

GFDRR

BRINGING RESILIENCE TO SCALE



Aerial view of the devastation in Roseau, Dominica on September 28, 2017. Hurricane Maria inflicted catastrophic damages and at least 15 deaths in this Caribbean island. (Photo by Jose Jimenez Tirado/Getty Images).



Bringing resilience to scale

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Notes: Fiscal year (FY) runs from July 1 to June 30; the financial contributions and expenditures reported are reflected up to June 30, 2018; all dollar amounts are in U.S. dollars (\$) unless otherwise indicated.

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MEXICO



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(ACP) SECRETARIAT



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UNITED
NATIONS
DEVELOPMENT
PROGRAMME



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DISASTER RISK REDUCTION



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SPAIN



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Foreword

The 2018 financial year was marked by disasters. Some, like the earthquakes in Mexico or the eruption of the Fuego volcano in Guatemala, were the result of unavoidable natural hazards. Others, such as the devastating flooding in South Asia or the droughts across the African continent, and the hurricanes and cyclones in the Caribbean and Pacific regions, were exacerbated by the impact of climate change or rapid urbanization, or a combination of the two.

The frequency and intensity of extreme weather events is increasing, as is the exposure of poor and vulnerable communities. These factors highlight the continued importance of investing in Disaster Risk Management (DRM) and building resilience. As this report reflects, the Global Facility for Disaster Reduction and Recovery (GFDRR) continues to grow its portfolio at 10 to 15 percent annually. In FY18, the GFDRR portfolio totaled \$252 million, approximately 90 percent of which was dedicated to ex-ante DRM which includes risk identification, reduction, and preparedness, and reduces losses and damages from disasters.

Investing in preparedness is critical. But natural hazards will always be with us, and responding quickly reduces the overall costs; as a result, about 10 percent of GFDRR's portfolio supports activities linked to post-disaster and resilient recovery interventions. As the recent *Building Back Better* report shows, annual losses in global well-being could be reduced from \$555 billion to \$382 billion, and lives and livelihoods are more likely to be saved, if countries build back stronger, faster, and more inclusively after a disaster. New technologies are disrupting the damage and loss landscape, allowing for faster assessments after events. At the same time, governments and communities are increasingly involved in recovery and resilience activities: around 40 percent of GFDRR's active grants build social resilience with the participation of affected communities.



Felice Zaccheo
GFDRR CG Co-chair



**Ambassador
Leonard-Emile Ognimba**
GFDRR CG Co-chair



John Roome
GFDRR CG Co-chair

GFDRR continues to work with a range of partners in scaling up investments in disaster risk management in developing countries, in alignment with the Sendai Framework for Disaster Risk Reduction, and supporting the achievement of the Sustainable Development Goals (SDGs) and the Paris Agreement. FY18 marks the 10th anniversary of GFDRR, and the 10th anniversary of the tripartite agreement with the EU and the United Nations Development Program (UNDP) for post-disaster needs assessments (PDNAs). We commend GFDRR's donors and secretariat for their achievements in the last decade, and look forward to seeing what we can do together to meet the challenges of the future.

FY18 also brought change to the management of GFDRR. After six years as head of GFDRR, Francis Ghesquiere has moved into a new role in the World Bank Urban and Disaster Risk Management Practice, based in Singapore. Julie Dana steps into the position, bringing expertise from a number of roles she has held for over 15 years in the World Bank Group, most recently in the Finance, Competitiveness, and Innovation Global Practice. We wish her continued success in the position and offer her our wholehearted support.

Much was achieved in the last fiscal year, and in the decade preceding it, but more is to be done. During this new financial year, communities around the world have already been affected by numerous disasters, and vulnerability and risks are increasing in many places. At the same time, disruptive technologies, from artificial intelligence to machine learning, are changing the landscape of solutions; private sector partners are increasingly sharing expertise and knowledge; and policy makers are recognizing that preparation and planning pay off. We are confident that GFDRR will meet the challenges going forward by drawing on a combination of strategic and technical expertise, innovation, commitment, and partnership to help countries and communities continue to bring disaster risk management and resilience to scale.



Fisherman's Wharf, Accra, Ghana. Photo: aroundtheworld.photography

EXECUTIVE SUMMARY

This report highlights the results achieved during fiscal year 2018. It provides an overview of GFDRR's activities as implemented in countries across its eight areas of engagement. The report also outlines GFDRR's contribution to the global resilience agenda over the period, and its efforts to develop innovative solutions, tools, and analytical products for strengthening the global knowledge base for disaster risk management.

Executive Summary



Julie Dana
Head, GFDRR

Introduction

Fiscal year 2018 (FY18) was punctuated by a succession of serious disasters. In the Caribbean, Hurricane Irma caused almost total destruction on the island of Barbuda, and in the Pacific, Cyclone Gita caused \$186 million in damages in Tonga. Monsoon flooding devastated South Asia, with 41 million affected in Bangladesh alone. The Puebla earthquake struck central Mexico, with the loss of 370 lives and the collapse of buildings in Mexico City, and in Guatemala, as many as 3,000 people died in the eruption of the Fuego volcano.

These were just some of the better-documented disasters—flooding in China, Peru, and Zimbabwe, and landslides in Colombia, Sri Lanka, and Sierra Leone may have received less coverage but were no less devastating for affected communities. For many observers, it was the year that climate change became a frightening reality rather than a theoretical future menace. It is already contributing to the frequency and intensity of disasters, its impact magnified by rapid and increasing urbanization in the developing world, and exacerbated in countries afflicted by fragility, violence, and conflict.

Against this backdrop, GFDRR's portfolio continues to grow at the rate of 10–15 percent per annum. In FY18 139 new grants and commitments totaling \$53 million were approved, bringing the active portfolio to \$252 million, supporting 394 activities and 136 countries. These grants address the full range of natural hazards, with flooding, earthquakes, and landslides receiving the greatest share. GFDRR continued to track the contribution of the portfolio in helping countries achieve the Sendai Framework's priorities and targets for disaster risk reduction. 45 percent of grants contributed to the reduction of damage to critical infrastructure and basic services, and 41 percent helped to reduce economic losses from disasters. The portfolio continued to support the achievement of the Sustainable Development Goals (SDG's).

About This Report

This Annual Report highlights the progress and results achieved during FY18. It provides an overview of grant making activities in six regions and across GFDRR's eight targeted areas of engagement, and a section of Special Features explores various areas of work in greater depth. The report also provides information on the Facility's financial health. Over the past fiscal year, GFDRR strengthened its reporting, and monitoring and evaluation (M&E) systems through the development of an updated Logical Framework and underpinning results indicators. These align with the FY18–21 strategy and provide the Facility with a better understanding of outcome-level progress and trends within the portfolio. GFDRR is committed to further strengthening its M&E practice, ensuring that evidence and lessons from across the portfolio are available to inform management decisions. Results of the FY18 program, as measured against the results indicators, are available in the report's annexes. Additionally, data points gleaned through the M&E system are available throughout the report, providing more information on GFDRR's portfolio trends and progress.

Regions

Core to GFDRR's vision is helping countries bring resilience to scale. Active grants in 2018 enabled engagements in 136 countries across all six regions.

The **Africa** region had the largest portfolio of GFDRR's active grants, with \$59 million supporting 83 grants in 49 countries; \$9 million was awarded in 32 new grants in FY18. There is also an increased tendency to work across borders—in FY18, around 30 percent of activities in Africa covered more than one country. Focus areas for the year were hydromet, disaster risk financing, resilient recovery, and coastal resilience. Urban resilience is also a priority: an engagement in Antananarivo in Madagascar increases the resilience to flood risk of poor communities in a rapidly growing city.

In the **East Asia and Pacific (EAP)** region, GFDRR had a mature active portfolio of \$36.8 million in 56 grants, many of these in financial protection, hydromet, and early warning systems (EWS). In FY18, investments totaling \$6.4 million supported 16 new grant activities in 18 countries. These included investments in financial planning for disaster recovery, city resilience, resilient infrastructure, and post-disaster recovery. Grant activities in the heritage site of Bagan in Myanmar show how Disaster Risk Management (DRM) may be used to improve the economic resilience of communities and regions.

In **Europe and Central Asia (ECA)**, GFDRR had an active portfolio of \$29.7 million in 42 grants, up from \$22 million in FY17 due to increasing interest in seismic risk. Investments supported seismic resilience in Bulgaria, resilient infrastructure in the Western Balkans, safer schools in the Kyrgyz Republic, Turkey, and Armenia, and flood prevention in Serbia. In Tajikistan, a country affected by a wide variety of natural hazards, from earthquakes to flooding, GFDRR and development partners have invested in risk-informed design for the building of more resilient transportation infrastructure.

GFDRR had an active portfolio of \$24.1 million in 66 grants in the **Latin America and the Caribbean (LAC)** region, where 31 new grants for \$7.1 million were approved in FY18, benefiting 26 countries. Response to disasters was a major focus for the year: GFDRR helped countries with damage and loss assessments, and assisted governments in the development of national DRM strategies. GFDRR also invested in resilience activities, helping build urban resilience in Nicaragua and Paraguay, and mainstreaming fiscal and economic resilience in small island states, including St. Lucia and Belize. In Dominica, GFDRR's support for a risk-based asset management system helps the government identify optimal investment strategies to reduce the vulnerability of roadways against hazards.

In the **Middle East and North Africa (MENA)** region, GFDRR had an active portfolio of \$7.7 million in 15 grants, with \$2.1 million in new commitments in FY18. The portfolio is in its early stages, focusing mainly on advocacy, risk awareness, and the initial stages of policy dialogues, with an emphasis on urban resilience and DRM in conflict-affected countries. Working with governments and municipalities across the region, GFDRR helped to develop programs to build urban resilience through the understanding of hazards, and helped

national governments develop strategies for the reduction of risk. In Yemen, GFDRR is helping involve communities to identify infrastructure projects that are suited to their needs.

In **South Asia**, a region where countries are experiencing benefits from multiyear investments in pre-disaster planning, GFDRR had an active portfolio of \$28.7 million over 33 grants, with \$7.7 million committed in FY18. There is increasing demand in the region for work on seismic risks, and for the strengthening of hydromet services and early warning systems. In FY18 GFDRR helped design a \$100 million project for the improvement of Pakistan's hydromet and climate services. Grants improved financial resilience, both at the country level, and at the household level, with the development of disaster-resistant safety nets in Nepal and Sri Lanka. In Afghanistan, climate risk is being mainstreamed into planning and decision making, and risk information helps in the development of resilient transport infrastructure.

Areas of Engagement

GFDRR implements its strategy through eight areas of engagement that support the Sendai Framework priorities. Progress in each of these areas is measured against targets set in the annual Work Plan and in the FY18–21 strategy.

GFDRR continued to prioritize and invest in innovative practice in DRM. In FY18, 39 percent of grant funding supported **using science and innovation in disaster risk management**. Continued emphasis was placed on increasing access to risk information, with 40,000 users accessing the ThinkHazard tool in the last year. The year saw increasing interest in—and demand for—disruptive

technologies and tools in DRM, with 18 innovation projects launched under the Challenge Fund. In May 2018, Mexico City hosted the 5th UR Forum, where over 1,000 delegates explored the role of technology and innovation in the understanding and communication of risk. Community involvement in risk mapping continued through OpenDRI, with improvements in Geonode and the launch of an online course.

GFDRR took further steps to expand its investments in **promoting resilient infrastructure**, from schools into transport, water, and energy, with almost 50 percent of grants supporting activities in these areas. The Safer Schools initiative moved into its second phases, with investments of \$10.6 million in countries around the world, and the launch of the Roadmap for Safer Schools, which helps governments and practitioners design and implement risk-informed investments in school infrastructure. GFDRR also worked with the governments of Small Island Developing States (SIDS) to strengthen the resilience of transport systems by mainstreaming climate risk into investments.

Scaling up the resilience of cities is a growing priority for GFDRR, and this is reflected in the makeup of the active portfolio in FY18, 28 percent of which supported activities strengthening urban resilience in 156 cities, mostly in Africa and East Asia. GFDRR continues to support the City Resilience Program, which brings cities and investors together to address urban resilience needs. Over the past 12 months, the program has continued its engagements in over 45 cities globally with technical and financial support, and extended this support in 12 cities into a second phase aimed at attracting more private sector investment in resilience initiatives. In Accra, Ghana, GFDRR is helping improve flood risk management with multilateral and private sector finance.

GFDRR remains committed to **strengthening hydromet services and early warning systems**, informing investments in systems and technologies that provide governments and communities with timely and useable information about hydrometeorological and weather events. In FY18, grants supported 112 countries in the improvement of early warning and monitoring systems. GFDRR helped close the capacity gap between the hydromet services of advanced and developing countries through a number of events and partnerships. In Africa, a report on the state of the hydrological services of Cameroon, Madagascar, Senegal, and Tanzania provided a better understanding of their status, and performance obstacles, providing useable insights into the investment needs of developing countries.

Deepening financial protection through the joint partnership between GFDRR and the Disaster Risk Financing and Insurance Program (DRFIP) helps countries reduce post-disaster financial impacts on budgets, and protect the lives and livelihoods of poor and vulnerable populations. In FY18, 20–25 percent of grant activities contributed to strengthening the financial protection of governments, with activities supporting over 100 countries. In Africa, the Africa Disaster Risk Financing (ADRF) Program expanded the reach of risk financing instruments to 19 countries. The InsuResilience program piloted a new approach for creating an enabling environment for scaling up risk financing and insurance solutions so countries can have early financing for early action. In 2019, this program will evolve to the newly established Global Risk Insurance Facility (GRiF).

In FY18, GFDRR continued to channel support toward **building social resilience** at the local level in

developing countries. While less than 10 percent of the portfolio directly addresses this priority, over 50 percent of activities directly or indirectly benefit communities. The Social Resilience Program works mainly through Community Driven Development (CDD) and Adaptive Social Protection (ASP) programs, putting funding and decision-making power directly into the hands of poor households and communities. In FY18, work was stepped up in countries affected by fragility, conflict, and violence, such as Afghanistan, Myanmar, Somalia, and Yemen. In the Sahel region, GFDRR is working with the Red Cross Red Crescent Climate Centre to support the integration of climate risk management into social protection programs, with a focus on innovations in forecast-based action and financing.

GFDRR continued its support for **promoting the integration of climate risk and building climate resilience** in FY18: 22 countries, across all six regions, received technical assistance grants for a total of \$5.2 million. The year saw a steady increase in the number of multisector and multicountry projects launched in response to the impacts of climate and weather-related risks. In Kenya, the government received a grant for the protection of important coastal fisheries and to build the resilience of the communities which depend on them.

Recovery and reconstruction generally accounts for under 10 percent of GFDRR's portfolio. Activities in FY18 focused mainly on building capacity at the local level and helping countries impacted by disasters reduce well-being losses through quicker, more effective recovery. GFDRR supported nine post-disaster assessments in countries across four regions, and provided \$3 million for 20 just-in-time and other grants for 25 countries. FY18 saw

the 10-year anniversary of a declaration with the World Bank, the EU, and the UN that put standard procedures in place for post-crisis response. In Sierra Leone, the Africa Caribbean Pacific–European Union (ACP–EU) Natural Disaster Risk Reduction (NDRR) Program supported the government with a grant for its Post-Landslide and Floods Damage and Loss Assessment.

Financing Windows

GFDRR grants are funded through financing received from development partners. While all donors contribute to a common multi-donor trust fund, dedicated financing is received from Japan, the European Union, and the Climate Risks and Early Warning Systems Initiative.

In FY18, grants from the **Multi-Donor Trust Fund (MDTF)**, totaling over \$14 million, supported over 47 countries across six regions in mainstreaming of DRM in investment and planning strategies, and with technical support in all areas of engagement. The MDTF provides support to finance engagements that mainstream DRM into countries' development priorities; promote global dialogues and initiatives; and develop innovative tools and knowledge products. In Guatemala, MDTF funding is helping the government assess the impact of the eruption of the Fuego volcano, and define a recovery framework for the affected areas.

In FY18, the **Africa Caribbean Pacific–European Union (ACP–EU)** Program committed \$5.5 million in 13 grants, supporting over 30 countries in resilience-building activities. The ACP–EU Building Disaster Resilience in the Sub-Saharan Africa (SSA) Program, launched in 2015, helps build the resilience of countries and communities

against the impacts of natural disasters by strengthening the DRM capacity of Regional Economic Communities, and supporting the development of multi-risk financing strategies. The Africa Disaster Risk Financing Initiative also supports the development of multi-risk financing strategies. In the Pacific, the innovative UAV4Resilience Program helps small islands conduct risk assessments and rapid identification of damage post-disaster using unmanned aerial vehicles (UAVs).

In FY18, the **Japan–World Bank Program** committed over \$15 million in new technical assistance projects in 14 countries, with grant activities addressing natural hazards that are the greatest risk to the client countries: flooding and other hydromet events, multi-hazard events, and earthquakes. The program promoted partnerships and collaboration through international events to find solutions for climate and disaster risk. 160 experts from the public and private sectors in Japan have participated in events held by the Tokyo DRM Hub, or been deployed to developing countries. In Ghana, the program launched the second phase of the White Volta Flood Hazard Assessment Project, facilitating partnerships with Japanese universities to strengthen flood risk management through capacity building and training.

The **Climate Risks and Early Warning Systems (CREWS)** program supported 10 grants, with investments totaling \$23 million in FY18, helping vulnerable countries to improve their hydromet and early warning services. Projects included an intervention improving forecasting in mainly urban areas of the Democratic Republic of Congo (DRC), the strengthening of early warning systems in Niger, and streamlining regional and national weather forecasting and hydrological systems in the Caribbean.

Special Features

Special Features in this report explore various areas of priority with potential to grow to scale. For example, in FY18, demand for support in building resilience in countries affected by fragility, conflict or violence (FCV) has continued to grow. This is reflected in increased operations, with 37 percent of total FY18 financing allocated to 34 FCV countries, of which half are in Africa. GFDRR brings DRM expertise to bear on the challenges of conflict and fragility, working together with international partners to build resilience in these regions, where local capacity may be weak.

In fragile countries, engaging communities is extremely important, especially where ongoing conflict makes access difficult. While 40 percent of all funding for building social resilience supports activities in FCV countries, GFDRR's efforts to build resilience at the community level have continued to increase across the portfolio. **Promoting gender equality and women's empowerment** continues to be a cornerstone of efforts to build inclusive community resilience. As the implementation of the Gender Action Plan moves forward, the portfolio shows significant progress in the design of gender inclusive projects in FY18, with 72 percent of new grants being gender informed. However, gaps remain at implementation: only 56 percent of grants specify actions to address gender equality and empower women. GFDRR has continued to promote the systematic inclusion of citizens,

including vulnerable groups, in disaster risk management. In FY18, these efforts were crystalized in Action Plans for Citizen Engagement and Disability-Inclusive DRM, to be rolled out in FY19.

The reality of climate change requires multiple approaches to building resilience and strengthening adaptive capacity. One such approach is the use of **nature-based solutions (NBS)**, which GFDRR is promoting more systematically to help countries use their own ecosystems to build resilience, avoid maladaptation, and protect their biodiversity. These efforts are of special importance for small island states, which are uniquely susceptible to the impact of climate change, and particularly at risk from natural hazards. Through the **Small Island States Resilience Initiative (SISRI)**, GFDRR is providing technical and operational support to help island nations increase the scale and effectiveness of their resilience investments. SISRI also brings together a vibrant Community of Practice, providing a valuable platform for south-south knowledge sharing.

Generating and Disseminating Knowledge

GFDRR's portfolio of analytical work illustrates the value that knowledge products and analytical tools bring to practitioners and governments, helping them develop programs that work and policies that build resilience. Publications like *Aftershocks* served to communicate developments and

innovations in DRM to a wider audience, while more technical reports like *Building Back Better* provided useable data and insights for governments, communities, development partners, and practitioners.

In FY18 GFDRR once again used its convening power to bring practitioners, partner organizations, and government representatives together to advance the DRM agenda. At the UR Forum in Mexico City, over 1,000 representatives from 101 countries and 550 organizations shared compelling examples of how understanding, communicating, and raising awareness of disaster risk are the foundations of good DRM. A series of high-profile Resilience Dialogues raised the level—and profile—of discussion around DRM. Technical workshops and conferences around the world built capacity in a range of disciplines among practitioners and government representatives—almost 700 government officials from 22 countries, for example, attended training to build local capacity to assess disaster impacts and develop recovery frameworks. Finally, GFDRR joined forces with partners to participate in global fora, such as COP23 in Bonn, the World Bosai Forum in Sendai, and the World Urban Forum, helping to strengthen the network of partnerships in DRM and to promote resilience globally.

How GFDRR Works

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.

OPERATING PRINCIPLES GFDRR's strategy is underpinned by seven operating principles: Demand-driven. Leveraging Finance and Development Policy. Inclusive Approach. Gender. Addressing Disaster and Climate Risk. Knowledge. Results-oriented.

IN-COUNTRY ENGAGEMENTS GFDRR channels funding to in-country engagements. It awards grant resources based on established criteria aligned with its operating principles. To help countries bring resilience to scale, many of the activities target interventions that leverage larger development programs. GFDRR operates across six regions: Africa; East Asia and Pacific; Europe and Central Asia; Latin America and the Caribbean; Middle East and North Africa; and South Asia.

IMPLEMENTATION GFDRR supports technical assistance and analytical work that leverages financing by international financial institutions—including IBRD, IDA, and the Climate Investment Funds—to test and scale innovations that ensure that investments enhance resilience and reduce risks. The World Bank is GFDRR's main implementing partner, and provides the facility with the opportunity to leverage development investments well beyond the resources it manages, maximizing development impact.

FINANCING WINDOWS GFDRR funds demand-driven technical assistance through development partners. While all donors contribute to a common multi-donor trust fund, dedicated financing is received from the Government of Japan, the European Union, the Climate Risks and Early Warning Systems Initiative, and the Climate Risk Finance and Insurance Program.

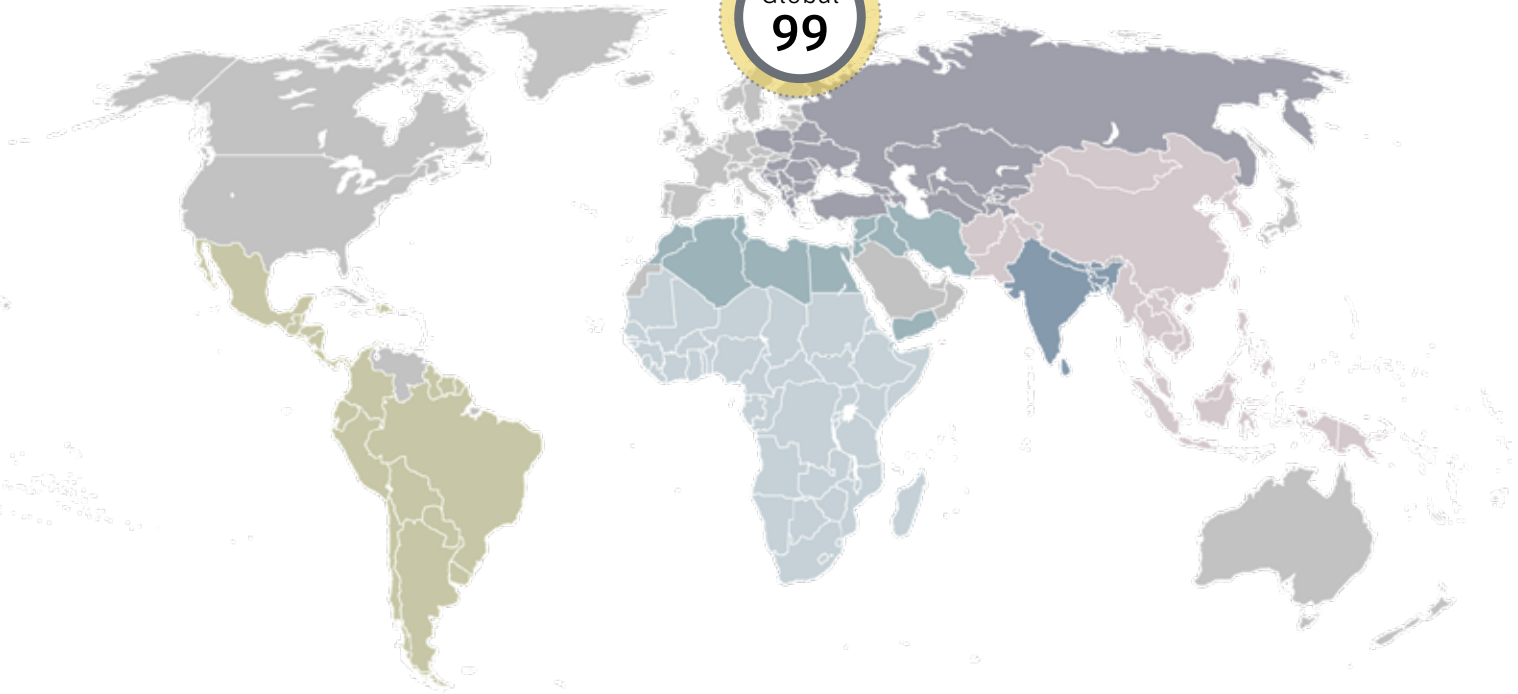
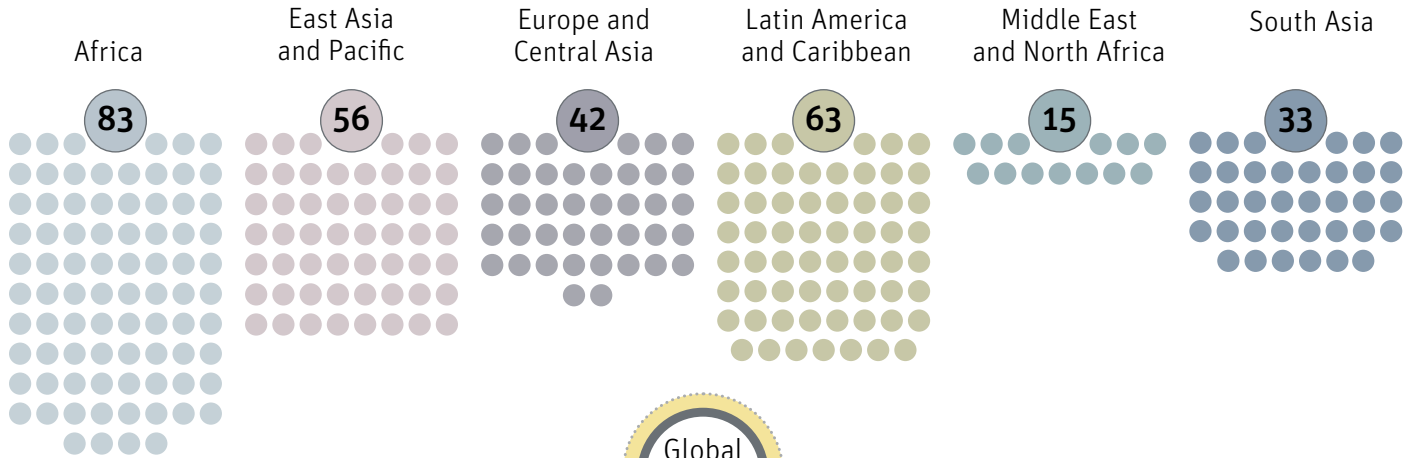
AREAS OF ENGAGEMENT GFDRR currently executes its strategy through eight areas of engagement that support implementation of the Sendai Framework priorities and the Paris Agreement, and that contribute to the achievement of the Sustainable Development Goals. In FY18, these areas were:

- Using science and innovation in disaster risk management
- Promoting resilient infrastructure
- Scaling up engagements for city resilience
- Strengthening hydromet services and early warning systems
- Deepening financial protection through disaster risk financing and insurance
- Building social resilience
- Deepening engagements in resilience to climate change
- Enabling resilient recovery

GFDRR's vision is a world where resilient societies manage and adapt to ever-changing disaster and climate risk, and where the human and economic impact of disasters is reduced.

Bringing Resilience to Scale

Number of active grants per region



In FY18, GFDRR's portfolio highlighted five themes

Urban Resilience

28% of FY18 funding supported urban resilience activities in **156** cities in **76** countries

Social Resilience

40% of FY18 funding supported social resilience, and **34%** of activities support engagement at community levels

Recovery and Reconstruction

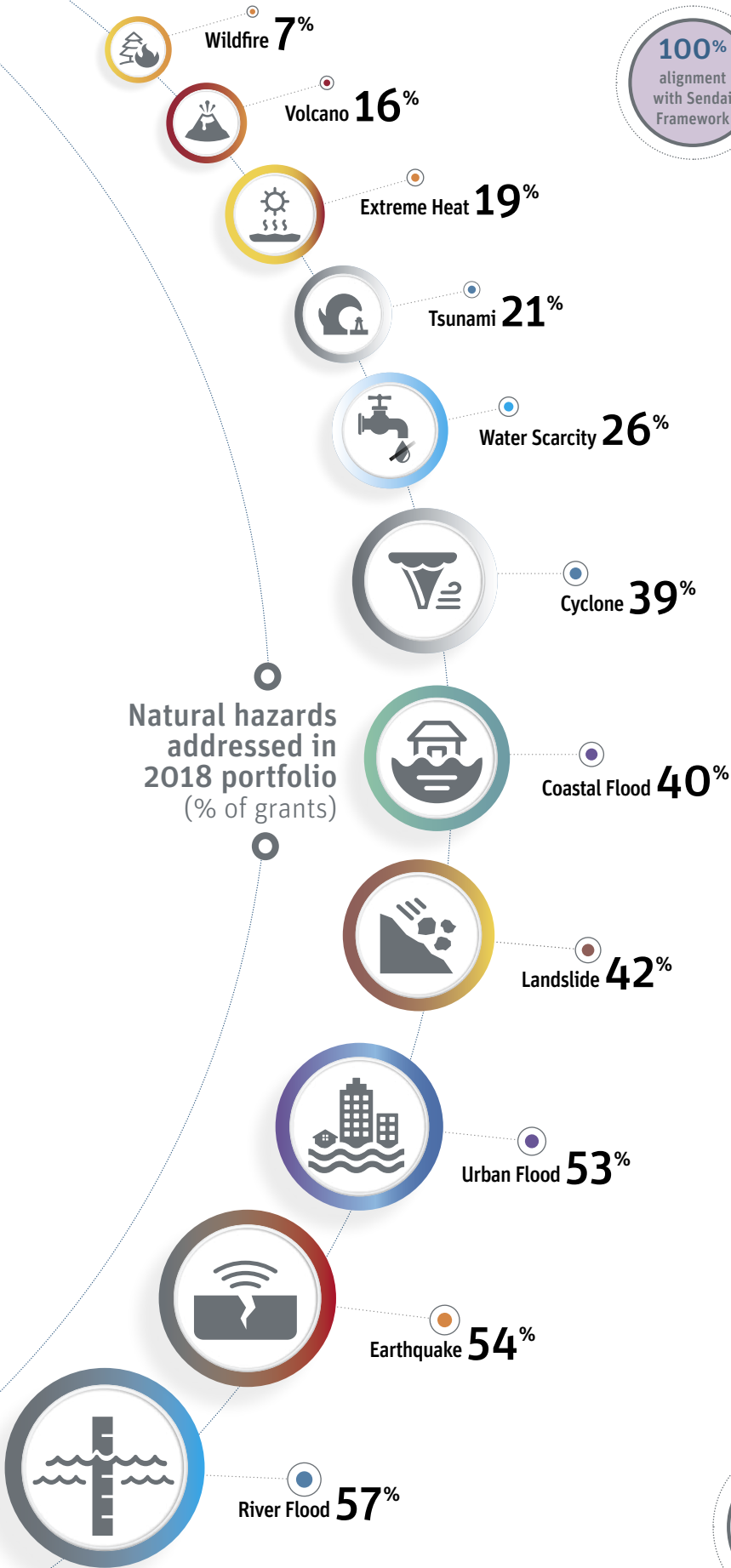
23% of FY18 funding supported resilient recovery activities. **523** officials in **22** countries trained to assess disaster impacts and develop recovery frameworks

Financial Protection

30% of FY18 funding supported **106** countries in financial protection activities

Fragility, Conflict, and Violence

37% of FY18 funding builds resilience in FCV countries—**45%** up from FY17



100% alignment with Sendai Framework

83% approved grants support resilience to climate change

139 newly approved grants in FY18

394 grants in active portfolio

2018 in Numbers

\$252 million in active commitments

136 countries supported

72% of newly-approved grants gender informed

50% of grant activities with communities as beneficiaries



IN-COUNTRY ENGAGEMENTS

GFDRR channels financing to in-country engagements that help strengthen local capacity, and awards grant resources based on criteria aligned with its operating principles. Core to GFDRR's vision is helping countries bring resilience to scale. As such, many of GFDRR activities target interventions that inform larger development programs. In FY18, GFDRR leveraged nearly \$6.1 billion in development finance from the World Bank and development partners.



Africa

Rapid urbanization and the impact of climate change are changing the disaster risk profiles of African countries. Past challenges had primarily to do with drought and food security, but climate-related and hydrometeorological events like floods and cyclones loom larger today. This shift is prompting important changes to the disaster risk reduction agenda in the region and will lead to a rapid expansion of the urban resilience agenda on the continent.

Scaling up engagements for city resilience

Africa is the fastest urbanizing continent and faces mounting challenges as the population rapidly concentrates in under-resourced cities. To help meet this challenge, national and local governments have received technical assistance in the planning, design, operation, and financing of resilient infrastructure, and in the delivery of effective policy and governance tools to improve city management for disaster resilience. GFDRR's efforts to help **Madagascar** better understand and quantify the link between poverty, urbanization, and disaster risks enabled the government to design, with support from the World Bank, a \$75 million plan to improve urban resilience in Antananarivo. A similar approach led **Ghana** to increase its focus on urban resilience and to prioritize \$100 million of World Bank financing for Accra's resilient development.

Africa's long and exposed coastline, many river mouths, and populous coastal settlements make climate-related threats to coastal cities a growing issue for the continent. The urban population in Africa living in low-elevation coastal zones will grow from 4 million people in 2000 to an estimated 100 million people by 2060. In FY18, 17 projects supporting technical assistance related to urban resilience received grant resources. One of them, the City Coastal Resilience Africa initiative, will increase resilience financing in coastal cities in **Côte d'Ivoire, The Gambia, Kenya, Mauritania, Mozambique, Senegal, Sierra Leone, Somalia, and Tanzania.**

Strengthening hydromet services and early warning systems

The Africa Hydromet Program now provides technical and policy-level advisory services in eight African countries that will invest in modernizing hydrological and meteorological services and systems. Because of this program, approximately \$200 million is supporting active and upcoming hydromet projects in **Burkina Faso, Chad, the Democratic Republic of Congo, Mali, Niger, and Togo.** These investments will protect people, preserve livelihoods, and promote prosperity in climate and disaster hotspots.

Deepening financial protection

Governments in the region continue to receive support accessing financial tools and products that help protect national budgets and provide quick access to finance in the event of a disaster. Such support helped **Kenya** access a \$200 million contingent credit in FY18. In



Cabo Verde and **Malawi**, technical assistance for strengthening national DRM frameworks and integrating DRM into sector policies is helping those countries meet Sendai commitments. Demand for contingent lines of credit is increasing across Africa, and technical support is under way to support improvements in institutions and public financial management systems that support the use of risk financing instruments.

In **Mozambique**, the Ministry of Finance is receiving assistance to establish a disaster fund in accordance with international technical, fiduciary, and contingency planning standards.

Enabling resilient recovery

GFDRR continues to support emergency response and recovery processes when needed, and to help affected countries strengthen systems and infrastructure to better withstand future shocks. In **Sierra Leone**, two projects—a comprehensive qualitative risk assessment and mapping for Freetown, and a landslide and flood damage and loss assessment—led to the \$10 million Emergency Recovery Project to support resilient recovery, help rebuild infrastructure, and strengthen DRM and early warning capacity.

In **Somalia**, the government requested support institutionalizing the country's Drought Resilience and Recovery Framework. This is a major step toward developing a larger strategy for policy making and for institutionalizing and financing economic recovery and long-term development in the country.

In Focus Improving urban resilience in Greater Antananarivo, Madagascar



Antananarivo. Photo: © Javarman | Dreamstime.com

Madagascar is witnessing rapid urbanization. Around 3 million people live in the metropolitan area of Greater Antananarivo, the capital city, and every year, an estimated 100,000 to 150,000 new residents are added to the metropolitan region, either through natural population growth or through migration. Since 2003, there has been a 50 percent increase in Antananarivo's built environment, including significant growth in flood-prone areas.

The Urban Poverty and Resilience Study for Greater Antananarivo helped reveal the spatial distribution of poverty and vulnerability to flooding across the city, as well as the dynamics of poverty and risk. It also informed

the design of the recently approved \$75 million Integrated Urban Development and Resilience Project for Greater Antananarivo.

The project will enhance the climate resilience and urban living conditions of more than half a million poor people living in the most vulnerable areas of Greater Antananarivo, specifically by improving drainage and flood protection infrastructure, improving urban living conditions and livelihoods, and enhancing resilient urban governance and disaster preparedness. This project is a significant opportunity to bring positive change to some of the poorest and most vulnerable urban areas in Antananarivo.

“This project will help people live with more dignity by preventing the flooding of homes every rainy season. Moreover, in the long run, this project will contribute to restructure the urban landscape by reintegrating these forgotten neighborhoods into the urban system.”

—Benjamina Ramanantsoa Ramarcel, Minister of Presidential Projects, Country Planning and Equipment, Madagascar

East Asia and Pacific



East Asia and Pacific (EAP) is the world's most disaster-prone region, where a person is five times more likely to be affected by disaster than in other area of the world. As the frequency and strength of disasters increases, urban centers across the region become ever more vulnerable. In FY18, activities in at least eight countries across EAP helped mobilize \$815 million in additional development finance, helping to achieve outcomes in priority areas, including financial protection, urban resilience, and the protection of critical infrastructure.

Strengthening financial planning for disaster resilience

Innovative risk financing mechanisms are helping countries in the region protect themselves against economic shocks due to natural disasters. In **Cambodia**, a project with the Ministry of Economy and Finance is increasing awareness of and capacity related to disaster risk financing and insurance options. It is also allowing the ministry to explore ways to integrate DRM across development policies and planning.

In addition, the Southeast Asia Disaster Risk Insurance Facility (SEADRIF) is enhancing financial resilience in Southeast Asia. As the first multi-country catastrophe risk pool in the region, it provides **Cambodia, Lao PDR**, and **Myanmar** with quick liquidity immediately following disasters.

Scaling up engagements for city resilience

EAP currently has the world's largest urban population, estimated at roughly 1.2 billion (or one-third of city residents globally), with one of the fastest urbanization rates. Increasingly, technical assistance is supporting investments in urban resilience throughout East and Southeast Asia. For example, in **Vietnam**, funding has focused on promoting and enhancing resilient urban planning and investments. This support has helped identify bottlenecks preventing the integration of climate and disaster risks into urban and transport planning, introduced corrective measures into city planning, and facilitated the introduction of hydrometeorological models into the technical design of infrastructure interventions.

Promoting resilient infrastructure

Governments across the region continue to improve the resilience of new and rehabilitated infrastructure. In FY18, there has been an effort to bring together governments, the private sector, and civil society so that countries seeking to invest in resilient infrastructure can access the best experience and technical expertise available. For example, the participation of Myanmar officials in a Technical Deep Dive for Resilient Infrastructure (Tokyo, May 2017) and a peer-to-peer exchange on sustainable approaches in infrastructure (February 2018) led the government to take natural hazard assessments into account in transport infrastructure design for the first time.

Enabling resilient recovery

The frequent occurrence of disasters in the region has led to regular support for clients conducting damage and loss assessments, planning and implementing resilient recovery and reconstruction programs, and strengthening financial resilience to natural hazards, especially in the Pacific. Post-disaster damage and needs assessments were carried out in **Vietnam** (Khanh Hoa Province) following Typhoon Damrey (October 2017) and in **Tonga** following Tropical Cyclone Gita (February 2018). These assessments included the development of recovery frameworks promoting a “build back better” approach for key buildings and infrastructure. In the case of Tonga, very high resolution aerial images taken before and after the cyclone informed the post-cyclone recovery process, in particular, school reconstruction plans.¹

Deepening engagements in resilience to climate change

GFDRR is helping small island states in the Pacific build pipelines of investments to enhance resilience against the impacts of climate change, from safeguarding coastal areas to building safety nets that protect citizens after disaster strikes. For example, the government of **Tonga** is strengthening DRM measures, better identifying and understanding risks, strengthening financial resilience, and building back better after disasters. In FY18, Tonga's National Disaster Management Office strengthened its early warning system (EWS) centers by establishing and/or repairing nine EWS stations, fully equipping provincial disaster coordination centers, and updating the National Disaster Management Office Act.

¹ The images are available at openaerialmap.org.

In Focus Improving disaster risk management for cultural heritage sites in Myanmar



Pagodas in Bagan. Photo: Fyletto

Situated in the Mandalay region of modern Myanmar, Bagan was once the heart of the largest Buddhist empire of the medieval world. It is a site of immense cultural importance, possessing nearly 3,600 surviving tangible cultural assets, including temples, monasteries, a palace site, and water management features, which generate economic opportunities and revenue for the country and local communities. In August 2016, a 6.8 magnitude earthquake put Bagan in jeopardy—as well as the communities that engage with the site and depend on it for their livelihoods—by severely damaging more than 50 historical monuments.

Following the earthquake, a technical assessment led by the Department of Archeology and National Museums of the Ministry of Religious Affairs and Culture identified, among other issues, the need to improve the disaster risk management and preparedness of the site.

In FY18, with support from the Tokyo World Bank Hub and the Japan–World Bank Program for Mainstreaming DRM, the Bagan Disaster Risk Management Plan was completed as part of Myanmar’s submission of Bagan to UNESCO for consideration as a World Heritage Site. The first of its kind to be developed in Myanmar, the plan helps government and other stakeholders better understand the risks to Bagan,

clarifies relevant management frameworks, and captures the current DRM measures in place. It sets out specific actions for strengthening and implementing measures to better address the risks to Bagan (and their drivers), which need to be integrated into the management and protection of the site going forward. These measures include the creation of a seismic hazard micro-zoning map for Bagan to ensure that the country is better prepared for future events.

The development of the plan brought together many stakeholders connected to Bagan, including government ministries, subnational agencies, international and national experts, local communities, and the private sector. Based on this successful collaboration, which is already informing government investments for enhancing Bagan’s resilience, the Department of Archeology is seeking support for the preparation of a disaster risk management plan for another historically significant site, the town of Mrauk Oo.

Such demand—from clients in Bhutan, Guatemala, Mexico, the Philippines, and Uzbekistan—has spurred the creation of the Resilient Cultural Heritage and Tourism program, which helps countries integrate measures to safeguard cultural heritage and tourism from disaster, connect officials to a network of experts, and deliver targeted guidance and knowledge to support investment and policy development.

“We have acted to assess, respond to, and restore the Bagan site following the earthquake. More importantly, we will continue our efforts to manage and reduce the risks that remain: the risks to the integrity of the site, the risks to the cultural and economic activity connected to Bagan, and the risks to the well-being of local people and communities.”

—**Kyaw Oo Lin**, Director General, Department of Archaeology and National Museums, Ministry of Religious Affairs and Culture, Myanmar

Europe and Central Asia



Floods and earthquakes in Europe and Central Asia (ECA) have claimed tens of thousands of lives and cost countries billion of dollars in recent years. However, DRM remains a low priority for many governments in this region. Assistance for recovery operations has provided an entry point for the promotion of preparedness measures and risk mitigation investments, so that governments are not merely waiting for disasters to strike. A range of measures are now in place, from the generation of analytics so that governments and local communities better understand the risks facing them, to mainstreaming of DRM into government policies and promotion of investments in critical infrastructure resilience.

Using science and innovation in disaster risk management

A new regional analysis of buildings' earthquake resilience—the first of its

kind globally—has been launched, with a pilot in **Bulgaria** on the seismic vulnerability of pre-1990 multistory apartment housing. This pilot will be scaled to other ECA countries, where buildings like this can make up 80 percent of the housing stock. This analysis moves beyond identifying the risk of damage in earthquakes to highlight critical areas of maintenance and action to extend the lifespan of these structures. It will also provide recommendations for making ongoing large-scale energy efficiency investments more sustainable by integrating them seamlessly with seismic strengthening.

In the **Western Balkans**, efforts have focused on ensuring the resilience of critical road networks. Progress has also been made in the modernization of hydrometeorological services, including a new partnership with the World Meteorological Organization (WMO) to support a multi-hazard early warning advisory service. In **Serbia**, the European Union (EU)-funded national DRM program has continued to support the government in enhancing flood prevention systems.

Promoting resilient infrastructure

In the **Kyrgyz Republic**, an investment of \$20 million has been committed to accelerate the implementation of the government-led State Program on Safe Schools and Preschools of the Kyrgyz Republic. The program will improve the safety of all 3,228 educational facilities in the country by 2024; maximize the geographical coverage of emergency warnings; strengthen national capacity for search and rescue operations; and amplify disaster insurance provisions for homeowners. In **Turkey**, with support from the EU and a budget of €150 million, the construction of 56 safer schools for Syrian refugees and host communities is under way.

To help schoolchildren in **Armenia** understand disaster risks and learn how to prepare for a disaster, an innovative new app game called “Super David” was launched. The popular app complements wider measures such as the completion of the Probabilistic Seismic Hazard Assessment (PSHA), which will be used to update seismic zoning maps.

In Focus Tajikistan develops risk-informed design to strengthen critical infrastructure



Photo: GFDRR

Tajikistan's mountainous terrain makes it highly susceptible to many natural hazards, including floods, earthquakes, landslides, and avalanches. From 1992 to 2016, natural disasters affected 7 million people in Tajikistan—more than 80 percent of the total population—and caused economic losses worth \$1.8 billion. Climate change is exacerbating Tajikistan's vulnerabilities, with 30 percent of glaciers predicted to disappear by 2050. Tajikistan also remains one of the most isolated countries in the world, a situation made worse by landslides, debris flows, and floods that can render bridges unsafe, make roads impassable, and weaken the flood defenses that protect its most exposed communities.

A new \$50 million investment will support Tajikistan in strengthening critical infrastructure against natural

hazards and climate change. This project includes the reconstruction and upgrading of bridges to increase their resilience to floods and mudflows, and the reconstruction or reinforcement of river embankments. At a national level, the project supports the overhaul of Tajikistan's national crisis center and emergency communication systems to increase the efficiency of first responders; it also supports development of a disaster risk financing strategy and improvement in the country's seismic hazard assessment capacity.

This investment in resilience builds on years of partnerships with development partners— including the United Nations Development Programme (UNDP), Aga Khan Development Network, and Asian Development Bank, among others—to assess and manage risk. In 2015, a destructive earthquake led to landslide debris flow in the Gorno-Badakhshan Autonomous Oblast (GBAO). The government requested assistance in carrying out a joint rapid risk assessment, in prioritizing actions to promote resilient transport networks and emergency management, and in developing a \$1.25 million technical assistance program under the Japan funding window to promote risk-informed infrastructure development and enhanced emergency preparedness.

Most recently, as part of this technical assistance, Tajikistan sent experts to Japan to meet with government agencies and DRM and infrastructure specialists as part of an important knowledge-sharing exercise. Insights from this exchange helped inform Tajikistan's own strategy for strengthening key transport areas throughout the country and will improve how large-scale earthquake simulation drills are executed.

“The risk-informed design that will reinforce key infrastructure assets, such as river embankments and road networks, will benefit approximately 650,000 people in target districts. This is a good illustration of how Tajikistan can simultaneously reduce disaster risks while preserving development gains.”

—Mr. Abdusalom Qurboniyon, Minister of Finance, Republic of Tajikistan

Latin America and the Caribbean



The year 2017 was devastating for the Latin America and Caribbean region, since a series of natural hazards—including hurricanes, earthquakes, mudslides, and volcanoes—caused hundreds of deaths, displaced populations and caused significant damages and losses. These events strengthened the resolve of governments across the region to proactively reduce their vulnerability to disasters and mainstream resilience in a number of ways, from damage and needs assessments to programs aimed at increasing the resilience of countries and communities.

Enabling resilient recovery

In September 2017, Hurricanes Irma and Maria, two of the most powerful Atlantic hurricanes on record, swept across the Caribbean, causing widespread damage. In **Barbuda**, close to 95 percent of infrastructure was either damaged or destroyed, and around 60 percent of houses were damaged beyond repair. The government led a rapid damage and needs assessment in response to the disaster.

In **Dominica**, Hurricane Maria resulted in 30 deaths and caused damages and losses amounting to \$1.4 billion, or 226 percent of GDP, with the greatest damages occurring in the housing and transport sectors. A post-disaster damage and needs assessment was conducted, and the government has

received support for a \$40 million housing recovery project, as part of a larger \$115 million package of support with a focus on delivery of homeowner subsidies for reconstruction.

In **Ecuador**, following the April 2016 earthquake, the government decided to involve both the public and private sectors in promoting the concept of shared responsibility. Activities supporting the Risk Management Secretariat (SGR) enabled the development of a national disaster response strategy and a methodology to build sectoral disaster risk management agendas that cover Ecuador's various hazards and risks. Agendas for the water and transport sectors were completed, and the National Disaster Plan was approved by the President in April 2018.

Following the June 2018 eruption of El Fuego volcano in **Guatemala**, which killed over 100 people and displaced thousands, the government requested support in conducting a damage and loss assessment of impacted areas. This will be completed and potential interventions determined in the new fiscal year.

Scaling up engagements for city resilience

A one-year multi-stakeholder consultation process with the Municipality of Managua in **Nicaragua** produced a Strategic Plan for Disaster Risk Management and Urban Resilience, which was formally approved in May 2018. Two key activities included in the plan are the creation of a new Municipal Unit for DRM and Climate Change, and the design of a slum-upgrading program in four neighborhoods.

In **Honduras**, the Municipality of Puerto Cortes has undertaken a decentralization process by developing a strategic document to support the inclusion of DRM priority actions directly in the Municipal Development Plan. The strategic action lines are based on disaster risk scenarios that were built from available information and supported by a consultation process with the Garifuna and Afro-descendant communities and the municipal technical teams. The “Puerto Cortes approach” is being used as a model for the development of similar strategic documents in 18 other municipalities.

Deepening financial protection

In FY18, governments in the region received over \$50 million in support for disaster risk financing. Through the Caribbean Disaster Risk Financing Technical Assistance Project, GFDRR and the World Bank have collaborated with the Ministries of Finance in **Belize**, **Grenada**, **Jamaica**, and **Saint Lucia** to design cost-effective, tailored strategies that will help each country improve their fiscal resilience to disasters.

In the **Dominican Republic**, financial support facilitated the technical preparation of a \$150 million Catastrophe Deferred Drawdown Option (Cat DDO)—the first of its kind in the Caribbean. Governments also received assistance in advancing policy reforms to incorporate disasters and climate-related risks into both fiscal and debt management, while enforcing zoning regulations, building codes, and safety standards for public infrastructures, with a focus on schools and health facilities.

In Focus The road to resilience in Dominica

Dominica State College. Photo: GFDRR



months for the roadway system to recover, and damages resulted in a major setback to the government’s ambitious rehabilitation program. Two years later, Hurricane Maria caused significant damages to the transportation sector as well as to the agriculture, housing, and tourism sectors, with losses amounting to over 220 percent of the country’s 2016 GDP.

One key recommendation arising from the damage and loss assessments conducted after these disasters was for the government to implement a risk-based asset management system (AMS) that could track construction activities and continuously assess infrastructure conditions. Such a system would require a comprehensive and detailed vulnerability assessment for the road network and would be used to prepare a

multiyear investment action plan.

With a population of 73,500 and a land mass of 750 km², the Commonwealth of Dominica is a small Caribbean island that is prone to hurricanes, earthquakes, landslides, and floods.

These hazards take a toll on the country’s transport system: the many roadways built on steep, mountainous topography, for example, are at risk of landslides; and the many culverts and bridges associated with the country’s 365 rivers have become increasingly vulnerable to flood risks.

Without sufficient redundancy in transport networks, most of the roads must perform acceptably during natural disasters, and should at a minimum be accessible to first responders. However, the cost to construct or maintain infrastructure assets that perform well is remarkably high in Dominica. Road maintenance, slope stabilization, and drainage facilities are critical to assure performance and allow for continuous operation of roadways, but these measures are often delayed or suspended due to budget limitations.

After Tropical Storm Erika in 2015, around 60 percent of the roads in the country were inaccessible. It took several

Consultations involving key stakeholders—the Ministry of Public Works; the Ministry of Housing, Lands and Water Resource Management and its Lands and Surveys Division; and the Water and Sewerage Company—were held after Tropical Storm Erika. These informed the scope of the AMS that was mobilized in earnest following Hurricane Maria. The completed AMS developed for Dominica’s roadway infrastructure now includes (i) a framework to integrate hazard risk into asset management decision making; (ii) a low-cost data collection and condition assessment approach for roadway networks; and (iii) a decision support system with resource allocation optimization and projection prioritization capability.

The AMS is integral in helping the Ministry of Public Works and Ports identify optimal investment strategies to reduce the risk and vulnerability of roadways against hazards, and to maintain functionality and performance at an acceptable level. It is paving the way for Dominica to become a leader in climate resilience in the region.

“This is one part of a comprehensive plan to help Dominica become the first climate-resilient country in the region. In the process, this will help save millions of dollars in recovery and reconstruction costs through building resilience in infrastructure.”

—Lucien Blackmoore, Permanent Secretary for the Ministry of Housing and Lands, Commonwealth of Dominica

Middle East and North Africa



In the Middle East and North Africa (MENA) region, drought, flooding, and earthquakes continue to threaten the people and economies of many countries. Water scarcity, climate change, and rapid urbanization have aggravated the impact of natural hazards in a region where 3 percent of the surface area is home to 92 percent of the population. Disaster recovery in the region's conflict-affected countries remains a particular challenge. The integration of disaster risk management into development policies and planning continues across the region, helping countries better understand the risks they face, strengthening preparedness, and enabling more resilient recovery after shocks.

Deepening financial protection

In **Morocco**, the implementation of the Morocco Integrated Disaster Risk Management and Resilience Program-for-Results improved the institutional framework for financing disaster risk reduction (DRR) activities and strengthening financial resilience to natural disasters. The program promotes institutional reform and

capacity, including the reform of the country's Resilience Fund. It supports the development of a national integrated DRM strategy that will help scale up disaster risk reduction activities; it also upgrades Morocco's risk modeling capacity and improves disaster risk financing and insurance.

Scaling up engagements for city resilience

Cities in the region continue to reduce and manage disaster risks resulting from rapid urbanization. In **Lebanon**, Phase II of the Comprehensive Urban Resilience Master Plan for the City of Beirut is designed to improve the city's technical understanding of key seismic, flooding, and coastal hazards. The project creates a centralized risk management system at the municipal level and a city resilience strategy, which will help mobilize city-level investments for risk reduction. In **Tunisia**, the Streamlining DRM in Municipal Investment and Urban Planning program raises risk awareness within communities and local governments using participatory mapping of urban floods. This involves a series of workshops, trainings, and GIS mapping in four selected pilot communes. The maps produced take into account the risk and the corresponding prevention and protection measures in the municipal

investment plans. An inventory of the main DRM activities and policies developed in Tunisia has been conducted to provide a baseline for future engagement.

Enabling resilient recovery

In ongoing engagements in fragile and conflict-affected states in the region, post-disaster methodologies are being adapted to conflict and post-conflict scenarios. In FY18 a comprehensive damage and needs assessment in liberated areas of **Iraq** evaluated the country's post-conflict need for resilient reconstruction, especially in the face of potential natural hazards. The assessment helped the government estimate the effects and impact of conflict on 20 different key sectors. Efforts to integrate a disaster risk management perspective into the sector with the largest needs—the housing sector—are already under way. The assessment was also instrumental in informing the Kuwait International Conference for Reconstruction of Iraq, which attracted pledges of over \$30 billion.

In **Djibouti**, a rapid needs assessment in the wake of Tropical Storm Sagar led to additional technical assistance to help make Djibouti City and surrounding neighborhoods more resilient to future climate change-induced disasters.

In Focus Involving Yemeni citizens in selection of projects



Yemeni family overlooking Shibam. Photo: BretecR

Projects in conflict situations face numerous risks, one of which is the risk of investing in infrastructure projects that do not correspond to community priorities, or that do not take the underlying hazards into consideration. Community participation in project selection can be a valuable tool to address these risks.

In March 2015, the Republic of Yemen descended into military conflict, concentrated in its main cities, that has caused extensive loss of life, internal displacement, destruction of infrastructure, and disruption in service delivery across the country's main sectors. The Yemen

Integrated Urban Services Emergency Project (YIUSEP) has been rolled out in response, even as the conflict continues. YIUSEP is a \$150 million investment project that focuses on restoring access to critical urban services in selected cities.

A process developed for engaging citizens in the selection of priority investments under YIUSEP focuses on the participation of women, youth, and marginalized groups. Communities will be encouraged to identify investments that improve their resilience to natural hazards, and the approach will be implemented in all cities that are covered by YIUSEP.

“Engaging with the citizens of Yemen is key to our work in the country. Technical assistance supported by GFDRR is helping the project to identify the priority needs of the local population, especially those of women and vulnerable groups.”

—Bana Kaloti, MENA Regional Director, United Nations Office for Project Services (UNOPS)

South Asia

The South Asia region is prone to a range of seismic and hydromet hazards. It is particularly affected by the impacts of climate change, which are amplified in the region's rapidly growing cities. However, it has started to experience significant benefits from increased multiyear investments in pre-disaster planning. The shift from responding to disasters to preparing for them has led to advancements in forecasting and early warning systems, reducing the impacts of disaster, and—in the case of the most recent cyclones in Bangladesh and India—saving lives. At the same time, communities in the region are beginning to mobilize and prepare themselves for disasters by adopting low-tech in-house solutions in contingency and emergency response planning.

Strengthening hydromet services and early warning systems

Building coastal resilience, strengthening climate information,

and modernizing hydrometeorological systems have been the key elements of technical engagements in the region. Investments in DRM activities continue to incorporate climate resilience measures and support for more effective community-based disaster response and preparedness. For example, following a series of dialogues about weather-related risks, **Pakistan** requested support to address hydromet challenges. Subsequent risk assessments in Sindh Province have informed infrastructure investments both within the province and elsewhere in the country. These engagements resulted in the design of a \$100 million investment in the country's hydrometeorological and climate services.

Promoting resilient infrastructure

Urbanization in the region is accelerating, exposing populations and assets to growing disaster risks. Challenges such as poor city planning and weak enforcement of building codes complicate risk reduction efforts. To build the region's capacity to address challenges of both rural and urban resilience, an inclusive approach is required. In FY18, work focused on the design and preparation of a regional



grant of \$6.1 million which will support communities in the region, particularly in **Afghanistan, Bhutan, Pakistan, and Sri Lanka**, in building capacity in utilities' inventory management and compliance with building standards, particularly for seismic resilience. Among the activities planned are detailed vulnerability assessments of lifeline systems such as water supply, drainage, power, and roads. These assessments will establish a baseline for the improvement of contingency planning, risk-informed sectoral infrastructure, asset management systems, and design standards.

Deepening financial protection

Several countries in the region including **India, Maldives, Nepal, Pakistan, and Sri Lanka** have shown interest in post-disaster risk finance, and they are exploring the opportunities through financial risk assessments. Two viable strategies might be the introduction of Cat DDOs and the development of disaster responsive safety net systems to increase the resilience of poor and vulnerable households.

In Focus Strengthening DRM and climate resilience in Afghanistan



Panj River. Photo: Konstantin_Novakovic

Due to its geographical location and years of environmental degradation, Afghanistan is highly prone to intense, recurring natural hazards such as flooding, earthquakes, avalanches, landslides, and droughts. Since 1980, disasters caused by natural hazards have affected 9 million people and caused over 20,000 fatalities in Afghanistan. Hydrometeorological disasters are a particularly significant threat. Climate change increases the incidence of extreme weather events, including heat waves, floods, and droughts, as well as climate-induced disasters like glacial lake outburst floods, avalanches, and rainfall-induced landslides.

Despite the recurring disasters, information regarding current and future climate and disaster risk has been extremely limited in Afghanistan. The country lacks adequate mechanisms for early warning, response, recovery, and resilience building, putting lives and livelihoods at risk. Difficult access to remote settlements and poor transport infrastructure make managing crisis situations particularly challenging, and increase the likelihood that hazard events turn into disasters with serious humanitarian and economic consequences. In addition, ongoing instability and insecurity have undermined Afghanistan's coping mechanisms and protective capacity.

To address these constraints, efforts are under way to mainstream natural hazard and climate change risk information into planning and decision-making processes. A key first step has been the development of a comprehensive multi-peril hazard and risk assessment at the national level, with in-depth assessments for selected geographic

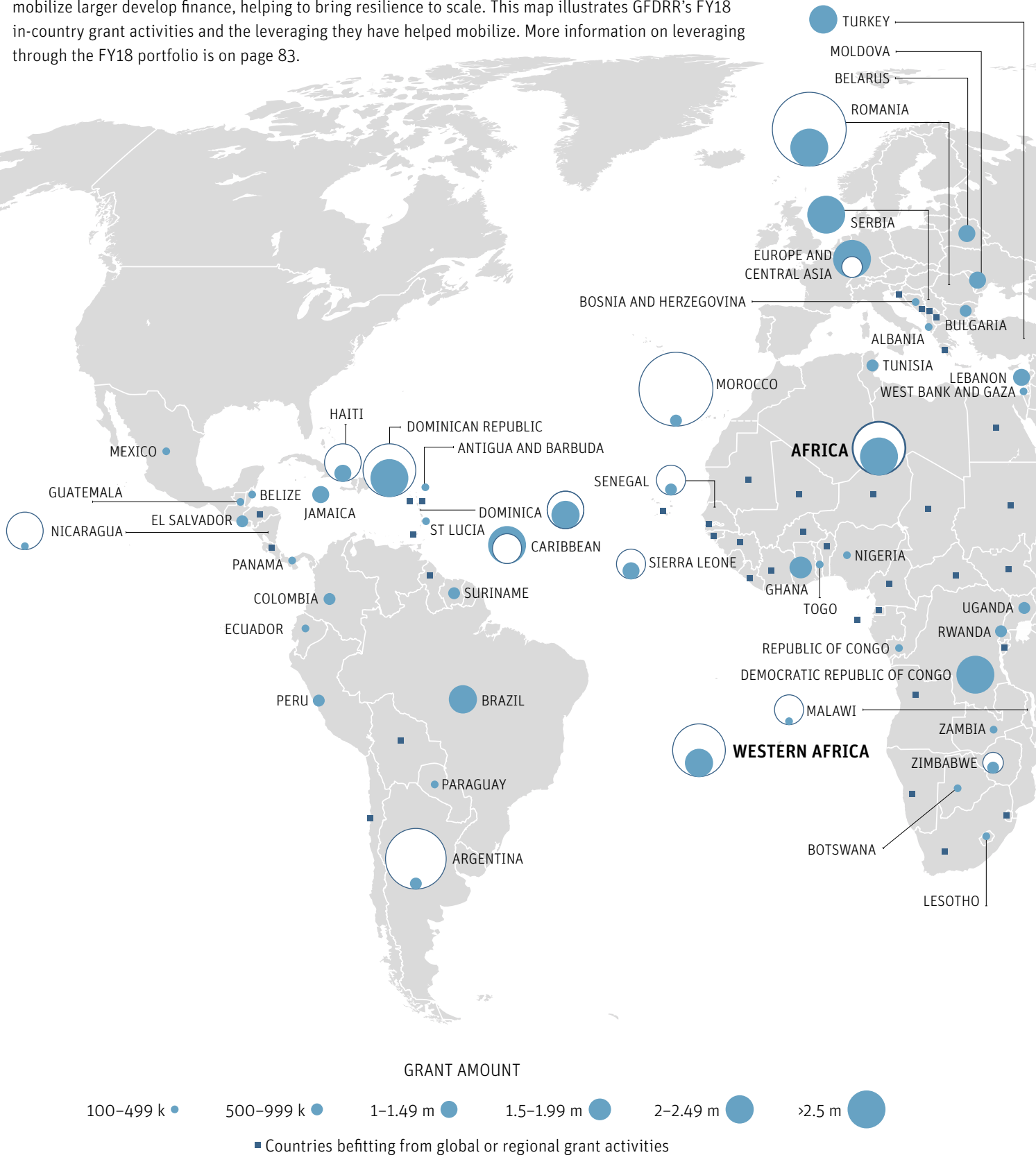
areas. Information generated through this effort has been translated into user-friendly infographics, charts, and maps to improve communication and dissemination.

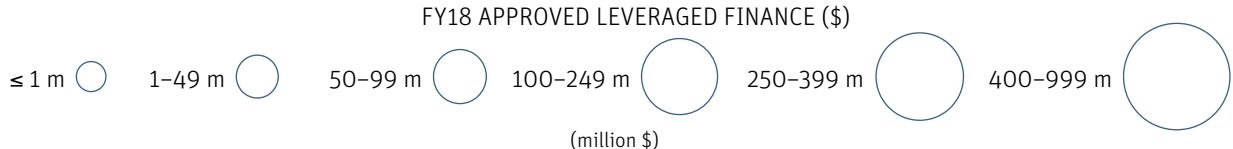
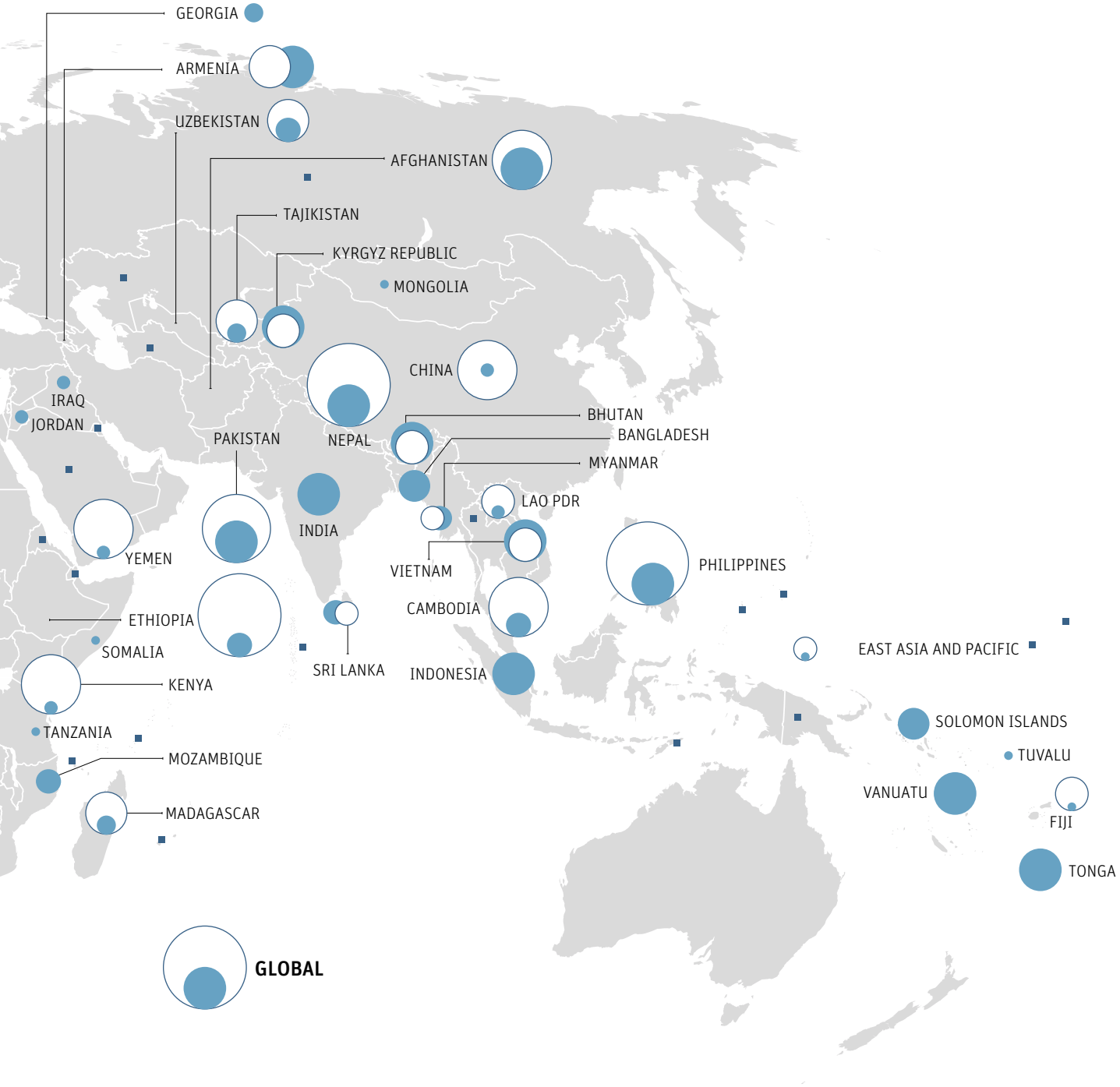
This information has been used in the development of a road map for identifying low-cost and high-priority activities to strengthen weather, climate, early warning, and hydrological services in Afghanistan, including a flood early warning system along the Panj River, which flows through Afghanistan and Tajikistan. This engagement is strengthening transboundary coordination, improving national capacity to use the available tools, and enhancing the provision of gender-inclusive weather information services using community-based dissemination mechanisms. Comprehensive risk maps are being used in the development of decision support systems for the transportation sector, to help improve the planning, design, and implementation of the road and rural infrastructure. The decision support systems and the informed geohazard risk management have been critical for investments in improving two key highways.

DRM capacity training and sensitization at the central and community level are supporting improved access to information and decision-making tools. Training modules on key aspects of disaster and climate risk management are being developed and distributed to help local governments, facilitating partners, and communities effectively identify risks and engage with stakeholders. This approach has enabled participatory risk mapping and is informing community development plans.

FY18 Portfolio and Leveraged Finance

In FY18, GFDRR grants supported activities befitting over 135 countries. Many of these grants helped to mobilize larger develop finance, helping to bring resilience to scale. This map illustrates GFDRR’s FY18 in-country grant activities and the leveraging they have helped mobilize. More information on leveraging through the FY18 portfolio is on page 83.







Presentation of the case of Wangdue Dzong onsite by Ms. Junko Mukai (Consultant) and Ms. Jigme Choden from DOC. Credit: BMG

A woman with her hair in a bun, wearing a traditional silver and red patterned garment, is looking down at an open book. The book contains a diagram of a building. In the background, there are framed photographs of a building from different perspectives, labeled 'East (Gangchiu) side', 'North (Front) side', and 'South (Back) side'. The setting appears to be a museum or gallery with traditional architectural elements like arched windows.

AREAS OF ENGAGEMENT

GFDRR implements its strategy through eight areas of engagement that support the Sendai Framework priorities. Progress in each of these areas is measured against targets set in the annual Work Plan and in the FY18-21 strategy.

Using Science and Innovation in Disaster Risk Management

For communities and governments to build resilience to natural hazards, it is essential that they have access to information about disaster risk that is understandable and actionable. Advances in science, technology, and innovation can further the understanding of disaster risk and help achieve this goal, especially when a wide variety of stakeholders across the public, private, academic, and NGO sectors form partnerships and work together.

Increasing access to risk information

GFDRR continues to increase access to information on disaster risk in a variety of ways. Under the Open Data for Resilience Initiative (OpenDRI), a new program called Open Cities Africa partners with government and local communities in 11 cities to systematically collect critical information, map risk data, and make the data openly available, while building capacity through an online collaboration platform and workshops. The Open Data for Resilience Index, a web-based platform that monitors the openness of key risk data sets across the world, indicates capacity gaps and locations where further investments need to be made.

ThinkHazard!, an easy-to-use open source hazard screening tool, has

been further improved with new data and new hazards, including urban floods, wildfires, and extreme heat. Now available in Spanish and French and embedded within the World Bank operations portal, the tool was accessed by 40,000 users in the last year. ThinkHazard! draws data from the GFDRR GeoNode; requests for the data have increased from governments and institutions wishing to have an overview of the risk profiles of critical assets like schools, roads, and hospitals.

Through various programs and activities, over 1,500 hazard, exposure, and risk data sets and geospatial layers have been opened to risk managers globally, and more than 2,000 people in 30 countries have been trained in open data and community mapping.

Disruptive technologies and tools in DRM

Building on the Challenge Fund launched in FY17, 18 innovation projects have been piloted in 20 developing countries, making use of drones, satellite imagery, and digital media to further the understanding of risk. In FY18, some of these successful pilots were replicated and scaled in Africa. FloodTags, for example, is a situational awareness tool that uses digital media, mainly from Twitter feeds, to locate—and help target responses to—flooded areas. It was piloted in the Philippines and has since been replicated in Tanzania. In May 2018, GFDRR, the World Bank, the UK Department for International Development (DFID), and the Centre

for Global Disaster Protection (CGDP), launched a new Challenge Fund call for proposals to pilot the development of innovative risk financing mechanisms. This Challenge Fund was launched in association with the program alliance of the InsuResilience Global Partnership. Interested applicants responded to challenges including: implementation of early-action mechanisms into disaster risk financing (DRF) instruments, use of big data and machine learning to improve DRF mechanisms, and application to largely untapped risks such as food insecurity.

New approaches to improving the communication of risk

In FY18, in response to demand from the Understanding Risk community, a number of publications, tools, and events have explored new ways of communicating risk information among nontechnical communities. A return period calculator demonstrates to stakeholders the likelihood of experiencing (for example) a 1-in-100-year flood in a given year. The flagship report *Aftershocks* illustrates increasing risk in a more populous and connected world by looking at the impact major historical disasters would have on today's population, assets, and GDP. Both products were launched at the 2018 Understanding Risk Forum in Mexico City, where over 1,000 attendees from around the world gathered over five days to discuss advances in risk communication, risk assessment, and disruptive technologies.

In Focus The rise of the local mapping community



OpenStreet map.

As more populations become vulnerable to natural hazards and the impacts of climate change, fostering resilience becomes increasingly challenging, requiring detailed, up-to-date geographic data on the built environment. Addressing this challenge requires innovative, open, and dynamic data collection and mapping processes that support the management of urban growth and disaster risk.

Launched in 2011, OpenDRI applies the concepts of the global open data movement to the challenges of reducing vulnerability to natural hazards and the impacts of climate change. To advance local capacity and create a community of open data practitioners and champions, partnerships have been created with public and private sector stakeholders, including the American Red Cross, the U.S. State Department, USAID, Facebook, Google X, and Apple, among others.

In FY18, a free, self-paced 30-minute online course called *OpenDRI: An Introduction to Open Data for Environmental Resilience* was launched, for both DRM practitioners and

community members. The course raises awareness and recognition of open data and open source approaches, creating capacity through partnerships at both a community and institutional level. Major improvements were made to GeoNode, an online geospatial data repository that can be tailored for different countries and uses, including through updates to many of its core features. OpenDRI also invested in key tools used by the open data community, including a mobile application for OpenStreetMap that enables community members to collect information in the field.

As the community and interest in the program has grown, OpenDRI has helped local organizations put this approach into action by supporting open data projects in 30 countries. Local organizations in countries like **Afghanistan**, **Kenya**, and **Nepal** have used OpenDRI resources and customized them to address disaster risks, and the approach has informed the design of operations in places like Accra in **Ghana**, Dar es Salaam in **Tanzania**, and Can Tho in **Vietnam**. The recently launched OpenCities Africa program, which builds upon the success of OpenCities Asia, is tackling the challenge of urban resilience in 11 cities across Africa.

Promoting Resilient Infrastructure

Basic services like transport, healthcare and education are frequently disrupted in the aftermath of a disaster. To restore and maintain them, financing and technical advice are needed to mainstream and integrate disaster risk management principles into the design of resilient infrastructure. The success of a dedicated program for building safer schools has led to the establishment of programs in other critical sectors, such as transport and water, with similar engagements planned for energy in the coming year.

Protecting children through safer schools

In FY18, the Safer Schools Initiative entered its second phase with \$10.6 million in activities implemented in **Armenia, the Dominican Republic, El Salvador, Indonesia, Jamaica, the Kyrgyz Republic, Mozambique, Nepal, Samoa, Tonga, and Vanuatu.**

In the **Kyrgyz Republic**, the government implemented the State School Safety Program, which led to six schools and kindergartens being assessed for seismic retrofit, and to the development of detailed designs for the retrofit of four schools and two kindergartens in the cities of Balakshy and Togtogul. This led to \$12 million in additional financing for resilience investments, and co-financing of \$2.4 million from the government under the Urban Development Project.

The government of **Indonesia** received support in increasing risk information about schools through the development of risk maps, in raising awareness, and in building capacity among over 100 provincial and district stakeholders. The maps are now used by the Ministry of Education and Culture in the implementation of its new school construction and school rehabilitation program.

During this financial year, the initiative also launched the Roadmap for Safer Schools, which helps governments, development professionals, and other stakeholders design and implement risk-informed investments for the safety of school infrastructure. It promotes a long-term, systematic approach to improving the safety of school facilities globally, using evidence-based information like quantitative risk assessments to help define needs and priorities.

Mainstreaming DRM in the transport sector

In FY18, an initial series of country engagements led to the establishment of the collaborative Resilient Transport Partnership Program to mainstream a multidimensional disaster risk management approach incorporating people, the environment, hydrology and geology, and operations. The program is expected to achieve life-cycle cost savings of 60–70 percent, reductions in economic losses, and improvements in the resilience of communities and assets.

In **Bangladesh, India, Kenya, Lao PDR, Nepal, Paraguay, Peru, Serbia, and Sri Lanka**, \$2 million has been invested to

support climate vulnerability analyses and investment plans to increase the resilience of interventions in the transport sector. To meet the growing demand for resilient transport projects, an additional \$2 million was provided to support **Argentina, Brazil, Haiti, the Kyrgyz Republic, Mongolia, the Philippines, and Vietnam.** Technical assistance will leverage existing efforts around resilient transport lending projects, and lessons learned from these engagements will inform efforts to mainstream and integrate resilience measures into transport projects.

Resilience is not only about extra cost and effort in the engineering and design phase, but also an important consideration in the systems and planning, operations and maintenance, and contingency and response phases. In FY18, the second Technical Knowledge Exchange on Resilient Transport in Belgrade, **Serbia**, helped participants from 11 countries identify priority interventions to increase the resilience of people and assets through disaster mitigation measures.

Building resilience in other sectors

FY18 saw the launch of the Resilient Water Partnership Program, which aims to mainstream DRM in water supply and sanitation systems and in hydraulic infrastructure such as dams. In 2019, engagement will be scaled up with other infrastructure sectors, including transport, water, and potentially energy, building on initial investigations and pilots in countries such as **Fiji** and **Bangladesh.**

In Focus Resilient transport investments for Small Island Developing States



Apia, Samoa. Passengers at bus station in Upolu Island. Photo: corners74

Small Island Developing States (SIDS) in the Caribbean, Pacific, and African Indian Ocean are among the countries most vulnerable to natural disasters, and climate change is expected to greatly increase exposure to hurricanes, storm surges, extreme winds, and flooding. Transport often represents a large share of public assets in small islands: in Dominica, for example, transport assets are valued at 82 percent of GDP, while in Fiji, one-third of the total government budget is spent on the transport sector.

At the same time, many small islands have a low level of economic diversification and limited capacity to cope with disasters. Transport systems damaged by torrential rains, floods, and other disasters can result in major losses to the general well-being of the population. In the report “Climate

and Disaster-Resilient Transport in Small Island Developing States: A Call for Action,” concrete recommendations for enhancing the resilience of transport systems in SIDS are proposed. The report was prepared in response to calls upon the international development community to support these efforts through knowledge and funding, and was launched at the 23rd Conference of Parties (COP23) in 2017.

Going forward, needs assessment plans will be developed in interested client countries to implement resilience measures. In the Pacific, this activity will inform a portfolio of investments in resilient transport under implementation of about \$190 million, and a portfolio of projects in preparation of about \$66 million in Samoa, the Solomon Islands, Tonga, and Vanuatu.

“Transport is critical to the economy and for the provision of services to remote communities. Our transport infrastructure is already affected by climate change. There is an urgent need to develop tailored and climate-smart solutions to improve the resilience of this sector. This report makes a valuable contribution by highlighting innovative solutions focused on Small Island Developing States.”

—Hon. Aiyaz Sayed-Khaiyum, Minister for Economy, Fiji

Scaling Up Engagements for the Resilience of Cities

Urbanization is a defining phenomenon of the 21st century, posing complex development challenges. Today, 54 percent of the world's population lives in cities; this will reach 66 percent by 2050. Government investment priorities are shifting as a result, and municipalities need to create resilient urban environments that take existing and future climate risk into account in their planning. Rapid urbanization in developing countries—especially in Sub-Saharan Africa and South Asia—requires substantial and well-planned infrastructure investments to meet growing resource demands, enhance economic growth, and advance social development.

Developing a one-stop shop that delivers value to cities

In recent years, developing countries have increasingly sought to advance resilience at the municipal level. The City Resilience Program (CRP), launched in 2017, helps cities better utilize innovative mechanisms for raising public and private capital for resilience investments. The CRP empowers city leaders to expand financing options and address resilience challenges in a sustainable, comprehensive, and newly ambitious way, via a single investment platform. At present, there is a disconnect between investors seeking opportunities and city leaders looking to finance infrastructure needs. In many low- and middle-income countries, the

market is not sufficiently developed to enable the flow of private and institutional capital into infrastructure projects. Urgent infrastructure repair works and construction remain unfinanced—exposing entire communities and cities to precarious living situations and risks of flood, earthquake, landslide, and other natural hazards. To address these challenges, CRP is working to catalyze large-scale, long-term, and comprehensive investments in urban resilience with the participation of the private sector. CRP provides technical assistance to cities and teams, drawing heavily on thematic expertise to strengthen emergency response and preparedness, geospatial solutions, resilient transport, and resilient building standards and regulatory frameworks, among others. It is designed to help cities mobilize new sources of capital to finance a significant portion of risk mitigation interventions.

50+ cities with deeper engagements

The program is currently active in more than 50 cities, which are receiving sustained technical and financial support. Twelve cities have continued into a second phase of more in-depth advisory support, intended to help city leaders target market testing of potential investments as well as engage in detailed capital planning to identify and structure priority investments with private sector participation.

In Accra, **Ghana**, CRP is providing technical assistance on early warning systems and response, geospatial mapping that includes hazard and risk

considerations, and capital mobilization support for land value capture and public-private partnerships (PPPs) for resilient infrastructure investments. In Panama City, CRP is helping leaders articulate a resilient urban development plan, with a special focus on strategic waterfront redevelopment, and also identify opportunities for the mobilization of private capital and investment. In **Bolivia**, the program is working to establish national- and local-level systems that build government capacity to implement an urban resilience agenda, and to conduct pre-feasibility studies of resilience investments in El Alto, La Paz, and Santa Cruz.

Importantly, CRP is playing an active convening role by connecting cities with private capital experts and financial advisors to prepare and structure concrete capital investment projects for city resilience. The first Comprehensive Financial Solutions for City Resilience Conference took place in Bangkok, **Thailand**, in November 2017, bringing together 24 city delegations from 18 countries, including **Bolivia, Colombia, Ghana, Peru, and Vietnam**. More recently, in July 2018, the second conference introduced a second cohort of more than 20 CRP cities. Over the next year, CRP will continue to provide tailored advisory services to a third cohort of more than 20 cities. CRP will also expand its product offering on geospatial diagnostics and resilient infrastructure while disseminating a guidance note on monitoring and evaluating results indicators for urban resilience.

In Focus Strengthening flood risk management in Accra with multilateral and private sector finance

Workers repair a road after floods 2 in Ghana. Photo: © David Luri | Dreamstime.com



Shortly after the devastating floods of June 2015, the World Bank began engaging the government of Ghana on enhancing urban resilience in the Greater Accra Metropolitan Area (GAMA). Technical assistance helped the local government strengthen its resilience against natural hazards and other shocks and stresses, including the challenges associated with metropolitan management and interjurisdictional coordination. The technical assistance resulted in implementable actions on key legal and institutional reforms, and identified future potential investment opportunities to reduce disaster risk and strengthen resilience.

Analytical work through March 2018 provided a better understanding of the impact of climate change and hazard

exposure on poor households in the GAMA, supported continued dialogue on urban resilience, and recommended policy reforms and investment decisions. The dialogue helped identify options for resilient urban development, including options to support the poor and most vulnerable households in coping with climate and disaster risks.

Technical assistance is also attracting more financing, and helping to spark dialogue between the private and public sectors. It has helped to initiate the preparation of the Greater Accra Clean, Resilient and Inclusive Development Project, which began in June 2017 with financing of \$100 million. The project's objectives are to strengthen flood and solid waste management and to improve the living conditions of the most vulnerable communities in the Odaw basin in the Greater Accra region. Ongoing technical assistance to support evidence-based decision making for improved urban flood risk and solid waste management will enhance project preparation. In addition, the government has received help facilitating investments in climate risk mitigation in Greater Accra, based on an objective assessment of the city's climate hazards, vulnerabilities, and exposure, and in line with the Indicative Nationally Determined Contributions (INDC) of Ghana.

Building on this engagement with GAMA, a delegation of municipal and national representatives participated in the City Resilience Program Comprehensive Financial Solutions for City Resilience Conference in Bangkok in November 2017. Here, city representatives conducted a rapid capital assessment to understand the underlying conditions for private capital mobilization through direct borrowing from commercial sources; they also looked at PPP/concession structuring and at mobilization of equity through land-value capture. In the long term, Accra hopes to finance its urban resilience strategy not only from multilateral development finance, but also through partnerships with the private sector.

“Urbanization in Ghana has contributed to economic growth and human prosperity, and remains an opportunity to create cities that may lift many people out of poverty. At the same time, however, Ghana’s rapid urbanization and the creation of new urban settlements also pose unique challenges in relation to planning, service provision, and management, and hence require sustained policy effort and attention. If these issues are not attended to, the development gains associated with urbanization can be gradually reversed.”

—Hon. Hajia Alima Mahama, MP; Minister of Local Government and Rural Development

Strengthening Hydromet and Early Warning Systems

The year 2017 was the costliest on record in weather-related natural disasters. Mounting disaster costs have increased governments' and communities' need for accurate, timely, and usable information on the likely impacts of weather, climate, and hydrological hazards. Such information helps them make informed decisions to protect lives and livelihoods. Against this background, investments are essential in the strengthening of forecasting, early-warning and weather services, and the promotion of regional co-operation and global initiatives.

Closing the capacity gap

The capacity gap between the hydromet services of developed and developing nations has grown significantly in recent years. The Global Weather Enterprise (GWE) is a response to this. The GWE is a global engagement between

the public, private, and academic sectors, which share the common goal of providing accurate and reliable weather information and services that save lives, protect infrastructure, and enhance economic output. It combines the scientific research, technology, observations, modeling, forecasting, and forecast products that need to come together in alignment with the requirements of the universally agreed Sustainable Development Goals of the UN 2030 Agenda for Sustainable Development.

The GWE has facilitated strategic dialogue among key players, often involving national meteorological and hydromet services from low- and middle-income countries. In November 2017, the GWE Seminar in Washington, DC, brought together 70 leaders from the public, private, and academic sectors and saw the establishment of the GWE Forum, which will provide a platform for ongoing collaboration.

Another development in FY18 was the launch of the Alliance for Hydromet Development, which had its beginnings at the Second Development Partners

Conference for Hydromet Development. Widely supported by the hydromet community, the Alliance will create the framework for scaled-up, coordinated, sustained, and effective action for closing the capacity gap in climate and weather information, thus supporting resilient growth.

Growing and modernizing the hydromet portfolio

In response to the struggle of some countries to identify a cost-effective and efficient pathway to improve the provision of hydrometeorological services, several significant new projects were launched in 2018. A \$210 million **Pakistan** Hydrometeorological and DRM Services Project was approved in May, and the Central Asia Hydrometeorology Modernization Project received \$12 million of additional financing. In **Burkina Faso**, a climate resilience project with a big hydromet component strengthened the country's hydrometeorological, climate, and early warning services, improving access to these services by targeted sectors and communities.

In Focus Hydrological services in developing countries



Photo: Jiraroj Praditcharoenkul

National hydrological services perform a critical role in a country's preparedness for risk. They provide basic hydrological information and warning services to the government, the public, and the private sector in support of protecting lives and livelihoods. They also deliver socioeconomic benefits by improving the management of water resources and lowering disaster risk. However, in low- and middle-income countries, hydrological services are struggling to respond to the growing demand for easily accessible, robust, and timely information, placing the future prosperity and safety of people and communities at risk.

In FY18 a report on the state of the hydrological services of **Cameroon, Madagascar, Senegal, and Tanzania**, provided a better understanding of their status, performance obstacles, and investment needs of the developing countries. According to the report, factors that lead to unsatisfactory service delivery include fragmented policies, insufficient

funding, deteriorating observation networks, and the inability to attract and retain qualified staff. Addressing these issues will require an approach that involves all stakeholders, targeted to ensure that all elements of the hydrological services chain are addressed in a sustainable and efficient way.

Recommendations based on this assessment were presented during the WMO Global Hydrological Conference in May 2018 in Geneva, leading to commitments to increase support for hydrological services so countries can meet goals, and encouraging closer cooperation between partners in implementing the processes and procedures. Examples of such cooperation include the HydroHub, a WMO initiative initially financed by the government of Switzerland in support of the World Hydrological Cycle Observing System (WHYCOS), and the High-Level Panel on Water (HLPW) and its activities under the World Water Data Initiative (WWDI).

“Intelligent water management should create benefits for everyone, as no one society can prosper long without sustainable access to clean and sufficient fresh water. If sustainably managed across sectors and societies, water has the power to build trust between communities and contribute to the broader establishment of peace and development efforts.”

—Kofi Annan, UN Secretary General 1997–2006, WMO Conference, June 2018

Deepening Financial Protection

Natural disasters inflict an average of \$165 billion in financial losses each year, far exceeding available development funds. Financial and technical assistance provided through the Disaster Risk Financing and Insurance Program (DRFIP) builds capacity for better financial planning at the national and local level, helping countries lower post-disaster financial impacts on their budgets and protecting the lives and livelihoods of poor and vulnerable populations. This assistance ranges from developing financial protection strategies to working with countries in preparing the right mix of risk retention or risk transfer instruments.

Increasing national and local capacities to manage financial impacts of shocks

In FY18, the implementation of the EU-financed Africa Disaster Risk Financing program continued, with diagnostic reviews of existing mechanisms for financing disaster response undertaken in **Cabo Verde, Ethiopia, Lesotho, Malawi, Mali, Mauritania, Mozambique, and Niger**. The program also supported a risk financing strategy

in Kenya, as part of the preparation of a Cat DDO.

In **Kenya, Mali, Niger, and Uganda**, technical assistance supported governments to better manage the financial costs of delivering assistance to poor populations, and to provide them with the analytics and tools required for scaling up crisis response mechanisms, including safety nets.

Support was also channeled to the government of **Kenya** to enhance an actuarial tool used in establishing the triggers for scaling up the Hunger Safety Net Program. This work will inform the design of the next phase of the \$250 million National Safety Net Program project. In **Uganda**, the focus is on expanding the scalability mechanism of the National Uganda Social Action Fund to additional regions of the country, while in **Niger**, the focus is currently on identification of key perils that impact poor households.

The implementation of sovereign risk pools continued in the Caribbean via the Caribbean Catastrophe Risk Insurance Facility (CCRIF), and in Asia through the Southeast Asia Disaster Risk Insurance Facility (SEADRIF). In the aftermath of Hurricanes Irma and Maria, CCRIF provided \$19 million in payouts in Dominica and over \$15 million to other island countries. SEADRIF, which is currently expected to cover **Cambodia, Lao PDR, and Myanmar**,

also saw progress: customized insurance products for each country are currently under development, with the expectation that this facility will be operational in the next year.

Expanding the global knowledge base and convening partnerships

The EU-funded Disaster Risk Financing and Analytics program helps countries build financial resilience by improving understanding of risk, and by increasing capacity to make informed decisions based on sound financial analysis. In FY18, the program cofinanced the development of three customized country tools, two in **Kenya** focusing on livestock insurance and one in **Uganda** focusing on social protection. To support innovation in analytics for this area, GFDRR and the UK Department for International Development (DFID) launched a Disaster Risk Financing Insurance Challenge Fund in April 2018.

Partnerships were strengthened through knowledge exchange forums as well as international events, with several in-country trainings on the fundamentals of risk financing. FY18 also saw the development of a more advanced curriculum on risk financing in partnership with Cambridge University, and this is expected to roll out in the next year.

In Focus The InsuResilience Global Partnership for climate and disaster risk finance and insurance solutions



Gurue, Mozambique tea plantation. Photo: christophe_cerisier

The InsuResilience Global Partnership strengthens the resilience of developing countries to climate and disaster risk by supporting more timely and reliable post-disaster response through climate and disaster risk finance and insurance solutions. The partnership was officially launched by Germany at COP23 in 2017, supported by the G7, G20, V20, and over 35 partner organizations.

The dedicated InsuResilience Multi-Donor Trust Fund (MDTF) provides consolidated support for strengthening financial resilience in countries through risk financing and insurance solutions. The program started implementation in 2017 and will channel financing to recipient countries as comprehensive financial packages, focused on technical assistance and investments in insurance and other financial protection programs.

In FY18, the InsuResilience partnership started to finance scoping activities in **Cambodia, Fiji, Lao PDR, Mozambique, Myanmar, Sri Lanka, and Uganda**. In **Sri Lanka**, work is ongoing to embed disaster risk finance solutions in the

Ministry of Finance. Fiscal resilience against exogenous shocks will be built through a disaster risk financing strategy and disaster risk financing tools to aid decision making, and sound insurance policies will be developed and implemented through the National Natural Disaster Insurance Scheme.

In FY19, the InsuResilience MDTF is evolving into a larger facility, the Global Risk Insurance Facility (GRIF), launched at the 2018 Annual Meetings of the World Bank Group and the International Monetary Fund (IMF), and envisaged as a platform for building donor support and country demand in this area. This facility will pioneer evolving financial solutions in vulnerable countries; specifically, it will seek to enable earlier and more reliable crisis response and recovery through establishing and scaling up prearranged climate and disaster risk financing instruments, including insurance. A key focus will be on developing standards and good practice related to cofinance of premium subsidies for risk transfer mechanisms, cofinanced as part of World Bank investments.

“Mozambique is a country with vulnerability to multiple risks. We have annual losses of 1.1 percent of GDP because of floods and cyclones. We need the risk financing process to protect our national budget and our livelihoods.”

—**Maria da Nadia Felizado Adriaio**, Head of Department, Ministry of Economy and Finance, Mozambique

Building Social Resilience

Poor communities are particularly vulnerable to the impacts of natural hazards and climate change. In addition to facing structural poverty, these communities may include female-headed households, children, persons with disabilities, indigenous and ethnic minority groups, landless tenants, migrant workers, older people, and other socially marginalized groups. The root causes of their vulnerability lie in a combination of their geographical context; their financial, socioeconomic, cultural, and gender status; and their access to services, decision making, and justice. The Inclusive Community Resilience (ICR) program strengthens the resilience of these vulnerable groups by promoting community-led approaches to risk

Channeling DRM resources to the local level

In FY18, support continued for the promotion of disability inclusion, community-led disaster risk reduction,

institutional decentralization, and social protection systems. In the **Democratic Republic of Congo** and **Ethiopia**, operations went beyond beneficiary consultations to the promotion of collaboration and empowerment of communities through citizen engagement mechanisms. In addition, in Asunción, **Paraguay**, and **Zimbabwe**, engagements were commenced to help vulnerable communities develop resilience and adapt to climate change and natural disasters.

Building resilience in fragility

Over one-third of efforts to increase community resilience takes place in the context of fragility, conflict, and violence. In **Afghanistan**, the **Philippines**, and **Tunisia**, the integration of community-led risk mapping into local development efforts strengthened the resilience of communities in preparation for the next natural hazard.

Also in **Afghanistan**, community development funds for 32,000 villages helped mainstream disaster-resistant infrastructure. As a first step, the program funded training for government engineers in DRM practices, including site selection to prevent flooding

and earthquake-resistant building techniques. In the second step of the program, communities were trained in accessing information about safe locations and conducting evacuation drills. In the third step, information from the communities will be fed back to the central government via community development councils. The program has a strong focus on the engagement of women, although implementation of this aspect is challenging in several areas of the country.

Increasing awareness through learning and training

In FY18, the social resilience agenda was complemented with training on social inclusion and DRM, a webinar for participants from 30 countries on disability-inclusive DRM, and a report on the state of practice to include persons with disabilities in DRM efforts. These themes informed the development of action plans and specific investments. The program also provided training on gender and DRM in water resource management projects, on social resilience aimed at mainstreaming DRM, and on building resilience to climate change into social development projects.

In Focus Strengthening social protection systems through forecast-based financing in the Sahel



School in Agadez, Niger. Photo: Sepp Friedhuber

G FDRR is collaborating with the Red Cross Red Crescent Climate Centre to support innovations within in the Adaptive Social Protection Program in the Sahel, being implemented by the World Bank. This activity aims to support new or existing social protection systems to act at scale before extreme climate events become disasters (through well managed, accountable and transparent systems that reach those who need it most). The initiative supports the integration of climate risk management into social protection programs in the Sahel, with a focus on innovations on forecast-based action and financing.

By establishing systems that trigger funds and preparedness actions before disasters strike, the program aims to improve the adaptive capacity of institutions, systems, communities, and households in the region. This approach could prevent suffering, enable more efficient use of funds, and strengthen community resilience.

Thus far, the activity has supported country scoping studies in Mali and Niger, and the concept of forecast-based action was introduced through national level dialogues. In Niger, an in-depth analysis was conducted to identify key actors and assess indicators related to food security as well as vulnerability and exposure to natural hazards, and a workshop supported the national government in their efforts to build a more effective, comprehensive system for climate and disaster risk management.

Looking ahead, work in Niger will focus on technical assistance to scale up early action through social protection, to understand drought risks, and to enhance early action, in addition to specific support to forecast-based early action for agro-pastoralists, a clear gap in the social protection response architecture.

“At first it seemed to me that social protection was expensive; but I realized that year after year, it gave me benefits so it yielded more than I had anticipated.”

—Workshop participant, Niger, June 2017

Addressing Climate Risk and Promoting Resilience to Climate Change

As a series of disasters in 2017 illustrated, climate and environmental conditions are changing at an unprecedented pace. GFDRR helps countries improve the identification and understanding of risk under future climate scenarios; reduce existing risks and avoid the creation of new risks; and assist with the design and implementation of investment policies and operations to include climate-resilient measures.

Integrating climate change and DRM into development

In response to increased understanding of the relationship between climate change and DRM, GFDRR established the Resilience to Climate Change initiative in 2014, with dedicated funding from the Swiss Agency for Development and Cooperation Global Program for Climate Change (SDC-GPCC) to GFDRR's Multi-Donor Trust Fund. The initiative advances the implementation of the Sendai Framework through a set of instruments which provide technical assistance grants that fund longer term projects, just-in-time (JIT) advice through smaller grants for rapidly deployed financial assistance, and analytics.

These instruments have allowed GFDRR to solicit interest in technical support to integrate climate and weather-related risks from World Bank operational teams. They have also sparked interest

among nontraditional sectors such as agriculture, transport and energy, to better integrate climate and disaster risk into development operations. In FY18, GFDRR received 66 requests for technical and financial support, for a total value of \$15.3 million, surpassing the initiative's financial ability to respond. The initiative ultimately provided technical assistance to 22 countries through country-specific or regional projects in sectors, including resilient water management, energy, and coastal resilience, for a total of \$5.2 million.

Financing rapid response to resilience needs

Some clients' resilience needs require a rapid response, where waiting for normal project processing times could lead to the loss of policy reform or investment opportunities. JIT grants are designed to meet this need, while also providing critical funds for climate risk expertise or resources for ongoing projects. In FY18 alone, 41 of these grants were awarded across all regions and 12 sectors. For example, in Kinshasa, the Democratic Republic of Congo, a JIT grant financed an urban flooding and erosion risk assessment. This informed the design of a \$150 million resilient urban development operation, which will improve the living conditions in the capital city's disaster-prone areas. The assessment was also used by decision makers to identify high-risk neighborhoods and prioritize areas for intervention.

Working with partners across multiple sectors

In FY18 there has been a steady increase in the number of multisector projects launched in response to impacts of climate and weather-related risks, that encourage an integrated, multilevel approach to climate resilience. Working with partners in areas such as urban resilience, flood management, and hydromet and early warning systems, the initiative has supported a wide range of engagements, including projects in climate-smart agriculture, energy resilience, and social protection.

For example, in the Lake Victoria basin region, technical assistance is being provided to identify climate and disaster risk in the agriculture, energy, and governance sectors to prioritize areas for climate-resilient investments. The investment plan will be implemented over the course of Phase III of the \$233 million Lake Victoria Environmental Management Project.

Since its establishment in 2014, the initiative has dedicated a total of \$15.6 million to build climate resilience in more than 62 countries. The funding is coming to an end in December 2018. Climate resilience remains critical in advancing DRM in development, and the GFDRR Secretariat is exploring options going forward.

In Focus Improving the resilience of coastal communities in Kenya



Fishermen near the coast of Lamu, Kenya. Photo: Anouk Hummel

Kenya has an Indian Ocean coastline of just 640 km, which supports around 13,000 people who derive livelihoods from coastal fishing and related activities. These communities—particularly those which practice artisanal fishing—are highly vulnerable to the effects of climate change, such as sea-level rise, intensified storms, and tidal flooding.

In FY18, the Kenyan government received a grant for two purposes: to support the identification of climate hazards and risk mitigation options in order to improve the management and increase value-addition of priority fisheries, and to strengthen coastal communities' access to livelihoods. The grant informs the Kenya Marine Fisheries and Socio-Economic Development Project, which has identified potential climate change-related hazards to coastal ecosystems, including marine fisheries, and impacts on the coastal communities.

Spatial assessments using satellite-based Earth observation and desk-based risk assessments are currently under development. Results from these will provide critical information to help inform decision making at various levels on climate-smart adaptation options and other issues. In addition, the project will assess safety at sea and develop recommendations on how this can be improved, especially for artisanal fishing communities, in view of their increased vulnerability to frequent, variable, and intense weather events.

The project will also help build the real-time capacity of relevant institutions to use this information in decision support and for monitoring. Capacity-building activities include hands-on training at the national, county, and community levels to help stakeholders better understand and adapt to the risks stemming from climate change-related hazards.

Enabling Resilient Recovery

In the aftermath of disaster, assessments of damages and the corresponding economic losses and recovery needs help governments and communities plan for recovery and prepare better to respond to future emergencies. In FY18, efforts focused on promoting the objectives of quicker, more effective resilient recovery, with better-coordinated support from the international community. Particular emphasis was placed on the development and distribution of knowledge products to build the capacity of key stakeholders in planning for rapid recovery and preparedness for future disasters.

Supporting quicker recovery

If the average recovery period after a disaster is reduced by one-third (without compromising the quality of reconstruction), global well-being losses could be reduced by 13.5 percent—equivalent to increasing global consumption by over \$75 billion per year. These gains are especially substantial in countries with frequent events, such as small island states and Sub-Saharan countries. In FY18, efforts to accelerate recovery included building local capacity to assess disaster impacts and develop recovery frameworks by training 680 officials in 22 countries; and providing over \$3 million for 20+

just-in-time and other grants to help 25 countries respond to disasters and better prepare for future events. The rollout of a new financing instrument, the Contingency Emergency Response Component, accelerated the availability of post-disaster financing through World Bank projects. Over 200 staff and consultants were trained on contingency planning, and a methodology for more rapid post-disaster damage estimation was documented and disseminated.

During FY18, GFDRR drew on the risk profiles and risk models developed by the World Bank's Disaster Risk Analytics and Solutions Knowledge Silo Breaker (D-RAS KSB) to ensure more rapid assessment processes in countries impacted by disaster.

Promoting more effective recovery

If in the next 20 years all countries were to “build back stronger” so that rebuilt assets could better resist future hazards, then global well-being losses due to natural disasters could be reduced by 11.7 percent, a gain equivalent to \$65 billion annually. In FY18, GFDRR pursued this objective by providing tools and resources for planning, financing, and implementing resilient recovery, and by helping to leverage financial resources. A discussion draft of the *Local Disaster Recovery Framework Guide* was issued, together with five case studies (**Colombia, India, Indonesia, Senegal, and Serbia**), and a global study on civil

protection was launched. The Recovery Hub, a web-based platform for recovery knowledge sharing, was launched and opened for inputs from the European Union, regional development banks, and UNDP; in addition, sectoral recovery guidance notes were issued for health, housing, gender, and transport. A Recovery Readiness Platform for the MENA region helped to advance the disaster recovery agenda in fragile and conflict-affected regions.

Coordinating global partnerships

In FY18, coordination for resilient recovery continued, especially between the World Bank, the UN, and the EU and in close consultation with national governments. These efforts ensure clear lines of communication and a shared approach during potentially chaotic post-disaster periods. In 2018, the three agencies are marking the 10-year anniversary of the adoption of a declaration that put standard procedures in place for post-crisis response, covering all activities from assessment to recovery. This declaration incorporates lessons learned and explores new perspectives for the future. Other initiatives in FY18 included the Global Preparedness Partnership, which seeks to bring vulnerable countries to a minimum degree of readiness to respond to emergencies, and the development of partnerships for coordination within the African, Caribbean, and Pacific (ACP) Group of States.

In Focus Quicker recovery from landslides in Sierra Leone



Photo: World Bank/DaLA team (IMG_5775)

(DaLA) and the development of the Sierra Leone Post-Landslide and Floods Recovery Framework.

A \$50,000 just-in-time grant was also provided to support the activation of a Contingent Emergency Response (CERC) in the Sierra Leone Health Service Delivery and System Support Project. In addition, a second just-in-time grant of \$100,000 was provided together with technical support for the assessment, which was conducted in partnership with the United Nations. The assessment indicated recovery needs of more than \$80 million and informed the Freetown Emergency Recovery Project (FERP).

FERP is designed to support the government's resilient recovery program, to rehabilitate and rebuild damaged infrastructure, to remediate the landslide area, and to strengthen DRM and early warning capacity. As part of the project, a "lessons learned" exercise will study the government's systems, procedures, and experiences related to emergency preparedness and response. This exercise will lead to a future

On August 14, 2017, a massive landslide devastated the Babadorie River valley in the western part of Freetown, Sierra Leone, exacerbating existing flooding in the area. The landslide and flood waters carried a wave of boulders, building debris, and mud through the capital city. The disaster affected more than 6,000 people, left more than 1,000 dead or missing, and caused significant destruction and damage to critical infrastructure.

Immediately after the event, the government of Sierra Leone received a grant through the Natural Disaster Risk Reduction (NDRR) Program of the ACP–EU (the partnership between the countries of the African, Caribbean and Pacific Group of States and the EU). The grant supported the Sierra Leone Post-Landslide and Floods Damage and Loss Assessment

capacity needs assessment that will focus on two primary lines of inquiry: determination of the current status of the country's emergency preparedness and response system; and identification of potential areas for improving the system. FERP is also supporting the development of a new national policy framework for disaster risk management, which could strengthen the coordination of disaster risk management in Sierra Leone, including prevention, preparedness, emergency response, and resilient recovery.

Finally, supported by the ACP–EU NDRR Program, multicity hazard and risk assessments were conducted for the cities of Freetown, Makeni, and Bo. The resulting report will help identify key hotspots that are highly exposed to flooding, landslides, sea-level rise, and coastal erosion, and will provide a menu of options to manage these risks.

“I wanted to thank the team for the quick mobilization at a difficult time of the year and for the strong commitment and technical capacity with which the DaLA team undertook this complex work, even as this year's extremely heavy rains continued to cause regular flooding around Freetown.”

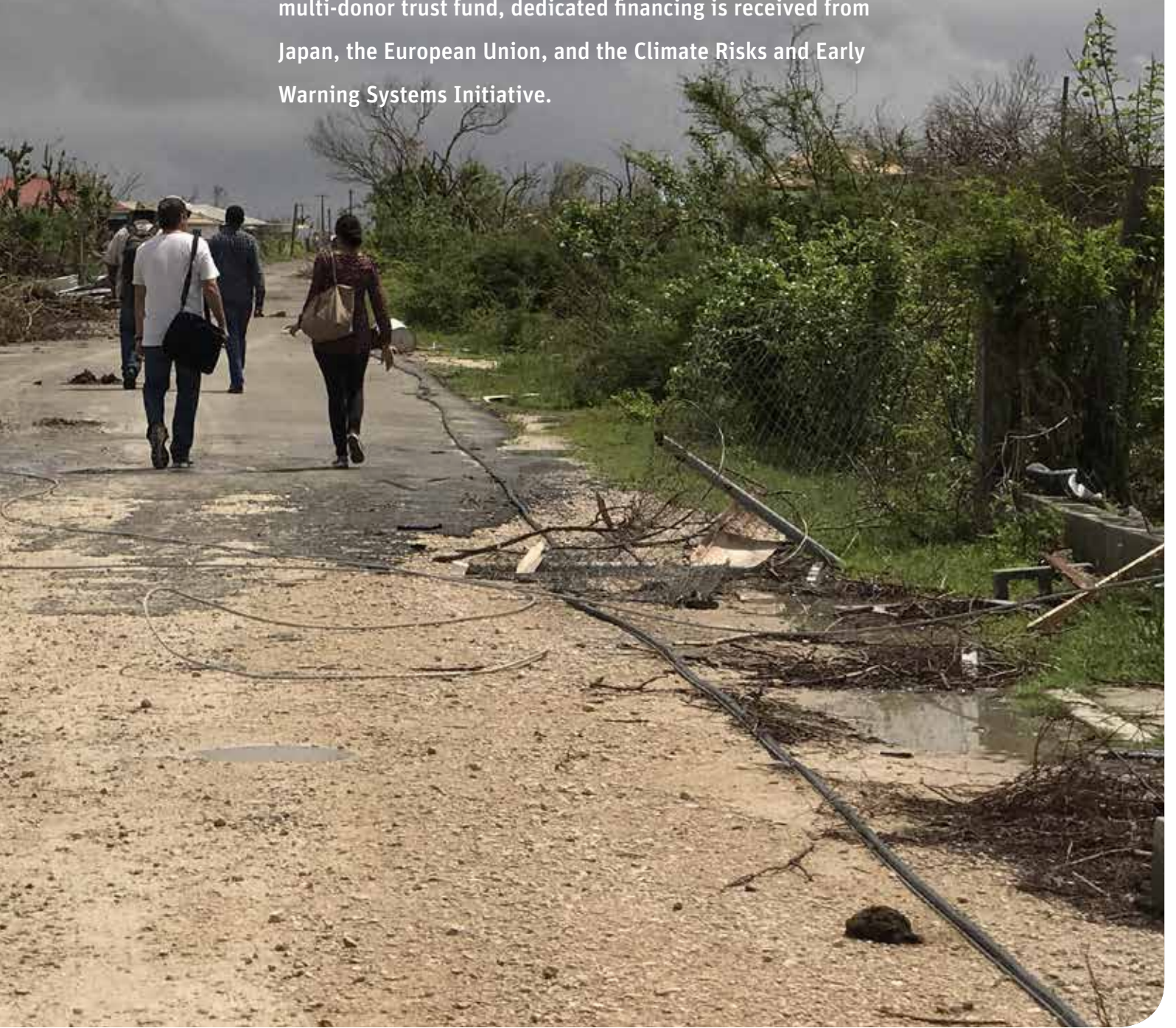
—Henry G. R. Kerali, Country Director for Ghana, Liberia, and Sierra Leone, World Bank



Antigua and Barbuda—September 2017, surveying Hurricane Jose damages. Photo: GFDRR

FINANCING WINDOWS

GFDRR grants are funded through financing received from development partners. While all donors contribute to a common multi-donor trust fund, dedicated financing is received from Japan, the European Union, and the Climate Risks and Early Warning Systems Initiative.



Multi-Donor Trust Fund

The Multi-Donor Trust Fund (MDTF) is the primary financing window for achieving GFDRR's mission of bringing resilience to scale. The MDTF pools funding from all donors, reducing the fragmentation of financing and supporting larger impacts through a coordinated approach for scaling up disaster resilience. The MDTF provides support to finance the in-country engagements that mainstream DRM into countries' development priorities; promote global dialogues and initiatives; and develop innovative tools and knowledge products.

Supporting progress across areas of engagement

The FY19 Work Plan approved by the Consultative Group (CG) in May 2018 in Mexico provides strategic direction to the GFDRR Secretariat for allocating the resources of the MDTF. In FY18, the MDTF supported progress in GFDRR's various areas of engagement, reflecting the full scope of expertise that GFDRR offers.

In-country engagements

Most activities are implemented in countries and at the regional level. In FY18, grants from the MDTF totaling over \$14 million supported over 47 countries across six regions in mainstreaming of DRM in investment and planning strategies. This financing also provided technical support to countries in all areas of engagement.

Global dialogues and initiatives

Through the MDTF, GFDRR engages actively in the Global Resilience Agenda and convenes stakeholders to scale up global action on resilience. In FY18, the MDTF financed participation in such international events as the Understanding Risk Forum 2018, the World Urban Forum 9, the 23rd Conference of Parties (COP23), and the Resilience Dialogue series.

Knowledge products and innovative tools

GFDRR continues to provide leadership within the global DRM community by bringing together a wide range of stakeholders to share knowledge and best practices. In FY18, the MDTF financed the production of 40+ publications, including *Building Back Better* as well as *Aftershocks: Remodeling the Past for a Resilient Future*, the Second Technical Knowledge Exchange on Resilient Transport, and *Five Actions for Disability-Inclusive Disaster Risk Management*. With support from the MDTF, the nature-based solutions platform was completed during FY18.

Building social resilience

One of the highlights of the past year was MDTF's support for the Inclusive Community Resilience and the Adaptive Social Protection agendas. More than \$3 million was provided for projects that promoted the exchange of information and leveraged country investments that channel funding and decision-making power to poor households and communities. Lessons learned in countries such as **Peru, Serbia,** and **Zimbabwe** were documented to better address how community resilience and social protection programs work together.

In Focus Resilient recovery in Guatemala— Volcán de Fuego



Searching for victims in the village of San Miguel Los Lotes, Guatemala City. Photo: JOHAN ORDONEZ/AFP/Getty Images

On June 3, 2018, a powerful eruption of the Volcán de Fuego in Guatemala affected approximately 1.7 million people and killed at least 159, although local residents and organizations estimate that as many as 2,900 people may actually have died as a result of the eruption.

The eruption, which allowed almost no time for evacuation and produced mudflows, ash clouds, and pyroclastic flows, was the most devastating and deadliest such event recorded in Guatemala since 1902. Some 3,100 people were evacuated, and heavy rainfall and the threat of further mudflows complicated recovery operations. The eruption

caused the closure of La Aurora International Airport and destroyed an estimated 8,500 hectares of corn, bean, and coffee crops.

To help meet the challenges of recovery and ensure resilience to future disasters, GFDRR is supporting a project that will enable the government of Guatemala to assess the impact of the eruption and define a recovery framework for the affected areas. The project will map and assess the potential economic impacts to key sectors such as agriculture and tourism. Critically, it will contribute to enhancing overall government risk management capacity and preparedness, including for weather- and climate-related risks.

“We thank GFDRR for cooperating and participating in the elaboration of this technical study, which will be beneficial to our Guatemala.”

—Eddy Hardie Sanchez Bennett, Director General, National Institute of Seismology, Vulcanology, Meteorology and Hydrology, Guatemala

ACP–EU Programs

The ACP–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program was launched as an initiative of these states, with \$75.6 million in contributions from the EU. The program's goal is to prevent disasters, mitigate their effects, and enhance preparedness in ACP countries, and supports countries following a disaster.

Progress in projects and partnerships

As of FY18, the ACP–EU NDRR Program has implemented 106 projects in more than 40 countries. Projects support governments, in close collaboration with communities, civil society, and other stakeholders, in integrating multisectoral and multi-hazard risk management approaches into national/regional development planning. The program has also developed key partnerships with organizations such as the International Federation of the Red Cross and Red Crescent (IFRC), UNDP, International Organization for Migration (IOM), and Oxfam. Specific projects have yielded major results in scaling up DRM investments, leveraging over \$1.7 billion in additional World Bank and other development partners' operations.

Building resilience in Sub-Saharan Africa

The **ACP–EU Building Disaster Resilience in Sub-Saharan Africa (SSA) Program**, launched in 2015, helps build the resilience of SSA regions, countries,

and communities against the impacts of natural disasters. It includes five result areas implemented by the African Development Bank (AfDB), African Union Commission (AUC), United Nations Office for Disaster Risk Reduction (UNISDR), World Bank, and GFDRR, which implements two of them, each worth \$22 million, and detailed below.

The **African Regional Economic Communities (RECs) DRM Program** contributes to DRR coordination, planning, and policy advisory capacities of RECs—namely the Economic Community of Central African States (ECCAS), Economic Community of West African States (ECOWAS), the Intergovernmental Authority on Development (IGAD), and the Southern African Development Community (SADC)—to support member states and subregional programs. FY18 saw the continued involvement of RECs in leading policy and strategic dialogues, building capacity, and reinforcing internal DRM structures.

The **Africa Disaster Risk Financing Initiative** supports the development of multi-risk financing strategies to help countries make informed decisions, improve financial response capacity post-disaster, and mitigate the socioeconomic, fiscal, and financial impact of disasters. In FY18, the program extended engagements in 15 countries. An event at the Understanding Risk Forum in May 2018 brought together 60 government practitioners, the largest such gathering of African disaster risk financing practitioners to date.

Other EU-funded programs

Collaboration with the EU has expanded, with the launch of a number of programs established in 2015.

The \$6.5 million **Serbia National Disaster Risk Management Program** is supporting the **Republic of Serbia** to enhance DRM and flood prevention systems. In FY18, the government adopted a methodological framework on flood hazard and risk mapping in line with the EU Flood Directive, as well as a water resources management strategy through 2034. Moreover, concrete steps have been taken on open data initiatives, and the Serbian Spatial Data Portal has been launched.

The \$6.4 million **Disaster Risk Financing (DRF) Analytics** project supports governments with access to improved tools and technical information for informed decisions about DRF policies. In 2017, GFDRR supported the selection of a pilot subnational insurance transaction in the Philippines, placing \$206 million of insurance cover against typhoon and earthquake risk on the international reinsurance market. Six months later, Typhoon Vinta triggered a partial payout of \$1.6 million.

The \$11 million **European Union–South Asia Capacity Building for Disaster Risk Management Program** supports hydromet service delivery and enhances capacity among regional bodies and the national disaster management centers, agencies, or counterparts. During FY18, four projects were launched that aimed at integrating risk management into infrastructure programs and enhancing regional collaboration. Activities under the projects cover all countries in the region.

In Focus Aerial technology helping small island states with preparedness and recovery



UAV Photo credit to come

Small island states are among the most vulnerable to the impacts of climate change and natural disasters. However, these island countries often lack the basic data needed for carrying out analytics to assess, identify, and quantify climate and hazard risks. The unique geographical characteristics of these countries, which often consist of many small and remote islands, require a local solution to allow the collection of high-resolution data. Using unmanned aerial vehicles (UAVs) to collect the needed data can fill this risk information gap.

A project under the ACP–EU NDRR Program (UAV4Resilience—Utilizing Unmanned Aerial Vehicles for Disaster Assessments in the Pacific Islands) develops the capacity and readiness of Fiji and Tonga by deploying UAVs for disaster and climate risk assessments and rapid identification of damage to the physical environment in post-disaster situations. This project is being conducted in close collaboration with both governments and the Pacific Community (SPC).

The data generated through this project were used during the post-disaster response to Tropical Cyclone Gita, which hit Tonga in February 2018. A post-event baseline map was created by comparing images collected during a first coverage in October 2017 and again after the disaster. This map was incrementally updated through the recovery and reconstruction phase and allowed for easier identification of damaged buildings.

Data generated from UAV images becomes the basis for analytical work to develop a better understanding of the interaction between communities and the local physical environment. With capacity on the ground, data sets can be updated frequently for urban planning, land parcel mapping and updating, crop monitoring, and the creation of baseline maps. Locally collected data also lead to better ownership by the local communities, and more interest in the data's use.

“UAVs unlock the potential for interested parties to capture information that was previously only possible by hiring manned aircraft and specialists, which were expensive. Availability of good-quality high-resolution data will further accelerate the ability to make informed decisions based on evidence.”

—Leveni Aho, Director, National Emergency Management Office, Ministry of Meteorology, Energy, Information, Disaster Management, Climate Change and Communications (MEIDECC), Tonga

Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries

The Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries is a partnership of the government of Japan and the World Bank, managed by GFDRR. Launched in March 2014, the program is an expression of Japan’s commitment to the Sendai Framework for Disaster Risk Reduction, and is funded by a \$100 million contribution from the Ministry of Finance. The program supports developing countries in integrating DRM into national development planning and investment programs through World Bank country strategies and operations, and in connecting Japanese and global expertise in DRM with developing country counterparts. The program’s active multisector global portfolio of 54 technical assistance projects now totals \$67.1 million supporting activities in 55 countries.

Technical assistance for developing countries

In FY18, the program funded 19 new country technical assistance projects in 14 countries, and two new knowledge projects connecting Japanese and global expertise in DRM with developing countries. These new projects are supporting activities that target countries with some of the highest

risk to natural hazards, including **Bangladesh**, the **Dominican Republic**, **India**, **Indonesia**, **Sri Lanka**, **Tajikistan**, and **Vietnam**, among others. Grant activities address the natural hazards that are the greatest risk to the client countries: flooding and other hydromet events, multi-hazard events, and earthquakes. The program has leveraged 46 World Bank investment lending operations to date, influencing or informing a portfolio of approximately \$6.3 billion in DRM-informed investments worldwide. The **Tokyo DRM Hub**—the program’s implementing arm—launched two new knowledge projects, one in emergency preparedness and response and one in resilient industries.

Sharing expertise and promoting partnerships

More than 160 Japanese expert contributors from the public and private sectors have participated in Hub events or been deployed to developing countries this year, for a total of 765 since the start of the program. In FY18, the Japan–World Bank DRM program promoted partnerships and collaboration through several wide-ranging international events, bringing together hundreds of representatives from government, development institutions, academia, the private sector, and civil society to find solutions for climate and disaster risk.

In July 2017, the program helped Nippon Koei and Japan Railways Research Institute strengthen the seismic

resilience of investment projects for subway metro line developments in Lima, **Peru**, and Quito, **Ecuador**. The result was a unique and practical contribution to strengthened resilience in these South American cities through metro investments of \$500 million.

In November 2017, the Tokyo DRM Hub in partnership with Kobe and Kyoto Universities held a 10-day science cooperation and learning event in Japan. 12 technical experts from **Ghana**, **Togo**, and the Volta Basin Authority (VBA) working on strengthening flood forecasting in the Volta Basin were invited to participate. Also in November 2017, GFDRR convened a session on “Engineering a Solution for Disasters: The Promise of Resilient Infrastructure” in Sendai, Japan, during the World Bosai Forum–International Disaster Risk Conference. In December 2017, the Tokyo DRM Hub organized a joint workshop on “Enhancing Dam Safety and Hydromet Services in **Afghanistan**,” showcasing Japanese best practices and lessons applicable to the national context.

In March 2018, the Tokyo DRM Hub in collaboration with the Tokyo Development Learning Center (TDLC) organized a five-day “Technical Deep Dive on Seismic Risk and Resilience” with the World Bank and the government of Japan. Practitioners and decision makers from **Bangladesh**, **Ecuador**, **India**, **Indonesia**, **Kenya**, **Malawi**, **Myanmar**, **Nepal**, **Peru**, and the **Philippines** attended.

In Focus Flood forecasting in Ghana



Participants at a technical training program. Photo: GFDRR

In FY18, the second phase of the White Volta Flood Hazard Assessment Project was initiated to improve the flood forecasting system in affected regions in Ghana. This phase supports Ghana in extending flood forecasting to other river basins, notably the Oti River basin. It further increases flood management capacity in the north, particularly last-mile connectivity of flood hazard information with communities and decision makers; and it strengthens advocacy and capacity building in DRM.

The Japan–World Bank DRM Program has financed the project, which is supported by the Tokyo DRM Hub in collaboration with UNDP, with a focus on facilitating partnerships with Japanese universities to strengthen flood risk management through capacity building and training. Kobe and Kyoto

Universities led the design and implementation of a technical training program for flood monitoring and forecasting specific to the basin. The universities plan to provide in-country technical support for further hands-on training on weather observation using radar, and to review the White Volta flood forecasting model.

Technical assistance support helped improve forecast accuracy and the seamless integration of forecast data into the Web Emergency Operation System of Ghana’s National Disaster Management Organization. Government counterparts have benefited from both training opportunities and the knowledge accumulated through the Climate and Ecosystems Change Adaptations Research.

“Today with the support from the World Bank, we have managed to establish an operational flood forecasting system for the White Volta in Ghana and recently installed automatic water level recorders along the river that transmit real-time data every five minutes. This helps us to improve lead time and provide timely warnings on floods in the Volta basin. We are currently extending this to other parts of the Oti River basin.”

—Bob Alpha, Surface Water Resources, Water Resources Commission, Accra, Ghana

Climate Risks and Early Warning Systems (CREWS)

The Climate Risks and Early Warning Systems (CREWS) Initiative, started in 2015 by the French government as part of the COP21 Solutions agenda, aims to significantly increase the capacity to generate and communicate effective impact-based, multi-hazards, gender-informed, early warnings and risk information to protect lives, livelihoods, and assets in Least Developed Countries (LDCs) and Small Island Developing States (SIDS). CREWS advances the Sendai Framework for Disaster Risk Reduction by increasing access to multi-hazard early warning systems and disaster risk information and assessments. It advances the DRR priority area of the Global Framework for Climate Services, and supports the International Network on Multi-Hazard Early Warning Systems.

Working with partners to achieve Sendai targets

Today, three out of four Least Developed Countries and Small Island Developing States have low or nonexistent capacity to provide early warning services for climate or weather events. At the same time, investments in weather, climate, and water services are highly cost efficient, with social and economic returns of 300 percent and more on investment costs. Improved hydrometeorological forecasting and early warning could save at least \$13 billion per year in asset losses; \$22 billion per year in losses to well-being; and up to \$30 billion per

year through increased productivity globally.² The CREWS initiative brings multiple partners together to help these vulnerable countries protect lives, livelihoods, and assets through impact-based, multi-hazard, and gender-informed early warnings and risk information.

Strengthening hydromet and early warning systems in Africa and the Caribbean

As of FY18, the CREWS Steering Committee had approved 10 projects for a total amount of \$23 million; four of the projects are implemented by the World Bank with GFDRR.³

The Democratic Republic of Congo Strengthening Hydro-Meteorological and Early Warning Services Project

will improve the national hydromet and early warning services by supporting dissemination of weather forecasts in mainly urban areas through media and aviation services. Financing of \$3 million from CREWS complements a \$5 million engagement from the Global Environmental Facility and \$3 million from the ACP–EU NDRR Program. Ongoing project activities have included several workshops for stakeholders. One workshop offered an institutional assessment of hydromet and early warning services; another addressed quality management systems for air navigation meteorological services. In April 2018, the National Meteorological Agency (MettelSat), the civil protection authorities, and the World Bank brought academics, researchers, and students together at an event at the University of Kinshasa to discuss the activities of the project and the importance of DRM in the Democratic Republic of Congo and urban contexts.

The Mali Hydrological and Meteorological Services Modernization Project

will improve hydromet, early warning, and response systems and services in targeted areas. The \$3 million CREWS funding complements a larger World Bank investment, with \$22.7 million from the Green Climate Fund and \$8.25 million from International Development Association resources. Launched in April 2018, the CREWS project is currently contributing to strengthening the flood vigilance system along the Niger River by providing improved flood bulletins based on precipitation forecasts.

The Niger Strengthening Early Warning Services Project

will improve the food security early warning system and to establish flood and extreme weather warnings, mostly in urban areas and along the Niger and Komadougou rivers. Financing of \$2.7 million from CREWS has enabled the expansion of the scope of the World Bank Niger DRM and Urban Development Project, and the AfDB Climate Information Development and Forecasting Project. The project was launched in April 2018.

The Caribbean Strengthening Hydro-Meteorological and Early Warning Services Project

is the first regional project implemented by the World Bank, the WMO, and UNISDR, supported by the CREWS initiative. It will strengthen and streamline regional and national systems and capacity related to weather forecasting, hydrological services, multi-hazard impact-based warnings, and service delivery for enhanced decision making. Project implementation will start in FY19.

² Hallegatte, Stephane, Adrien Vogt-Schilb, Mook Bangalore, and Julie Rozenberg. 2017. *Unbreakable: Building the Resilience of the Poor in the Face of Natural Disasters*, World Bank, Washington, DC.

³ The WMO is implementing approved projects in Burkina Faso and Papua New Guinea, regional projects in the Pacific and Western Africa, and a study of lessons learned on EWS following the 2017 hurricane season. UNISDR provided support to LDCs and SIDS to participate in the UN Global Platform for Disaster Risk Reduction in Cancun, Mexico, in May 2017.

In Focus A regional approach in the Caribbean



Caribbean islands of (top left to bottom right) Puerto Rico, Cuba, Haiti and the Dominican Republic from an altitude of 250 miles. Photo: NASA.

Between 1980 and 2007, nearly 98 percent of the disasters, 99 percent of casualties, and 99 percent of economic losses in the Caribbean region were related to hydrometeorological and climate-related events. In the coming years, climate change is expected to exacerbate hazard levels, while unplanned expansion and inadequate construction practices continue to increase vulnerability in the region.

GFDRR has contributed to a \$5.5 million regional project—the first to be implemented conjointly by all three CREWS implementing partners—to strengthen hydrometeorological and early warning services in the Caribbean. Launching in 2019, it will focus on streamlining systems and capacity in weather forecasting, hydrological services, multi-hazard impact-based warnings, and service delivery for enhanced decision making at the regional and national levels. The project will integrate findings from a WMO-led study on end-to-end aspects of early warning systems in the Caribbean following the 2017 hurricane season. CREWS funding will support the development of a regional strategy, including evaluation of national and regional capacities, strengthening

of the governance process, identification of priority investment needs, development of investment proposals, and review of opportunities to build partnerships between the public and private sectors.

By strengthening the regional cascading system, such as for weather forecasting, this project can strengthen regional, subregional, and national capacities to provide optimal levels of service in the Caribbean. The regional strategy for early warning systems will be guided by regional and national policies and will link to disaster management strategies, the Sendai Framework for Disaster Risk Reduction, and the Global Framework for Climate Services.

To ensure the effectiveness and sustainability of the activities, the project will be developed and implemented with two regional partners: the Caribbean Institute for Meteorology and Hydrology (CIMH) and the Caribbean Disaster Emergency Management Agency (CDEMA). Other stakeholders will include countries' national meteorological and hydrological services as well as disaster risk management agencies.



Nature-based solutions are being used to fight coral bleaching in the Seychelles. Photo: GFDRR

An aerial photograph of a tropical resort. The central focus is a large, multi-story building with a traditional-style roof, surrounded by lush greenery and palm trees. In front of the building is a swimming pool with several lounge chairs and umbrellas. The resort is situated on a white sandy beach that meets the ocean. The water is clear, showing a sandy bottom and some darker patches of coral or rocks. A few small boats are visible in the water. The overall scene is peaceful and scenic.

SPECIAL FEATURES

Analytical Work at GFDRR

Natural risks—such as floods, droughts, and diseases—keep people in poverty by preventing them from accumulating assets, and by discouraging them from making necessary investments in housing and businesses. These risks can also have long-term impacts in areas like education and health. GFDRR supports analytical work focused on better understanding the relationship between natural risk and poverty. This work is making it increasingly clear that ending poverty is not possible without taking into consideration the impact of disaster risk and climate change on the poor.

Developing tools to measure resilience

In FY18, the measurement of resilience has been advanced with the launch of a toolbox that helps development practitioners and policy makers track progress in resilience building in countries, assess the impact of disaster risk investments, and prioritize actions to build resilience. The toolbox includes instruments that can be used at a global, national, subnational, and city level, and is based on the resilience indicator model published in the *Unbreakable* report in 2016. The *Building Back Better* report, published in June 2018, presents the requirements and benefits of rebuilding to a higher standard after a disaster. This report is another contribution to global efforts in the measurement of resilience.

GFDRR has worked with governments to apply the resilience indicator on a country level and promote better-informed decision making in DRM by identifying particularly vulnerable areas in the country and helping communities understand the benefits of different policy options. In FY18, the model was applied in **Fiji**, the **Philippines**, and **Sri Lanka**. The results of the engagement in Fiji were presented in October 2017 at the United Nations Framework Convention on Climate Change (UNFCCC) COP23 climate change conference, where Fiji held the presidency.

Better understanding impacts at the household level

In order to design interventions and target post-disaster support aimed at assisting households before, during, and after a disaster, understanding how these households experience shocks is key. The indirect effects of disasters constitute a significant share of costs, a fact that is generally overlooked in traditional impact assessments. Working with teams across the World Bank, GFDRR has started to fill this knowledge gap by collecting and analyzing household data in risk-prone cities, incorporating the impacts of infrastructure and supply chain disruptions on both households and businesses. The data collection approach was piloted in Accra, **Ghana**. Results were published in the *Road to Recovery* report, in June 2018, focusing on the role of poverty in exposure, vulnerability, and resilience to floods. In FY18, data collection was also carried out in Dar es Salaam, **Tanzania**, and Porto Alegre, **Brazil**. In both of these cities, studies focus on frequent exposure to floods and its relationship to poverty.

In Focus Building back better

Achieving resilience through faster, stronger, and more inclusive post-disaster reconstruction

The year 2017 saw the worst Caribbean hurricane season in recent memory, with the impacts felt most strongly by poorer communities in the small island states in the path of the storms. As harmful as they are, however, disaster events also offer communities an opportunity to build back better. A new report, *Building Back Better: Achieving Resilience through Faster, Stronger, and More Inclusive Post-Disaster Reconstruction*, shows that faster, stronger, and more inclusive recovery would lead to an average reduction in disaster-related well-being losses of 59 percent in small island states. At the global level, building back better could reduce annual well-being losses due to disasters from \$555 billion to \$382 billion—a reduction of 31. (Fig 1.)

The report, launched in June 2018, follows up on last year's *Unbreakable*. It assesses socioeconomic resilience and the impact of disasters on people's well-being in 149 countries—including 17 small island states—and covers 95.5 percent of the world's population and 94 percent of global GDP. It explores the potential of better recovery and reconstruction to reduce future risks and boost resilience.

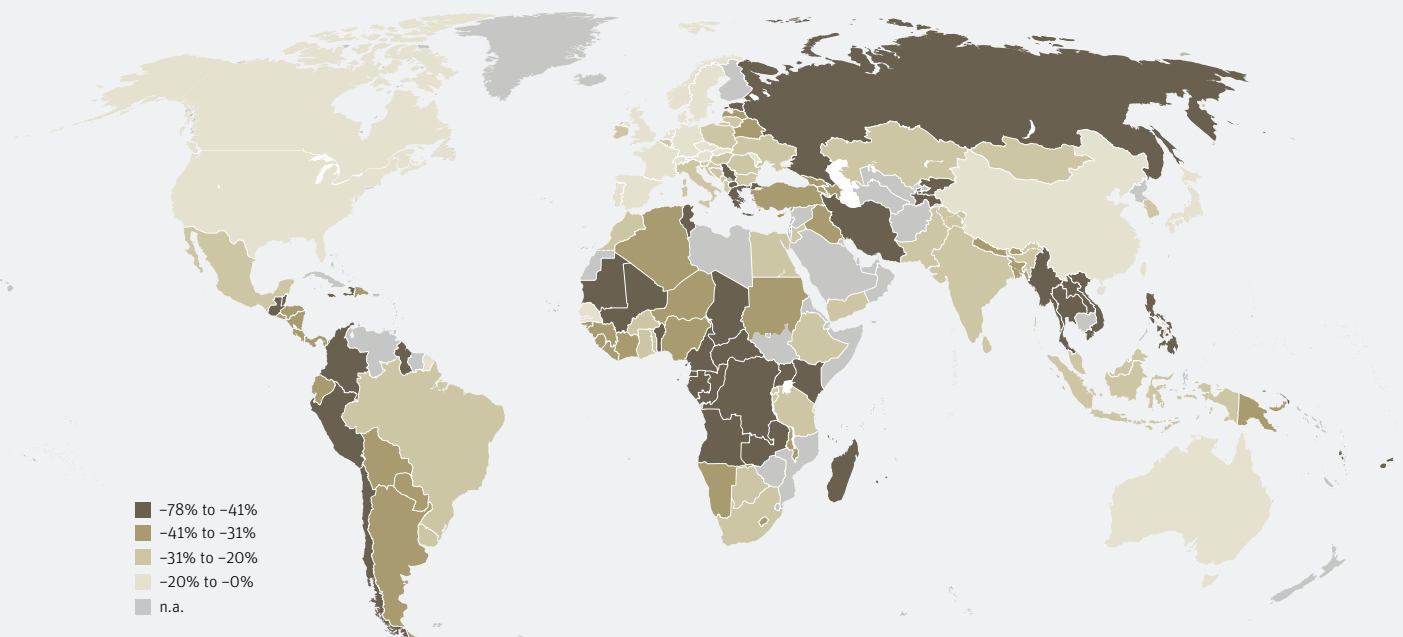
As highlighted in the Sendai Framework for Disaster Risk Reduction, reconstruction offers an opportunity to build more resilient societies that can withstand future shocks by better managing the risks they face—e.g., by building roads, bridges,

and electric grids that are able to endure the next storm. If for 20 years all infrastructure and assets that are rebuilt after disasters were designed to resist future disasters, annual disaster losses would be reduced by 12 percent, delivering \$65 billion in annual benefits. In the riskiest countries of the world, including Antigua and Barbuda, Dominica, Fiji, and Vanuatu, rebuilding *stronger* after each disaster for 20 years would reduce risk by more than 40 percent.

The report extends the investigation to the benefits of a recovery process that is also *faster* and more inclusive. By destroying assets and critical infrastructure, natural disasters deprive people of the foundation of their livelihoods. Building back *faster* could reduce well-being losses due to natural disasters by over \$75 billion per year, or 14 percent. Disaster impacts are disproportionately large for poor people. By building back *more inclusively*, countries would ensure that post-disaster support reaches all affected population groups without bias, and would reduce disaster losses by 9 percent, the equivalent of a \$52 billion increase in global consumption.

This report shows that preparation is key to the principle of *building back better*. By preparing for post-disaster reconstruction, various countries have strengthened the ability to withstand the next natural shock, and provided lessons that can be replicated in the rest of the world.

Figure 1. Percentage reduction of annual average well-being losses associated with building back better



DRM in the Context of Fragility, Conflict, and Violence

An increasing number of countries are affected by both recurring disasters triggered by natural hazards and protracted crises associated with fragility, conflict, and violence (FCV). Their effects are often mutually reinforcing. Inadequate preparation for disasters can exacerbate preexisting tensions and trigger violence, and vulnerability to disasters is often intensified by conflict situations, which lead to forced displacement and undermine people's overall resilience. Conditions of fragility, conflict, and violence are important drivers of disaster risk: between 2004 and 2014, 58 percent of deaths from disasters occurred in the top 30 fragile states.⁴ To support the most vulnerable in reducing their exposure to the impacts of disaster, GFDRR is beginning to increase its engagement in the complex interplay of disasters and conflict.

Engagements in fragile and conflict-affected countries

Reducing disaster risk in FCV settings requires systematic consideration of peace and conflict dynamics in DRM frameworks, policy, and practice. DRM projects—like any other development intervention—interact with the social, political, and economic dynamics that contribute to conflict. In an FCV setting, similar dynamics apply, and need to be assessed with an eye toward how they may interact with the planned

intervention. The minimum objective is then to ensure that DRM interventions “do no harm,” i.e., avoid any negative impacts on the underlying conflict dynamics. If viable, DRM interventions can also go a step further by actively seeking to address the underlying drivers of conflict and contribute to conflict prevention and peace building. Engagements in fragile and conflict-affected states can adapt post-disaster methodologies to post-conflict scenarios.

Sharing knowledge and experience with the DRM community

Through engagements in countries like **Afghanistan, Iraq, and Somalia**, GFDRR has begun to acquire knowledge on how disasters and conflicts interact, and on how to develop more conflict-sensitive DRM approaches. Through a new DRM-FCV Nexus Program, which was launched at the 2018 Spring Meeting of the Consultative Group, lessons learned from these interventions will now be systematized. The initiative will bring together disaster and conflict expertise, and foster systematic cross-fertilization of experiences in disaster and conflict. In a first step, with support of peace and security experts, two trainings for adequately engaging in FCV contexts were developed and tested. These trainings will be further developed and subsequently rolled out to the larger DRM community to raise awareness of the specific challenges in FCV settings and equip DRM experts with the right tools to tailor their interventions accordingly.

⁴ K. Peters, and M. Budimir. 2016. “When Disasters and Conflict Collide: Facts and Figures,” Overseas Development Institute, London, <https://www.odi.org/publications/10410-when-disasters-and-conflicts-collide-facts-and-figures>.

In Focus Building long-term resilience to drought in Somalia



Photo: GFDRR

Somalia has endured several severe droughts in the last decades. In 2011, the worst drought in 60 years resulted in 260,000 deaths and affected 13 million people in the Horn of Africa region. Famine risks have been intensified by decades of insecurity and political instability, which have led to large-scale displacement, the disruption of basic services, and systematic impoverishment of the population. In early 2017, Somalia was again faced with a major drought and a high risk of famine. Half the population was acutely food insecure. Thanks to a massive scale-up of humanitarian assistance, famine was averted, but it remains a looming risk in the future. To ensure a sustainable impact on risk reduction in this environment, GFDRR supported several interventions that were tailored to the specific challenges of this fragile and conflict-affected setting.

Responding to a request by the Federal Government of Somalia, GFDRR provided a \$700,000 grant and technical support for a comprehensive Drought Impact Needs Assessment (DINA). This assessment improves understanding of the dynamics and drivers of recurrent emergencies, and supports the development of a Recovery and Resilience Framework (RRF) that proposes long-term durable solutions for building resilience. The assessment was conducted in close coordination with the humanitarian actors on the ground, and was seamlessly aligned with the Humanitarian Response Plan. In addition, it combined innovative remote sensing technologies with information received from partner networks to gain information in areas controlled by al-Shabaab militia, where insecurity made access impossible.

Drought displaced more than 900,000 people between November 2016 and September 2017. This happened against a backdrop in which an estimated 2.1 million people

were internally displaced due to conflict. The large and rising influx of displaced people in Somalia's urban areas puts additional stress on the already strained key sectors, particularly land, housing, health, education, water supply and sanitation, civil protection, and jobs. Therefore, the DINA and RRF for the first time included the urban sector in a drought assessment and recovery framework.

The DINA also informed the \$50 million Somalia Emergency Drought Response and Recovery Project, which explored new ways of working with strategic humanitarian partners. The International Committee of the Red Cross and the Food and Agriculture Organization of the United Nations have better access to affected communities in hard to reach areas, such as those currently controlled by al-Shabaab militia. They apply beneficiary targeting approaches that are conflict sensitive and inclusionary. To increase its adaptability to the evolving environmental and security context during implementation, the project adopts a flexible programmatic approach and results framework that allows the shifting of resources between different areas of engagement.

Both disaster and conflict situations often lead to high incidents of gender-based violence (GBV). To counter this, a \$1.2 million grant supports the integration of GBV interventions into a comprehensive strategy to strengthen drought resilience. The program combines economic empowerment interventions for women with integrated clinical, psychological, and legal services for GBV survivors at the community level, along with institutional strengthening and capacity building. The project is implemented by the International Rescue Committee (IRC), which uses a conflict-sensitive strategy of gaining local acceptance by meeting with local administrators and leaders to build rapport and community acceptance.

Promoting Gender Equality and Empowering Women to Build Climate and Disaster Resilience

Globally, women are at greater risk than men of injury or death during a disaster, and they are at greater risk of economic loss in its aftermath. Moreover, evidence increasingly suggests that empowering women contributes to broader resilience. Promoting gender equality and women's empowerment to build climate and disaster resilience is a key operating principle for GFDRR. The aim is for the portfolio to be 100 percent gender informed⁵ by 2021, with 50 percent of the grants to include specific actions to reduce gender gaps.

72 percent of new grants in FY18 were gender informed

26 percent include gender indicators

Operationalizing gender equality

The Gender Action Plan 2016–2021 (GAP) operationalizes GFDRR's commitment to integrate gender equality and women's empowerment in its portfolio by providing programming, analytics, and advisory services, and through knowledge, learning, and innovation. The GAP will develop and implement a more systematic and results-focused approach to analyzing, designing, monitoring, and evaluating the integration of gender and women's empowerment in DRM interventions. The plan addresses two critical aspects of gender and DRM: (i) understanding and addressing the different needs of women and men in DRM investments; and (ii) promoting women's empowerment for the broader strengthening of resilience.

Gender-informed grants and activities

Commitment to integrating gender equality and women's empowerment is reflected in the increasing number of grants that address gender issues. In FY18, 72 percent of new approved grants were gender informed, an increase of 2 percent over FY17, and 58 percent had undertaken gender analysis or considered existing gender analysis to identify project-related gaps between women and men. In addition, 56 percent were taking specific action to address gender equality and women's empowerment. Finally, 26 percent of the new grants approved included indicators to measure the results of the gender actions proposed.

The Open Cities Africa initiative includes a module on how to incorporate gender in the design of all the projects financed under this initiative. In May, the Small Island States Resilience Initiative (SISRI) organized the Third Practitioner's Network Meeting in Mexico City, with gender as a cross-cutting issue

throughout the sessions and a dedicated session on gender in disaster recovery. Several grants have included gender analysis, actions to close gender gaps, and indicators to measure, monitor, and evaluate the impacts of those actions. **Fiji's** Climate and Vulnerability Assessment included an assessment of gender-specific vulnerabilities to natural hazards and climate change impacts. The assessment provided the government with information to improve its decision making around gender equality and women's empowerment. It recommended enhancing the collection of sex-disaggregated data to better understand gender-differentiated impacts, and called for dedicated investments in diversifying women's income to reduce their vulnerability to natural hazards and the impacts of climate change.

In **Zimbabwe**, a transformative climate-resilient agriculture project run in collaboration with the Ministry of Women's Affairs, Gender and Community Development will promote gender equality and empower women. A detailed gender analysis has informed the project, which includes specific actions such as gender-sensitive consultations and collaboration with women's associations and nongovernmental organizations (NGOs) working on gender issues. It makes provision for gender-sensitive early warnings and climate information by involving women's organizations in their dissemination and interpretation. It will also monitor gender mainstreaming in municipality plans for the management of hazards, and include both women and men in the management of climate-resilient water and irrigation infrastructure.

Knowledge, tools, and capacity building

In FY18, GFDRR increased its investments in knowledge, tools, and capacity-building activities to further integrate gender and women's empowerment in its portfolio. For example, the "Three-Step Guide to Ensure Gender-Informed GFDRR Grants" has been developed to provide quick guidance on how to integrate gender into the portfolio; it will be rolled out in FY19. A gender and DRM online training program has been developed that will increase the capacity of staff to identify, analyze, and incorporate gender into projects and investments. In February, a sector-specific training on gender in water resource management (WRM) projects focused on how water-related hazard events impact women and men differently, why gender issues are relevant for WRM projects, and how gender can be incorporated in WRM projects. Several sector-specific guidance notes are currently under development to support staff to improve the quality of gender analysis, interventions, and indicators within their specific sectors.

⁵ A grant is gender informed if it has included a gender analysis, specific actions to address gender issues, or indicators to measure the progress of actions to reduce gender gaps.

In Focus Guidance note on gender-responsive disaster recovery

In FY18, a guidance note on gender-responsive disaster recovery was developed in collaboration with the World Bank, the European Commission (DG ECHO), UN Women, and the International Recovery Platform hosted by UNISDR. The note provides entry points for reaching, protecting, and empowering women, girls, men, and boys in recovery and reconstruction efforts. It addresses the different challenges that women face in post-disaster reconstruction and recovery, caused by underlying issues of inequality and marginalization, and suggests ways to overcome them. It also provides guidance on how to turn a post-disaster situation into an opportunity to enhance gender equality and women's empowerment by building back better.

For example, the note provides advice on how to promote gender equality in recovery frameworks, sector-based recovery plans, and monitoring and evaluation frameworks for equitable resource allocation and needs prioritization. It also offers practical advice on how to protect women from sexual and gender-based violence and ensure that women have equal access to services such as health care. Equally important, the note provides guidance on how to empower women by facilitating roles as key actors in rebuilding communities, with skills and perspectives that are critical to building safer and more resilient societies. For example, as part of support for the government of Uganda's efforts to strengthen the financial resilience of the poorest, the World Bank and GFDRR are taking into account the special needs of women: the program includes a social protection project that provides employment through labor-intensive public works projects and direct cash transfers to households without able-bodied members.

The project is implementing several gender-responsive measures to ensure that some of the selected activities are located close to villages and appropriately meet the needs of women. Through representation on community committees, women will also be fully involved in decision making, including in selecting the types and location of public works activities to be adopted.



Disaster Recovery Guidance Series

Gender Equality and Women's Empowerment in Disaster Recovery



Nature-Based Solutions

Nature-based solutions (NBS) have emerged as a powerful and efficient alternative—or complement—to conventional disaster risk reduction. The concept, which is also known as “green infrastructure” or “ecosystem-based DRR,” is simple: use ecosystems to address a variety of natural hazards, making use of natural processes and ecosystem services for functional purposes, such as decreasing flood risk. GFDRR supports a range of projects that use nature-based solutions to reduce flooding in urban areas and along rivers and coasts, and to reduce coastal erosion, landslides, and drought.

Reducing risk, protecting development

Nature-based solutions have a range of applications in the reduction of risk. They can alleviate flooding from heavy rains, create better microclimates, and improve urban landscapes. Urban wetlands and green roofs can store water and release it slowly into rivers and drainage systems, reducing the burden on storm drains. Along coastlines, restoring mangrove cover or coral reefs can reduce the impact of waves and storm surges on the shoreline and decrease erosion.

In addition to risk reduction functions, many nature-based solutions have socioeconomic and ecological benefits, such as biodiversity, carbon storage, and protection of livelihoods and well-being. Since 2012, the World Bank has financed 76 investments and analytical activities, for a total commitment of about \$2 billion, that use nature-based solutions to reduce flooding in urban areas and along rivers and coasts, and to reduce coastal erosion, landslides, and drought. Despite this progress, however, NBS still make up an average of only 3.8 percent of the World Bank’s DRM portfolio.

Growing the portfolio in nature-based solutions

In FY18, the Nature Based Solutions initiative was launched to help countries promote the wider use of NBS to reduce their disaster and climate risks. This initiative is supporting the development, operationalization, and piloting of NBS across the regions, and brings together a unique collaboration between GFDRR and the Sustainability, Urban, Rural and resilience (SURR), Environment and Natural Resources (ENR), and Water Global Practices within the World Bank.

The initiative supported nine projects involving nature-based solutions during the financial year. It generated new tools to improve the communication of NBS concepts to decision makers; initiated independent pilot studies on flood, erosion, and landslide management; and supported ongoing Bank operations to mainstream NBS approaches in the portfolio. Analytical work, just-in-time financing, and technical support in **Bangladesh**, the **Democratic Republic of Congo**, **Haiti**, **Mozambique**, **Panama**, the **Seychelles**, **Sri Lanka**, and **Sudan** set the stage for further investments. In addition, a trust fund has been established to facilitate the mainstreaming of nature-based solutions.

Bringing together evidence from across the globe, the newly launched website “Natural Hazards – Nature-based Solutions” (www.naturebasedsolutions.org) hosts a repository of 227 NBS projects in 72 countries from a range of financiers, implementers, and contractors. The website allows partners to share projects, guidelines, and studies.

In its role as established convener and innovation leader, GFDRR helped shape the debate in FY18 at both high-level and practitioner-centric forums, such as the UNCCC COP23 and the Understanding Risk Forum—for example, with its guidance on nature-based flood risk reduction.

In Focus Investing in coral reefs in the Seychelles



Degraded coral reef. Photo: Rainer von Brandis

Spread across 115 islands in the Indian Ocean, the Seychelles, like all small island states, is extremely vulnerable to coastal hazards. Through its tourism and fishing industry, the Seychelles economy is deeply entwined with its coast and seas, as are its transport and the movement of people.

The realities of climate change, sea-level rise, and coral reef degradation, however, are beginning to pose potential threats to this island paradise. Coral reefs, a natural protective barrier along coastlines, have suffered from climate change–induced bleaching. Flood modeling and drone observations supported by GFDRR show that the observed increase in erosion and flooding is due to reef degradation. Together with other stakeholders in the country, the government of the Seychelles is now forging its path to resilience with innovative nature-based solutions and financing that target the nation’s coral reefs.

The restoration of coral reefs has been implemented on a pilot scale and has delivered encouraging results for the reduction of coastal flooding and erosion over recent years. The government of the Seychelles has therefore requested support to look into the feasibility of scaling up coral reef restoration for coastal resilience. Large-scale restoration efforts using land-based coral farms are increasingly showing

themselves to be a reliable option. This novel approach relocates the early growth stages of corals from offshore nurseries into a controlled onshore environment, comparable to large aquariums, and can use smaller fragments of corals than conventional nurseries.

These steps reduce predation and disease so that more coral fragments can be raised and survivorship improves, increasing the productivity of the onshore coral farm. They also reduce maintenance costs associated with the removal of macroalgae and small predators, which are typically prevalent in offshore nurseries. Lastly, coral farms can improve the long-term resilience of the restored reef. By simulating projected future ocean conditions, like warmer temperatures or higher acidity, the best-adapted species can be selected for breeding and reef restoration.

Coral restoration in the Seychelles will bring the tourism industry to the table to cofinance the coral reef restoration efforts, providing a sustainable local source of funding and a potential business model. Drawing on lessons from Mexico’s Yucatán peninsula, reef insurance and other financing instruments for hotels and tourism operators are being assessed for the Seychelles context, and a study to identify such private financing opportunities is being conducted.

“The coastal zone is crucial for development in the Seychelles, and healthy coral reefs contribute to a resilient coast.”

—Wills Agricole, Principal Secretary, Ministry of Environment, Energy and Climate Change, Seychelles

Disability Inclusion

Globally, there are 1 billion persons with disabilities, and they are disproportionately affected by the immediate and long-term effects of natural hazard events. This is exacerbated by the interplay between disability and other vulnerability drivers, such as poverty. Disability-based discrimination can increase in emergencies, and with it the likelihood that those with disabilities will be particularly disadvantaged both during the event and during the relief and recovery efforts. GFDRR is committed to promoting socially inclusive disaster risk management and has prioritized the engagement and empowerment of persons with disabilities.

Developing an action plan

In FY18, GFDRR developed a policy brief and an action plan around five measures to empower persons with disabilities to become agents of disaster risk reduction and disability-inclusive reconstruction. These measures are detailed in a report entitled *Disability Inclusion in Disaster Risk Management: Promising Practices and Opportunities for Enhanced Engagement*, and are summarized below.

Including people with disabilities in DRM

Persons with disabilities and disabled persons' organizations have invaluable knowledge, experience, and expertise relevant for making disaster risk management activities responsive to their needs. It is critical to include them in the design, implementation, and monitoring of these activities. The Indonesian province of Central Java has set an example of how this can be achieved by creating a disability inclusion service unit within the local disaster management office.

Removal of barriers to full participation

Persons with disabilities face physical, informational, communication, and other barriers that prevent them from participating in full. Accordingly, development institutions, governments, and other key stakeholders must make every effort to break down these barriers. The UNISDR, for instance,

worked with the Institute on Disability and Public Policy to use telepresence robots to allow persons with disabilities to participate remotely at last year's Global Platform for Disaster Risk Reduction in Cancun, Mexico.

Increased awareness among governments

Awareness about the vulnerabilities of persons with disabilities both during and after disaster remains limited among some governments. This means that their well-being may not be given priority during disaster response and recovery. It is thus critical to build government awareness about the needs of persons with disabilities. In Cambodia, the Philippines, and Thailand, the University of Sydney's Disability and Disasters project is developing training modules that allows government officials, among other users, to inform themselves about the risks that disasters pose to persons with disabilities.

Generating inclusive data

In many parts of the world, data and statistics disaggregated by disability are difficult to obtain, which can make it challenging to design and implement disaster risk management activities responsive to the needs of persons with disabilities. Countering data gaps requires support for data collection activities, such as censuses and household surveys. In the Philippines, the Arbeiter-Samariter-Bund (ASB) Community Resilience Program is working with disabled persons' organizations to gather disability data, using an inclusive approach to data collection that could be emulated elsewhere.

Building back accessibly

Across the disaster risk management community, the movement to build back better continues to gain traction. As the *Building Back Better* report recently pointed out, there is a need to ensure that reconstructed infrastructure is not only more resistant to future hazards, but also more inclusive of vulnerable populations, including persons with disabilities, elders, pregnant women, etc. Disaster recovery efforts should strive to improve accessibility; for example, in post-earthquake Haiti, a law was ratified to ensure that all buildings, both new and rebuilt, are accessible to persons with disabilities.

In Focus Disability-inclusive disaster risk reduction in Bangladesh



A crowd of people enjoy the beach at sunset in Cox's Bazar, Bangladesh. Photo: Joel Carillet

The report *Disability Inclusion in Disaster Risk Management* included several case studies illustrating best practice from around the world.

One of the studies came from Gaibandha District in northern Bangladesh, which is prone to annual floods from the Brahmaputra River and other disasters. In this district, the approach to community-based disability-inclusive disaster risk reduction (CBDIDRR) goes beyond adopting a community-based approach to DRR and ensuring that all activities and techniques include a disability component; rather, it involves persons with disabilities in all activities and at all levels.

To support communities to reduce the impacts of floods, the Centre for Disability in Development and its partner Gana Unayan Kendra developed a participative process for risk, vulnerability, and capacity assessment. The first step consisted of meeting with community members, including persons with disabilities, and with local authorities to capture their knowledge about the hazards faced, challenges

in coping, and their demands. Training was then organized with self-help groups of persons with disabilities, community members, and local authorities; these groups focused on understanding DRR, learning about risk assessment and assessment techniques, and understanding disability issues.

In one training session, participants drew a village map indicating critical infrastructure, evacuation routes, and water points, as well as the location of persons with disabilities, elderly persons, livestock, and assets. The completed map was used to develop strategies and plans to minimize the impacts of the floods. For example, evacuation shelters and roads were identified based on previous flood levels; evacuation priorities were defined; the roles and responsibilities of different community members were decided; and plans were made to shelter livestock and ensure the safe conservation of foods, seeds, and related community assets. In this way, persons with disabilities were able to substantively and meaningfully participate in the protection of the whole community.

Building the Resilience of Island Nations

Of the 17 countries that face annual disaster losses exceeding 2 percent of their GDP, more than three-quarters are small island states in the Caribbean, Pacific, or African and Indian Ocean. The need for tailored support to help small island states address climate vulnerability was underscored by several severe events in FY17, including Hurricanes Irma and Maria in the Eastern Caribbean and Cyclone Gita in Tonga. Dominica, one of the worst-affected islands, suffered damage equivalent to 226 percent of its GDP. Through the Small Island States Resilience Initiative (SISRI), GFDRR is providing technical and operational support to help island nations increase the scale and effectiveness of their resilience investments.

Complex challenges, integrated responses

The **Republic of Marshall Islands** epitomizes the challenges that island states contend with—specifically high vulnerability, low administrative capacity, and fragmented aid projects. With a population of 53,000 spread across 1,150 low-lying islands, the Marshall Islands faces a coastal protection challenge exacerbated by its extreme remoteness, which makes import of construction materials costly.

SISRI partnered with Deltares to conduct a multi-hazard assessment for the key population centers of Ebeye and Majuro. The study weighed alternative design criteria for coastal

protection interventions—such as height of seawalls and incorporation of nature-based solutions—against the resulting cost and number of people protected. The results helped the government select optimal strategies and leverage \$25 million in additional Green Climate Fund resources. A detailed coastal study was also conducted in **Tuvalu** to inform maritime transport investments.

In **São Tomé and Príncipe**, SISRI supported a national investment plan for climate resilience, backed by an island-wide flood hazard map and information platform for risk-informed planning. SISRI helped to implement the Fiji Climate Vulnerability Assessment, a data-driven assessment of the impacts of climate change on development objectives and vulnerabilities across sectors. Shared with aid donors at COP23, the assessment provides for a consolidated \$4.5 billion investment plan comprising 125 interventions to reduce climate risks.

Scaling knowledge sharing among islands

SISRI is helping to disseminate lessons and successful project models among multiple island nations. The third meeting of the SISRI Practitioners' Network, held in Mexico City in May 2018, gathered some 60 participants from 20 SIDS to share best practices and help catalyze new policies and investments. The focus was on resilient recovery in the aftermath of disasters, with an emphasis on the 2017 hurricane season in the Caribbean.

In Focus Building a community of practice



Participants at a drone workshop in the Seychelles. Photo: GFDRR

In May 2016, SISRI brought representatives from 22 island countries in the Pacific, the African Indian Ocean, and the Caribbean together in Venice to establish a community of practice around DRM in these threatened states. Among the issues addressed in that first session were coastal resilience, social resilience, and risk-based spatial planning—all of which are areas of particular concern for these countries.

In May 2018, the community convened for the third time, at the Understanding Risk event in Mexico City, where 41 government officials together with experts from the World Bank, the EU, the ACP Secretariat, and other institutions shared good practices, innovations, challenges, and practical solutions related to resilient recovery in the aftermath of disasters. This topic was particularly relevant after the recent disasters resulting from Hurricane Irma (affecting Antigua and Barbuda, the Dominican Republic, Haiti, and St. Kitts), Hurricane Maria (Dominica), and Cyclone Gita (Tonga).

During each session, key challenges and solutions were identified and discussed. For example, during a session on resilient housing, Dominica's PS from the Ministry

of Housing and Lands presented findings from the post-disaster needs assessment conducted following Hurricane Maria in 2017. The losses from the hurricane amounted to 226 percent of 2016 GDP, with the housing sector the most damaged. The Seychelles described the country's efforts toward developing a structured and coordinated disaster response, challenges caused by available funding mechanisms, the national disaster recovery framework that is yet to be drafted, and the limited post-disaster resources available for upper-middle-income countries such as the Seychelles. Fiji presented information on its Help for Homes program, which offers grants, materials, and technical training to assist people in the construction of safer and more resilient homes.

The key message of the workshop was that three actions related to building back better—*rebuilding faster*, *more inclusively*, and *stronger*—can generate large benefits in the aftermath of disasters. Practitioners highlighted the insights, connections, ideas, and methodologies gained from the workshop as valuable takeaways, and emphasized the need to continue exchanging best practices among SIDS to build climate and disaster resilience.



EVENTS AND PUBLICATIONS

GFDRR actively engages in global dialogue and works with partners to ensure that the resilience agenda remains central to global policy discussions - and that the ideas keep coming.



Summary of events

SEPTEMBER 2017

Africa Hydromet Forum

The inaugural African Ministerial Conference on Meteorology (AMCOMET)—Africa Hydromet Forum brought together representatives from the public and private sectors, regional entities, and civil society to build consensus and momentum to modernize weather, water, and climate information services for sustainable development in Africa.

NOVEMBER 2017

23rd Conference of Parties (COP23)

This year's COP was hosted by the government of Fiji and held in Bonn, Germany. The event saw the release of Fiji's GFDRR-supported Climate Vulnerability Assessment, which provides significant new analysis of Fiji's vulnerability to climate change, and will help inform its development planning and investment decisions.

Comprehensive Financial Solutions for City Resilience

The annual Comprehensive Financial Solutions for City Resilience Conference, organized by the GFDRR-supported City Resilience Program, brought together city officials, private sector experts, donors, and investors in Bangkok to prepare for ambitious investments in urban resilience. The aim was to refine existing investment ideas and expand

the financing options available for cities. Through a combination of technical workshops and hands-on planning sessions, city leaders left equipped to further develop their investment plans and identify opportunities for private sector financing.

FEBRUARY 2018

9th World Urban Forum

Stakeholders, policy makers, and experts met in Kuala Lumpur for UN-Habitat's Ninth Session of the World Urban Forum (WUF9). This year's forum focused on implementing the New Urban Agenda adopted by the international community at the Habitat III conference in 2016.

MARCH 2018

GeoNode Summit

Organized by GFDRR with the European Union, this year's GeoNode summit, held in Torino, Italy, brought together experts and users from around the world to share knowledge and experience and explore the potential of the GeoNode Open Source Geospatial Content Management System in such areas as DRM and resilient city planning.

APRIL 2018

InterMET Asia

Part conference, part marketplace, InterMET Asia took place April 11–12 in Singapore. GFDRR hosted special sessions that brought the public and private sectors together to discuss public-private collaboration, as well as a project workshop on modernizing hydromet services.

MAY 2018

Understanding Risk (UR) Forum

Held in Mexico City, this flagship event brought 900 practitioners together to explore the theme "Disrupt. Influence. Communicate." This focus highlighted the importance of risk communication in the field and of introducing new technologies to the community.

WMO Hydrology Conference

At the WMO Global Hydrological Conference in Geneva, GFDRR introduced recommendations from a report produced with the World Bank and the WMO on the state of hydrological services in developing countries. These recommendations led to commitments from the World Bank Group and the WMO to increase their support for hydrological services as part of their effort to meet their goals and aspirations, and to work closely with partner organizations in implementing the processes and procedures identified.

In Focus The Resilience Dialogue series



An audience member participates in the Q&A. Photo: GFDRR

The Resilience Dialogue (RD) series convenes enterprising minds from within and outside the field of DRM to discuss highly topical aspects of the resilience agenda. Organized in consultation with Japan, USAID, the European Union, and the World Bank, the RD series seeks to address climate and disaster risk in vulnerable countries by advancing awareness of—and action on—these challenges among decision makers and other stakeholders. In FY18, three events in the RD series covered a diversity of topics, including quality infrastructure, private finance, and artificial intelligence.

The Disaster That Never Happened: Can Resilient Infrastructure Save the World?

Held at the World Bank Annual Meetings in October 2017, the first Dialogue in a series explored the role that infrastructure—from the built environment to nature-

based solutions—will play in protecting communities from compounding disaster risk in the context of climate change and accelerating urbanization.

The Future of Resilience: Banking on Cities

The second Dialogue in the series, held at the World Bank Spring Meetings in April 2018 looked at how private finance can be leveraged for the development of resilient cities at a time of increasing urbanization.

Artificial Intelligence: Panacea or Doomsday?

This popular event at the UR Forum in May 2018 explored the role of artificial intelligence in accelerating improvements in the gathering, analysis, and communication of disaster risk information.

“With the political will and strong leadership emerging now across the region, and bolstered by strong support from the international community and businesses willing to invest, [the Caribbean island states] have a great opportunity to build greener and more resilient communities than ever before—setting shining examples of what climate-smart recovery around the world can and should look like. Needless to say, an ounce spent on resilience now will be a pound saved in dealing with tomorrow’s disaster.”

—Richard Branson, CEO, Virgin, Washington DC October 2017

COP23

The 23rd Conference of the Parties of the United Nations Framework Convention on Climate Change (COP23) took place in Bonn, Germany. It was chaired by the Republic of Fiji and had a clear focus on adaptation and resilience, and on the vulnerability of small islands. Building on and contributing to this topical focus, GFDRR also supported several pieces of analytical work and co-organized side events at the COP.

Reporting on climate vulnerability

One notable piece of work launched at COP23 was *Climate Vulnerability Assessment: Making Fiji Climate Resilient*, produced by the government of Fiji, GFDRR, and the World Bank. The report was introduced at a session chaired by Fiji's attorney general and minister of the economy. Its dissemination has been supported by a virtual reality movie that has been seen by more than 600,000 people. The report will provide the Fiji government, other island countries, the World Bank, and other development partners with a clear, evidence-based resource that can be used for planning climate change interventions to protect Fiji.

According to the report, the number of Fijians being pushed into poverty and hardship could increase from 25,700 people per year to an estimated 32,400 per year by 2050. At the same time, the cost of climate change-related disasters is

likely to rise significantly; floods and cyclones are projected to lead to asset losses up to 30 percent higher than current averages. Reducing Fiji's climate vulnerability—through a range of measures such as strengthening towns and cities and improving infrastructure, agriculture, and fisheries—would cost an estimated \$4.5 billion over 10 years. Beyond the results for Fiji, the objective of the report was to illustrate how innovative methodologies can be mobilized to better understand and quantify climate vulnerability and design adaptation strategies.

One major outcome of the report is a \$4.5 billion multisector investment plan with 125 interventions to reduce the risks from climate change. This plan can now be used as a basis for further operational engagement and to support access to climate finance. A major innovation is that the report does not consider the vulnerability of Fiji today, but the vulnerability of the objectives stated in its national development plan. This new focus resonates more with policy makers.

Promoting resilient infrastructure

In addition, GFDRR supported the *Climate and Disaster Resilient Transport in Small Island Developing States* report, that was also launched at COP23. Building on the methodology proposed in the *Unbreakable* report and expanding the analysis to small islands, the report highlighted the great potential to improve the efficiency and resilience of small islands' road networks, and identified methodological and technical solutions to achieve more resilience at a lower cost.



COP23 Fiji. Photo © IISD/ENB | Kiara Worth

“As the president of the COP23 and on behalf of the small island nations, . . . Fiji is asking the world for drastic action on climate change—building resilience through adaptation and reducing greenhouse gas emissions so that climate change does not impose a limit to our development and the aspiration of our people to live in their own lands.”

—Hon. Voreqe Bainimarama, Prime Minister of the Republic of Fiji and COP23 President

The 2018 Understanding Risk Forum: Mexico City

Understanding Risk (UR) is a global community of 7,500+ experts and practitioners active in the creation, communication, and use of disaster risk information. Members share knowledge and experience, collaborate, and discuss innovations and best practice in risk identification. The community convenes every two years at the UR Forum—a five-day event that highlights groundbreaking work, facilitates nontraditional partnerships, and showcases new technical know-how in disaster risk identification. This year’s event took place in the historic Palacio de Minería, Mexico City.

A timely reminder

On the first morning of the fifth global UR Forum, delegates received a dramatic reminder of the importance of the work of the DRM community when a Mw 5.2 earthquake struck near Mexico City. Under the direction of Mexico’s civil protection services, 200 people were evacuated from the 200-year-old stone halls of the Palacio de Minería and assembled in the square outside. The evacuation was smooth and efficient, a testament to some of the systems—including an advanced early warning system—that Mexico has put in place to deal with the risk of natural hazards since the devastating earthquake of 1987.

The Forum was convened by GFDRR and organized in partnership with Mexico’s National Civil Protection Agency, Mexico’s Interior Ministry (Secretaría de Gobernación, SEGOB), and the National Autonomous University of Mexico (UNAM), along with 100 partners from the DRM community. Some 80 sessions and workshops led by various international organizations were held over five days, under the theme “Disrupt. Influence. Communicate.” This focus highlighted the importance of risk communication in the field and brought new technologies to the community.

Sharing knowledge, growing partnerships

The first two days provided the opportunity for institutions to independently organize their own events, while the main conference showcased relevant topics and themes, including a detailed exploration of artificial intelligence and big data and their implications for understanding risk; an interdisciplinary look at communicating risk for action; a showcase of disruptive technologies that can be useful for DRM; a look at advances in catastrophe modeling; and a discussion of the psychology behind irrational decisions.

In session after session, presenters showed that understanding, communicating, and raising awareness of disaster risk are the foundations of good disaster risk management. As delegates grasped again the value of the Understanding Risk community, in particular its role in globally advancing DRM innovation and partnerships, they renewed connections they’d made through the community and forged valuable new relationships.

This event also provided an opportunity for the launch of multiple flagship products, including *Aftershocks: Remodeling the Past for a Resilient Future*, the return period calculator tool, the *Volunteered Geographic Information Report*, and *Design for Impact Framework: Integrating Open Data and Risk Communication for Decision-Making*.

Showcasing innovation and technology

An important aim of the forum was to encourage and showcase innovation in creating affordable, effective, and accessible approaches and tools for assessing and communicating risk. Case studies showed the potential of new technologies and approaches, together with practical examples of how these are being used by technical experts and communities alike in understanding the risks they face.

In addition, a key element of the event was to introduce delegates to the young, diverse, and dynamic actors working in the space of risk identification. As is always the case with UR events, the presence of a wide range of partners added greatly to the excitement and energy of the Forum.

In Focus The future of risk: From modeling to communicating



UR2018. Photo: Miki Fernandez

Advances in computational capabilities and communications seem likely to increase our ability to model and assess risk. But this increase does not automatically increase resilience or motivate actions to reduce risk. How can we communicate risk results in a way that promotes effective action, teaches meaningful lessons from past experience, prompts changes in habits and behavior, and helps us get better at reducing risk and increasing resilience?

Speakers at a session at UR2018 sought to review our past and current understanding of risk, explore how our ability to model risk might evolve in the near future, and share some of the ways that risk information is used for decisions and actions. Entitled “The Future of Risk,” the session included inputs from the Yanapay and Stanford Urban Resilience Initiative, AIR Worldwide, Global Parametrics, the Delft University of Technology, the Sri Lankan Ministry of Irrigation and Water Resource Management, the Global Earthquake Model Foundation, GFDRR, and Mexico City’s Agency for Resilience.

Presentations showed how scientists and engineers quantify the probabilities of experiencing a hazard and the subsequent impacts upon structures and society. Advances in computational capabilities have moved risk modeling from the domain of mainframe computers to the desktop and cloud. At the same time, the geographic regions and perils that can be modeled are expanding.

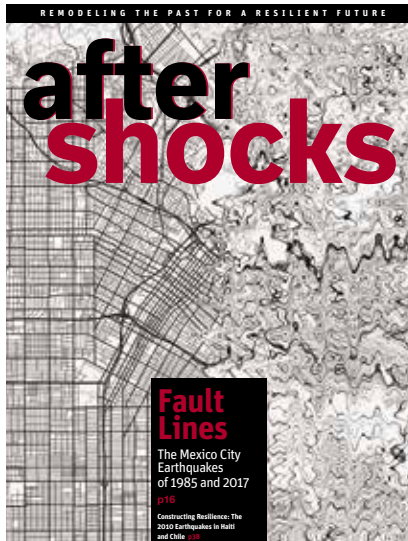
However, the resolution and sophistication of models is not consistent, due in large part to limited data on exposure, hazard, and vulnerability, particularly in the developing world. Two factors will help resolve the data limitations. One is continued increases in computational resources, which generate better exposure and vulnerability data. The other is a combination of local and community efforts to collect and improve exposure data, and thus provide the high-resolution data on exposure that is important to communities.

While advancements in technology and data are critical, they do not necessarily lead directly to action. Case studies presented in the session highlighted the importance of communication and decision support tools to promote and enable action that reduces risk and increases resilience.

“This year’s UR Forum was of course an inspiring but also an engaging event—where we saw the arrival of disruptive technologies that help us better understand risk, and real movement in how risk information is communicated to the governments and communities that use it. And as always, we had the opportunity to connect with other experts and practitioners, across multiple disciplines and regions, to share challenges and best practice.”

—Dr. Eduardo Reinoso, Chief Executive Officer, ERN

Significant Publications FY18



Aftershocks: Remodeling the Past for a Resilient Future

This report provides readers with an accessible look at what would happen today if we were to experience some of the iconic disasters of the past. It explores how risk modeling can be used to analyze natural events that led to the major disasters of the past, and to understand how these events might impact today’s more populous and connected world.

Assessment of the State of Hydrological Services in Developing Countries

Responding to concerns that hydrological services—particularly in low- and middle-income countries—are unable to respond to the growing demand for easily accessible, robust, and timely information, this assessment aims to provide a better understanding of the status, performance obstacles, and investment needs of hydrological services.

Climate and Disaster Resilient Transport in Small Island Developing States: A Call for Action

The transport sector plays a central role in the vulnerability of Small Island Developing States, and resilient transport policies can significantly reduce future losses in assets and well-being. This report proposes solutions to integrate climate and disaster risk considerations in transport infrastructure life-cycle management and, in this way, enhance the resilience of transport systems.

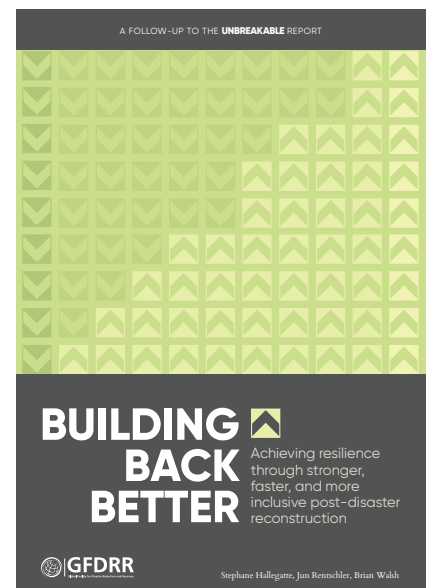
Converting Disaster Experience into a Safer Built Environment: The Case of Japan

This report describes Japan’s incremental approach to developing, implementing, and facilitating compliance with building regulation over many decades. It explains Japan’s unique path to developing a policy and legal framework as well as the compliance mechanisms that grow out of this framework.



Design for Impact Framework: Integrating Open Data and Risk Communication for Decision-Making

The framework represents a foundational first attempt by OpenDRI to address the lack of a clear and validated framework that relates the capture and analysis of risk data to decision making. It offers project designers a framework to guide them in developing projects that have a tight handshake between the development of risk data and real-world decision making.



Building Back Better: Achieving resilience through stronger, faster, and more inclusive post-disaster reconstruction

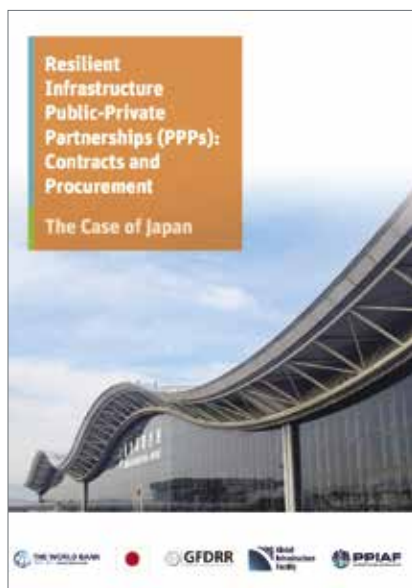
This report shows how the benefits of building back better could be greatest among the communities and countries that are hit by disasters most intensely and frequently. For a selection of small island states, this report shows that stronger, faster, and more inclusive recovery would lead to an average reduction in disaster-related well-being losses of 59 percent.

Disability Inclusion in Disaster Risk Management

This report presents the results of a comprehensive review by GFDRR of the state of practice in disability-inclusive DRM. The report is intended to help World Bank staff incorporate persons with disabilities and a disability perspective into their ongoing DRM work. The report will also be of interest to other development actors and stakeholders working on DRM.

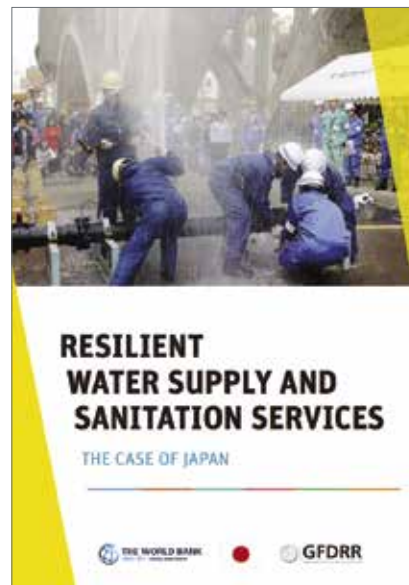
Resilient Infrastructure Public-Private Partnerships (PPPs): Contracts and Procurement

This report presents a case study of infrastructure PPP projects in Japan. Japan’s experience in structuring resilient infrastructure PPPs offers policy recommendations and insights on how disaster and climate risks can be managed under PPPs.



Technical Deep Dive on Hydromet Services for Early Warning: Summary Report

This is a summary of the Technical Deep Dive on Hydromet Services for Early Warning, held in September 2016. The event allowed developing country clients to learn from Japan’s approach to hydrological and meteorological hazards—specifically its ability to translate modern and sustainable weather, climate, and hydrological services into national hazard and climate risk management strategies.



Resilient Water Supply and Sanitation Services: The Case of Japan

Japan has built the resilience of its water supply and sanitation services through an adaptive management approach based on lessons learned from past natural disasters. This experience offers key insights for low- and middle-income countries seeking to sustain and build resilience of in water supply and sanitation services.

Second Technical Knowledge Exchange on Resilient Transport

With the objective of further building the resilient transport community to influence Bank Technical Assistance (TA) and operations, 11 country delegations and a total of 65 participants attended the workshop. The exchange drew upon Serbia’s experience and international experts to showcase innovative approaches and practical advice for facing the challenges when addressing risk management planning for the transport sector.

10: A Decade of Progress in Disaster Risk Management

This publication, which marks 10 years of GFDRR operations, celebrates the world’s progress in different dimensions of disaster risk management, from civil defense to financial protection, and takes a bird’s-eye view of how they come together to create a stronger, more resilient world. Largely a retrospective, it also looks ahead at both the challenges and innovations to come.





Cuzco, Peru. Photo credit: Zodebala

ANNEXES

These annexes provide information about GFDRR's portfolio of activities and financial health. This includes information on donor resources available, commitments, disbursements, portfolio of projects, and monitoring of results. It also includes financial statements for the period of July 1, 2017 to June 30, 2018.



Portfolio Summary

GFDRR’s total portfolio as of June 30, 2018 included 394 active grants supporting 136 countries, for a total commitment amount of \$252 million.

Of the nearly 400 grants supported in FY18, 66 grants were funded through ACP–EU programs (26 percent); 71 grants were funded through the Japan–World Bank Program (27 percent); and 257 grants were funded through the MDTF and other funding windows (47 percent). Total commitments from the Japan–World Bank Program accounted for \$68.3 million (27 percent); ACP–EU programs accounted for \$66.2 million (26

Figure 1. Distribution of Active Commitments by Funding Window, FY18

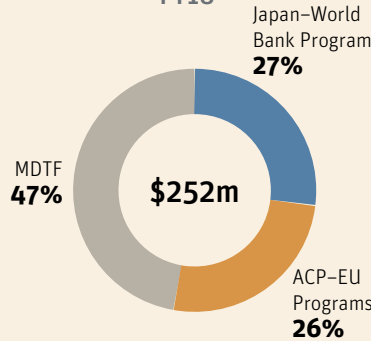


Figure 2. Distribution of Active Commitments by Region, FY18

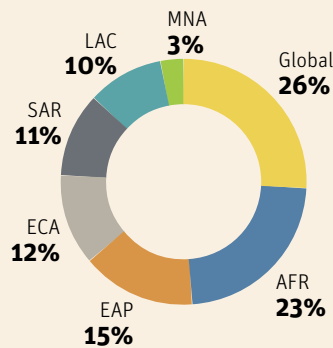
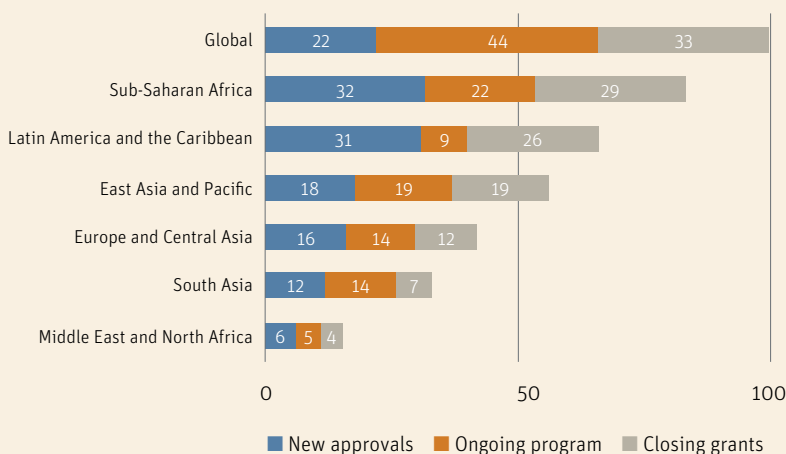


Figure 3. Distribution of Grants, FY18
Total = 394



percent); and the MDTF and other funding windows amounted to \$117.2 million (47 percent).

Across regions, the largest share of active financing was for activities supporting Sub-Saharan Africa, representing 23 percent of the overall portfolio. This was followed by financing supporting East Asia and Pacific (15 percent); Europe and Central Asia (12 percent); South Asia (11 percent); Latin America and Caribbean (10 percent); and the Middle East and North Africa (3 percent). Global activities represented 26 percent of the portfolio.

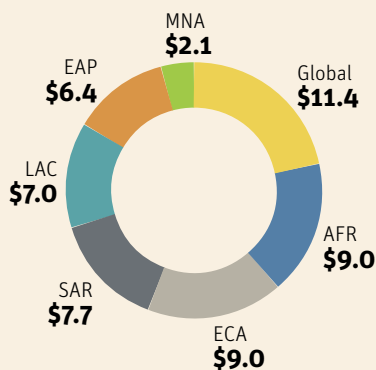
130 grants of the 394 grants active in the fiscal year reached completion (33 percent), disbursing \$61.5 million in total. This was an increase of 261 percent over FY17 in the number of grants reaching completion. This rise was driven by the closure of three multi-donor trust funds, which accounted for 61 percent of the grants closing.¹ 264 grants worth \$190 million will continue to be implemented through at least FY19.

¹ In FY18, three MDTFs reached completion (TF070611, TF070868, TF070948).

Commitments

Throughout FY18, the Secretariat committed a total of \$64.6 million. This included \$52.6 million toward 139 new grant activities² and \$12 million provided as additional financing to scale up 41 ongoing activities.

Figure 4. Distribution of Financing for New Commitments by Region (\$ millions)



During the fiscal year, Africa and Europe and Central Asia regions received the largest share of new support (23 percent of new grant commitments worth 17 percent of new financing, and 12 percent of new grant commitments worth 17 percent of new financing, respectively). They were followed by South Asia (9 percent of new grant commitments worth 15 percent of new financing);

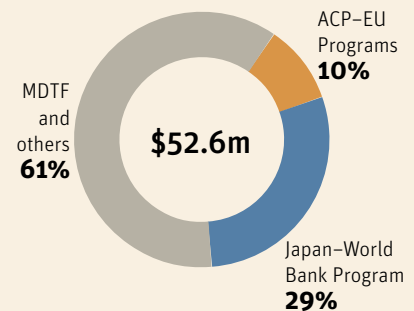
Latin America and the Caribbean (22 percent of new grant commitments worth 12 percent of new financing); East Asia and Pacific (13 percent new grant commitments worth 12 percent of new financing); and the Middle East and North Africa (4 percent new grant commitments worth 4 percent of new financing). Global activities represented 17 percent of new grant commitments worth 22 percent of new financing.

The Japan–World Bank Program accounted for \$15 million (29 percent) of financing for new grant commitments; ACP–EU Programs accounted for \$5.5 million (10 percent); and the MDTF and other funding windows accounted for \$32.1 million (61 percent).

The average activity size for grant activities approved in FY18 was approximately \$420,000 for both country-based activities and global engagements³. Since 2009, the annual average grant size has been between \$450,000 and \$600,000.

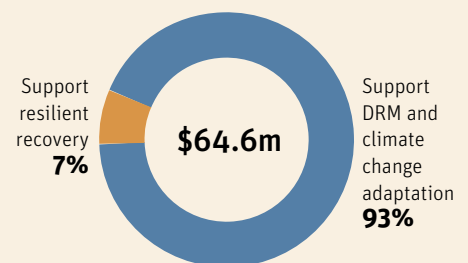
Of the \$64.6 million committed during FY18, about 93 percent (\$60 million) related broadly to

Figure 5. Approved New Commitments by Funding Window, FY18



mainstreaming ex ante DRM and climate change adaptation activities, while about 7 percent (\$4.6 million) went toward activities linked to post-disaster and resilient recovery interventions. This is on par with previous fiscal years and represents a continued emphasis on helping countries strengthen resilience to shocks before disaster strikes.

Figure 6. Commitments Approved in FY18⁴



² This includes 15 Just-In-Time grants.

³ This does not include in Just-in-Time grants, which had an average size of \$62,000.

⁴ Total commitments approved includes new commitments plus additional financing to ongoing activities.

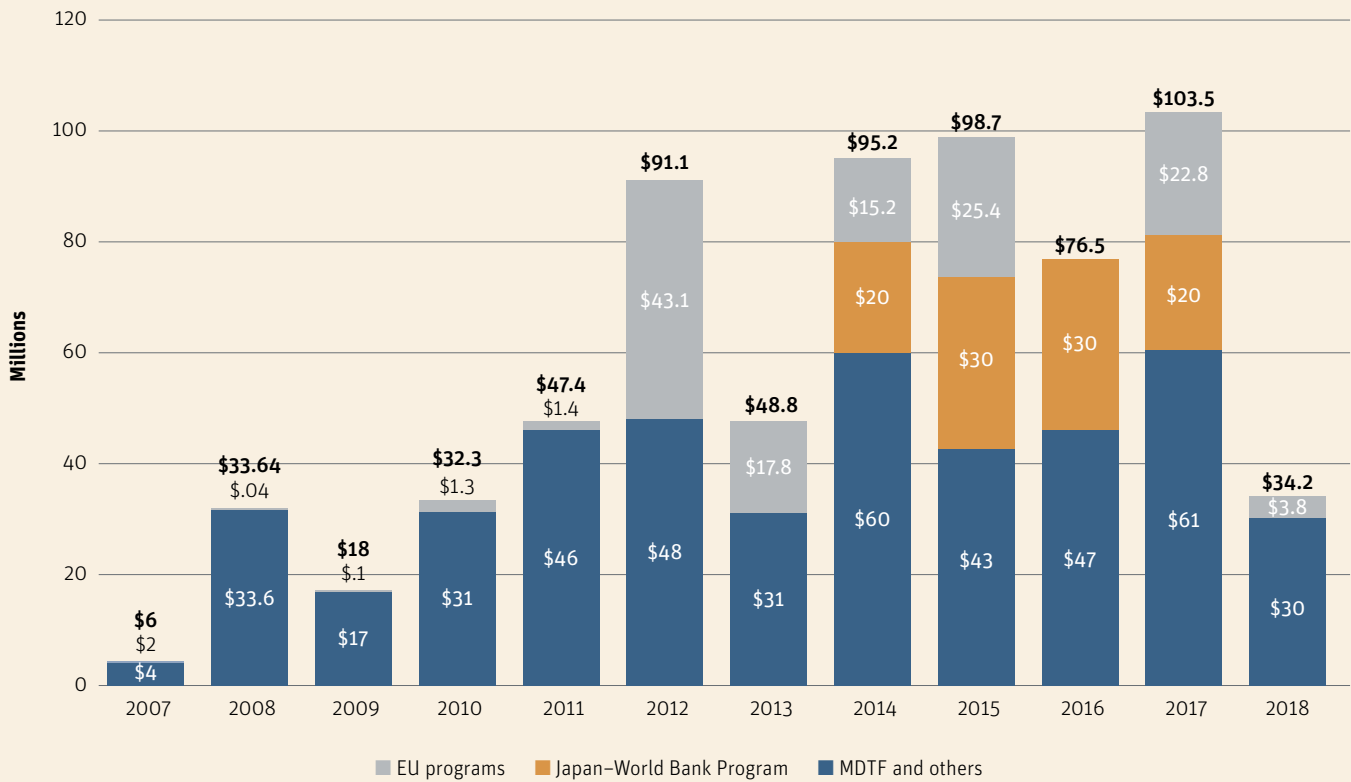
Resources

Over the fiscal year, 10 donors contributed an additional \$34.2 million⁵ in support of GFDRR’s broad-based DRM program. Core funding into the MDTF during the fiscal year amounted to \$13.3 million, or 39 percent of overall contributions. During the same period, \$20.9 million was received for other programs, representing

61 percent of contributions in FY18. This includes \$14.7 million in funding for the GFDRR-managed InsuResilience Program and City Resilience Program. Overall, total contributions were approximately 63 percent below average annual contributions (\$92.9 million) received by GFDRR over the prior three years.

As of June 30, 2018, \$31.7 million in new financing had been pledged to GFDRR through nine multi-year contribution arrangements. Additionally, the Ministry of Finance, Japan approved a second phase of the Japan–World Bank Program, with \$100 million in new financial support over four years to begin in FY19.

Figure 7. Contributions to GFDRR, FY07–FY18



⁵ Before trust fund administration fees of \$0.04 million.

Disbursements

In FY18, GFDRR trust fund expenditures, or disbursements, amounted to \$87.5 million. Approximately 90 percent (\$76.4 million) of disbursements were project related. FY18 project disbursements represented a 20 percent increase when compared to FY17. Through this, GFDRR achieved its highest annual disbursement rate over the past four years⁶, rising moderately from 36 percent in FY17 to 44 percent. This

was driven by overall improved implementation progress across most activities in the portfolio, coupled with proactive actions taken by the Secretariat to address slower-disbursing activities⁷.

GFDRR’s program management and administration expenditures, which include staff, consultancy fees, travel, rent, communications, information technology, equipment, and other non-overhead costs, remained at

similar levels to the prior fiscal year at \$6 million in FY18. This is broadly indicative of improving economies of scale and the effectiveness of GFDRR’s operating model. The share of GFDRR’s program management and administration expenditures when compared to total expenditures has remained steady over the past three years at approximately 7 percent.

Figure 8. Distribution of Expenditures, FY18

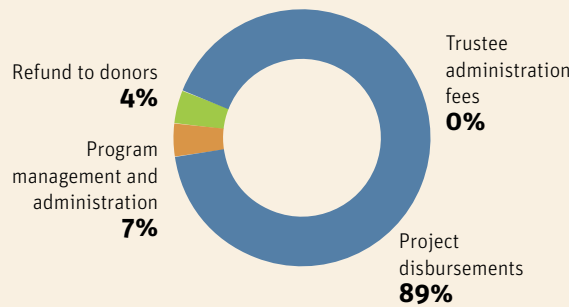
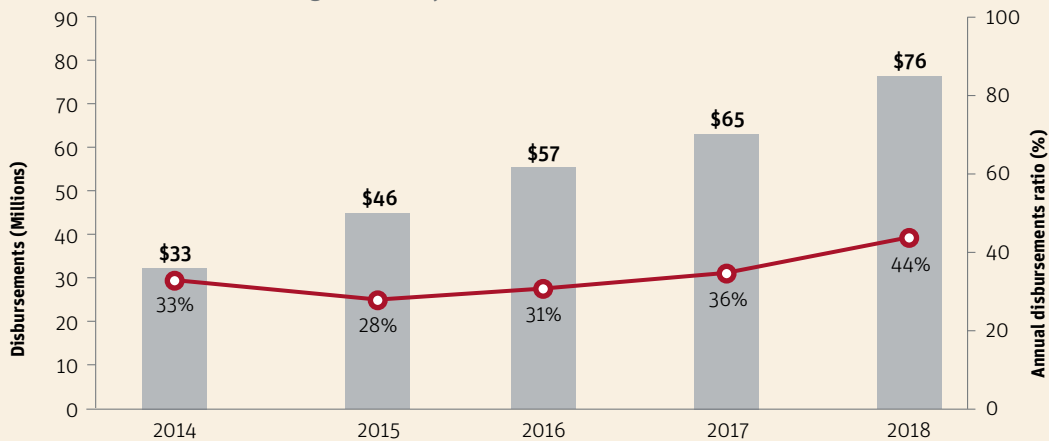


Figure 9. Project Disbursements, FY14–FY18



⁶ The annual disbursement rate is calculated as disbursements over undisbursed balance in a fiscal year.

⁷ This included reallocation of grant resources to faster disbursing activities; restructuring of projects; and proactive monitoring of existing commitments to ensure timely disbursements, for example.

Portfolio Profile and Beneficiaries

During FY18, GFDRR-financed grants targeted natural hazards that pose the greatest risk to vulnerable countries. The main natural hazards addressed through grant activities were river flood (57 percent), earthquake (54 percent), urban flood (53 percent), and landslide (42 percent). Most grant activities address more than one natural hazard.

GFDRR-supported activities had a range of beneficiary types in FY18. Nearly all grant activities (97 percent) benefited government partners through support to, and engagement with, ministries of finance, ministries of public works, national disaster management agencies, and other partners within partner countries. Communities were beneficiaries in over half of activities and CSOs benefited from about 16

percent of activities. The private sector was also engaged and was a beneficiary of 20 percent of activities. Additionally, nearly two-thirds of grants active in FY18 supported activities at the national level (70 percent of financing) and over 20 percent of activities strengthened resilience at the regional level (30 percent of financing).

Figure 10. Natural Hazards Addressed, FY18

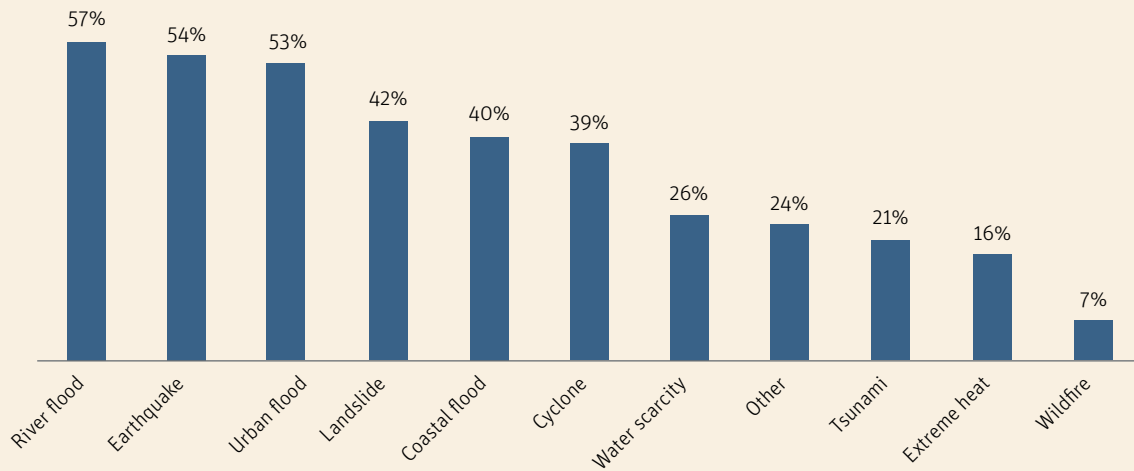


Figure 11. Beneficiaries of Grant Activities, FY18

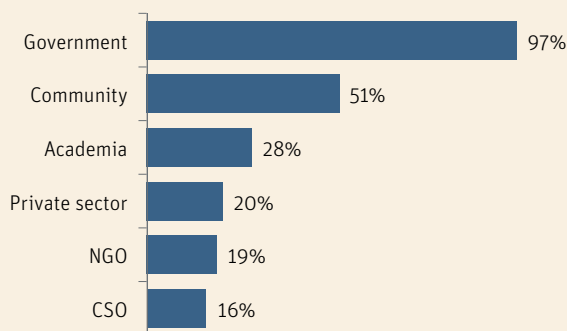
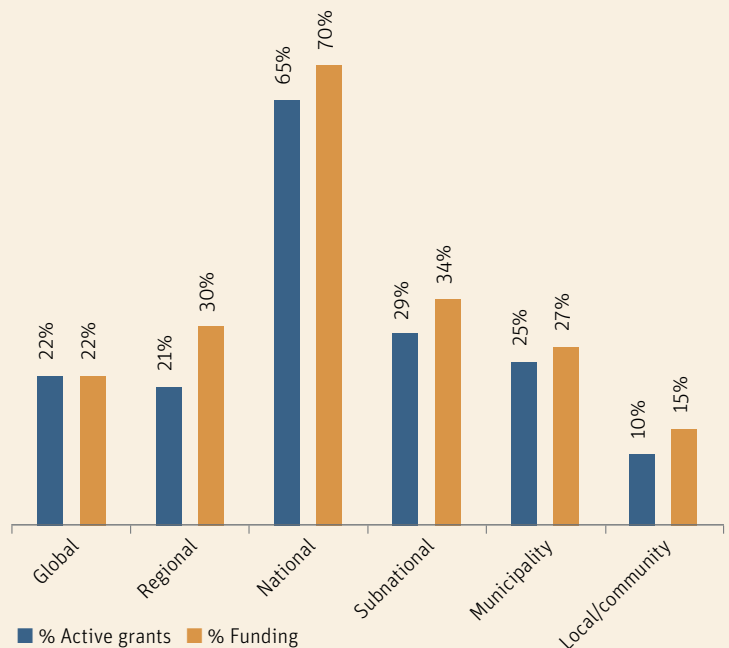


Figure 12. Portfolio Activity Coverage Level



In FY18, the top ten recipient countries of GFDRR's support accounted for approximately 24 percent, or \$44.2 million, of GFDRR's commitments to in-country engagements (which amounted to \$186 million). Many of these large programs were in support of risk reduction and preparedness efforts, with an increased focus on resilient infrastructure. Examples include a newly financed activity to support urban resilience and emergency preparedness in Indonesia, activities strengthening a climate resilient energy system in Afghanistan, and an engagement to mainstream DRM in school infrastructure management in the Dominican Republic. Many other activities helping countries within the top 10 recipient group went toward supporting recovery

and reconstruction efforts emerging from recent disaster events. For example, funding provided the government of the Philippines with technical assistance following the Surigao del Norte Earthquake, and financing was provided for a damage and needs assessment following Typhoon Damrey in Vietnam's Khanh Hoa province.

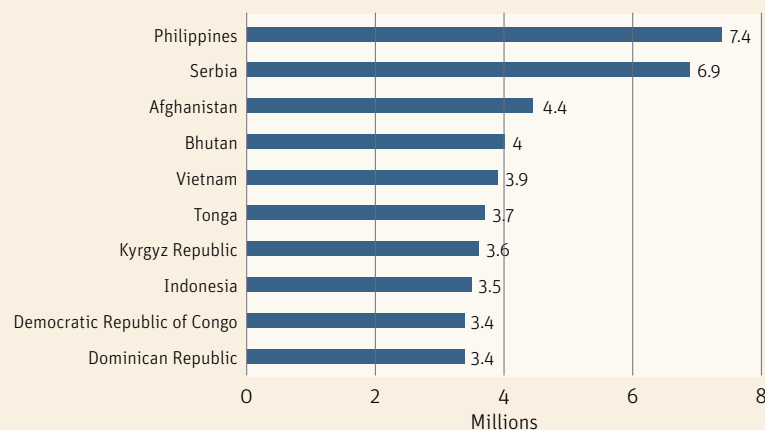
During FY18, top recipients of new in-country commitments were Vietnam (\$3.9 million for seven activities), the Democratic Republic of Congo (\$3.7 million for two grants), India (\$3.25 million for two grants), Indonesia (\$2.5 million for one grant), and Bangladesh (\$1.8 billion for three grants)⁸. Examples of funded activities include those supporting flood risk management

in Vietnam; strengthening the DRC's hydromet and climate services; and helping develop innovative approaches to coastal resilience in Bangladesh.

In-kind Support via Staff Exchanges and Secondments

GFDRR's program benefits from in-kind resources that several donors made available in the form of secondees and staff exchanges. In FY18, GFDRR hosted seven staff members from the governments of Austria, Germany, Japan, Norway, Sweden, and Switzerland. These staff exchanges help strengthen GFDRR's technical expertise, particularly its thematic initiatives, and provide partners with opportunities to establish more direct connections with the Secretariat's work.

Figure 13. FY18 Active Commitments: Top 10 Recipient Countries
Total = \$44.2 million



⁸ This does not include Just-in-Time grants.

Portfolio Results

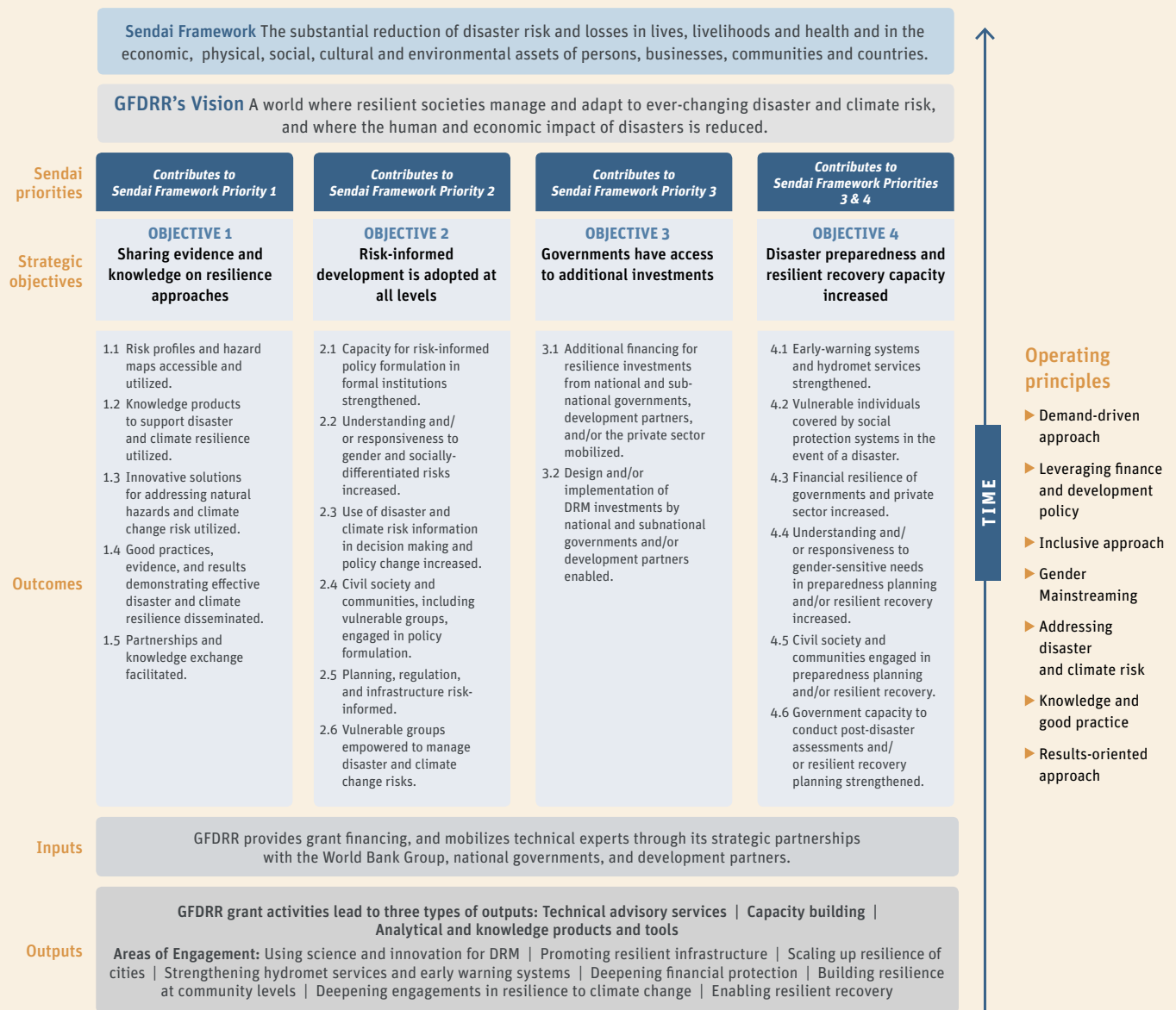
GFDRR uses monitoring and evaluation (M&E) to improve portfolio performance, increase grant activity learning, strengthen accountability, and inform management decision making.

In FY18, the GFDRR Secretariat revised its M&E system to align with the GFDRR FY18–21 Strategy and better capture outcome-level results. This includes updating the Facility’s Logical Framework and indicators for tracking results. This

Logical Framework, endorsed by the CG in November 2017, articulates four strategic objectives for the Facility and outlines anticipated development change from the aggregate of its activities at a whole-of-portfolio level. Through the revision of its M&E system, including the development of an innovative reporting platform, GFDRR now has more data available to track the progress and scope of its grant activities than ever before.

This section presents the contributions and results of GFDRR’s portfolio in FY18, as monitored against its revised Logical Framework. This includes the contributions to country implementation of the Sendai Framework for Disaster Risk Reduction 2015–2030, the FY18 portfolio’s outcome results, and an update on the use of evaluation within the Facility.

Figure 14. GFDRR Logical Framework



Contributions to implementing the Sendai Framework for Disaster Risk Reduction 2015–2030

As part of its mandate, GFDRR monitors the contributions of its Portfolio to help countries implement the Sendai Framework. This includes the Sendai Framework’s four Priorities for Action and seven

global targets (see Table 1). Analysis found that every GFDRR-funded grant contributes to at least one Sendai Framework priority, and 13 percent of the FY18 portfolio contributes to all four priorities.

GFDRR tracks the indirect contributions of its Portfolio

toward helping reach the Sendai Framework’s seven global targets. Analysis found that GFDRR FY18 activities support indirect contributions toward achieving all seven targets, leading with Target B (46 percent) and followed by Target D (45 percent).

Table 1. Contributions to Sendai Framework

SENDAI FRAMEWORK PRIORITIES FOR ACTION	GFDRR CONTRIBUTIONS
Priority 1: Understanding disaster risk	<ul style="list-style-type: none"> Aligns with GFDRR Strategic Objectives 1 and 2 62 percent of GFDRR activities contribute to Priority 1 (69 percent of funding) Through activities supporting 126 countries
Priority 2: Strengthening disaster risk governance to manage disaster risk	<ul style="list-style-type: none"> Aligns with GFDRR Strategic Objective 2 54 percent of GFDRR activities contribute to Priority 2 (64 percent of funding) Through activities supporting 132 countries
Priority 3: Investing in disaster risk reduction for resilience	<ul style="list-style-type: none"> Aligns with GFDRR Strategic Objectives 3 and 4 55 percent of GFDRR activities contribute to Priority 3 (63 percent of funding) Through activities supporting 121 countries
Priority 4: Enhancing disaster preparedness for effective response, and to “Build Back Better” in recovery, rehabilitation, and reconstruction	<ul style="list-style-type: none"> Aligns with GFDRR Strategic Objective 4 44 percent of GFDRR activities contribute to Priority 4 (41 percent of funding) Through activities supporting 121 countries

SENDAI FRAMEWORK GLOBAL TARGETS	GFDRR PORTFOLIO
Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020-2030 compared with 2005–2015.	<ul style="list-style-type: none"> 28 percent of grants indirectly contributing to Target A Support through 34 percent of FY18 financing
Target B: Substantially reduce the number of affected people globally by 2030, aiming to lower the average global figure per 100,000 between 2020–2030 compared with 2005–2015.	<ul style="list-style-type: none"> 46 percent of grants indirectly contributing to Target B Support through 51 percent of FY18 financing
Target C: Reduce direct disaster economic loss in relation to global GDP by 2030.	<ul style="list-style-type: none"> 41 percent of grants indirectly contributing to Target C Support through 46 percent of FY18 financing
Target D: Substantially reduce disaster damage to critical infrastructure and disruption of basic services, among them health and educational facilities, including through developing their resilience by 2030.	<ul style="list-style-type: none"> 45 percent of grants indirectly contributing to Target D Support through 43 percent of FY18 financing
Target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.	<ul style="list-style-type: none"> 30 percent of grants indirectly contributing to Target E Support through 37 percent of FY18 financing
Target F: Substantially enhance international cooperation to developing countries through adequate and sustainable support to complement their national actions for implementation of this framework by 2030.	<ul style="list-style-type: none"> 15 percent of grants indirectly contributing to Target F Support through 14 percent of FY18 financing
Target G: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.	<ul style="list-style-type: none"> 35 percent of grants indirectly contributing to Target G Support through 48 percent of FY18 financing

In FY18, new indicators were announced for the global community to track progress toward achieving the Sendai Framework’s seven targets⁹. Due to the role of the Facility in relation to the Sendai Framework¹⁰ and the target’s long timeframe, GFDRR does not use these indicators to monitor the progress of its Portfolio overall.

Results Reporting

The Secretariat has monitored the FY18 portfolio’s performance against its updated Logical Framework. As noted, this is the first year GFDRR’s strategy is in implementation and its revised result indicators are in use. They will be used to monitor the performance of grant activities throughout the FY18–21 strategy

period. This is so the Secretariat can understand and demonstrate portfolio progress against GFDRR’s expected outcomes and identify areas for improvement.

Table 2 shows the FY18 portfolio outcome-level results, as mapped against GFDRR’s four strategic objectives.

Table 2. FY18 Outcome-level Results

Strategic Objective 1 Evidence and knowledge on effective disaster and climate resilience approaches are shared for improved policy and practice.	
Intermediate outcomes	FY18 results
1.1 Risk profiles and hazard maps accessible and utilized.	<ul style="list-style-type: none"> • 124 countries supported to have accessible, understandable, and usable disaster risk information and assessments • 61 percent of grants contribute to making risk or hazard information accessible and utilized
1.2 Knowledge products to support disaster and climate resilience utilized.	<ul style="list-style-type: none"> • 48 percent of grant activities support the utilization of knowledge products for disaster and climate resilience
1.3 Innovative solutions for addressing natural hazards and climate change risk utilized.	<ul style="list-style-type: none"> • 55 percent of grant activities support utilizing innovative solutions for addressing natural hazard and/or climate change risk
1.4 Good practices, evidence, and results demonstrating effective disaster and climate resilience disseminated.	<ul style="list-style-type: none"> • 150 GFDRR commissioned publications made available and accessible on the Facility’s website
1.5 Knowledge exchange activities facilitated.	<ul style="list-style-type: none"> • 65 percent of grants support international, regional, and/or bilateral knowledge exchange activities • 1,027 international, regional, and/or bilateral knowledge exchange activities facilitated

⁹ Indicators for monitoring and reporting on the Sendai Framework global targets are available at: <https://www.preventionweb.net/publications/view/54970>

¹⁰ See 48(d) in the Sendai Framework http://www.preventionweb.net/files/43291_sendaiframeworkfordrren.pdf

Strategic Objective 2 Risk-informed development is adopted at national, subnational, and community level, using integrated and participatory approaches.	
Intermediate outcomes	FY18 results
2.1 Capacity for risk-informed policy formulation in formal institutions strengthened.	<ul style="list-style-type: none"> • 104 countries supported for improved disaster risk governance. • 118 countries with improved government institutional capacity in disaster and climate risk-informed policy design and analysis.
2.2 Understanding and/or responsiveness to gender and socially-differentiated risks increased.	<ul style="list-style-type: none"> • 13 percent of grant activities support policy and/or planning documents that include the needs of individuals based on gender, disability, and/or socio-economic status
2.3 Use of disaster and climate risk information in decision making and policy change increased.	<ul style="list-style-type: none"> • 64 percent of grant activities contribute to risk-informed policy formulation or decision making
2.4 Civil society and communities, including vulnerable groups, engaged in policy formulation.	<ul style="list-style-type: none"> • 26 percent of grant activities support increased citizen engagement in disaster and climate resilience-related policy reform
2.5 Planning, regulation, and infrastructure risk-informed.	<ul style="list-style-type: none"> • 54 percent of grant activities support risk-informed planning, regulation, and/or infrastructure <ul style="list-style-type: none"> – 38 grant activities have helped strengthened building codes at the national or local government level. – 45 grant activities have helped strengthen land use planning systems at national or local government level – 108 grant activities have helped incorporate DRM measures into infrastructure at national or local government level
2.6 Vulnerable groups empowered to manage disaster and climate change risks.	<ul style="list-style-type: none"> • 56 grant activities have helped empower vulnerable groups to manage disaster and climate change risks.
Strategic Objective 3 Governments in vulnerable countries have access to additional investments for scaling up disaster and climate resilience building.	
3.1 Additional financing for resilience investments from national and sub-national governments, and/or development partners mobilized. ¹¹	<ul style="list-style-type: none"> • \$4.3 billion leveraged through \$70.1 million in GFDRR financing (47 grants)
Strategic Objective 4 Disaster preparedness and resilience recovery capacity is increased at national, subnational, and community level	
4.1 Early-warning systems and hydromet services strengthened.	<ul style="list-style-type: none"> • 20 percent of grant activities contribute to increased access to high-quality early-warning systems (EWS) and hydromet services • 88 countries with strengthened early warning systems and hydromet services
4.2 Vulnerable individuals covered by social protection systems in the event of disaster.	<ul style="list-style-type: none"> • 14 percent of grant activities contribute to disaster risk-informed social protection systems
4.3 Financial resilience of governments and private sector increased.	<ul style="list-style-type: none"> • 20 percent of grant activities contributing to increased financial protection of governments in case of natural disasters
4.4 Understanding and/or responsiveness to gender-sensitive needs in preparedness planning and/or resilient recovery increased.	<ul style="list-style-type: none"> • 680 people trained through participation in gender-sensitive post-disaster assessment, and/or recovery planning methodologies
4.5 Civil society and communities engaged in preparedness planning and/or resilient recovery.	<ul style="list-style-type: none"> • 22 percent of grant activities engaged on preparedness and/or resilient recovery include civil society or community groups
4.6 Capacity to conduct post-disaster assessments and/or resilient recovery planning strengthened.	<ul style="list-style-type: none"> • 7 percent of grant activities supporting resilient recovery training and capacity building

¹¹ See page 83 for additional information.

Area of Engagement Results

GFDRR has monitored the progress of its FY18 portfolio toward reaching the targets set against the Facility's eight Areas of Engagement in its annual Work Plan and FY18–21 Strategy (see Table 3). Nearly all FY18 targets were met or exceeded. Due to additional data available through its revised M&E system, GFDRR has a better understanding of its grant activity progress per Areas of Engagement this fiscal year.

Evaluation

GFDRR uses evaluation to gain evidence and lessons from its grant

activities; meet donor accountability obligations; and foster a culture of continuous learning. GFDRR evaluation activities include programmatic evaluations; country and regionally-focused evaluations; and thematic-focused evaluations. In FY18, midterm reviews were completed for GFDRR's two largest programs; namely, the Japan–World Bank Program, and the ACP–EU NDRR Program. The Japan–World Bank Program's midterm review found it has met or exceeded all expected outcomes and has built a solid foundation for increasing program reach into nontraditional DRM sectors (e.g., water and

energy). The ACP–EU NDRR Program's midterm review found it to be satisfactory against the criteria of relevance, effectiveness, efficiency, sustainability, coherence, impact, visibility, value added, and coordination.

GFDRR's Inclusive Community Resilience (ICR) Program completed an evaluation assessing the relevance, effectiveness, and efficiency of the program since inception in 2015. The review found it met or exceeded all its objectives thus far and recommended scaling up the program.

Table 3. Areas of Engagement Progress

Areas of engagement	Results indicator	Target (FY18)	Target (FY21)	FY17 results	FY18 results
Using science and innovation for DRM	Hazard, exposure, and risk datasets and/or geospatial layers developed (#)	500	500	1,096	2,100
	People trained to use risk tools for decision making (#)	2,000	2,000	746	5,375
Promoting resilient infrastructure	Countries with safer school engagements (#)	11	30	20	44
	Classrooms made safer from disasters (#)	50,000	200,000	73,300	28,750
	Expected student beneficiaries (#) ¹²	N/A	7 million	2.0 million	4.8 million
Scaling up the resilience of cities	Cities with resilient development investments (#) ¹³	10+	30	10	45+
Deepening financial protection	Government officials trained in financial protection and direct and indirect insurance programs (#)	200	500	250	966
Building resilience at community level	People that have coverage of adaptive social protection (#)	5 million	15 million	4 million	3.1 million
Strengthening hydromet services and early warning systems	Expected beneficiaries (#)	38 million	100 million	40 million	51 million
Enabling resilient recovery	Government officials trained on PDNA and/or recovery planning & coordination (#)	350	1,000	490	615
Deepening engagements in resilience to climate change	Total amount of climate resilience investments enabled by development partners (\$)	\$1B	\$3B	\$1.5B	\$1.7B
	Countries with climate resilience investments enabled (#)	20	25	20	51

¹² The estimate for classroom and student beneficiary calculations are supported based on a World Bank average of 11–18 classrooms per school and an OECD average of 25 students per classroom (2012).

¹³ This target only relates to activities supported through the City Resilience Program.

Additionally, three thematic-focused evaluations were successfully completed in FY18: (i) Post-Disaster Needs Assessments: Lessons from a Decade of Experience; (ii) GFDRR-UK Aid Challenge Fund: Final Learning Report on the Value of Risk Information for Decision Making; and (iii) Performance Evaluation of GFDRR-UK Aid Challenge Fund: Open-Source, DIY Remote Weather Stations (RWSs) in Sri Lanka. The review on PDNAs evaluated the effectiveness of the practice since 2008, and concluded they are highly valued and relevant, particularly for governments, main partners, international organizations, and donors. A review of the GFDRR-UK Aid Challenge Fund (Challenge Fund) reviewed the effectiveness of its model for promoting sustainability. It found implementation and learning activities largely supports the current Challenge Fund logic model. Finally, a performance evaluation of the Challenge Fund used a case study approach to review the performance of Challenge Fund projects in influencing risk information access and use for increased disaster resilience. It found the case of open-source, DIY remote weather stations in Sri Lanka shows evidence of good results occurring.

In response to a recommendation from GFDRR's Technical Advisory Group for M&E and as part of a broader effort to strengthen the Facility's M&E, the Secretariat is developing an evaluation strategy. This strategy will aim to deepen the use of evaluation for learning purposes to improve the quality and sustainability of GFDRR's funded programs and grant activities.

Portfolio Performance Mainstreaming of Gender and Citizen Engagement

This section reports on GFDRR's progress on mainstreaming gender and women's empowerment and mainstreaming citizen engagement through its grant activities. GFDRR monitors its grants to assess their contribution to integrating gender and women's empowerment within the portfolio of activities, a core operating principle for the Facility. In FY18, 72 percent of the approved grants were gender-informed, a 2 percent increase over FY17 (see Table 4). Of these, 58 percent of grants were found to have undertaken gender analysis or considered existing gender analysis within the grant's design and/or implementation stage. Additionally, 56 percent of the total approved

grants were found to include specific actions to address the gaps between women and men. Finally, 26 percent of these grants were found to have the proposed actions reflected in the results framework to measure the changes in outcomes between women and men.

In FY18, GFDRR began monitoring the incorporation of citizen engagement in its grant activities. This is in alignment with its Citizen Engagement Action Plan, which was endorsed by the CG in FY18. Analysis found that 57 percent of grant activities include citizen engagement in their design. Of those, 37 percent include consultations with citizens (see Table 5).

The citizen engagement action plan was developed as part of ongoing support for civil society and for citizen engagement in DRM, intended to foster greater accountability and impact. The Logical Framework and underpinning Results Framework indicators were revised to align with the new FY18–21 strategy and ensure monitoring and reporting of progress on citizen engagement activities.

Table 4. Gender Engagement

Gender	Gender results indicators	FY16	FY17	FY18
	Percentage of approved grants gender-informed (%)	63	70	72
	Percentage of approved grants that include gender actions (%)	42	39	56

Table 5. Citizen Engagement

Results indicators	FY18
Percentage of grants that include citizen engagement in their design (%)	57
Percentage of grants that include consultations with citizens (%)	37
Percentage of grants that engaged citizens in planning and decision making (%)	25
Percentage of grants that support citizen control over planning decisions and investment resources (%)	15

Mobilizing Development Financing

GFDRR strategically focuses its grant financing in areas where there is high likelihood to mobilize additional resources for scaling up disaster and climate resilience operations.

In FY18, GFDRR's funding and/or technical assistance mobilized nearly **\$6.1 billion** in additional financing. This is a 33 percent increase over FY17. Of this, \$4 billion (66 percent) was leveraged through GFDRR's partnership with the World Bank and \$2.1 billion (34 percent) was leveraged from national governments (e.g., governments of Dominica and Sierra Leone); other multilateral institutions (e.g., EU, IDB, UNDP); bilateral donors (e.g., DFAT, DFID, JICA, USAID); and other partners (e.g., CIF, GEF, Korean Green Growth Trust Fund).

Since FY17, GFDRR has asked grant recipients to self-report on the way grant activities have leveraged additional funding by the World Bank, national governments, and/or other development partners. GFDRR categorizes the way in which its activities have leveraged

in three ways: (i) informing; (ii) enabling; or (iii) cofinance investments. These categories are defined as:

- *INFORMING the mobilization of resources from national governments or development partners.* For example, a GFDRR grant funds the development of a knowledge product, risk assessment, post-disaster assessment, or recovery plan, that provides evidence for a larger investment. This occurs when a GFDRR-funded activity or product lays the groundwork for conceiving a larger investment. It occurs "before" the larger investment is developed.

In FY18, GFDRR activities informed **\$3.1 billion** in leveraging (50 percent of total leveraging). Of this, most additionally resources informed projects in Ethiopia, Romania, and Western Africa.

- *ENABLING development financing by directly supporting the design and/or implementation of a DRM operation from national governments or development partners.* For example, funding staff time to work on designing DRM projects at the World Bank or integrating

DRM as a component in a development project. This occurs when a GFDRR grant funds technical advisory inputs for a project feasibility study and/or a project design. The larger investment is already conceived.

In FY18, GFDRR activities helped **enable \$2.6 billion** in DRM financing (42 percent of total leveraging). Of this, most financing enabling occurred in the Middle East and North Africa.

- *COFINANCING DRM operations with other development partners to increase the scale of interventions.* For example, comingled funds packaged with the World Bank, donor countries, and/or UN agencies. This happens when a project is conceived, for example, during project preparation or approval.

In FY18, GFDRR engagements were linked to over **\$465 million in cofinancing** activities (8 percent of total leveraging).

Detailed information on funding leveraged during FY18 can be found in Table 6.

Table 6. Finance Mobilized across GFDRR's Portfolio by Region and Leveraging Type

Leveraging type	Country	Project name	Funding source (\$M)			
			\$	WB	\$	Non-WB
Africa						
Informing	Ethiopia	Ethiopia Urban Institutional and Infrastructure Development Program (P163452)	600	IDA	248.7	Government
	Madagascar	Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756)	75	IDA		
	Malawi	Malawi Strategic Program for Climate Resilience (P163245)	1.5	CIF		
	Senegal	Senegal–Saint-Louis Emergency Recovery and Resilience Project (P166538)	30	IDA		
	Sierra Leone				1.5	Government
	Western Africa	West Africa Coastal Areas Resilience Investment Project (P162337)	190	IDA	11.4	Government
	Africa	Third South West Indian Ocean Fisheries Governance and Shared Growth Project (P155642)	5	IBRD	5.3	GEF
Enabling	Sierra Leone	Freetown Emergency Recovery Project (P166075)	10	IDA	1.5	Government
	Kenya	Disaster Risk Management Development Policy Credit with a Catastrophe Deferred Drawdown Option (Cat DDO)	200	IDA		
	Madagascar	Integrated Urban Development and Resilience Project for Greater Antananarivo (P159756)	75	IDA		
	Senegal	Senegal–Saint-Louis Emergency Recovery and Resilience Project (P166538)	30	IDA		
	Africa				94	DFID
Cofinancing	Zimbabwe				0.4	Danish Red Cross DANIDA
subtotal			1,111.5		362.8	
Region total					1,474.3	

Leveraging type	Country	Project name	Funding source (\$M)			
			\$	WB	\$	Non-WB
East Asia and Pacific						
Informing	Lao People's Democratic Republic	Lao PDR Southeast Asia Disaster Risk Management Project (P160930)	30	IDA		
	Fiji	Fiscal Sustainability and Climate Resilience DPO (P165276)	15	IBRD		
	Vietnam	GEF Mekong Delta Integrated Climate Resilience and Sustainable Livelihoods Project (P159976)	6.1	GEF		
	China	Hezhou Urban Water Infrastructure and Environment Improvement Project (P158622)	150	IBRD		
	Cambodia	Road Asset Management Project II Additional Financing (P165249)	110	IDA	3	Government
Enabling	Fiji	Fiscal Sustainability and Climate Resilience DPO (P165276)	15	IBRD		
	Philippines	Metro Manila Flood Management Project (P153814)	207.6	IBRD	207.6 / 84.8	AIIB/counterpart
	East Asia and Pacific				0.4	Australia
Cofinancing	Myanmar			0.1	Netherlands	
subtotal			518.7		295.9	
Region total			814.6			
Europe and Central Asia						
Informing	Tajikistan	Strengthening Critical Infrastructure against Natural Hazards (P158298)	50	IDA		
	Kyrgyz Republic	Enhancing Resilience in Kyrgyzstan Project (P162635)	20	IDA		
	Romania	Disaster Risk Management Development Policy Loan with a Catastrophe Deferred Drawdown Option (P166303)	493.1	IBRD		
	Uzbekistan				0.3	KGTF
	Uzbekistan				0.4	ECAPDEV
Enabling	Kyrgyz Republic	Enhancing Resilience in Kyrgyzstan Project (P162635)	20	IDA		
	Armenia				88.5	ADB
	Europe and Central Asia				0.3	EU
Co-financing	Kyrgyz Republic			2.4	Government	
Sub-total			563.1		91.9	
Region Total					655	

Leveraging type	Country	Project name	Funding source (\$M)			
			\$	WB	\$	Non-WB
Latin America and the Caribbean						
Informing	Nicaragua	Nicaragua Disaster Risk Management and Climate Resilience Project (P162418)	50	IDA		
	Dominica	Housing Recovery Project (P166537)	40	IDA		
	Dominica	Emergency Agricultural Livelihoods and Climate Resilience Project (P166328)	29.5	IDA		
	Dominican Republic	Dominican Republic DRM Development Policy Loan with a Cat DDO (P159351)	150	IBRD		
	Dominican Republic				0.5	Dominica
Enabling	Argentina	Northwestern Road Development Corridor Project (P163115)	300	IBRD	11	Government
	Haiti	Haiti Rural Accessibility & Resilience Project (P163490)	75	IDA		
Cofinancing	Caribbean				3	IDB
subtotal			644.5		14.5	
Region total					659	
Middle East and North Africa						
Enabling	Morocco	Casablanca Municipal Support Program (P149995)	200	IBRD	350	Government
	Yemen	Yemen Integrated Urban Services Emergency Project (P164190)	150	IDA		
subtotal			350		350	
Region total					700	

Leveraging type	Country	Project name	Funding source (\$M)			
			\$	WB	\$	Non-WB
South Asia						
Informing	Afghanistan	Citizens' Charter Afghanistan Project (P160567)	100	IDA		
	Afghanistan	Citizens' Charter Afghanistan Project –Emergency Regional Displacement Response Additional Financing (P163468)	127.7	IDA		
	Afghanistan	Women's Economic Empowerment National Priority Program (P163267)			5	ARTF
	Pakistan	Karachi Neighborhood Improvement Project (P161980)	86	IDA		
Enabling	Nepal	MDTF Funding for Earthquake Housing Reconstruction Project (P162067)			10	National Earthquake Reconstruction TF
	Nepal	NP: Additional Financing Earthquake Housing Reconstruction (P163593)	300	IDA		
	Pakistan	Pakistan Hydromet and DRM Services Project (P163924)	210	IDA		
	Bhutan	Hydromet Services and Disaster Resilience Regional project (P154477)	3.3	IDA		
Cofinancing	Nepal				86.5	ADB
	Nepal				112	JICA
	Nepal				10	USAID
	Nepal				100	JICA
	Nepal				150	India
	Sri Lanka				0.3	UNDP
subtotal			827		473.8	
Region total			1,300.8			
Global						
Informing					22.5	GCF
					400	Private sector
					25	GCF
					35	Germany
					2	UK
Cofinancing					0.55	Belgium
					0.05	UK
subtotal					485.1	
Region total			485.1			

Financial Statements

STATEMENTS OF RECEIPTS, DISBURSEMENTS AND FUND BALANCE

All dollar amounts expressed in US dollars (US) unless otherwise indicated.

Financial data of trustees with EUR holding currency are converted to USD for reporting purpose based on the exchange rate on August 15, 2018 (1 EUR = 1.13 USD)

	Notes	For the fiscal year ended June 30th, 2018	For the fiscal year ended June 30th, 2017	For the fiscal year ended June 30th, 2016
Opening Balance:		271,516,113	237,243,639	225,683,385
Receipts:				
Donor contributions	1	34,204,842	103,553,038	76,966,018
Net investment and other incomes	2	1,906,735	1,843,186	689,726
Transfers-in from development grant facility	3	—	—	500,000
Total Receipts		36,111,577	105,396,224	78,155,744
Disbursements:				
Project disbursements	4	76,378,696	64,868,223	57,448,265
World Bank administration fee	5	39,959.00	769,523	1,647,332
Program management and administration expenses	6	6,025,935	4,947,050	4,556,193
Transfers-out from development grant facility	7	—	—	500,000
Refund to donors	8	1,923,362	538,954	—
Trustee allocation	9	2,000,000	—	3,000,000
Total Disbursements		86,367,952	71,123,750	67,151,790
Excess of (disbursements over receipts)/receipts over disbursements		-50,256,375	34,272,473	11,003,954
Ending Balance:				
Ending balance		221,259,738	271,516,113	236,687,339
Less: Undisbursed commitments	10	88,952,408	115,980,261	130,157,949
Fund available for new grants	11	132,307,330	155,535,851	106,529,390

NOTE 1: DONOR CONTRIBUTIONS

The following table provides details of contributions received and contributions receivable by donor partner.

Donor	Fiscal year ending June 30, 2018	Fiscal year ending June 30, 2017	Fiscal year ending June 30, 2016	Contribution receivable*
Australia	5,999,090	3,713,683	2,978,641	3,022,315
Austria	3,208,950			
Belgium		627,088		
Denmark			1,459,641	
European Union	3,810,169	23,362,306	14,352,719	14,729,424
Germany	5,977,407	35,697,500	664,368	4,527,600
Italy		2,116,840	3,386,796	2,263,800
Japan	2,000,000	20,000,000	33,000,000	
Luxembourg	367,321	315,450	1,332,000	
Mexico			361,760	
Nigeria			149,238	
Norway	1,614,087	1,538,680	2,975,128	
Serbia	368,000			336,416
Sweden		5,406,003	3,538,988	
Switzerland	8,076,252	7,378,694	4,691,350	3,000,000
United Kingdom	2,783,565	1,196,794	6,545,389	
United States		2,200,000	1,530,000	3,770,000
Total	34,204,842	103,553,038	76,966,018	31,649,555

* Amount in US\$ equivalent. The actual US dollar equivalent will be based on the exchange rate on the date of the transfer of funds.

The following table provides details of contribution received by main fund.

Main fund	Fiscal year ending June 30, 2018	Fiscal year ending June 30, 2017	Fiscal year ending June 30, 2016	Contributions Receivable
Track II-MDTF (TF070611)		531,250		
Track III-MDTF-Callable (TF070868)			246,000	
ACP-EU (TF071630)		13,123,206		4,216,327
Japan Program (TF072129)		20,000,000	30,000,000	
Core MDTF (TF072236)	2,000,000	9,876,525	29,388,657	
Africa DRF SDTF (TF072281)		9,707,850		1,131,900
EU-SAR SDTF (TF072458)	2,336,600		4,536,800	4,527,600
EU-SERBIA NDRMP SDTF (TF072528)	1,473,569		5,387,919	2,059,877
EU-DRAF SDTF (TF072535)			4,428,000	2,793,720
Parallel Core MDTF (TF072584)	11,254,283	24,148,523	2,978,641	7,897,816
Australia Indo-Pacific SDTF (TF072835)	2,433,590	3,713,683		3,022,315
InsuResilience MDTF (TF072858)	8,706,800	22,452,000		
USAID-SDTF (TF072896)				3,000,000
City Resilience MDTF (TF072921)	6,000,000			3,000,000
Total	34,204,842	103,553,038	76,966,018	31,649,555

NOTE 2: INVESTMENT AND OTHER INCOME

Net investment and other incomes in the amount of \$1,906,735 for the fiscal year ended June 30th, 2018.

NOTES 3 & 7: TRANSFER IN AND TRANSFER OUT FROM DEVELOPMENT GRANT FACILITY (DGF)

In the fiscal year ended June 30th, 2018, The World Bank's DGF program came to an end and no funding was issued through the facility.

NOTE 5: WORLD BANK ADMINISTRATIVE FEE

In the fiscal year ended June 30th, 2018, The World Bank charged an administrative fee of \$39,959 as agreed in the signed Admin Agreements.

NOTE 8: REFUND TO DONORS

Remaining balance of main funds that have passed end disbursement date in the amount of \$1,923,362 from TF070611, TF070806, TF070868, and TF070948 will be refunded to donors on pro-rata basis.

NOTE 9: TRUSTEE ALLOCATION

In the fiscal year ended June 30th, 2018, US\$2,000,000 was transferred from TF072129 to TF072236 as per admin agreement of TF072129.

NOTE 4: PROJECT DISBURSEMENTS

The following table provides details of the project disbursements by region.

Region	For the fiscal year ended June 30th, 2018	For the fiscal year ended June 30th, 2017	For the fiscal year ended June 30th, 2016
Africa	18,627,302	18,987,785	19,674,666
East Asia and Pacific	9,341,374	9,197,150	7,209,545
Europe and Central Asia	9,975,229	4,704,869	2,607,975
Latin America and Caribbean	7,351,273	6,324,919	6,337,795
Middle East and North Africa	3,031,436	2,804,263	1,290,576
South Asia	6,407,826	16,495,528	12,009,750
Global	21,644,256	6,353,708	8,317,957
Total	76,378,696	64,868,223	57,448,264

The following table provides details of the project disbursements by execution type.

Execution type	For the fiscal year ended June 30th, 2018	For the fiscal year ended June 30th, 2017	For the fiscal year ended June 30th, 2016
Bank executed	69,144,773	56,053,219	45,008,104
Recipient executed	7,233,923	8,815,004	12,440,161
Total	76,378,696	64,868,223	57,448,264

NOTE 6: PROGRAM MANAGEMENT AND ADMINISTRATION DISBURSEMENTS

Program management and administration expenses for the fiscal year 2018 were in the amount of \$6,025,935.

The following table provides details of the program management and administration disbursement by expense category.

Expense category		For the fiscal year ended June 30th, 2018	For the fiscal year ended June 30, 2017	For the fiscal year ended June 30, 2016
Staff cost	(1)	4,390,287	3,662,345	3,652,934
Short-term consultants/temporary		684,319	576,345	362,580
Travel	(2)	390,314	408,717	197,839
Other expenses	(3)	561,015	299,642	342,841
Total		6,025,935	4,947,050	4,556,193

(1) Staff costs included salaries and benefits for GFDRR staff and short-term consultant and short term temporary.

(2) Travel included travel expenses of GFDRR staff, candidates/interviewees for GFDRR positions, and participants in GFDRR-sponsored events.

(3) Other expenses included overhead expenses, contractual services (e.g., editing, graphic design, translation, publishing, and printing), representation, and hospitality.

NOTE 10: UNDISBURSED COMMITMENTS

Commitments in the amount of US\$88,952,408 are outstanding as of end of fiscal year 2018.

These are the remaining balance of the funds that GFDRR has approved and committed to implementing units and recipients.

The following table provides details of undisbursed commitments by main fund.

Main fund	For the fiscal year ended June 30th, 2018
Track II-MDTF (TF070611)	7,922,988.00
ACP-EU (TF071630)	9,534,690
Japan Program (TF072129)	26,580,895
Core MDTF (TF072236)	18,016,811
Africa DRF SDTF (TF072281)	4,800,028
EU-SAR SDTF (TF072458)	1,138,545
EU-SERBIA NDRMP SDTF (TF072528)	105,481
EU-DRAF SDTF (TF072535)	2,031,098
Parallel Core MDTF (TF072584)	13,095,484
Australia Indo-Pacific SDTF (TF072835)	869,998
InsuResilience MDTF (TF072858)	3,024,395
City Resilience MDTF (TF072921)	1,831,995
Total	88,952,408

The following table provides details of undisbursed commitments by region.

Region	For the fiscal year ended June 30th, 2018
Africa	17,118,567
East Asia and Pacific	10,030,771
Europe and Central Asia	9,160,460
Latin America and Caribbean	12,205,551
Middle East and North Africa	3,111,268
South Asia	12,928,923
Global	24,396,868
Total	88,952,408

The following table provides details of undisbursed commitments by execution type.

Execution Type	For the fiscal year ended June 30th, 2018
Bank-executed TF	85,547,783
Recipient-executed TF	3,404,625
Total	88,952,408

NOTE 11: FUND AVAILABLE FOR NEW GRANTS

Fund available for new grants in the amount of US\$132,307,330 are outstanding as of end of fiscal year 2018, which can be used to finance new operational grants, and program management and administration activities.

The break-up by main fund is available in the table below.

Main Fund	Fiscal year ending June 30, 2018
	942,945.00
ACP-EU (TF071630)	33,295,103
Japan Program (TF072129)	20,989,281
Core MDTF (TF072236)	4,709,352
Africa DRF SDTF (TF072281)	2,180,695
Parallel Core MDTF (TF072584)	28,360,873
Australia Indo-Pacific SDTF (TF072835)	5,715,936
InsuResilience MDTF (TF072858)	29,211,494
City Resilience MDTF (TF072921)	2,546,622
USAID SDTF (TF072896)	3,000,000
EU-SAR SDTF (TF072458)	1,355,029
Total	132,307,330



www.gfdr.org 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 mainstream disaster and climate risk management in policies and strategies. Managed by the World Bank, GFDRR is supported by 33 countries and 11 international organizations.