assessments to identify key risks ➢ Retrofitting of existing energy assets ➢ Identification of solutions that could be part of an integrated risk management framework for the energy sector ➢ Conduct gap analysis of utilities´ disaster preparedness plans ➢ Strengthen the capacity of utilities for better preparedness, response and recovery from damages caused by the impacts of climate change and natural disasters ➢ Integrate energy resilience into long-term development planning ➢ Identification of priority investments to risk reduction measures in the energy sector ➢ Promote decentralized renewable energy systems to communities highly vulnerable to the effects of climate change and natural disasters such as coastal communities

Priority 3 – Scale Up Climate Action in High-Impact Areas			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
3. **Enhanced climate resilience in vulnerable countries' water management**			➢ Support activities on integrated water resources management and transboundary cooperation ➢ Water storage to control flooding ➢ Water harvesting and re-design of harvesting schemes ➢ Groundwater protection ➢ Climate change impacts and vulnerability assessments of water infrastructure Improved management of waste water ➢ Climate-proofing of water supply and sanitation services ➢ Strengthening of national water resources management institutions ➢ People-centered early warning systems for communities at risk of water-related disasters
4. **Enhanced climate resilience in vulnerable countries' agriculture sector**			➢ Promotion of diversification of crops and crops improvement ➢ Access to inputs and credit ➢ Development of financial and social protection policies for resilience ➢ Livelihood support such as cash-for-works and cash transfers ➢ Support land tenure security ➢ Capacity building in ministries of Agriculture on dynamic risk assessments ➢ Support analytical products to fill knowledge gaps on the impacts of climate change in agriculture at country level ➢ Development of social frameworks including targeted support to vulnerable groups
5. **Ecosystem-based approaches have been integrated in GFDRR's grants**			➢ Mixing of hard infrastructure and ecosystem-based options ➢ Restoration activities such as tree planting and degraded wetland ➢ Mangrove forest conservation ➢ Integration of ecosystem-based approaches into policies and strategies ➢ Support the development of tools and guidelines ➢ Support to research and analytical products to extend the knowledge base and address knowledge gaps

Priority 3 – Scale Up Climate Action in High-Impact Areas			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
6. **Enhanced climate resilience in vulnerable countries' coastal management**			➢ Construction or rebuilding of grey and green infrastructure investments ➢ Asset management of coastal infrastructure ➢ Strengthen policy, laws regulations and institutions to reduce coastal risks, ➢ Population retreat/relocation plans ➢ Locally managed climate and disaster resilience plans by building skills within communities ➢ Promote risk-informed community driven development ➢ Alternative livelihoods for affected communities ➢ Improve hazards assessments models on coastal flooding ➢ Coastal climate change vulnerabilities assessments ➢ Cost-benefit analysis of adaptation/protection options ➢ Support the development of climate-resilient coastal spatial planning
7. **All grants under priority area 3 have conducted a gender analysis and/or considered existing gender analysis and 50 percent of the grants have included specific actions to address gender**			➢ Gender analysis conducted an/or existing gender analysis considered in all grants ➢ Specific gender actions have been included in 50 percent of the grants
8. **Stakeholders at all levels of society have been consulted in all of the grants and 50 percent of the grants include specific actions on collaboration, participation and empowerment of stakeholders**			➢ Consultations with stakeholders have been conducted in all grants ➢ Specific actions on collaboration, participation and empowerment of stakeholders have been included in 50 percent of the grants

Priority 4 – Knowledge, Tools & Methodologies			
Example Outcomes (FY18-22)	**Baseline FY17 Portfolio (TBC)**	**Targets (TBD)**	**Example Outputs**
1. **Knowledge on climate resilience deepened and innovative approaches and solutions on climate resilience generated**			➢ Strengthening, streamlining and harmonization of monitoring and evaluation for climate action (e.g. investments in monitoring and evaluation by supporting new metrics on resilience) ➢ Open data for risk information to be applied in planning and design decisions ➢ Continued support to flagship reports on climate change ➢ Support operations in taking climate risk into account through climate and disaster risk screening support ➢ Further development of tools for resilience and decision-making under uncertainty ➢ Dissemination of good practices on forecast-based financing ➢ Support analytical products on financial protection and adaptive social protection in particular ➢ Development of multi-hazard risk profiles ➢ Dynamic risk assessments at the country-level for risk-informed decision-making
1. **Strong partnerships on climate resilience established and strengthened**			➢ New and strengthened coalitions and partnerships in key events ➢ Strengthen partnerships with various climate and development funds to build pipelines on resilience ➢ Partnering with vulnerable countries in readiness for direct access

Annex B: Scale-Up Scenarios for Resilience to Climate Change

Strategic Priorities	Base scenario	Middle scenario US$20 million	High scenario US$50 million
Priority 1 Support Transformative Policies and Strengthen Institutions	**Continue supporting 55 countries enhance their climate resilience (out of 70 where GFDRR works)** through Technical Assistance for integrating climate resilience and DRM across development sectors using simple and robust hazard analytics considering long term effects of climate change; specialized support on decision-making under uncertainty; and through the harmonization of results framework for resilience operations.	**Support 5 additional countries enhance their climate resilience by 2023** through assessment of current and future risks and vulnerabilities, evaluation of resilient measures, and integration of climate and disaster resilience into national development plans and policies (in line with their Nationally Determined Contributions). **Deepen engagement with 30 countries to enhance their climate resilience** by scaling up existing programs, increasing the geographic scope of existing programs and/or extending operations to additional development sectors.	**Support 10 additional countries enhance their climate resilience by 2023** through assessment of current and future risks and vulnerabilities, evaluation of resilient measures, and integration of climate and disaster resilience into national development plans and policies (in line with their Nationally Determined Contributions). **Deepen engagement with 45 countries to enhance their climate resilience** by scaling up existing programs, increasing the geographic scope of existing programs and/or extending operations to additional development sectors.
Priority 2 Enhance Access to Financial Resources for Climate Action	**Continue efforts to maximize existing climate funds by helping countries tap into them, and to influence additional funds for climate-resilience.**	**Help influence at least an additional US$1 billion per year in financing from the World Bank Group and global climate funds for climate adaptatio**n in targeted countries by 2023.	**Help influence at least an additional US$2.5 billion per year in financing from the World Bank Group, global climate funds and others for climate adaptation** in targeted countries by 2023.
Priority 3 Scale Up Action in High-Impact Areas	**Continue efforts to integrate long term climate-resilience angle across development sectors; continue providing assistance for hydromet services, river basin management and Small Island States.**	**Increase the proportion of GFDRR grants with screened and including specific actions supporting adaptation from 45 to 65 percent by 2023**, by scaling up support to high-impact thematic programs, and to sectors where there is high potential for scaled up actions on climate resilient development.	**Increase the proportion of GFDRR grants screened and including specific actions supporting adaptation from 45 to 80 percent by 2023,** by scaling up support to high-impact thematic programs, and to sectors where there is high potential for scaled up actions on climate resilient development.
Priority 4 Knowledge, Tools and Methodologies	**Continue to contribute to disseminate key pieces of analytical work and strengthen knowledge sharing.** **Continue supporting the development of relevant tools and metrics.** **Continue to foster partnerships with other global climate funds.** **Active participation at key global events.**	**Develop and share knowledge for adaptation ahead of the 2023 global stocktaking looking beyond existing risks into future ones.** **Increase the support to the d****evelopment of relevant tools and metrics,** for example by integrating climate adaptation into the resilience indicator and further development of tools for resilience and decision-making under uncertainty. **Review existing tools to make them climate-proof,** for example Think Hazard! and develop friendly tools for consideration of climate projections into development planning.	**Develop and share knowledge for adaptation ahead of the 2023 global stocktaking looking beyond existing risks into future ones.** **Increase the support to the development of relevant tools and metrics,** for example by integrating climate adaptation into the resilience indicator and further development of tools for resilience and decision-making under uncertainty. **Review existing tools to make them climate-proof,** for example Think Hazard! and develop friendly tools for consideration of climate projections into development planning.

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The Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change. Working with over 400 local, national, regional, and international partners, GFDRR provides grant financing, technical assistance, training, and knowledge sharing activities to integrate disaster and climate risk management in policies and strategies. Managed by the World Bank, GFDRR is supported by 36 countries and 10 international organizations.