Global Facility
for Disaster Reduction
and Recovery

ANNUAL REPORT

'21

BRINGING RESILIENCE TO SCALE

Tanjung Uban CIty, Bintan island, Indonesia, January 2021 flood. Photo: heru sukma cahyanto / Shutterstock.com.

Bringing resilience to scale

1818 H Street, N.W., Washington, D.C., 20433, U.S.A.

Notes: Fiscal year (FY) runs from July 1 to June 30; the financial contributions and expenditures reported are reflected up to June 30, 2021; all dollar amounts are in U.S. dollars ($) unless otherwise indicated.

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UNITED NATIONS DEVELOPMENT PROGRAMME


WORLD METEOROLOGICAL ORGANIZATION

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School children in Kenya. Photo: Bartosz Hadyniak.

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Bernice van Bronkhorst
Global Director, Climate Change Group, World Bank

Kamal Kishore
GFDRR Consultative Group Co-Chair

Sameh Wahba
Global Director, Urban, Disaster Risk Management, Resilience and Land Global Practice, World Bank

In FY21, the Global Facility for Disaster Reduction and Recovery (GFDRR) continued to work closely with the World Bank and other organizations to help strengthen the resilience and reduce the vulnerabilities of countries affected by natural hazards, climate change, and the ongoing pandemic.

By raising awareness and deepening understanding of risks across sectors, GFDRR's work contributed to building client countries' capacity to manage natural hazards and other challenges to development in an inclusive and equitable manner. For the facility itself, it was a year of transition. A new strategy, a new charter, a new organizational structure, and new leadership—all combined to equip GFDRR to better respond to crises.

Despite being in the middle of multiple transitions, GFDRR not only maintained the momentum in its core functional areas, but it also spearheaded innovation on different aspects of disaster risk management to understand and effectively respond to complex, interacting risks. For example, in South Asia, the TechEmerge Challenge, hosted by GFDRR and its partners, brought together leading-edge innovators from around the world using new technologies to address specific challenges in client countries.

The year was also marked by several disasters that required swift response from GFDRR for recovery and longer-term resilience. To mention a few, in November 2020, Nicaragua and Honduras saw two consecutive tropical storms, Eta and Iota, make landfall within the span of only two weeks. The 7.0 magnitude Aegean Sea earthquake, which registered the highest death toll from an earthquake in 2020, also triggered a serious tsunami that struck Greece and Turkey. The Philippines, already reeling from the impacts of climate change, was devastated by Typhoon Goni, which was recorded as the strongest tropical cyclone to make landfall in history.

As countries slowly emerge from the pandemic, the World Bank Group's focus will be on rebuilding stronger by promoting durable recovery and growth through green, resilient, and inclusive development (GRID). GFDRR's activities are closely aligned with the GRID approach. They promote green development through the integration of nature-based approaches to climate resilience; build resilience to disaster risks, thereby contributing to the achievement of the targets of the Sendai Framework for Disaster Risk Reduction; and respond to people's needs in a socially inclusive manner.

To support the GRID, the adaptation and resilience aspects of the World Bank Group's new Climate Change Action Plan 2021–2025 includes many of GFDRR's thematic priorities, such as resilient infrastructure, nature-based solutions, resilient cities, and reducing shocks and protecting livelihoods through early warning systems. At the strategic level, the facility works with client countries to support climate and development diagnostics, and it contributes to aligning and improving their policies with the climate-resilient goals of the Paris Agreement.

What also makes GFDRR unique is its position within the World Bank. The facility can fund upstream client engagements that can then mobilize the World Bank Group's financing by enabling and supporting the design of large resilience-building projects or by improving the resilience of development projects in all sectors. Every $1 million that GFDRR invests in leads to more than $100 million in investments in resilience or in more resilient development, bringing resilience to scale.

Climate change and disasters threaten hard-won development gains, especially for the poorest and the most vulnerable in low-income countries such as those supported by the International Development Association (IDA) and in communities affected by fragility, conflict, and violence.

For these people and many others around the world, GFDRR will continue to deliver funding, knowledge, and technical assistance to support efforts on the key priorities of climate change adaptation and resilient recovery.

Jakarta, Indonesia. SOPA Images Limited / Alamy Stock Photo.

Executive Summary

This *Annual Report* highlights the progress and results achieved during FY21.

About the FY21 Annual Report

This *Annual Report* highlights the progress and results achieved during fiscal year 2021 (FY21), from July 2020 through June 2021. It provides an overview of grant-making activities in six regions and across GFDRR's eight targeted areas of engagement and explores some areas of the work in greater depth. The report also includes financial statements for the fiscal year. This will be the final year for reporting results measured against GFDRR's Results Framework and the targets set out in its FY18–FY21 strategy.

GFDRR is committed to further strengthening its monitoring and evaluation (M&E) systems, ensuring that evidence and lessons from across the portfolio inform management decisions, accountability, and learning. Results of the FY21 program, as measured against the facility's results indicators, are available in the report's Annex section.

In the FY21 Annual Report, we have excluded reporting on the Global Risk Financing Facility (GRiF) and the Climate Risk and Early Warning Systems (CREWS) Initiative, since these programs are governed by entities other than the GFDRR's Consultative Group.[1]

GFDRR in FY21

During FY21, the facility committed $46 million in funding to 138 new grants. At the end of the fiscal year, the active portfolio included 253 active grants, for a total commitment amount of $135 million. These grants address a full range of natural hazards, with flooding, earthquakes, and landslides continuing to receive the greatest share of support. All GFDRR grants contribute to achieving the Sendai Framework, including its targets and priorities for action.

GFDRR's emphasis on building resilience follows its work in FY20, where the facility worked closely with the World Bank and other organizations to adapt existing arrangements to help countries manage the COVID-19 pandemic. Along with the global health crisis, climate change has worsened the impact of disasters and threatened to reverse hard-won development gains amid compounding risks. In the face of multiple shocks, GFDRR focused on helping to strengthen the resilience and reduce vulnerability of the society as a whole. Through technical assistance and grant activities, GFDRR helped address the heightened vulnerability of different social groups—such as women, the elderly, and those with disabilities—to make sure those who are disadvantaged in disasters are considered and prioritized in disaster risk management (DRM) activities. GFDRR has supported progress in instilling resilience across sectors such as transport, energy, and water, and is now working with the World Bank to help apply DRM principles into health care systems and in situations affected by fragility, conflict, and violence. Resilient infrastructure is another area where the facility is not just focused on strengthening individual assets, but on supporting the resilience of the entire life cycle of the infrastructure and the ecosystem that it is part of, such as through nature-based solutions that seek to integrate the traditional built environment with natural solutions.

These are some examples of how GFDRR's approach aligns with the World Bank Group's green, resilient, and inclusive development goals and why the facility's activities contribute to the core adaptation components of the World Bank Group's Climate Change Action Plan 2021–2025.

In-Country Engagements

Core to GFDRR's vision is helping countries bring resilience to scale. Active grants in FY21 covered 154 countries across all six regions.

The **Africa** region continues to be the largest in GFDRR's active portfolio, representing 34 percent of active funding in FY21—a trend that is consistent with previous fiscal years. The active portfolio as of end of FY21 totaled 68 grants worth $46.1 million, of which $9 million was for new grants. GFDRR's strategy for building resilience in Africa is structured around four pillars, aligned with the World Bank Africa Strategy for 2019–2023. To give an example, one of the strategy's four pillars is strengthening urban and coastal resilience, and in FY21, GFDRR supported the assessment of flood and coastal risks in The Gambia, using advanced modeling and analysis of satellite images. The assessment helped to identify hotspots and potential green and gray infrastructure solutions to build resilience and is informing a World Bank project to mitigate the country's coastal erosion and flood risk. Another pillar of this strategy is modernizing hydrometeorological (hydromet) services, and in Rwanda, an integrated hydrological model for the identification of flood-prone hotspots for Kigali informed the dialogue with the government under the second phase of the $150 million Rwanda Urban Development Project, which includes reducing short-term flood risks and hybrid (green and gray) infrastructure investments.

[1] GRiF is co-managed with the Disaster Risk Financing and Insurance Program under the World Bank's Finance, Competitiveness & Innovation Global Practice and is proposed to become a standalone trust fund outside GFDRR's umbrella in FY22 because of its thematic scope, size, governance structure, and distinct donor relationships. As a financial intermediary fund, CREWS will sit outside the GFDRR Umbrella 2.0 Program to be implemented from FY22.

Nature-based solutions are gaining recognition in the region as the first line of defense against natural hazards, especially when combined with the built environment.

At the end of FY21, GFDRR had an active portfolio in the **East Asia and Pacific** region of 53 grants, worth a total of $22.2 million. In a region frequently hit by natural hazards, GFDRR continues to support a large DRM portfolio for a diverse range of countries. For example, in Cambodia's urban communes, the facility is financing activities to improve the capital Phnom Penh's capacity to predict, manage, and mitigate the impact from floods at the local level, particularly in informal settlements. The facility also supported Pacific Island countries such as Samoa, Tonga, and Tuvalu, which have high exposure to natural hazards and climate change, with trainings of local experts on the use of an open-source data collection tool to understand and assess vulnerability and risks in school buildings and health care facilities. In the Philippines, GFDRR has provided financial and technical support to the government to bolster greater Metro Manila's resilience to seismic hazards, building on a decade of the facility's support of resilient infrastructure in the country.

In **Europe and Central Asia**, GFDRR's active portfolio at the end of FY21 totaled 21 grants, worth $11.5 million. In a region where the level of institutional commitment and investment in DRM varies from country to country, efforts to expand awareness of potential risks and deepen engagements in countries where DRM and the climate change adaptation agenda are less advanced remains a strategic priority. Some of the engagement highlights in FY21 include a new grant in Turkey that will generate knowledge to inform and advise the government on national-level strategies and policies that advance climate resilience and adaptation with an emphasis on inclusion, economic growth, and risk management. The grant will also explore how COVID-19 recovery packages can be used to build back better. For example, GFDRR financed technical assistance to inform a new World Bank project in Romania to improve the resilience, energy efficiency, and learning environment of selected schools. It also supported an assessment of potential economic impacts from disasters on Tajikistan's road network, with an eye to informing the country's resilience-building efforts. Regionally, through technical assistance, GFDRR is planning to strengthen regional weather and flood forecasting by improving the lead time and accuracy of early warnings for hydromet hazards.

In **Latin America and the Caribbean**, GFDRR's active portfolio totaled 46 grants worth $19.5 million as of end of FY21. Amid the ongoing pandemic and the array of extreme hydromet events and a volcanic eruption, GFDRR continued to support the region's efforts to build preparedness capacity, aid rapid recovery, and support long-term resilience through a suite of targeted interventions geared toward addressing vulnerability across various sectors. In St. Vincent and the Grenadines, GFDRR provided technical assistance to enhance national capacity in shelter management and to strengthen communications on the La Soufrière volcano emergency to manage compound risks. In Ecuador, a disaster risk financing (DRF) strategy was developed to strengthen the country's fiscal resilience to disaster risk, climate change, and public health emergencies. Two regional studies analyzing gender and disability inclusiveness were completed, providing critical recommendations for how to better design more inclusive DRM operations. In Brazil, a technical partnership between the World Bank, GFDRR, and academia created the Brazilian Digital Disaster Atlas, which is helping authorities connect the different pieces of disaster data to better understand the country's disaster risk profiles. And in Haiti, GFDRR supported a public communication campaign as part of the country's efforts to develop a warning system that is much more easily understood and can be acted upon.

GFDRR's active portfolio in the **Middle East and North Africa** region as of end of FY21 totaled 7 grants, worth $1.5 million.The facility is supporting the mainstreaming of DRM across development sectors in many places in a context of fragility by supporting recovery and reconstruction efforts, providing support for refugees and host communities, and accelerating green growth to combat climate change. For example, technical assistance was provided for two cities in Jordan affected by the unprecedented and rapid influx of Syrian refugees. This support was designed to reduce the exposure of urban areas and its citizens to various risks, including natural hazards, service delivery deterioration, increased pressure on infrastructure, economic and fiscal shocks, and social challenges. Technology was also utilized to strengthen resilience, as in the example of Upper Egypt, where GFDRR-funded geographic information system (GIS)-based geospatial data gathering of road transport infrastructure in four selected districts has improved local transport planning and management in addressing disaster risks.

At the end of FY21, GFDRR's active portfolio in **South Asia** totaled 33 grants, worth $14.4 million. South Asian governments have

undertaken a major shift from traditional post-disaster response toward proactive risk reduction reinforced by financial protection mechanisms and are deepening their efforts to integrate climate and disaster resilience into infrastructure sectors and social development. However, major challenges for DRM remain, particularly in cities, which experience rapid population growth. In response, GFDRR has provided support for the development of coastal resilience investments in Bangladesh that included nature-based solutions and funded a new study, *Inclusive Resilience: Inclusion Matters for Resilience in South Asia*, which took stock of social inclusion in DRM programs across the region. GFDRR also contributed to resilient transport, water, and energy systems across the region. FY21 engagement highlights include technical studies in Sri Lanka to help develop a national flood forecasting strategy and flood mitigation solutions. A GFDRR program supporting the reduction of landslide and geohazard risk assisted DRM and transportation agencies to come up with risk reduction strategies in Nepal and Pakistan, and in Bhutan. The same program supported an online mapping system for road asset management in landslide-prone districts. GFDRR-financed technical studies also directly supported around $375 million in financing under the Resilient Kerala Partnership in India.

Areas of Engagement

GFDRR implements its strategy through eight areas of engagement that support the Sendai Framework's priorities for action. Progress in each of these areas is measured against targets set in the 2018–21 strategy.

Understanding disaster and climate risk requires the processing of an enormous array of data that describe the distribution and the location of hazards, the populations and assets exposed, and information related to their vulnerability. With climate-related disasters increasing, the challenge now is to combine climate change scenarios and hazard models to inform more long-term climate and disaster risk assessments. Building on more than 10 years of innovations and commitment to **promoting open access to risk information** through initiatives such as the GFDRR Labs and Open Cities, GFDRR continued to explore new technologies and innovative ways of collecting, using, and sharing disaster risk information. In FY21, GFDRR engaged with the catastrophe modeling and research communities to develop new standards and tools, such as the Risk Data Library, which are improving access to disaster risk information across the globe. The successful Open Cities Africa project is being adapted to the Latin America and the Caribbean region, and grants that supported research and the applications of disruptive technologies such as machine learning, drones, and location (GPS) data are identifying best practices and principles to ensure those technologies are used responsibly. The 10-year anniversary of the Understanding Risk (UR) 2020 Global Forum was also held virtually in December 2020, convening more than 2,500 experts and practitioners from 179 countries to inspire ideas and solutions for DRM.

Promoting resilient infrastructure is no longer a choice, but a must. A fast-changing climate and global crises such as the COVID-19 pandemic highlight the need to invest in safer, more efficient, and long-lasting infrastructure assets. In low- and middle-income countries, disruptions to infrastructure are an everyday concern, reducing opportunities for employment, hampering health and education, and limiting economic growth. Promoting the resilience of infrastructure services begins with strengthening existing assets, but also embedding resilience for new infrastructure investments. Beyond individual assets, it is necessary to build more resilient systems and networks. In response, GFDRR finances institutional support, often focused on asset management systems, and gives technical assistance to help governments to ensure that projects are efficiently designed, financed, and executed and that the built infrastructures are properly operated and maintained. For example, GFDRR and the World Bank are supporting the government of Nepal in developing resilient technical designs and standards for renewable energy, mini-grids, generation facilities, and relevant electrical facilities. The technical assistance and the close collaboration with Japanese experts to mobilize leading expertise and technology has been crucial to the project and has illustrated how knowledge exchange can be paramount to promoting infrastructure resilience in response to the urgent climate agenda. This area of engagement is one of the largest in GFDRR's portfolio, with a total funding during FY21 of $135.4 million, distributed through 260 grants.

The world's population is not only increasing but also clustering in large metropolitan areas. Today, 4.2 billion people—equivalent to 55 percent of the global population—live in cities, and a city's growth is proportional to its vulnerability to climate disaster. What holds cities back from pursuing a resilient future is the lack of financial and technical resources. As of FY21, 39 percent of GFDRR's active core program grants contributed to scaling up urban resilience. These grants covered 172 cities across 69 countries and included capacity building, improved

resilience of urban services, flood risk reduction, coastal resilience, and emergency preparedness activities. In St. Vincent and the Grenadines, a grant helped to highlight gaps in DRM and climate change adaptation for resilient urban development in the country. In Grenada, Guyana, and St. Vincent and the Grenadines, an ongoing project is exploring approaches for improving urban infrastructure planning to achieve resilience goals in coastal cities by encouraging the sustainable concurrence of the urban space and the natural environment. GFDRR's other global programs—such as the City Resilience Program (CRP) and Building Regulation for Resilience (BRR)—are also supporting **scaling up the resilience of cities**.

GFDRR supports governments in **strengthening their hydromet services and early warning systems (EWS)**, including through the upgrade of technological systems that gather, analyze, and produce hydromet data and the provision of training on how best to share and use that knowledge for decision-making purposes. In FY21, GFDRR's grants program continued to strongly support the modernization of hydromet and EWS. Six new grants totaling $3.22 million were added to the GFDRR portfolio, bringing the total number to 21 active grants. In FY21, a series of technical notes on public and private engagement in hydromet services were also published. GFDRR and the World Bank work closely with the World Meteorological Organization and other partners such as the Alliance for Hydromet Development (the Alliance), a partnership that unites efforts to close the hydromet capacity gap by 2030. The facility financed technical inputs to, and supported development of the Alliance's Country Hydromet Diagnostics tool aimed at evaluating national hydromet services' capacity and identifying areas of necessary support. Other notable knowledge-sharing activities were those in support of the Global Weather Enterprise Forum events, including webinars, online forums, roundtables, and podcasts. In FY21, GFDRR supported 19 online events with some 50 speakers, almost 1,000 attendees, and more than 1,600 views and downloads of the pre-recorded events.

Financial losses because of disasters continue to rise each year, threatening to undo hard-won development gains. National DRF strategies aim to increase the availability of funding for post-disaster recovery needs and, if well designed, can provide much-needed liquidity to deal with disaster response and protect the livelihoods of the affected population. GFDRR continues to facilitate dialogue about prearranging financial solutions and making available funds and expertise to support countries as they navigate the global risk financing space. In collaboration with the World Bank's Disaster Risk Financing and Insurance (DRFI) Program, the facility assists low- and middle-income countries to develop and implement tailored financial solutions as part of their wider DRM framework. Some examples of GFDRR's work in **deepening financial protection** can be seen in St. Lucia, where new techniques in disaster risk quantification for both structural and social vulnerabilities supported the analysis of data, which formed the core part of the adaptive social protection and DRF activities of the government. In the Bahamas, GFDRR supported the government to better track post-disaster and climate expenditures, and therefore supported a better targeting of future budgeting, reporting, validation, and evaluation mechanisms. The European Union–World Bank/GFDRR Global Partnership on Disaster Risk Financing Analytics also completed its activities, after five years of implementation, in December 2020.

GFDRR's total funding for **building resilience at the community level** engagement area in FY21 was $94.3 million, with a total of 168 grants allocated globally and to all regions. The impacts of disasters do not affect all people equally. The vulnerability and risk of exposure to disasters often disproportionately affects groups such as women, girls, persons with disabilities, ethnic and racial minorities, indigenous peoples, youth, and other marginalized communities. GFDRR's work on inclusive DRM over the last six years, particularly on gender equality and community resilience, is now being streamlined and expanded to become the Inclusive DRM and Gender Equality cross-cutting priority area. Some of the work in this area includes supporting the formulation of a gender action plan and approach to address gender-based-violence in Ghana; strengthening the implementation of the gender equality agenda for DRM in Central America; providing support to adapt existing social protection programs during the pandemic in Peru; and evaluating cash transfer and on-demand registration in Haiti, shedding light on the importance of flexible cash distribution options during emergencies. Some notable publications on inclusive DRM include *Gender Dimensions of Disaster Risk and Resilience: Existing Evidence* and *Inclusive Resilience: Inclusion Matters for Resilience in South Asia.*

Deepening engagement in resilience to climate change has the largest portfolio in GFDRR's areas of engagement. The active portfolio during FY21 totaled 244 active grants, worth $142.4 million.

In FY21, 96 percent of its active portfolio incorporated climate risk considerations. Alongside the World Bank, GFDRR helps countries by promoting innovative solutions to reduce climate change risks and assist in the planning and design of climate-resilient policies and investments. Some of the engagement highlights include GFDRR's support for a large-scale initiative to transform climate risk into resilience through community-based urban reforestation in the city of Freetown, Sierra Leone. The initiative has already created 550 jobs, supporting COVID-19 recovery, and is using disruptive digital technologies to track trees planted. In Vietnam, GFDRR is supporting the government's effort to develop climate-smart coastal areas by integrating disaster and climate risk considerations into relevant policies, plans, and investments. As part of this engagement, two key studies providing guidance and recommendations for implementing coastal setback lines or buffers have been completed; these studies will provide the impetus for a new overarching framework that is built around a spatial analysis. In Cambodia, GFDRR is supporting the preparation and implementation of the Cambodia Road Connectivity Improvement project through the provision of key strategic and technical inputs that integrate disaster and climate resilience into the life cycle of the targeted rural road infrastructure. As part of this support, geospatial analysis and modeling covering the entire country has been completed. This will provide critical inputs for further analyses of network-level criticality, including accessibility and logistic impact as well as the climate vulnerability of roads.

In FY21, GFDRR was at the forefront of global efforts to ensure more resilient recovery in the aftermath of a disaster or an emergency. Working closely with national government counterparts, international partners, and World Bank task teams, the facility's priorities included (1) enabling more effective and informed recovery, (2) ensuring rapid access to recovery financing, and (3) generating and sharing knowledge. The emphasis on resilient recovery follows GFDRR's work in FY20, where the facility worked closely with all partners to adapt existing engagements to help countries manage the COVID-19 pandemic. Engagement highlights in the area of **enabling resilient recovery** included a Just-in-Time grant that helped the government of Cambodia to conduct a rapid post-disaster damage assessment following widespread flooding across 20 of the country's 25 provinces in September to November 2020. In the wake of catastrophic flooding in South Sudan in October 2020, a remote flood damage needs assessment was conducted that captured damage to physical assets and infrastructure, as well as the implications of the floods on people's lives and livelihoods. This was the first comprehensive, countrywide flood damage and needs assessment in the country, employing innovative technology. And in Timor-Leste, a remote impact assessment was conducted after Tropical Cyclone Seroja in April 2021.

The assessment team not only made recommendations for the post-disaster recovery program but also linked DRM proposals to the government's own longer-term development policies.

Financing Windows

GFDRR activities are funded through a combination of core programs and special programs. Core programs include the Multi-Donor Trust Fund (MDTF), the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries (the Japan Program), and EU-funded programs. Special programs are purpose-built financing windows focusing on particular areas of engagement or regions; these are managed by GFDRR but implemented in partnership with other global practice teams within the World Bank.

The **Multi-Donor Trust Fund (MDTF)** is the primary financing window for achieving GFDRR's mission and implementing its strategy. A commingled pool of funding resources from GFDRR members, the MDTF structure allows the facility to flexibly respond to country demand to scale disaster and climate resilience, and to respond and recover from disaster events. The MDTF provides funding for in-country engagements across all regions and thematic areas. It finances technical assistance and advisory work that enables governments to ask more precise questions and to dimension and define better solutions. It also finances analytical work, presents new evidence, proposes new approaches to action, and develops innovative solutions and tools. FY21 has been a year of transition, as the MDTF that served as the backbone of GFDRR operations from 2014 to 2020 came to an end in December 2020. Over the course of its implementation, this MDTF financed 356 activities for a total value of over $145 million and mobilized over $8.6 billion in additional financing, mostly through the World Bank. The new MDTF, which was established in November 2019 and began operations on July 1, 2021, continues GFDRR's efforts to support disaster and climate resilience in low- and middle-income countries. This fund anchors all work under GFDRR's umbrella program, which is part of the World Bank's trust fund reforms, and it facilitates the implementation

of the GFDRR strategy 2021–25.

The **European Union (EU)** has been a key partner of GFDRR since 2008. In FY21, the EU funded eight programs managed by GFDRR, two of which are managed in close collaboration with the Secretariat of the Organisation of African, Caribbean and Pacific States (OACPS). The **Africa, Caribbean, Pacific–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program** enhances preparedness for natural hazards and mitigates their impacts in ACP countries by supporting governments in their efforts to integrate risk management approaches into planning. In FY21, the ACP–EU NDRR Program, which is set to close at the end of 2021, had two new grants totaling $241,000. Additional funding was also granted to existing projects in Cabo Verde, Cameroon, The Gambia, Kenya, Malawi, the Seychelles, Sudan, and Vanuatu, as well as to one regional project in the Caribbean, totaling $746,000. By the end of FY21, the program had reached a total portfolio of 149 projects. Other programs include the ACP–EU Building Disaster Resilience in Sub-Saharan Africa Program, which GFDRR implements in one result area—the **African Regional Economic Communities (RECs) DRM Program (Result Area 2)** that contributes to the disaster risk reduction coordination, planning, and policy advisory capacities for the four regional communities. In FY21, the program supported hydromet forums and services, knowledge products, flood management, and climate-smart agriculture. The **Caribbean Regional Resilience Building Facility** provides countries with financial and technical assistance to enhance long-term resilience and adaptation capacities for the most vulnerable. In FY21, a working group was established at the regional level to create alignment among key stakeholders on issues such as resilient building regulation and DRF; and at the country level, together with the Canada-Caribbean Resilience Facility, to support the government of St. Vincent and the Grenadines with an emergency communications campaign to build awareness of the potential harmful impacts of volcanic ash in the days following the eruption of the La Soufrière volcano in April 2021. Activities under the **EU–World Bank/GFDRR Global Partnership on Disaster Risk Financing Analytics** were completed in FY21. The program helped countries build financial resilience by improving their understanding of risk and increasing their capacity to make informed decisions. During this fiscal year, the development of a universal analytics tools was finalized, validated, and deployed through an event in Senegal with tools tailored for that country in December 2020. The **EU–South Asia Capacity Building for DRM Program** supports hydromet service delivery and capacity building among regional bodies and national disaster management centers in managing natural hazard risks. In FY21, the program supported hydromet agencies in Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka in strengthening their multihazard monitoring and early warning systems. Other programs under the EU include the **Technical Assistance Program for Disaster Risk Financing and Insurance in Caribbean Overseas Countries and Territories;** the **Serbia National Disaster Risk Management Program**; and the **Strengthening Financial Resilience and Accelerating Risk Reduction in Central Asia Program**.

The **Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries (the Japan Program)** is a partnership between the government of Japan and the World Bank, managed and implemented through GFDRR's Tokyo DRM Hub. The program supports activities focused on mainstreaming DRM into national development planning and investment projects and those capturing knowledge and deploying Japanese and global expertise to support DRM policies and programs. In FY21, the Japan Program awarded 49 grants totaling $19.64 million.[2] The Africa region received the highest allocation because of an increase in demand for resilient infrastructure in sectors such as transport, water, urban infrastructure, and energy. Support for mainstreaming DRM in infrastructure sectors represented a key focus of FY21, with 87 percent of financing contributing to resilient infrastructure activities. In FY21, despite significant limitations on the modality of engagements due to COVID-19, the Tokyo DRM Hub facilitated the engagement of 150 Japanese experts from the public and private sectors, academia, and civil society organizations across 42 grants.

For special programs, the **Canada-Caribbean Resilience Facility (CRF)** helps Caribbean countries achieve more effective and coordinated gender-responsive and climate-resilient preparedness, recovery, and public financial management practices. In FY21, the CRF continued to provide support to build capacity in countries, reinforcing activities started the previous year. Through its implementation support team, now comprised of over 50 experts, the CRF provided targeted support in over 20 critical areas including business

[2] The figures in this section are as of June 30, 2021.

continuity planning, emergency procurement management, public asset management, resilient construction and civil works, COVID-19 vaccine rollout, and activation of contingency financing during emergencies. The CRF also completed regional reviews of cross-cutting themes, such as a review of gender-responsive disaster preparedness and recovery and a review of disaster risk management for persons with disabilities.

Another special program, the **City Resilience Program (CRP)**, is a multi-donor initiative in partnership with the World Bank with the aim of increasing financing for urban resilience. Since the start of the program, CRP has implemented $12.8 million in activities. Now entering its fifth year, CRP has built a versatile delivery model able to operate in both the planning side and the finance side within the urban resilience landscape. To better respond to country demand, CRP now supports cities in three thematic areas: planning, finance, and partnerships for resilience. Together, these three thematic areas are key to helping cities address the resilience challenges of the future. One of CRP's core products, the City Scan—which uses spatial data to help cities visualize the interplay of climate and infrastructural challenges—was transformed into an online and interactive tool that allows decision-makers, urban planners, and city officials to explore the data available and engage with the components that are most suitable for their needs. Together with the Global Resilient Cities Network, CRP has continued to co-organize the World Bank's Cities on the Frontline virtual event series since March 2020 to share knowledge about how to respond to the pandemic crisis and plan toward resilient recovery.

In FY21, 87 GFDRR-funded **publications** were made available on the facility's website, and 777 knowledge exchange activities and **events** were facilitated, including the Understanding Risk (UR) 2020 Forum. The UR2020 Forum went fully virtual amid the ongoing pandemic, but it is still as engaging and global as ever, convening more than 2,500 experts and practitioners from 179 countries to inspire ideas and solutions for disaster risk management. This occasion also marked the 10-year anniversary of the UR community. For publications, *Inclusive Resilience: Inclusion Matters for Resilience in South Asia* contributed to addressing social inclusion in climate and disaster resilience in South Asia, and *Frontline: Preparing Healthcare Systems for Shocks from Disasters to Pandemics* offered recommendations to better prepare health systems to respond to a wide range of shocks, ranging from seasonal demand surges to pandemics, climate change impacts, and all types of disasters.

In FY22 and beyond, GFDRR will continue to mobilize its cross-sectoral expertise, promote evidence-based decision-making, deepen existing partnerships, establish new links with a wide range of institutions, and monitor and evaluate its own progress for bigger impact.

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; Mobilizing Finance and Development Policy; Inclusive Approach; Gender; Addressing Disaster and Climate Risk; Knowledge; and 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 mobilize 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 mobilizes 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 mobilize development investments well beyond the resources it manages, maximizing development impact.

FINANCING WINDOWS GFDRR is an umbrella trust fund that finances its activities from different sources of funds, including a multi-donor trust fund and special programs.

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. These are:

- Promoting open access to risk information
- Promoting resilient infrastructure
- Scaling up the resilience of cities
- Strengthening hydromet services and early warning systems
- Deepening financial protection
- Building resilience at the community level
- Deepening engagement 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.

FY21 IN NUMBERS:
BRINGING RESILIENCE TO SCALE

GFDRR's portfolio continued to grow globally during FY21. Highlights of the portfolio's progress and contributions to resilience are below.

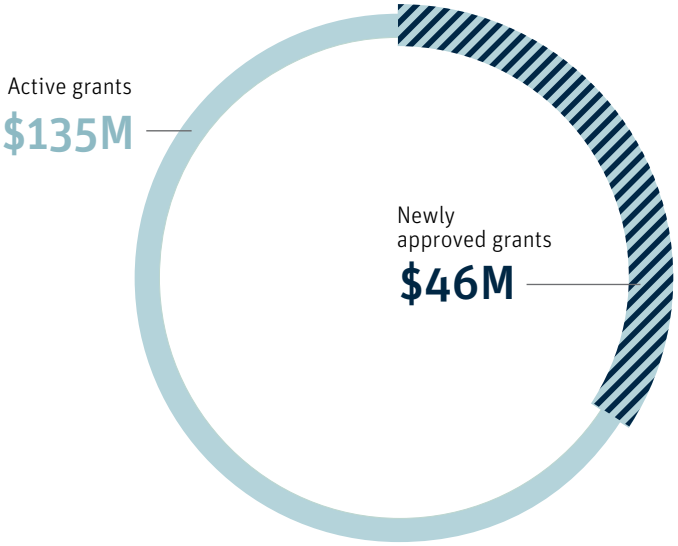
Alignment with Sendai Framework **100%**

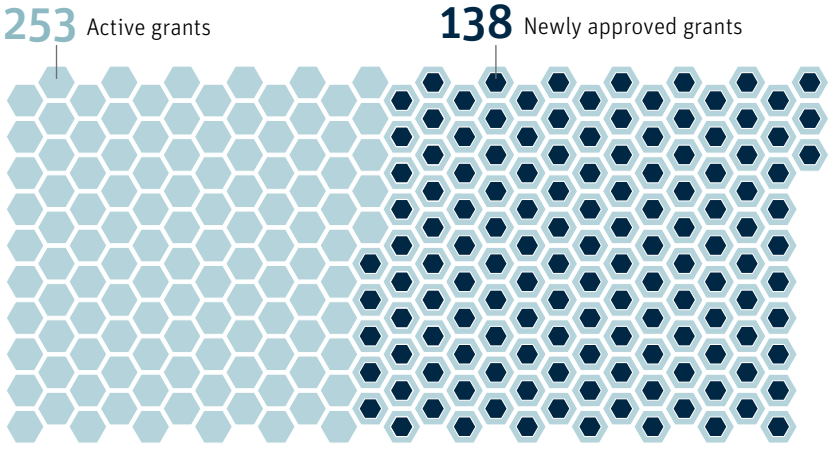
Approved grants gender informed **81%**

Approved grants supporting resilience to climate change **93%**

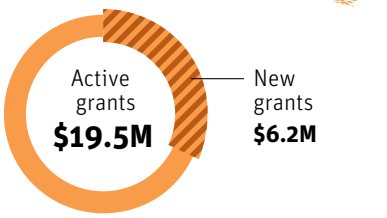
Community beneficiaries **53%**

All grants

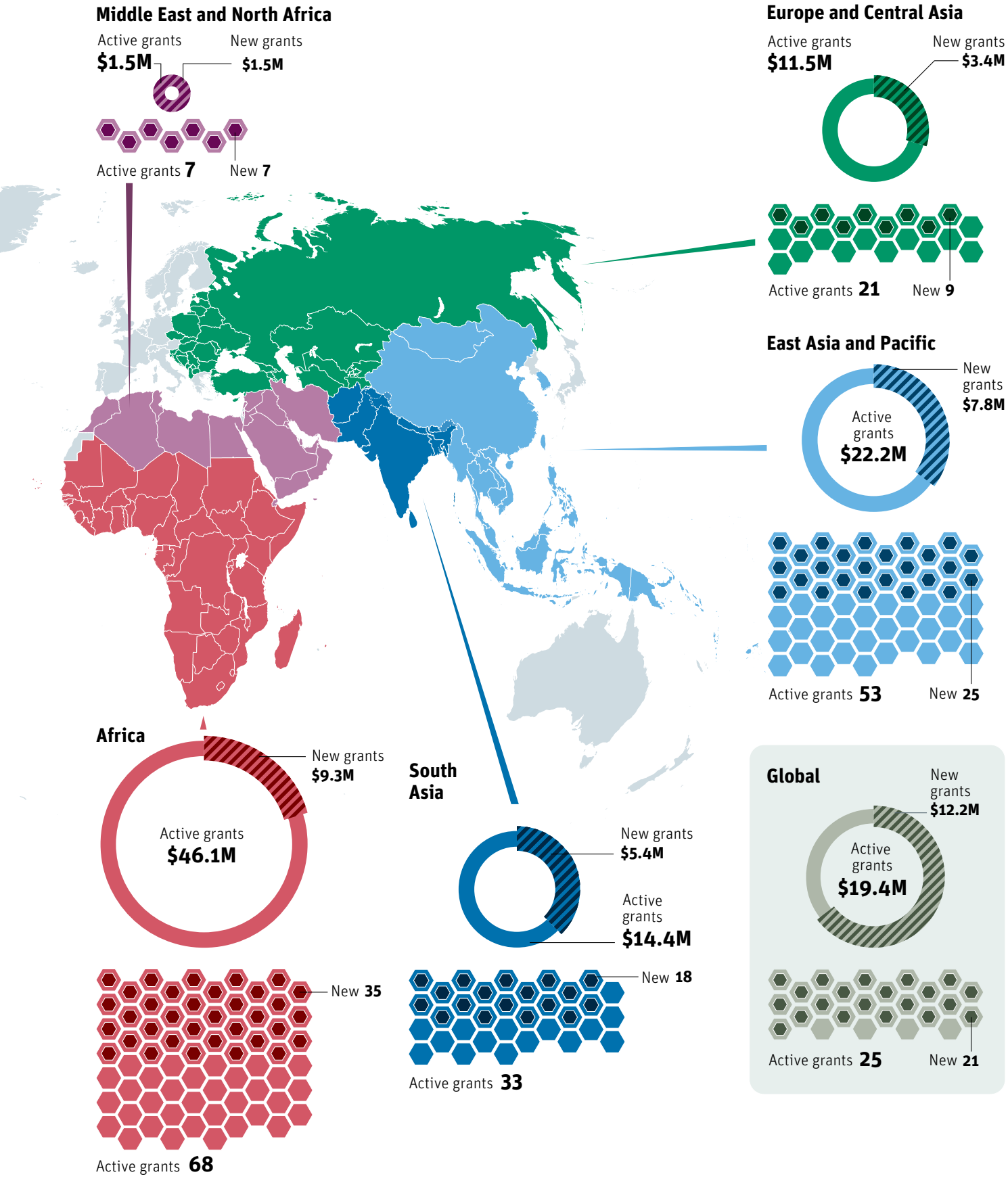




Latin America & the Caribbean



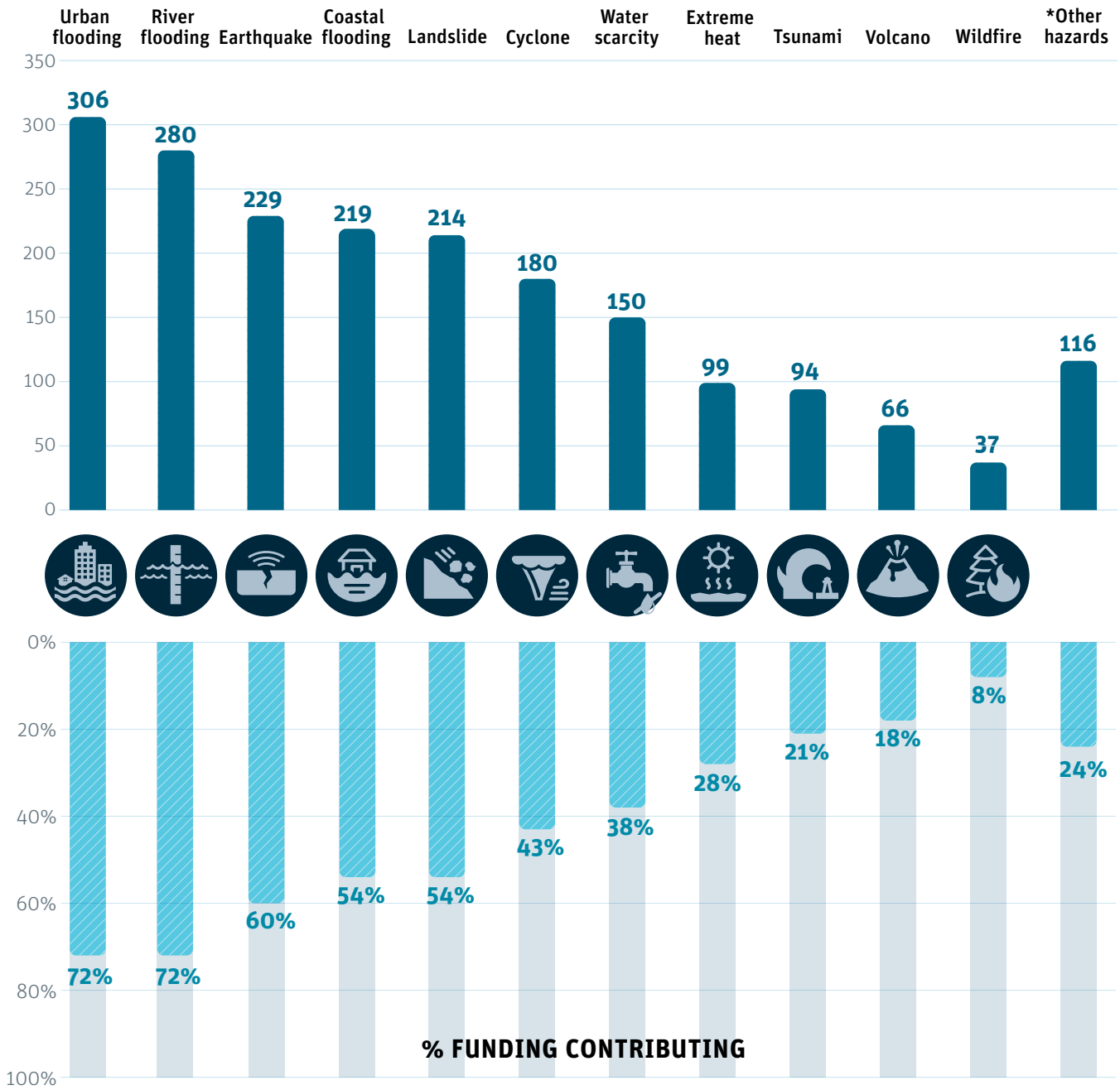
Data are as of June 30, 2021.
The data exclude other programs managed by GFDRR such as GRiF and CREWS. Rounding applies to the data.


Middle East and North Africa
Active grants
$1.5M
New grants
$1.5M
Active grants 7
New 7
Europe and Central Asia
Active grants
$11.5M
New grants
$3.4M
Active grants 21
New 9
East Asia and Pacific
New grants
$7.8M
Active grants
$22.2M
Active grants 53
New 25
Africa
New grants
$9.3M
Active grants
$46.1M
New 35
Active grants 68
South Asia
New grants
$5.4M
Active grants
$14.4M
New 18
Active grants 33
Global
New grants
$12.2M
Active grants
$19.4M
Active grants 25
New 21

NATURAL HAZARDS ADDRESSED

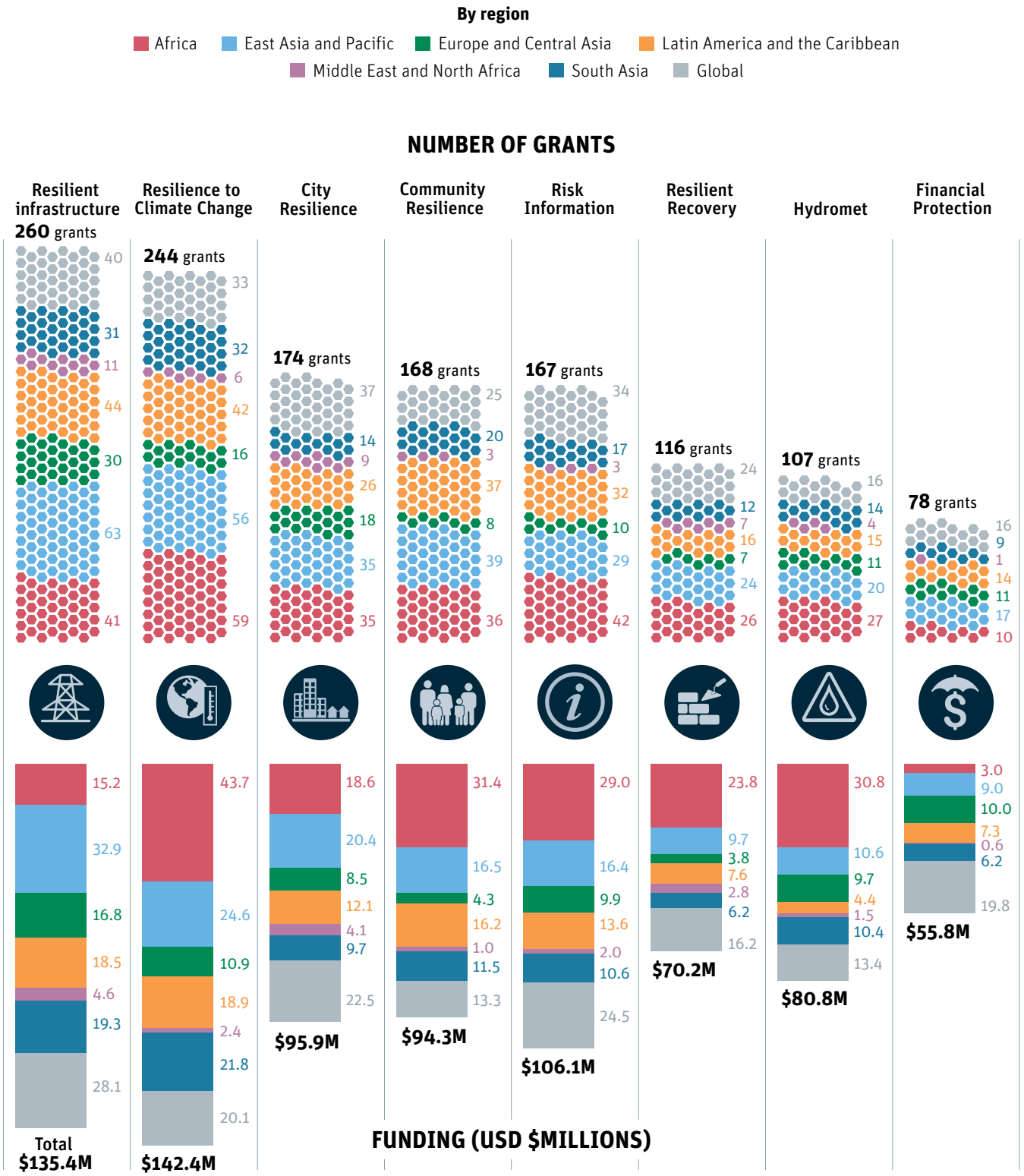
The portfolio targeted the hazards posing the greatest risk to vulnerable countries. Most grants continued to address more than one natural hazard. Within the portfolio, 89% of core program funding went toward meteorological/hydrological hazards and 80% addressed geohazards. Other hazards* addressed by the portfolio include extreme wind, sea-level rise, drought, poor air quality, and sand storms.

ACTIVE GRANTS BY TYPE OF HAZARD



AREAS OF ENGAGEMENT

The portfolio in FY21 (new, active, and closed grants) continued to address all strategic areas of engagement. Most grants contributed to more than one engagement area and these activities covered all regions.



Saint Vincent and the Grenadines, eruption of La Soufriere volcano. Photo: Dmitri V Tonkopi / Shutterstock.com.

FY21 Highlights

In this world of compound risks, FY21 Highlights presents a closer look at how GFDRR is supporting efforts to tackle those risks across the globe.

Building Resilience to Compound Risks

As climate change and the ongoing COVID-19 pandemic continue to worsen the impact of disasters and reverse hard-won gains, there is an urgent need to recognize that disasters are not merely singular events whose effects can be separated from the pursuit of broader development objectives. The reality is that disasters compound existing risks—such as poverty—that already make life precarious for many people. For example, of the 1.5 billion people around the world who reside in areas of significant flood risk, 89 percent live in low- and middle-income countries.

In November 2020, for the first time on record, two hurricanes—Eta and Iota—consecutively hit Central America. In the aftermath of the 7.0 magnitude Aegean Sea earthquake—the earthquake with the highest death toll in 2020—Greece and Turkey were struck by a serious tsunami. And one of the countries most affected by climate change, the Philippines, was devastated by Typhoon Goni, which was recorded as the strongest tropical cyclone to make landfall in history. All these disasters happened as the pandemic put pressure on these countries' already strained health systems, making disaster recovery and reconstruction more costly and cumbersome.

As climate change continues to worsen living standards and extreme weather events threaten to become the new normal, GFDRR is committed to continue supporting countries' efforts to strengthen resilience to climate change through both its expertise and its experience in disaster risk management (DRM) and climate adaptation. Below are the ways that disasters have coincided with multiple risks, along with some of the initiatives that GFDRR has undertaken in response.

Disasters hamper the economy

Disasters wreak havoc on a wide range of industries and threaten to plunge people into financial insecurity even in their aftermath. This is particularly true in countries that are not equipped with adequate means or mechanisms to shield themselves against the impact of shocks.

In FY21, GFDRR's technical assistance helped Bangladesh account for the costs of resilience measures through a detailed inventory of its infrastructure, including the economic zones that have enabled the country to transform itself into an export powerhouse. The findings of this assessment have guided Bangladesh's decision to integrate nature-based solutions—such as rainwater harvesting and incorporating green spaces—into the design and construction of its Bangabandhu Sheikh Mujib Shilpa Nagar Economic Zone to improve its drainage and stormwater management capacities.

With the support of GFDRR, technical teams in Beirut, Lebanon, conducted a series of deep dive assessments that examined the municipality's exposure and vulnerability to a range of hazards, including urban flooding, coastal flooding, tsunamis, and seismic hazards.

Disasters weaken health systems

As the COVID-19 crisis has demonstrated, health care systems are indispensable for managing shocks such as pandemics and disasters. While COVID-19 has disrupted health infrastructure around the world, health care systems in low- and middle-income countries that were already constrained by limited resources and capacity have been facing various pressures not only from the pandemic, but also from disaster risks compounded by climate change.

In Vietnam's coastal areas, which are home to half of the country's population, 26 percent to 50 percent of health care facilities are directly exposed to flooding risks. Aside from posing an immediate threat to health infrastructure, disasters can indirectly hinder the provision of health care and emergency services by obstructing roads and electricity supply. Disasters can also gradually dismantle the significantly improved health outcomes that Vietnam has achieved over the last decades. Addressing these augmented risks, a technical assistance program raised Vietnam's coastal regions' resilience to disasters by enhancing data and decision-making tools and enforcing risk-informed planning.

Disasters disproportionately affect marginalized groups

Disasters often have a disproportionate impact on youth, women and girls, persons with disabilities, indigenous peoples, and other marginalized communities. But these groups—who tend to possess meager resources, reside in disaster-prone areas, and face social restrictions—are often excluded from decision-making institutions that steer DRM activities, leaving them with no say in crucial matters.

Aside from incorporating inclusion aspects into the entire DRM project cycle, GFDRR provides analytical support to its partners. In FY21, it published several publications on inclusive resilience that emphasized the importance of gender- and disability-informed DRM. One example is a report titled Inclusive Resilience: Inclusion Matters for Resilience in South Asia, which provides recommendations to implement the broader agenda of inclusion in the DRM sector in South Asian countries.

Disasters widen inequality

By 2030, the impact of climate change on agricultural revenues, labor productivity, food prices, health, and disasters could push an additional 132 million people into extreme poverty. In urban areas, the multidimensional effect of disasters on existing risks is particularly pronounced: high population densities, unhealthy living environments, poor ventilation, and—especially for those living in slums—limited access to essential health services and risk mitigation information all contribute to an even more diminished quality of life in the aftermath of a disaster.

GFDRR responded to these intersecting risks in FY21 by supporting the Brazilian government in developing a municipal investment program that aims to bolster financial protection and disaster response capacity and by assessing how social protection systems in selected countries in Europe and Central Asia can better respond to disasters that have a marked impact on poor and vulnerable populations.

Disasters decrease agricultural output

Agriculture is the backbone of most low- and middle-income countries' economies. Its dependence on weather conditions, however, makes it susceptible to climate change. Since specialized economies historically find it difficult to recover from major disruptions of their mainstay industries, it is imperative that agriculture and DRM planning go hand in hand.

In Eswatini, where agriculture is the second largest contributor to the economy, GFDRR supported a drought-monitoring workshop that involved training participants in the use of early warning tools, mapping stakeholders and their corresponding interests and roles, and emphasizing citizen engagement.

Disasters exacerbate conflict

GFDRR has steadily increased its investments in fragile and conflict-affected contexts over the years. From FY16 to FY21, it supported DRM activities in 38 countries categorized as fragile and conflict-affected with 155 grants amounting to a total commitment of $61.2 million, and it mobilized approximately $1.8 billion in funding through World Bank investments. Understanding that disasters and conflict are often mutually reinforcing, GFDRR recognizes that a hazard-by-hazard approach is inadequate and that there is a need for an integrated strategy that treats conflict, climate, and peacebuilding as interwoven factors.

Accordingly, in South Sudan, GFDRR has provided financial and technical support for an in-depth analysis that revealed that, in a number of communities, the increase in the severity of floods and droughts appears to have contributed to a subsequent rise in the number of community-level conflicts. This finding would later be supported by a subsequent, GFDRR-financed remote damage and needs assessment of the devastating seasonal floods in South Sudan between July and October 2020.

The way forward

Armed with a decade and a half's worth of operational expertise and technical knowledge, GFDRR will continue to build on its achievements and draw from the lessons learned since its inception in 2006.

GFDRR-supported activities will be grounded in rigorous, up-to-date evidence of what works—and what does not. The evidence that GFDRR has generated and its ability to mobilize additional financing have led to tangible, positive impacts on the ground. GFDRR's success in supporting governments to build resilient infrastructure, implement nature-based solutions, and enhance early warning systems—to name just a few areas of the facility's technical expertise—have made countries not only more aware of the importance of DRM, but also more willing to boost their own capacities to prevent and mitigate disaster risks. This commitment to upgrading their DRM strategies has helped countries seek more investments from the World Bank and other development partners.

In FY21, GFDRR held events and published reports that covered multiple facets of DRM, ranging from Japan's lessons in preserving its cultural heritage while protecting itself against disasters to the ethics of using artificial intelligence tools in DRM. It will continue to advance its analytical agenda by conducting policy-relevant research that raises awareness about the needs of communities that have been excluded from DRM decision-making and fostering knowledge exchange between governments and nonstate actors, such as civil society organizations and women's groups.

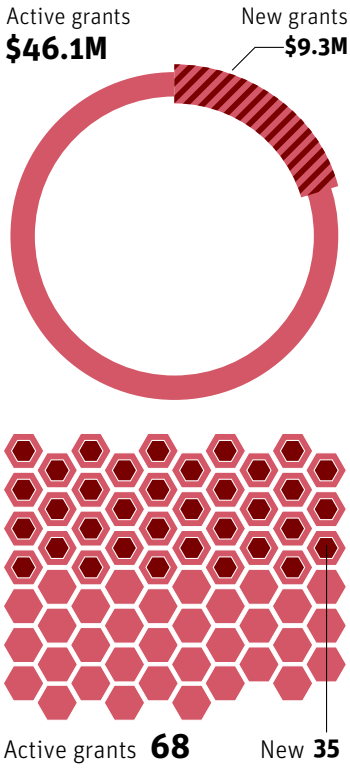
In all these areas, GFDRR will mobilize its cross-sectoral expertise, promote evidence-based decision making, deepen existing partnerships, establish new links with a wide range of institutions, and monitor and evaluate its own progress. As GFDRR navigates a world marked by compounding crises that complicate disaster response and recovery, it will continue to adopt an inclusive approach that considers the intersecting vulnerabilities intensified by climate change, reduces the loss of life associated with disasters, and empowers individuals—especially from marginalized groups and fragile and conflict-affected contexts—to participate meaningfully in DRM initiatives.

Hanoi, Vietnam. Residents work together to strengthen breakwaters against rising tides caused by heavy downpours Photo: VNA/Xinhua/Alamy Live News.

In-Country Engagements

GFDRR channels funds 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.

Africa



Context

Africa's disaster risk profile is changing along with its rapid urbanization trends and climate change. Exposure to climate events, such as floods and droughts, persists in being the main cause of vulnerabilities for urban populations. This is particularly true of floods, which, according to the international disasters database EM-DAT, represent 76 percent of the total number of recorded events in the last 20 years.[3] In 2020 alone, an exceptional rainy season in East and West Africa resulted in flooding that affected more than 5 million people in 19 countries.[4] Displacement induced by climate shocks, primarily floods and droughts, is also prevalent in Sub-Saharan Africa; more than 4 million people were displaced in 2020, deepening the humanitarian crisis in conflict-affected and fragile states.[5] Locusts and droughts compounding with conflict and the COVID-19 crisis have caused the continent's first recession in 25 years and could undermine Africa's development progress, pushing 40 million people back into extreme poverty.

Cabo Verde. Photo: Photo © Rangpl | Dreamstime.com.

Response

GFDRR's support for building resilience in Africa is structured around four pillars, aligned with the World Bank Africa Strategy 2019–2023 through its Supporting Climate Change Mitigation and Adaptation pillar.[6] During FY21, GFDRR provided a total of $9 million in new funding to support the region through 35 grants. The four pillars are:

- **Supporting disaster risk management (DRM) policy and strategy for ministries of finance.** GFDRR funded a rapid policy/institutional diagnostic in **Ethiopia** to support the national DRM commission for the revision of its gender-sensitive policy and the preparation of the policy's legal framework. In **Cabo Verde**, the work in policies to build resilience to disaster and climate-related risks has contributed to strengthening emergency preparedness and response systems as well as territorial planning. This work also promoted financial risk management through the creation and operationalization of the National Emergency Fund that was activated as a government response to the COVID-19 pandemic. A national reinforcement and rehabilitation plan for the school portfolio is also being developed with support from the World Bank through a GFDRR grant under the framework of an ongoing Development Policy Loan with a

Ethiopia. Photo: © Sjors737 | Dreamstime.com.

[3] EM-DAT is available at https://www.emdat.be/.

[4] These countries are Burkina-Faso, Cabo Verde, Cameroon, the Central African Republic, Chad, Ethiopia, The Gambia, Ghana, Guinea, Mali, Mauritania, Niger, Nigeria, Senegal, Somalia, South Sudan, Sudan, Togo, and Tunisia.

[5] See the Internal Displacement Monitoring Centre website, available at https://www.internal-displacement.org/global-report/grid2021/img/png_download/GRID21_NDs_GlobalMap.png.

[6] For more information on this strategy, see https://thedocs.worldbank.org/en/doc/485321579731572916-0010022020/original/AFRECStrategyTrifoldBrochure.pdf.

Catastrophe Deferred Drawdown Option and an education project.[7] These activities improved stakeholders' coordination and contributed to the design of a financial tool tailored to the regional context and needs for long-term resilient development.

- **Strengthening urban and coastal resilience.** Africa's priority is to strengthen urban resilience by designing disaster- and climate-informed investments in which disruptive technologies such as drones, satellite imagery, and geospatial tools can be especially helpful in providing urban risk assessments for identifying integral solutions. GFDRR continues to fund such efforts to use technology to understand the challenges faced by Africa's growing cities and coastal areas. In **The Gambia**, an assessment

The Gambia. Photo: © Mariusz Prusaczyk.

of flood and coastal risks in the Greater Banjul Region and the Kombo North/Saint Mary District was undertaken using advanced modeling and analysis of satellite images to identify hotspots and potential green and gray infrastructure solutions to build resilience. A follow-up request for a new operation under the IDA-funded Regional West Africa Coastal Areas Resilience Investment Project II is being formulated to support several structural, nonstructural, and nature-based measures to mitigate the coastal erosion and flood risk.

Burkina Faso. Photo: © Djembe.

- **Modernizing hydrometeorological (hydromet) services.** GFDRR provides technical assistance that includes strengthening institutional, regulatory, and network assessments; upgrading regulatory frameworks and capacity building for interpreting data; and delivering timely and reliable weather forecasts. In **Burkina Faso**, the government is modernizing hydromet services using technical expertise and innovation in weather forecasting, flood early warning services, and civil protection equipment and strategies. It is also building capacity to strengthen coordination across institutions responsible for hydromet, early warnings, disaster response, and food security. To prioritize flood-resilient infrastructure development in the capital Ouagadougou, GFDRR supported the production of flood maps and risk profiles to inform the Strengthening Climate Resilience Project and Ouagadougou Urban Transport Project and mobilized $8.5 million from IDA and $22.5 million in additional financing for resilience investments from the Green Climate Fund.
- **Strengthening resilient recovery.** Technical assistance for disaster damage assessment has been an important entry point to further strengthen the DRM agenda in countries and often informs the design of large infrastructure investments during the recovery period. In Douala, **Cameroon,** GFDRR's post-floods support has improved public sector's risk awareness. It has enabled local and national government to integrate flood risk information using low-cost, collaborative, and open data approaches into resilience and urban planning, as well as design and implementation of infrastructure investments in Doula.

Doula, Cameroon. Photo © Mya Be | Dreamstime.com.

[7] Catastrophe Deferred Drawdown Options (Cat DDOs) are development policy operations that offer a contingent line of credit against progress achieved toward disaster risk management.

Africa

Engagement Highlights

- GFDRR's support to pilot programs on disruptive technologies for DRM fostered new knowledge and strengthened countries' overall technical capacities in risk evaluation and monitoring. In FY21, World Bank teams were able to establish dialogues with governments on the possible use of drones for crisis response in **Sierra Leone** and **Malawi** by using case studies on drone-informed exposure data. These types of engagements—as well as training on the use of drones, satellite imagery, and artificial intelligence—often contribute to community-level economic empowerment, especially for youth and women, through the creation of digital jobs, additional investments for digitalization, and growth in entrepreneurship. Identifying and engaging with local champions have been critical in developing user-friendly and sustainable technical solutions and using universities' networks has helped to foster knowledge and increase economic opportunities for youth.
- In the coastal city of Saint Louis in **Senegal**, GFDRR supported the city's urban development plan, which was developed with a participatory approach that includes an environmental and social impact assessment for the resettlement sites in Diougop and the Langue de Barbarie. The plan served as the basis for a livelihood restoration scheme benefitting 15,000 people through several socioeconomic community projects. These projects are expected to improve the living conditions of fishing families who lost their seaside homes because of coastal erosion, where 5–6 meters of beach recede every year. As part of the country's urban development plan, exposure maps of Saint Louis were created; these maps informed an additional financing of $25 million for the IDA-financed Saint Louis Emergency Recovery and Resilience Project.
- In **Rwanda**, an integrated hydrological model for the identification of flood-prone hotspots for Kigali informed the dialogue with the government under the second phase of the Rwanda Urban Development Project. This IDA-financed investment of $150 million entails short-term flood risk reduction and hybrid infrastructure investments (combining gray and green infrastructure). Additional funding from GFDRR deepened the understanding of flood challenges in the wetland areas of Kigali and aided the identification of potential nature-based solutions. This type of solution is gaining recognition as the first line of defense against natural hazards, especially when combined with the built environment. More importantly, GFDRR's resources have built the capacity of government staff at national and local levels in Rwanda to undertake flood risk assessment and forecasting and to operationalize the country's national early warning platform. The facility's grants supported at-risk communities in the Sebeya River Basin in northwest Rwanda with decision-making tools and built capacity of national and local governments to manage flood risks.
- In **South Sudan**, an integrated risk analysis funded by GFDRR was introduced to understand the interrelationship between disasters, conflict, and forced displacement. The Compound Vulnerability Index, which was developed by the World Bank as part of the analysis, used existing quantitative assessments of displacement monitoring data and empirical, field-based research to overlay hazard data. The index also uses exposure data (e.g., data on the affected population, settlements, and buildings) and factors such as internal displacement and food insecurity to analyze the extent of conflict- and disaster-driven displacement. It was also used to understand communities' coping capacities to respond to the impacts from the devastating floods in 2019. Moreover, the index helped task teams to target priority locations for the second phase of World Bank's Enhancing Community Resilience and Local Governance Project.

Africa

Lessons **Learned**

The importance of preparedness and resilience to compound shocks in a post-COVID-19 environment has been demonstrated through pre-arranged instruments.

Focusing on the mid to long term, countries would benefit from strengthening financial preparedness for shocks given the current vulnerable financial position in the region. They would also benefit from whole-of-society approach that engages all ministries, national and local government, the private sector, and communities. This approach requires communication, planning, decision-making, and financing across a wide range of stakeholders using their emergency preparedness and response capacity and tools.

The built environment as well as existing natural resources provide the first line of defense against natural hazards.

Mainstreaming resilience into urban planning and strategic infrastructure investments while integrating nature-based solutions is critical to support flood and erosion risk reduction for urban areas in coastlines, as well as those close to river and freshwater systems. Typically, such measures bring multiple benefits to people and social systems—they can reduce flood risks but are also able simultaneously to improve the quality of life, reduce heat and dust, enrich biodiversity, and so on.

Sierra Leone. Photo: © Roberto Nencini.

Africa

In Focus Charting a path to coastal resilience in The Gambia

In The Gambia, the smallest country on mainland Africa, the unique geography of the Greater Banjul Area, which is mostly surrounded by bodies of water, represents an economic lifeline. Many of the 400,000 people who call Greater Banjul home rely on these bodies of water—the Atlantic Ocean and the Gambia River—as their main source of income.

Lives and livelihoods in Greater Banjul are, however, under increasing threat from climate change, which is making the area more susceptible to a range of coastal hazards including flooding, saltwater intrusion, and erosion.

With financing from the ACP–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program, which is managed by GFDRR, a technical team assessed the coastal hazards facing the Greater Banjul Area, which includes the city and the port of Banjul, with an eye to informing resilience-building measures in The Gambia's political and economic center.

An important first step for the technical team was to use modeling and satellite imagery to create coastal hazard maps, as well as a detailed map of exposure to these hazards in Greater Banjul. The team subsequently identified and assessed the people and assets at risk from coastal hazards; this analysis was informed by a simulation of future climate events, including sea-level rise. The assessment revealed that over 4,000 people in the city of Banjul and another 24,000 people in the Kotu Stream region are potentially exposed annually to intensifying coastal hazards in the Greater Banjul Area. Moreover, the assessment also found that the annual cost of flood risk in the Greater Banjul Area could increase by 32 percent over the next 20 years, up from $21.6 million today, unless action is taken to combat the expected effects of climate change.

The team also identified five areas as the most at-risk zones, based on the people and infrastructure impacted, where various structural and non-structural risk reduction options could help build coastal resilience. The team assessed the costs and benefits of different investment options, including their social and environmental impacts, and identified priority investments for each of the most at-risk zones in consultation with a range of stakeholders.

For example, in the City of Banjul, strengthening flood protection for the city and the port of Banjul emerged as a top priority resilience investment option because of its high level of cost-effectiveness and economic impact. Meanwhile, in the Kotu Stream region, which is one of the most socially vulnerable areas in Greater Banjul, a combination of restoration and enlargement of the stream, including its green river parks, emerged as a high-priority investment option because of its potential to, among other things, improve accessibility and connectivity.

Close and constant engagement with national and subnational officials throughout the project has been a key feature of the technical team's work. More than 50 participants, including some from The Gambia's Ministry of Finance and Economic Affairs (MOFEA), validated and discussed the assessment in a two-day virtual workshop and took stock of the proposed investment options.

The findings of the assessment are already informing and driving resilience measures by the government of The Gambia and its development partners, including the World Bank. Notably, these outputs are now informing the development of two proposed, IDA-financed lending operations: the West Africa Coastal Areas Resilience Investment Project and the Tourism Recovery, Diversification, and Resilience in The Gambia Project. Moreover, the methodology used in the assessment is also beginning to inform World Bank operations in resilience and disaster risk management elsewhere, including through the City Resilience Program and other coastal resilience initiatives aiming to understand and identify solutions to the growing risks of coastal areas in Africa.

Africa

Lessons **Learned**

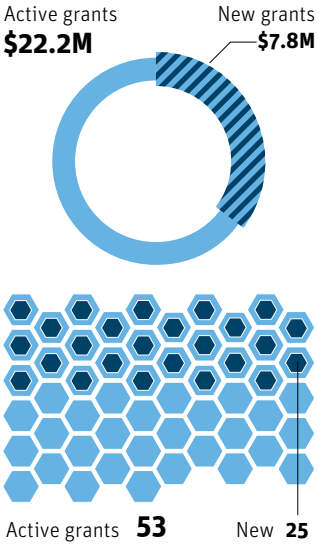
Engaging with local stakeholders is key to validating the findings of any technical assessment. For instance, in the case of this assessment, inputs from stakeholders on the ground were critical to expanding the list of proposed resilience investment options to include a wider range of interventions, including nature-based solutions.

Vice-President of The Gambia, Dr. Isatou Touray, addresses the participants of a stakeholder workshop held at Kairaba Hotel, together with Attila Lajos, EU Ambassador; Elene Imnadze, the World Bank resident representative; Sanna Dahaba, Executive Director of the Gambia National Disaster Management Agency (NDMA); and Talib Bensouda, Mayor of the Kanifing Municipal Council. Photo: World Bank.

Results in Numbers

The assessment revealed that over **4,000 people** in the city of Banjul and another **24,000 people** in the Kotu Stream region are potentially exposed every year to intensifying coastal hazards in the Greater Banjul area.

East Asia and Pacific



Context

East Asia and Pacific (EAP) is the world's most disaster-prone region, with risks exacerbated by rapid urbanization along with climate change. In EAP, GFDRR supports a large disaster risk management portfolio for a diverse range of countries, ranging from low- and middle-income countries to countries affected by fragility, conflict, and violence. These countries include the **Federated States of Micronesia, Kiribati, the Lao People's Democratic Republic, the Marshall Islands, Myanmar, Papua New Guinea, the Solomon Islands, and Tuvalu.** The Pacific Island countries also face distinct challenges stemming from regional features such as geographic isolation and remoteness, low elevation and narrow land masses, and high exposure to natural hazard events and climatic change.

Village on South Tarawa atoll, Kiribati. Photo: © Dmitry Malov.

Response

- **Strengthening urban resilience.** Flood management tools such as mapping flood risk zones, identifying flood-prone infrastructure, and prioritizing mitigation investments are being utilized in urban areas. In **Cambodia**'s urban communes, the facility is financing activities to improve the capital Phnom Penh's capacity to predict, manage, and mitigate the impact from floods at the local level, particularly in informal settlements. Planned activities include developing a participatory mechanism to use flood risk profile and mitigation measures in the communal infrastructure planning and development process.

Kampong Pulk on Tonle Sap Lake, Cambodia. Photo: © Alan5756.

- **Building social resilience.** Because disasters affect the poorest and most vulnerable people the most, government officials are being trained in how to better build the social resilience of households and deliver assistance in the aftermath of disasters. In **Tonga**, training in disaster risk management (DRM) is helping the government improve its interagency coordination and shock-responsive social protection systems. Through knowledge exchange activities, best practices are being developed to deliver housing assistance to the poorest in the event of a disaster. In **Fiji** and **Vanuatu**, the facility is supporting policy dialogue with governments about providing emergency cash transfers as an adaptive social protection mechanism.

Mulomulo Primary School in Fiji. Photo: Timbre71.

- **Resilient transport infrastructure.** To mainstream DRM components in the transport sector, technical manuals and guidelines are being created to improve resilience and maintenance of national and local roads in **Lao PDR**. For investment planning purposes, gaps are being assessed and opportunities are being identified to support investment projects and influence donor and private sector financing.
- **Strengthening building standards for resilient housing.** In **Samoa,** activities to strengthen the capacity of government counterparts to implement the building code is contributing toward the preparation of a Development Policy Loan through a Catastrophe Deferred Drawdown Option (Cat DDO). Through close engagement with government ministries, guidelines were developed to inform the Building Practitioners Licensing and Registration Policy. The guidelines and dissemination of best practices have improved the government's capacity to issue building permits and carry out site inspections.

Bus station, Vientiane, Lao PDR. Photo: © Gaid Phitthayakormsilp.

East Asia and Pacific

Engagement Highlights

- In **Indonesia**, GFDRR assisted in developing knowledge tools on resilience-building design standards in urban transport infrastructure for national and subnational governments. In the cities of Bandung and Medan, technical reports were developed for government counterparts on resilient urban mobility diagnostics and identified options for investment opportunities. The activities also supported city-level workshops, focusing on the design of transit stations and mass transit vehicles, to assess potential urban transport system vulnerabilities. These activities have helped to improve the capacity of local governments to incorporate DRM considerations into mass transit investments.
- To strengthen city resilience and increase institutional capacity, GFDRR is supporting **Mongolia's** municipal governments in Ulaanbaatar, Darkhan, and Erdenet in resilient urban planning through activities such as updating their master plans to incorporate climate resilience. In collaboration with the Ministry of Construction and Urban Development, a study was carried out on urban growth and climate change. This study looks at urbanization pathways and analyzes whether the observed urban sprawl is commensurate with economic growth and demographic changes and the extent to which the urban sprawl is resilient to extreme weather events. The activities have helped to increase knowledge about resilient urban planning engagements of city officials.
- To strengthen resilience of schools and public facilities in Pacific Island countries, local counterparts have been trained to use KoBo Toolbox, an open-source data collection tool, to understand and assess vulnerability and risks in school buildings and health care facilities. Despite delays resulting from the COVID-19 pandemic, data collection efforts to inform the probabilistic risk assessment of specific buildings have been ongoing in **Tonga, Samoa**, and **Tuvalu**. In addition, GFDRR funding has helped in preparing and disseminating knowledge about safer school building operation and maintenance in case of disasters such as cyclones. Support is also provided to the government of Tuvalu to develop its National Building Code and Regulation.

East Asia and Pacific

Lessons **Learned**

The compounding risks of natural hazards and public health affecting vulnerable groups, especially during the COVID-19 crisis, highlight the importance of investing in social protection and improving social inclusion in the EAP region. During any disaster recovery period, adaptive social protection policies such as social assistance payments, emergency cash transfers, government-provided supplies, and grants help the poor and vulnerable respond to immediate impacts and build resilience.

Centralized coordination and accountability are essential for an effective disaster response and management by government agencies. For example, in emergency preparedness and response, accountability mapping helps to coordinate the action of support functions. Additionally, it is critical to develop capacity within emergency management, such as staffing, organizational structure, communications, training requirements, logistical needs, and alternative location data. A coordinated and effective emergency management would help in reliable communication systems and deploying disaster-related assistance.

COVID-19 vaccination at Botani Square Mall Bogor, West Java, Indonesia. Photo: © Nafi Homemade | Dreamstime.com.

East Asia and Pacific

In Focus Building an earthquake-resilient Metro Manila

Transected by fault lines, much like the rest of the Philippines, the greater Metro Manila area is highly vulnerable to seismic hazards. While the bustling metropolis, home to 21 million people, last saw a major earthquake over 350 years ago, experts fear that greater Metro Manila could experience another such event in the foreseeable future. According to the Philippine Institute of Volcanology and Seismology, a magnitude 7.2 earthquake—a probable scenario often called "The Big One"—would result in an estimated 48,000 fatalities and $48 billion in economic losses.

The Philippine government recognizes that the sustainable development of greater Metro Manila will be difficult to achieve unless the region's built infrastructure is resilient to all hazards. Under the auspices of the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, GFDRR has provided financial and technical support to the Philippine government toward its efforts to bolster greater Metro Manila's resilience to seismic hazards.

A key focus of the engagement has been to support the Philippine government in the development of a prioritization framework that can guide the resilient infrastructure investments of both the government and development partners in greater Metro Manila, including investments in seismic retrofitting. A technical team has worked closely with local experts to develop a prioritization framework that considers, among other factors, the vulnerability of the buildings and their importance to social outcomes, as well as the risk of severe loss of life from seismic hazards.

On the basis of the prioritization framework, the Philippine government has identified 425 vulnerable facilities in greater Metro Manila. These are mostly health and educational facilities, which, if retrofitted, are projected to protect the lives of 300,000 building occupants.

At the same time, another key priority of the engagement has been to support the Philippine government in conducting a comprehensive assessment of the Department of Public Works and Highway (DPWH)'s overall capacity to systematically prepare for and respond to potential compound emergencies, in line with its mandate in national emergency response plans.

Informed by a desk review, interviews and consultations with DPWH staff, and site visits, a technical team has identified several areas of improvement for the agency. For instance, the team found that DPWH lacked much of the equipment needed to initiate immediate road clearing in greater Metro Manila in the aftermath of a seismic event. The team further found that enhancing multi-agency coordination, command and control, and communication capabilities will be critical to improving DPWH's operational capacity in emergency management. For example, the agency lacked a mobile emergency communication system that it could deploy in the event of a disruption in cellular telephone capabilities following a seismic event.

GFDRR's financed support to the Philippine government set the stage for their preparation of the Philippines Seismic Risk Reduction and Resilience Project, for which the World Bank Board approved $300 million in financing, in June 2021. The project will implement seismic retrofitting for the 425 public buildings identified through the prioritization framework, as well as equipment and technical assistance for DPWH that will enable the agency to systematically address gaps in emergency preparedness and response capacities and capabilities. This latest support for the Philippine government builds on a decade of GFDRR support to the Philippines on resilient infrastructure in the country, including, for instance, support for a comprehensive revision of the national building code.

Above and facing page: Retrofitting of an elementary school in Metro Manila for seismic resilience funded by the Philippine government. Photos: World Bank.

East Asia and Pacific

East Asia and Pacific

Lessons **Learned**

As a development partner, our ability to mobilize world-class technical knowledge matters only when we can help apply that knowledge to the problems that local stakeholders prioritize. Getting the equation right requires many dialogues with local partners at multiple levels. Our engagement in Manila has already successfully addressed many institutional, technical, and financial challenges to enable improvements in the country's disaster risk management. As an example of such collaboration, the technical team in this engagement drew on interviews and consultations with staff from the Department of Public Works and Highway (DPWH) in order to identify several areas of improvement for the agency. This type of engagement is critical for drawing out impactful and sustainable solutions to the problems that the local counterparts face.

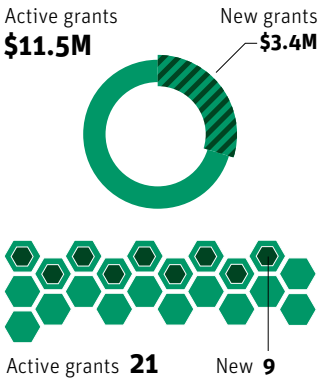
"As we face the scenario of 'The Big One' in Metro Manila, it is clear that both risk reduction and preparedness will be crucial. This work has been helpful to inform decision-making in prioritizing investments and will help direct how the government can best address the unprecedented challenges we face from a catastrophic earthquake in our capital region."

—Director Ernesto Gregorio, Philippine Department of Public Works and Highways

Results in Numbers

Enabled seismic retrofitting investments for **425** public buildings in greater Metro Manila, thus protecting the lives of **300,000** occupants.

Europe and Central Asia



Context

Europe and Central Asia (ECA) is a region highly prone to seismic and weather-induced hazards, made worse by intensifying impacts of climate change. The level of institutional commitment and investment toward disaster risk management (DRM) across many countries—a level that already varies from country to country—is significantly impaired by reduced budgetary space in the fallout of the COVID-19 pandemic and by a focus on economic recovery efforts. Wherever possible, GFDRR's FY21 investments in ECA have focused on integrated approaches to DRM by considering broader safety issues such as fire and air quality, climate change mitigation and adaptation, and inclusive access and broader development objectives to educational outcomes and the like. Efforts to expand awareness of potential risks and engagements in countries where DRM and the climate change adaptation agenda is less advanced remains a strategic priority in the region.

High-voltage lines across the city of Zaporozhye, Ukraine. Photo: Shutterstock.

Response

- **Investing in resilient and green infrastructure.** In FY21, GFDRR funded technical assistance services to support the design and implementation of resilient and green infrastructure investments in the energy and transport sectors. In **Ukraine**, a new grant contributed to strengthening the resilience of the power transmission infrastructure. In **Serbia**, efforts are being made to improve the resilience of the local road transport infrastructure network.
- **Enhancing urban resilience.** GFDRR continued investing in urban infrastructure and services that are under pressure to absorb and integrate their growing populations. For instance, the City Resilience Program and the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries provided technical support to improve the participation of private sector companies in urban transport transformation in **Turkey**. Through a new regional grant, key cities in **Bulgaria, Croatia, Poland,** and **Romania** will be supported in incorporating disaster and climate resilience within a broader pragmatic urban sustainability implementation framework.
- **Strengthening financial resilience.** Designing financial protection strategies and instruments to respond to natural hazards is a strategic priority of GFDRR. As part of an EU-funded single-donor trust fund project, technical assistance in **the Kyrgyz Republic, Tajikistan,** and **Uzbekistan** develops a more effective preparedness and disaster response by strengthening the social protection system and its flexibility to scale up in response to different types of shocks, including health crises. Activities during FY21 focused on defining a framework for scaling up the social protection system in the case of a disaster or other emergencies affecting the livelihoods of large groups of people in each of the countries.
- **Scaling up adaptive social protection systems.** While poor and vulnerable people in the ECA region are often those hardest hit by disasters and climate shocks, social protection programs are not regularly used to respond to natural hazards. A new regional grant covering **Albania, Bulgaria, North Macedonia, Romania,** and **Serbia** assesses how social protections systems in the selected countries can respond to disasters that negatively affect poor and vulnerable people and identifies options for improving the adaptability of these programs.

Europe and Central Asia

Engagement Highlights

- In November, a new GFDR-financed grant in **Turkey** became effective that will generate knowledge to inform and advise the government on national-level strategies and policies that advance climate resilience and adaptation with an emphasis on inclusion, economic growth, and risk management. The grant will also explore how COVID-19 recovery packages can be used to build back better to strengthen the resilience of social and economic systems to future shocks and identify adaptation-focused interventions that could be part of COVID-19 economic recovery packages.
- Through technical assistance, GFDRR is planning to strengthen regional weather and flood forecasting by improving the lead time and accuracy of early warnings for hydrometeorological hazards in **Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Greece, Hungary, Israel, Jordan, Lebanon, Moldova, Montenegro, North Macedonia, Romania, Serbia, Slovenia, Turkey,** and **Ukraine**. The project was launched in October and will continue to bolster regional cooperation and support the harmonization and strengthening of national forecasting systems. It will also recommend ways for these countries to continue to develop and operationalize the South-East European Multi-Hazard Early Warning Advisory System (SEE-MHEWS-A) upon completion of GFDRR support at the end of FY22.
- GFDRR-financed groundwork informed a new World Bank project in **Romania** that kicked off in April to improve the resilience, energy efficiency, and learning environment of selected schools, and to increase institutional capacity for integrated investments. With a budget of $121 million, the project will retrofit/rebuild school infrastructure, invest in smart classrooms, and create an enabling environment for long-term investment in sustainable, resilient, and inclusive schools.

Lessons **Learned**

GFDRR support informed a multi-hazard economic assessment of investments in DRM in Europe,[8] which produced a number of findings of global relevance. The study found an asymmetry in preparedness and prevention policies across disaster types. It also found that behavioral biases, information barriers, and distorted incentives to solve technical and institutional challenges were serious impediments that prevent further implementation and enhancement of resilience to disaster risks. Moreover, the assessment found that the economic co-benefits of resilience measures are rarely captured and thus are regularly and significantly underestimated.

Emerging evidence suggests that socioeconomic status in ECA can determine how households cope with and recover from shocks, pointing to the need for innovative policy responses, such as scalable or adaptive social protection.[9] Strengthening knowledge of how social protection systems may adapt to better respond to disasters is thus key to building resilience.

[8] World Bank. 2021. *Economics for Disaster Prevention and Preparedness: Investment in Disaster Risk Management in Europe Makes Economic Sense.* Washington, DC: World Bank.

[9] World Bank. 2021. *Overlooked: Examining the Impact of Disasters and Climate Shocks on Poverty in the Europe and Central Asia Region.* Washington, DC: World Bank.

Europe and Central Asia

In Focus Understanding and tackling road hazards in Tajikistan

The Central Asian country of Tajikistan is no stranger to disasters. A case in point is evident in the July 2015 floods and mudflows that pummeled Tajikistan's most remote and mountainous region—the Gorno-Badakhshan Autonomous Oblast—that destroyed a number of bridges, interrupted key transport corridors, and stranded villagers. With support from the World Bank and GFDRR, many of these bridges are being rebuilt to be more resilient than before.

Drawing on the lessons of the devastation six years ago and well aware of the challenges posed by climate change, the government of Tajikistan is determined to make its transport infrastructure resilient to disasters. Under the auspices of the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, GFDRR and the World Bank have supported an assessment of potential economic impacts from disasters on the country's road network, with an eye to informing Tajikistan's resilience-building efforts.

A key first step for the teams carrying out the assessment was to better understand the vulnerabilities of Tajikistan's road network to natural hazards. Notwithstanding mobility constraints due to the COVID-19 pandemic, assessment teams surveyed over 2,000 kilometers of primary roads. They subsequently identified more than 330 individual locations highly exposed to natural hazards.

At each of the identified locations, the teams conducted more detailed examinations, which enabled an assessment of the type, magnitude, and frequency of the natural hazards, including how these might be impacted by climate change, as well as an identification of potential mitigation measures. Of the inspected sites, the assessment revealed that 36 percent are threatened by mudflows, followed by 31 percent at risk from avalanches.

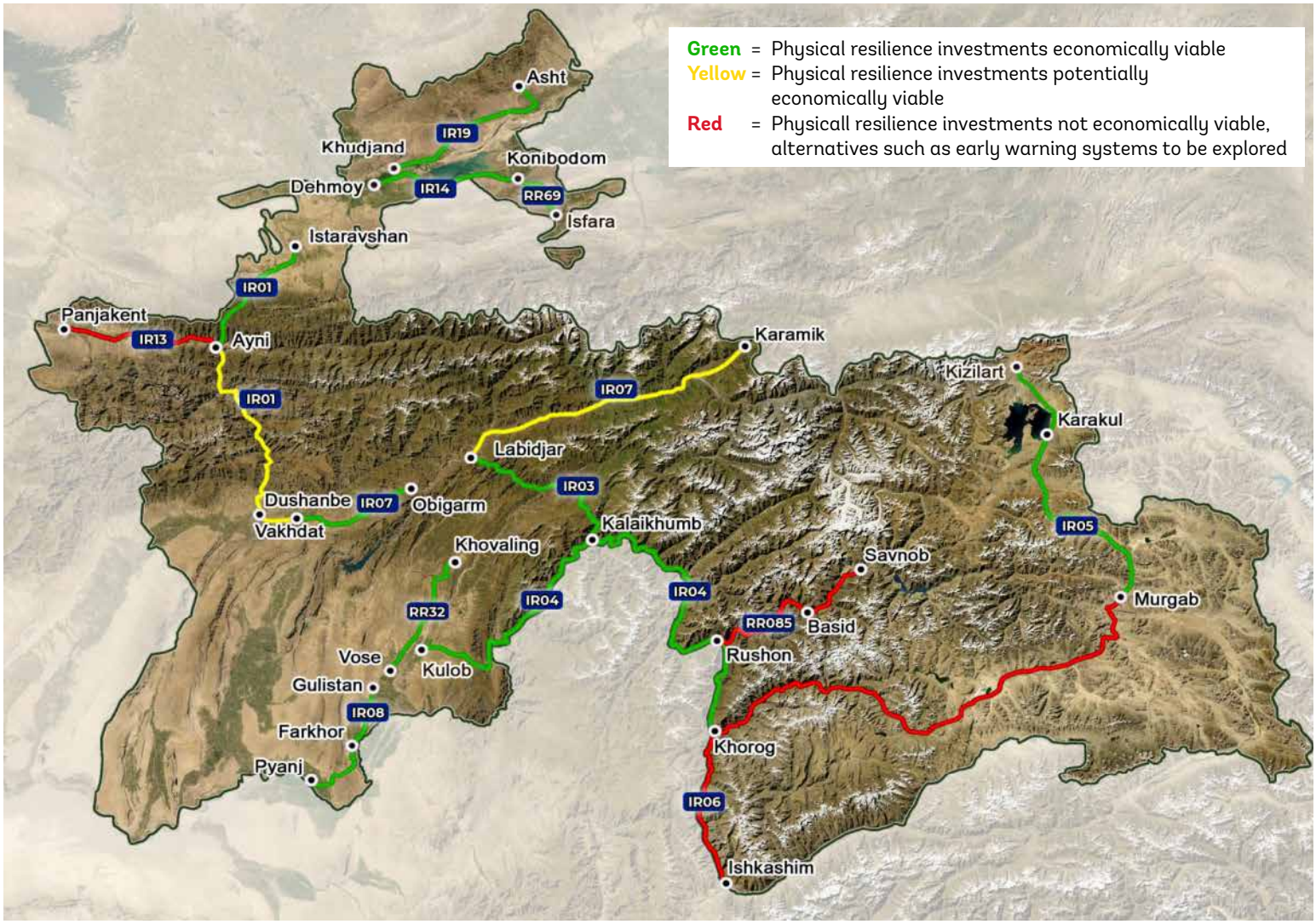
In order to validate and strengthen the findings, the surveying effort was complemented by reviews of local and satellite data, maps, reports, and statistics, as well as interviews with local stakeholders, ministries, departments, and regional road maintenance departments.

These efforts enabled a technical team to subsequently estimate the total amount of investment needed to make Tajikistan's primary road network more resilient. A preliminary analysis estimated that an investment of approximately $404 million by the government of Tajikistan and its development partners will be required to provide physical protection measures for the 330 highly exposed locations identified in the assessment.

The government of Tajikistan has committed to pursuing a value-for-money resilience-building effort for its road infrastructure. In line with that thinking, the technical team also closely examined the cost-effectiveness of a national program for resilient road infrastructure covering all 330 locations.

Cost-benefit analysis by the team found that such a national program may not be fully cost-effective, in part because, on roads that may have only limited traffic, expensive structural investments may not produce enough economic return to be warranted. In such situations, more cost-efficient measures such as early warning systems and smart signage may well deliver better value for money while still protecting lives. The same analysis did, however, reveal that structural reinforcement and protection investments in specific road sections would be economically viable. The national government has since requested the preparation of a new IDA-funded disaster risk management project from the World Bank, the Tajikistan Preparedness and Resilience to Disasters (PREPARED) Project, which is expected to include a component on resilient roads.

GFDRR has long supported engagement with the government of Tajikistan in its disaster risk management and resilience efforts, and the findings of the assessments are expected to inform that ongoing partnership. Most recently, in June 2021, the facility supported a forensic study of the May 2021 floods and mudflows in the country, with the goal of informing the national government's efforts to minimize losses from future disaster events. The study concluded that damages were heightened by increased human exposure, overgrazing, and deforestation, and that while the rainfall events were extreme, they will become more frequent as a result of climate change.



Analysis of economic viability for physical resilience investments in selected primary road segments in Tajikistan. Source: World Bank.

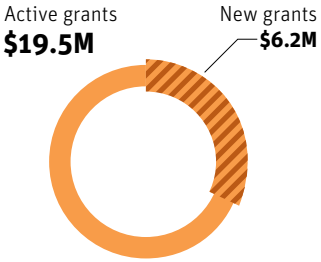
Lessons **Learned**

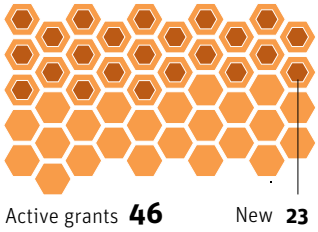
A key finding from the analytical work is that cost-effective resilience investments in road infrastructure will likely require a mix of structural and nonstructural interventions. Furthermore, cost-effectiveness considerations must be balanced by the need to ensure the connectivity of remote communities and regions.

Results in Numbers

Assessment teams surveyed over **2,000 kilometers** of roads and identified more than **330** individual locations highly exposed to natural hazards.

Latin America and the Caribbean





Context

The devastation from Hurricanes Eta and Iota in **Costa Rica, Guatemala, Honduras**, and **Nicaragua**, along with the intense drought and unusual fire season in the tropical wetlands of **Argentina, Bolivia, Brazil,** and **Paraguay**, were stark reminders of the region's extreme vulnerability to hydrometeorological (hydromet) events. The resulting water and energy shortages, mass displacements, and losses in the agriculture sector compounded the challenges presented by the COVID-19 pandemic and further stalled recovery. In the Caribbean, most countries were largely spared catastrophic damage despite the subregion being struck by three major storms in 2020. In the Eastern Caribbean, however, the eruption of the La Soufrière volcano in **St. Vincent and the Grenadines**, which also affected **Barbados, St. Lucia,** and **Grenada**—coupled with extreme rainfall and flooding as well as outbreaks of dengue fever—

São Paulo, Brazil. Photo: © Diego Grandi | Dreamstime.com.

further deepened the impacts of the COVID-19 pandemic. Similarly, risks compounded in **Guyana** and **Suriname** as these countries simultaneously battled extensive flooding and the ongoing COVID-19 pandemic.

Response

- **Strengthening urban resilience.** GFDRR is financing technical assistance to help municipalities carry out risk assessments and develop priority actions and proposals for resilience-building interventions in cities and urban communities. In the southern states of **Brazil**, for instance, technical experts are strengthening the disaster risk management (DRM) dialogue with authorities and preparing lending operations to address the identified challenges and opportunities.
- **Promoting resilient infrastructure.** GFDRR is providing technical support to strengthen the resilience of infrastructure in critical sectors by identifying disaster risks, enhancing structural resilience, and improving the processes to manage risk. In **Haiti**, a rapid diagnostic of school infrastructure was carried out to better understand its vulnerability to multihazards and inform the development of a comprehensive strategic plan aimed at enhancing school building safety and resilience. Similarly, in the Cap-Haïtien municipality, technical capacities were strengthened to plan and conduct flood risk reduction measures and integrate DRM considerations into the design and implementation of infrastructure improvements.

Haiti. Photo: © Lorg52 | Dreamstime.com.

- **Strengthening preparedness and response.** In the Caribbean, a study was undertaken to understand critical gaps preventing the development and

function of Caribbean countries' emergency preparedness architectures and response systems in order to develop a set of recommended investment solutions and propose it to the governments. In **St. Vincent and the Grenadines**, GFDRR supported the strengthening of communications on the La Soufrière volcano emergency; more generally, GFDRR provided technical assistance to enhance national capacity in shelter management and emergency communications to manage compound risks.

Belize City, Belize. © Ivan Kokoulin | Dreamstime.com.

- **Ensuring inclusive and participatory approaches to DRM.** In Central America, as part of the technical assistance Strengthening the Implementation of Disaster Risk Management and Gender in Central America, GFDRR and the World Bank are working on systematizing the inclusion of views, experiences, and data of the countries' diverse population including indigenous people, Afro-descendant populations, women, the LGBTQ+ community, and people with disabilities. Additionally, two regional studies analyzing gender and disability inclusiveness were completed, providing critical recommendations for how to better design more inclusive DRM operations in **Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines,** and **Suriname**.
- **Expanding disaster risk finance and insurance.** GFDRR is funding advisory services that support national governments to develop disaster risk financing strategies while considering various financial instruments and risk transfer options. In **Ecuador**, a disaster risk financing strategy was developed to strengthen the country's fiscal resilience to disaster risk, climate change, and public health emergencies. In the Caribbean, with support of the EU-funded Caribbean Regional Resilience Building Facility, the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company (CCRIF SPC) was able to provide a 26 percent discount to its Caribbean members on the total gross premium or an increase in policy coverage under their CCRIF parametric insurance policies.
- **Enhancing hydromet services and early warning systems (EWS).** Improving preparedness and response requires a better understanding of risk. In Central America, GFDRR is funding technical assistance to help countries incorporate hydromet information into early warning and preparedness and response systems. Similarly, in **Haiti**, technical assistance was provided to strengthen the capacity of the Haiti Hydrometeorological Unit (Unité HydroMétéorologique d'Haïti, or UHM), support the development of data management tools, and increase community awareness of the importance of the Unit's work.

Portoviejo, Ecuador. © Pablo Hidalgo | Dreamstime.com.

Latin America and the Caribbean

Engagement Highlights

- In **Haiti**, GFDRR is supporting emergency preparedness by increasing both local knowledge of disaster risks and the awareness of the local population. Through technical assistance provided during the last hurricane season, the Haitian Civil Protection General Directorate (DGPC) launched a public communication campaign to reach people living across the country. The campaign is part of the DGPC's work to develop a warning system that is much more easily understood by the general population and to help the public be more receptive to early warning instructions provided by the authorities.
- In **Brazil**, a technical partnership between the World Bank, GFDRR, and academia is helping authorities to connect the different pieces of disaster data to better understand the country's disaster risk profiles. Through this partnership, the Brazilian Digital Disaster Atlas—which incorporates data from over 58,000 disasters—was created. Similarly, the Santa Catarina Municipal Capacity Risk Index was developed to support investment decision-making and strategic actions to mitigate disaster risks of the Santa Catarina municipalities. As a result, municipalities in Santa Catarina are now classified according to their disaster risk profile and their capacity to address the agenda, allowing for a comprehensive prioritization of actions to increase local and state resilience.
- In **Ecuador**, a disaster risk financing strategy was developed in partnership with the Ministry of Economy and Finance to strengthen the country's fiscal resilience to disaster risk, climate change, and public health emergencies. The innovative strategy tackles disaster risk management from a holistic point of view—identifying risk and contingent liabilities, proposing risk layering solutions, strengthening government capacities to manage financial instruments for DRM, and identifying proactive risk management as a core component of the financial strategy. A secondary benefit of the work to develop the strategy was the learning exchange it facilitated between Ecuadorian ministry officials and their counterparts in Colombia and Mexico.
- In **St. Lucia**, GFDRR provided technical assistance to help authorities trigger the Contingency Emergency Response Component (CERC) of an existing World Bank operation,[10] thereby providing rapid funding to meet the government's immediate liquidity needs for its COVID-19 response. The CERC financed critical upgrades to medical facilities that included retrofitting a hospital to serve as an urgent care respiratory facility for COVID-19 patients. Additionally, the CERC supported community-based programs that provided supplies, including over 500 water tanks, to farmers and the elderly. A de-silting program, which also served to reduce flood risk and create 1,200 temporary jobs across communities, was also financed through the CERC.
- In Central America, GFDRR is working with several organizations from the Central American Integration System to strengthen capacities for emergency preparedness and response. A roadmap and an investment plan are currently being prepared using inputs from a regional diagnostic conducted in 2021 on **Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua,** and **Panama**. The technical assistance also includes activities aimed at strengthening the region´s hydromet services and promoting the use of disruptive technologies to produce information for disaster risk reduction.

[10] The Contingency Emergency Response Component (CERC) is an ex ante mechanism available to borrowers to gain rapid access to World Bank financing to respond to an eligible crisis or emergency. The instrument can be activated to respond to disasters as well as health emergencies.

Latin America and the Caribbean

Lessons **Learned**

A nuanced and region-specific approach to communication increases receptiveness not just of specific messages but also of general messages provided by authorities through early warning systems. For example, Disaster Fighters, a creative risk communications campaign, which has a music video featuring celebrated Caribbean artists emphasizing preparedness, has been viewed nearly 500,000 times on YouTube alone. The Campaign targeting 19 countries was coordinated with the Caribbean Disaster Emergency Management Agency (CDEMA) and was supported by the active participation of local emergency agencies as well as local, national, and regional media, which helped to spread the preparedness message widely when the hurricane season started. In the complex context of Latin America and the Caribbean, it is essential to communicate creatively on risk prevention, such as by using innovative partnerships with musicians and other influential figures to spread critical survival messages related to hurricanes, volcanoes, COVID-19, and other hazards.

Disaster Fighters Campaign participants. Photo: Caribbean Disaster Emergency Management Agency (CDEMA).

Risk transfer instruments, such as the CCRIF, continue to offer governments critical layers of risk protection that are not readily available in traditional insurance markets. These parametric insurance products allow governments to have access to liquidity within 14 days of an event. This is key as it helps governments reduce budget volatility after a natural hazard, support the most vulnerable in their population, and begin the process of recovery in short order.

Latin America and the Caribbean

In Focus Advancing emergency preparedness and response in Central America

Capping off a record-breaking hurricane season, in November 2020, Nicaragua and Honduras saw two consecutive tropical storms, Eta and Iota, make landfall within the span of only two weeks. According to official estimates, more than 4.5 million people were affected, with 99 deaths and over a million people evacuated.

For the countries of Central America, the devastation from Eta and Iota, which occurred against the backdrop of the COVID-19 pandemic, was a vivid reminder of the intensifying natural and climate-related hazards facing the region—and of the importance of being prepared for the inevitable disasters and emergencies yet to come.

In six Central American countries and the Dominican Republic, GFDRR and the World Bank, financed by the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, have been supporting ongoing efforts to strengthen emergency preparedness and response (EP&R) systems for the long haul.

Despite clear signs that Central American countries are becoming better prepared to respond to disasters and emergencies, there is broad recognition that it will be critical to ground those efforts in a deeper understanding of the challenges and opportunities in EP&R if that progress is to be accelerated. Working closely with a range of partners from the Central American Integration System (SICA), including the Coordination Center for Natural Disaster Prevention in Central America (CEPREDENAC) and the Regional Committee on Hydraulic Resources (CRRH), a technical team has undertaken a comprehensive diagnostic of EP&R systems in the seven member countries of CEPREDENAC: Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama.

The diagnostic drew upon GFDRR and the World Bank's Ready2Respond methodology, which assesses EP&R capacity based on data and information covering five core areas: institutional and legal frameworks, information, equipment, infrastructure, and personnel. The team adapted the methodology to a regional context and surveyed dozens of experts and officials, including from national disaster risk management agencies, to collect and validate data and information across the five core areas. A key finding of the diagnostic is that, while significant headway has been achieved in national efforts to strengthen infrastructure, equipment, and personnel for EP&R, progress in the other two core areas—institutional and legal frameworks, and information—has been more modest by comparison.

Based on the diagnostic, the technical team has subsequently worked closely with CEPREDENAC and its seven member countries to draw up a comprehensive roadmap and investment plan to guide EP&R development across Central America and the Dominican Republic. The team initiated that effort by identifying an initial long list of proposed actions to strengthen EP&R, focusing on those core areas that scored the lowest in the diagnostic across all countries. The team then worked closely with CEPREDENAC and representatives of its seven member governments to identify priority actions in each country. These priority actions were based on criteria including alignment with national policies, availability of resources for implementation, political and legal feasibility, and their complementarity with other actions. The priority actions identified run the gamut from improving EP&R infrastructure and equipment to strengthening relevant regulations. Taking into consideration the identified priority actions, the roadmap and investment plan estimates that there is a need to invest between $195 and $290 million to strengthen EP&R capacities in all seven CEPREDENAC member countries over the next five years.

Both the diagnostic and the roadmap are intended to inform EP&R strengthening efforts by Central American governments and their development partners. These include components of future World Bank operations, such as an anticipated IBRD-funded project on climate-resilient recovery and development that is currently under discussion with the government of Costa Rica.

Students taking a break at Columbus Park, Dominican Republic. Photo: © Antonella865.

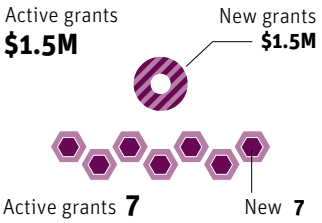
Lessons **Learned**

Working on a regional scale undoubtedly has its benefits, such as the ability to develop common approaches based on the shared experience of countries with similar challenges. One roadblock to a regional approach, however, is that effective coordination with all the national governments involved can often prove difficult. Accordingly, the team worked closely with a multi-country coordinating body, the Coordination Center for Natural Disaster Prevention in Central America (CEPREDENAC), in order to help ensure more productive engagement with the seven countries involved in this regional effort.

Results in Numbers

The roadmap and investment plan estimates that the member countries of CEPREDENAC—namely Costa Rica, the Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua, and Panama—will need to invest between **$195** and **$290 million** to strengthen EP&R capacities, including early warning systems, over the next five years.

Middle East and North Africa



Sousse, Tunisia. Photo: © Daniel M. Cisilino | Dreamstime.com.

Context

Across the Middle East and North Africa (MENA) region, droughts, earthquakes, water scarcity, and heat waves continue to hamper development efforts and adversely impact livelihoods and economies. Weather extremes, such as torrential rains and floods, affect tens of thousands each year—with many events occurring in contexts of fragility arising from conflict. Even prior to COVID-19, between 2011 and 2018, MENA was the only region in the world to see an increase in extreme poverty (measured at $1.90 per day)—an increase driven by conflicts in the Syrian Arab Republic and the Republic of Yemen. The COVID-19 pandemic has exacerbated these challenges, increasing the urgency for countries to improve governance and restore trust with their citizens as well as to strengthen human capital; support jobs and economic transformation; advance gender equity; address the drivers of fragility, conflict, and violence; and accelerate a green, resilient, and inclusive recovery.

Response

Given the complex context of the region, GFDRR is supporting the mainstreaming of disaster risk management (DRM) across development sectors in many places in a context of fragility through support for recovery and reconstruction efforts, providing support for refugees and host communities, and accelerating green growth by combating climate change. Taken together, these efforts help to make economies resilient and inclusive, promoting sustainable growth. GFDRR support has been crucial in enabling the preparation and implementation of operations and has helped to position disaster risk management at the forefront of the countries' interest.

- **Scaling up city resilience.** GFDRR supports MENA in addressing a strong demand to increase resilience of cities by strengthening their capacity to plan for and mitigate adverse impacts of disasters and climate change, thus enabling them to save lives, reduce losses, and unlock economic and social potential. For instance, technical assistance was provided for two cities in **Jordan** affected by the unprecedented and rapid influx of Syrian refugees. The result was an increase in the exposure of urban areas and its citizens to various risks including natural hazards, service delivery deterioration, increased pressure on infrastructure, economic and fiscal shocks, and social challenges. Grant activities in Beirut, **Lebanon**, have improved understanding and awareness of the primary risks faced by communities—tsunamis, seismic hazards, and flooding—and now local officials can map these risks on a geospatial platform to better plan and prepare for them.
- **Deepening financial protections.** GFDRR supports governments in designing financial protection strategies and instruments to respond to natural hazards. In **Djibouti**, a grant supported the development of a report outlining risk financing options by collecting relevant data on potential financial and economic damage caused by disasters, reviewing the portfolio of existing instruments, examining the country's institutional structure, and uncovering potential financial tools.
- Promoting resilient infrastructure. Transport and resilience are enhanced by reducing disaster risks and increasing preparedness through better design and construction standards, improved asset management and maintenance practices, and greater contingency planning. In **Egypt** and **Tunisia**, grants are supporting the development of risk-informed designs as well as management and maintenance plans for the country's road networks.

Middle East and North Africa

Engagement Highlights

- In Upper **Egypt**, GFDRR funded geographic information system (GIS)-based geospatial data gathering of road transport infrastructure in four selected districts that have improved local transport planning and management in addressing disaster risks. The data have been structured and designed to inform road asset management systems for local and urban roads, and the endeavor has raised awareness and increased expenditures for resilience investments from governorates. Key findings and lessons learned have been presented to crucial government decision-makers so they have the information to scale up road transport resilience across the country.
- In Beirut, **Lebanon**, a grant funded various risk assessments including in-depth coastal, seismic, and flood hazard risk analysis to inform the development of a city resilience strategy. This was the second phase of the technical assistance, built on the first phase where addressing specific shocks and stresses were identified as priorities for Beirut. To implement the new strategy, a centralized risk management system at the municipal level was created by using a digital platform—along with capacity- and awareness-building activities—to promote the use of risk data. As a result, municipal public sector workers have strengthened their capacity to integrate hazard, risk, and resilience considerations into the urban planning processes in Beirut, and to better plan for and prepare for future disasters.
- In **Jordan**, GFDRR's technical assistance addressed a set of interlinked disaster and emergency risks in the municipalities of Irbid and Mafraq, while at the same time building their longer-term urban resilience. The facility's support was built on an ongoing municipal services and social resilience project of the World Bank. Through a situational analysis of stormwater management and the development of data sets to assess emergency preparedness, emergency and risk management plans were completed and delivered to the two municipalities. To produce these outputs, various workshops and knowledge exchange opportunities were held to raise awareness and understanding of the concept of urban resilience. These workshops and knowledge exchanges also strengthened disaster-preparedness and resilient recovery at the national, subnational, and community levels.

Lessons **Learned**

The importance of a blended approach that combines investment in emergency humanitarian assistance with long-term development has been crucial for addressing the needs of both refugees and host communities to achieve sustainable urban development. As the number of Syrian refugees joining host communities in Jordan increased, the significant additional pressure this brought to the existing infrastructure and basic service delivery and maintenance already strained by natural hazards needed to be addressed to protect the people and their assets.

Capacity needs to be built at both national and local levels for DRM and improved resilience. *Disaster preparedness* and *resilience* are still new concepts for municipalities in various countries across the region, and the development of adequate early warning systems and preparedness plans on which to base the practice of prevention has been essential. Efforts at the national level need to be coordinated with local efforts for municipalities to play a key role in disaster preparedness and management.

Middle East and North Africa

In Focus Understanding and tackling resilience challenges in Beirut, Lebanon

Over the past year, the roughly 2.2 million people who call the Lebanese capital of Beirut home have demonstrated tremendous grit in the face of the Port of Beirut explosion, the COVID-19 pandemic, and the ensuing economic crisis.

Yet even as Beirut and its residents strive to get back on their feet, municipal authorities are well aware that the twin challenges of growing natural hazards and a changing climate still loom. To build a more resilient Beirut, it is vital to understand and tackle the broad swath of compounding and interrelated risks facing Lebanon's political, administrative, and economic center.

With this in mind, the Municipality of Beirut has engaged with technical teams, supported by the World Bank and GFDRR, to deepen its understanding of the multitude of hazards impacting the metropolis. These efforts build on the partnership between municipal authorities and the World Bank, with support from GFDRR, on the development of Beirut's Comprehensive Urban Resilience Master Plan.

In line with one of the priority areas of that master plan, a key step for this engagement has been a series of deep dive assessments of the municipality's exposure and vulnerability to a range of hazards, including urban flooding, coastal flooding, and tsunamis as well as seismic hazards.

With the support of municipal authorities, technical teams scoped out, gathered, and validated existing data on hazards; these teams also assessed the exposure and vulnerability of assets and populations to these hazards. Where feasible and appropriate in light of the COVID-19 pandemic, the data were collected in the field. For instance, one of the teams was able to gather nearly 700 data points from the field that were critical to identifying assets at risk from coastal hazards.

Subsequently, the teams used a range of analytical approaches, including both probabilistic and deterministic risk modeling,[11] to generate a more complete picture of the risks Beirut and its residents face over the long haul. For example, risk modeling in the urban flood hazard assessment suggested that the western part of Beirut is more likely to be inundated during intense rain events compared with other parts of the municipality. This may be partly explained by the high slope toward the sea in this part of Beirut: waters flow quickly from high elevation to lower elevation areas. Meanwhile, risk modeling in the coastal hazard assessment found that commercial areas in the municipality were likely to be among the most exposed to coastal flooding.

As Beirut and its residents strive for a more resilient future, findings from the analytical work in this engagement are expected to inform Beirut's Comprehensive Urban Resilience Master Plan, which continues to evolve in light of the ever-changing challenges on the ground. At the same time, GFDRR and the World Bank remain committed to deepening their longstanding support for a more resilient Beirut. For example, the World Bank and the facility are both supporting the development of a user-friendly, web-based platform designed to serve as a one-stop shop for the Municipality of Beirut to gather and share risk data.

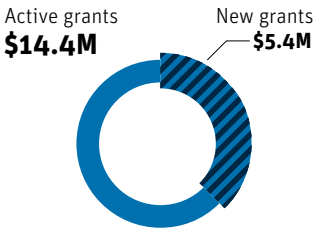
[11] Risk assessments can be deterministic or probabilistic. Deterministic modeling uses event scenarios to provide the hazard data. Probabilistic modeling combines many thousands of different events of varying frequency (annual occurrence probability) and severity. For more details, see GFDRR. 2016. *The Making of a Riskier Future: How Our Decisions Are Shaping Future Disaster Risk*. Washington, DC: GFDRR. https://www.gfdrr.org/sites/default/files/publication/Riskier%20Future.pdf.

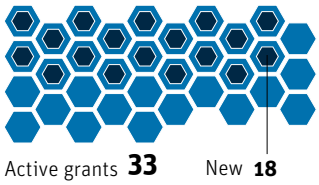
Skyline of Beirut, Lebanon. Photo: Sara Calado on Unsplash.

Lessons Learned

As exemplified by the ever-changing risks and challenges that Beirut has faced over the past year, including the COVID-19 pandemic and the Port of Beirut explosion, planning for resilience should be an ongoing and evolving process. This most recent engagement, which provides municipal authorities with a range of critical risk information—including information about urban flooding, coastal flooding, and tsunamis—has been designed to feed into such a process, namely the development of Beirut's Comprehensive Urban Resilience Master Plan.

South Asia





Context

Major floods in Pakistan and India as well as landslides in Nepal during FY21 underscored the growing challenges posed by climate change in South Asia. More than 800 million people live in communities projected to become hotspots, and new estimates suggest that economic losses from climate change in South Asia will average around 8.8 percent of GDP per capita by 2100. Without urgent global and national actions, South Asia could see more than 40 million people migrate within their countries' borders by 2050. Emergency response capabilities faced a severe test this year when major events, such as the flooding of the Brahmaputra River, coincided with strict COVID-19 lockdown measures. Hazards in the region include cyclones, earthquakes and related tsunamis, extreme precipitation, drought, glacial lake outburst floods, avalanches, and landslides. South Asian governments have undertaken a major shift from traditional post-disaster response toward proactive risk reduction reinforced by financial protection mechanisms. Core investments in areas such as the construction of embankments, early warning systems, and multipurpose evacuation shelters have reduced the number of lives lost in cyclones. However, rapid population growth, particularly in cities, presents continued major challenges for disaster risk management (DRM). At the same time, governments are deepening their efforts to integrate climate and disaster resilience into infrastructure sectors and social development in anticipation of the growing impacts of climate change.

Mumbai, India. Photo: Sumit Thapar.

Response

- **Meeting the coastal resilience challenge.** Major investments over past decades under GFDRR-supported initiatives such as **India**'s National Cyclone Risk Mitigation Project remained a lynchpin of disaster preparedness in FY21. In West Bengal, 137 shelters accommodated more than 73,000 evacuees during Cyclone Amphan (2020) and an even larger number during Cyclone Yaas (2021). This fiscal year, GFDRR supported development of the next generation of coastal resilience investments in **Bangladesh**, which included nature-based solutions. Technical studies assessed the scope for coastal zone management and mangrove forests to mitigate cyclone and storm surge impacts.

Cyclone relief shelter in Minakhan, West Bengal. Photo: SOPA Images Limited/Alamy Live News.

Kathmandu, Nepal, vaccination registration. Photo: SOPA Images Limited/Alamy Live News.

- **Inclusive DRM agenda.** Most South Asian countries have put in place DRM policies that commit to supporting marginalized groups. However, a gap persists between these policy instruments and actions on the ground. A new GFDRR-funded study, Inclusive Resilience: Inclusion Matters for Resilience in South Asia, took stock of social inclusion in DRM programs across the region. The report analyzes the experiences of different groups of excluded populations in South Asia and shares a set of practical actions that can be mainstreamed into DRM projects. These actions are framed in ways that are replicable and adjustable for different countries and types of disasters. In countries such as **Nepal**, GFDRR grants prioritize putting women, persons with disabilities, elderly people, and religious or ethnic minorities at the center of resilience building. This fiscal year, such measures included hiring more women masons to support post-earthquake housing reconstruction in Nepal.

- **Resilient transport, water, and energy.** Integrating resilience into the planning, design, operation, and maintenance of infrastructure can minimize service disruption and restore service to citizens more quickly during natural hazards. GFDRR supported analytics and workshops on resilience in **India**, in Kerala's core road network, Dhaka's bus rapid transit system; **Bangladesh**'s municipal water supply; and power distribution in **Nepal**. The facility supported efforts to identify drought risk hotspots and develop risk preparedness and reduction strategies for selected districts in **Sri Lanka** to preserve drinking water supplies during droughts. GFDRR also supported Sri Lanka in integrating disaster-resilient road asset management practices in the development of the Kandy Multimodal Transport Terminal and in capacity building for transport planners, road engineers, and terminal operations and management personnel.

Kochi, Kerala, India. Photo: © Libin Jose | Dreamstime.com.

- **Strengthening subnational agendas.** While DRM policies have often been spearheaded at the national level, state and provincial governments have increasingly become engines of progress for resilience in South Asia. GFDRR supported four studies to develop actionable roadmaps for disaster risk management in Kerala, Sikkim, Jammu and Kashmir, and Uttarakhand (**India**) this year, while supporting **Pakistani** provinces including Punjab and Sindh to build their disaster risk management capabilities. At the city level, GFDRR supported a deepening partnership with Chennai, including technical studies to inform a new transportation masterplan.

Sindh, Pakistan. Photo: Kisat Entertainment / Shutterstock.com.

South Asia

Engagement Highlights

- In **Bangladesh**, Cox's Bazar district is now host to more than 1 million Rohingya community members who fled violence in neighboring Myanmar. GFDRR supported the development of hazard maps and rural infrastructure options to help reduce disaster vulnerability in areas hosting refugees. Community members were also consulted on their needs for flood early warning systems to help design effective risk communication mechanisms that will help households take anticipatory action.
- In Assam, **India**, the inland water transport sector is used by 10 million people each year for personal transportation and commerce. The state receives high rainfall because of its location, with river levels rising about 10 meters most flood seasons. Technical support is being provided to the state government to develop a DRM framework to minimize the loss of life and economic disruption in river-based transport.
- In **Sri Lanka**, technical studies were undertaken to help develop a national flood forecasting strategy and flood mitigation solutions. GFDRR grants supported the development of flood management infrastructure and resilient urban landscape designs for the Kelani River Basin. In addition, support was provided for applying nature-based solutions (as well as hybrid nature-based and engineering measures) for landslide risk mitigation, with a particular focus on areas with a medium risk for landslides.
- A GFDRR program of support for reducing landslide and geohazard risk assisted disaster risk management and transportation agencies in **Pakistan, Nepal,** and **Bhutan** this year. Risk reduction strategies were developed in Nepal and in Pakistan's Chitral District, while in Bhutan the program supported an online mapping system for road asset management in landslide-prone districts.
- GFDRR-financed technical studies directly supported around $375 million of statewide financing under the Resilient Kerala Partnership in **India** and informed a number of sector-specific programs. Technical studies supported by GFDRR also helped better integrate resilience into a number of sectors such as water resource management, water supply, agriculture, social safety nets, environment, fiscal sustainability, transportation, and land management. This comprehensive journey toward rebuilding a more resilient Kerala after the 2018–19 floods was shared with a global audience through the GFDRR-supported Kaalavastha podcast series.

Lessons **Learned**

Cyclones Amphan and Yaas (May 2020 and May 2021) highlighted the role that afforestation activities can play in protecting coastal livelihoods, providing another layer of protection alongside coastal embankments and reducing the impact of tidal flooding and storm surges for densely populated areas of Bangladesh.

Progress toward mainstreaming resilience in government policy frameworks can be accelerated through a multisector approach integrating urban, water, transport, and disaster risk management actions, as exemplified in the Resilient Kerala Program and the Chennai City Partnership. Building on these multisector programs, similar partnership opportunities are being explored.

GFDRR's continued support in developing the institutional capacity of national disaster risk management agencies in many parts of South Asia was critical in initially responding to and recovering from the COVID-19 outbreak. However, the frequency and intensity of disaster events in the past year and lingering COVID-19 waves, along with restriction-related economic shocks, underscored large existing gaps in emergency preparedness and response services in South Asian countries. This will require further risk-informed planning and integration with health preparedness.

South Asia

In Focus Supporting resilient economic zone development in Bangladesh

By providing collective infrastructure and services that can enable goods to be manufactured and sold at globally competitive prices, Bangladesh's economic zones have played a vital role in driving and sustaining the country's export-led growth over the past decade.

Coming on the heels of the government's recent pledge to set up a total of 100 economic zones by 2030, Dhaka also recognizes that fortifying the zones' resilience to a changing climate and intensifying disaster risk must be a priority. A case in point is Cyclone Sidr, which, in 2007, caused damage to approximately 1,800 manufacturing establishments, representing 7 percent of the total manufacturing operations at the time.

Under the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, GFDRR has supported the government of Bangladesh in advancing the resilient development of economic zones across the South Asian country.

A key focus of the facility's engagement has been its support of the development of the Bangabandhu Sheikh Mujib Shilpa Nagar Economic Zone (BSMSN), one of the country's first flagship green and resilient economic zones. A technical team worked closely with their counterparts in the Bangladesh Economic Zone Authority (BEZA) to assess potential resilience measures in the zone, which is highly susceptible to flooding because of its proximity to waterways such as the Bay of Bengal.

Drawing on a detailed inventory and assessment of preexisting as well as planned built infrastructure, the team first identified a range of resilience measures and subsequently costed these measures using life-cycle cost analysis. By using this approach, the team was able to account for costs that may materialize over the expected service life of the measures, including operational and maintenance costs. Some of the measures that were found to have substantial life-cycle cost savings included the integration of nature-based solutions, as well as improvements to roads and bridges in line with international standards. These findings are already beginning to inform the authority's resilience engagements in the economic zone. For example, nature-based solutions such as rainwater harvesting and green spaces are increasingly being integrated into design and construction of the zone to increase its drainage and stormwater management capacities. Improved resilience measures are also being integrated into the design and construction of the road network.

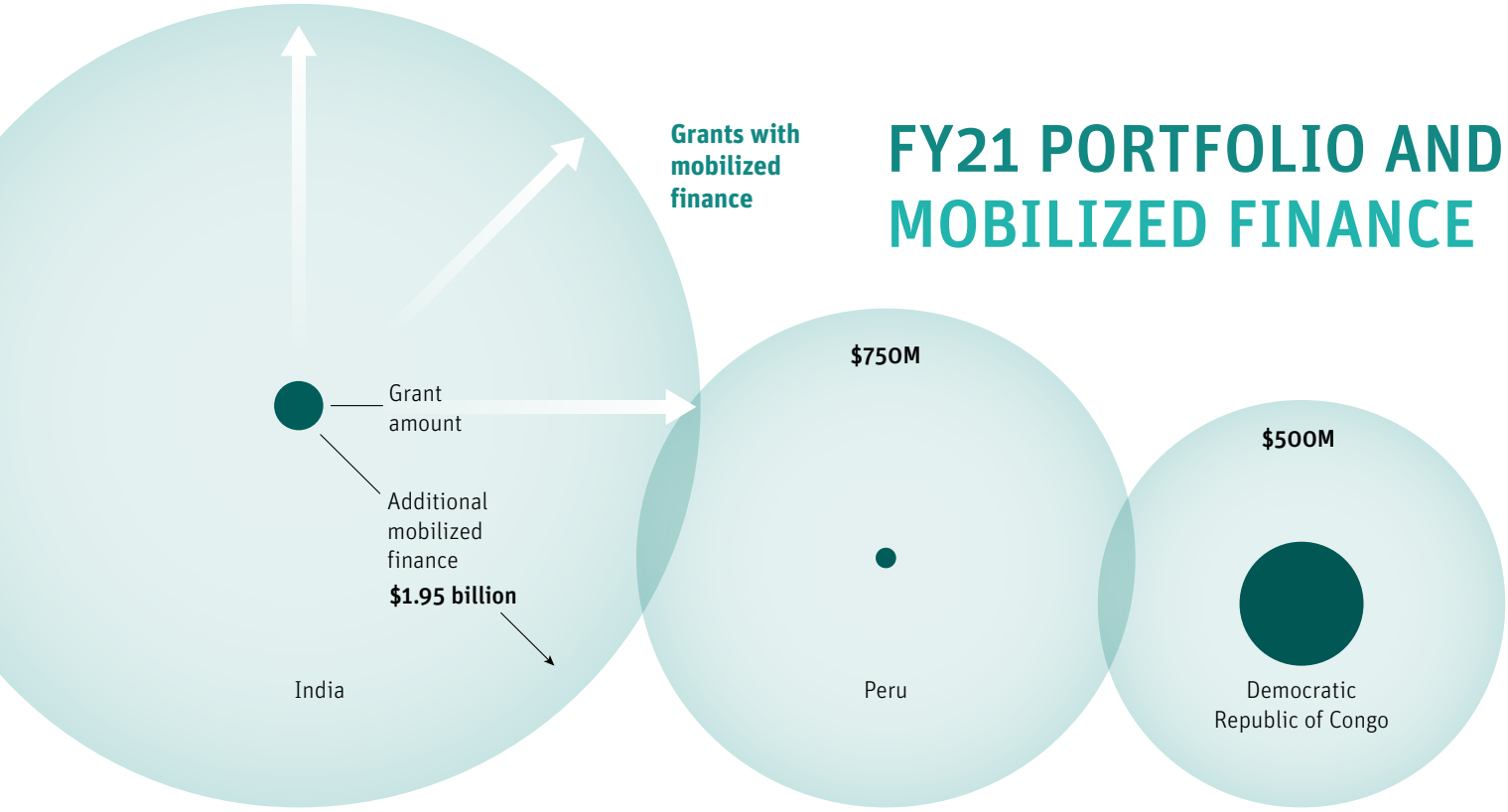
In conjunction with its technical work informing the development of the BSMSN, the team has also engaged closely with BEZA to develop national guidelines for green and resilient economic zone development. Covering key areas that include institutional and regulatory frameworks, planning, implementation, and monitoring, the guidelines, which have since been completed, are expected to guide BEZA's development of a proposed national certification program. This program is designed to incentivize green and resilient development by both the public and private sectors in economic zones across Bangladesh. Looking ahead, the team will support the development of in-depth training sessions to facilitate efforts by BEZA and other key stakeholders to implement the guidelines.

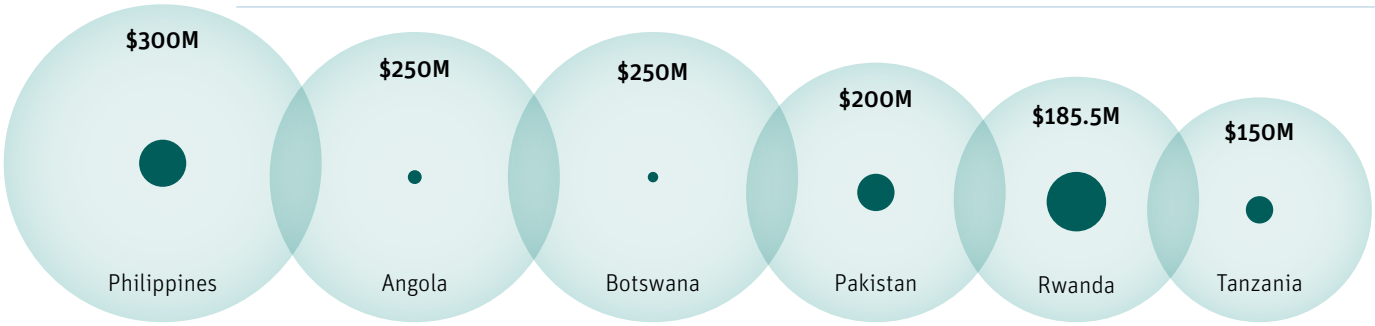
GFDRR support for resilient economic zone development in Bangladesh is informing and driving a broader suite of resilience engagements by both the facility and the World Bank in the South Asian country. The technical work under this engagement has informed the $500 million, IDA-funded Bangladesh Private Investment & Digital Entrepreneurship (PRIDE) Project, which is working to promote private investment, job creation, and environmental sustainability in selected economic zones and software technology parks.

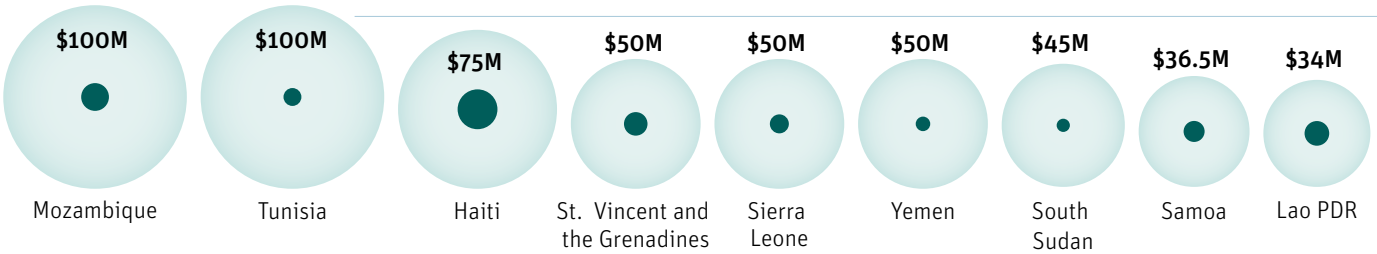
Lessons **Learned**

Even as ensuring business continuity is often a key element of resilient economic development initiatives, such efforts can also pay dividends toward mitigating climate impacts affecting both the local and global environment. For example, informed by the technical work undertaken in this engagement, including the development of national guidelines for green and resilient economic zone development, BEZA is moving forward with its efforts to increase renewable energy generation in BSMSN, with an eye to mitigating the economic zone's carbon footprint while, at the same time, improving the reliability of the power supply.

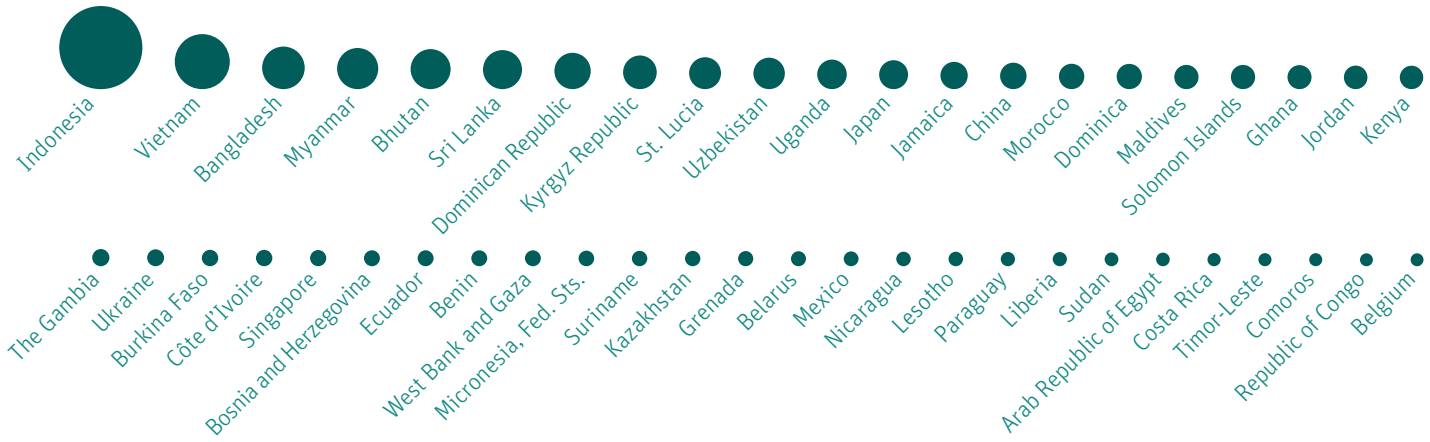
FY21 PORTFOLIO AND MOBILIZED FINANCE





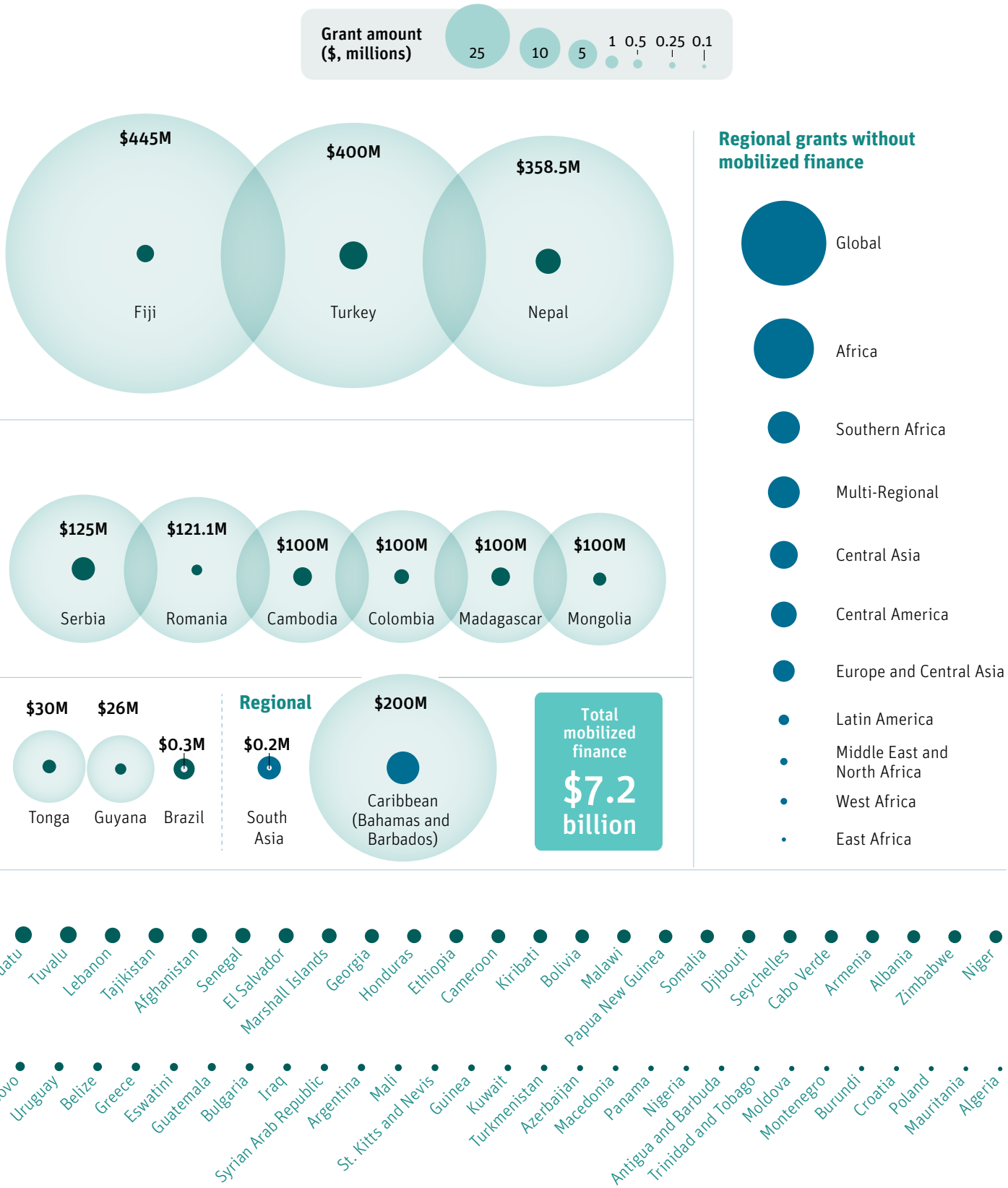


Country grants without mobilized finance



Data are as of June 30, 2021. The data exclude other programs managed by GFDRR such as GRiF and CREWS.

GFDRR's FY21 portfolio covered nearly 154 countries. Many of these grants mobilized additional finance, helping to bring resilience to scale. This graphic shows GFDRR's FY21 in-country grant activities and the $7.2 billion they have helped inform, enable, or co-finance. For more information on mobilizing finance through the FY21 portfolio, see page 120.

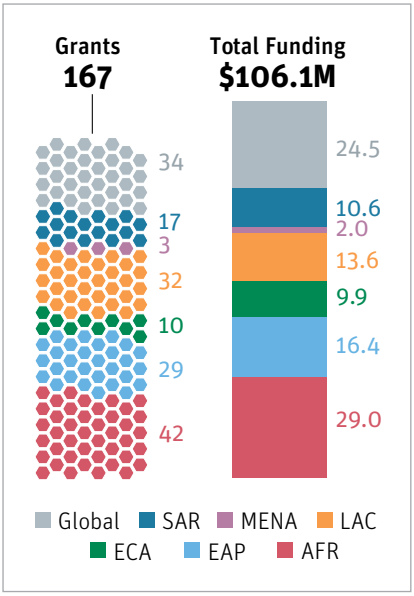


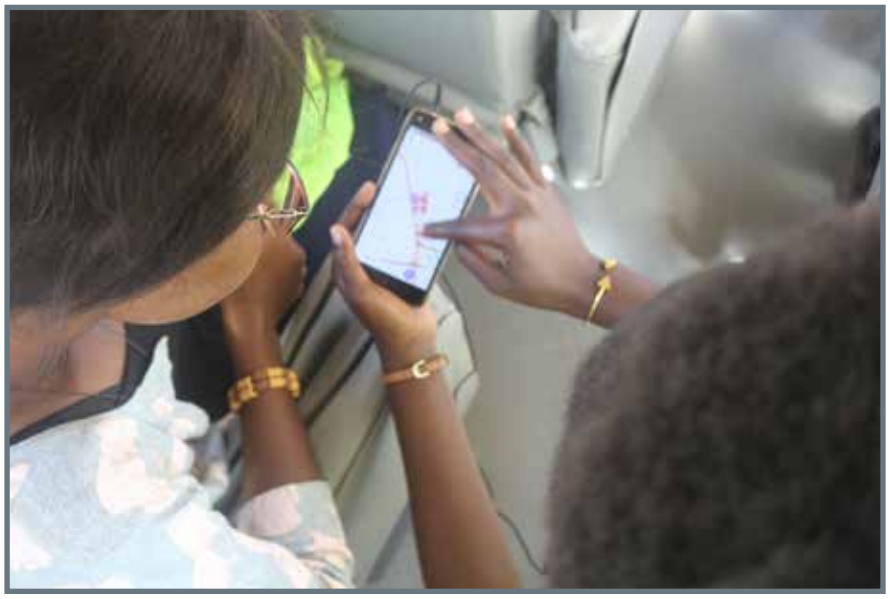
Students participating in the Resilience Academy training Photo: © Resilience Academy.

Areas of Engagement

GFDRR implements its strategy through eight areas of engagement that support the Sendai Framework's priorities for action. Progress in each of these areas is measured against targets set in the 2018–21 strategy.

Promoting Open Access to Risk Information





Accra, Ghana, Open Cities Africa. Photo: World Bank.

The frequency and severity of disasters in the last two decades has risen significantly, mainly because of the number of climate-related disaster events and evolving socioeconomic conditions. Urbanization and the concentration of highly vulnerable communities in disaster-prone areas are a challenge. And while lower-income countries suffer disproportionately, the global COVID-19 pandemic and ongoing conflicts also demonstrate that disaster and climate risk cannot be managed in isolation but must be addressed in the context of these complex, interacting risks.

Therefore, understanding disaster and climate risk requires the processing of an enormous array of data that describe the spatial and temporal distribution of hazards, their location, and the characteristics of populations and assets exposed, as well as information related to their vulnerability. With climate-related disasters increasing, the challenge is now to combine climate change scenarios and hazard models to inform more long-term climate and disaster risk assessments. Yet, in many areas of the world, there remains a lack of basic disaster risk information.

Building on more than 10 years of innovations and commitment to open access to risk information through initiatives such as the GFDRR Labs and Open Cities, GFDRR continued to explore new technologies and innovative ways of collecting, using, and sharing disaster risk information in all its countries of engagement.

This year saw an adaptation of the successful Open Cities Africa program to Latin America and the Caribbean (LAC), supporting partnerships at the local level to create baseline geospatial data for resilience purposes and making those data available online.

GFDRR grants supported research and applications of disruptive technologies such as machine learning, drones, and location (GPS) data, identifying best practices and principles to ensure those technologies are used responsibly and in a manner that allows local communities to appropriate them.

The facility further engaged with the catastrophe modeling and research communities to develop new standards and tools, such as the Risk Data Library, for combining disaster risk information from various sources and supporting the creation of new ones.

Open access to risk information does not directly lead to better decisions. Through its work, GFDRR is also seeking to identify both the obstacles impeding the effective use of risk information and the best practices for promoting it. This year, the team explored new approaches to risk communication and inclusivity, and how to better support populations with disabilities in disaster risk management.

Looking ahead, open access to risk information will continue to be a key priority in the implementation of GFDRR's strategy. The facility will be financing the generation and use of risk information including through better application of disruptive technologies for and with local stakeholders for better resilience impact.

Promoting Open Access to Risk Information

Engagement Highlights

- With more and more risk data and models being made available, issues of data interoperability, discoverability, and suitability are becoming more acute for disaster risk practitioners. In 2021, after two years of research and development, GFDRR delivered the Risk Data Library, the first-of-its-kind open data standard to make it easier to work with disaster and climate risk data. The standard provides a common description of the data used and produced in risk assessments, including hazard, exposure, vulnerability, and modeled loss data. It provides a unique way to create, store, and combine different pieces of risk information together. The standard has already been adopted by World Bank staff for disaster and climate risk assessments; more than 50 risk data sets were made available on the World Bank Data Hub in 2021. The Risk Data Library is a digital public good intended to be used by anyone involved in generating or using disaster risk information.
- Following up on the success of the Open Cities Africa program, GFDRR began support to digital mapping for disaster risk management in Latin America and the Caribbean. This project, which started in January 2021, will strengthen the capacities of communities in **Dominica**, **Guatemala**, **Jamaica**, **Mexico**, and **St. Lucia** to create, compile, and use open-source geospatial data for disaster risk management. In particular, it will build a base of high-quality, up-to-date, accessible risk information that can help local governments and humanitarian organizations make informed decisions as well as help technologists build applications for the public good. In partnership with local universities, nongovernmental organizations, and technical firms, it will also teach hundreds of young people across the region how to use open-source geospatial tools and mobile data collection methods.
- There are an increasing number of ways that location data obtained from smartphones can be used for disaster risk management. Anonymized GPS data has already proven invaluable in a range of pre- and post-disaster use cases, such as quantifying displacement, measuring rates of return and recovery, evaluating accessibility to critical resources, and planning for resilience. In 2021, through a dedicated grant, GFDRR started to explore the use of mobility data in DRM. The Disaster Mobility Data Network (DMDN) is a global community of practice convened as a partnership between the GFDRR and CrisisReady. Together with analytical tools and community events, GFDRR has already produced two case studies on the 2017 Puebla earthquake in **Mexico** and the impact of COVID-19 on transport in Chennai, **India**.
- A key challenge in risk reduction is the timely collection of actionable risk data. There is still little reliable information about how quickly cities are growing, where they are growing, and how they are growing. These data include information on socioeconomic activity, including the concentration of people, housing, and facilities. Producing and updating information needed for governments and communities to improve urban resilience requires building local skills and service providers and provides an opportunity for job creation. This year, GFDRR supported case studies in Africa looking at how the creation of disaster risk information using artificial intelligence could also drive low- or medium-skilled earning opportunities. The forthcoming report *Digital Works for Urban Resilience* examines those case studies and outlines new ways to collect and new interventions for capacity building programs for resilience that could ultimately also improve the local digital economy.
- Sharing knowledge and experience with peers and learning from others has remained a key area of engagement of GFDRR. In December 2020, the biennial Understanding Risk Forum went virtual. As a result, the conference has been more accessible and global than ever. More than 2,645 participants from 179 countries contributed to 120 sessions and 138 hours of content over three days.

Promoting Open Access to Risk Information

In Focus How youth at work are closing the risk data gap in African cities

In many cities across Africa—a continent that is urbanizing faster than any other—the buildup of disaster and climate risks has gone largely unnoticed, and therefore unmanaged. A key roadblock for urban resilience planners and practitioners is the scarcity of reliable risk data, including data both on the location of people and assets and on their exposure and vulnerability to natural hazards and climate change.

In response to this challenge, GFDRR and the World Bank have supported the mobilization of over 1,300 young people to systematically gather risk data on African cities. In addition to promoting open access to risk data that will be used to inform resilience and disaster risk management efforts, this engagement is also designed to generate durable skills and livelihood opportunities for young people, including those impacted by the COVID-19 pandemic, in the ever-changing digital economy.

A key first step for the technical team was to identify risk data collection tasks that were suitable to a range of skillsets while also responsive to the needs of urban resilience and disaster risk management planners and practitioners in Africa. Moreover, in the context of the pandemic, the team identified tasks that could be performed remotely and, in accordance with local public health guidelines, in the field. Subsequently, the team also tapped a range of local partners specialized in risk data collection, including the Open Cities Africa network, to not only recruit, hire, and train young people but also to ensure the quality of the data output.

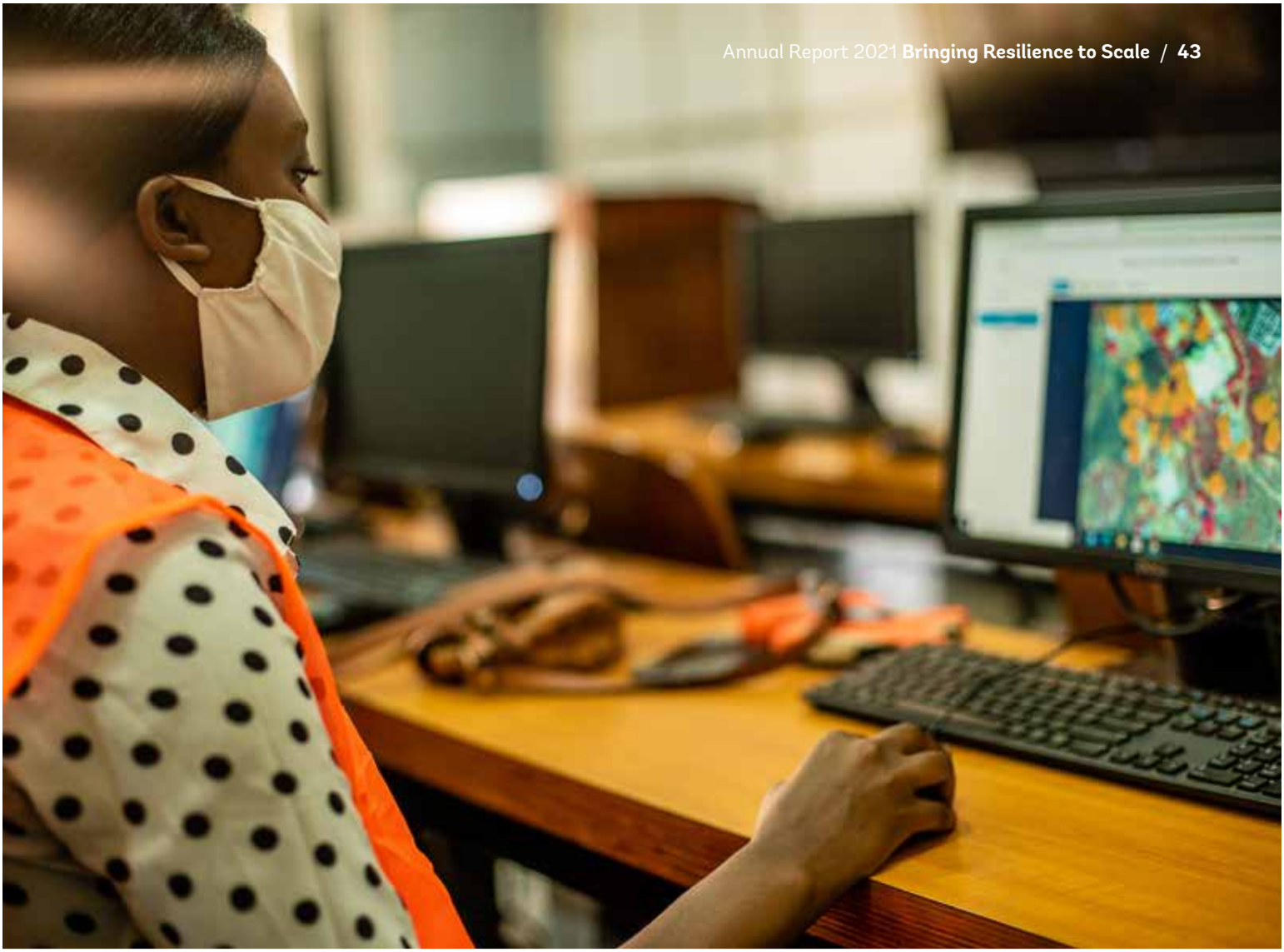
Focusing on cities in Kenya, Mali, Sierra Leone, and Tanzania, the initial phase of this engagement, which has since been completed, demonstrated what is possible when young people are engaged in efforts to close the risk data gap.

For example, nearly 120 participants, working remotely, used an open-source mobile application to collect data on the location of solid waste sites in Bamako, Mali. These data are now enabling the government of Mali, with technical support from a World Bank team, to design and plan solid waste management investments in Bamako, including through a $250 million Bamako Urban Resilience Project under preparation.

In another example, in four cities across Kenya, over 160 participants went into the field to collect data on the location of urban services, particularly congregation hotspots such as water fountains, bus stops, and public toilets. These data are expected to inform local authorities' emergency and disaster risk management planning and preparedness efforts, including in the context of the COVID-19 pandemic.

These locally led data collection efforts have become even more effective when combined with disruptive technologies such as machine learning and Earth observation. For instance, 50 participants working remotely used an open-source digital platform to collect data on urban canopy coverage in Freetown, Sierra Leone. These data have been used to develop a machine learning algorithm that has since helped the city of Freetown establish a baseline for its ambitious reforestation campaign called Freetown the Treetown.

Building on what has been achieved thus far, a key focus for the next phase will be to expand the engagement to include more young people while also enhancing the professional development of the participants. Plans are underway to develop a credentialing system where participants can demonstrate their proficiency in the range of the digital skills they honed in the process of collecting data—from basic skills such as data entry to more advanced ones such as spatial data analysis. Furthermore, the next phase will also focus on how to tailor these community-driven risk data collection efforts so that they can better complement new Earth observation technologies, in line with the vision of the Digital Earth Partnership, a new GFDRR global program to be established in FY22.



As part of this engagement, a student of the Resilience Academy in Tanzania creates tree canopy training data over Dar es Salaam and Freetown. Photo: World Bank.

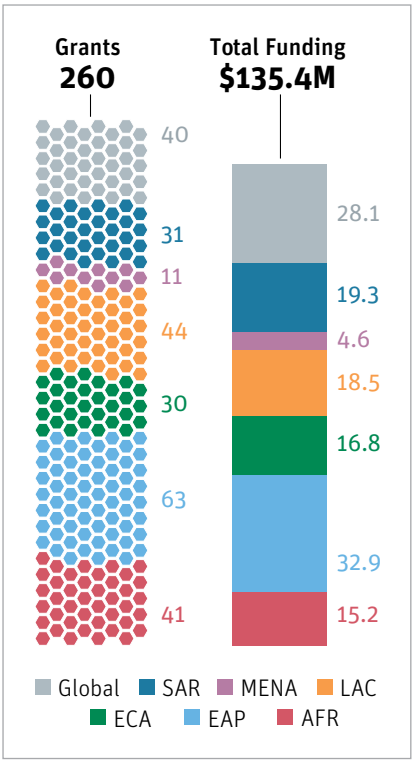
Lessons **Learned**

A key finding from the engagement is that, even with minimal training, participants with limited digital skills can collect high-quality geospatial risk data through simplified data collection processes. In the process, they advance the goal of promoting open access to risk information and they learn. However, more extensive, hands-on training may be required for more advanced tasks, such as imagery interpretation and feature identification, which also could open an opportunity to link with more formalized up-skilling and income generation opportunities as part of the processes.

Results in Numbers

Over **1,300** young people mobilized to close the risk data gap in African cities; **45 percent** of them are women.

Promoting Resilient Infrastructure



A fast-changing climate and global crises such as the COVID-19 pandemic highlight the need to invest in safer, more efficient, and long-lasting infrastructure assets. Infrastructure designed without considering disaster risks is a major threat to lives and livelihoods, and disaster risks can worsen if the maintenance and the operation of existing infrastructure are inadequate. In low- and middle-income countries, disruptions to infrastructure are an everyday concern, reducing opportunities for employment, hampering health and education, and limiting economic growth. In these countries, direct damage from natural hazards to power generation and transport alone cost $18 billion a year,[12] cutting into the already scarce budgets of road agencies and power utilities. Promoting resilient infrastructure is no longer a choice, but a must.

Critical systems: Interconnectivity and interdependencies

The lack of resilient, high-quality infrastructure systems is harmful to people, economies, and ultimately development. Quality and resilient infrastructure systems are crucial—not only to meet people's most basic needs, but also to enable ambitious progress in economic development and prosperity. Infrastructure assets (e.g., transport, water and sanitation, energy) are paramount for schools and hospitals to function, for businesses and industry to thrive, and for people to access jobs and essential goods and services. Yet the lack of baseline reliability and efficiency, as well as the low quality of services and the lack of safety, are some of the challenges that increase the need to invest in infrastructure assets worldwide. These challenges are magnified when considering the growing pressures from disaster and climate risks and the potential impacts from extreme events.

Solutions to improve resilience exist and investments to do so are both sound and profitable. Furthermore, increasing the quality of infrastructure investments is key to promoting resilience and contributing to the disaster risk management agenda as well as efficiently addressing the infrastructure gap.

Promoting resilience of infrastructure services begins with strengthening existing assets. In parallel, opportunistic capital investments embedded with resilient considerations for new infrastructure are paramount so that new assets meet design needs imposed by existing and future projected natural hazards as well as reliability levels demanded by modern development. These considerations could include digging deeper foundations, using alternative materials, building in flood protection, strengthening electrical poles and cell towers, improving road design, using improved flood and landslide modeling techniques, collecting and storing geographical data, and building stronger water treatment plants, among others. But it is also necessary to look beyond each individual asset and build more resilient systems and networks.

GFDRR response to promoting resilient infrastructure

To respond to such needs and acknowledging sectoral interdependencies (e.g., water and sanitation, transport, energy, telecommunications), GFDRR finances support to governments to identify and prioritize actions that strengthen the quality and resilience of infrastructure systems. GFDRR finances institutional support, often focused on asset management systems, and supports technical assistance to help governments, ensuring that projects are efficiently designed, financed, and executed and that the built infrastructures are properly operated and maintained.

As client country demand keeps growing for knowledge and services related to planning and implementing infrastructure resilience, GFDRR helps to organize and generate this knowledge and technical partnerships at a global level and facilitates the use of this knowledge at a project level.

GFDRR is also doing its part to support resilient infrastructure investments: it has approved 14 grants amounting to $7.5 million in FY21, and has provided technical support to the teams working in that area.

[12] See GFDRR's Lifelines report.

Promoting Resilient Infrastructure

Engagement Highlights

Cabo Verde. Photo: © Raulrosa | Dreamstime.com.

- In FY21, a comprehensive case study to understand the impacts from extreme weather events on **Cabo Verde**'s logistics supply chain was concluded,[13] and an online course was produced to provide strategic, experiential, and practical knowledge about how to integrate climate and disaster risk considerations in transport asset management in small island developing states (SIDS). The overall objective of the course is to enable government authorities to identify opportunities to enhance project design through climate resilient transport asset management approaches, ensuring both high-quality engineering designs and proper asset management protocols and financing.
- The Disaster and Climate Resilient Renewable Energy Power System in Nepal project is supporting the government of **Nepal** to develop resilient technical designs and standards for renewable energy mini-grids, generation facilities (micro/mini-hydro, solar, wind), and relevant electrical facilities. Funded by the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, the project is also helping to develop the operation manuals for emergency preparedness and recovery in preparation for disaster events. The technical assistance is led by the World Bank's Energy Global Practice and has the Nepal Ministry of Energy, Water Resources and Irrigation; the Alternative Energy Promotion Centre; and the Nepal Electricity Authority as main counterparts. Close collaboration with Japanese experts to capitalize on their leading expertise and technology has been crucial to the project and has illustrated how knowledge exchange can be paramount to promoting infrastructure resilience in response to the urgent climate agenda.[14]

Nepal. Photo: © Mieszko9 | Dreamstime.com.

[13] For details about results of the study, see the video at https://www.youtube.com/watch?v=wxlk-LOF0Uo.
[14] World Bank. 2019. "Experts from Nepal and Japan Discuss Best Solutions to Build Resilient Renewable Energy Distributed Power System in Nepal." September 10–11, 2019. https://www.worldbank.org/en/news/feature/2019/09/10/experts-from-nepal-and-japan-discuss-best-solutions-to-build-resilient-renewable-energy-distributed-power-system-in-nepal-drmhubtokyo

Promoting Resilient Infrastructure

In Focus Understanding and managing road geohazard risk in South Asia

South Asia is no stranger to geohazards, including landslides, debris flows, floods, and erosion, particularly along the seismically active Hindu Kush Himalayan mountain belt. Yet road infrastructure across the region remains highly vulnerable to these hazards, posing a challenge to the ability of local populations to carry on with their lives and livelihoods.

As climate change threatens to increase the frequency and intensity of geohazards, GFDRR—with the support of the European Union and the World Bank—has partnered with the countries of South Asia to strengthen their capacity to manage road geohazard risk.

Assessing and understanding road geohazard risk is undoubtedly critical to managing it. Accordingly, a technical team has been working closely with their government counterparts in South Asia on a series of pilot landslide risk assessments using satellite-based remote sensing technologies.

The first set of pilots targeted three sites in mountainous regions of India, Bhutan, and Nepal, each of which spans over 200 square kilometers. These assessments revealed that the remote sensing technologies can identify slopes that are falling slowly but constantly, which can be early signs of potential landslide hazards. Encouraged by these findings, the team supported a further pilot in the context of an ongoing disaster: the June 2021 landslides and floods in Melamchi, Nepal. This has provided invaluable insights about the slope deformation in the Melamchi watershed area, including the causes behind the disaster; this understanding will be critical to authorities' efforts to build back better. An additional pilot has been completed in Bhutan, in partnership with the European Space Agency.

Even as the pilots highlight the potential of satellite-based remote sensing for assessing landslide risk, an additional critical insight emerging from the studies is that these technologies should complement rather than replace the in situ observational methods that have typically been used by road or geology officials in the past. For example, it was suggested that the combination of day-by-day detection provided by in situ observational methods and the biweekly detection with satellite-based monitoring will be key to ensure that high-risk roads are cleared and affected populations are evacuated before the occurrence of a geohazard as part of an early warning system.

In conjunction with the pilots on remote sensing for assessing landslide risk, the team has also been working closely with disaster risk management agencies in Nepal, Pakistan, and Bhutan to help strengthen their geohazard risk management and risk-informed planning capacities, with an eye to informing resilient infrastructure investments by national governments and their development partners, such as the World Bank.

For starters, in Nepal, a key focus has been support of the development of practical guidelines that will be used by the national government to monitor and incentivize landslide risk reduction at the municipal level. In Pakistan, a comprehensive geohazard risk assessment has been conducted in the Chitral District, with a focus on five geohazards: earthquakes, floods, flash floods and debris flows, landslides, and glacial-lake outburst floods. And in Bhutan, a partnership with the Department of Roads has led to the development of an online geohazard risk data platform that, among other data, provides information on the condition of 2,500 kilometers of national highway.

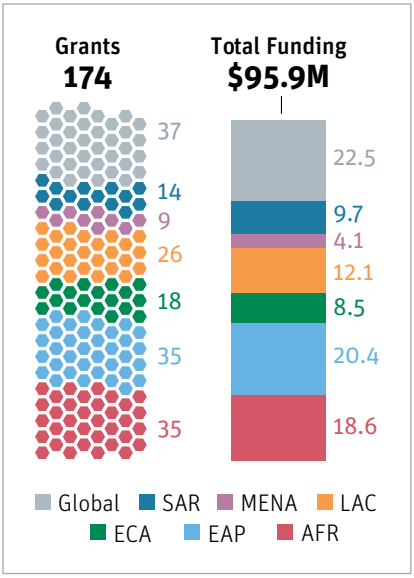
These latest efforts build on previous GFDRR support toward strengthening road geohazard risk management in South Asia, which have focused on promoting knowledge exchange and learning. For instance, the facility played a key role in organizing a workshop featuring experts and practitioners from New Zealand in which road officials from across South Asia learned about that country's strategy and approach toward geohazard risk management. The new Road Geohazard Risk Management E-Learning course, also supported by GFDRR, draws heavily on the lessons learned from the knowledge exchange. The course, which features real-world case studies from South Asia, covers several crucial elements, including institutional capacity and coordination, systems planning, engineering and design, operations and maintenance, and contingency planning.

Sindhuli Road, Nepal. Photo: World Bank.

Lessons **Learned**

Technical teams must be prepared to respond to evolving resilience challenges on the ground. For instance, experts supporting the development of guidelines for reducing landslide risks in Nepal were also called upon to provide technical assistance to the response to a landslide and flood disaster in the country's Melamchi area in June 2021.

Scaling Up the Resilience of Cities



Evidence shows that the world's population is not only increasing but also clustering in large metropolitan areas. Today, 4.2 billion people—equivalent to 55 percent of the global population—live in cities.[15] This trend is particularly noticeable in low- and middle-income countries, where it is accompanied by an extremely high concentration of population in urban areas. A city's growth is proportional to its exposure to climate disaster. Statistics show that 70 percent of cities have already witnessed adverse impacts on their citizens and infrastructure as a result of climate change.[16] In addition, about 90 percent of urban expansion in low- and middle-income countries occurs in unplanned and informal settlements, increasing those cities' exposure and sensitivity to events such as storm surges and sea-level rise. It is also worth noting that nearly 100 million individuals live in cities near the coast around the world, and most of them—along with an estimated $4.7 trillion in assets—are exposed to coastal flooding.

What holds cities back from pursuing a resilient future is the lack of financial and technical resources. As of FY21, 39 percent of GFDRR's active core program grants contributed to scaling up urban resilience. These grants covered 172 cities across 69 countries and included capacity building, improved resilience of urban services, flood risk reduction, coastal resilience, and emergency preparedness activities.

Engagement Highlights

- In **St. Vincent and the Grenadines**, under the African, Caribbean and Pacific–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program, a grant has contributed to increasing understanding of resilient urban development challenges and solutions. It has also helped to highlight gaps in disaster risk management and climate change adaptation for resilient urban development in the country. Activities included the review of several legislative documents that improve the regulatory framework for the enforcement of the building codes as well as national school safety policy.
- In the **Dominican Republic**, an ongoing project is supporting the Ministry of Economy, Planning and Development to deliver an urbanization review that analyzes urbanization and territorial planning patterns in the country. Financed by the European Union (EU)'s Caribbean Regional Resilience Building Facility (CRRBF), the project examines the country's main economic and social challenges in shaping the forms and functions of cities and regions for economic growth, prosperity, and employment while at the same time addressing the needs of the most vulnerable. Five policy notes have been drafted; these chart a course to address these challenges. The draft policy notes were disseminated through four capacity building events in May and June 2021. These online workshops focused on how to make Dominican cities and territories more resilient places to live and do business.
- In **Grenada, Guyana,** and **St. Vincent and the Grenadines**, an ongoing project is exploring approaches to improving urban infrastructure planning to achieve resilience goals in coastal cities by encouraging the sustainable concurrence of urban space and the natural environment. The project, funded by CRRBF, is also helping urban practitioners to better understand the integration of green infrastructure and contextually inform cities' planning strategies. Finally, it is working on identifying infrastructure needs and investment opportunities for the cities of the selected coastal areas.

City Resilience Program (CRP)

CRP's vision is resilient cities that have the capacity to plan for and mitigate adverse impacts of disasters and climate change, thus enabling them to save lives, reduce

[15] World Bank. 2020. *Urban Development Overview.* April 20, 2020. Washington, DC. https://www.worldbank.org/en/topic/urbandevelopment/overview#1.
[16] Negreiros, P. (June 30, 2021). *The State of Cities Climate Finance.* https://www.climatepolicyinitiative.org/wp-content/uploads/2021/06/2021-State-of-Cities-Finance-Executive-Summary.pdf

losses, and unlock economic and social potential. Since its launch in 2017, the program has engaged with over 140 cities in more than 55 countries, including about 30 new cities that were added in the last 12 months. During FY21, the team transformed one of its core products, the City Scan, into an online and interactive tool granting client cities the possibility of exploring and visualizing their urban resilience data. This virtual format allowed CRP to organize an online workshop spread over four days with eight South African cities and over 100 participants. CRP also joined the Making Cities Resilient 2030 initiative as one of its core partners. The goal of the initiative is to ensure that cities become inclusive, safe, resilient, and sustainable by 2030.

- In La Paz and Santa Cruz, **Bolivia**, CRP provided a grant to increase the government's capacity to manage rapid urbanization, improve living conditions, and reduce exposure to natural hazards and climate change. The grant also supported the appraisal of a national city resilience project and helped World Bank teams to identify projects and design interventions. CRP support to Bolivian cities unlocked $4 million in co-financing from the Swiss State Secretariat for Economic Affairs (SECO) to enhance the sustainability and scale-up of investments under the Bolivia Urban Resilience Project, a project approved in February 2020 with a $70 million IDA credit.
- In Chisinau, **Moldova,** CRP is working to help the city conceptualize, design, and implement resilient parking solutions that generate revenue and adapt the city to flooding. The team produced water maps of two major floods from 2017 to 2020 that highlight areas of poor water drainage to help select sites for flood-resilient parking lot development. At the same time, CRP delivered a study of how parking infrastructure can help lower the flood disaster risk while contributing to wider sustainable transport goals and generating additional revenue for the city.

Building Regulation for Resilience (BRR)

GFDRR supports the development, formalization, and implementation of building regulations as a key element to strengthen the built environment over time. Risk-informed land use and building regulatory frameworks are some of the most effective means proven to reduce human, physical, and economic losses to natural hazard shocks. During FY21, GFDRR supported initial diagnostics to identify critical gaps in countries' building regulatory frameworks and their implementation mechanisms, and it facilitated new project designs to incorporate and implement BRR-related priority actions as part of World Bank–financed projects. To support greater operationalization of governments' priorities, GFDRR financed continued use of its global knowledge and conceptual framework tools, such as the *Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic* report, which aims to help governments advance their understanding of fire safety challenges in the built environment and potential mitigation actions.

- In **Maldives**, GFDRR financed technical advice to the government about the development of an online construction permit system, financed under the IDA-financed Maldives Urban Development and Resilience Project. In parallel, GFDRR supported technical recommendations to the building code compliance documents that will be used to measure the country's progress toward taking concrete measures to reduce their disaster risks, which is part of the requirements to benefit from Maldives: Development Policy Financing with a Catastrophe Deferred Drawdown Option and Pandemic Emergency Financing Facility. These concrete technical engagements are built on previous GFDRR-supported analytical work.
- In **Malawi**, following the GFDRR-funded analytical work, GFDRR continues to provide technical inputs to help the government achieve the objectives of the Disaster Risk Management Development Policy Financing with a Catastrophe Deferred Drawdown Option project, as well as the IDA-funded Malawi Resilience and Disaster Risk Management project.
- In **Morocco**, GFDRR supported a building regulatory capacity assessment under the strong leadership of the government to identify gaps and opportunities to advance the safety and sustainability of the built environment through enhanced regulations and practices. The analysis was enriched by inputs from 100 representatives from more than 50 public and private organizations involved in the construction sector. The government is now in the process of designing an implementation framework to strategically initiate building regulatory reforms reflecting the systematically prioritized actions with key stakeholder groups with continued technical support financed by GFDRR.

Scaling Up the Resilience of Cities

In Focus Enhancing resilient mass transit systems in Indonesian cities

Few investments are as critical for the sustainability, prosperity, and livability of cities as mass transit. The cities of Indonesia, which have been transformed by rapid urbanization, are no exception. Yet in cities across the country, mass transit remains not only scarce and unreliable, but also vulnerable to the range of natural hazards all too frequent and common in Indonesia, especially floods, landslides, earthquakes, and volcanic eruptions.

Indonesian law has largely decentralized responsibility for the planning and design of mass transit systems to subnational authorities such as cities and districts, but these authorities generally lack the tools and technical capabilities needed to perform this function.

Under the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, GFDRR has supported Indonesian cities to enhance the development of resilient mass transit.

A key first step for developing resilient mass transit is to better understand the impacts of natural hazards and how these might be exacerbated by climate change. Accordingly, GFDRR supported a comprehensive framework that would help Indonesian cities analyze natural and climate-related hazards that might affect mass transit.

The framework features key steps for identifying hazards, assessing risk and vulnerability, and identifying and prioritizing appropriate mitigation measures and disaster preparedness practices. The framework draws on international good practices, including those recognized in the GFDRR-supported *Lifelines* report, while specifically tailoring the recommended measures and practices to the context of Indonesia. For instance, the framework provides guidance on how Indonesian cities can maximize disaster risk data from national and subnational agencies, including the Indonesian National Disaster Management Authority, in the process of hazard identification.

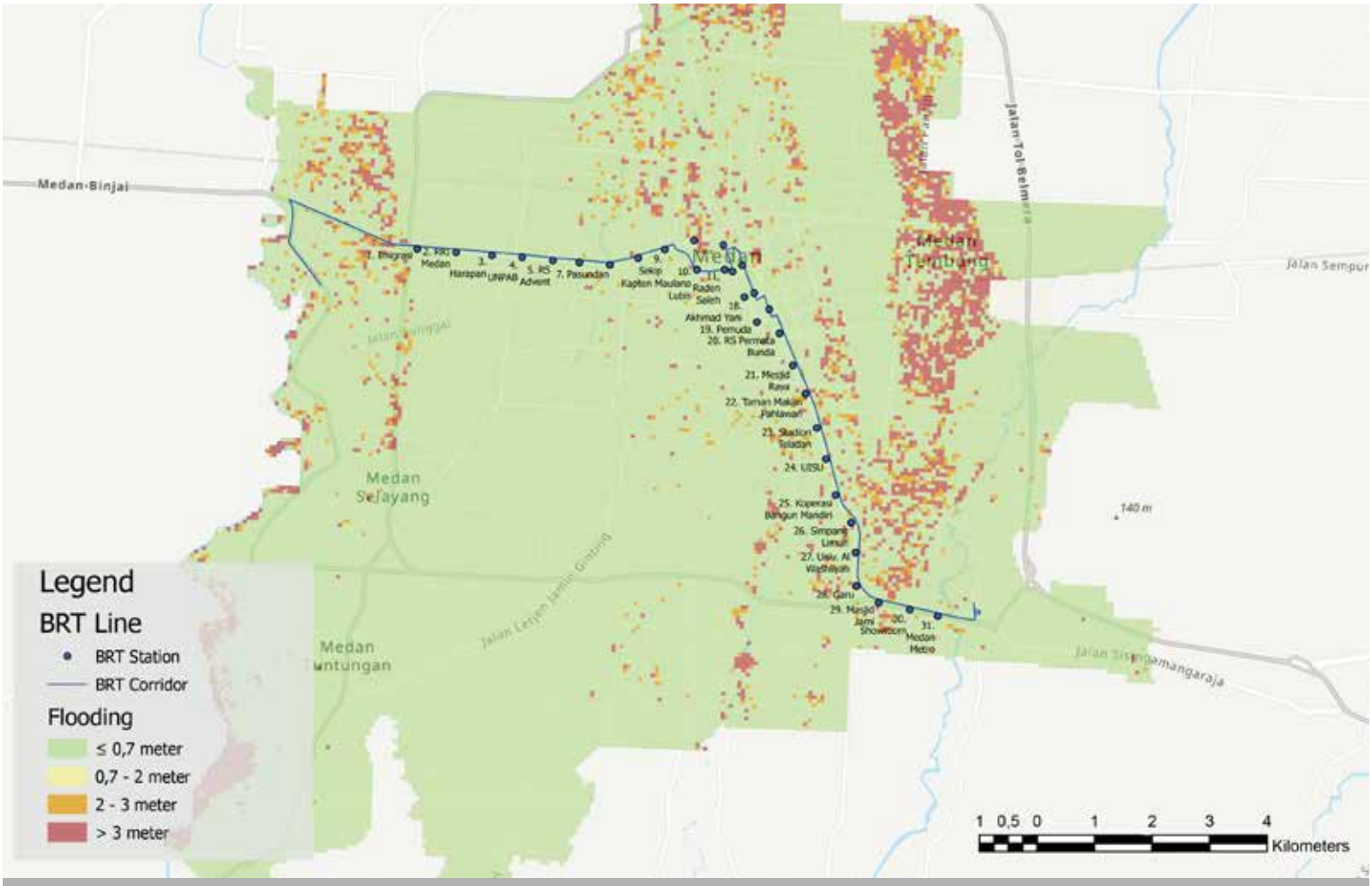
The technical team subsequently worked with provincial, city, and district authorities in two of Indonesia's metropolitan cities—Bandung Basin Metropolitan Area (BBMA) and Medan Metropolitan Area (Mebidang)—to pilot the use of the framework. Both pilot cities are at the planning stage in developing their respective mass transit systems, and so the team focused their analytical work on the planned modes in each metropolitan area, namely bus rapid transit and light rail transit in BBMA and bus rapid transit in Mebidang.

Informed by risk, hazard, and vulnerability assessments of the proposed systems, a key finding that emerged from the analytical work in the two cities is that, while mass transit routes are chosen to best serve passenger demand and spatial development, the associated facilities must be located strategically.

For example, in BBMA, it emerged that while the south side of the city might be an attractive location for a rolling stock depot for the proposed light rail system, this area is highly prone to flooding, so only specific sites within that area might be suitable for a depot. Depending on the depot's location, it may be necessary to plan for backup facilities where rolling stock can be stored if access to the depot is blocked by flooding.

Findings from the pilot assessments have been disseminated through a series of technical workshops conducted with national- and city-level officials.

Strikingly, while the work in BBMA benefitted significantly from previously collected data on risk, hazards, and vulnerability, the team in Mebidang performed significant data gathering of its own in order to conduct the assessment—a reminder of the importance of using current data to inform resilience building. Other cities in Indonesia expect to draw on these and other lessons in refining and implementing the analytical framework for resilient mass transit developed through this engagement. Both the national government and development partners—including the World Bank through its proposed $224 million, IBRD-financed, Indonesia Mass Transit Program Support Project—are also expected to draw on these lessons in their investments in resilient mass transit in cities across Indonesia.



Flood exposure map overlaid with proposed bus rapid transit system in Mebidang. Photo: World Bank. Prepared by Integrated Transport Planning Ltd and Universitas Indonesia.

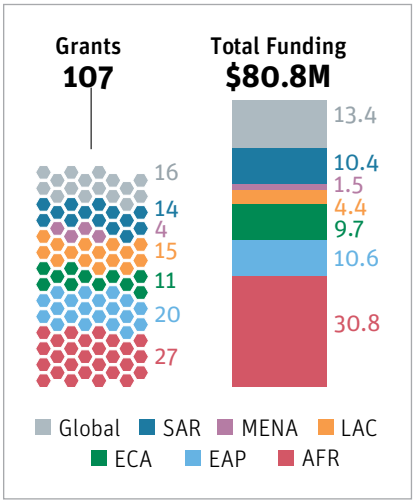
Lessons **Learned**

Notwithstanding best efforts to protect and safeguard vital infrastructure for the long haul, removing all risk is not possible. Drawing on risk, hazard, and vulnerability assessments, one of the key recommendations that came out of this engagement is that cities and metropolitan areas like BBMA and Mebidang must have robust business continuity plans that can prepare for the inevitable residual risk and keep mass transit functional in the event of a disaster or emergency.

"Urban transport infrastructure in Indonesia has not been designed to cope adequately with natural hazards. Future investments in this sector need to be planned and designed to better respond to disaster and climate-related shocks. The technical assistance supported by GFDRR has helped to advance our mass transit program, including preparation for national-level guidelines formulation to improve the design, construction, and operation of mass public transit systems in Indonesian cities."

—Dr. Ikhwan Hakim, Director of Transport, Ministry of National Development Planning, Republic of Indonesia

Strengthening Hydromet Services and Early Warning Systems



River flood alert network tower. Photo: © Michele Jackson | Dreamstime.com.

As climate change and other factors exacerbate damage, many countries are seeking more guidance, partnerships, and business models to help them provide better hydrometeorological (hydromet) and early warning systems (EWS) in response to compounding risks amid the lingering impacts of the pandemic. It is often the poor and the vulnerable who get hit the hardest, and in 2020 alone, natural hazards claimed 8,200 lives and brought about global losses of $210 billion.[17] In this context of compounding risks, GFDRR works with countries to improve their ability to understand, predict, and warn their citizens about hydromet hazards. The facility supports governments in strengthening their hydromet monitoring, forecasting, and EWS, including through the upgrade of technological systems that gather, analyze, and produce hydromet data and the provision of training on how best to share and use that knowledge for decision-making purposes.

World Bank funding that directly supports strengthening hydromet and EWS came to over $1 billion as of end of FY21, spread across more than 50 projects. Out of that amount, close to $18.5 million has been allocated by GFDRR as grants to support and improve the quality of World Bank's hydromet and EWS investments projects in client countries. In FY21, GFDRR's grants program continued to strongly support the modernization of hydromet and EWS. Six new grants totaling $3.22 million were added to the GFDRR portfolio, bringing the total number to 21 active grants.

Engagement Highlights

Analytics

In FY21, a series of GFDRR financed important technical notes on specific aspects of public and private engagement in hydromet services were published, including:

- Innovation in Public and Private Weather Services, which advocates for a lean, start-up approach to business development that values developing capabilities with minimal investments
- Open Data: A Path to Climate Resilience and Economic Development in South Asia?, which elaborates on the advantages of embracing national policies for the free and unrestricted use of hydromet data
- Public and Private Engagement in Hydromet Services: From Rivalry to Coproduction in Meteorological and Hydrological Service Delivery, which explores the conflicting roles of public and private sectors and suggests ways to turn rivalry into coproduction
- The Level Playing Field: Business of Weather, Water, and Climate Services, which emphasizes the significance of equal conditions for both public and private sectors
- Creating Value in the Global Weather Enterprise, which looks into the options of developing

[17] See the Munich Re Annual Report 2020, available at https://www.munichre.com/en/company/investors/reports-and-presentations/annual-report.html.

a weather market that could increase the creation of value in weather and climate information.

Partnerships and knowledge sharing

The World Bank works closely with the World Meteorological Organization and other partners such as the Alliance for Hydromet Development (the Alliance), a partnership that unites efforts to close the hydromet capacity gap by 2030. GFDRR has financed technical inputs to, and supported development of, the Alliance's Country Hydromet Diagnostics (CHD) tool aimed at evaluating National Meterological and Hydrological Services' (NMHSs') capacity and identifying areas of necessary support, based on defined maturity levels for each of the 10 critical elements of the hydromet value cycle. GFDRR also financed contributions to the development of the Alliance's first Hydromet Gap Report 2021, which summarized the results of CHD reports in eight least developed countries and small island developing states. Finally, GFDRR supported the technical design and analytical review of the Systematic Observations Financing Facility, a new financing mechanism that aims to support and accelerate the sustained collection and international exchange of the most essential surface-based weather and climate observations in compliance with internationally agreed requirements.

Other notable kinowledge-sharing activities were those in support of the Global Weather Enterprise Forum events, including webinars, online forums, roundtables, and podcasts. Over the past year, GFDRR supported 19 online events with some 50 speakers, almost 1,000 attendees, and more than 1,600 views and downloads of the pre-recorded events. For example, one roundtable provided an opportunity for women to share the way they perceive gender equality in their professional careers in water, weather, and climate services. Another webinar, attended by more than 200 people around the world, featured Dr. Florence Rabier, Director-General of the European Centre for Medium-Range Weather Forecasts, who shared her vision on the future development of global weather information. Online forums promoted findings of the GFDRR Power of Partnership report. The facility also supported the launch of The WeatherPod podcast series, moderated by Prof. Alan Thorpe and Dr. David Rogers, to explore the value of weather and climate information. The 11 episodes of the podcast covered the importance of public-private engagements in the delivery of hydromet services.

Strengthening hydromet and EWS

Due to pandemic travel restrictions, most activities for strengthening hydromet and EWS investments in client countries were virtual, including implementation support to technical assistance missions of World Bank operational teams in Eastern Europe, Caucasus, Central Asia, South Asia (**Bangladesh, Pakistan,** and **Sri Lanka**) and East Asia regions (**Indonesia** and the **Pacific Islands**). More attention was given to formulating and sharing good practices and knowledge, with NMHS and disaster risk management agencies in client countries, development partners, and World Bank teams.

Results in Numbers

Over the past year, GFDRR supported **19 online events** with some **50 speakers**, almost **1,000 attendees**, and more than **1,600 views and downloads** of the pre-recorded events.

The WeatherPod podcast series, moderated by Prof. Alan Thorpe and Dr. David Rogers.

Strengthening Hydromet Services and Early Warning Systems

In Focus Strengthening hydromet services in Bhutan

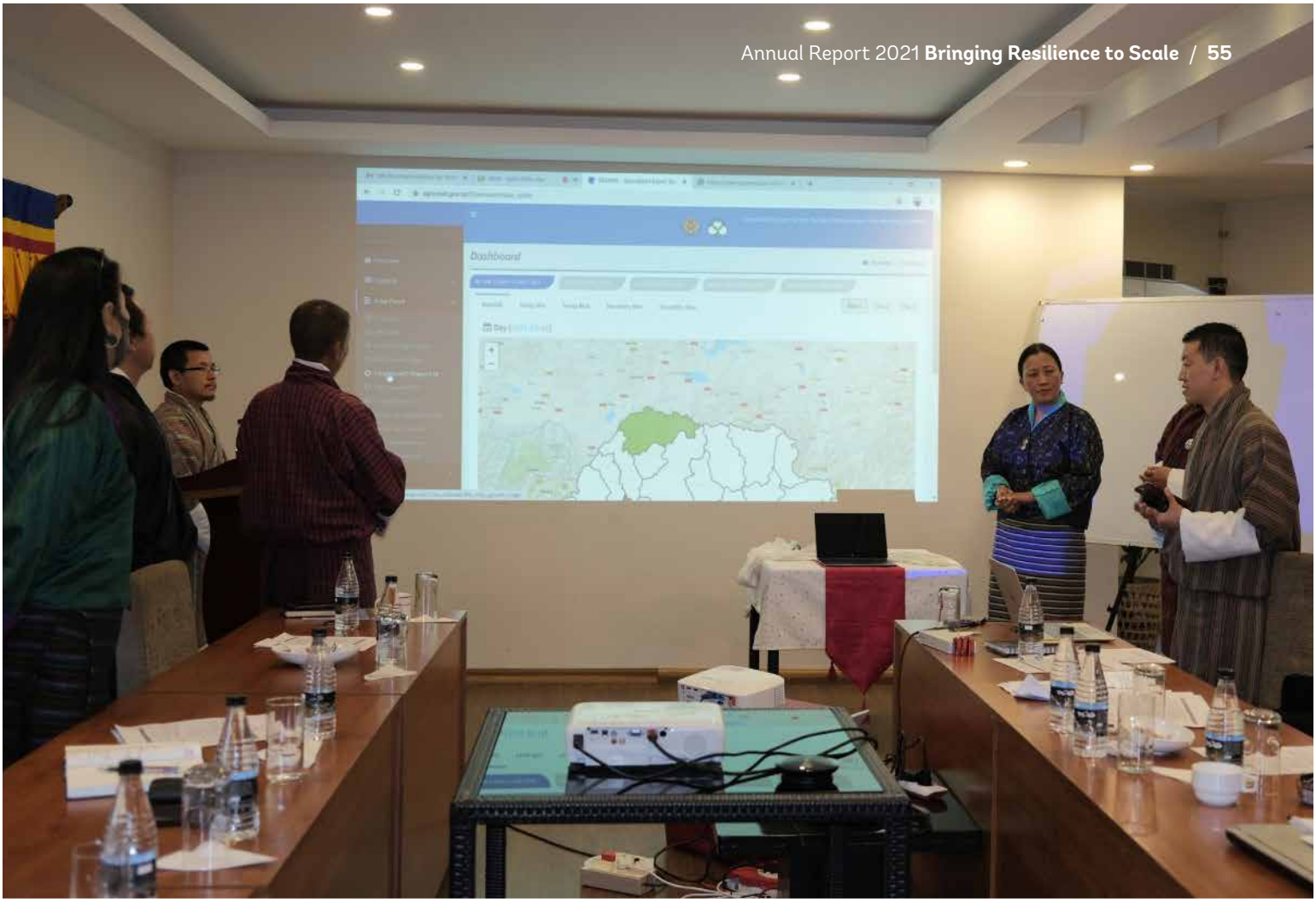
Against the backdrop of a changing climate, extreme weather is fast becoming the new normal in South Asia. The landlocked kingdom of Bhutan, which has seen severe flooding more frequently over the past decade, is no exception. Most recently, in June 2021, flash floods brought about by heavy monsoon rains claimed the lives of 10 people.

Determined to build a more resilient future, the Royal Government of Bhutan is making headway on strengthening its ability to deliver timely and accurate hydrological and meteorological (hydromet) services that can save lives and livelihoods in the aftermath of extreme weather events. With the support of the European Union and the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, GFDRR is playing a key role in driving that progress.

In line with a roadmap previously developed by the national government in collaboration with the World Bank, a top priority for the technical team has been to support ongoing efforts by the National Center for Hydrology and Meteorology (NCHM) to enhance weather forecasting services across the country. Partnering with the NCHM, the team has assisted in operationalizing the SMART-MET system, a highly advanced, state-of-the-art platform for weather forecasting and dissemination that has helped reduce the average preparation time for daily weather forecasts by half—down to two hours from the previous four required. NCHM officials have also observed improvement in the accuracy of weather forecasts. Moreover, the team has worked with the NCHM on installing an automatic weather observations system, a ceilometer, and a wind profiler, among other critical hydromet infrastructure, at Bhutan's sole international gateway Paro International Airport, one of the most dangerous airports in the world.

Recognizing the vulnerability of the country's predominantly rainfed agriculture sector to extreme weather, as demonstrated by the recent heavy flooding, a further priority for the team has been its continued support for the development of a targeted weather advisory service for farmers called the Agro-meteorological Decision Support System (ADSS). Designed to help farmers make farm-level decisions, the system, which is currently in its pilot phase, uses machine learning algorithms to generate specific crop advisories for various locations based on weather data from the NCHM. Housed in a dedicated web portal, ADSS also has a feedback system that will allow users to provide recommendations for improvement.

GFDRR's support for hydromet development in Bhutan is only one among a range of the facility's engagements in the country. In another example, a technical team has partnered with the Asian Disaster Preparedness Center on a deep dive assessment of the institutional landscape for disaster risk management in Bhutan, with the goal of informing national efforts to strengthen DRM. The facility also continues to promote knowledge sharing and policy dialogue about hydromet among Bhutan and its neighboring countries through the South Asia Hydromet Forum (SAHF). In addition to convening high-level representatives from relevant government agencies and development institutions, SAHF is developing a regional program of technical support and capacity building for improved hydromet and early warning services across the region.



Launch of the Agro-meteorological Decision Support System (ADSS). Photo: Ministry of Agriculture and Forests, Royal Government of Bhutan.

Lessons **Learned**

It is key for technical teams to understand the needs and challenges of client countries so that they can provide assistance in areas where they can add the most value. In the case of Bhutan, national authorities had already been making concerted investments in the development of hydromet services, with the assistance of development partners such as the World Bank. Drawing on consultations with key officials, the technical team thus designed its support so that it built on these investments in a way that was aligned with the long-term vision of relevant agencies such as the NCHM.

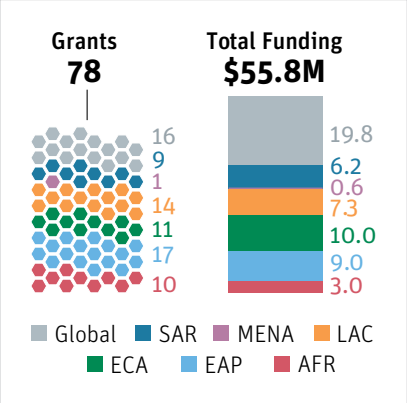
"The agro-meteorological services would help us to give proper information to farmers. So if we can provide accurate and timely weather information, it will especially help small farmers to produce and have secure food production."

—Kailash Pradhan, Specialist, Department of Agriculture, Royal Government of Bhutan

Results in Numbers

Average preparation time for daily weather forecasts has been cut in half, from four hours to two hours.

Deepening Financial Protection



Financial losses because of disasters continue to rise each year, threatening to undo hard-won development gains. National disaster risk financing (DRF) strategies aim to increase the availability of funding for post-disaster recovery needs and, if well designed, can provide much-needed liquidity to deal with disaster response and protect the livelihoods of the affected population. To generate the full potential of benefits for governments and people, arranging DRF instruments and developing strategies to implement them requires careful attention.

GFDRR continues to facilitate dialogue about prearranging financial solutions and making available funds and expertise to support countries as they navigate the global risk financing space. In collaboration with the World Bank's Disaster Risk Financing and Insurance Program (DRFIP), the facility assists low- and middle-income countries to develop and implement tailored financial solutions as part of their wider disaster risk management framework. At the same time, GFDRR builds awareness and capacity for fiscal planning,

Dakar, Senegal. © Giuliano2022 | Dreamstime.com.

management, and implementation at regional, national, and subnational levels.

Engagement Highlights

- In December, the European Union–World Bank/GFDRR Global Partnership on Disaster Risk Financing Analytics completed its activities after five years of implementation. During the first half of FY21, significant progress was made in fully testing, validating, and deploying the online version of the previously developed core analytics tools. Dissemination of these tools will continue through national and regional training sessions even after the closure of the program. The training sessions began with a **Senegal**-specific event in December 2020. The team also finalized an advanced draft of an operational guide for implementing a theoretical monitoring and evaluation framework that should be used alongside the analytics tools.
- The Caribbean DRF technical assistance program supports Caribbean countries, EU overseas territories, and regional institutions in strengthening financial resilience to natural hazards. At the regional level, this project is enhancing policy dialogue and strengthening partnerships. A pilot disaster risk quantification and DRF professional post-graduate qualification course has been developed and is being implemented with the University of the West Indies. At the country level, GFDRR supported an implementation of an innovative stress test in **Barbados** for the Barbados Financial Services Commission on the resilience of the domestic non-life insurance industry. In **St. Lucia**, new techniques in disaster risk

quantification for both structural and social vulnerabilities supported the analysis of data, which formed the core part of the adaptive social protection and DRF activities of the government. In **Dominica**, innovations to capturing both physical resilience (building an e-permit system) and financial resilience that reinforce each other were made under the Physical and Financial Resilience Building Technical Assistance, which aims to enhance the implementation of the country's updated building code. In the **Bahamas**, GFDRR supported the government in tracking post-disaster and climate expenditures. A disaster budget tagging methodology was thus developed for identifying and managing climate change mitigation and adaptation as well as DRM activities. This new methodology helps the government to identify climate- and disaster risk–related expenditure, and therefore supports a better targeting of future budgeting, reporting, validation, and evaluation mechanisms.Through technical assistance provided by the Japan–World Bank Program on Mainstreaming Disaster Risk Management in Developing Countries, DRFIP produced a report titled *Financial Protection of Critical Infrastructure Services* that contributed to the Asia-Pacific Economic Cooperation (APEC) Working Group on Disaster Risk Financing and Insurance. Additionally, a pilot study titled Analytics for Financial Risk Management of Critical Infrastructure in South East Asia: Scoping & Feasibility Study was conducted to identify and pilot methodologies, resources, and platforms to explore tools and approaches of enhancing the assessment of risks and criticality of infrastructure, based on the use of open data and advanced analytics. The analysis aims to advise how to identify financing gaps and potential short-, medium-, and long-term objectives, and is expected to be scaled up regionally or internationally in the next phase.

- GFDRR support is also being provided to strengthen resilience of World Bank–financed infrastructure investment projects by integrating DRF solutions. For example, in **the Lao People's Democratic Republic**, the World Bank is supporting the Department of Roads to conduct a criticality analysis of the transport network in order to explore options to strengthen the resilience of road infrastructure through operational and risk financing approaches.

Roseau city port, Dominica. © Studiobarcelona | Dreamstime.com.

Deepening Financial Protection

In Focus Enabling data-driven analytics for disaster risk finance strategies

In the face of a debilitating disaster, countries have far too often diverted vital resources from essential development needs or turned to external aid donors to help pay for recovery and reconstruction. As climate change threatens to increase the frequency and intensity of disasters everywhere, there is growing recognition that such ad hoc financing measures will be difficult to sustain over the long haul.

Against this backdrop, GFDRR has played a key role in enabling the development of analytical tools that help governments design disaster risk financing (DRF) strategies. These strategies can ensure that, when disaster strikes, governments will have the dedicated resources they need to recover and rebuild without delay. This effort has been undertaken with the support of the European Union and under the technical leadership of the Disaster Risk Financing and Insurance Program (DRFIP), a joint initiative of GFDRR and the World Bank.

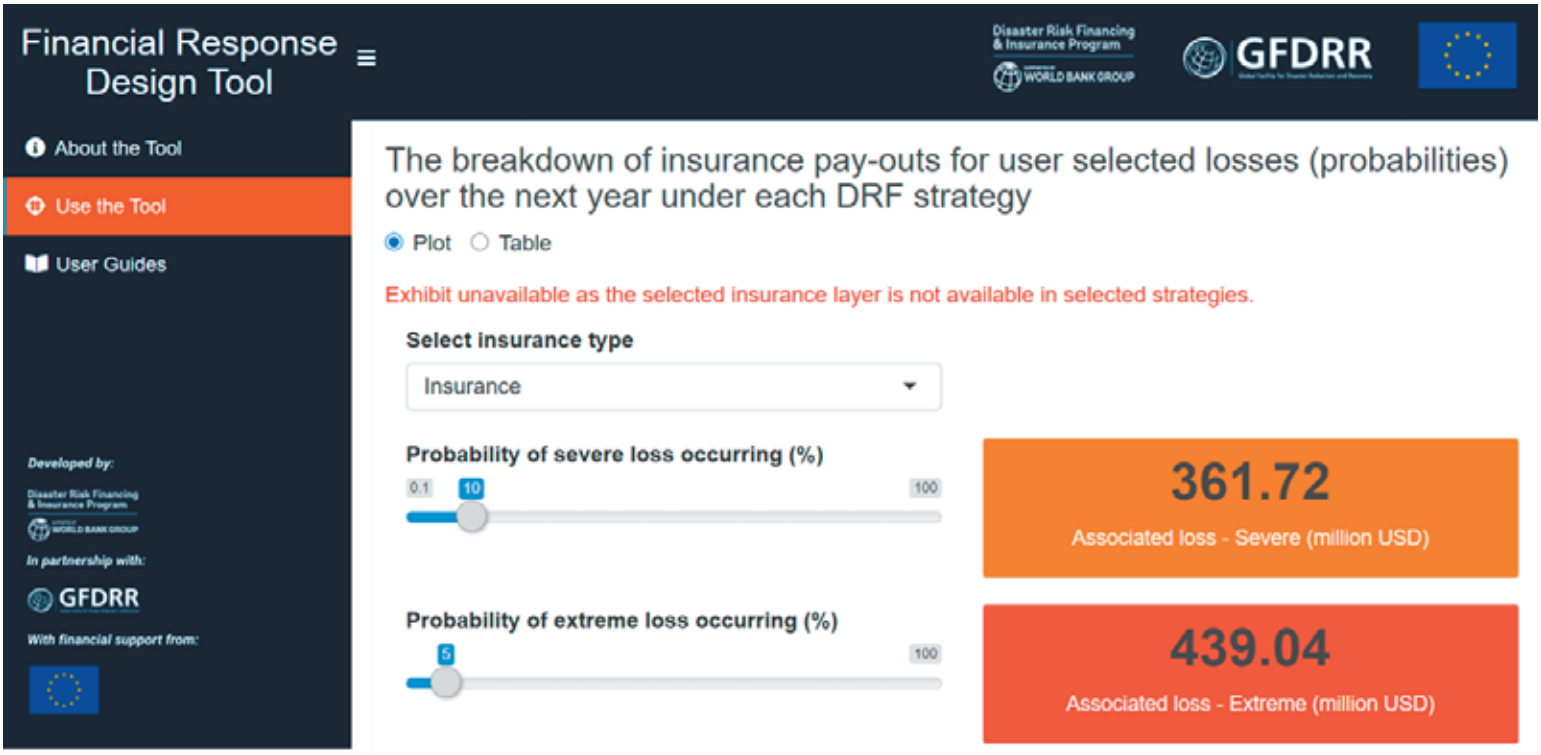
In developing a DRF strategy, it is critical for governments to have a fuller picture of the likely financial impacts associated with their country's disaster risk profile. Accordingly, one of the first analytical tools developed by the technical team is the Financial Risk Assessment Tool. Drawing on historical disaster loss data, the tool uses probabilistic risk assessment to estimate the likely financing needs for future disasters, including the estimated financing gap based on projected available funding. Another key feature of the tool is that it enables governments to understand the uncertainty and variability of the historical disaster loss data, so they can make an informed assessment about how much weight should be given to the estimates generated by the same tool.

Now more than ever, governments have a wide array of DRF instruments to consider, including contingent credit lines and catastrophic insurance. Under another analytical tool developed by the technical team, called the Financial Response Design Tool, governments are able to compare the estimated funding gap under various DRF instruments. An additional significant feature of this tool is that it also provides key insights for governments into what might be the most financially efficient mix of these instruments, based in part on how losses of different severity might be financed under each DRF instrument.

Even at this early stage of disseminating the tools, over a dozen countries have engaged with the technical team to put those tools to use toward the development of their respective DRF strategies. For example, the government of Kenya has used the Financial Response Design Tool and subsequently determined that a DRF strategy that uses a combination of instruments would likely generate significant savings compared with a plan that uses only one instrument. On that basis, Kenya has pursued a comprehensive, layered DRF strategy that combines both credit and insurance instruments. The government of Morocco's similarly comprehensive DRF strategy has also been informed by its use of the Financial Response Design Tool.

Where appropriate, the technical team has worked closely with governments to further customize the tools to meet their specific needs. For instance, in the absence of historical disaster loss data beyond reported years, in Senegal, the team built a modified Financial Risk Assessment Tool that used satellite-based soil moisture and rainfall data to estimate likely financing needs following a future drought. The government of Senegal's use of that modified tool has since informed its design of a scalable social safety net program against drought risk.

Looking ahead, a primary focus for this team will be the dissemination of these tools even further through a series of both regional and country-level training sessions. A regional training session has been organized for Central Asia, while a country-level training session has already been held for Senegal. These efforts complement the recent production of a comprehensive user guide that distills vital insights from the training sessions.



Screenshot of the Financial Response Design Tool. Photo: World Bank.

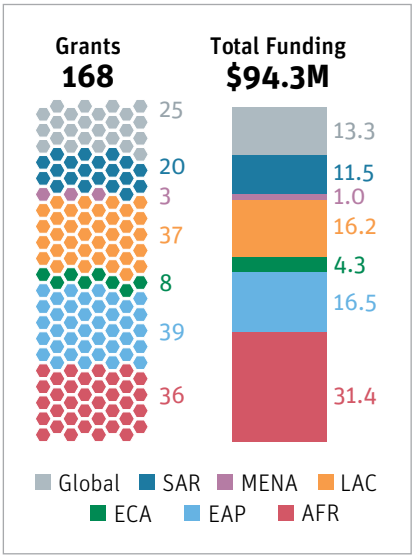
Lessons **Learned**

It was critical for the technical team to have the ability to customize the analytical tools to meet governments' specific needs when it comes to developing a DRF strategy. For instance, the government of Senegal's design of a scalable social safety net against drought risk was supported by the team's customization of the Financial Risk Assessment Tool to enable the use of satellite-based moisture and rainfall data to estimate the severity of previous drought events.

"Because one cannot manage what one cannot quantify, [. . .] the tools developed by the Disaster Risk Finance team, GFDRR, and with support from the European Union have been an important contribution to our project. The first tool allows us to determine maximum probable loss scenarios. This helps dimension and structure our financial protection scheme, with information on how it should be implemented and what level of financing is required. The second tool informed on the optimal product design to respond to those levels of financial losses we are facing."

—**Abderrahim Chaffai,** Director of Morocco's Solidarity Fund against Catastrophe Events (in French, Fonds de Solidarité Contre les Evénements Catastrophiques)

Building Resilience at the Community Level



Soweto, South Africa. © Michael Turner | Dreamstime.com.

The impacts of disasters do not affect all people equally. The vulnerability and risk of exposure to disasters often disproportionately affects groups such as women, girls, persons with disabilities, ethnic and racial minorities, indigenous peoples, youth, and other marginalized communities. Physical hazards, coupled with existing social, economic, and political structures and realities, determine the resilience and preparedness of marginalized communities. Inclusive disaster risk management (DRM) aims to address the heightened vulnerability of different social groups—including men, women, girls, and boys—encapsulating various approaches to DRM to ensure that those who are disadvantaged in the context of disasters are considered and prioritized in DRM activities. Furthermore, inclusive DRM aims to empower and expand opportunities, abilities, and dignity among marginalized communities for sustainable and inclusive development so that no one is left behind. Some programs in GFDRR are specifically geared toward gender-responsive disaster risk management: an example is the Canada-Caribbean Resilience Facility, which funded a review that evaluated gender-responsive disaster preparedness and recovery efforts in nine countries in the Caribbean.

Aligned with international commitments such as the Sendai Framework for Disaster Risk Reduction, GFDRR's work on inclusive DRM over the last six years, particularly on gender equality and community resilience, is now being streamlined and expanded to become the Inclusive DRM and Gender Equality cross-cutting priority area. As reflected in the GFDRR strategy (2021–25), this cross-cutting priority area consolidates and fills gaps within existing programs and scales up the facility's efforts to promote inclusion across broader policy and institutional actions at the national, subnational, and community levels.

The Inclusive DRM and Gender Equality cross-cutting priority area focuses on community engagement and citizen participation, gender equality, and disability inclusion, and other areas such as considerations for older persons and youth, while developing and deepening the understanding of intersectionality and marginalization in relation to disaster impacts across multiple communities.

Building on previous work, GFDRR has undertaken a rapid stocktaking exercise to consolidate lessons learned and identify opportunities for further incorporating inclusion in World Bank operations. This was achieved by analyzing GFDRR's grant portfolio data between 2016 and 2020, examining key literature and documents on approaches to inclusive DRM, and conducting consultations with World Bank project teams. This analysis will help GFDRR refine its knowledge and learning programs, results monitoring, and technical assistance to support the operationalization of inclusive approaches to DRM. Since FY16, GFDRR has committed approximately $260 million in funding for inclusive DRM and gender equality activities, forming a portfolio where two-thirds of the grants now have inclusion elements.

Building Resilience at the Community Level

Engagement Highlights

In the last fiscal year, GFDRR supported several projects that incorporated inclusive approaches to DRM both globally and across regions and sectors. The list below highlights some of the technical support, advisory services, and grants that have promoted and supported inclusive DRM and gender equality.

- In **Ghana**, GFDRR has supported the formulation of a gender action plan and approach to address gender-based violence in the context of the Greater Accra Resilient and Integrated Project and urban flood prevention. To support gender actions and gender analysis in investment planning for flood mitigation, consultations were conducted with representatives from ministries, municipal assemblies, civil society, universities, and other partners to better understand concerns related to social and environmental impacts and community preferences. Additionally, dedicated consultations were conducted in low-income communities affected by floods to identify potential measures to strengthen resilience.
- GFDRR's funding has contributed to strengthening the implementation of the gender equality agenda for DRM in Central America through comprehensive work and technical guidance for national, regional, and community-based organizations. Technical notes have been produced for social inclusion aspects of DRM in the COVID-19 context, capturing the challenges and complex realities of persons with disabilities and the rights of indigenous peoples and Afro-descendants. The analysis, which helped raise awareness, also aimed to investigate community-level experiences driven by women and understand their level of participation in the implementation of local DRM programs and autonomous initiatives supported by nongovernmental organizations or other groups. In addition, gap analysis focusing on assessing the capacity of DRM institutions to integrate gender considerations was conducted. The results have been used to inform lending operations such as development policy loans with Catastrophe Deferred Drawdown Options (Cat DDOs) in **Honduras** and **Panama**. The findings from the analysis have also been used to update national disaster management plans and legislations in the same two countries.
- In **Peru**, technical support from GFDRR to strengthen government capacity along the disaster risk management cycle gained added significance and value during the COVID-19 pandemic. Funds and expertise were provided to support the adaptation of existing social protection programs—such as conditional cash transfers and early childhood development programs—to rapidly respond to the needs of the poor and of emerging vulnerable groups. The facility will continue to provide support for a social registry that will help identify nontraditional beneficiaries such as informal workers to enable them to receive social protection.
- In **Haiti**, the evaluation of an emergency cash transfer and on-demand registration as part of the COVID-19 emergency response has shed light on the importance of having flexible systems and different options for cash distributions, including mobile money. So far, data collection has been carried out to evaluate the cash transfer program and the effectiveness of social and behavioral change communication activities to reduce the socioeconomic impact of the pandemic. The lessons learned from this process have been incorporated in the measurement and evaluation framework for the World Bank's Adaptive Social Protection for Increased Resilience Project, emphasizing the need for remote data collection tools and coordination across stakeholders in the field for diverse representation.
- Recognizing that community engagement is a cornerstone of inclusive DRM efforts, advisory services and analytics have been developed for the East Asia and Pacific (EAP) region to support community-based disaster and climate risk reduction actions. The work includes the development of a proposed three-year action plan that encompasses identifying regional challenges and opportunities as well as consultations with stakeholders to secure support for the activities. In addition, the work will help to scope opportunities to increase EAP climate adaptation co-benefits in community resilience projects and promote visibility for why community resilience matters.

Building Resilience at the Community Level

In Focus Advancing inclusive, community-driven disaster risk management in Tajikistan

Due in no small part to its rugged and mountainous terrain, Tajikistan has long faced its fair share of natural hazards, including floods, avalanches, and landslides. Since 1992, disasters in the Central Asian country have caused economic losses exceeding $1.8 billion and affected almost 7 million people. Tajikistan also faces risks of fragility, conflict, and violence (FCV), which often overlap and exacerbate the risks and socioeconomic impacts of disasters.

As Tajikistan strives to build a more resilient future, it is determined to put local communities front and center in that effort. In that spirit, the government of Tajikistan has drawn on the support of GFDRR and the World Bank to advance inclusive, community-driven disaster risk management (DRM) across the country.

A major focus for this partnership has been to better understand the challenges and opportunities in Tajikistan's community-driven DRM efforts from the perspective of community members, with an eye to strengthening those efforts for the long haul.

In collaboration with Tajikistan's Committee of Emergency Situations and Civil Defense and the National Social Investment Fund of Tajikistan (NSIFT), a technical team conducted a survey of DRM challenges and opportunities with 80 households in seven districts, as well as focus groups in four districts. A key finding from the survey is that, despite the development of village-level DRM plans by many local authorities, much work remains to be done to engage community members in those efforts. The survey found that only 13 percent of households stated that they had been asked to participate in the development of a village-level DRM plan. Among that 13 percent, however, more than two-thirds said they were involved in preparation of such a plan, which augurs well for the level of interest among community members to play their part in resilience building.

Survey findings indicate that gaps in DRM training and capacity-building for community members may help explain the lack of engagement among some community members. While such efforts are a pillar of Tajikistan's national DRM strategy, one in two households surveyed had yet to receive DRM training.

Accordingly, another major focus for this engagement has been to support the government of Tajikistan, mainly through NSIFT, and development partners in strengthening and scaling up their DRM training efforts with community members. The technical team worked with NSIFT community mobilization specialists to produce a comprehensive, step-by-step guide manual for DRM trainers that has been tailored to the local context. In addition to covering fundamental DRM material such as risk assessment and hazard assessment, the manual also provides practical guidance for how to effectively facilitate meetings, workshops, and focus group discussions as part of the training.

Gender and social inclusion have been strongly emphasized in every facet of this engagement, in line with the government of Tajikistan's commitment to leave no one behind in resilience building. For starters, the manual features key considerations for conducting inclusive training in DRM, including how to ensure the meaningful participation of women, the elderly, persons with disabilities, and other traditionally marginalized groups. The survey, meanwhile, took a deep dive into gender inequities around DRM at the community level. It found that the overwhelming majority of respondents believed that there was a need for knowledge and information about DRM and climate resilience tailored to the needs of female community members.

Efforts under this engagement continue to inform the World Bank's $37 million, IDA-funded Socio-Economic Resilience Strengthening Project (SERSP). For example, the manual for DRM trainers has been incorporated into the operations manual for this project. SERSP uses a community-driven approach to improve access to vital infrastructure and services in rural communities vulnerable to disaster and FCV risks in seven districts of Tajikistan bordering Afghanistan. In part to inform this project, GFDRR is supporting a technical team on a survey of targeted households designed to glean insights into the links between FCV, disaster, and climate risks.

Community members engaged in a resilience-building effort in Tajikistan. Photo: CARITAS Switzerland.

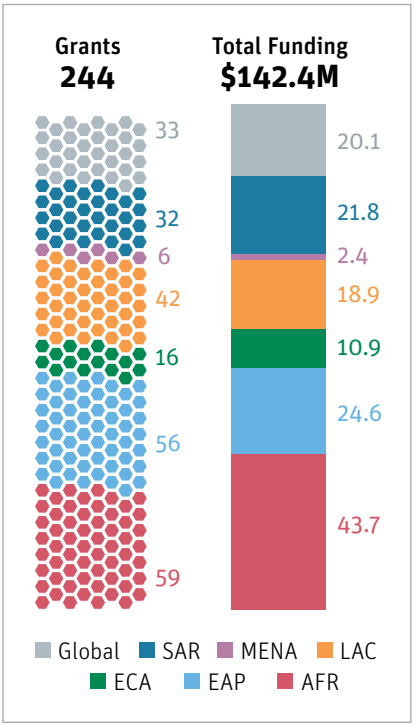
Lessons **Learned**

Communities require sustained support to effectively prepare for and respond to disasters, particularly when risks of social exclusion and fragility, conflict, and violence are present. Providing such sustained support is often a challenge for governments because of a lack of resources and skilled staff. Informal community-based organizations, such as civil society groups and neighborhood councils, called *mahalla* committees in Tajikistan, can play a critical role in supporting resilience building. In this engagement, the technical team worked closely with a nongovernmental organization, CARITAS Switzerland, which had an extensive local network and infrastructure to conduct the survey and focus groups.

Results in Numbers

80 households in **7 districts** were surveyed on DRM challenges and opportunities at the community level.

Deepening Engagement in Resilience to Climate Change



To date, regardless of how successful we become at limiting global warming, our society is already facing significant impacts from climate change. In 2020 that included $210 billion in global losses and more than 8,000 lives lost due to natural hazards (estimations by Munich Re 2021).[18] Once again, the latest data show that the changes affecting our planet are unprecedented in recent history and will affect every region of the globe.[19] Climate change is not only affecting the intensity and frequency of hazards but is also eroding already-vulnerable livelihoods and ecosystems, acting as an aggravator of existing vulnerability and contributing to chronic poverty and conflict, especially in low- and middle-income countries.[20]

Nha Trang, Vietnam. © Sergey Ponomarev | Dreamstime.com.

GFDRR supports countries as they prepare for and adapt to climate change by, for example, facilitating better identification and understanding of current and future risks, promoting innovative risk reduction options, and developing resilience metrics that help assess and measure the impact of policy and investment decisions. Nature-based solutions (NBS) are growing among the types of interventions GFDRR supports to manage climate and disaster risk. In all these engagements, GFDRR drives a much larger impact than its resources can generate directly, by capitalizing on its global expertise and mobilizing development financing through the World Bank Group and its partners.

Engagement Highlights

Integrating climate and disaster risk considerations in development financing

GFDRR continues to finance analytics, technical advice, and capacity building for governments to integrate climate risk into its investment projects and policy reforms. Ninety-six percent of GFDRR grants in FY21 relate to climate risk.

In **Vietnam**, GFDRR is supporting the government's effort to develop climate-smart coastal areas by integrating disaster and climate risk considerations into relevant policies, plans, and investments. As part of this engagement, two key studies providing guidance and recommendations for implementing coastal setback lines or buffers have been completed; these studies will provide the impetus for a new overarching framework that is built around a spatial analysis.

In the Pacific, the facility is financing support to deepen the governments' understanding of social resilience to climate change at the community level in Pacific Island States. Drawing directly on experiences of households from **Papua New Guinea** and **Solomon Islands**, the research findings will assist in the implementation of World Bank–financed projects to improve rural and urban infrastructure and inform the strategies and design of community-based interventions—both those implemented by the World Bank and others—across the Pacific region.

[18] Munich Re. 2021. "Record Hurricane Season and Major Wildfires – The Natural Disaster Figures for 2020." January 7, 2021. https://www.munichre.com/en/company/media-relations/media-information-and-corporate-news/media-information/2021/2020-natural-disasters-balance.html
[19] IPCC (Intergovernmental Panel on Climate Change). *Working Group I Contribution to the Sixth Assessment Report.* https://www.ipcc.ch/assessment-report/ar6/.
[20] iDMC (Internal Displacement Monitoring Centre). 2021. *Global Report on Internal Displacement 2021.* https://www.internal-displacement.org/global-report/grid2021/.

Supporting a wider range of vulnerable sectors

GFDRR is supporting climate resilience at all levels—from communities and cities to countries and regions—as well as financing activities that attempt to integrate climate risk management into a variety of development sectors including transport, water, energy, and governance, among others.

In **Ethiopia**, GFDRR is supporting selected urban utilities, including water and sewerage authorities in the cities of Addis Ababa and Jigjiga, to mainstream resilience into service planning, design, operation, and maintenance and to invest in the climate-smart and resilient utilities of the future. An important aspect of this engagement centers around confronting climate uncertainty in water resources planning and project design. Already, the completed assessments have led to the identification of preliminary actions to reduce non-revenue water (water that is pumped and then lost or unaccounted for) in Addis Ababa and Jigjiga that considers future water needs.

In **Pakistan**, GFDRR-financed support is provided to the government in Sindh province to develop a comprehensive and water resource management system equipped to deal with the increasing frequency of floods, droughts, and water scarcity caused by extreme weather, population growth, and economic development. This includes advisory support for the design of a hydro and agro informatics program, which will help to enhance flood and drought monitoring in the province.

Influencing World Bank engagement

GFDRR strategically focuses its grant funding in areas where there is a high likelihood of mobilizing additional resources for scaling up disaster and climate-resilience through development financing and thereby increasing its impact. In FY21, GFDRR's total funding, including those for climate resilience, mobilized nearly $7.2 billion in additional financing—a 7.5 percent increase over FY20.

In **Cambodia**, GFDRR is supporting the preparation and implementation of the Cambodia Road Connectivity Improvement project through the provision of key strategic and technical inputs that integrate disaster and climate resilience into the life cycle of the targeted rural road infrastructure. As part of this support, geospatial analysis and modeling covering the entire country has been completed. This will provide critical inputs for further analyses of network-level criticality, including accessibility and logistic impact as well as the climate vulnerability of roads.

In **Fiji**, GFDRR financed technical support to the government to support the revision of the National Disaster Management Bill and Plan with the aim of strengthening its disaster preparedness and response to enhance climate resilience. Fiji then used some of the policy improvements it had made as the basis to access a contingent line of financing (Catastrophe Deferred Drawdown Option or Cat-DDO) that was approved by the World Bank's Board of Directors in March 2021. GFDRR also supported a rapid assessment of damage and loss that enabled the country to access funds from the Crises Response Window to recover from the impacts of tropical cyclone Yasa.

Scaling up nature-based solutions

NBS have been gaining attention in the fight against climate change. These solutions have been positioned in global dialogues as a key component to rebuilding economies and creating jobs as part of a COVID-19 green recovery while also accelerating the transition to climate-resilient, low-carbon societies. Since 2018, the World Bank has increased its active NBS for disaster risk management (DRM) investment portfolio by 20 percent, committing almost $2 billion for project components integrating NBS for DRM. The World Bank now includes NBS as an important tool for achieving its Climate Change Action Plan (2021–2025), and IDA replenishment will aim to scale up support for NBS investments.

GFDRR plays an instrumental role in financing analytical, operational, and technical assistance support to enable and facilitate the conceptualization, design, and implementation of NBS for climate resilience in projects with World Bank financing across regions.

Some highlights of this work in FY21 include:

- In **Sierra Leone**, GFDRR is supporting a large-scale initiative to transform climate risk into resilience through community-based urban reforestation in the city of Freetown. The initiative has already created 550 jobs, supporting COVID-19 recovery, and is using disruptive digital technologies to track trees planted.
- In **Bolivia,** GFDRR is supporting the mainstreaming of resilience in the provision of water and sanitation services, with a focus on designing more resilient infrastructure and broader planning processes that include NBS; this will inform two investments with a combined total commitment of $210 million.
- In **Burkina Faso**, GFDRR also supported a technical assistance that provided preparation for flood-resilient mass transit planning investments in Ouagadougou and, through a multi-criteria analysis, determined NBS and hybrid solutions as priority measures.

Deepening Engagement in Resilience to Climate Change

In Focus Enabling resilient coastal zone management in Vietnam

As climate change amplifies the frequency and intensity of natural hazards, countries with mature coastal zone management systems are increasingly using coastal setback lines as part of an effort to ensure the sustainable and resilient development of coastal areas. Regarded as a low-cost coastal protection measure when compared with hard infrastructure such as seawalls and dikes, coastal setback lines are buffers along the coastal zone where certain types of development are prohibited in order to mitigate climate and disaster risks.

With the support of GFDRR and in partnership with the World Bank and the government of Australia, the government of Vietnam is moving forward with its own plans to establish coastal setback lines as part of its ambitious coastal zone management strategy. Vietnam has more than 3,200 kilometers of shoreline, and the national government considers its coastal zone management strategy to be a key part of the country's adaptation commitments in its nationally determined contributions (NDCs) to addressing climate change.

A technical team has been working closely with a range of partners, including the Vietnam Institute for Seas and Islands, to develop practical guidance that can inform the ongoing determination of coastal setback lines. The process is being led by provincial authorities with technical assistance from the national government. The guidance, which has recently been completed, covers a range of technical areas critical to that determination, including the initial identification of areas to be protected by coastal setback lines and the calculation of the width of those areas.

One of the key considerations highlighted in the guidance is the need to more clearly define the specific boundaries of ecosystems that must be protected by the coastal setback lines. The guidance points out that ongoing efforts to determine coastal setback lines have yet to fully utilize the Forestry Sector Management Information System, which is the Ministry of Agriculture and Rural Development's management information system for forest resources. The guidance also emphasized the importance of differentiating between short-term and long-term trends in shoreline changes.

A further key consideration highlighted is the importance of public consultation and engagement, particularly in the context of ensuring local people's right of access to the sea. The guidance shares several possible strategies, such as community-based social marketing, as well as education and awareness programs. The guidance also emphasizes the need to document and map areas in coastal zones where conflicts in resource use and access might exist.

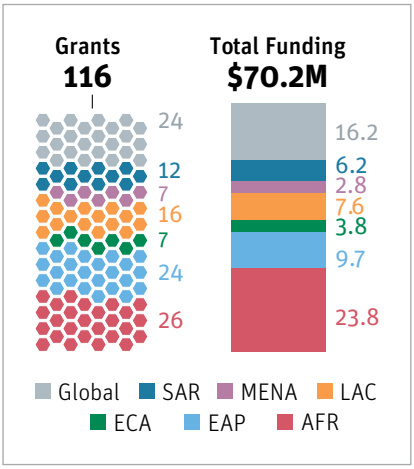
These latest efforts build on GFDRR's longstanding support for coastal resilience with the government of Vietnam, in partnership with the World Bank. For instance, technical work has also been completed on the valuation of coastal assets—an effort that is also expected to inform the determination of coastal setback lines. Previously, a technical team worked closely with their Vietnamese counterparts on the 2020 *Resilient Shores* report, which reviewed and assessed current efforts in coastal zone management and proposed a concrete action plan going forward. Looking ahead, GFDRR and the World Bank will continue to support the Vietnamese government's endeavors to more sustainably allocate the spatial distribution of coastal and marine activities by using marine spatial planning, work that will be shaped by the ongoing determination of coastal setback lines.

Coastal erosion and forest destruction along the Mekong Delta coast. Photo: World Bank.

Lessons **Learned**

In keeping with the facility's commitment to open access to risk information, it is important to gather and manage risk data in a way that makes it usable and accessible. As the guidance highlighted, one roadblock to determining coastal setback lines in Vietnam is that underlying spatial data for the Ministry of Agriculture and Rural Development's management information system for forest resources have sometimes been difficult to obtain.

Enabling Resilient Recovery



In FY21, GFDRR was at the forefront of global efforts to ensure more resilient recovery in the aftermath of a disaster or an emergency. Working closely with national government counterparts, international partners, and World Bank task teams, the facility's priorities included (1) enabling more effective and informed recovery, (2) ensuring rapid access to recovery financing, and (3) generating and sharing knowledge. The emphasis on resilient recovery follows GFDRR's work in FY20, where the facility worked closely with partners to adapt existing engagements to help countries manage the COVID-19 pandemic.

Engagement Highlights

Enabling more effective and informed recovery

In nearly a dozen countries across the globe, in FY21, the facility provided demand-driven technical and financial support toward rapid post-disaster needs and damage assessments; these assessments have subsequently informed recovery and resilience-building efforts by national governments and their development partners. For example, in Cambodia, a Just-in-Time grant helped the government of **Cambodia** to conduct a rapid post-disaster damage assessment following widespread flooding across 20 of the country's 25 provinces in September to November 2020. A key finding from the assessment is that there is a need to clarify roles and responsibilities among national government entities when it comes to recovery and reconstruction planning. The assessment has led to an investment project to support climate-resilient reconstruction of vulnerable rural roads and bridges in target areas and strengthen institutional disaster risk management (DRM) processes. The project also incorporates the operationalization of institutional arrangements for emergency preparedness and response as part of its design.

Cambodia. © Li Nan.

And in the wake of catastrophic flooding in **South Sudan** in October 2020, GFDRR financed a remote flood damage needs assessment. This assessment captured damage to physical assets and infrastructure, as well as the consequences of the floods on people's lives and livelihoods. This was the first ever comprehensive, countrywide flood damage and needs assessment in the country, employing innovative technology. Drawing on the best available geospatial data and employing remote sensing techniques, the assessment focused on four thematic areas: (1) infrastructure; (2) settlement, housing, and displacement; (3) agriculture, nutrition, and livelihoods; and (4) health and education. The disaggregation of damage down to the county level has proved critical to national efforts to identify flood hotspots and inform the prioritization and programming of physical investments and flood preparedness activities over the longer term. The assessment has also informed the design of the $45 million, IDA-funded South Sudan Enhancing Community Resilience and Local Governance Project.

In **Timor-Leste**, GFDRR financed a remote impact assessment after Tropical Cyclone Seroja in April 2021 triggered flash floods and landslides that affected all municipalities, resulting in at least 41 fatalities and damaging roads, bridges, and health facilities. The disaster affected almost 30,000 households, 90 percent of which were in Dili municipality; the increasing local COVID-19 transmissions and damaged health facilities put additional pressure on the emergency response. The assessment combined recommendations for the government's post-disaster recovery program and highlighted links of DRM recommendations to the government's longer-term development policies. These recommendations are intended to inform the longer-term investments needed to strengthen Timor-Leste's resilience and capacity in the emergency management sector.

Ensuring rapid access to recovery financing

GFDRR also continued to play a leading role in enabling countries to access and benefit from World Bank contingent financing instruments through training, operational support, and policy dialogue. These instruments provide countries with immediate access to World Bank financing for recovery in the aftermath of a disaster or emergency. In FY21, a total of 20 Contingency Emergency Response Components (CERCs) were activated, representing a value of $495 million. CERCs have been used extensively as one of the World Bank's contingent financing instruments. As in the previous year, the majority of the CERC activations in FY21 were in response to the COVID-19 pandemic.

Generating and sharing knowledge

An additional mechanism through which GFDRR generates value related to emergency recovery is knowledge management and sharing, drawing on the facility's portfolio supporting front- line recovery work. Work is underway on a comprehensive report that documents lessons learned from recovery programs in various regions over the past decade. Featuring country case studies, the subjects covered under the report will include: (1) guiding principles of post-disaster assessments and recovery frameworks; (2) recovery planning, prioritization, and implementation; (3) legal frameworks and institutional models for recovery; and (4) recovery financing. The report will draw on insights from the facility's longstanding partnerships with other key players in the global resilient recovery agenda, such as the United Nations, the European Union, Japan, and other national governments.

Dili, Timor-Leste. © Atosan.

Enabling Resilient Recovery

In Focus Supporting resilient recovery in St. Vincent and the Grenadines after the La Soufrière eruptions

In April 2021, violent eruptions of the La Soufrière volcano on the island of St. Vincent sent plumes of ash and gas high into the air over St. Vincent and the Grenadines and its neighboring countries in the Eastern Caribbean. The eruptions prompted the evacuation of more than 20,000 people and caused significant damage to housing, infrastructure, agriculture, and critical public utilities such as water and electricity.

Within just days of the disaster, GFDRR and the World Bank provided financial and technical assistance to the government of St. Vincent and the Grenadines, helping chart a path to resilient recovery for affected communities. The EU-funded Caribbean Regional Resilience Building Facility (CRRBF) and the Canada-Caribbean Resilience Facility (CRF) have been among the key partners in these efforts.

When it comes to emergency management and disaster response, even the most minor delays can cost lives and livelihoods. Accordingly, the government of St. Vincent and the Grenadines engaged with the World Bank on a rapid assessment of the post-disaster damage in the days following the eruptions, with an eye to informing the country's emergency response and recovery as well as its longer-term resilience building.

A technical team, drawing on GFDRR and the World Bank's Global RApid post-disaster Damage Estimation (GRADE) methodology, estimated that immediate damages following the volcanic eruptions stood at $82 million, while potential future damages would be in the region of $210 million. The eruptions were still ongoing when these estimates were made.

By using remote, desk-based risk modeling and data analysis of hazard, exposure, and vulnerability, the GRADE methodology is designed to generate estimates of damage within two weeks of a disaster. The technical team found that immediate and potential future damages would be concentrated in the residential, agriculture, and infrastructure sectors.

The rapid damage estimates allowed the team to have discussions with the Ministry of Finance that informed the country's efforts to allocate and mobilize financial resources for the emergency response and recovery, while also setting the stage for further dialogue on financial preparedness for future disasters over the longer term.

In partnership with the National Emergency Management Organisation (NEMO) of St. Vincent and the Grenadines, a further focus of GFDRR and World Bank engagement was the development of the country's emergency communications infrastructure and capabilities. For example, even prior to the eruptions, support was provided toward the installation of volcanic monitoring equipment which enabled authorities to provide timely and accurate information to the public about when to evacuate. Following the eruptions, support was also provided toward an emergency communications campaign which built awareness about the potentially harmful impacts of volcanic ash. A major feature of this campaign was a video series, shared through television, radio, and social media channels, that highlighted practical tips for how people could keep safe from volcanic ash. Garnering nearly 9,000 views on social media alone, the video series featured one of St. Vincent and the Grenadines' most popular recording artists.

As communities across St. Vincent and the Grenadines continue to get back on their feet in the aftermath of the La Soufrière eruptions, the World Bank, with the support of GFDRR, is committed to strengthening its partnership for resilience building with the national government. For example, through the new $40 million, IDA-funded Volcano Eruption Emergency Project (VEEP), which was informed by the GRADE analysis, efforts are underway to bolster multihazard emergency preparedness and response (EP&R) systems. These include improvements to the country's emergency operations center and volcano observatory. Furthermore, technical assistance is being provided to NEMO, enabling the agency to strengthen its emergency shelter management policy. All these initiatives will be critical to protecting lives and livelihoods in one of the most hazard-prone countries in the Eastern Caribbean.

Houses in St. Vincent and the Grenadines covered in ash following the explosive eruptions of the La Soufriere volcano. Photo: World Bank/Steve Wallace.

Lessons **Learned**

Building sustainable institutional capacity in emergency preparedness and response (EP&R) requires engagement with both decision-makers and technical practitioners. Experience from many EP&R projects suggests that, while it is crucial to establish a strong dialogue with senior officials of the implementing agencies, it is equally important to work closely with counterparts at the technical level to ensure continuity and build institutional capacity. GFDRR support under this engagement enabled such a technical dialogue with agencies such as NEMO, and allowed the technical team to drive and inform planning and policy making for a more resilient St. Vincent and the Grenadines.

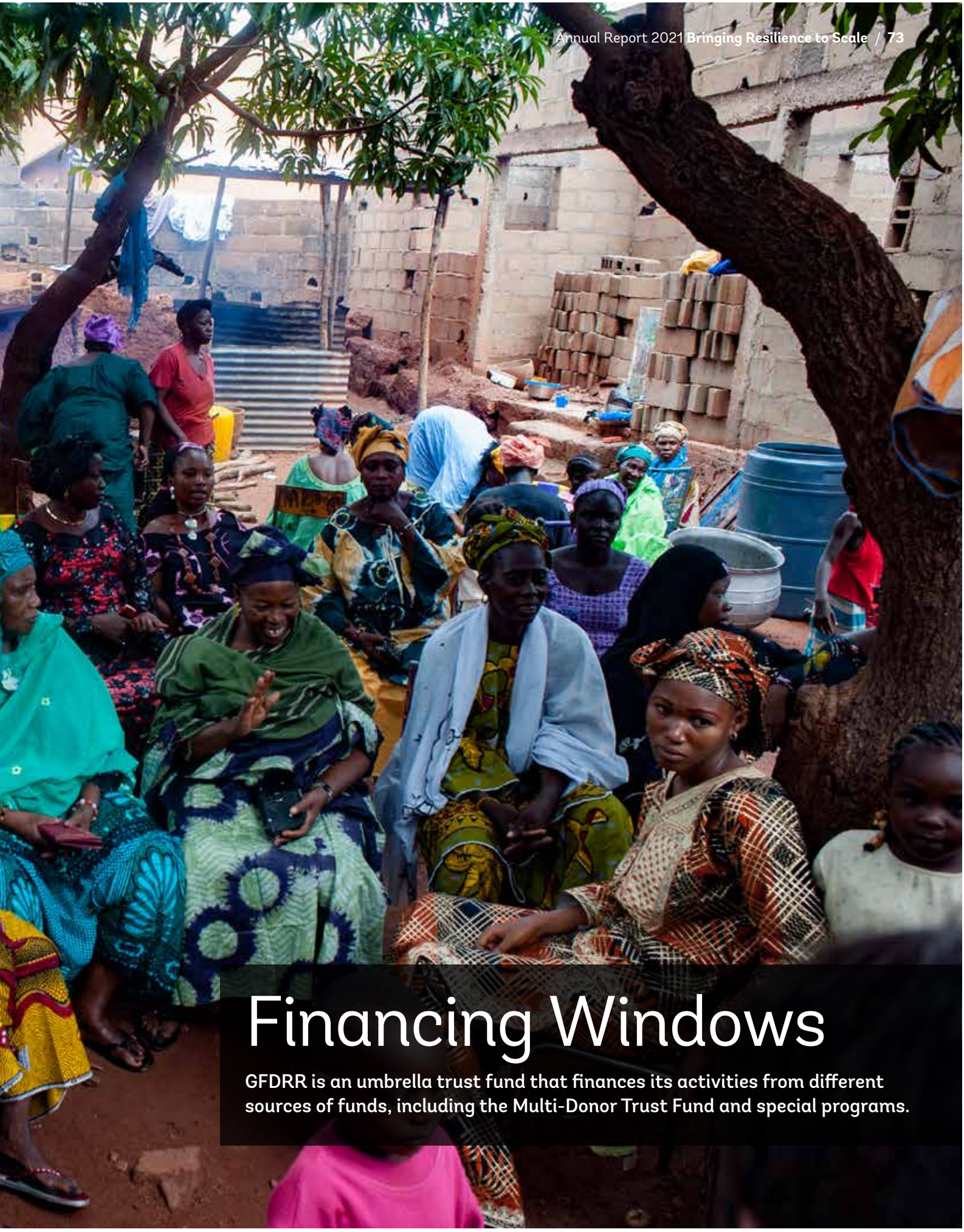
Results in Numbers

Drawing on GFDRR and the World Bank's GRADE methodology, the rapid post-disaster damage assessment following the La Soufrière volcanic eruptions estimated that immediate damages would come to $82 million, while potential future damages would be in the region of $210 million.

"A good communications network is a critical component in preparedness and response. With the network, the team was able to install equipment prior to the explosive eruption phase, which helped us to monitor activities at the volcano, and most importantly provide valuable timely information to the public and government on when to evacuate, so that no lives were lost when the eruptions occurred."

— Michelle Forbes, Director, National Emergency Management Organisation (NEMO) of St. Vincent and the Grenadines

Bamako, Mali. Photo: Locodacci.



Financing Windows

GFDRR is an umbrella trust fund that finances its activities from different sources of funds, including the Multi-Donor Trust Fund and special programs.

Multi-Donor Trust Fund

The Multi-Donor Trust Fund (MDTF) is the primary financing window for achieving GFDRR's mission and implementing the facility's strategy. A commingled pool of funding resources from GFDRR members, the MDTF structure allows the facility to flexibly respond to country demand to scale disaster and climate resilience as well as to respond and recover from disaster events. GFDRR's annual work plan, approved by the facility's Consultative Group members each fiscal year, provides strategic direction to the Secretariat for the allocation of MDTF resources. As a result, the programs funded through the MDTF reflect the full scope of expertise that GFDRR offers.

La Lima, Honduras after hurricane Iota. Photo: © Herbert Soriano.

The MDTF provides funding for in-country engagements across all regions and thematic areas. It finances technical assistance and advisory work that enables governments to ask more precise questions and dimension and define better solutions. It also finances analytical work, presents new evidence, proposes new approaches to action, and develops innovative solutions and tools.

Operational support

FY21 has been a year of transition as the MDTF that served as the backbone of GFDRR operations from 2014 to 2020 came to an end in December 2020. Over the course of its implementation, this MDTF financed 356 activities for a total value of over $145 million and mobilized over $8.6 billion in additional financing, mostly through the World Bank. Africa was the region where greater number of in-country activities took place (71 grants, $16.4 million), followed by Latin America and the Caribbean (62 grants, $14.2 million), Europe and Central Asia (49 grants, $20.2 million), East Asia and Pacific (44 grants, $15 million), South Asia (23 grants, $9.9 million), and the Middle East and North Africa (18 grants, $7.1 million).

The new MDTF, which was established in November 2019 and began operations on July 1, 2021, continues GFDRR's efforts to support disaster and climate resilience in low- and middle-income countries. This fund anchors all work under GFDRR's umbrella program that is part of the World Bank's trust fund reforms, and facilitates the implementation of the GFDRR strategy 2021–25.

Investing in preparedness and enabling recovery

As the main source of financing for response and recovery efforts, the MDTF has financed overall interventions in more than 25 major events. In FY21 alone, the new MDTF supported emergency response efforts in six countries, including in **Honduras** and **Nicaragua** following Hurricane Eta and Iota; in **Cambodia, the Democratic Republic of Congo**, and **South Sudan** following devastating floods; and in **Lebanon** following the explosion at the Port of Beirut—the first man-made disaster where GFDRR provided knowledge support.

Furthermore, the MDTFs have been key to expanding and scaling up the range of instruments countries can use to strengthen preparedness—from developing new tools to better understand risks and increase response capacity to financing solutions such as the Catastrophe Deferred Drawdown Option (Cat DDO), Contingency Emergency Response Components (CERCs), and shock-responsive safety nets. Following the onset of the COVID-19 pandemic, 60 CERCs with a total allocation of $1.1 billion have been activated to support the pandemic response and help mitigate urgent needs.

Building resilience to climate change

The MDTFs have helped accelerate the integration of climate variability and change into in-country and regional investments, building climate resilience at local and national levels while at the same time supporting its mainstreaming into a variety of development sectors including transport, water, energy, and governance, among others. As a result, in FY21, 96 percent of GFDRR-financed active portfolio incorporates climate risk considerations into their frameworks.

In addition, MDTF-supported analytical work and knowledge products have responded to pressing questions and knowledge gaps on climate and disaster risk. In FY21, GFDRR financed the *Enabling Private Investment in Climate Adaptation and Resilience: Current Status, Barriers to Investment and Blueprint for Action* report, which identifies ways to overcome key barriers to private sector investment and lays out a blueprint to close the adaptation finance gap as outlined in the World Bank's Climate Change Action Plan 2021–2025.

Advancing the inclusion agenda

The MDTF is the main source of funding for promoting more inclusive and equitable disaster risk management (DRM) interventions. Over the years, MDTF funding helped establish and support the implementation of GFDRR's Inclusive Community Resilience initiative, aimed at fostering social resilience through local-level action. It also financed the facility's first Gender Action Plan 2016-2021 as well as incipient work on disability-inclusive DRM.

Building on previous work, in FY21 GFDRR launched its Inclusive DRM and Gender Equality Program to address the heightened vulnerability of different social groups (e.g., women/girls and men/boys, people with disabilities, and elderly and indigenous populations, among other vulnerable groups) and to integrate inclusive DRM in World Bank project design.

Islamic students in Kampong Cham, Cambodia. Photo: © Ashharmustaffa | Dreamstime.com.

Multi-Donor Trust Fund

In Focus Informing and driving resilience building at the DRM-FCV nexus in South Sudan

In this world of compound risks, the impact of a single shock—be it an extreme weather event or a health emergency or an armed conflict—can amplify existing stresses and potentially initiate a cascade of new shocks. As countries everywhere make every effort to protect and advance development gains in this reality, the path to resilience will undoubtedly be more difficult for countries affected by fragility, conflict, and violence (FCV).

The world's youngest nation, South Sudan, is no exception, as it strives to rebuild after two civil wars in the face of the COVID-19 pandemic, a changing climate, and recurring natural hazards, particularly droughts and floods.

Against this backdrop, GFDRR has provided financial and technical support toward an in-depth analysis of the challenges and opportunities that lie at the nexus of disaster risk management (DRM) and FCV risks in South Sudan. With an eye to informing and driving resilience building in the country, the analysis, which has been completed, will also help build an evidence base on which to anchor similar efforts targeting compound risks in FCV settings elsewhere.

In undertaking the analysis, a key first step was to systematically map the disaster and FCV risks in all 10 states of South Sudan. To start off this first phase of the work, the technical team collected spatial data on hazards, as well as the exposure of populations, settlements, and buildings to these hazards. The team also collected FCV-related spatial data, including data on conflict fatalities, food insecurity, and forced displacement.

The hazard and exposure data were then overlaid with the FCV-related spatial data, enabling the team to develop a composite score of disaster and FCV risks, or Disaster-FCV Vulnerability Index, for the states of South Sudan. A key finding that emerged is that the index varied considerably across states, with some of the most conflict-affected states—such as Unity and Jonglei—among those scoring the highest composite score. A World Bank team has used the Disaster-FCV Vulnerability Index to help inform the second phase of the Bank's $45-million, IDA-financed Enhancing Community Resilience Project (ECRP) in South Sudan.

The technical team then turned its attention to assessing how communities on the ground have been impacted by the nexus of disaster and FCV risks and, just as importantly, how these communities have responded. This second phase of the assessment drew on extensive research, as well as in-depth interviews and focus group discussions with community members, government officials, and other key stakeholders, with a focus on counties that are generally representative of the disaster and FCV risks in South Sudan.

One of the most sobering findings is that many community members are struggling to cope with the increasing frequency with which they are wrestling with compound risks. For instance, in a number of communities, the increase in the severity of floods and droughts appears to have contributed to a subsequent rise in the number of community-level conflicts. This finding was later supported by a GFDRR-financed remote damage and needs assessment of the devastating seasonal floods in South Sudan that occurred between July and October 2020. Moreover, women, girls, and internally displaced populations (IDPs) were found to be most vulnerable to these compound risks.

More promisingly, however, it was also revealed that, even as they remain highly reliant on foreign aid organizations for post-disaster assistance, community members are taking concerted actions to ensure that they can carry out their lives and livelihoods despite the often-difficult circumstances. For example, in Aweil East County, crops such as groundnuts, which can be stored easily, are being planted so that the community can have access to food supplies even if other crops are destroyed. Meanwhile, in Nasir County, locally built dikes have been rehabilitated to protect crops and shelters from flood hazards.

Drawing on these findings, the technical team has since developed recommendations that will inform the government of South Sudan's ongoing development of a comprehensive DRM strategy. Recommendations include addressing the need to establish a national approach to collecting data on disaster and FCV risks, as well as the need to establish coordinating bodies at both the national and state levels that are focused on tackling the nexus of disaster and FCV risks. Moreover, it is also recommended that the national government mobilize the community engagement highlighted in the assessment as part of an effort to advance the sustainability of its forthcoming DRM strategy.

Children at Kapuri School, South Sudan. Photo: United Nations Photo licensed under CC BY-NC-ND 2.0.

Lessons **Learned**

When designing and implementing a DRM intervention, it is critical to consider the full range of interconnected and often compound risks affecting people and communities, including those that lie at the nexus of DRM and FCV. As highlighted by this engagement, siloed approaches, which consider only one set of risks in isolation, are typically not able to grasp how risks interact with one another. This isolation often has grave impacts that could be counterproductive to resilience building.

EU-Funded Programs

The European Union (EU) has been a key partner of GFDRR since 2008. In FY21, the EU funded eight programs managed by GFDRR, two of which are managed in close collaboration with the Secretariat of the Organisation of African, Caribbean and Pacific States (OACPS).

The **Africa, Caribbean, Pacific–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program** was launched as an initiative of the OACPS in 2011 with $74.6 million in contributions from the EU. The program enhances preparedness for natural hazards and mitigates their impacts in ACP countries by supporting governments in their efforts to integrate risk management approaches into planning. In FY21, the ACP–EU NDRR Program, which is set to close at the end of 2021, had two new grants totaling $241,000. Additional funding was also granted to existing projects in **Cabo Verde, Cameroon, The Gambia, Kenya, Malawi, the Seychelles, Sudan,** and **Vanuatu**, and to one regional project in the **Caribbean**, totaling $746,000. By the end of FY21, the program had reached a total portfolio of 149 projects.

While ACP governments urgently responded to the COVID-19 pandemic, the program continued to provide these countries with technical assistance for disaster risk reduction (DRR) and climate change adaptation. In response to a high demand for improvements to national disaster risk management (DRM) frameworks, the program reinforced the technical capacities of dedicated expert agencies and institutions and encouraged the reform of legislation that governs them. The results of these efforts were the inauguration of **Sierra Leone**'s new National Disaster Management Agency, the development of strategic roadmaps for investment in disaster preparedness in **Dominica, Grenada, St. Kitts and Nevis, St. Lucia,** and **St. Vincent and the Grenadines**, and the adoption of new guidelines in **Fiji** to improve the resilience of single-story houses and schools against future storms and earthquakes. There was also a significant demand for flood risk management, reflecting the devastating impact that heavy rains can bring, as seen in **Cameroon** and **Sudan**. Countries have been increasingly investing in flood risk studies and management plans as climate change compounds the frequency and severity of these events.

The ACP-EU Building Disaster Resilience in Sub-Saharan Africa Program was launched in 2015. It includes five result areas implemented by the African Development Bank (AfDB), the African Union Commission (AUC), GFDRR, the United Nations Office for Disaster Risk Reduction (UNDRR), and the World Bank. In FY21, GFDRR continued to implement one of these result areas—the **African Regional Economic Communities (RECs) DRM Program (Result Area 2)**—which is worth $22 million. It contributes to the DRR coordination, planning, and policy advisory capacities of four RECs: the Economic Community of Central African States (ECCAS), the Economic Community of West African States (ECOWAS), the Intergovernmental Authority on Development (IGAD), and the Southern African Development Community (SADC). In FY21, **ECCAS** organized its second hydromet forum to share and consolidate achievements in the field of hydrometeorological (hydromet) services at the regional level. ECCAS also produced a wealth of DRM knowledge products to share among its member states, including an atlas of hazards, vulnerabilities, and risks for the region.[21] **ECOWAS** continued to emphasize strengthening flood management capacities and coordinating the regional hydromet services of its member states. It organized several capacity-building activities, including the second edition of the ECOWAS hydromet forum and the ECOWAS subregional DRR platform in April 2021. **IGAD** continued to address food insecurity by implementing preventive policies in East Africa, such as climate-smart agriculture activities in its member states. In June 2021, **SADC** organized its first hydromet forum for Southern Africa. This first-ever subregional forum dedicated to hydromet issues was a significant milestone in the development of resources and capacities in the region.

The $31.3 million **Caribbean Regional Resilience Building Facility (CRRBF)**, which began in FY19, provides countries with financial and technical assistance to enhance long-term resilience and adaptation capacities for the most vulnerable. The facility's objectives include bolstering countries' regulatory and policy design capacity to mainstream resilience in key sectors, increasing the resilience of critical physical infrastructure, and improving the availability of innovative disaster risk financing (DRF) tools. In FY21, a working group was established at the regional level to create alignment among key stakeholders on issues such as resilient building regulation and DRF. It brought together some of the most influential regional organizations

[21] The document is available in French at https://bit.ly/3j6GXo0.

on physical and financial resilience in the Caribbean, including the Organization of Eastern Caribbean States (OECS), the Caribbean Disaster Emergency Management Agency (CDEMA), the Caribbean Development Bank, and the Caribbean Community (CARICOM). CRRBF has also supported the Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company (CCRIF SPC) with technical assistance on extending discounts and increasing insurance coverage to the region, as well as for improving existing products and developing new parametric risk transfer products. At the country level, CRRBF supported the government of **St. Vincent and the Grenadines** with an emergency communications campaign in days following the eruption of the La Soufrière volcano in April 2021 to build awareness of the potential harmful impacts of volcanic ash. In **Haiti**, CRRBF is assisting key ministries and government bodies with data management, mainstreaming DRM in the national education sector, building the resilience of critical public infrastructure, and developing a DRF strategy.

The $3.4 million **Technical Assistance Program for Disaster Risk Financing and Insurance in Caribbean Overseas Countries and Territories** (OCTs) helps Caribbean OCTs assess their contingent liability for disasters, the feasibility of developing new DRF options, and knowledge sharing. In FY21, the program has strengthened the data coordination and management in OCTs related to quantifying hazard impact and contingent liabilities. In response to the pandemic, **Anguilla** requested support for developing a national statistics system for improving reporting on post-disaster and post-COVID-19 losses. In **Bonaire**, the program supported a socioeconomic assessment of COVID-19 impacts. The assessment has been carried out using a Post-Disaster Needs Assessment (PDNA) methodology. The program to date has also contributed to mainstreaming principles of DRF in Caribbean OCTs through inclusion in national policy development. In **Sint Maarten**, the program is supporting the development of a DRF strategy as part of a comprehensive DRM policy.

Activities under the $6.6 million **EU–World Bank/GFDRR Global Partnership on Disaster Risk Financing Analytics** were completed in FY21. The program helped countries build financial resilience by improving their understanding of risk and increasing their capacity to make informed decisions. During this fiscal year, the development of universal analytics tools was finalized, validated, and deployed through an event in **Senegal** with tools tailored for that country in December 2020. The team also completed an advanced draft of an operational guidance note for implementing a theoretical monitoring and evaluation framework that should be used alongside the universal analytics tools, and an explanatory note defining the boundaries of sovereign DRF strategies.

The $11 million **EU–South Asia Capacity Building for DRM Program** supports hydromet service delivery and capacity building among regional bodies and national disaster management centers in managing naturalhazard risks. In FY21, the program supported hydromet agencies in **Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan**, and **Sri Lanka** in strengthening their multi-hazard monitoring and early warning systems. For example, in **Bhutan**, 213 officials were trained in important skills such as river analysis system modeling and geographic information visualization. These trainings promoted consistent sharing of forecasts, alerts, and other relevant information among government agencies for better disaster preparedness. In addition, a grant was given to **India** in August 2020 to develop an actionable roadmap that includes an analysis of existing policies and initiatives relevant to the multisectoral reforms recommended by the country's plan for sustainable cooling.

The $6.5 million **Serbia National Disaster Risk Management Program** supported that country in its efforts to enhance DRM and flood prevention systems by reducing existing flood risks and avoiding future ones. The program closed successfully in December 2020, with a total of 119 communities (municipalities directly affected by flood risk) benefitting from the program, particularly through the completion of hazard and risk assessments for 75 identified flood-prone areas.

The €4.3 million ($4.9 million equivalent) **Strengthening Financial Resilience and Accelerating Risk Reduction in Central Asia Program** will improve financial resilience and risk-informed investment planning toward building disaster and climate resilience in **Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan,** and **Uzbekistan**. In FY21, the program began to quantify regional disaster risks and started a regional exposure mapping exercise. As part of these activities, two workshops—one in Kazakhstan (in May) and one in the Kyrgyz Republic (in June)—took place in which government institutions, DRM practitioners, academia, and students participated. Lastly, contractual preparation was initiated to provide technical support on the scalable safety net for emergency preparedness.

EU-Funded Programs (with contributions from CRF)

In Focus Strengthening disaster and emergency preparedness and response in the Caribbean

The COVID-19 pandemic has added another risk to the litany of hazards confronting the Caribbean, which range from volcanic eruptions and earthquakes to hurricanes. Bracing for a changing climate and intensifying disaster risks across the region, Caribbean countries are, however, more determined than ever to chart a resilient path for their citizens.

In that spirit, GFDRR has supported the Caribbean Disaster Emergency Management Agency (CDEMA) and national emergency management organizations (NEMOs) across the Caribbean to strengthen their disaster and emergency preparedness and response (EP&R) efforts.

CDEMA is the principal body for coordinating and facilitating such efforts among 20 member states and territories of the Caribbean Community (CARICOM). GFDRR's support for CDEMA and Caribbean NEMOs is being undertaken under the auspices of the ACP–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program and the Canada-Caribbean Resilience Facility (CRF).

A key focus for the technical team has been a comprehensive assessment of the disaster and emergency preparedness capacity of five countries: Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines, in partnership with CDEMA and NEMOs. The assessment had a particular focus on EP&R and drew upon the World Bank and GFDRR's Ready2Respond methodology, which assess EP&R capacity based on data and information covering five core areas: institutional and legal frameworks, information, equipment, infrastructure, and personnel. The team surveyed and interviewed nearly 230 officials, including both decision-makers and responders, to collect and validate data and information across the five core areas.

The assessment found, among others, that in the five countries, there remains to some extent an ad hoc approach to knowledge building and competency development for EP&R. Moreover, many government agencies, private sector partners, and external donors continue to operate in siloes when it comes to emergency and disaster risk management, leading to missed opportunities for learning and collaboration.

Based on these and other findings, the team subsequently proposed a roster of potential EP&R engagements, categorized by priority level, which are expected to inform planned investments in the sector by national governments. The proposed engagements have been designed to be adaptable to the context of the current COVID-19 pandemic or a future health emergency.

Even as the analytical work drives and informs the DRM investments that are needed in the Caribbean region, GFDRR support is also helping advance resilience-building efforts already underway. For instance, an additional focus for the technical team has been its support of Disaster Fighters, a creative risk communications campaign led by CDEMA, which is designed to raise public awareness around the importance of disaster and emergency preparedness. The campaign draws on lessons from a groundbreaking risk communications initiative in Haiti in fiscal year 2020, which was also supported by GFDRR under the auspices of the EU-funded Caribbean Regional Resilience Building Facility.

A highlight of Disaster Fighters, which has been disseminated through a range of online and social media channels, has been a music video featuring celebrated Caribbean artists that emphasizes the importance of the entire community "making a plan" to prepare for hurricanes and other disasters. In a testament to the reach of the campaign, the music video has been viewed nearly 500,000 times on YouTube alone. Capitalizing on the region's enthusiasm for cricket, CDEMA has also tapped some of the region's most well-known cricket players and musicians to lend their voices to Disaster Fighters.

One of the most critical EP&R investments identified in the five-country assessment was the need to expand and improve early warning and communications systems, which can help ensure that local populations are well-positioned to prepare for and respond to the next disaster. The hope is that creative risk communications campaigns such as Disaster Fighters will play their part in tackling this challenge, even as national governments make longer-term investments in these systems, with the support of development partners like GFDRR and the World Bank.

Cricketers, artists, and other participants lending their support to the Disaster Fighters campaign. Photos: Caribbean Disaster Emergency Management Agency (CDEMA).

Lessons **Learned**

In the course of conducting the assessment, it became apparent to the technical team that government counterparts are more eager to participate when they are made aware of why their participation is important and valuable. Accordingly, it is crucial to constantly check in with government counterparts and other partners to ensure that they fully understand the value of their engagement in resilience-building efforts.

"The reality of the past year has highlighted both the fragility of our region and the fortitude of its people. Indeed, it is only through unity that we can make it through a pandemic or a natural disaster. The EU is therefore pleased to join with Canada, the World Bank, CDEMA, and the Disaster Fighters in this novel collaborative approach to disaster resilience."

— **Malgorzata Wasilewska,** Ambassador of the European Union to Barbados

Results in Numbers

Nearly **230 officials**, including both decision-makers and responders, surveyed and interviewed on emergency preparedness and response (EP&R) challenges and opportunities in Caribbean countries.

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 (the Japan Program) is a partnership between the government of Japan and the World Bank to support client countries in enhancing their resilience against climate change and natural hazards. It is managed and implemented by GDFRR through its Tokyo Disaster Risk Management (DRM) Hub. Its objective is to support client countries in mainstreaming DRM into national development planning and investment programs, including through World Bank country strategies and operations. The Japan Program also connects Japanese and global DRM expertise with country counterparts and World Bank teams.

In April 2018, the government of Japan and the World Bank renewed their commitment to launch a second phase of the program with an emphasis on technical assistance (TA) grants that directly contribute to the preparation and implementation of World Bank projects. The second phase is being implemented through 2025 and includes the following priority areas: (1) resilient infrastructure; (2) risk identification, risk reduction, and preparedness; and (3) disaster risk financing and insurance. Since its establishment, the Japan Program has supported 99 countries through 198 TA grants totaling over $150 million.

Technical assistance for client countries

In FY21, the Japan Program awarded 49 grants totaling $19.64 million.[22] The Africa region received the highest allocation because of an increase in demand for resilient infrastructure in sectors such as transport, water, urban infrastructure, and energy. Grants for the South Asia region were second in the allocation, followed by the East Asia and Pacific and the Europe and Central Asia regions. Support for mainstreaming DRM in the aforementioned infrastructure sectors represented a key focus of FY21, with 87 percent of financing contributing to resilient infrastructure activities. The remaining 13 percent was allocated to the priority areas of risk identification, risk reduction, and preparedness (8 percent) and disaster risk finance and insurance (5 percent). These grants mobilized approximately $1.02 billion in World Bank investment projects under implementation, with $160 million supporting infrastructure sectors (through the Transport and Energy Global Practices).[23] Since its inception in 2014, the Japan Program has mobilized a total of $23.73 billion.

The program also emphasized funding activities to integrate DRM into World Bank investment projects during their preparation phase. This included the use of a Just-in-Time (JIT) financing window for resilient infrastructure, which was established to provide short-term grants for this purpose. Under this window, four grants totaling $280,000 were approved in FY21 (in **Argentina**, **India**, **Madagascar**, and **Tajikistan**) to ensure that disaster risk considerations are integrated into project designs during the preparation phase of $462 million in energy and transport infrastructure investment projects. In **Tajikistan**, for example, JIT support provided the funding to assess disaster impact on transmission infrastructure in the Gorno-Badakhshan Autonomous Oblast (GBAO) region, which is highly exposed to natural hazards, including earthquakes, landslides, avalanches, and floods. The results of these assessments will be used to inform the design and other solutions under the IDA-funded Rural Electrification Project and for future investments in the GBAO. Overall, the TA grants approved in FY21 have already mobilized $1.29 billion and are anticipated to mobilize approximately $4.54 billion through 23 World Bank investment projects currently under preparation.

Sharing expertise and promoting partnerships

In FY21, despite significant limitations on the modality of engagements due to COVID-19, the Tokyo DRM Hub facilitated the engagement of 150 Japanese experts from the public and private sectors, academia, and civil society organizations across 42 grants. The majority (55 percent) of the experts supported the implementation of Japan Program grants and associated World Bank investment projects. The most notable examples include:

[22] The figures in this section are as of June 30, 2021.
[23] In FY21, the mobilized amount separates the actual and anticipated figures to improve the transparency in reporting. The actual figure here is calculated based on FY21 reporting from GFDRR's biannual Monitoring and Evaluation platform.

Malagasy students in Antananarivo, Madagascar. Photo: Wing Travelling.

- Contributions to the Resilient Housing Global Program, which has supported the generation of $1 billion in new lending requests and developed a roadmap to strengthen housing that is vulnerable to natural hazards. A professor from the University of Tokyo created a "disaster imagination" tool, which helps stakeholders visualize the measures needed to prevent disaster risks in housing. He also shared Japanese solutions for retrofitting existing substandard masonry housing across the Latin America and the Caribbean region.
- Expertise on seismology, geo-dynamics, vulcanology, geographic information systems (GIS), remote sensing, and water geochemistry was shared by experts from Hokkaido and Tohoku Universities, contributing to the development of the local and national disaster management plan in the **Democratic Republic of Congo**.
- Risk information experts shared the Japanese approach to raising disaster risk awareness and promoting prevention among children and families using games, campaigns, radio, and television. For example, *Iza! Mikaeru Dai Caravan* is a disaster risk awareness festival where organizers use a local mascot—a frog (*kaeru*)—to promote the event in Hyogo Prefecture, where a massive earthquake hit the city of Kobe in 1995.

Japan–World Bank Program

In Focus Reducing disaster risks in South Asia by strengthening transport and water sectors

Against the backdrop of intensifying disaster and climate risks, the countries of South Asia increasingly recognize that resilience considerations must be fully integrated into the planning, design, and implementation of infrastructure projects. Projects in the transport and water sectors are no exception.

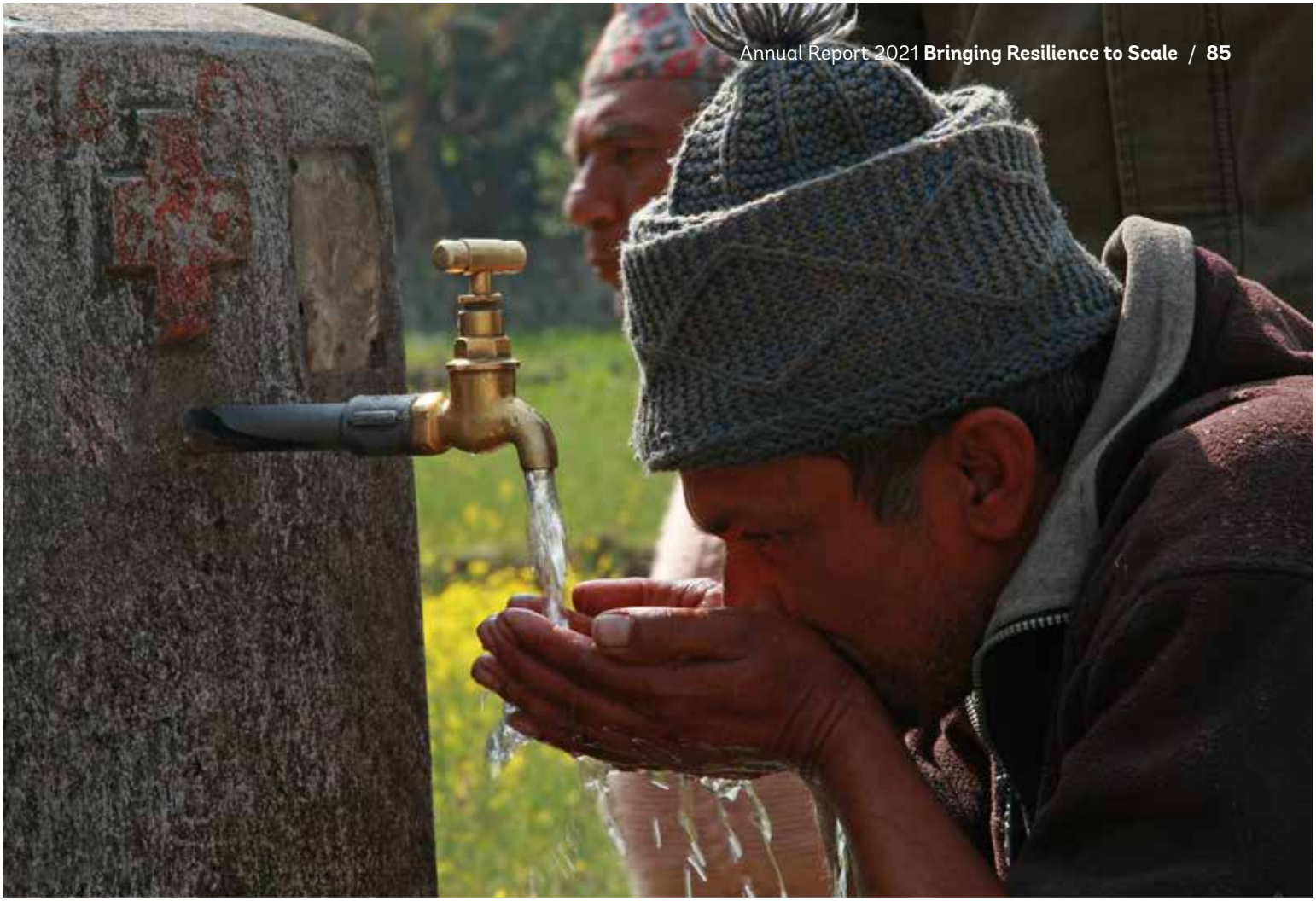
Backed by $1.2 million in support from the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries (the Japan Program), the governments of **Bangladesh, Bhutan, India, Maldives, Nepal,** and **Pakistan** have worked to enhance the resilience of their transport and water systems to climate and disaster risks.

Applying a life-cycle approach, which considers costs that may materialize over the course of the expected service life of infrastructure, these governments have made significant headway in increasing their capacity to integrate climate resilience into the water and transport sectors by building technical expertise and sharing knowledge, and subsequently applying that expertise and knowledge toward their resilience investments in these sectors. More than ever before, resilience considerations are now front and center in the planning, design, construction, and operation and maintenance of transport and water infrastructure across South Asia.

Highlights from these efforts thus far include:

- In **Bhutan**, a standard operating procedure was developed for the country's Department of Roads using a risk management tool that strengthened capacity for resilient asset management. In addition, an updated data set for the road and bridge assets management system allowed the department to better manage and prioritize road maintenance based on road conditions and risks posed by natural hazards.
- In the **Indian** state of Kerala, a baseline study of the road network was performed to inform sustainable maintenance and asset management practices. Moreover, standard bidding documents for performance-based management contracts were rolled out. These included standards for resilience for the maintenance of at least five key core road network corridors across Kerala.
- **Bangladesh** has made headway in building the municipal staff's capacity to provide water supply services to citizens and communities in a sustainable and resilient way. By developing guidelines and technical standards for climate-resilient water and sanitation for municipalities, government officials were able to identify climate-induced threats to these services and provide a roadmap for addressing these threats, including with respect to planning, designing, and implementation.
- Officials in Karachi, **Pakistan**, have strengthened flood management capability by enhancing local government capacity. An assessment of urban drainage systems in Karachi has identified actions needed to improve urban drainage, leading to increased medium- to long-term flood resilience.
- In **Maldives**, analytical work empowered government officials to begin developing a stormwater drainage master plan for two major cities and to initiate the procurement process for a sewage treatment plant.
- Officials from Japan's Ministry of Land, Infrastructure, Transport and Tourism; the International Centre for Water Hazard; and the Japan Water Agency provided technical support to Indian officials for the development of an integrated reservoir system for the Periyar and Chalakudy Basins in Kerala, **India**; they also provided support to assess the impacts of a recent Kerala flood and provided recommendations for proper management of water in the state and for hiring dam instrumentation experts.
- The University of Tokyo's International Center for Urban Safety Engineering and the Disaster Management Training Center shared Japan's Emergency Operations Center's experience and response to large-scale incidents, their perspectives on emergency management, and current preparedness initiatives at a regional workshop attended by representatives from all South Asian countries.

The analytical work made possible through the Japan Program's support is informing 10 World Bank lending operations in South Asia. Among them are the Dhaka Sanitation Improvement Project in Bangladesh, financed by a $170 million IDA contribution, and the Resilient Kerala Development Policy Operation in India, financed by a $250 million IDA contribution.



A villager of Kaski, Nepal, shows how well the water tap works. Photo: © Simone D. McCourtie / World Bank.

Lessons **Learned**

To ensure the sustainability of resilience-building efforts in the transport and water sectors and beyond, it is vital to cultivate local expertise and leadership. In one example of local expertise at work, in Bangladesh, efforts to develop guidelines and technical standards for climate-resilient water and sanitation services have enabled officials on the ground to take the lead in identifying and remedying climate-induced threats to these services.

Special Programs

GFDRR activities are funded through a combination of core programs and special programs. Core programs include the Multi-Donor Trust Fund (MDTF), the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, and EU-funded programs. Special programs are purpose-built financing windows focusing on particular areas of engagement or regions; these are managed by GFDRR but implemented in partnership with other global practice teams within the World Bank. As of FY21, there are two special programs: the Canada-Caribbean Resilience Facility (CRF) and the City Resilience Program (CRP).

Kingston, Jamaica. Photo: delaflow / Shutterstock.com.

Canada-Caribbean Resilience Facility (CRF)

The Canada-Caribbean Resilience Facility (CRF) was established in 2019 with the objective of helping Caribbean countries achieve more effective and coordinated gender-responsive and climate-resilient preparedness, recovery, and public financial management practices. The CRF deploys technical experts to build and augment local capacity to support the design, planning, and implementation of recovery projects and overall resilience-building efforts. The program works in **Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines,** and **Suriname**.

In FY21, the CRF continued to provide support to build capacity in countries, reinforcing activities started the previous year. Through its implementation support team, now comprised of over 50 experts, the CRF provided targeted support in over 20 critical areas including business continuity planning, emergency procurement management, public asset management, resilient construction and civil works, COVID-19 vaccine rollout, and Contingency Emergency Recovery Component (CERC) activation.

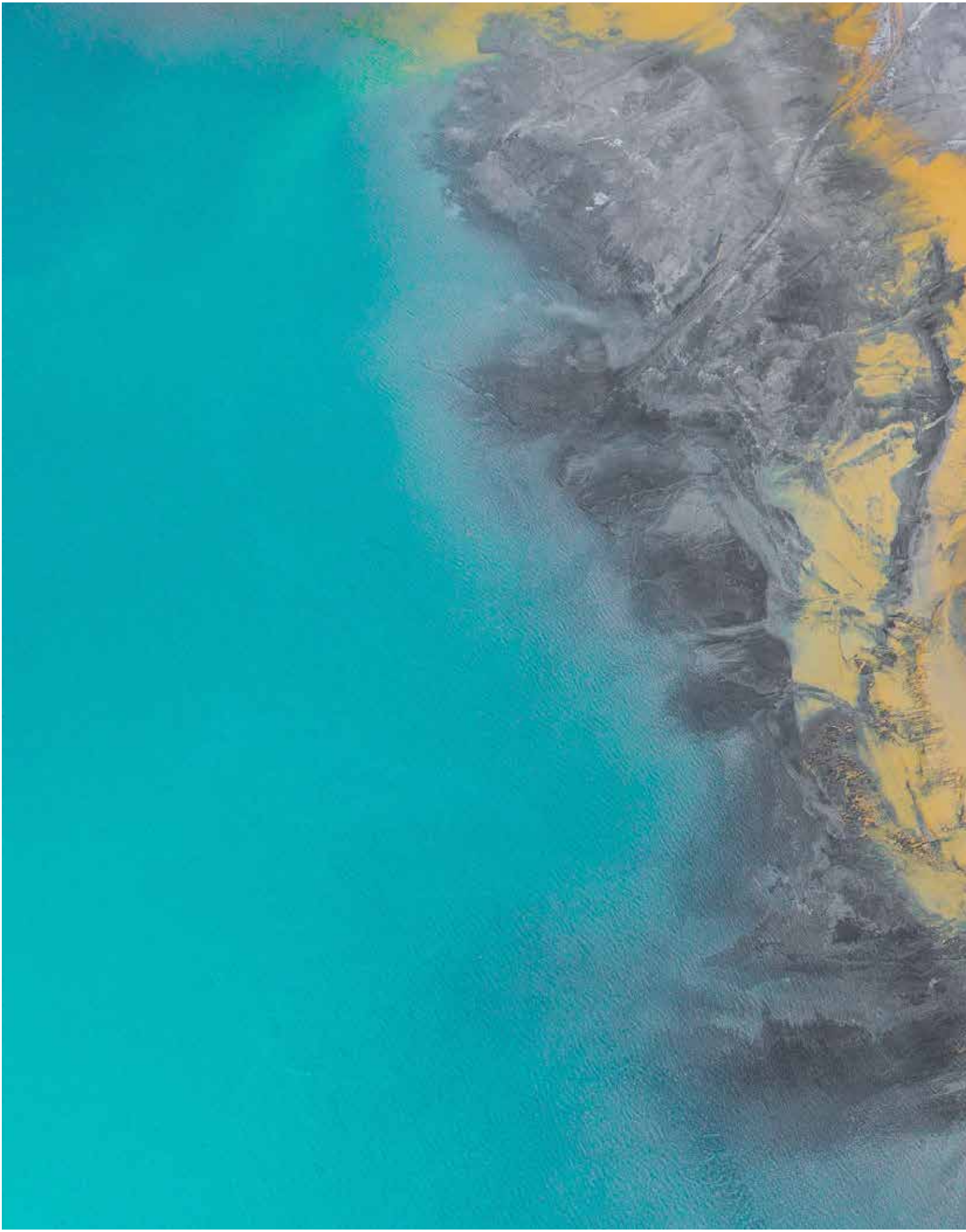
The CRF also continued to assist to key regional partners. For example, the CRF supported the upgrade of Caribbean Disaster Emergency Management Agency (CDEMA)'s comprehensive disaster management (CDM) audit tool to make it more operational, inclusive, and sector specific. The upgraded tool is being piloted in **Antigua and Barbuda, Dominica, Guyana,** and **St. Lucia** and initial dialogues to apply the tool have started with **Grenada** and **St. Vincent and the Grenadines**. The CRF also completed regional reviews of cross-cutting themes, such as a review of gender-responsive disaster preparedness and recovery and a review of disability. These assessments set the stage for the CRF to be more effective, coordinated, and inclusive in its operations. Building on these initial reviews, full assessments will be undertaken in the coming fiscal year to fill the crucial knowledge gap on specific vulnerabilities across sectors; differentiated impacts on women, men, girls, and boys; and a way forward for capacity building and technical assistance activities.

City Resilience Program (CRP)

The City Resilience Program (CRP)—a partnership between the World Bank and GFDRR—is a multi-donor initiative established in June 2017 to increase financing for urban resilience. CRP's vision is resilient cities that have the capacity to plan for and mitigate adverse impacts of disasters and climate change, thus saving lives, reducing losses, and unlocking economic and social potential. The program is funded with contributions from the Swiss State Secretariat for Economic Affairs (SECO), the Austrian

Ministry of Finance, and GFDRR's MDTF. At the end of FY21, CRP was implementing $12.8 million in activities. Now entering its fifth year, CRP has built a versatile delivery model able to operate in both the planning side and the finance side within the urban resilience landscape. To better respond to country demand, CRP now supports cities in three thematic areas: planning, finance, and partnerships for resilience. Together, these three thematic areas are key to helping cities address the resilience challenges of the future.

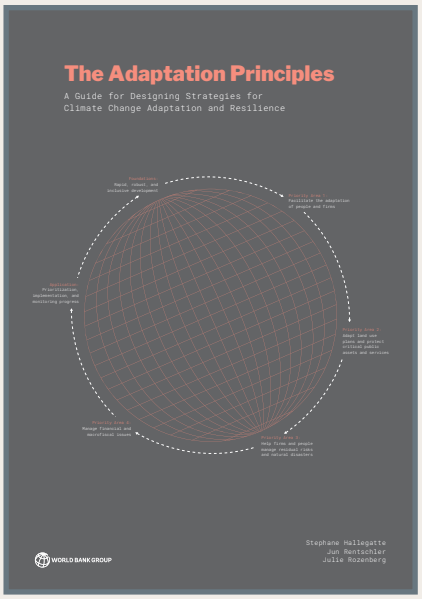
Cities are being offered a more comprehensive suite of services through various partnerships, allowing the team to deepen existing engagements with local authorities. The City Scan—a teaching tool and one of CRP's core products—uses spatial data to help cities visualize the interplay of climate and infrastructural challenges. During FY21, the City Scan was transformed into an online and interactive tool, allowing decision-makers, urban planners, and city officials to explore the data available and engage with the components that are most suitable for their needs. An online workshop for eight South African cities was held over four days using this interactive tool and registered over 100 participants. With the workshop as a starting point, nine potential public-private partnerships and resilient infrastructure projects emerged and are being developed across the eight cities. Since the launch of the program, CRP has supported over 140 cities in more than 55 countries. Together with the Global Resilient Cities Network, CRP has been co-organizing the World Bank's Cities on the Frontline virtual event series since March 2020 to share knowledge about how to respond to the pandemic crisis and plan toward resilient recovery.



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.

Key Publications FY21



Adaptation Principles: A Guide for Designing Strategies for Climate Change Adaptation and Resilience

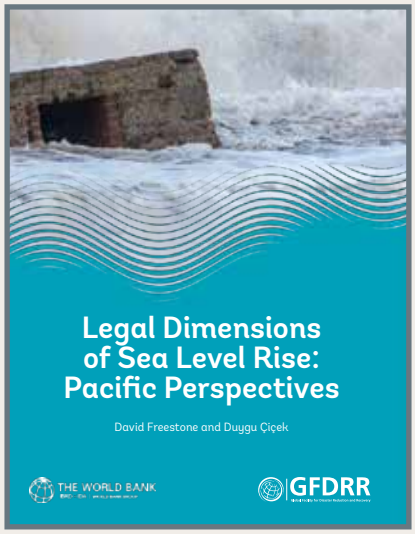
https://www.gfdrr.org/en/publication/adaptation-principles-guide-designing-strategies-climate-change-adaptation-and

This guide offers practical tools for designing, implementing, and monitoring national climate adaptation strategies. It contains screening questions to determine the most urgent and effective actions, toolboxes illustrating common data sets and methodologies to support decisions, indicators to track and evaluate progress, and case studies on how the COVID-19 pandemic affects priorities in taking effective adaptation action.

Legal Dimensions of Sea Level Rise: Pacific Perspectives

https://www.gfdrr.org/en/publication/legal-dimensions-sea-level-rise-pacific-perspectives

Developed as part of GFDRR's Building Resilience in Pacific Atoll Island Countries project, which intends to bolster selected Pacific atoll island countries' resilience to climate change, this legal study aims to contribute to the ongoing National Adaptation Planning Process for the Republic of the Marshall Islands and inform adaptation options for Kiribati and Tuvalu. It emphasizes that short- to medium-term adaptation options will not suffice in addressing the escalating impacts of rising sea levels and delves into alternative adaptation options and their accompanying costs.



Resilient Shores: Vietnam's Coastal Development Between Opportunity and Disaster Risk

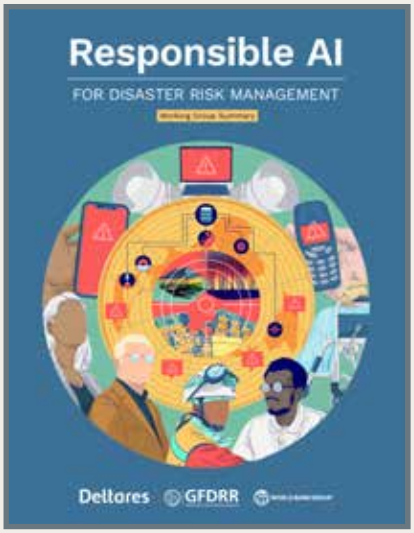
https://www.gfdrr.org/en/publication/resilient-shores-vietnams-coastal-development-between-opportunity-and-disaster-risk

One of the countries most exposed to natural hazards, Vietnam has coastal regions that bear the brunt of disasters and at the same time host thriving industries that provide a growing and rapidly urbanizing population with livelihoods. This report provides an in-depth and multisectoral analysis of natural risks in Vietnam's coastal regions and proposes a concrete plan to balance the risks and opportunities of coastal development.

Overlooked: Examining the Impact of Disasters and Climate Shocks on Poverty in the Europe and Central Asia Region

https://www.gfdrr.org/en/publication/overlooked-examining-impact-disasters-and-climate-shocks-poverty-europe-and-central

A disaster always has a multidimensional impact: it affects not only households' physical assets, but also their income levels and ability to contribute to the economy—two factors that influence the duration of subsequent recovery and reconstruction efforts as well as the decision of whom to extend assistance to. This report explores the relationships between disaster impacts and poverty levels in selected countries in the Europe and Central Asia region and finds that the economic well-being of households is affected far more than the estimated cost of physical damages to buildings and public infrastructure.



Responsible Artificial Intelligence for Disaster Risk Management

https://www.gfdrr.org/en/publication/responsible-artificial-intelligence-disaster-risk-management

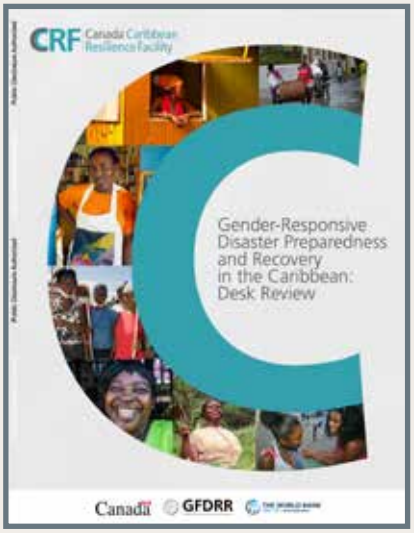
The hype and availability of private sector funding for artificial intelligence (AI) in disaster risk management can lead to an overstatement of the capacities of these tools and the deployment of untested approaches in critical scenarios. This report, which is a product of collaborative and ongoing dialogue between GFDRR with Deltares and the University of Toronto, details the ethics and responsibility concerns in AI- and machine learning–supported projects and presents overarching recommendations to ensure the responsible use of these tools in DRM.

Global Partnership on Disaster Risk Financing Analytics: Results and Achievements

https://www.gfdrr.org/en/publication/global-partnership-disaster-risk-financing-analytics-results-and-achievements

In the aftermath of disasters, governments in low- and middle-income countries are confronted with staggering economic and financial costs as a result of a weakened economy, damaged infrastructure, reduced tax revenues, and increased poverty.

This report gives an overview of the achievements of the Global Partnership on Disaster Risk Financing Analytics, a five-year partnership among the European Union, the World Bank, and GFDRR that concluded in December 2020 and aimed to aid governments in improving their financial resilience against disaster risk.



Gender-Responsive Disaster Preparedness and Recovery in the Caribbean: Desk Review

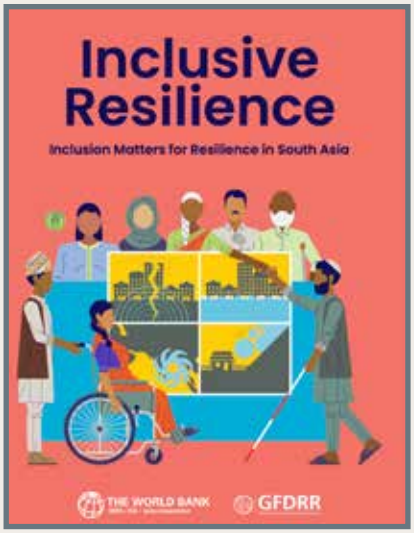
https://www.gfdrr.org/en/publication/gender-responsive-disaster-preparedness-and-recovery-caribbean-desk-review

This desk review underscores the importance of differential gender analysis in DRM by evaluating gender-responsive disaster preparedness and recovery efforts in nine countries in the Caribbean, where the COVID-19 pandemic has complicated DRM efforts and disrupted health infrastructure: Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines, and Suriname. It stresses the need for a commitment to gender mainstreaming through coordination between public agencies in charge of gender affairs, DRM, climate change, economic development, and social policies.

Gender Dimensions of Disaster Risk and Resilience: Existing Evidence

https://www.gfdrr.org/en/publication/gender-dimensions-disaster-risk-and-resilience-existing-evidence

Recognizing that disasters affect men and women in different ways, this report reviews the evidence on how both groups prepare for and cope with disasters. It provides a better understanding of how practitioners and policy makers can use the tools available to mitigate the impact of disasters and close gender gaps in outcomes.



Inclusive Resilience: Inclusion Matters for Resilience in South Asia

https://www.gfdrr.org/en/publication/inclusive-resilience-inclusion-matters-resilience-south-asia

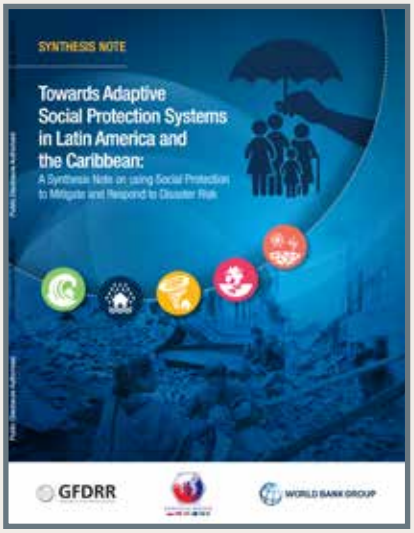
Socially excluded or marginalized groups tend to have limited resources, live in higher-risk areas, and remain absent in decision-making bodies in charge of DRM. In South Asia, one of the regions most vulnerable to natural hazards, governments have put in place DRM policies that commit to promoting social inclusion, but there remains a gap between policy instruments and the reality on the ground. This report provides an analysis and specific actions to operationalize the broader agenda of inclusion in the DRM sector in South Asian countries.

Disaster Recovery Guidance Series: Disability-Inclusive Disaster Recovery

https://www.gfdrr.org/en/publication/disaster-recovery-guidance-series-disability-inclusive-disaster-recovery

Whether due to stigma, prejudice, or a lack of awareness, individuals with disabilities may not be identified in traditional household surveys and may be overlooked in disaster recovery planning. This guidance note offers concrete steps to government officials and decision

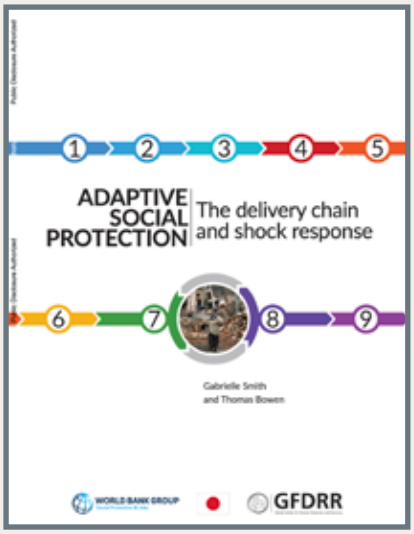
makers responsible for post-disaster recovery and reconstruction initiatives in enabling disability-inclusive planning for DRM.



Guidance Note Series: Towards Adaptive Social Protection Systems in Latin America and the Caribbean

https://www.gfdrr.org/en/publication/towards-adaptive-social-protection-systems-lac

While countries in Latin America and the Caribbean (LAC) have relatively well-developed social protection programs, the growing need to respond to climate and disaster risks remains unaddressed by such systems. Adaptive social protection (ASP), which aims to prevent households from falling into poverty through direct investments that support their capacity to prepare for and cope with disasters, can help LAC countries boost their resilience. This series of guidance notes serves as a consultation tool in the design of ASP systems in LAC countries.



Adaptive Social Protection: The Delivery Chain and Shock Response

https://www.gfdrr.org/en/publication/adaptive-social-protection-delivery-chain-and-shock-response

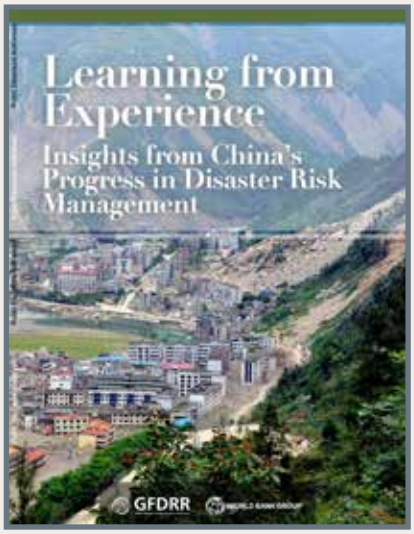
The COVID-19 pandemic is a stark reminder that there is an urgent need for governments and their partners to invest in building resilience to shocks. This paper outlines ways in which governments can use and adapt processes for implementing cash transfer programs as a form of shock response—especially to natural hazards, which climate change is expected to exacerbate.

Frontline: Preparing Healthcare Systems for Shocks

https://www.gfdrr.org/en/publication/frontline-preparing-healthcare-systems-shocks

Since climate change, disasters, pandemics, and demographic changes will increase pressures on already strained health

systems, there is an urgent need for collaboration among the DRM, health, and infrastructure sectors. This note outlines five priority areas for action: building health systems' foundations; preparing healthcare facilities for surge demand during emergencies; coordinating healthcare system responses; coordinating the health sector's crisis response with emergency management systems; and promoting quality infrastructure.



Learning from Experience: Insights from China's Progress in Disaster Risk Management

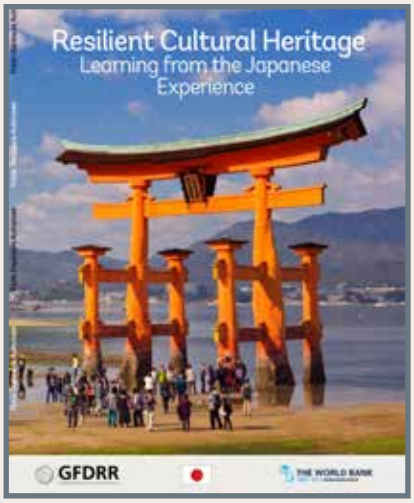
https://www.gfdrr.org/en/publication/learning-experience-insights-chinas-progress-disaster-risk-management

No stranger to earthquakes, typhoons, floods, and droughts, China has taken significant steps to strengthen its resilience against disasters in recent decades. This note distills lessons from China's progress that could be of particular interest to DRM practitioners around the world. Drawing on expert insights from China's DRM community, it highlights the evolution of the country's disaster risk reduction planning, the rise of demonstration communities, the standardization of the disaster loss statistical system, the development of an agricultural insurance system, and the establishment of a catastrophe risk insurance scheme.

In Focus: Resilience and Disaster Risk Management Stories in International Development Association (IDA) Countries

https://www.gfdrr.org/en/publication/focus-resilience-and-disaster-risk-management-stories-international-development

This collection of results stories shows how countries from all regions have made their DRM systems more resilient with GFDRR's assistance. Examples include how Freetown, the capital of Sierra Leone, developed its first comprehensive climate risk-informed transport map and how the Kyrgyz Republic identified regions where seismic risk is concentrated through a national probabilistic risk assessment.



Resilient Cultural Heritage: Learning from the Japanese Experience

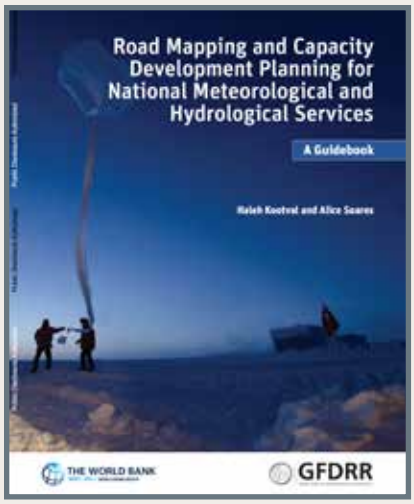
https://www.gfdrr.org/en/publication/resilient-cultural-heritage-learning-japanese-experience

Possessing a rich cultural heritage, Japan is also one of the countries most exposed to natural hazards. This report shines a spotlight on how the country has developed creative solutions to protect its cultural heritage and at the same time improve its resilience to natural hazards. It aims to inspire other countries to develop measures to improve the resilience of their own cultural heritage that are appropriate to their social, cultural, economic, and institutional contexts.

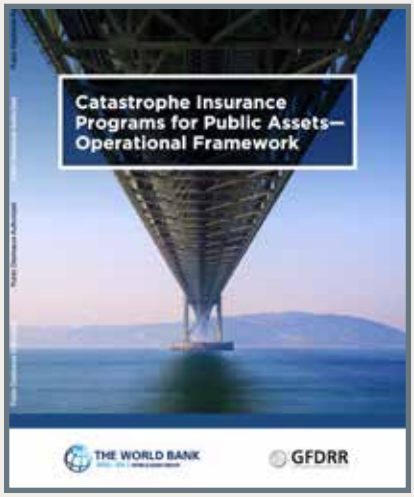
Road Mapping and Capacity Development Planning for National Meteorological and Hydrological Services: A Guidebook

https://www.gfdrr.org/en/publication/road-mapping-and-capacity-development-planning-national-meteorological-and-hydrological

The World Bank portfolio of hydrometeorological projects has increased significantly over the past decade—from 25 projects with a total funding of about $270 million in 2010 to more than 70 projects exceeding $1 billion in 2020. This guidebook includes step-by-step guidelines to develop the capacities of National Meteorological and



Hydrological Services (NMHSs) in World Bank member countries and explains the process to all relevant stakeholders, particularly NMHSs' managers and staff.



Catastrophe Insurance Programs for Public Assets - Operational Framework

https://www.gfdrr.org/en/publication/catastrophe-insurance-programs-public-assets-operational-framework

For countries that are Asia-Pacific Economic Cooperation (APEC) members, an insurance scheme for public assets is one way to minimize the impact of disasters that pose a threat to their economies. This report synthesizes peer-to-peer learning among APEC economies and draws on lessons from APEC countries (Australia, Japan, Mexico, and New Zealand) and beyond (Colombia and the United Kingdom) to offer practical guidance to finance officials about the design and implementation of catastrophe risk insurance programs for public assets.

Resilient Industries: Competitiveness in the Face of Disasters

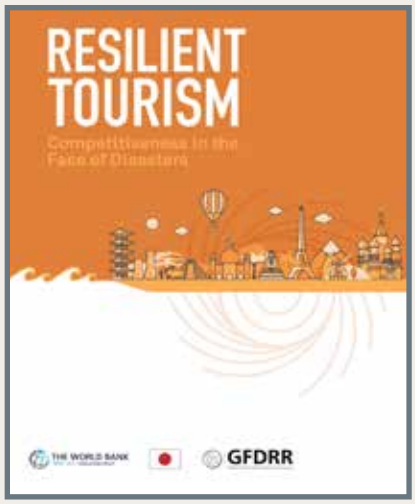
https://www.gfdrr.org/en/publication/resilient-industries-competitiveness-face-disasters

While the global discourse surrounding industry resilience is timely, industry resilience itself is a nascent discipline that has limited frameworks for application and operation even as threats increase. These gaps in knowledge have made industry resilience policy rank low among the priorities of both the public and private sectors. Addressing the significant costs of inaction to economies, this report calls for proactive approaches to industry resilience and provides policy makers with ways to boost industry competitiveness in the face of worsening disasters.

Resilient Tourism: Competitiveness in the Face of Disasters

https://www.gfdrr.org/en/publication/resilient-tourism-competitiveness-face-disasters

A changing climate threatens the tourism industry's potential to generate jobs and remain competitive as both the frequency and severity of extreme weather events intensify. This report aims to build knowledge of how and why the tourism sector is vulnerable to disaster and climate risks; raise awareness of disaster and climate impacts on tourism



competitiveness; examine barriers to proactive mitigation and risk-informed decision-making; and present examples of approaches in different countries.

Resilient Industries in Japan: Lessons Learned on Enhancing Competitive Industries in the Face of Disasters Caused by Natural Hazards

https://www.gfdrr.org/en/publication/resilient-industries-japan-lessons-learned-enhancing-competitive-industries-face

As industries expand across borders, so do their risks, including disaster and climate change risks that can disrupt operations and undermine economies. This report focuses on Japan's experience of industrial development amid various disaster risks and highlights the manufacturing sector, given its importance to both the country's own economic growth and its links to global value chains.

Key Publications FY21

In Focus Advancing social inclusion in climate and disaster resilience in South Asia

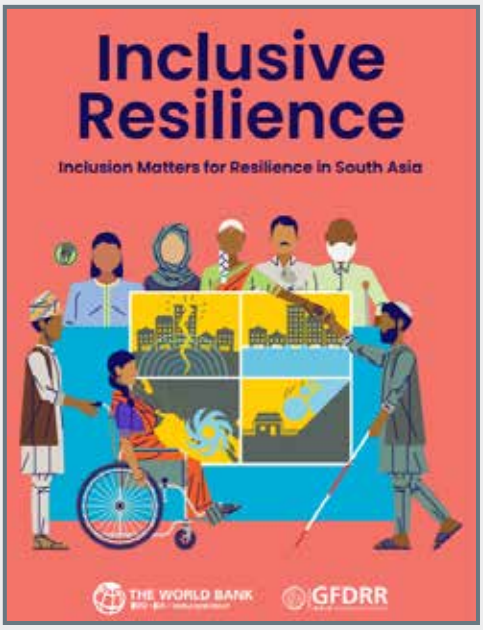
On April 25, 2015, a magnitude 7.8 earthquake struck Nepal; Bandita recalls the urgency with which she moved her young children and elderly mother-in-law out of the house. Once at a "safe" location, her other major concern was her nonagenarian grandmother, infirm and with limited mobility. Would there be evacuation support for her and for people in vulnerable situations like hers? Would her grandmother be able to find shelter? Would she have access to food, water, medicine, and so on?

South Asia is one of the world's most vulnerable regions to the impact of climate change and natural hazards. Over the past years, the region has continued to suffer from threats posed by climate change and natural hazards, including severe floods, landslides, glacier melts, and earthquakes. At the same time, South Asia is also one of the regions where social inequality remains a major barrier to sustainable development. Social exclusion is persistent, and people continue to experience various forms of exclusion and discrimination based on identities such as gender, age, religious and ethnic origin, geographical location, economic status, and physical and cognitive abilities. Societal behavior and norms continue to foster these forms of exclusion, making vulnerable people even more vulnerable before, during, and after a disaster.

Given these pressing challenges facing South Asia, the World Bank's new publication *Inclusive Resilience: Inclusion Matters for Resilience in South Asia* (2021) offers a timely contribution to addressing social inclusion in climate and disaster resilience. While many South Asian governments have made significant and important strides toward addressing social inclusion issues in disaster risk management (DRM) policies and frameworks, there often remains a gap in translating these commitments into de facto actions on the ground. To fill this gap, this new publication analyzes the experiences of different groups of excluded populations in South Asia and shares a set of practical actions that makes resilience outcomes available and accessible to the wider society, including people who tend to be excluded. The report builds on the World Bank's flagship report on social inclusion, *Inclusion Matters: The Foundation for Shared Prosperity* (2013).

The proposed actions in this new report are derived from a thorough identification of the major social exclusion factors observed in South Asian countries and an analysis of how these exclusion factors, especially at the intersection of marginalized identities, affect disaster impacts, using case study examples of actual DRM projects funded by the World Bank. South Asia is one of the leading examples to advance social inclusion in climate and disaster resilience, but these practical actions have been framed in a way that can be replicated and adjusted to different country contexts and DRM intervention areas.

During the ongoing COVID-19 pandemic, the importance of social inclusion has become clearer as the world has witnessed disproportional impacts of the pandemic and its related shocks to the most vulnerable. The impact has been exacerbated by the compound risks of multiple shocks (climate change, natural hazards, pandemic, pandemic-induced economic crisis, and so on) on the most vulnerable and the response has often excluded people and communities. In this context, social Inclusion is one of key elements that the World Bank continues to focus on during post-pandemic recovery through its green, resilient and inclusive development (GRID) approach in close partnerships with governments and other development partners. During the process, the findings and ideas that have emerged through this effort in South Asia and other regions will be mobilized to make a steady progress toward inclusive resilience.



Keiko Sakoda and Bandita Sijapati. World Bank. 2021. *Inclusive Resilience: Inclusion Matters for Resilience in South Asia*. Washington, DC: World Bank.

Key Publications FY21

In Focus Health care systems at the front line of emergencies

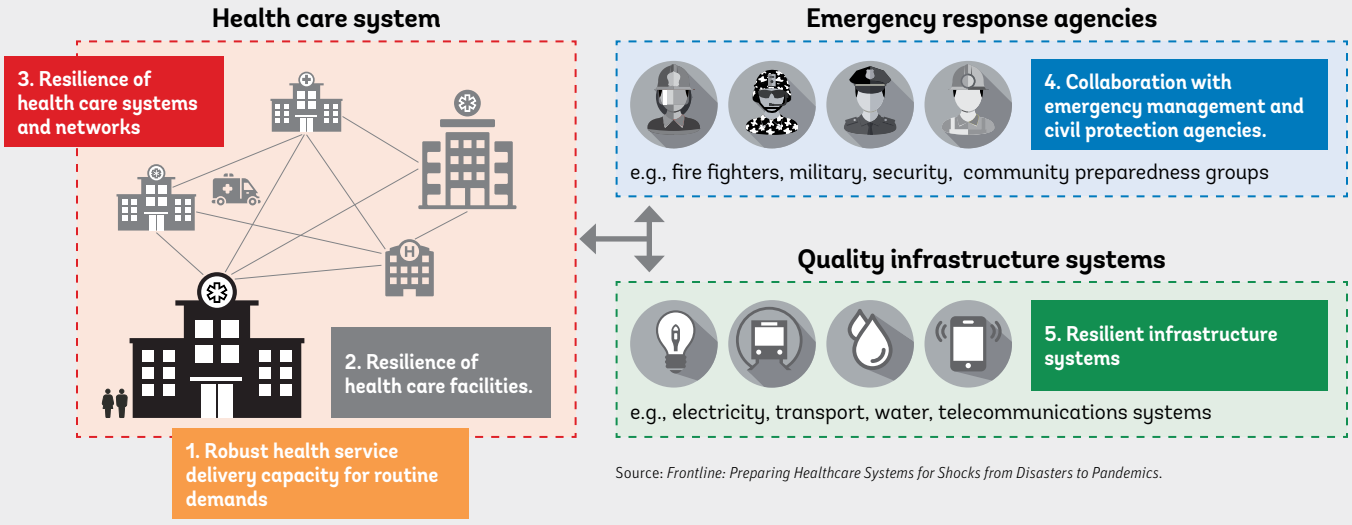
In January 2021, in the midst of the pandemic, a 6.2-magnitude earthquake struck the Indonesian island of Sulawesi. The four largest hospitals in the area were affected, with damaged and collapsed buildings severely obstructing critical relief and treatment efforts. Events like this highlight the importance of ensuring the disaster resilience of health care systems—from staff, buildings, and equipment to medical supply chains—to provide continued care during emergencies.

Health care systems are at the front line of delivering critical care during emergencies. From flood-induced cholera outbreaks to earthquake casualties and the emergence of zoonotic diseases, health care systems play a crucial role in mitigating the illnesses and deaths caused by emergencies. Countries' ability to swiftly shift gears to provide reliable essential health care services in emergencies is also critical in protecting people's well-being in the long run.

Yet, in many developing countries, resource and capacity constraints mean that—even before the pandemic—health care systems struggled to meet routine demands for health care services. In coming years, disasters, climate change, economic shocks, pandemics, demographic change, and chronic diseases will further increase pressures on these already-strained health systems.

Constrained health systems not only exacerbate disaster losses; they also compromise the ability to provide essential baseline health care services for the population. For example, World Health Organization data for 80 countries show that around 1.4 million fewer people received necessary care for tuberculosis in 2020 than the year before as a result of pandemic disruptions. Estimates for the COVID-19 pandemic suggest that inadequate nutrition and interruptions in essential health care services are drastically increasing maternal and child deaths—by 39 and 45 percent, respectively—in poorer countries.

A new GFDRR report—*Frontline: Preparing Healthcare Systems for Shocks from Disasters to Pandemics*—is the first World Bank study on this crucial issue. It offers recommendations to better prepare health systems to respond to a wide range of shocks, ranging from seasonal demand surges to pandemics, climate change impacts, and all types of disasters. The report, funded by GFDRR's Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, reflects a wider effort to apply the lessons learned from disaster risk and emergency management practices to inform actions for more reliable, shock-resistant health care services. It identifies five areas for action:



Source: *Frontline: Preparing Healthcare Systems for Shocks from Disasters to Pandemics.*

Temporary shelter after a 6.2 magnitude earthquake hit Mamuju, Indonesia on January 15, 2021. Photo: Xinhua / Alamy Stock Photo.

1. **Building foundations: Health systems that effectively manage routine demand are more resilient to shocks.** To offer inclusive, affordable, and quality services, it is crucial to strengthen the enabling factors, such as adequate equipment, financing, skills, information systems, and management and operational protocols.
2. **Preparing individual health care facilities: Demand, capacity, and readiness for shocks.** Contingency planning can be key to preparing the capacity, skills, staff, equipment, management, supplies, and protocols needed for emergencies.
3. **Strengthening health care systems: Strategies to increase surge capacity and coordination.** When resources are limited, not every facility can be equipped to the highest standard. Enhanced communication channels, data-driven approaches for targeted service delivery, and mobile clinics can help increase system-level flexibility and coordination.
4. **Integrating emergency response: Coordination with disaster response and civil protection agencies.** The emergency preparedness of health systems needs to be closely coordinated with a country's overall emergency management and disaster response systems, such as those implemented by military, civil protection, and community groups.
5. **Ensuring lifeline infrastructure for resilient health care services.** Resilient water, electricity, transport, and communication and digital systems are crucial to ensuring adequate treatment capacity, equitable access to health care, and the functioning of supply chains. The resilience of health care services depends on the interdependence of these lifelines.

Building on the priorities identified in this report, GFDRR and the World Bank are now working with our partners to tailor technical and operational support to reduce health care disruptions on communities and prevent the long-lasting impacts such disruptions impose on lives and livelihoods. Strengthening the resilience of health systems is an imperative for sustainable development and for the management systemic single or compound shocks such as pandemics and disasters while reducing the loss of life.

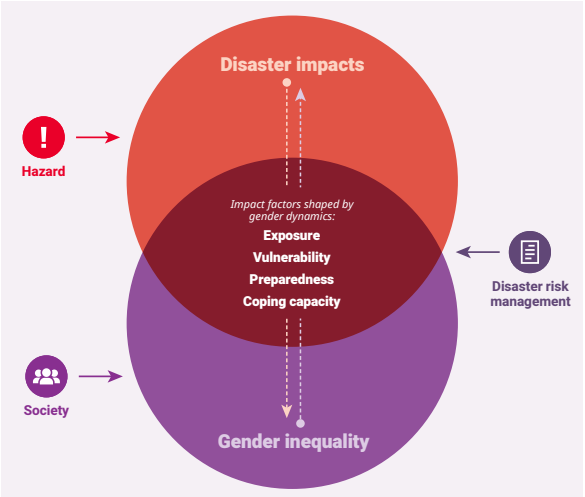
Key Publications FY21

In Focus The high stakes of gender in disaster risk management: From analytics to operational support

Natural hazards, such as floods, droughts, and earthquakes, are gender neutral—but their impacts are not. A new report, *Gender Dimensions of Disaster Risk and Resilience: Existing Evidence*, shows how disaster impacts often reflect, and reinforce, gender inequality. The report presents a framework to understand the relationship between disaster risk and resilience that has since been used in gender assessments at the country level to inform operations in disaster risk management (DRM).

The framework presented in the report is nonlinear. **Disaster impacts** (orange circle) depend on hazard type and intensity, exposure (who and what is at risk of being affected), levels of vulnerability (susceptibility to damage), preparedness, and coping capacity. **Gender inequality** (purple circle) arises from the expected roles of men and women in a society, which influence socioeconomic status; level of agency; and the different ways men and women prepare for, react to, are impacted by, and recover from disasters. In the **overlay** (maroon area) between gender inequality and disaster impacts are the factors that drive disaster impacts and are influenced by gender dynamics. This is where gender-differentiated impacts occur.

Gender-differentiated impacts of disasters can



Source: Gender Dimensions of Disaster Risk and Resilience: Existing Evidence.

exacerbate gender inequality, which in turn can worsen resilience to future disasters. Good DRM policies and interventions should operate in the **overlay** area shown in the figure by considering ways in which gender dynamics influence disaster impacts in any given area before making decisions on policy or project design. While GFDRR and the World Bank are committed to supporting gender-inclusive approaches to better manage disaster risks, the lack of a common understanding of the relationship between gender and DRM has limited the ability of teams to identify gender gaps and integrate gender considerations into DRM strategies and project design.

The framework presented in the report is supporting World Bank operations by guiding gender assessments in DRM through:

- Linking country risk profiles to relevant gender dimensions of exposure and vulnerability (health, livelihood, education, etc.), preparedness (access to information, etc.), and coping capacity (access to finance, migration, etc.);
- Identifying meaningful gender-disaggregated data to show how gender inequities manifest in a pre- and post-disaster setting in a specific country; and
- Linking identified gaps with DRM portfolios and relevant policy priorities.

The framework has now been adopted by World Bank teams conducting country-level gender gap assessments in direct support of the preparation of DRM operations in Senegal and Ethiopia. This has improved the teams' understanding of the gender impacts of disasters and has helped them gain a better grasp of gender gaps that their projects can address.

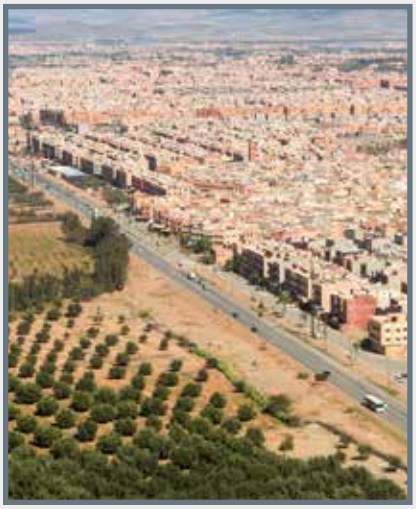
The framework is also used to guide an ongoing gender assessment in Jamaica to promote more gender-sensitive DRM programming in the country. Teams say the framework helps provide a consistent structure for organizing and classifying the analysis of gender-differentiated impacts of disasters. Based on these experiences, a methodology for how to apply the framework to carry out gender assessments with a DRM focus was developed and is now being implemented across the DRM sector.

The findings of the report have continued to help World Bank experts and DRM practitioners integrate a gender lens into their work and ensure that clients' preparedness, response, and recovery policies and interventions are gender informed.

Summary of Events

Workshop: Safe and Sustainable Buildings to Strengthen Urban Resilience in Morocco (April 1, 2021)

https://www.gfdrr.org/en/event/workshop-safe-and-sustainable-buildings-strengthen-urban-resilience-morocco



Suburbs of Marrakesh, Morocco. Photo: © Kuzyn | Dreamstime.com

Morocco is exposed to a broad range of urban risks that are exacerbated by rapid urbanization, unregulated construction, an aging building stock, and climate change. This workshop presented the main findings and recommendations of an assessment conducted by GFDRR in partnership with the Moroccan government, with the support of the Japanese government, that aimed to diagnose the country's building regulatory framework and strengthen its compliance with safe standards for land use and construction.

Building Back Better: Reflections on Resilience on the 10th Anniversary of the Great East Japan Earthquake (March 17, 2021)

https://www.worldbank.org/en/events/2021/03/18/building-back-better-reflections-on-the-10th-anniversary-of-the-great-east-japan-earthquake-drmhubtokyo

This online seminar, co-organized by the Japanese government, GFDRR, and the World Bank, commemorated the 10th anniversary of the 2011 Great East Japan Earthquake. Attended by around 300 participants, it brought together prominent experts in various fields to reflect on Japan's reconstruction efforts and lessons on enhancing resilience.

Building Back Better Seminar co-organized by the Government of Japan and World Bank.

Understanding Disaster Risk with Open Data (February 24, 2021)

https://opendri.org/open-data-day-event-understanding-disaster-risk-with-open-data/

Although disaster risk is seen as a narrow domain reserved only for climate experts, open data of all kinds—even data sets that may not be immediately classified as disaster-related—can help governments, humanitarian organizations, and citizens prevent and prepare for disaster risk. This webinar taught participants how to define, identify, and share disaster risks in their countries and cities using tools developed by GFDRR, such as ThinkHazard!, Risk Data Library, Open DRI, and GeoNode.

Global Weather Online Enterprise Forum 1: Legislative Frameworks that Enable Public-Private Engagement (January 21, 2021)

https://www.gweforum.org/gwe-online-forum-1-about/

This online forum explored the national legal frameworks that define and establish the roles and

responsibilities of each stakeholder in the global weather enterprise. Building on the recommendations of *The Power of Partnership* report published in 2019 by GFDRR, the event facilitated a discussion of the variety of transparent legal and regulatory frameworks that ensure the inclusiveness of the national enterprise.

2020 Understanding Risk Forum (December 1–3, 2020)

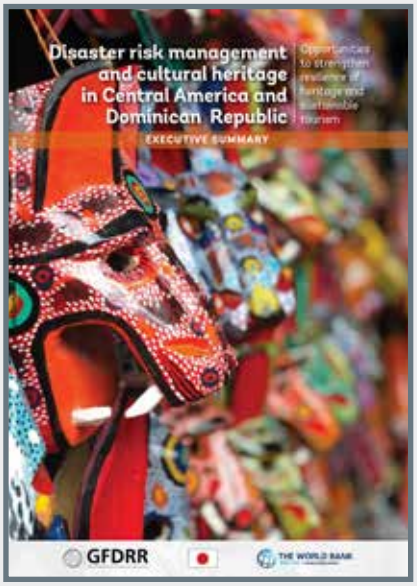
https://understandrisk.org/event/ur2020_forum/

The 2020 Understanding Risk (UR) Forum, which also served as the 10th anniversary celebration of the UR community, convened experts and practitioners from around the world to showcase the best practices and latest innovations in the field of disaster risk identification. Held virtually across three time zones, it was attended by 2,645 participants from 179 countries who accessed content on subjects such as artificial intelligence, data visualization, early warning systems, nature-based solutions, and user-centered design.

Launch of the Regional Report on Disaster Risk Management and Cultural Heritage for Central America and the Dominican Republic (August 28, 2020)

https://www.facebook.com/CEPREDENAC/videos/1242972522720065/?extid=NS-UNK-UNK-UNK-IOS_GK0T-GK1C&ref=sharing

In Central America, where poverty and inequality are the main drivers of risk, cultural heritage plays a fundamental role in strengthening community resilience and social inclusion. This launch of the *Disaster Risk Management and Cultural Heritage in Central America and the Dominican Republic* report sheds light on how Central America and the



Dominican Republic can integrate both tangible and intangible cultural heritage within DRM. It also started laying the foundations for establishing cooperative activities aimed at strengthening the cultural sector and contributing to more sustainable tourism in the region—a goal that travel disruptions arising from the COVID-19 pandemic have made even more urgent.

Understanding Risk: British Columbia

https://understandrisk.org/event/ur-bc-2020/

This online symposium assembled practitioners and policy makers in British Columbia to discuss risk reduction strategies that entail a proactive approach to improving disaster recovery. Building on the work of the previous symposiums, which encouraged the involvement of Canada's indigenous groups and youth to become key constituents in reducing disaster risk, this series of events also merged art, knowledge, practice, and policy to share key

updates on enhancing resilience in British Columbia.

Cities on the Frontline

https://medium.com/@RCitiesNetwork/coronavirus-speaker-series-sharing-knowledge-to-respond-with-resilience-5a8787a1eef5

Coronavirus Speaker Series

These Coronavirus Speaker Series talks, which are part of the Cities on the Frontline, drew on the insights and experiences of various experts to address topics such as the impact of an aging population and urban density on cities. Emphasizing that compound vulnerabilities could worsen cities' existing disaster risks, speakers touched on a broad range of subjects: healthy cities, safer schools, resilient housing, and resilient food systems, to name a few.

Events

In Focus Understanding Risk 2020 Global Forum: Looking back, looking forward

The Understanding Risk (UR) 2020 Global Forum went fully virtual and was as engaging and global as ever, convening more than 2,500 experts and practitioners from 179 countries to inspire ideas and solutions for disaster risk management. This occasion marked the 10-year anniversary of the UR community, a key milestone to celebrate the achievements of the field during the past decade. It was also an opportunity to reflect on the challenges ahead, as climate change and the COVID-19 pandemic are showing why understanding and using risk information is crucial to make the world safer and more resilient. And that is what the event tagline sought to convey: "Looking back, looking forward."

Over three days, from December 1 to 3, the conference offered a truly global agenda, streaming prerecorded and live content in three time zones (SGT, GMT, EST), allowing audiences across the world to participate during their normal business hours. Through a customized and interactive platform, participants were easily able to explore the agenda and speakers, navigate sessions and add them to their calendars, share with colleagues, network with other attendees on the community page, watch sessions at a later time, and access on-demand additional content.

Keynotes and plenaries featured real changemakers, ranging from those who battle the biggest fires and researchers at the frontier of science to artists who raise awareness about natural hazards and climate change. They inspired participants to share experiences with deep technologies for disaster response, risk communication and misinformation, creating change through music, ways racism shapes disaster risks, and confronting uncertainty in a COVID-19 world. There was also an interactive performance, in which the audience took on the role of scientists, politicians, and emergency services personnel to see if they could lessen the impact of a disaster on a community.

As in every UR Global Forum since 2010, community sessions led by partner organizations were at the heart of the conference: these sessions have become a crucial space to create uncommon interactions, develop partnerships, and stimulate attendees to pursue new approaches. UR2020 had more than 100 sessions highlighting speakers from over 150 institutions globally. They discussed the latest innovations and best practices for disaster risk management, covering a variety of hazards and cross-cutting themes. Besides cutting-edge technical presentations and project launches, some of the sessions were more creative and allowed participants to co-create with artists' cartoons and spoken-word performances reflecting around racism, exclusion, and risk.

The UR Global Forum is a biennial conference that showcases the best practices and latest innovations in the field of disaster risk identification and management; it also facilitates nontraditional connections and partnerships. UR2020 was co-organized by GFDRR and the Lloyd's Register Foundation Institute for the Public Understanding of Risk at the National University of Singapore (NUS). Financial partners were GFDRR, Google, Esri, and FM Global. Two co-hosted partner conferences were also included as part of the program and the interactive platform: The Development & Climate Days (D&C Days) and the Humanitarian OpenStreetMap Team (HOT) Summit.

The UR community has accomplished much in the last 10 years, but its mission does not stop here. As literary performer Regie Gibson put it at UR2020: "We've got work to do . . . ,"inviting us to speak up and take action" . . . every day, understanding just a little bit more that a better world is not just possible, but that it will happen, if we believe and if we show up every day, willing and ready to roll up our sleeves and get cracking."

UR2020 by the numbers

THE COMMUNITY

2,500+ live attendees
50% female, 50% male

from **1,300+ organizations**

from **179 countries**

THE CONTENT

138 hours of total content/**32** hours of streaming

105 community sessions organized by **150 technical partners (51 new)**

534 speakers organized by **(56% male, 44% female)**

15 plenaries and keynotes

Annex

This Annex provides information about GFDRR's portfolio in FY21. It includes commitments, disbursements, donor resources available, and results progress. It also includes a financial report covering the period of July 1, 2020 to June 30, 2021.

In the FY21 *Annual Report*, the reporting of the Global Risk Financing Facility (GRiF) and the Climate Risk and Early Warning Systems (CREWS) Initiative have been excluded, since these programs are governed by entities other than the GFDRR's Consultative Group.*

* GRiF is co-managed with the Disaster Risk Financing and Insurance Program under the World Bank's Finance, Competitiveness & Innovation Global Practice and is proposed to become a standalone trust fund outside GFDRR's umbrella in FY22 because of its thematic scope, size, governance structure, and distinct donor relationships. As a financial intermediary fund, CREWS will sit outside the GFDRR Umbrella 2.0 Program to be implemented from FY22.

Portfolio Summary

As of end of FY21 (June 30, 2021), GFDRR's total portfolio included 253 active grants covering 154 countries, for a total commitment amount of $135 million.[1] Of the active grant portfolio as of end of FY21, 72 grants were funded through the Multi-Donor Trust Fund (MDTF) and related core funding windows (29 percent) (see figures 1.A and 1.B).[2] One hundred and seven grants were funded through the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries (Japan Program), accounting for 42 percent of total funding. Thirty-nine grants were funded through the ACP–EU Natural Disaster Risk Reduction (ACP–EU NDRR) Program (15 percent) and 25 grants were funded through other EU programs (10 percent). In addition to the activities funded by core funding windows, 10 grants were funded through special programs, namely the Canada-Caribbean Resilience Facility and the City Resilience Program (4 percent).

[1] The 154 countries include those receiving benefits from GFDRR grants either through activities implemented directly in-country or covered through global or regional activities.

[2] Related core windows include USAID and the Single-Donor Trust Fund funded by Australia's Department of Foreign Affairs and Trade (DFAT).

FIGURE 1.A
Number of Active Grants by Funding Window FY21 = **253**

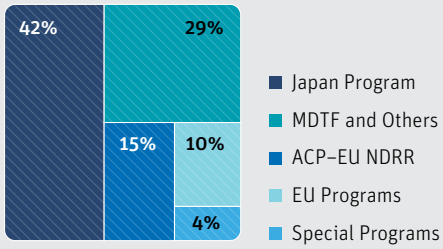


FIGURE 1.B
Distribution of Active Commitments by Funding Window FY21 = **$135 M**

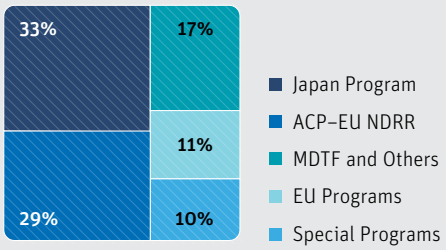


FIGURE 2
Distribution of Active Funding by Region, FY21

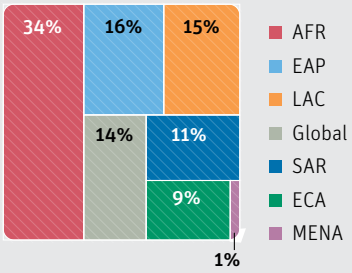
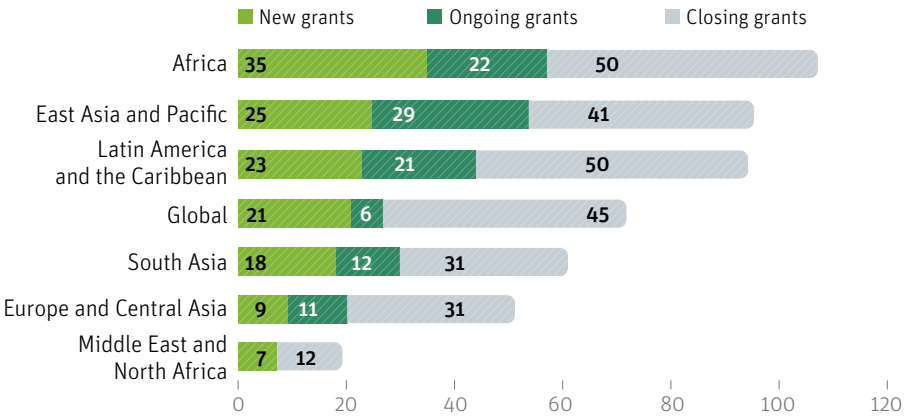


FIGURE 3
Distribution of Grants, FY21



Total commitments of the active grant portfolio from the MDTF and related core funding windows amounted to $23.3 million (17 percent). The Japan Program accounted for $44 million (33 percent). The ACP–EU NDRR Program accounted for $38.6 million (29 percent), and other EU-funded programs represent $15.5 million in active commitments (11 percent). In addition to activities funded by core funding programs, special programs accounted for $13.2 million (10 percent).

In terms of regional representation, the largest share of active grants covered Sub-Saharan Africa, representing 34 percent of active funding (see figure 2). This is consistent with previous fiscal years. The Africa region (AFR) was followed by the East Asia and Pacific (EAP) region, at 16 percent of active funding; Latin America and the Caribbean (LAC), at 15 percent of active funding; South Asia (SAR), at 11 percent of active funding; and Europe and Central Asia (ECA) at 9 percent of active funding. A smaller proportion of active funding supported the Middle East and North Africa (MENA), at 1 percent. Additionally, 14 percent of active funding was directed toward global and cross-regional activities.

Throughout the fiscal year, 260 grants ($153 million) reached completion (see figure 3), bringing the total number of grants active at some point during FY21 to 499 grants. The number of closing grants increased by 93 percent (an 86 percent increase in funding) over FY20, driven by the completion of the MDTF, the first phase of the Japan Program single-donor trust fund (SDTF), the Serbia National DRM, and the Global Partnership on Disaster Risk Financing Analytics.

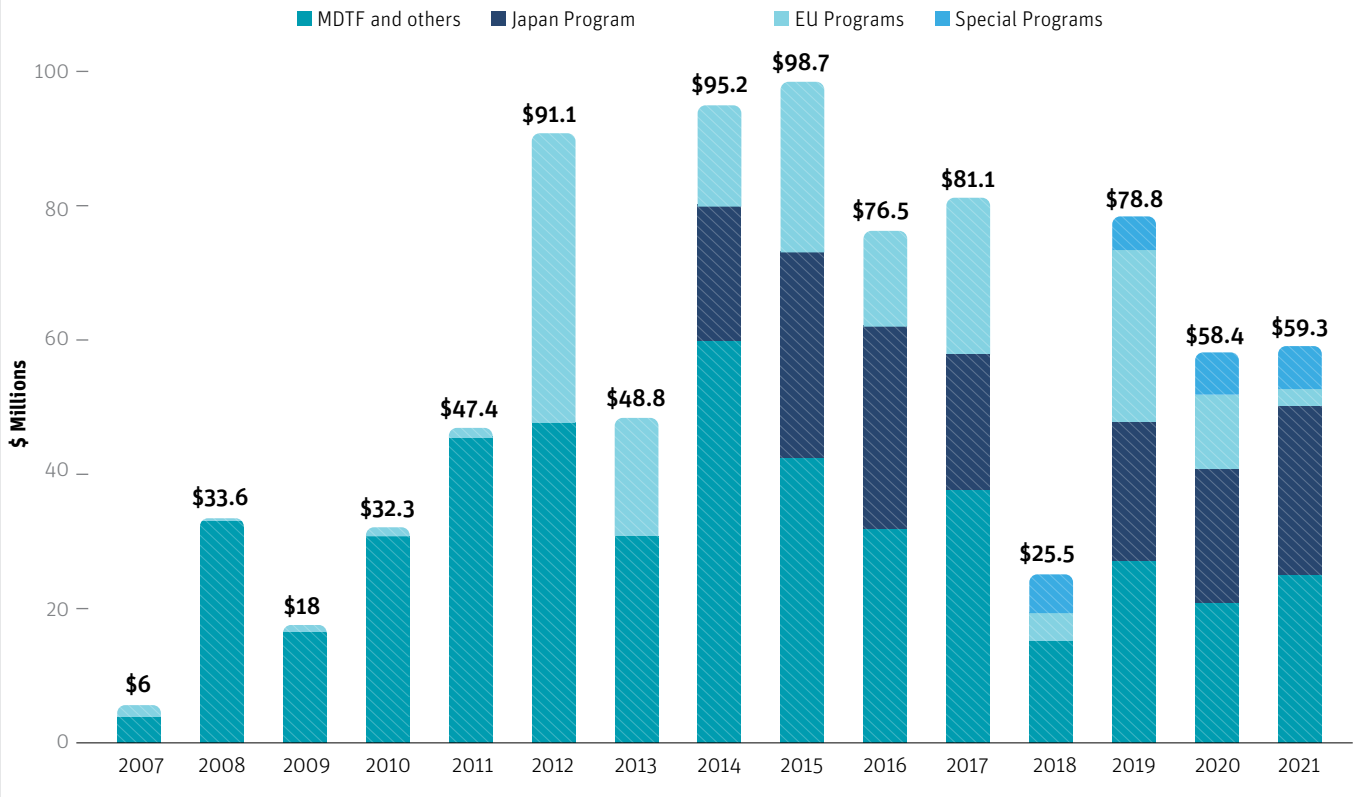
Sources of Funding

Over the fiscal year, 12 donors contributed an additional $59.3 million in support of GFDRR's broad-based disaster resilience program (see figure 4).[3] Core funding of the MDTF during the fiscal year amounted to $24.3 million, or 41 percent of overall contributions.

[3] This amount is before trust fund administration fees of $0.08 million.

During the same period, $28.5 million was received for other core programs, representing 48 percent of contributions in FY21. This included $24.3 million in contributions for the Japan Program, $2.4 million for EU-funded SDTFs, and $1.8 million for USAID. Of FY21 contributions, $6.4 million, or 11 percent, supported special programs. This included $4 million in contributions for a Canada-Caribbean SDTF and $2.4 million for the City Resilience Program. Overall contributions for core programs and special programs were approximately 9.5 percent lower than average annual contributions received by GFDRR over the previous three years ($65.5 million).

FIGURE 4. Contributions to GFDRR, FY07–FY21 ($ M)



Uses of Funding

In FY21, overall GFDRR trust fund disbursements amounted to approximately $65.9 million. Of these, 90 percent ($59.6 million) of disbursements were project related (see figure 5). The disbursement rate in FY21 decreased slightly (1 percent) compared to FY20, accounting for 45 percent, showing an overall consistent rate over the last two fiscal years.[4]

GFDRR's program management and administration (PMA) expenditures—which included staff costs, consultant fees, consultancy services, travel, communication, information technology, equipment, and other non-overhead costs—were $5.8 million. The share of PMA expenditures increased by 11.5 percent compared to last year's expenses of $5.2 million (see figure 6).[5]

[4] Rounding is applied when calculating the numbers.

[5] FY21 disbursement data do not include disbursements of grants made under GRiF and CREWS.

FIGURE 5
Project Disbursements, FY14–21

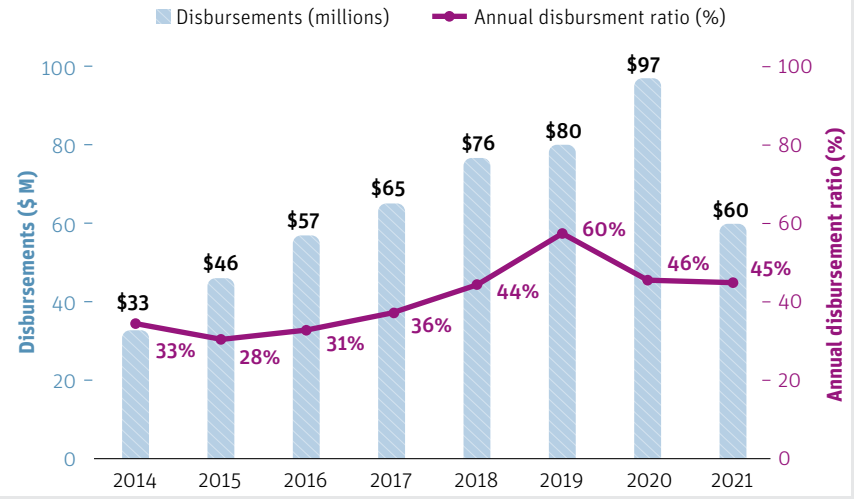


FIGURE 6
Distribution of Disbursements, FY21

New Grant Commitments in FY21

Throughout FY21, the Secretariat committed a total of $49.7 million to grant activities. This included $45.8 million committed to 138 new grants,[6] and $3.9 million provided as additional funds to scale up 16 ongoing activities.

In terms of regional representations, during FY21, the Africa region received the largest share of new support (20 percent of new commitments in dollar terms; 25 percent of new grants) (see figure 7).

The Africa region is followed by the East Asia and Pacific region with the second largest share of funding (17 percent of new commitments in dollar terms; 18 percent of new grants); the Latin America and the Caribbean region (13 percent of new commitments in dollar terms; 17 percent of new grants); the South Asia region (12 percent of new commitments in dollar terms; 13 percent of new grants); and the Europe and Central Asia region (8 percent of new commitments in dollar terms; 7 percent of new grants). The Middle East and North Africa region received the smallest share of new support (3 percent new commitments in dollar terms; 5 percent of new grants). Global and multiregional activities represented 27 percent of new commitments in dollar terms and 15 percent of new grants.

In terms of funding, the MDTF and related funds accounted for $14.2 million (31 percent) of funding for new grant commitments (see figure 8). The Japan Program accounted for $24.2 million (52 percent) in new funding. The ACP–EU NDRR Program accounted for $241,000 (1 percent) and other EU-funded programs accounted for $3.1 million in new funding (7 percent). Special programs provided $4.1 million in funding for new grant commitments during FY21 (9 percent). The average activity size for FY21 approved grant activities was approximately $300,000 for country-based activities and $552,000 for global engagements.[7] The grant size of country-based engagements tends to fluctuate, depending on the needs of projects.

Of the $45.8 million committed to new activities during FY21, about 97 percent ($44.4 million) of new grants related broadly to mainstreaming ex-ante disaster risk management (DRM) and climate change adaptation (CCA) activities, while about 3 percent ($1.4 million) went toward activities linked to post-disaster and resilient recovery interventions (see figure 9). This is consistent with FY20 and represents a continued emphasis on helping countries strengthen resilience to shocks before disaster strikes.

[6] The new grants include Just-in-Time grants. Rounding is applied to the number amounts and percentages.

[7] This does not include in Just-in-Time grants, which had an average size of $65,000. Core program grants had an average size of $326,171. EU programs had an average size of $241,522. Special program grants had an average size of $1,012,500.

FIGURE 7
Distribution of Financing for New Commitments by Region (%)

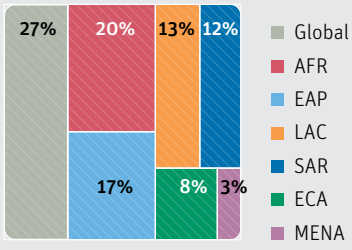


FIGURE 8
Distribution of Financing for New Commitments by Funding Source (%)

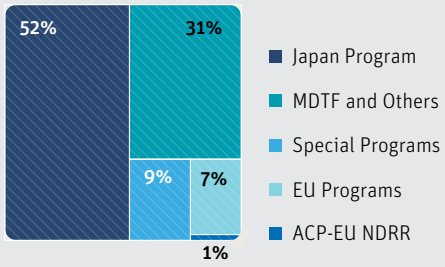
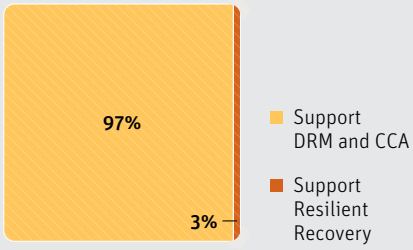


FIGURE 9
New Commitments Approved in FY21 (%)



Portfolio Profile and Beneficiaries

In FY21, GFDRR-funded active grants targeted a range of natural hazards that pose the highest risks to vulnerable countries. Similar to FY20, most core program grant activities addressed flood-related natural hazards, including urban flooding (68 percent), river flooding (62 percent), and coastal flooding (49 percent).[8] These correspond to 72 percent of funding contribution each to urban and river flooding and 54 percent of funding contribution to coastal flooding (see figure 10). Grant activities also addressed geohazards, including earthquakes (51 percent) and landslides (47 percent). These figures highlight the multihazard nature of a bulk of the grant activities undertaken by GFDRR.

Similar to FY20, GFDRR-supported activities had a range of beneficiary types in FY21. As noted in figure 11, 96 percent of the core program grants benefited government partners through support and engagement with ministries of environment, ministries of finance, public works agencies, development and planning departments, national disaster management agencies, and many other government partners.

Communities benefited from over half of the grant activities at 53 percent, and civil society organizations (CSOs) and nongovernmental organizations (NGOs) were each beneficiaries in over 19 percent of activities. Academia was engaged in 30 percent of activities, while the private sector was engaged in 25 percent of overall activities (see figure 11).

Furthermore, 74 percent of active grants in FY21 supported activities at the national level, which corresponded to 73 percent of the funding. In addition, 24 percent of grant activities (which translates to 34 percent of funding) contributed to strengthening regional-level resilience.

[8] Most grant activities and funding contributions addressed more than one natural hazard, so the numbers shown do not sum to 100 percent.

FIGURE 10

FY21 Portfolio—Natural Hazards Addressed (%)

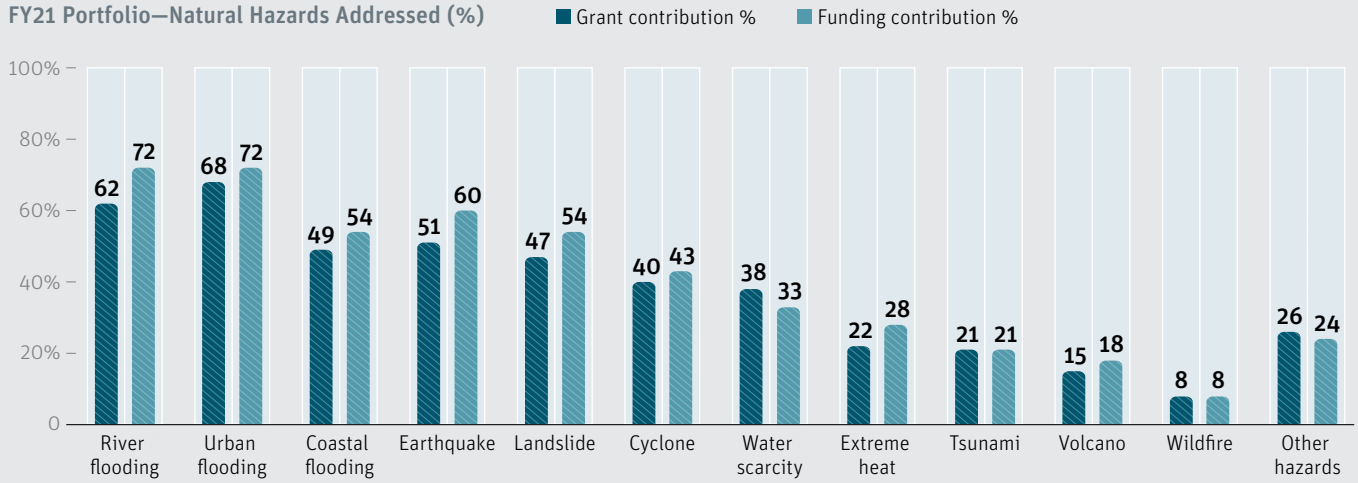
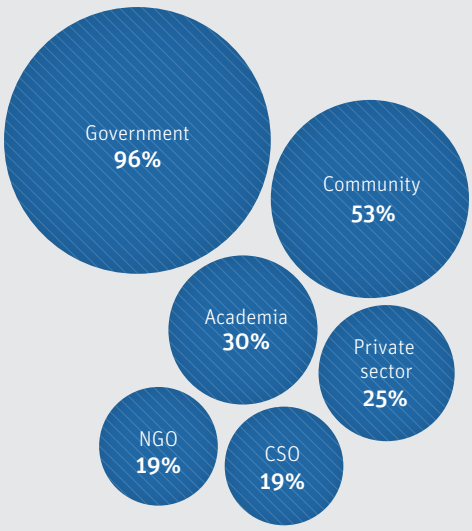


FIGURE 11

Beneficiaries of FY21 Grant Activities (by portfolio $)



Grant activities at the municipal and subnational levels received funding contributions of 30 percent and 33 percent respectively (see figure 12) of the overall GFDRR portfolio.

As figure 13 shows, 11 countries accounted for $54.8 million of in-country grant support during FY21 (19 percent of overall commitments during FY21).[9] Many of these grant activities supported integrated risk reduction and preparedness efforts, with a focus on resilient infrastructure and urban resilience. Moreover, some of the grants supported strengthening disaster responsive social protection systems. For instance, in Vietnam, GFDRR supported strengthening the resilience of the existing social assistance system to be more responsive to natural hazards. Among the top 11 countries, three were considered fragile states (Democratic Republic of Congo, Haiti, and Myanmar), which demonstrates GFDRR's commitment to strengthening resilience in fragility, conflict, and violence-affected contexts. Examples include strengthening the resilience of cities with airports in the Democratic Republic of Congo; supporting multihazard resilience of lifeline infrastructure in Myanmar; and enhancing disaster risk reduction and urban resilience in Cap-Haïtien, Haiti. In addition to these country-specific commitments, active commitments in FY21 included $11.7 million in funding for 19 grants in the Caribbean and $8 million in funding for 11 grants in the Pacific Islands.

In terms of new in-country commitments, the top recipients included Vietnam ($2.2 million for five grants), India ($1.6 million for five grants), Bangladesh ($1.2 million for four grants), Mozambique ($1.1 million for two grants), and the Philippines ($0.9 million for five grants). Examples of newly funded in-country activities included improving the planning and design of resilient infrastructure in Bangladesh; supporting tools to improve the safety and resilience of dams and downstream communities in India; and strengthening urban resilience and disaster preparedness in Mozambique.

[9] Rounding is applied when calculating the numbers.

FIGURE 12
FY21 Portfolio Coverage Level (%)

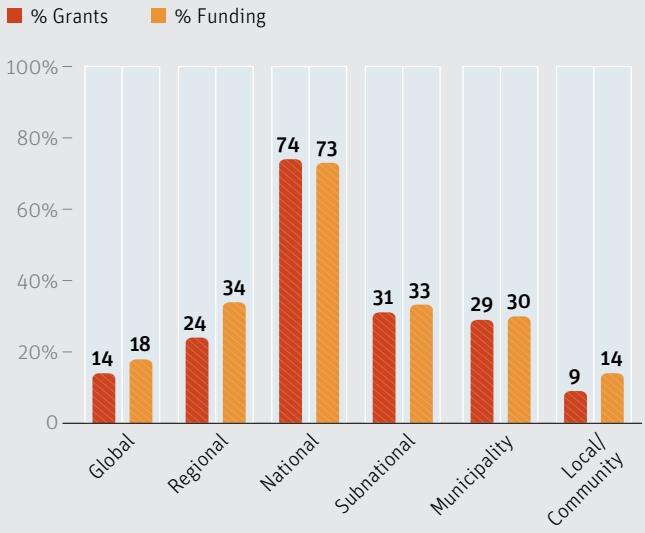
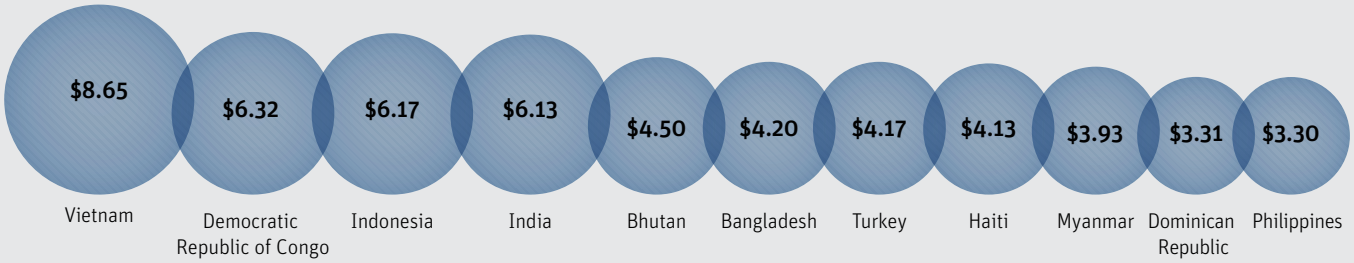


FIGURE 13
FY21 Active Commitments: Top In-Country Support = **$54.8 million**
$ Millions



Portfolio Results

This is the fourth and final fiscal year of reporting results on the GFDRR partnership, as anchored in implementing the facility's FY18–FY21 Strategy. This section outlines the progress and achievements of the partnership as measured against GFDRR's Results Framework and the targets set out in its FY18–FY21 Strategy. It also highlights where there is high demand for support to help countries build greater resilience to natural hazards and climate change, and notes where improvements may be needed. The goal of this results section is to inform the partnership about progress made during FY21 and facilitate decision-making. The analysis does not take stock of or assess longer-term impact, which is undertaken by GFDRR through various commissioned evaluations.

This section presents results based on monitoring data from GFDRR core programs. It does not include special programs, Just-in-Time grants, or other programs managed by GFDRR, which use separate monitoring and evaluation (M&E) systems. It does include:

- Evidence of contributions to support developing countries implement the Sendai Framework for Disaster Risk Reduction 2015–2030;
- Intermediate outcome results mapped to each GFDRR strategic objective;
- Evidence of portfolio progress for each area of engagement, as measured against FY21 targets; and
- An update on GFDRR's evaluation program.

GFDRR's Logical Framework and Results Framework

Developed in FY18 to guide the implementation and monitoring of its strategy, GFDRR's Logical Framework establishes four objectives for the facility. These are:

- **Strategic Objective 1:** Evidence and knowledge on effective disaster and climate resilience approaches are shared for improved policy and practice.
- **Strategic Objective 2:** Risk-informed development is adopted at national, subnational, and community levels, using integrated and participatory approaches.
- **Strategic Objective 3:** Governments in vulnerable countries have access to additional investments for scaling up disaster and climate resilience building.
- **Strategic Objective 4:** Disaster preparedness and resilient recovery capacity is increased at national, subnational, and community levels.

The Logical Framework outlines the causal pathway through which the facility expects to make progress toward these objectives and reaching its vision (see figure 14). Through its vision and objectives, the Logical Framework is aligned to the Sendai Framework for Disaster Risk Reduction 2015–2030.

GFDRR's Results Framework includes a results chain of inputs, outputs, and outcomes with indicators for monitoring output and outcome-level grant performance. With the use of its internal grant-monitoring platform, GFDRR continues to track the progress of its core program–funded grant portfolio through these outcomes and outputs (see page 111).

Monitoring Grant Progress

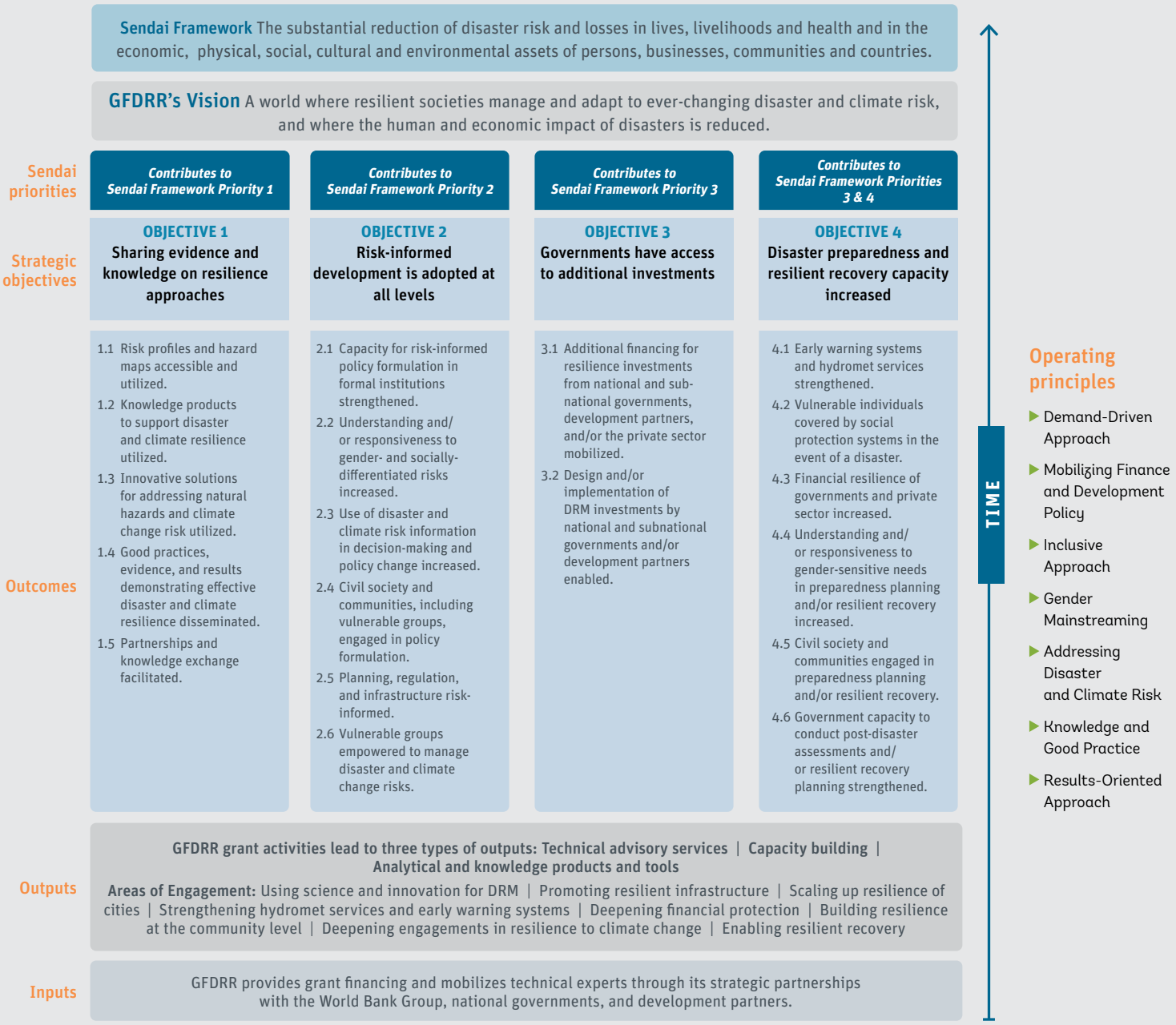
The data presented in this section are derived primarily from the M&E system for core program–funded grants in FY21. Grant recipients submitted progress updates against the facility's Results Framework and key data points through GFDRR's grant-monitoring platform at each reporting period. Grant reporting data are collected for core program grants that are active at any point in time during the reporting period. During the fiscal year, GFDRR had two reporting periods covering July to December 2020 (398 grants) and January to June 2021 (217 grants).

This platform is an internal tool for monitoring grant progress and collecting lessons learned from grant implementation. It includes real-time financial data linked directly to World Bank systems, as well as output and outcome data that are self-reported by GFDRR grant recipients. Grant recipients routinely attach project documentation to verify grant performance claims. The data collected through the platform are reviewed for quality, cleaned, and analyzed by a team within the Secretariat.

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

The Sendai Framework for Disaster Risk Reduction outlines global targets and priorities for actions to prevent new and reduce existing disaster risks. The targets assess global progress toward the Framework's expected long-term outcomes, whereas the priorities outline those areas requiring focused action by countries within and across sectors at local, national, regional, and global levels. The Secretariat offers an overview of how GFDRR grant-supported activities align with the nine targets and four priorities for actions of the Sendai Framework.

FIGURE 14
GFDRR Logical Framework for FY21



All GFDRR-funded grants align with at least one Sendai Framework target and priority for action (see tables 1 and 2). A few examples include grant activities that are mainstreaming DRM in school infrastructure in the Dominican Republic; reinforcing and institutionalizing housing resilience including post-disaster housing recovery processes in Tonga; increasing the safety of dams and reducing the vulnerability of downstream communities in Peru; improving disaster warning and preparedness in Sri Lanka; enhancing urban resilience practices through risk-informed investments in Turkey; and supporting social safety net programs in the event of climate disasters in Madagascar.

An overview of how the total active trust fund portfolio indirectly contributes to the Sendai Framework targets and actions are outlined in the tables below.

Table 1. GFDRR Contributions to Sendai Framework Global Targets

Sendai Framework Global Targets	GFDRR Portfolio Reported in M&E System
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	• 31% of grants indirectly contribute • Supported through 38% of funding • Grants covered 133 countries
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	• 53% of grants indirectly contribute • Supported through 56% of funding • Grants covered 138 countries
Target C: Reduce direct disaster economic loss in relation to global GDP by 2030	• 43% of grants indirectly contribute • Supported through 46% of funding • Grants covered 129 countries
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	• 55% of grants indirectly contribute • Supported through 55% of funding • Grants covered 127 countries
Target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2030	• 27% of grants indirectly contribute • Supported through 31% of funding • Grants covered 121 countries
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	• 20% of grants indirectly contribute • Supported through 21% of funding • Grants covered 130 countries
Target G: Substantially increase the availability of and access to multihazard early warning systems and disaster risk information and assessments to the people by 2030	• 31% of grants indirectly contribute • Supported through 41% of funding • Grants covered 126 countries

Table 2. GFDRR Alignment with Sendai Framework Priorities for Action

Sendai Framework Priorities for Action	GFDRR's Alignment with Priorities
Priority 1: Understanding disaster risk	• Aligns with GFDRR Strategic Objectives 1 and 2 • 67% of GFDRR grants contribute through 77% of funding • Grants covered 145 countries
Priority 2: Strengthening disaster risk governance to manage disaster risk	• Aligns with GFDRR Strategic Objective 2 • 59% of GFDRR grants contribute through 68% of funding • Grants covered 145 countries
Priority 3: Investing in disaster risk reduction for resilience	• Aligns with GFDRR Strategic Objectives 3 and 4 • 59% of GFDRR grants contribute through 65% of funding • Grants covered 137 countries
Priority 4: Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation, and reconstruction	• Aligns with GFDRR Strategic Objective 4 • 45% of GFDRR grants contribute through 47% of funding • Grants covered 147 countries

Outcome-Level Results

Table 3 outlines GFDRR's intermediate outcome-level results of grant activities funded through core programs, as mapped against the Logical Framework's four strategic objectives. As in previous fiscal years, most grants report progress toward multiple strategic objectives. As noted, these outcome data are derived from GFDRR's two progress reporting periods (July–December: included 398 grants; January–June: included 217 grants).

Toward **Strategic Objective 1**, 49 percent of grants across 139 countries helped make risk or hazard information accessible and utilized. In addition, 38 percent of grants supported knowledge products for disaster and climate resilience across 143 countries, as compared with 35 percent of such grants in FY20. In continuation of this trend, 41 percent of grants across 138 countries encouraged innovation in developing solutions when addressing climate change risk.

In terms of implementation, grants have reported innovation across broad dimensions. These grants include the use of disruptive technologies such as earth observation, drone mapping, digital micro tasking, augmented reality, virtual reality, disaster imagination tools, and machine learning. Nature-based solutions and green infrastructure approaches were used to inform DRM investments and participatory flood risk assessments. Other innovations were improvements in data collection methods using mobile data collection, the development of a satellite-based dam-mapping algorithm, an analysis of human mobility data to inform actions across the DRM cycle, and remote training tools for building vulnerability assessments.

Furthermore, 46 percent of GFDRR's grants facilitated 777 knowledge exchange and dissemination activities—many of them online because of the pandemic—across 140 countries. These grants supported workshops, deep dives, conferences, field visits, and study tours, as well as collaboration among communities of practice and panels of experts.

Toward **Strategic Objective 2**, 130 countries received support for improved institutional capacity in disaster and climate risk–informed policy design and analysis. Data show that 57 percent of grant activities contributed toward risk-informed policy formulation or decision-making in 140 countries. For instance, a GFDRR-funded grant in Peru is helping strengthen the capacity of government agencies, such as the Ministry of Development and Social Inclusion, to improve their social protection systems. The activities have supported changes in the national DRM policy to include social assistance as a mitigation and response mechanism in the event of disasters.

On grants supporting risk-informed planning, regulation, and infrastructure, data indicates that 49 percent of grants have supported risk-informed planning, regulation, and/or infrastructure in 144 countries. The number of grants contributing to this indicator has remained constant from FY20 to FY21. Additionally, 42 grants have helped strengthen building codes at the national or local government level in 50 countries; 65 grant activities have helped strengthen land use planning systems at the national or local government level in 79 countries; and 134 grant activities have helped incorporate DRM measures into infrastructure at the national or local government level in 112 countries. This can be seen in a grant in Nepal, where GFDRR has supported efforts in integrating DRM in infrastructure planning through activities on the

recovery and reconstruction of earthquake-damaged schools. It used Structural Integrity and Damage Assessment (SIDA) of educational facilities in 14 earthquake-affected districts. The information from SIDA has been processed to identify types of intervention required for school buildings, such as reconstruction, retrofitting, and repairs. Overall, the activities have contributed to assessing long-term infrastructure needs and to help make informed decisions on the recovery of the education sector in the country.

In addition, 44 grant activities have helped empower vulnerable groups to manage disaster and climate change risks in 81 countries. For example, in the Philippines, GFDRR-funded activities are supporting the development of local disaster risk financing strategy to formulate rehabilitation and recovery programs that will address the needs of the vulnerable groups. It is also providing trainings and guidelines to local governments on how to work with stakeholders when developing recovery programs and engaging in policy formulation with civil society and communities, including vulnerable groups.

For progress toward **Strategic Objective 3, please see the section on "Mobilizing Development Financing"** (see page 120).

Toward **Strategic Objective 4**, data indicate that 11 percent of grant activities across 106 countries contributed to strengthening early warning systems and hydrometeorological (hydromet) services. For example, a grant in Bhutan helped implement a common operating platform for automated hydromet services delivery to enhance weather forecasting. In addition, an ongoing grant in Haiti is helping to strengthen DRM institutions and emergency preparedness and response as well as to improve the understanding of the impacts of disasters on vulnerable communities. This grant also supported planning and preparing for the hurricane season, which included prevention measures for the compounding risk due to COVID-19.

In strengthening the financial protection of countries against disasters, 12 percent of grants across 94 countries contributed toward activities including contingency financing, financial protection strategies, sovereign disaster risk financing, and risk insurance programs. Furthermore, 5 percent of grant activities across 31 countries have contributed to disaster risk–informed social protection systems. Examples of such mechanisms are cash and food transfers, safety net programs, insurance coverage of World Bank programs, and social assistance programs.

Table 3. FY21 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	FY21 Results
1.1 Risk profiles and hazard maps accessible and utilized	• 139 countries supported to have accessible, understandable, and usable disaster risk information and assessments • 49% of grants contribute to making risk or hazard information accessible and utilized • 32% of grants in 133 countries support the creation or utilization of risk profiles or hazard maps
1.2 Knowledge products to support disaster and climate resilience utilized	• 38% of grant activities support the utilization of knowledge products for disaster and climate resilience in 143 countries
1.3 Innovative solutions for addressing natural hazards and climate change risk utilized	• 41% of grant activities support utilizing innovative solutions for addressing natural hazard and/or climate change risk in 138 countries
1.4 Good practices, evidence, and results demonstrating effective disaster and climate resilience disseminated	• 87 GFDRR-funded publications were made available and accessible on the facility's website
1.5 Knowledge exchange activities facilitated	• 46% of grants in 140 countries support facilitating international, regional, and/or bilateral knowledge exchange activities • 777 international, regional, and/or bilateral knowledge exchange activities were facilitated

Table 3. FY21 Outcome-Level Results (cont.)

Strategic Objective 2: Risk-informed development is adopted at national, subnational, and community levels, using integrated and participatory approaches

Intermediate Outcomes	FY21 Results
2.1 Capacity for risk-informed policy formulation in formal institutions strengthened	• 130 countries have 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	• 8% of grant activities support policy and/or planning documents that include the needs of individuals based on gender, disability, and socioeconomic status in 71 countries
2.3 Use of disaster and climate risk information in decision-making and policy change increased	• 56 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	• 18% of grant activities have supported increased citizen engagement in disaster and climate resilience–related policy reform in 97 countries
2.5 Planning, regulation, and infrastructure risk-informed	• 49% of grants have supported risk-informed planning, regulation, and/or infrastructure in 144 countries – 42 grant activities have helped strengthen building codes at the national or local government level in 50 countries – 65 grant activities have helped strengthen land use planning systems at the national or local government level in 79 countries – 134 grant activities have helped incorporate DRM measures into infrastructure at the national or local government level in 112 countries
2.6 Vulnerable groups empowered to manage disaster and climate change risks	• 44 grant activities have helped empower vulnerable groups to manage disaster and climate change risks in 81 countries

Strategic Objective 3: Governments in vulnerable countries have access to additional investments for scaling up disaster and climate resilience building

Intermediate Outcomes	FY21Results
3.1 Additional financing for resilience investments from national and subnational governments and/or development partners mobilized	• $7.2 billion was mobilized through $25 million in GFDRR funding (44 grants)

Table 3. FY21 Outcome-Level Results (cont.)

Strategic Objective 4: Disaster preparedness and resilience recovery capacity is increased at national, subnational, and community level	
Intermediate Outcomes	**FY21 Results**
4.1 Early-warning systems and hydromet services strengthened	• 11% of grant activities contributed to increased access to high-quality early warning systems and hydromet services • 106 countries supported with strengthened early warning systems and hydromet services
4.2 Vulnerable individuals covered by social protection systems in the event of disaster	• 5% of grant activities contributed to disaster risk–informed social protection systems in 31 countries
4.3 Financial resilience of governments and private sector increased	• 12% of grant activities contributed to increased financial protection of governments in case of natural hazards in 94 countries
4.4 Understanding and/or responsiveness to gender-sensitive needs in preparedness planning/and or resilient recovery increased	• 1,592 people trained through participation in the gender-sensitive post-disaster assessment and/or recovery planning methodologies
4.5 Civil society and communities engaged in preparedness planning and/or resilient recovery	• 16% of grant activities engaged in preparedness planning and/or resilient recovery included civil society or community groups in 84 countries
4.6 Capacity to conduct post-disaster assessments and/or resilient recovery planning strengthened	• 5% of grant activities supporting resilient recovery training and capacity building with 2,412 participants trained in 58 countries

Areas of Engagement Progress

Since FY18, GFDRR has measured the progress of its portfolio against the targets set in the strategy for the eight areas of engagement. This is the final year to measure progress against these targets, since the reporting on the new strategy will commence in FY22 against an updated set of targets and Results Framework aligned. Table 4 presents the progress made in FY21, which includes country coverage and indicates that nearly all targets have been on track; some have been overachieved despite the challenges presented by the COVID-19 situation. The table also provides results measured against the targets since FY18. Across all GFDRR programs, indicators such as those under the area of engagement "Promoting open access to risk information" are higher than the targets that were initially set. We believe these indicators reflect significant achievements, not least in a pandemic environment, that include conducting trainings on risk tools to make better decisions, deepening financial protection in countries, and encouraging resilient development investments in cities that have all have shown progress beyond the expected targets.

Table 4. Progress toward FY21 Targets

Area of Engagement	Results Indicator	FY18 Results	FY19 Results	FY20 Results	FY21 Results	Target (FY21)
Promoting open access to risk information	Hazard, exposure, and risk data sets and/or geospatial layers developed (#)	2,100	1,171	2,832	1,042 (114 countries)	500
	People trained to use risk tools for decision-making (#)	5,375	8,088	12,347	6,254 (99 countries)	2,000
Promoting resilient infrastructure	Countries with safer school engagements (#)	44	45	60	43	30
	Classrooms made safer from disasters (#)	28,750	766,830	226,535	328,528	200,000
	Expected student beneficiaries (#)	4.8 million	18 million	6.6 million	4.6 million	7 million
Scaling up the resilience of cities[a]	Cities with resilient development investments (#)	45+	60	40	50	30
Deepening financial protection	Government officials trained in financial protection and direct and indirect insurance programs (#)	966	1,251	3,703	1,244	500
Building resilience at the community level	People that have access to coverage of social protection (#)	3.1 million	5 million	2.9 million	22 million	15 million
Strengthening hydromet services and early warning systems	Expected final beneficiaries (#)	51 million	75 million	14.3 million	45 million[b]	100 million
Enabling resilient recovery	Government officials trained in PDNA and/or recovery planning and coordination (#)	615	691	357	110[c]	1,000
Deepening engagements in resilience to climate change[d]	Total amount of climate resilience investments enabled by development partners ($)	$1.7 billion	$2.8 billion	$2.9 billion	$3 billion	$3 billion
	Countries with climate resilience investments enabled (#)	51	31	34	32	25

Note: Results shown for fiscal years (FY18, FY19, FY20, and FY21) are not cumulative. PDNA = Post-Disaster Needs Assessment.

[a] This target relates only to activities supported through the City Resilience Program.

[b] FY21 results are based on an updated methodology and analysis led by the GFDRR Hydromet Program team.

[c] The number of government officials trained is only for resilient recovery training. The PDNA DRF Training Program closed in 2020.

[d] FY19, FY20, and FY21 numbers are based on analysis of World Bank climate co-benefits data.

Evaluations

In addition to its routine outcome monitoring, GFDRR has maintained its emphasis on evaluation-related activities during FY21, which is also the final implementation year of GFDRR's FY18–FY21 strategy. With several trust funds closing in FY21, the emphasis has been on learning from the completed activities in the portfolio. This section provides a summary of completed and ongoing evaluations during FY21. These evaluations analyzed and demonstrated the relevance, efficiency, effectiveness, coherence, sustainability, and impact of these programs.

European Union–South Asia Capacity Building for Disaster Risk Management Program

A results-oriented monitoring (ROM) exercise for the EU–South Asia Capacity Building for Disaster Risk Management (EU–SAR DRM) Program was completed by FY21 as part of the external monitoring system of the European Commission. It aimed to enhance the European Commission's accountability and management capacities with a strong focus on results and creating useful knowledge that could be applied to improve intervention design, implementation, and internal M&E. The ROM is not a full evaluation. It does, however, assess whether the program is having the desired results and makes recommendations for improvement.

In the EU–SAR DRM Program, the ROM report assessed that the program has advanced adequately toward the planned outcome of strengthening hydromet capacities at the regional/national level, but for strengthening disaster management overall, the building blocks have only just been put into place.

The program is contributing to the expected impact of building resilience to climate change by providing better forecast data and services, improved agrometeorology (agromet) advisories, and better road infrastructure risk planning. DRM institutions have shown commitment to the agenda, and hydromet and agromet institutions have developed a deeper understanding of the regional importance of weather forecasting and the delivery of hydromet services.

Prominent outcomes have been the agreement on data sharing between the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES) and the European Centre for Medium-Range Weather Forecasts, as well as new advances in hydromet and early warning systems applications. These agreements were in part, the result of the South Asia Hydromet Forum (SAHF II), which allows the regional hydromet agencies to work together outside geopolitical constraints. Regarding sustainability, the ROM report recommended the need for South Asian countries to "down-scale" hydromet forecasts to a subcountry level; for this, they need the tools to produce statistics and data on particular parameters, such as rain or wind. In creating new investments, the program was clearly successful, generating 15 newly planned or operational loan/grant projects totaling around $2 billion. The report further recommended scaling up considerations for gender-inclusive strategies in early warning systems going forward.

Ongoing and Pipeline of Evaluations

The GFDRR will launch an independent performance evaluation of the **City Resilience Program (CRP)** in early 2022 using the standard Organisation for Economic Co-operation and Development (OECD) evaluation criteria, including sustainability and impact. The evaluation will provide implementing partners and program beneficiaries with an assessment of CRP's past performance from its inception in 2017 through the end of 2021. It will focus on the results compared with the original objectives. The evaluation will assess the achievement of key outcomes, identify lessons learned, and make recommendations to improve current and future activities implemented in priority countries of donors.

Since its launch in 2014, **the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries** (the Japan Program) has supported technical assistance activities through two phases of single donor trust funds.[10]

In June 2021, the completion report for the first phase of the Japan Program presented a summary of results achieved vis-à-vis the planned outputs and outcomes indicators and targets of the Japan Program results framework. In its first phase, the Japan Program helped mobilize an estimated $17.22 billion in new World Bank–financed DRM investments, benefitting nearly 87 million people in over 50 countries. The report also provided some preliminary lessons learned and recommendations for the ongoing implementation of the second phase.

In FY22, the Japan Program plans to conduct a further review of the first phase and a mid-term review of the second phase. The objectives are to (1) review progress and achievements of the program and its subactivities against the program's objectives, (2) assess the need for any refinement of operational processes and governance arrangements to improve the management of the Japan Program, and (3) assess success factors and lessons learned from the program to inform the next steps.

A mid-term evaluation is planned in FY22 for the **Canada–Caribbean Resilience Facility (CRF)** with the objective of reviewing the progress made toward to the facility's results indicators as well as validating the outcomes of the annual monitoring reviews.

[10] The first phase (TF072129) was 2014–2020, with $100 million; the second phase (TF073236) is 2018–2025, with $100 million.

Mainstreaming Gender and Citizen Engagement

GFDRR monitors the progress and results of efforts made toward mainstreaming gender equality and women's empowerment, as well as citizen engagement, through its grants to ensure that the GFDRR Gender Action Plan 2016–2021 (GAP) and the GFDRR Citizen Engagement Action Plan (2019–2023) (CEAP) are implemented and achieve their intended results. Moreover, GFDRR's new strategy for 2021–2025 outlines inclusive DRM and gender equality as a cross-cutting priority area with the goal of scaling up support to mainstream inclusion across GFDRR programs and more broadly to World Bank operations and policy dialogues.

In FY21, GFDRR conducted a portfolio review of its grants active from FY16–FY20 to identify gaps and opportunities to scale up its operations' impact in the next years under GFDRR's new strategy. The findings showed that, while there has been progress made in mainstreaming gender and citizen engagement, there are still opportunities for scaling up support to the regional teams through the GFDRR programs. In FY22, a consolidated Inclusive DRM and Gender Equality Action Plan will be launched, and indicators in the GFDRR M&E system will be reviewed to ensure that the full spectrum of grant activities that address inclusion are reported and monitored.

Mainstreaming Gender Equality and Women's Empowerment within the GFDRR Portfolio

The GAP accompanies the World Bank Group's Gender Strategy FY16–FY23 with the objective of moving the World Bank's DRM work beyond gender mainstreaming to outcomes and results. As table 5 indicates, in FY21 there was a 6 percentage point increase in the number of gender-informed grants compared to FY20. Specifically, in FY21, 81 percent of newly approved grants were gender-informed, meaning their design was informed by existing or new gender analysis, specific actions were taken to close identified gender gaps, and/or specific indicators were included to measure progress on gender equality. Among the newly approved grants in FY21, 44 percent included gender-informed actions. These grants included specific actions to reduce gender gaps, such as disaggregating gender data, informing gender-inclusive climate resilience and recovery plans, and designing gender-responsive vulnerability assessments. In addition, capacity building and training were carried out to ensure that all grant activities are both inclusive and accessible. In FY21, the proportion of new grants that included gender analysis or considered gender analysis to inform the grant's design and/or implementation increased to 71 percent,[11] up from 66 percent in the previous years, indicating a 5 percentage point increase. Moreover, the proportion of new grants that included indicators to measure progress in closing gender gaps also increased to 30 percent, from 22 percent in FY20. This indicator shows that over the years GFDRR has been making progress in monitoring gender impacts that GFDRR grants have.

Mainstreaming Citizen Engagement within the GFDRR Portfolio

The objective of the CEAP is to promote a more systematic and results-focused approach to the analysis, design, implementation, and M&E of the integration of citizen engagement within GFDRR's activities. The monitoring and results reporting of the CEAP is aligned with the facility's Logical Framework and Results Framework to ensure GFDRR-wide monitoring and reporting of progress on citizen engagement. In FY21, 62 percent of grants included citizen engagement in their design, showing a slight decrease from FY20 (see table 6). Forty-four percent of grants included consultations with citizens/communities, 30 percent included citizens/communities in planning and decision-making, and 18 percent incorporated community control over planning decisions and investment resources.

[11] There are two additional gender-related indicators in the GFDRR M&E platform: assessing whether grants undertake or draw upon existing gender analysis and whether grant activities monitor gender impacts.

Table 5. Gender Mainstreaming (%)

Gender Results Indicators	FY18	FY19	FY20	FY21
Percentage of approved gender-informed grants (%)	72	59	75	81
Percentage of approved grants that include gender actions (%)	39	56	50	44

Table 6. Citizen Engagement (%)

Results Indicators	FY19	FY20	FY21
Percentage of grants that include citizen engagement in their design	65	65	62
Percentage of grants that include consultations with citizens	41	44	44
Percentage of grants that engaged citizens in planning and decision-making	27	31	30
Percentage of grants that support citizen control over planning decisions and investment resources	17	20	18

Mobilizing Development Financing

GFDRR strategically focuses its grant funding in areas where there is a high likelihood of mobilizing additional resources for scaling up disaster and climate resilience operations and thereby increasing its impact.

As table 7 indicates, in FY21, GFDRR's funding and/or technical assistance mobilized nearly $7.2 billion in additional financing, a 7.5 percent increase from FY20. One of the main reasons for the increase is that, in FY21, GFDRR grants influenced a number of large operations related to response and recovery from the pandemic, such as strengthening foundations for post-COVID-19 recovery in Peru.

Out of the total $7.2 billion, over $5.7 billion (80 percent) was mobilized from the World Bank. Approximately $1.5 billion (20 percent) was mobilized from others such as bilateral donors (e.g., governments of Australia, New Zealand, etc.), other development banks (e.g., the Asian Development Bank, etc.), and other organizations (the French Development Agency, the Japan International Cooperation Agency, etc.). Since FY17, GFDRR has requested grant recipients to self-report on the way grant activities have influenced additional financing from the World Bank, national governments, and/or other development partners. GFDRR categorizes the way in which its activities have influenced financing in one of three ways: (1) informing, (2) enabling, or (3) co-financing investments. These categories are defined as follows:

- ***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 FY21, GFDRR activities informed $4.6 billion in funding (64 percent of the total). Of this, most resources were used to inform projects in the South Asia region, including those to accelerate India's COVID-19 social protection response as well as to mitigate flood and drought risks and strengthen Sindh province's capacity in Pakistan to manage disasters and public health emergencies. The Africa region followed the South Asia region by informing projects related to enhancing community resilience and local governance and supporting resilient livelihoods. Finally, the Latin America and the Caribbean region had the third highest share of informing projects, including development policy financing projects to respond and recover from COVID-19 in the Bahamas and Barbados (see table 7).
- ***ENABLING*** *development financing by directly supporting the design and/or implementation of a DRM operation from national governments or development partners.* Examples include funding technical advisory work on designing DRM projects or 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 FY21, GFDRR activities helped enable $2.2 billion in DRM financing (30 percent of the total). Of this amount, most enabled financing occurred through projects in the East Asia and the Pacific region, including a seismic risk reduction and resilience project in the Philippines and projects to improve road connectivity in Cambodia (see table 7).
- ***CO-FINANCING DRM*** *operations with other development partners to increase the scale of interventions.* Examples include mixed 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 FY21, GFDRR engagements were linked to nearly $437 million in co-financing activities (6 percent of the total). Detailed information on funding mobilized during FY21 can be found in table 7.

Table 7. Development Finance Mobilized through FY21 Portfolio by Region and Financing Type

Mobilizing Type	Country	Project Name	Funding Source ($M)			
			$M	World Bank	$M	Non-WB
AFRICA						
Informing	Botswana	Botswana Economic Resilience and Green Recovery DPF (P175934)	250.0	IBRD		
	Democratic Republic of Congo	Kinshasa Urban development and resilience project (P171141)	500.0	IDA		
	Madagascar	Support for Resilient livelihoods in the south of Madagascar (P171056)	100.0	IDA		
	Mozambique	Maputo Urban Transformation Project (P171449)	100.0	IDA		
	South Sudan	South Sudan Enhancing Community Resilience and Local Governance Project (P169949	45.0	IDA		
	Tanzania	Boosting Inclusive Growth for Zanzibar: Integrated Development Project (BIG-Z) (P165128)	150.0	IDA		
Enabling	Angola	Girls Empowerment and Learning for All Projects (P168699)	250.0	IBRD		
Informing/ Enabling	Rwanda	Second Urban Development Project (P165017)	150.0	IDA	35.4	Government of Rwanda/Nordic Development Fund/Pilot Program for Climate Resilience
	Sierra Leone	Resilient Urban Sierra Leone Project (P168608)	50.0	IDA		
Subtotal			**1,595.0**		**35.4**	
Region Total				**1,630.4**		
EAST ASIA AND PACIFIC						
Enabling	Cambodia	Cambodia Road Connectivity Improvement Project (P169930)	100.0	IDA		
	Lao People's Democratic Republic	Landscapes and Livelihoods Project (P170559)	34.0	IDA		
	Mongolia	Ulaanbaatar Sustainable Urban Transport Project (P174007)	100.0	IBRD		
	Philippines	Seismic Risk Reduction and Resilience Project (P171419)	300.0	IBRD		
	Tonga	Supporting Recovery after Dual Shocks Development Policy Operation (P174683)	30.0	IDA		
Informing/ Co-Financing	Fiji	Fiji Recovery and Resilience First Development Policy Operation with a Catastrophe Deferred Drawdown Option (P173558)	145.0	IBRD/IDA	300.0	Asian Development Bank (ADB)/ Japan International Cooperation Agency (JICA)
	Samoa	Samoa First Resilience and Economic Reform Development Policy Operation (P171764)	25.0	IDA	11.5	Government of Australia/ADB/ Government of New Zealand

Table 7. Development Finance Mobilized through FY21 Portfolio by Region and Financing Type (cont.)

Mobilizing Type	Country	Project Name	Funding Source ($M)			
			$M	World Bank	$M	Non-WB
Subtotal			**734.0**		**311.5**	
Region Total				**1,045.5**		
		EUROPE AND CENTRAL ASIA				
Informing	Romania	Romania Safer, Inclusive and Sustainable Schools (P175308)	121.1	IBRD		
	Turkey	Seismic Resilience and Energy Efficiency in Public Buildings Project (P175894)	265.0	IBRD		
	Turkey	Turkey Resilient Landscape Integration Project (TULIP) (P172562)	135.0	IBRD		
Enabling	Serbia	Railway Sector Modernization (P170868)	62.5	IBRD	62.5	French Development Agency (AFD)
Subtotal			**583.6**		**62.5**	
Region Total				**646.1**		
		LATIN AMERICA AND THE CARIBBEAN				
Informing	Bahamas	The Bahamas COVID-19 Response and Recovery DPF (P175490)	100.0	IBRD		
	Barbados	The Barbados COVID-19 Response and Recovery DPF (P175492)	100.0	IBRD		
	Haiti	Adaptive Social Protection for Increased Resilience Project (P174111)	75.0	IDA		
	St. Vincent and the Grenadines	Supplemental Financing to the 2nd Fiscal and Resilience DPC (P176822)	50.0	IDA		
	Peru	Strengthening Foundations for Post COVID-19 Recovery DPF (P174440)	750.0	IBRD		
Enabling	Brazil	Technical Assistance in Porto Alegre			0.3	City of Porto Alegre/Agencia Española de Cooperación Internacional para el Desarrollo (AECID)
	Colombia	Resilient and Inclusive Housing Project (P172535)	100.0	IBRD		
	Guyana	Additional Financing to the Flood Risk Management Project (P170025)	26.0	IDA		
Subtotal			**1,201.0**		**0.3**	
Region Total				**1,201.3**		

Table 7. Development Finance Mobilized through FY21 Portfolio by Region and Financing Type (cont.)

Mobilizing Type	Country	Project Name	Funding Source ($M)			
			$M	World Bank	$M	Non-WB
MIDDLE EAST AND NORTH AFRICA						
Informing	Tunisia	Tunisia Integrated Disaster Resilience Program (P173568)	50.0	IBRD	50.0	French Development Agency (AFD)
	Yemen	Integrated Urban Services Emergency Project II (P175791)	50.0	IDA		
Subtotal			**100.0**		**50.0**	
Region Total			**150.0**			
SOUTH ASIA						
Informing	India	Second Accelerating India's COVID-19 Social Protection Response (PMGKY) (P174027)	400.0	IDA		
	India	Creating a Coordinated Responsive Indian Social Protection System (CCRISP) (P176447)	500.0	IBRD/IDA		
	Nepal	Nepal Urban Governance and Infrastructure Project (P163418)	150.0	IDA		
	Nepal	Nepal Safer School Program			208.5	ADB/JICA/USAID
	Pakistan	Sindh Resilience Project Additional Financing (P173087)	200.0	IDA		
Enabling	India	Kerala Solid Waste Management Project (P168633)	105.0	IBRD		
	India	Supporting Resilient Recovery Planning and Implementation in Kerala			690.0	KfW/Masala Bond Issue
Enabling /Co-Financing	India	The Resilient Kerala Program (P174778)	125.0	IBRD	125.0	Asian Infrastructure Investment Bank (AIIB)
Co-Financing	South Asia	South Asia Regional Hydromet, Early Warning and Climate Services Program			0.2	UKAid
Subtotal			**1,480.0**		**1023.7**	
Region Total			**2,503.7**			

Financial Statements

In the FY21 *Annual Report*, the reporting of Global Risk Financing Facility (GRiF) and the Climate Risk and Early Warning Systems (CREWS) Initiative have been excluded, since these programs are governed by entities other than the GFDRR's Consultative Group.[12]

STATEMENTS OF RECEIPTS, DISBURSEMENTS AND FUND BALANCE

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

Financial data of trustees with EUR holding currency are converted to USD for reporting purposes based on the exchange rate on June 30, 2021 (1 USD = 0.84 EUR).

	Notes	For the fiscal year ended June 30th, 2021	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019
Opening Balance:		178,438,933	216,077,430	221,259,738
Receipts:				
Donor Contributions	1	59,264,243	58,386,204	78,770,607
Net Investment and other incomes	2	357,980	2,271,967	3,656,427
Total Receipts		**59,622,223**	**60,658,171**	**82,427,034**
Disbursements:				
Project Disbursements	3	59,564,521	91,995,597	78,944,788
World Bank Administration Fee	4	78,458	257,157	669,617
Program Management and Administration Expenses	5	5,782,696	5,196,404	6,909,498
Refund to donors	6	481,832	847,510	1,085,439
Total Disbursements		**65,907,507**	**98,296,668**	**87,609,342**
Excess of (disbursements over receipts)/receipts over disbursements		–6,285,284	–37,638,497	–5,182,308
Ending Balance:				
Ending Balance		**172,153,649**	**178,438,933**	**216,077,430**
Less: Undisbursed Commitments	7	65,854,121	85,423,417	128,576,899
Fund Available for New Grants	8	**64,654,004**	**57,177,831**	**55,092,505**

[12] GRiF is co-managed by the Disaster Risk Financing and Insurance Program under the World Bank's Finance, Competitiveness & Innovation Global Practice and is proposed to become a standalone trust fund outside of GFDRR's umbrella in FY22 because of its thematic scope, size, governance structure, and distinct donor relationships. As a Financial Intermediary Fund, CREWS will sit outside the GFDRR Umbrella 2.0 Program to be implemented from FY22.

NOTE 1: DONOR CONTRIBUTIONS

The following table provides details of contributions receivable by donor.

Donor	For the fiscal year ended June 30th, 2021 in US$	For the fiscal year ended June 30th, 2020 in US$	For the fiscal year ended June 30th, 2019 in US$	Contribution Receivable[a] Amount in US$ equivalent
Australia	3,009,600	–	2,879,020	–
Austria	2,444,228	2,217,410	–	–
Canada	5,571,242	6,009,782	2,970,512	5,647,439
European Union	2,422,020	11,024,053	25,977,575	14,341,213
Germany	3,647,100	3,564,000	10,294,367	28,533,600
India	–	167,000	167,000	166,000
Italy	2,347,400	–	4,553,200	–
Japan	25,338,162	22,000,000	20,000,000	40,000,000[b]
Norway	5,791,394	3,400,667	2,661,975	–
Serbia	1,630	181,075	158,267	–
Sweden	3,020,491	2,627,430	2,755,428	–
Switzerland	3,915,977	5,744,788	4,011,263	7,585,199
United States	1,755,000	1,450,000	2,342,000	2,723,000
Total	**59,264,243**	**58,386,204**	**78,770,607**	**98,996,450**

[a] Amount in US$ equivalent. The actual US$ equivalent will be based on the exchange rate on the date of the transfer of funds.

[b] Contribution receivable includes US$2 million for the MDTF III (TF073410).

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

	Contribution Received (in US$)			
Main Fund	For the fiscal year ended June 30th, 2021	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019	Contribution Receivable
Parallel Core MDTF (TF072584)	1,630	2,975,505	23,371,500	–
MDTF III (TF073410)	24,328,641[c]	16,726,865[e]	–	7,751,198
Japan Program Phase II (TF073236)	24,338,162[d]	20,000,000[f]	20,000,000	40,000,000
ACP-EU NDRR (TF071630)	–	4,169,441	–	–
Africa DRF SDTF (TF072281)	–	–	1,113,500	–
EU-SAR SDTF (TF072458)	2,422,020	2,235,600	–	–
EU-SERBIA NDRMP SDTF (TF072528)	–	586,802	–	–
EU-DRAF SDTF (TF072535)	–	665,610	2,010,150	–
EU-Caribbean OCTs SDTF (TF073230)	–	–	1,700,100	1,783,350
EU-Caribbean SDTF (TF073227)	–	–	21,153,825	11,027,048
EU-Central Asia (TF073297)	–	3,366,600	–	1,530,815
Australia Indo-Pacific SDTF (TF072835)	–	–	2,879,020	–
USAID-SDTF (TF072896)	1,755,000	1,450,000	1,572,000	2,723,000
Canada-Caribbean SDTF (TF073283)	3,974,563	3,009,782	2,970,512	5,647,440
City Resilience MDTF (TF072921)	2,444,228	3,200,000	2,000,000	–
Total	**59,264,243**	**58,386,204**	**78,770,607**	**70,462,850**

[c] This contribution includes a US$1 million transfer from a contribution received in FY21 for the Japan Program Phase II (TF073236).

[d] Initial US$25.3 million contribution received. Of this US$1 million was transferred to the MDTF III (TF073410).

[e] This contribution includes a US$2 million transfer from a contribution received in FY20 for the Japan Program Phase II (TF073236).

[f] Initial US$20 million contribution received. Of this US$2 million was transferred to the MDTF III (TF073410).

NOTE 2: INVESTMENT AND OTHER INCOME
Net investment and other incomes in the amount of US$357,980 for the fiscal year ended June 30th, 2021.

NOTE 3: PROJECT DISBURSEMENTS
The following table provides details of project disbursements by region.

Region	For the fiscal year ended June 30th, 2021 in US$	For the fiscal year ended June 30th, 2020 in US$	For the fiscal year ended June 30th, 2019 in US$
Africa	12,839,117	23,962,604	22,800,948
East Asia and Pacific	10,174,374	13,621,376	8,234,429
Europe and Central Asia	6,320,870	12,362,446	8,800,434
Latin America and the Caribbean	9,659,682	11,264,882	9,165,888
Middle East and North Africa	886,184	2,657,400	2,169,638
South Asia	6,852,789	8,452,286	6,674,510
Global	12,831,505	19,674,603	21,098,941
Total	**59,564,521**	**91,995,597**	**78,944,788**

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

Execution Type	For the fiscal year ended June 30th, 2021 in US$	For the fiscal year ended June 30th, 2020 in US$	For the fiscal year ended June 30th, 2019 in US$
Bank Executed	54,575,812	81,340,576	70,380,095
Recipient Executed	4,988,709	10,655,021	8,564,693
Total	**59,564,521**	**91,995,597**	**78,944,788**

NOTE 4: WORLD BANK ADMINISTRATIVE FEE
In the fiscal year ended June 30th, 2021, the World Bank charged an administrative fee of US$78,458 as agreed in the signed Administration Agreements.

NOTE 5: PROGRAM MANAGEMENT AND ADMINISTRATION DISBURSEMENTS
Program management and administration expenses for the fiscal year 2021 were in the amount of US$5,782,696.

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

Expense category	For the fiscal year ended June 30th, 2021 in US$	For the fiscal year ended June 30th, 2020 in US$	For the fiscal year ended June 30, 2019 in US$
Staff cost[a]	5,056,164	4,185,802	5,145,524
Short term consultants/temporary	433,425	598,719	576,354
Travel[b]	12	153,537	455,467
Other expenses[c]	293,095	258,346	732,153
Total	**5,782,696**	**5,196,404**	**6,909,498**

[a] Staff costs included salaries and benefits for GFDRR staff and Short-Term Consultants and Short-Term Temporaries.

[b] Travel included travel expenses of GFDRR staff, candidates/interviewees for GFDRR positions, and participants in GFDRR- sponsored events.

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

NOTE 6: REFUND TO DONORS
In fiscal year ended June 30th, 2021, funds in the amount of US$481,832 were refunded to donors on a pro-rata basis.

NOTE 7: UNDISBURSED COMMITMENTS

Commitments in the amount of US$65,854,121 are outstanding as of end of fiscal year 2021. 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, 2021 in US$
ACP-EU (TF071630)	2,860,242
Japan Program Phase II (TF073236)	33,848,694
MDTF III (TF073410)	7,961,874
EU-SAR SDTF (TF072458)	2,270,408
EU-Caribbean OCTs SDTF (TF073230)	139,810
EU-Caribbean SDTF (TF073227)	4,765,388
EU-Central Asia (TF073297)	2,990,575
Australia Indo-Pacific SDTF (TF072835)	4,262,183
USAID SDTF (TF072896)	1,177,862
Canada-Caribbean SDTF (TF073283)	2,349,810
City Resilience MDTF (TF072921)	3,227,274
Total	**65,854,121**

The following table provides details of undisbursed commitments by region.

Region	For the fiscal year ended June 30th, 2021 in US$
Africa	9,712,837
East Asia and Pacific	11,713,528
Europe and Central Asia	8,251,437
Latin America and Caribbean	10,907,124
Middle East and North Africa	1,338,533
South Asia	9,385,361
Global	14,545,301
Total	**65,854,121**

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

Execution Type	For the fiscal year ended June 30th, 2021 in US$
Bank Executed Trust Fund	65,251,666
Recipient Executed Trust Fund	602,455
Total	**65,854,121**

NOTE 8: FUND AVAILABLE FOR NEW GRANTS

Funds available for new grants in the amount of US$64,654,004 are outstanding as of end of fiscal year 2021.

These can be used to finance new operational grants and program management and administration activities.

The breakdown by main fund is available in the table below.

Main Fund	For the fiscal year ended June 30th, 2021 in US$
MDTF III (TF073410)	28,298,108
Japan Program Phase II (TF073236)	13,523,910
ACP-EU NDRR (TF071630)	33,463
EU-SAR SDTF (TF072458)	2,452,761
EU-Caribbean OCTs SDTF (TF073230)	302,574
EU-Caribbean SDTF (TF073227)	10,900,818
EU-Central Asia (TF073297)	118,046
USAID-SDTF (TF072896)	86,711
City Resilience MDTF (TF072921)	3,603,151
Canada-Caribbean SDTF (TF073283)	4,872,743
Australia Indo-Pacific SDTF (TF072835)	461,721
Total	**64,654,004**

Abbreviations

ACP	African, Caribbean and Pacific
ACP–EU NDRR Program	ACP-EU Natural Disaster Risk Reduction Program
ADB	Asian Development Bank
ADSS	Agro-meteorological Decision Support System (Bhutan)
AECID	Agencia Española de Cooperación Internacional para el Desarrollo
AFD	French Development Agency
AfDB	African Development Bank
AFR	Africa region
agromet	agrometeorology
AI	artificial intelligence
Alliance	Alliance for Hydromet Development
APEC	Asia-Pacific Economic Cooperation
ASP	adaptive social protection
AUC	African Union Commission
BBMA	Bandung Basin Metropolitan Area (Indonesia)
BEZA	Bangladesh Economic Zone Authority
BRR	Building Regulation for Resilience
BSMSN	Bangabandhu Sheikh Mujib Shilpa Nagar Economic Zone (Bangladesh)
CARICOM	Caribbean Community
Cat DDO	Catastrophe Deferred Drawdown Option
CCA	climate change adaptation
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CCRIF SPC	Caribbean Catastrophe Risk Insurance Facility Segregated Portfolio Company
CDCs	community development councils
CDEMA	Caribbean Disaster Emergency Management Agency
CDM	comprehensive disaster management
CEAP	Citizen Engagement Action Plan
CEPREDENAC	Coordination Center for Natural Disaster Prevention in Central America
CERC	Contingency Emergency Response Component
CHD	Country Hydromet Diagnostics
COS	civil society organizations
CREWS	Climate Risk and Early Warning Systems
CRF	Canada-Caribbean Resilience Facility
CRP	City Resilience Program
CRRBF	Caribbean Regional Resilience Building Facility
CRRH	Regional Committee on Hydraulic Resources

CSO	civil society organization
DGPC	Civil Protection General Directorate (Haiti)
DPWH	Department of Public Works and Highway (the Philippines)
DRF	disaster risk financing
DRFI	disaster risk financing and insurance
DRFIP	Disaster Risk Financing and Insurance Program
DRM	disaster risk management
DRR	disaster risk reduction
EAP	East Asia and Pacific
ECA	Europe and Central Asia
ECCAS	Economic Community of Central African States
ECOWAS	Economic Community of West African States
ECRP	Enhancing Community Resilience Project (South Sudan)
EP&R	emergency preparedness and response
EWS	early warning systems
EU	European Union
EU-SAR DRM	European Union–South Asia Capacity Building for Disaster Risk Management
FCV	fragility, conflict, and violence
GAP	Gender Action Plan
GBAO region	Gorno-Badakhshan Autonomous Oblast region (Tajikistan)
GFDRR	Global Facility for Disaster Reduction and Recovery
GIS	geographic information system
GRADE	Global RApid post-disaster Damage Estimation
GRiF	Global Risk Financing Facility
hydromet	hydrometeorological
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IDPs	internally displaced populations
IGAD	Intergovernmental Authority on Development
Japan Program	Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries
JICA	Japan International Cooperation Agency
JIT	Just-in-Time
LAC	Latin America and the Caribbean
M&E	monitoring and evaluation
MDTF	Multi-Donor Trust Fund
MENA	Middle East and North Africa
MOFEA	Ministry of Finance and Economic Affairs (The Gambia)

MSMEs	micro, small and medium enterprises
NBS	nature-based solutions
NCHM	National Center for Hydrology and Meteorology (Bhutan)
NDCs	nationally determined contributions
NDRR	Natural Disaster Risk Reduction
NEA	Nepal Electricity Authority
NEMOs	national emergency management organizations
NGO	nongovernmental organization
NMHSs	National Meteorological and Hydrological Services
NOAA	National Oceanic and Atmospheric Administration
NSIFT	National Social Investment Fund of Tajikistan
OACPS	Organisation of African, Caribbean and Pacific States
OCTs	Overseas Countries and Territories
ODI	Overseas Development Institute
OECS	Organization of Eastern Caribbean States
PDNA	Post-Disaster Needs Assessment
PMA	program management and administration
PRIDE Project	Private Investment & Digital Entrepreneurship Project (Bangladesh)
RECs	Regional Economic Communities
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
ROM	results-oriented monitoring
SAHF	South Asia Hydromet Forum
SADC	Southern African Development Community
SAR	South Asia
SEADRIF	Southeast Asia Disaster Risk Insurance Facility
SECO	Swiss State Secretariat for Economic Affairs
SEE-MHEWS-A	South-East European Multi-Hazard Early Warning Advisory System
SERSP	Socio-Economic Resilience Strengthening Project (Tajikistan)
SICA	Central American Integration System
SIDS	small island developing states
TA	technical assistance
UN	United Nations
UNDRR	United Nations Office for Disaster Risk Reduction
UR	Understanding Risk
Urban FRAME	Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic
VEEP	Volcano Eruption Emergency Project

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The Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change. Managed by the World Bank, GFDRR provides grant financing, technical assistance, training and knowledge sharing activities to mainstream disaster and climate risk management in national and regional policies, strategies, and investment plans.