Enhancing Climate Resilient Development in Vulnerable Countries

Progress Report on Resilience to Climate Change & Way Forward

GFDRR

Global Facility for Disaster Reduction and Recovery

1. Overview

Climate change poses a particular threat to sustainable development. Disasters are already trapping people and countries in poverty through losses to property and livelihoods. Climate change will only exacerbate this trend. As conditions change, development plans, policies and projects need to include existing and future climate risks in their design. The frequency and intensity of heavy precipitations, floods, hurricanes and cyclones, droughts and heat waves are affected by climate change, and historical data can no longer be used as a reliable predictor of future risks. With large uncertainties on future climate conditions, large potential additional costs and limited resources and capacity, building climate resilience is not an easy task. At GFDRR we recognize we need to change the way we do business, adding another layer of risk management upon "business-as-usual" is not enough. We need to keep gathering new data, developing new tools and methodologies to help countries make more informed decisions despite the uncertainties; and to explore effective alternatives to build resilience using the countries own ecosystems.

GDFRR, through the Resilience to Climate Change (RCC) program, helps integrate climate risks into development plans, policies and investments to build the resilience of people and economies to climate change. RCC provides support through three main instruments: i) technical assistance; ii) Just-in-Time support and; iii) analytical products. The program has four complementary priority areas: the strengthening of institutions; the development of knowledge, tools and methodologies; the focus on vulnerable sectors and countries with potential to increase resilience; and facilitation of access to different sources of financial resources. This approach allows GFDRR to influence larger investments and policy operations and bring climate resilience to scale.

As countries implement the goals of the Paris Agreement and their National Determined Contributions plans, demand for climate resilient investments and technical support keeps growing. This is evident across GFDRR's portfolio with the proportion of grants addressing climate resilience steadily increasing. 77% of new approved grants in FY17 addressed climate risks, a 15% increase from FY16 and a 36% from FY15. The thematic composition of the portfolio has also broadened in FY17 to include support to development sectors such as transport, energy, water and land-use management. The greater diversification of the portfolio is in part the result of an outreach campaign at the World Bank on the ability of the Just-in-Time to accelerate the integration of climate resilience into development.

Results monitoring, evaluation and impact continue to be an important part of GFDRR's work. With the introduction of a new three-tier marker for climate resilience, GFDRR is better equipped to measure the breadth and depth of the program and its impact. GFDRR also continues to support activities to improve on the metrics of climate resilience.

Several initiatives are under implementation to pay greater attention to areas that present specific challenges or opportunities. Through the Small Islands States Resilience Initiative (SISRI), GFDRR provides dedicated support to small island nations, which are particularly exposed to increasing frequency and intensity of hydro-meteorological events and sea-level rise. GFDRR continues to promote nature and ecosystem-based solutions such as wetlands, forests and mangroves as an effective alternative to build resilience—experience shows that they bring benefits in terms of risk reduction, but also large co-benefits such as protecting biodiversity, contributing to clean water, etc.

This progress report presents a brief update of progress made in integrating resilience to climate change in GFDRR's portfolio.

2. Fostering Climate Resilient Development

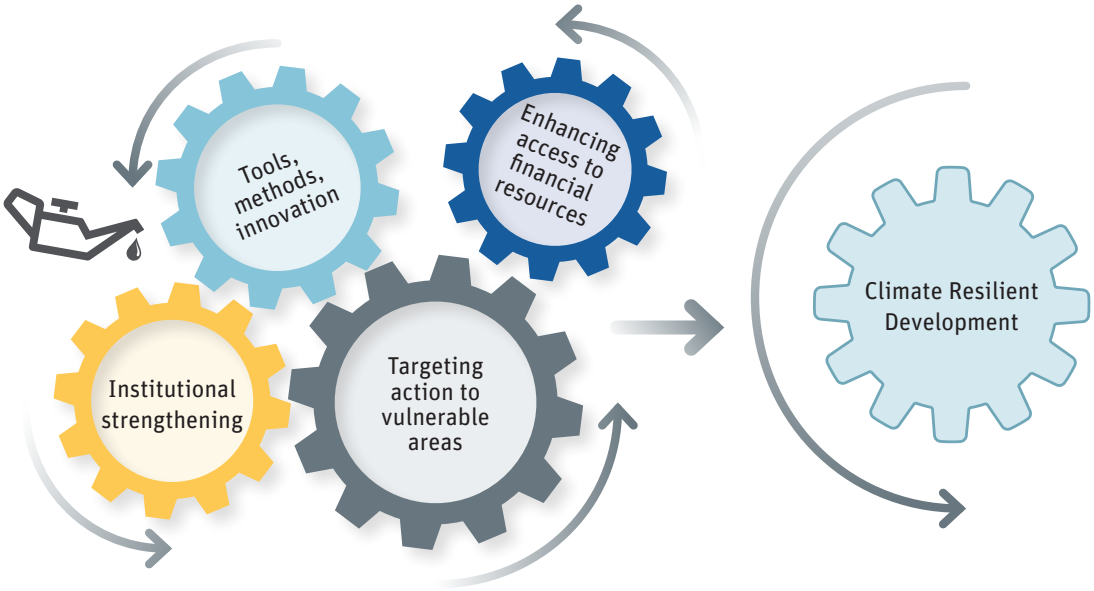
2.1 Managing climate risks to enhance resilience

Building 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 achievement 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".

To this end GFDRR integrates resilience to climate change into all its activities across geographical regions, and strategic areas of engagement by (i) improving identification and understanding of risk under future climate scenarios; (ii) reducing existing risks and avoiding the creations of new risks; and (iii) supporting design and implementation of investment policies so they include climate resilient measures.

In addition, **GFDRR has a dedicated program, Resilience to Climate Change (RCC), aimed at deepening engagements to enhance resilient development across vulnerable countries** by providing specialized expertise, data analysis, as well as technical assistance to ensure all investments are designed taking into consideration future climate change and variability.

Figure 1: Integrated solutions for a resilient development



Established in 2014, the RCC program has been spearheaded by a dedicated contribution from the Swiss Agency for Development and Cooperation - GGlobal Programme Climate Change and Environment (SDC-GPCCE) to GFDRR's Multi-Donor Trust Fund (MDTF).

The **RCC also fosters resilience through innovative tools and methodologies** such as *Robust Decision Making*, which helps governments make more informed decisions despite the uncertainties of climate change; through open data initiatives such as *ThinkHazard!* and *OpenDRI* that make risk information available, accessible, and easy to use; or by facilitating knowledge, for example through the *Nature Based Solutions Platform*, where countries can learn from each other's experiences.

This multi-level approach allows GFDRR to influence larger investments in climate resilience and is especially critical to ensure projects and policies related to long-lived investments, such as in the infrastructure in transport and energy sectors, which need to be designed today, and take into account existing climate risks as well as uncertain future climate patterns.

2.2 An integrated approach to enhance climate resilient development

Addressing the complex problems that climate change poses on sustainable development requires integrated solutions. GFDRR focus its climate resilience activities in four complementary priorities aligned with the Paris Agreement and the Climate Change Action Plan 2016-2020 of the World Bank:

- Support **institutional strengthening and policy reforms** to integrate climate and disaster risk considerations into development policies, strategies, regulations, plans and programs.
- Generate, synthesize and disseminate **knowledge, methodologies and decision-making tools, and bringing technical expertise** to support climate resilient development and encourage partnerships to scale up climate action.
- Support actions with **high potential for reducing vulnerabilities in development sectors** (e.g. transport, water, agriculture, energy, urban settings, and coastal zones) through innovative and "no/low-regret" solutions such as risk-informed spatial planning and nature-based solutions.
- Strategically use Technical Assistance, Just-in-Time, and Analytical Work to **support and catalyze larger investments and policy development operations**.

To efficiently support governments to enhance their climate resilience, GFDRR engages in activities having an integrated approach to reduce risks and enhance adaptive capacities consistent with its priorities. In line with its integrated approach, GFDRR jointly addresses climate and disaster risks to protect development gains. For example, as part of a multi-year engagement to strengthen climate

Contributing to NDCs—Partnering with the NDC Support Facility of the NDC Partnership

GFDRR, through the RCC program, is working together with the WBG Support Facility for NDC implementation (NDC-SF) to help countries realize the resilience targets set up in their Nationally Determined Contributions (NDC). The NDC-SF[1] was set up by the WBG with Germany's support to facilitate the implementation of countries' NDC by promoting technical assistance, capacity building, stakeholder coordination and climate-smart investments. Such a monumental task requires that governments, international institutions and other stakeholders share information, mobilize financial and technical resources, and coordinate efforts. Within that context, and given GFDRR's technical expertise and operational focus, the NDC-SF and GFDRR are currently exploring opportunities for a more formal collaboration to support countries achieve their NCDs resilience targets, with GFDRR playing the role of operational partner to the NDC-SF. Such an arrangement would help countries achieve their resilience targets by linking the NDC-FS coordination role with the GFDRR's demand driven operational approach, thus helping to build on existing programs to scale up resilient operations.

resilience in Bangladesh, GFDRR is currently helping a 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 support the development of a comprehensive climate resilient coastal embankment management strategy. This support is informing a US$ 400 million project financed by the International Development Association (IDA) and Climate Investment Funds (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.

2.3. Working with others to maximize impact

RCC permeates through all GFDRR areas of engagement[2] to ensure activities are climate resilient and opportunities for synergies are considered to maximize impacts. For example, Just-in-Time grants have supported hydro-meteorological and early warning systems projects in Central Asia and Myanmar to enhance national capacities and bring technical expertise into the design and selection of technologies, and bring global best practices to support decision making and development of hydro-meteorological institutional frameworks. Investing in efficient hydromet and climate information services today, will support countries to be better prepared providing reliable weather information in the future, contributing to reduce livestock and crop losses in climate vulnerable areas, warn and evacuate communities when a disaster hits, and help design floods and coastal protection infrastructures.

This work takes place through an increasing number of GFDRR partnerships with development sectors such as transport, energy or water. For example, in partnership with the World Bank Transport Global Practice, GFDRR is supporting initiatives worldwide to enhance the resilience of the sector. In that context, GFDRR is helping a new initiative to build resilience in the transport sector for small island developing states (SIDS). That initiative aims to reduce the vulnerability of SIDS to the impacts of natural disasters and climate change, by integrating and enhancing risk management in transport infrastructure and asset management. GFDRR has helped prepare a flagship report to provide evidence of why it is crucial and makes sense to support SIDS in climate and natural disaster resilient transport systems; what are the specific needs; asses the ability at country level to absorb support; bring together expertise from transport, disaster risk management and climate change communities; and broaden overall understanding of best practices for incorporation of climate and disaster resilience considerations in the management of transport assets and systems. This report is expected to be presented at the 23rd Conference of the Parties in Bonn (COP23).

[1] The WBG's NDC-SF is an implementing partner of the NDC Partnership set up in 2016 to help countries realize the promises of the Paris Agreement.
[2] To deliver on its strategy, GFDRR is organized in 8 priority areas of engagement: Access to Risk Information, Resilient Infrastructure, Resilient Cities, Hydromet and EWS, Financial Protection, Resilience at Community Level, Resilience to Climate Change, and Resilient Recovery.

3. Portfolio Review of FY17

GFDRR has three main instruments to deliver on its objective to enhance climate resilient development in vulnerable countries:

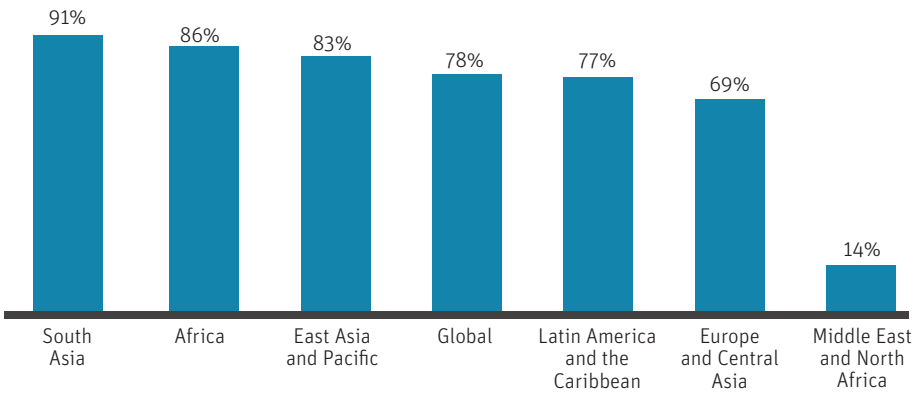
- **Technical Assistance** (TA) to supports operational teams with technical knowledge, analysis and/or tools to design projects and support implementation to reduce climate risks, therefore protecting their development gains;
- **Just-in-Time Capacity Building and Advice** (JIT), small grants of up to US$ 50,000 for rapidly deployed specialized advice or training requested by a client country. These grants are usually used to support integration of climate change considerations in large investments operations;
- **Analytical Work** (AW), focusing on enhancing the understanding of risks resulting from climate chance and how to reduce them, including impacts of climate change and disasters on poverty alleviation and sustainable development.

3.1. Review of Approved Technical Assistance and Analytical work

The proportion of grants addressing climate resilience has been steadily increasing, reaching the highest point to date in FY17. 77 percent of GFDRR approved grants in FY17 (i.e.; 92 grants out of 120) addressed climate resilience, a 15% increase from FY16 and a 36% from FY15. **The thematic composition of the portfolio has broadened** when compared with FY16, and more notably FY15, showing the increased integration of climate resilience considerations across all development sectors. **GFDRR engagement in several countries has been deepened** as in Vietnam, where activities are enhancing the resilience of critical infrastructure investments, enhancing the resilience of the Mekong Delta Region's cities, and addressing droughts in the country. Similarly, GFDRR has deepened its engagement in African countries in FY17. For example, in Zambia with grants aiming to strengthen hydromet and climate services and increase the resilience of the transport sector; and in Malawi through a broad country engagement with the aim of building a shock-responsive safety net system that will prepare the country for future climate and disaster shocks.

Despite the overall increase in demand for support across the world, significant differences persist by regions. Demand for hydromet and resilient recovery is similar across regions, whilst, having the overall highest demand, numbers of grants allocated to access to risk information and resilient infrastructure are more varied across regions. This disparity is expected to flatten in FY18 as GFDRR broaden its support to different sectors. In FY17 100% of approved GFDRR grants to South Asia address climate resilience, with a majority of grants focusing on risk information; 86% of Africa's approved grants in FY17 integrates climate resilience considerations, mainly focused on ensuring access to risk information and strengthening hydromet systems ; 83% of approved grants in FY17 in East Asia and Pacific addresses climate risks, with significant incidence in the small islands in the Pacific. In Latin America and Caribbean, 77% of approved GFDRR grants in FY17 consider climate change in their design, and are mainly focused on ensuring resilient recovery as well as planning and building for resilient infrastructure; similar case is that of Europe and Central Asia where 69% of the approved grants in FY17 are addressing climate resilience aiming at promoting access to risk information and resilient recovery. Climate resilience is still residual in GFDRR's portfolio in Middle East and North Africa, with only 14% of grants addressing climate risks. This proportion is expected to raise in FY18, as GFDRR increases its work on slow onset disasters such as drought.

Figure 2: FY17 Approved grants supporting Resilience to Climate Change per Region

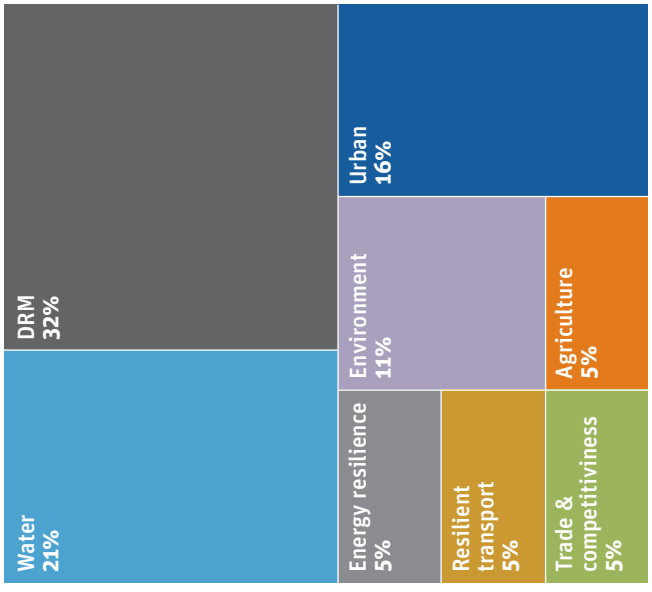


Knowledge and analytical products are key to support decision-makers by providing scientifically based understanding of climate risks and implications on development. Particularly the inter-relations between development factors, such as poverty, population growth and unplanned (fast) urbanization, with the increase in climate risks and impacts of disasters on development gains. For example, to prioritize resilient investments and achieve development goals while protecting the most vulnerable, as a good example, GFDRR provided knowledge and analytical support to the Government of Fiji (GOF). This support translated into a comprehensive multi-sector vulnerability assessment that considers not only the impacts of climate change on physical assets and services, but also on the population's wellbeing. A clear understanding of climate impacts on important sectors of the economy and the populations allows the GOF to plan and prioritize key investments to protect and achieve their development goals.

3.2. Review of Approved Just-in-Time grants

RCC Just-in-Time grants tripled in FY 17 to a total of 19 awards. An outreach campaign of the Just-in-Time mechanism in the second quarter of FY17, promoting the usefulness of the mechanism to increase resilience across all development sectors, resulted in a remarkable increase in demand compared to FY16. 68 percent of the JiT grants were awarded to sectors such as urban, water, transport, energy, agriculture, trade and competitiveness, costal resilience and others in all the regions. The other 32 percent support DRM projects to incorporate the climate angle to jointly address climate and disaster risks. The JiT is intended to foster climate resilience in low and low-to-middle income countries, with some exceptions for especially vulnerable countries such as small island states. However, the overall increase in demand also lead to a spike in demand from middle-income-countries reflecting the high needs of these countries for climate resilience, which despite having higher per-capita gross national income, still have high social and economic inequality with the poor being disproportionally affected by disasters.

Figure 3: Percentage of FY17 approved JIT grants by sectors



The Just-in-Time mechanism has proven useful to accelerate the integration of climate resilience across development sectors. For example, in Tunisia, GFDRR is supporting a US$120 million investment on irrigated **agriculture** intensification. The objective of the grant is to help the Tunisian Government to move from a supply side response with an emphasis on increasing water mobilization to a demand management approach focused on improving overall efficiency and favoring the most productive uses of water with a view to improve the countries' overall resilience to climate shocks. On **energy resilience**, GFDRR is supporting the Eastern Caribbean states on enhancing the climate resilience of the islands' energy systems for sustainable development. On **coastal resilience**, GFDRR awarded a grant that will support Tanzania on sustainable coastal zone management with the use of geospatial technology. In addition, an engagement with the **trade and competitiveness** sector has recently been initiated. A recently approved grant will help increase the Mongolian livestock sector's resilience to climate-related disasters, including desertification, drought, and 'dzuds', by improving measures on risk identification, risk reduction and preparedness in the sector.

Demand for rapid assistance is growing across all regions, with strongest demand from SIDS and Low Income Countries. This is explained mainly due to great demand for climate resilience interventions in small island states, which absorbed 26% of total allocations in FY17. For example, in the Caribbean, a JiT is helping kick-start a sub-regional project to enhance energy resilience in Organization of Eastern Caribbean States (OECS) countries. This assistance will allow knowledge transfer from a World Bank energy resilience project in Belize to the other OECS members, identify communalities and differences of islands' vulnerabilities, and identify candidate countries interested in participating in a subsequent in-depth climate risk and energy audit vulnerability assessments with the aim of developing a pipeline of resilient energy investments. In Haiti, where agriculture is highly vulnerable to the impacts of climate extremes (e.g. hurricanes, extreme rains, droughts, and floods), a JiT is helping to increase the

resilience of the sector by using geospatial information systems and related advisory services for natural resource management at farm and landscape level. These activities will support resilience building and strengthen the country's adaptive capacity. This assistance will inform a larger Resilient Productive Landscapes Project under preparation (US$26.2 million).

3.3. Monitoring climate activities

As part of the revision of GFDRR Monitoring and Evaluation Framework, a new methodology has been introduced to better capture the breadth and depth of RCC engagements across the GFDRR portfolio. A three-level tier marker measures whether a grant is: (i) undertaking or considering existing analysis to assess climate change risks; (ii) taking specific actions to address climate change risks and; (iii) including indicators to measure the results and impact of proposed actions. RCC informed grants consider one or more of the markers reaching the already mentioned 77 % RCC informed grants in FY17. 62 percent of the total FY17 approved grants have included an assessment of climate change risks. A higher percentage (69 percent) of the total FY17 approved grants have included specific actions to address climate change risks and 32 percent have included specific indicators to measure the proposed climate actions. The new monitoring and evaluation framework for GFDRR's overall portfolio will integrate this methodology to measure the level of RCC engagement across the portfolio.

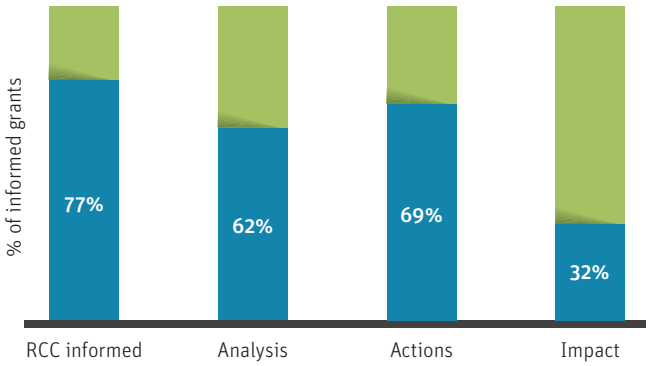
4. Update on supported initiatives

4.1 Small Island State Resilience Initiative (SISRI)

Through its Small Island States Resilience Initiative (SISRI), GFDRR is helping Small Island Developing States (SIDS) to step up action to address the challenges posed by climate change by providing technical support, transferring knowledge and good practices, building a World Bank Community of Practice and a Network of Practitioners from SIDS, and helping island nations prepare investments to be financed by predictable and long-term sources to ensure their resilience.

Notable activities in FY17 include the support to the Government of Fiji to make a comprehensive vulnerability assessment of the Country. The analysis aimed at quantifying and enhancing the understanding of the threat that natural hazards and climate change pose to the country's development plans and objectives. The analysis identifies threats that could jeopardize Fiji's development objectives and opportunities, and the interventions that could minimize these threats.

Figure 4: Degree of RCC integration marked as RCC informed, Analysis, Action, and Impact in all FY17 approved grants



GFDRR also organized the second meeting of the SISRI Practitioners Network[3] as a side event of the Global Platform for Disaster Risk Reduction in Cancun to facilitate transfer of experiences and knowledge among SIDS. More than 80 practitioners from 34 Small Island Developing Sates were gathered to share their experiences, challenges and opportunities to address climate change impacts. Discussions were varied and vivid ranging from innovative solutions to coordinate and strengthen national institutions by creating "super ministers" or "single entry points" in Tonga; coastal protection and early warning systems in Dominica and Mauritius; risk-based spatial planning through comprehensive science based risk assessments in Republic of Marshall Islands. This event was considered by participants as an "unique opportunity to learn, contribute and then bring back messages to our home" and they expect this event to "become a permanent annual meeting".

4.2 Decision making under uncertainty

Climate models do not always agree with each other, and the future climate is very uncertain. This "deep" uncertainty can constrain climate action of decision makers, especially for investment decisions on long-lived infrastructures.

Fortunately, over the past few years, new methods have been developed to support decision-making under deep uncertainty. These approaches seek "robustness" by finding options that satisfy decision-makers' multiple objectives in many plausible

[3] The first meeting took place in Venice at the margins of the Understanding Risk Forum in May 2016. This year's event has seen the number of participants increase to 80 people coming from 34 SIDS compared to the last year event in Venice where 60 participants came from 24 SIDS.

futures and over different time frames. GFDRR is providing support to countries to pilot and promote these methodologies. Results of these pilot project—among others on water supply in Lima and hydropower investment in Nepal—have brought the evidence needed to continue expanding the use of this methodology working alongside the World Bank. In particular, GFDRR will scale up its work on the resilience of transport networks in several countries in Africa, East Asia Pacific, Europe and Central Asia, Latin America, and in South Asia.

4.3 Nature Based Solutions (New)

GFDRR is supporting Nature-Based Solutions (NBS) program that includes a web-based platform that will be launched in FY18. For resilience, NBS can be categorized as "no-regret" options because they have several co-benefits by combining climate change mitigation, adaptation, disaster risk reduction, biodiversity conservation, and sustainable resource management, as well as protecting and generating livelihood opportunities. Through RCC, GFDRR is supporting a Nature-Based Solutions initiative with the objective to support Governments in the operational assessment and implementation of nature-based solutions for disaster risk management and climate change adaptation; and to further develop awareness, critical knowledge and understanding of nature-based solution applications. A web-based platform, will serve as a place for sharing good practices and innovations around the world to expand the use of NBS as effective solutions to reduce risks and adapt to climate change.

One expected activity under the initiative is a coral reef restoration project for coastal flood risk management. Coral reefs can block 95% of the wave energy from coastal storms, and can therefore be a more effective way to reduce coastal flood risk than mangroves, wetlands or sea walls. While there have been projects on coral reef restoration, the World Bank has never explicitly focused on this type of project for coastal flood risk reduction. RCC is supporting this pilot project through a first full analysis of the flood risk reduction potential and implementation feasibility of coral reef restoration in a selected area, likely Madagascar or Mozambique. This project will also be supported by the expert roster that the Nature-Based Solutions initiative is establishing to support World Bank operational teams to understand, design and implement these types of projects, including cost-benefit analyses.

4.4 Resilient Cities (New)

The world is becoming more and more urban, and as part of efforts to scale up the climate resilience of cities, GFDRR is supporting a program in Africa for coastal cities. At present, cities are home to over 50 percent of the world's population and they are expected to host additional 2.5 billion people by 2050[4]. In some areas of the world, mass migration is already posing at risk fragile urban systems. Climate change and natural disaster will further exacerbate this risk, particularly on the more vulnerable urban population, perpetuating a cycle of poverty and vulnerability. People move to urban areas looking for better opportunities or forced by natural or socio-economic shocks, such as famines and conflicts. Climate change and natural disaster will further exacerbate this risk, particularly on cities lying in low elevation coastal zones most exposed to the negative effects of climate change. RCC is supporting a new City Coastal Resilience Africa (CityCORE Africa) program with the objective of improving the resilience of selected coastal cities in Sub-Saharan Africa, by enabling coastal resilience policies and investments through improved knowledge on climate and disaster risk, institutional capacity diagnostics and stakeholder dialogues. In pilot cities, the project will deliver packages of technical, financial and policy engagement proposals to mobilize in-depth technical works to leverage city coastal resilience investments and policies.

5. The way forward

GFDRR will increase the use of available funds to assist countries to jointly address climate and disaster risks and ensure investments across development sectors are designed taking into account dynamic and future climate risks building resilient development. Understanding that the availability of funds is inevitably going to be outstripped by demand, GFDRR remains committed to investing in developing the most efficient solutions, tools and methodologies to achieve the greatest impact in building resilience. Results visibility, monitoring and evaluation of resilience will also continue to be an important part of GFDRR's work. In addition, GFDRR will continue to work with others, coordinating efforts, exploring synergies and complementarities to help bring programs to the scale necessary to help countries achieve the goals of the Paris Agreements and the Sendai Framework targets protecting sustainable development.

[4] UN Habitat, 2009. State of the World's Cities Report 2008/9: Harmonious Cities. http://unhabitat.org/books/state-ofthe-worlds-cities-20082009-harmoniouscities-2/