Global Facility
for Disaster Reduction
and Recovery

ANNUAL REPORT

'20

BRINGING RESILIENCE TO SCALE

The Art of Resilience **Jovan Karlo Villalba |** Ecuador | *Tangled* | Roots and Neon Lights | 2013 | Oil on stainless steel | 61 x 183cm

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, 2020; all dollar amounts are in U.S. dollars ($) unless otherwise indicated.

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Foreword

Kamal Kishore
GFDRR CG Co-chair

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

In a year unlike any other, the COVID-19 pandemic affected everyone. But for millions of people, the global health crisis also compounded the ongoing threat of natural hazards and disasters.

Category 5 Cyclone Harold caused widespread damage in Vanuatu. Cyclone Amphan devastated the border region between India and Bangladesh, with both countries forced to evaculate millions while under lockdown restrictions. Locust invasions caused acute food insecurity in East Africa. Powerful earthquakes jolted Croatia, Turkey and Greece, and the Caribbean suffered an extremely active Atlantic hurricane season.

Against this backdrop, extreme poverty was expected to rise for the first time in over 20 years as the COVID-19 pandemic compounded the threats of conflict, violence, fragility, and climate change.[1] The pandemic laid bare an inadequate level of preparedness throughout much of the world and underlined the consequences of underinvesting in resilience: Without proper planning, the threat of natural hazards, combined with other shocks, can be devastating.

The Global Facility for Disaster Reduction and Recovery (GFDRR) was established in 2006 to support low- and middle-income countries to understand, manage, and reduce their risk from natural hazards and climate change. In fiscal 2020, GFDRR continued its core mission of helping communities and countries prepare for and recover from disasters by integrating disaster risk management into development strategies and programs.

As the pandemic unfolded, GFDRR acted swiftly to assist the World Bank's global response, drawing on its long experience working to bring resilience to scale. In particular, GFDRR aided the design and promotion of the World Bank's financial instruments allowing for the rapid reallocation of funds (Contingent Emergency Response Components, or CERCs) or contingent lines of credit (Catastrophe Deferred Drawdown Options, or Cat DDOs), giving governments access to financing for immediate recovery needs during emergencies.

GFDRR also rapidly adjusted its own engagements to respond to the pandemic. In South Asia, an existing grant supported the design and implementation of policy and institutional frameworks that have helped shape national government strategies for coping with the current pandemic as well as with future health emergencies. The facility used geospatial expertise to enhance the technical capacity of the Caribbean Disaster Emergency Management Agency to develop a geodatabase to record and map COVID-19 cases and disseminate this information. In Bolivia and the Philippines, applications of a socioeconomic resilience metric developed by GFDRR's Analytics Program identified households pushed into poverty by COVID-19-related income shocks and evaluated emergency cash support programs instituted in response.

In Morocco, a technical team developed a knowledge note highlighting best practices and tools for health emergency response and preparedness in the urban resilience context. One of the key actions outlined by the Commune of Fez in its resilience strategy was to integrate lessons from the COVID-19 crisis. In Turkey, the government has put sustainable and resilient cities at the center of its 2019–2023 national development plan and highlighted the pivotal role played by healthy, safe, and disaster-resilient urban settlements, which also helped slow the spread of COVID-19. In Freetown, Sierra Leone, a community-led, large-scale tree planting pilot program not only promoted nature-based solutions for integrated flood and landslide risk reduction, but also created about 500 short-term jobs, especially for youth, women, and others suffering from the economic impact of COVID-19.

While repurposing its existing suite of tools and methods to meet the needs of communities affected by COVID-19, GFDRR also facilitated mutual exchange and learning among countries faced with similar challenges of having to respond to floods and cyclones during the pandemic.

Even as we adapted our engagement to COVID-19, our efforts in other key

[1] World Bank, 2020, Poverty and Shared Prosperity 2020: Reversals of Fortune. Washington, DC: World Bank.

São Paulo, Brazil, June, 2020. Artist Alex Flemming puts masks on portraits at the Sumare subway station, to warn about the importance of using face masks to prevent the spread of COVID-19. Photo: Cris Faga/ZUMA Wire/Alamy Live News

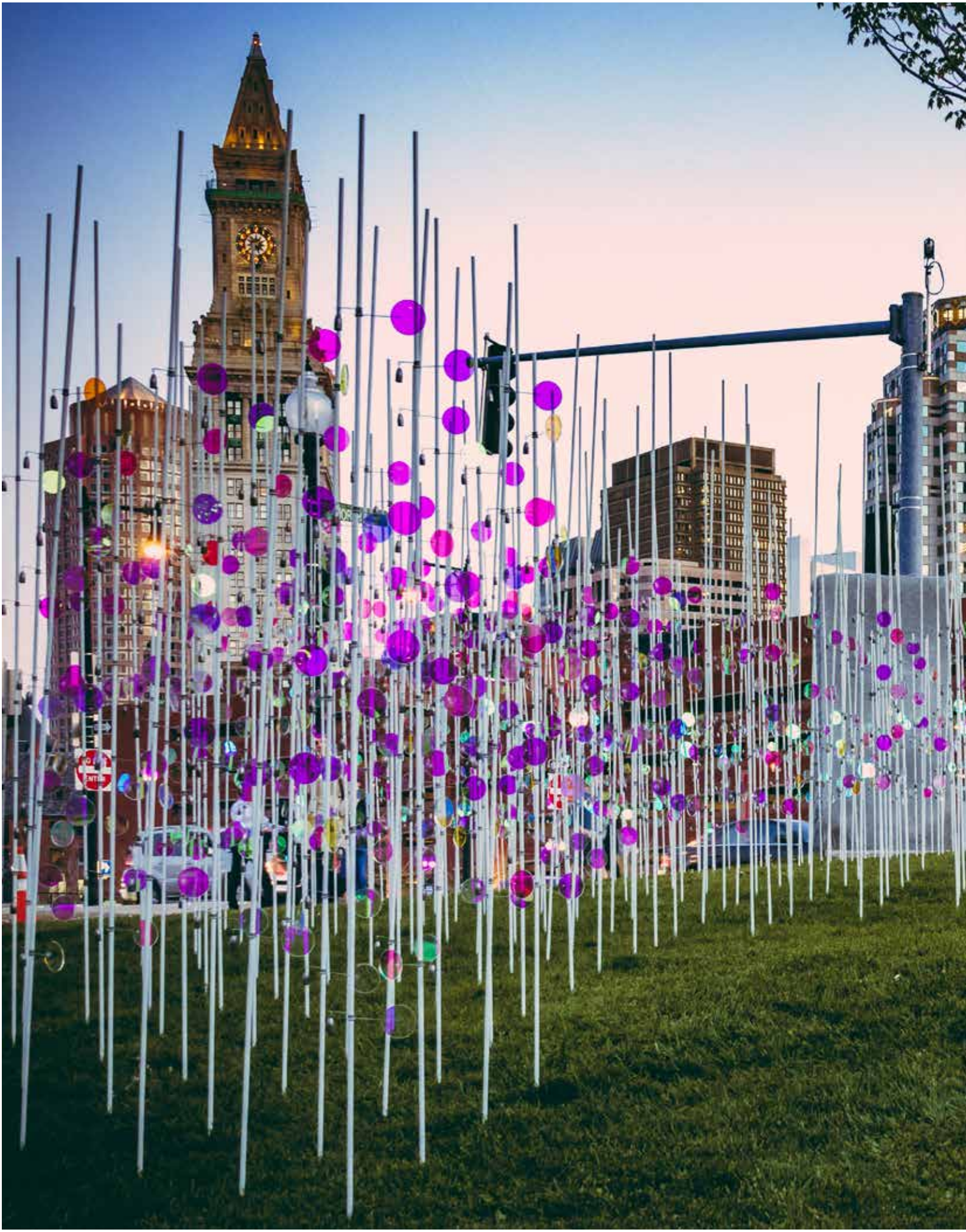
pillars of our work continued. The Art of Resilience exhibition explored how art can be used to communicate scientific information about disaster risk and to make a meaningful connection to the communities and people that experience risk. Building resilience is a collective effort, and GFDRR explored ways to effectively engage the private sector to strengthen hydrometeorological services in its flagship report, *The Power of Partnership: Public and Private Engagement in Hydromet Services.*

Amid these multiple shocks, governments will most likely face economic recessions. Climate change could add to the impacts of this unprecedented crisis if countries cannot find a way to address it in the actions for recovery and stimulus of national economies. In this uncertain environment, green and inclusive approaches offer an opportunity for sustainable recovery and growth by helping create new jobs, economic savings, competitiveness, and market opportunities, while also delivering longer-term environmental quality and economic growth. An accelerated shift to low-carbon and resilient economies could, by 2030, translate into $26 trillion in economic benefits.[2] At the same time, infrastructure investments made without fully accounting for changing climatic conditions will likely have major impacts on projected returns on investment.

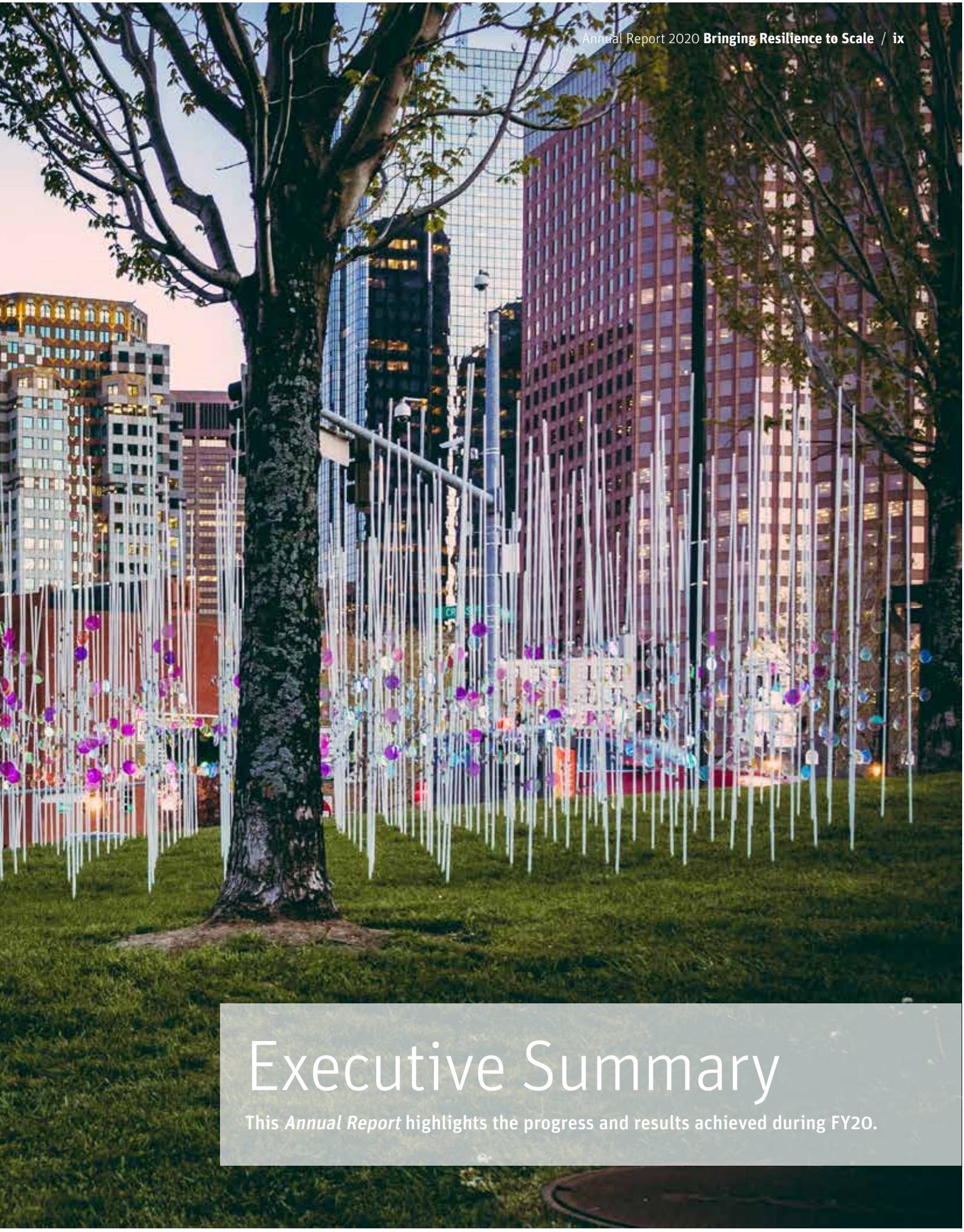
And any recovery must be inclusive. Large numbers of marginalized groups—including the poor, ethnic and racial minorities, women, children, and persons with disabilities—are often disproportionately affected by shocks but excluded from resilient development. They may live in risk-prone areas, lack access to resources and coping mechanisms, or face social restrictions. These risks are particularly acute in contexts of fragility, violence, and conflict, and are increasing rapidly everywhere with climate change, creating an urgent need for greater inclusion in risk management policy and programming.

As the world grapples with COVID-19, the global response has highlighted the importance of building a more resilient world where people are less vulnerable to disasters and to their economic impact. GFDRR's work on the frontlines of disaster risk management has helped lay the foundations on how to mitigate the risk of and prepare, respond, and recover from the impacts of natural hazards. These capacities and mechanisms can be quickly adapted to other emergencies. With the support of partners such as India, which was Co-Chair in FY20, GFDRR will continue to work for communities and countries by offering its knowledge, experience, and ability to structure and finance multifaceted solutions to complex risks.

[2] The Global Commission on the Economy and Climate, 2018, Unlocking the Inclusive Growth Story of the 21st Century, Washington, DC: New Climate Economy, World Resources Institute. https://newclimateeconomy.



The Art of Resilience **Carolina Aragón** | Colombia | *High Tide* | 2016 | Fiber glass rods, dichroic Plexiglas | 609 x 915 x 183cm | Photograph by Matt Conti.



Executive Summary

This *Annual Report* highlights the progress and results achieved during FY20.

About the FY20 Annual Report

This *Annual Report* highlights the progress and results achieved during FY20. It provides an overview of grant-making activities in six regions and across GFDRR's eight targeted areas of engagement. It explores some areas of the work in greater depth and includes financial statements for the fiscal year. 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 FY20 program, as measured against the facility's results indicators, are available in the report's annex.

GFDRR in FY20

GFDRR's portfolio continues to support disaster and climate resilience needs, and in response to compounding threats amid the pandemic. During FY20, the facility committed $48.2 million in funding to 140 new grants through its core program and special programs. At the end of the fiscal year, the active portfolio included 360 active grants, for a total commitment amount of $223 million. These grants address a full range of natural hazards, with flooding, earthquakes, and landslides continuing to receive the greatest share of support. In FY20, GFDRR's funding or/and technical assistance mobilized nearly $6.7 billion in additional financing. All GFDRR grants contribute to achieving the Sendai Framework's goal, as well as its targets and priorities for action.

In-Country Engagements

Core to GFDRR's vision is helping countries bring resilience to scale. Active grants in FY20 covered 144 countries across all six regions.

The **Africa** region continues to be the largest in GFDRR's active portfolio and included 73 active grants worth $54 million. GFDRR's strategy for building resilience in Africa is structured around four pillars: (1) supporting disaster risk management (DRM) policy and strategy for ministries of finance; (2) strengthening urban resilience; (3) modernizing hydrometeorological (hydromet) services; and (4) strengthening resilient recovery. In response to the COVID-19 crisis, GFDRR-supported Development Policy Loans with a Catastrophe Deferred Drawdown Option (Cat DDO) were triggered in Cabo Verde, Kenya, Madagascar, Malawi, and the Seychelles. These instruments are designed to provide a flexible financing option for governments to respond to natural catastrophes swiftly. In the world's fastest urbanizing region, Sub-Saharan Africa, GFDRR is providing support to nearly 30 cities to prepare for and adapt to the shocks and stresses of rapid urbanization through analytical work that provides a comprehensive picture not only of these risks, but also of the relevant legal, regulatory, and institutional frameworks for addressing these risks.

At the end of FY20, GFDRR had an active portfolio in the **East Asia and Pacific** region of 66 grants, worth a total of $34.9 million. In a region frequently hit by natural hazards, GFDRR continues to support climate adaptation in small island developing states through risk assessments that inform policies and investments and to help integration and modernization of databases in Southeast Asian countries so that all people receive multi-hazard early warnings. Urbanization has been a key driver of economic growth that has lifted millions out of poverty, and GFDRR is helping strengthen urban resilience and promote resilient infrastructure. Indonesia has recently completed flood hazard modeling for three cities highly vulnerable to flooding: Bima, Manado, and Pontianak; this will lead to a comprehensive urban resilience diagnostic and roadmap, and will potentially inform a World Bank–supported national urban flood resilience program. In the Philippines, the Department of Public Works and Highways is strengthening its capacity to prepare for and respond to emergencies by consolidating post-disaster responsibilities following earthquakes and typhoons, and also applying such emergency management frameworks to the pandemic response.

At the end of FY20, GFDRR's active portfolio in **Europe and Central Asia** totaled 41 grants worth $24.8 million. GFDRR has made significant strides in the region—including in Serbia, Tajikistan, and Turkey—in advancing DRM with the use of geospatial analytics and by mainstreaming climate and disaster risks in sectoral policies, such as urban and infrastructure investments. In Tajikistan, local communities are engaging in conflict-sensitive DRM to strengthen socioeconomic resilience for everyone, including marginalized groups. In Romania, a dedicated platform for civil society groups has played a key role in enabling knowledge sharing, fostering partnerships, and crowdsourcing scalable solutions for DRM, with a focus on drawing from the expertise and experience of civil society. Efforts to expand awareness of potential risks and engagements in countries where DRM and climate change adaptation agenda are less rigorous remain a strategic priority in the region.

In the **Latin America and the Caribbean** region, GFDRR's active FY20 portfolio totaled 67 grants, worth $28.4 million. The region remains highly vulnerable to natural hazards that threaten to set back development gains at a time when COVID-19 is also having adverse impacts. Key sectors such as tourism and the informal economy have suffered significantly, contributing to added social vulnerabilities. In El Salvador, a technical team conducted extensive interviews at San Salvador's central market; drawing on these insights as well as a systematic review of hazards, the team completed a community engagement framework for resilient economic development in municipal marketplaces. Other

engagements include a gender gap analysis that is identifying how Central America can advance the gender equality agenda regionally by promoting inclusive risk-reducing interventions. Furthermore, emergency cash transfer systems are being modified to become more disaster-responsive in the Dominican Republic, Ecuador, Honduras, Jamaica, Mexico, Peru, and Saint Lucia. In specific cases, such systems have been utilized to strengthen household resilience to COVID-19.

GFDRR's active FY20 portfolio in the **Middle East and North Africa** totaled 12 grants worth $5.4 million. The facility is supporting the region to accelerate climate adaptation and DRM through technical assistance activities for urban resilience and hydromet services. These efforts are complemented by support to increase capacities for recovery readiness and disaster preparedness in conflict settings. In Morocco, technical assistance is helping to support two pilot cities design and prepare urban resilience strategies, and to prioritize three-to-five year financeable action plans that strengthen the country's overall resilience to disasters.

At the end of FY20, GFDRR's active portfolio in **South Asia** totaled 42 grants worth $27.1 million. In a region where rapid urbanization is putting pressure on critical infrastructure, a new India-led initiative, the Coalition for Disaster Resilience Infrastructure, is raising interest in resilient infrastructure investments. In FY20, GFDRR funded six proposals valued at $1.5 million for technical assistance in Bangladesh, India, Nepal, and Pakistan to enhance infrastructure for the transport, water, and energy sectors. In Afghanistan, the national government, with the support of GFDRR and the World Bank, has been making marked progress toward strengthening community-based DRM. In Sri Lanka, the government is striving to make the new early warning system deliver messages to people with visual, hearing, and other types of impairments. And in Nepal, a regional funding for disaster- and climate-resilient renewable energy has produced better technical designs and standards for renewable energy mini grids and generation facilities as well as operations manuals for emergency preparedness and recovery.

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.

GFDRR supports 135 countries to have accessible, understandable, and usable disaster risk information in the area of **promoting open access to risk information**. In FY20, GFDRR's Labs team partnered with an engineering firm to produce a state-of-the-art landslide hazard map using data from NASA and applying an innovative machine learning model. It has also developed a series of freely available and user-ready data sets through the recently launched Risk Data Library Project. Labs examined the gender divide in digital technologies and mapping through the Open Cities Africa program and pursued ways to address the obstacles in the program design. In Open Cities AI Challenge, Labs made an open call for artificial intelligence (AI) experts to build models that can identify building footprints from aerial imagery. In #VizRisk Challenge, the winning teams explored how maps and visualization techniques can help citizens and governments better understand and use data on natural hazards, exposure, and vulnerability. Finally, The Art of Resilience exhibition demonstrated how projects for building disaster and climate risk resilience can productively and meaningfully engage with artists and their work.

In the area of **promoting resilient infrastructure**, the Resilient Infrastructure Program continued to mainstream DRM across multiple infrastructure sectors—from schools to transportation, water, and energy; through knowledge and analytics; and with technical assistance. Transport is the largest sector, supporting 22 countries with roughly $5.5 million in technical assistance activities since the sectoral program launch in FY18. The water sector program, launched in FY19, has supported roughly $3.9 million in technical assistance grants across 17 countries to support the mainstreaming of DRM in water supply and sanitation systems, hydraulic infrastructure such as dams, and within river basin and irrigation infrastructure. And in FY20, GFDRR launched a new program in partnership with the Energy Sector Management Assistance Program (ESMAP) to mainstream disaster resilience in World Bank power generation, transmission, and distribution network projects. The facility also launched a Just-in-Time for Resilient Infrastructure grant window in February 2020, and technical assistance was provided to Egypt, Serbia, Tajikistan, Timor-Leste, and Turkey helping the preparation of $782 million worth of World Bank infrastructure investment projects. GFDRR continues to support World Bank programs to strengthen resilience of the built environment, such as the Global Program for Safer Schools and the Global Program for Resilient Housing.

The ongoing COVID-19 pandemic has put cities once more at the forefront of the crisis. It has highlighted the vulnerabilities of the urban poor, and the urgency of investing in higher quality housing and infrastructure. As of FY20, 34 percent of GFDRR's active core program grants contributed to **scaling up resilience of cities**. These covered 202 cities across 78 countries and included capacity building, improved resilience of urban services, flood risk reduction, coastal resilience, and emergency preparedness activities. In Bangladesh, GFDRR's engagement has included technical and financial support toward the development and sustainability of GeoDASH, the country's first ever open

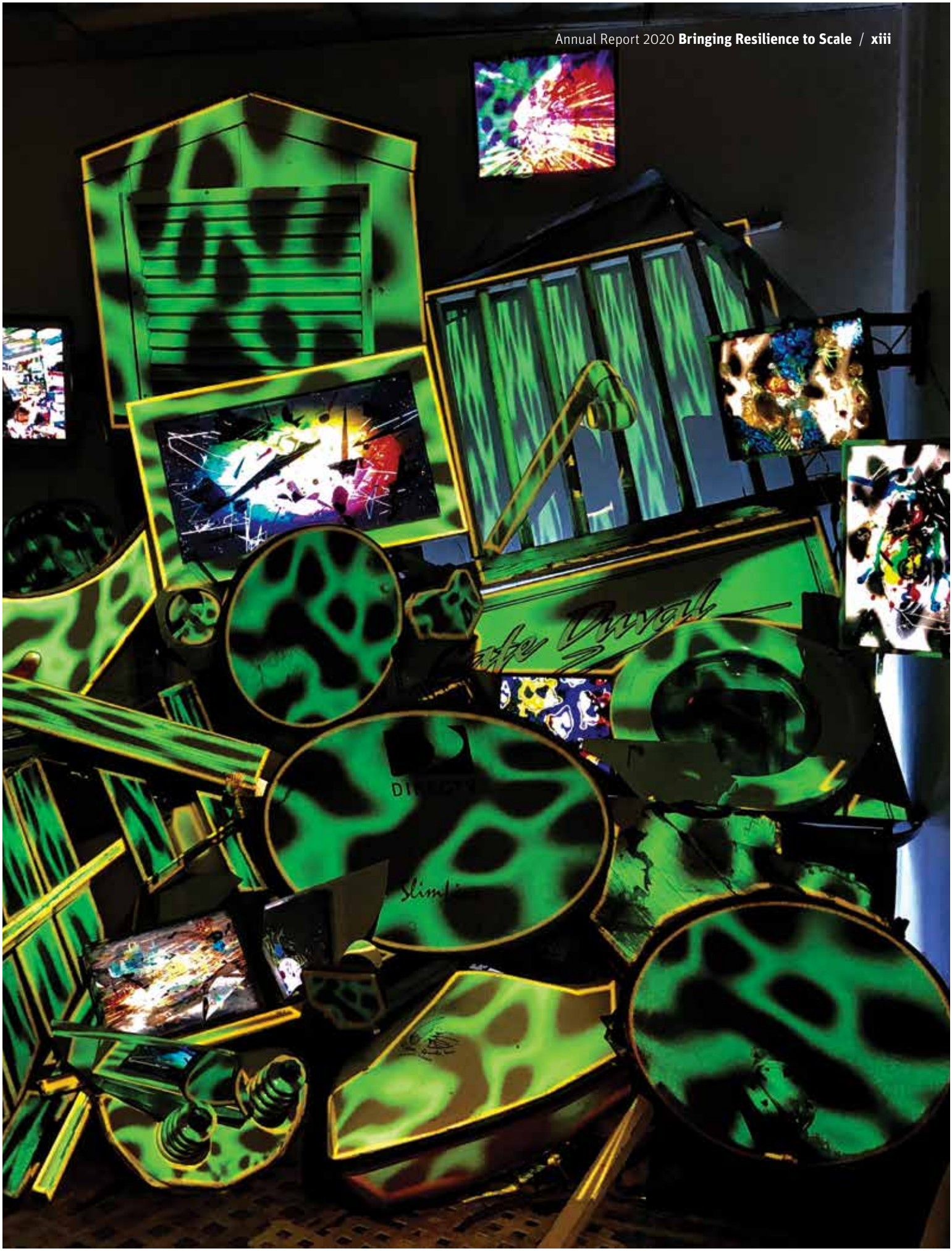
source geospatial data collection and sharing platform. In response to the COVID-19 crisis, the City Resilience Program (CRP) introduced health-related layers in the City Scan tool—one of CRP's core products to diagnose urban sustainability. It contributed to the organization of the weekly event series Cities on the Frontline, which promoted knowledge exchange among cities responding to the crisis and planning for a resilient recovery. The Building Regulation for Resilience program conducted Building Regulatory Capacity Assessments in Morocco and Uganda, providing a diagnostic assessment of the legal and regulatory framework for each country's building codes and clarifying the institutional capacity of local governments and relevant stakeholders to implement them.

GFDRR's Hydromet Program supports to low- and middle-income countries make accurate weather forecasts and issue timely warnings using probabilistic approaches and tools such as impact-based forecasting. In FY20, nine grants totaling $5.4 million were allocated from the program, of which $3.8 million directly supported activities for **strengthening hydromet services and early warning systems**. From these engagements, a positive trend is emerging: more investments are now part of comprehensive multi-phased programs rather than standalone projects, and the longer timeframe allows project teams to develop a model that can be sustained by the government. Another trend is a stronger focus on end-users and the specific hydromet services they receive. The program also published a flagship report, *The Power of Partnership: Public and Private Engagement in Hydromet Services*, which laid out different scenarios for strengthening public and private sector engagement across the entire hydromet value chain. In response to COVID-19 challenges, an analytical note—"Learning from Multi-Hazard Early Warning Systems to Respond to Pandemics"—was issued to provide recommendations on how to address compound risks and how to prepare for integrated, multiple hazards.

In collaboration with the World Bank's Disaster Risk Financing and Insurance (DRFI) Program, GFDRR has been working alongside countries to **deepen financial protection** through developing the analytics and tools needed for a stronger understanding of contingent liabilities. The Global Risk Financing Facility (GRiF)—a multi-donor trust fund housed at GFDRR and implemented by DRFI—initiated more than a dozen scoping and feasibilities studies in FY20, of which a significant share is dealing with the fallout of the COVID-19 pandemic. As part of the EU–World Bank/GFDRR Global Partnership on Disaster Risk Finance Analytics, the first set of analytics tools to assess emergency funding gaps, optimize financing strategies, and assess emergency response has been applied in Albania, Morocco, Serbia, and Tunisia. Support is also being provided to strengthen resilience of World Bank–financed infrastructure investment projects by integrating disaster risk financing solutions. In the Philippines, a technical team helped the government establish the National Asset Registry System covering almost 400,000 public assets from five national government agencies. This is part of GFDRR's assistance to help with the implementation of a comprehensive disaster risk financing strategy designed to bolster the country's financial resilience to disasters.

In the area of **building resilience at the community level**, GFDRR is working to improve understanding of the social dimensions of risk and the drivers of vulnerability to enhance resilience strengthening investments. In Haiti, a technical team developed strategic recommendations for strengthening the country's early warning system by examining behavioral barriers that interfere with people's decision-making in disasters. Based on these recommendations, Haiti's civil protection directorate launched a national communications campaign for the 2020 hurricane season that included a music video by popular Haitian artists viewed by over 1 million people. GFDRR's activities also involve promoting socially inclusive processes to empower, mobilize, and make visible communities, including women and people with disabilities, in strengthening resilience. In Nepal, the facility has been supporting efforts to develop and implement a training program to foster entrepreneurship among persons with functional limitations and disabilities. And in West Bank and Gaza, a team has been working with the National Disaster Risk Management Center of the Prime Minister's Office to help ensure that citizens and civil society alike are actively involved in driving and shaping the DRM agenda.

In the area of **deepening engagement in resilience to climate change**, GFDRR helps countries reduce damages by increasing their understanding of risks under current and future climate conditions, promoting innovative solutions to reduce these risks, and assisting in the planning and design of climate-resilient policies and investments. In FY20, over 95 percent of newly approved grants included climate considerations. As countries around the world grapple with the COVID-19 pandemic and plan for recovery, they also have a once-in-a-generation chance to set themselves on a sustainable, inclusive, and resilient development path. GFDRR has supported analytical work in South Asia—in particular, in Bangladesh and Pakistan—which is helping demonstrate the cost-effectiveness of climate adaptation measures for resilient infrastructure, based on an incremental cost-benefit analysis. And in Greater Ulaanbaatar, Mongolia, a technical team is supporting city officials, as well as officials from the Ministry of Food, Agriculture and Light Industry, in deepening their understanding of the resilience challenges and opportunities facing small and medium enterprises.



The Art of Resilience **Justin Wood** | USA | *March Towards Extinction* | 2017 | Natural debris from Hurricane Irma, video projection | Dimensions variable| Image courtesy of the artist.

In the area of **enabling resilient recovery**, GFDRR worked closely with governments and World Bank teams to adapt existing engagements to help countries manage the COVID-19 pandemic. These efforts included: (1) developing emergency preparedness plans and response protocols; (2) supporting the identification and repurposing of public facilities to address the pandemic; and (3) scaling approaches that link DRM preparedness and response systems to health emergencies. In Cabo Verde, GFDRR, together with the World Bank, has been supporting the strengthening of the emergency preparedness and response system, which included the establishment of a Cat DDO in 2019 that was rapidly dispersed in April and May 2020 to support the government's response to the impact of COVID-19. In FY20, Post-Disaster Needs Assessments were carried out for an earthquake in Albania and for floods in Djibouti, Mali, and Tanzania. For Mali and Tanzania, Disaster Recovery Frameworks were developed. Global Rapid Post-Disaster Damage Estimations to swiftly address specific damage information needs were conducted for a hurricane in the Bahamas; an earthquake in Zagreb, Croatia; floods in Myanmar; and a tropical cyclone in Vanuatu.

Financing Windows

GFDRR activities are funded through a combination of core programs, special programs, and additional programs. Core programs include the Multi-Donor Trust Fund (MDTF), the Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries, and European Union-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 for implementing the facility's strategy. A commingled pool of funding resources from Consultative Group members, the MDTF structure allows for the facility to flexibly respond to country demand to scale disaster and climate resilience and to respond and recover from disaster events. For example, GFDRR has been partnering with countries in South Asia toward building robust health emergency and preparedness systems, but as COVID-19 unfolded, the facility's engagement has since adapted to the evolving needs of a pandemic situation. A main thrust of this engagement was to support the design and implementation of the World Bank's COVID-19 lending and technical operations in South Asia. The MDTF also supports analytical work, providing evidence and proposing new ways for action and helping develop new tools. It provides a mechanism to explore work in areas of interest and the seed funding needed to initiate new thematic programs driven by country demand. Established in 2016, the MDTF has funded over $130.7 million in resilience activities through nearly 400 grants. At the end of FY20, the MDTF had an active portfolio of approximately $57.8 million through 143 grants.

The **European Union (EU)** has been a key partner of GFDRR since 2008. In FY20, the EU funded nine programs managed by GFDRR, three of which are managed in close collaboration with the Organization of African Caribbean Pacific States (OACPS). The **ACP–EU Natural Disaster Risk Reduction (ACP-EU NDRR) Program** enhances preparedness for disasters and mitigates impacts in ACP countries by supporting governments in their efforts to integrate risk management approaches into planning. For example, the program has helped Saint Lucia make strides toward not only strengthening the resilience of public infrastructure, but also ensuring that its resilience-building efforts put the needs of the poor and socially vulnerable front and center. In FY20, the ACP-EU NDRR Program had 17 new grants totaling over $4.5 million, and it also granted additional funding to projects in Dominican Republic, Ghana, Malawi, Rwanda, Saint Lucia, Saint Vincent and the Grenadines, and the Solomon Islands. Other programs, among others, include the ACP-EU Building Disaster Resilience in Sub-Saharan Africa (SSA) Program, which GFDRR implements two result areas each worth $22 million—the **African Regional Economic Communities (RECs) DRM Program (Result Area 2)** and the **Africa Disaster Risk Financing (ADRF) Initiative (Result Area 5)**; as well as the $31.3 million **Caribbean Regional Resilience Building Facility**, which began in FY19, to provide countries with financial and technical assistance to enhance long-term resilience and adaptation capacities for the most vulnerable.

The **Japan–World Bank Program for Mainstreaming Disaster Risk Management in Developing Countries** 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 FY20, one of the engagement highlights was a five-country, strategic and scalable initiative with the governments of Kenya, the Lao People's Democratic Republic, Paraguay, Peru, and Serbia, to increase the resilience of their transport sectors. The initiative resulted in impacting and building resilience in 20 countries worldwide. Other activities included the establishment of the Just-in-Time (JIT) financing window for resilient infrastructure to provide short-term grants to integrate DRM into World Bank infrastructure projects during the preparation phase. The Tokyo DRM Hub

further deepened and developed new partnerships, facilitating 20 exchanges that brought together 104 experts from the public sector, the private sector, academia, and civil society organizations. In FY20, the Japan Program awarded 44 grants totaling $12.71 million in funding and spanning 37 countries.

As of FY20, the two special programs are the **Canada-Caribbean Resilience Facility (CRF)** and the **City Resilience Program (CRP)**. There are two additional initiatives managed or implemented by GFDRR: the **Global Risk Financing Facility (GRiF)** and the **Climate Risk and Early Warning Systems (CREWS) Initiative**. The CRF was established in 2019 in partnership with Canada to support Caribbean countries achieve more effective and coordinated gender-responsive and climate-resilient preparedness, recovery, and public financial management (PFM) practices. The CRP, established in June 2017, supports cities in their efforts to build a resilient future by convening global expertise in city planning and project finance, while leveraging advancements in digital technology, urban planning, services and management disciplines, and expertise in disaster and climate risk analysis. At the end of FY20, it has funded activities worth about $11.6 million, supporting over 100 cities around the world. The GRiF was launched in 2018 with the objective of pre-arranging finance in advance of need so countries are better prepared for climate shocks, disasters, and crises. At the end of FY20, the GRiF portfolio consisted of 26 grants in implementation for a total of $38 million. CREWS, established in 2015, supports better access to multi-hazard early warning systems and disaster risk information in least-developed countries and small island developing states. The CREWS portfolio consists of 16 projects for a total of $42.1 million, half of which are implemented by the World Bank.

Initiatives

The **GFDRR Analytics Program** offers data-driven approaches to mainstream and strengthen disaster resilience in development projects. It develops new models and analytical tools to better quantify and harness the socioeconomic benefits of resilient development strategies. For example, based on the key insights from of the *Lifelines* report in 2019, the program provided technical support to operations in countries such as Bangladesh, Cambodia, India, Indonesia, Myanmar, Nepal, Pakistan, Tanzania, and Vietnam, to directly inform World Bank lending operations that are designed to strengthen infrastructure resilience. Within weeks of the COVID-19 crisis onset, the program applied methods of socioeconomic resilience metrics in Bolivia and the Philippines to identify households pushed into poverty by COVID-19-related income shocks and evaluate emergency cash support programs instituted in response. Other tools that measure the impacts of natural shocks on livelihoods and essential public services in urban areas were scaled up to estimate the socioeconomic benefits of urban resilience interventions. Finally, the Analytics Program is working to facilitate the realization of recommended investment programs and policy actions from the report *Resilient Shores*, jointly developed in FY20 by the government of Vietnam, the World Bank, and GFDRR, and formally launched in FY21.

GFDRR's engagements in **fragility, conflict, and violence (FCV)**–affected countries have evolved over the years, from just adapting post-disaster assessment methodologies in post-conflict scenarios to developing new methodologies and tools for remote data collection, investing in new analytical research, and testing cross-sectoral operational solutions. To fully explore the intersectionality of disaster and FCV situations, GFDRR launched its DRM-FCV Nexus Program in December 2018, which has so far funded and provided support to nine countries through 11 technical assistance grants. For example, in FY20, a guidance note, training tool kit, and a publication were produced to mainstream conflict-sensitive community-based DRM in Myanmar. Technical teams in Guinea and Kenya have also been working with local partners to develop frameworks and methodologies for better integrating citizen and community engagement into local development plans, with a focus on the DRM-FCV nexus.

GFDRR remains committed to ensuring that DRM activities reach and empower women and girls and to promoting greater inclusion of women in decision-making processes. In FY20, 75 percent of newly approved grants were **gender** informed—an increase of 16 percent over FY19. In Mozambique, the capital city of Maputo is undertaking a climate and social vulnerability risk analysis, and the findings will inform the government's efforts to remove barriers for women's access to more and better jobs and to facilitate the ownership and control of assets that can help cushion them from external shocks. In Tonga, analytical work by a technical team is setting the stage for national efforts to ensure gender-inclusive water, sanitation and hygiene (WASH) in schools. The facility also launched a global scoping study on the gender dimensions of DRM in FY20 to review existing evidence and data on how men and women are impacted by, prepare for, react to, and cope with disasters. The study will provide more in-depth actionable evidence and will also help identify the most important knowledge gaps.

Going forward, GFDRR is well-positioned and prepared to handle the diversity and scale of growing demand, meeting it with innovative solutions and a growing portfolio of resources that can support the design and implementation of more complex and multisectoral solutions.

The Art of Resilience **Dana Hassan** | Lebanon | *If Not Now, When?* | 2019 | Acrylic, Conté, graphite, markers and ink on a concrete-coated canvas | 90 x 55 x 6cm| Image courtesy of the artist.

How GFDRR Works

MISSION To facilitate implementation of the Sendai Framework for Disaster Risk Reduction and to contribute to the achievement of the Sustainable Development Goals and the Paris Agreement, by ensuring that all development policies, plans, and investments—including post-disaster reconstruction—are designed to minimize disaster risks and build the resilience of people and economies to climate change.

OPERATING PRINCIPLES GFDRR's strategy is underpinned by seven operating principles: Demand-driven; Leveraging Finance and Development Policy; Inclusive Approach; Gender; Addressing Disaster and Climate Risk; Knowledge; 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 leverage larger development programs. GFDRR operates across six regions: Africa; East Asia and Pacific; Europe and Central Asia; Latin America and the Caribbean; Middle East and North Africa; and South Asia.

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

FINANCING WINDOWS GFDRR 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.

FY20 IN NUMBERS: BRINGING RESILIENCE TO SCALE

Highlights of the portfolio's progress and contributions to resilience.

144 COUNTRIES

All grants

360 Active grants

140 Newly approved grants

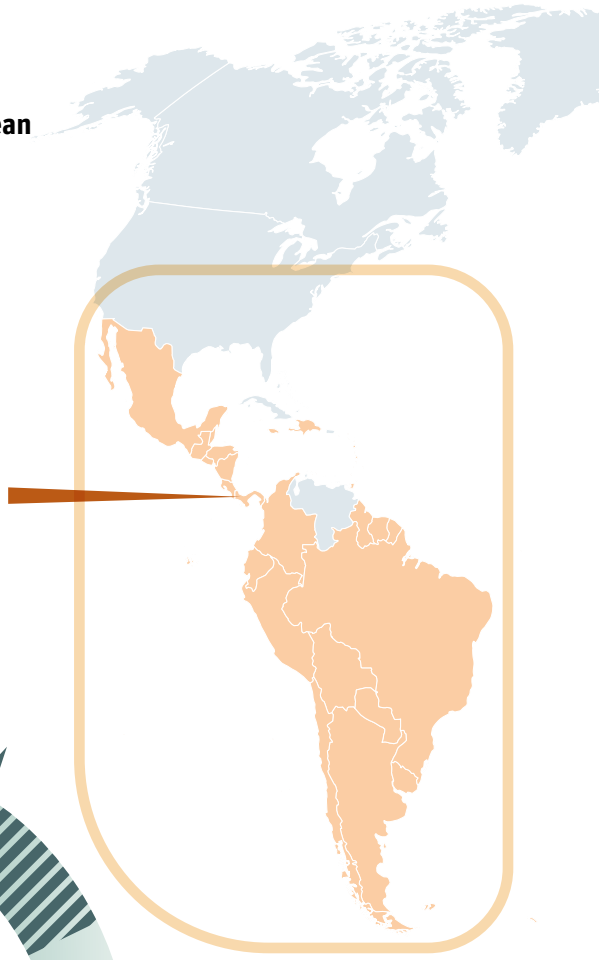
Latin America and the Caribbean

Active grants **$28.4M**

New grants **$12.5M**

Active **67**

New **42**



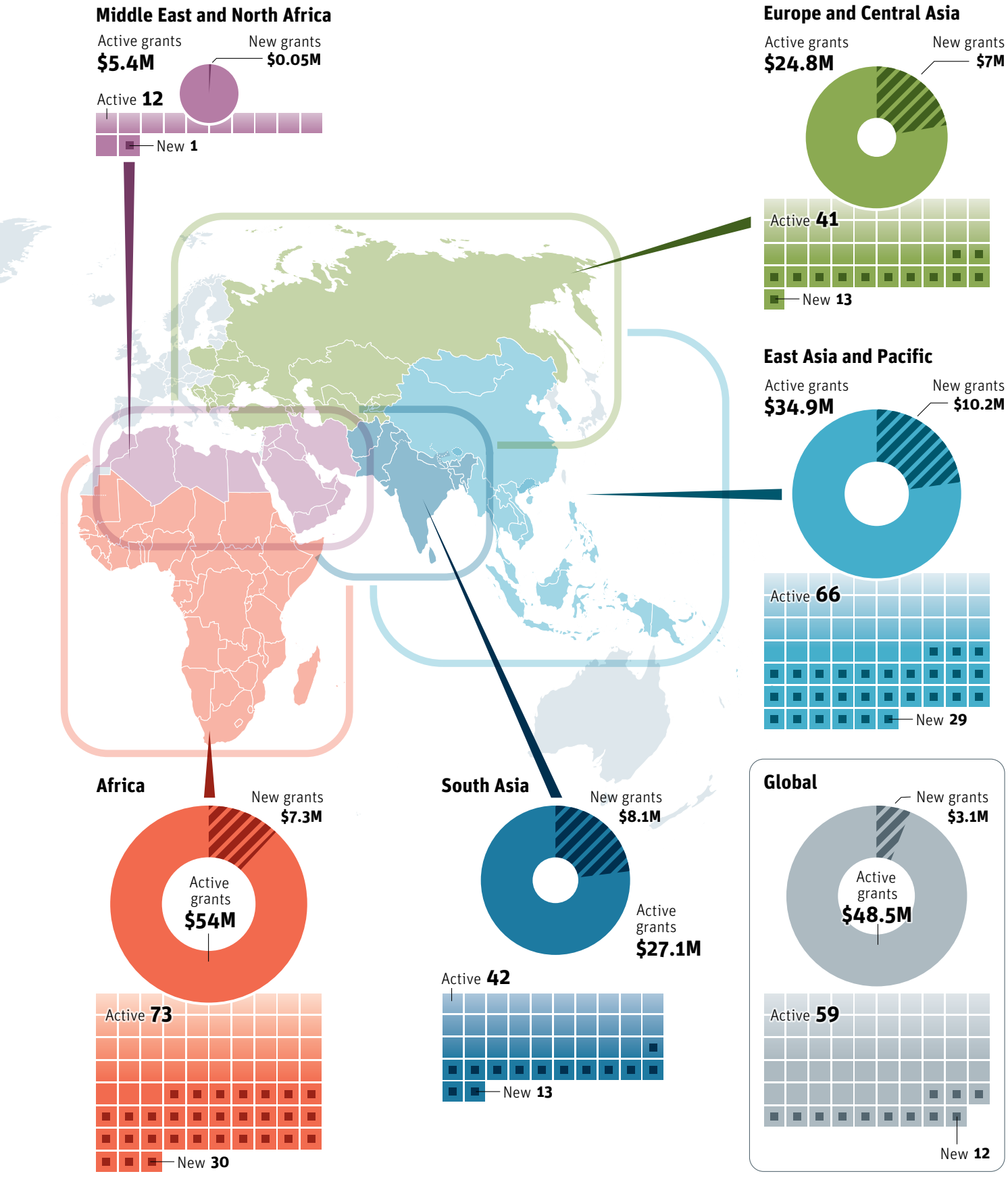
Newly approved grants **$48.2M**

Active grants **$223M**

Alignment with Sendai Framework	**100%**
Approved grants supporting resilience to climate change	**93%***
Approved grants gender informed	**75%***
Community beneficiaries	**55%***

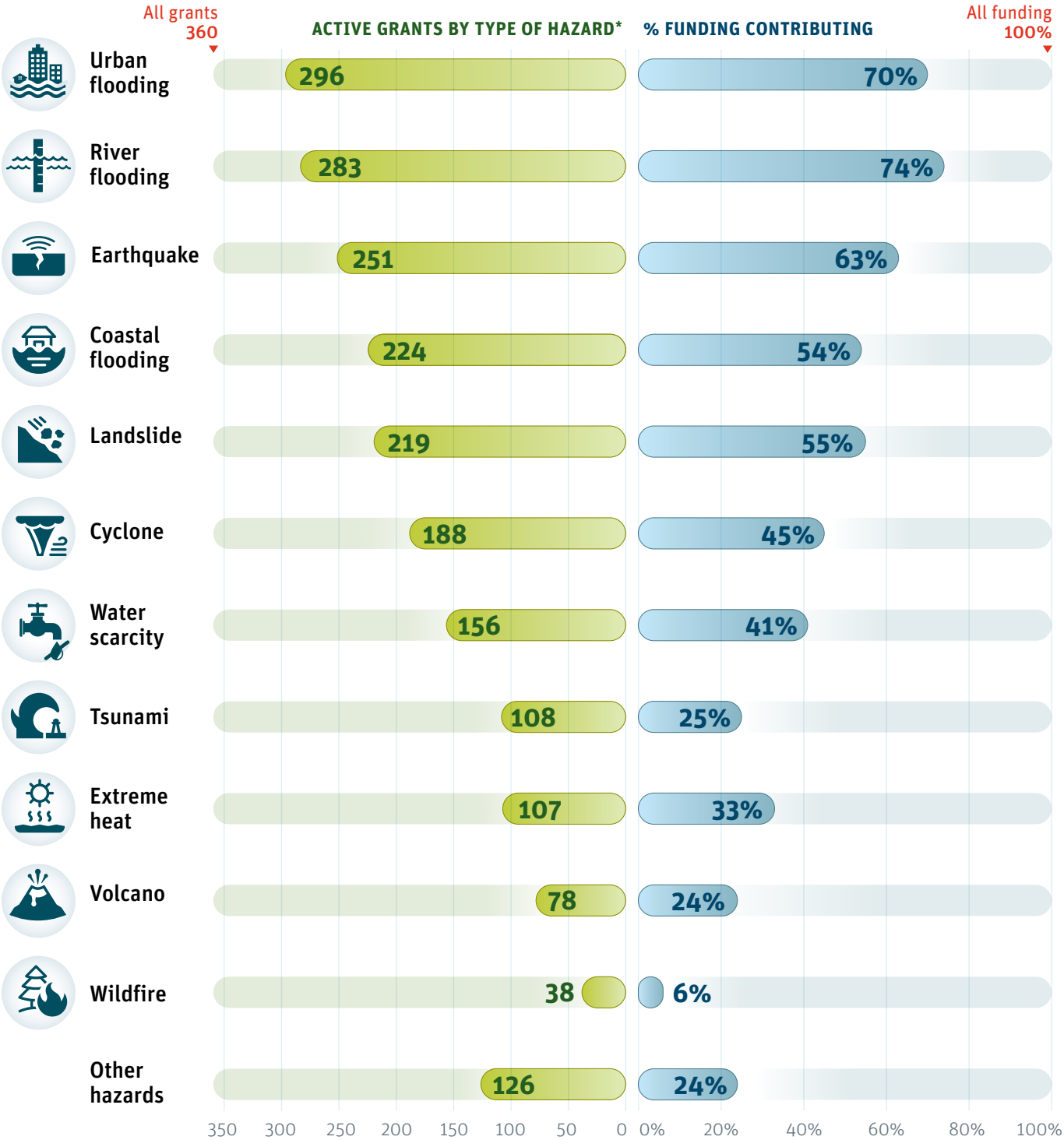
All data are as of June 30, 2020

* Analysis is based on data for grants funded through GFDRR Core Programs. It does not include grants funded through Special Programs, other programs managed/implemented by GFDRR, or just-in-time grants.


Middle East and North Africa
Active grants
$5.4M
New grants
$0.05M
Active 12
New 1
Europe and Central Asia
Active grants
$24.8M
New grants
$7M
Active 41
New 13
East Asia and Pacific
Active grants
$34.9M
New grants
$10.2M
Active 66
New 29
Africa
New grants
$7.3M
Active grants
$54M
Active 73
New 30
South Asia
New grants
$8.1M
Active grants
$27.1M
Active 42
New 13
Global
New grants
$3.1M
Active grants
$48.5M
Active 59
New 12

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, 90 percent of core program funding addressed flooding and 76 percent addressed geohazards. Other hazards addressed by the portfolio include liquefaction, saltwater intrusion, sea-level rise, avalanches, poor air quality, and sand storms.



* Includes liquefaction, radiological contamination, saltwater intrusion, debris flow risk, sea-level rise, pandemics, avalanches, dzud, poor air quality, urban fire, sand storms.

AREAS OF ENGAGEMENT

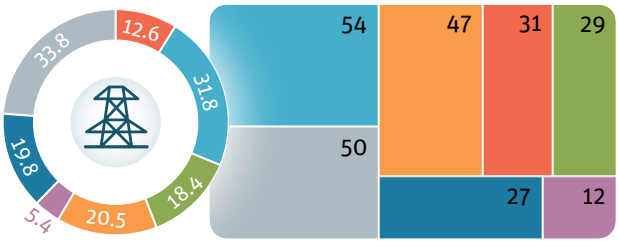
The portfolio in FY20 continued to address all strategic areas of engagement. Most grants contributed to more than one engagement area and these activities covered all regions.

By region

Africa · East Asia and Pacific · Europe and Central Asia · Latin America and the Caribbean · Middle East and North Africa · South Asia · Global

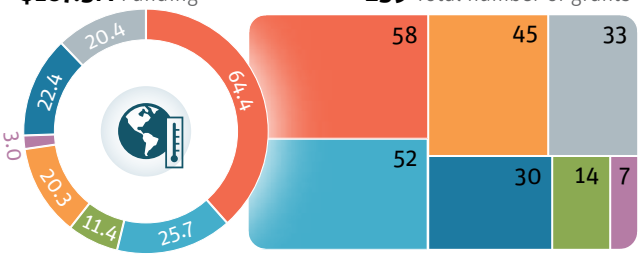
RESILIENT INFRASTRUCTURE*

$142.3M Funding — **250** Total number of grants



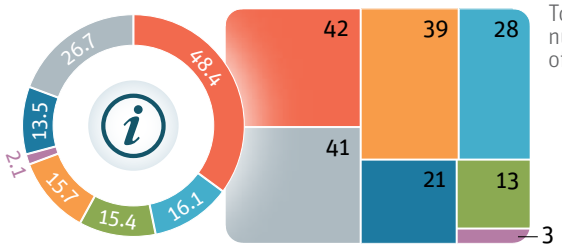
RESILIENCE TO CLIMATE CHANGE*

$167.5M Funding — **239** Total number of grants



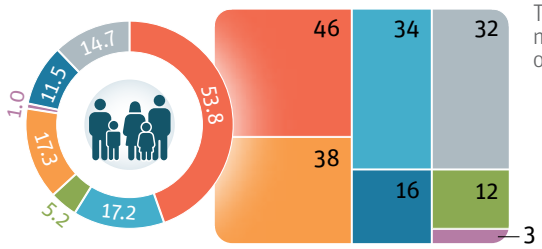
RISK INFORMATION*

$138.0M Funding — **187** Total number of grants



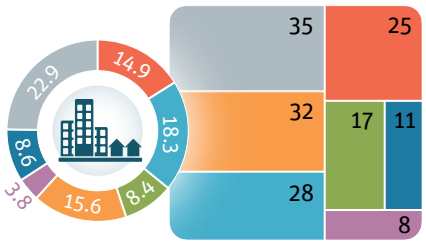
COMMUNITY RESILIENCE*

$120.6M Funding — **181** Total number of grants



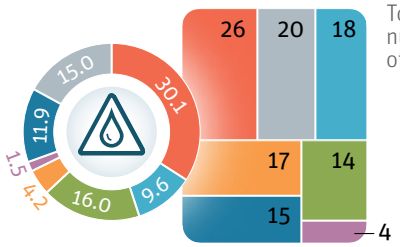
CITY RESILIENCE*

$92.5M Funding — **156** Total number of grants



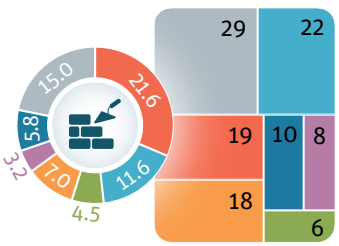
HYDROMET*

$88.2M Funding — **114** Total number of grants



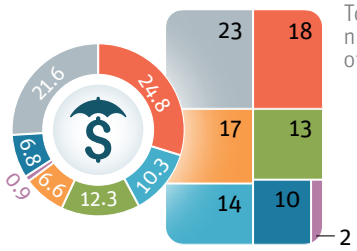
RESILIENT RECOVERY*

$69.0M Funding — **112** Total number of grants



FINANCIAL PROTECTION*

$83.3M Funding — **97** Total number of grants



* Analysis is based on data for grants funded through GFDRR Core Programs. It does not include grants funded through Special Programs, other programs managed/implemented by GFDRR, or Just-in-Time grants.

The Art of Resilience **Pitsho Mafolo** | Democratic Republic of Congo | *Redefining Life* | 2019 | Mixed media on paper | 186 x 166cm | Image courtesy of the artist.

FY20 Highlights

A deep dive into how GFDRR and our partners have worked together to advance resilient recovery in the aftermath of disasters and emergencies in FY20.

Supporting the COVID-19 response

The past decade has seen tremendous progress in the ability of countries and communities to identify and reduce risk, prepare for disasters and emergencies, and build more resilient societies and systems in their wake. In a world already grappling with the increasing frequency and intensity of natural hazards and the growing impacts of climate change, the COVID-19 pandemic is undoubtedly putting incredible strain on that progress.

Regrettably, even during times of a pandemic, disasters do not grind to a halt. The close of the fiscal year saw Cyclone Harold, a Category 5 storm, strike Vanuatu, while Cyclone Amphan devastated the border region between India and Bangladesh. GFDRR continued its core mission of helping countries and communities adapt to ever-changing climate and disaster risks; when the pandemic unfolded, the facility acted swiftly to support the global response, drawing on its long-term experience of working to bring resilience to scale.

Adapting engagements to the COVID-19 response

The fundamental pillars of GFDRR's work, including risk identification, risk reduction, preparedness, financial protection, and resilient recovery, are as relevant in times of a health emergency as they are during disasters. Recognizing the urgency and seriousness of the challenges posed by COVID-19, the facility rapidly adapted its engagements to support the response to the pandemic. These include:

Strengthening health emergency and preparedness in South Asia

In South Asia, an existing grant has supported the design and implementation of policy and institutional frameworks that have helped shape national government strategies for coping with the current pandemic, as well as future health emergencies. For instance, in Bhutan, a technical team worked with their government counterparts to develop the country's pandemic preparedness and response plan, including standard operating procedures that provide practical guidance for carrying out the plan.

Using geospatial expertise that exists in disaster risk management (DRM) agencies to help countries identify hotspots of disease transmission

In the Caribbean, an existing grant has supported efforts to enhance the technical capacity of the Caribbean Disaster Emergency Management Agency (CDEMA) to develop a geodatabase to record and map COVID-19 cases and disseminate this information using situation reports and a web mapping interface.

Supporting the development of comprehensive risk communication strategies and community-based disease surveillance

In Pakistan, existing grants have been used to develop risk communication strategy and products. The first product, a video of Pakistani celebrities asking individuals to stay home during the crisis, has been developed and was transmitted on TV and disseminated through social media.

Developing emergency preparedness plans and response protocols, including constituting emergency response teams in facilities, to cater to both regular and infectious disease patients

In the Pacific, an existing grant already focuses on assessing critical health facility needs (in Tonga) and undertaking diagnostics of emergency preparedness and response capability of the health sector, which has now included COVID-19.

Supporting the identification and repurposing of public facilities to manage the pandemic

In the Philippines, GFDRR's operational expertise and ongoing financial grant have been supporting a dialogue with the Department of Public Works and Highways around their emergency preparedness and response capacity to develop better investments in infrastructure, technical training, and specialized equipment.

Scaling up DRM approaches, including early warning systems, that link DRM preparedness and response systems to health emergencies

In Central America, a new grant has broadened its first component to support the Coordination Center for Disaster Prevention in Central America and the Dominican Republic (CEPREDENAC) in supporting the implementation of the Regional Contingency Plan oriented to complement national efforts for the prevention, containment, and treatment of COVID-19.

Sharing knowledge and expertise

Knowledge sharing and analytics are at the forefront of GFDRR's work to bring resilience to scale, and the facility's recent efforts to support the COVID-19 response are no exception. Drawing on its long experience in building resilient societies and systems, the facility quickly engaged with a range of partners to share knowledge and expertise relevant to the COVID-19 response.

Partnering with the World Bank

During the current crisis, GFDRR has played a key role by providing financial and technical support to the World Bank teams working to strengthen governments' emergency preparedness and response systems for COVID-19. In particular, the facility has supported the designing and promoting of Contingent Emergency

Response Components (CERCs), a financing instrument that allows for rapid reallocations of funds from investment operations, giving the governments access to World Bank financing for immediate recovery needs in the case of a disaster or health emergency. In FY20, 39 CERCs have been activated across all regions in response to COVID-19, amounting to approximately $610 million in financing. Representing a large portion of rapid financing disbursed by the World Bank, CERCs are one example of GFDRR's long-term engagements in contingent financing instruments that have helped to provide a solid foundation for the World Bank's response to the current pandemic.

Furthermore, GFDRR has provided technical assistance for client countries and supported their policy dialogues with the World Bank in designing Development Policy Loans with Catastrophe Deferred Drawdown Option (Cat DDO) operations. Cat DDO operations help countries prepare for emergencies by providing a contingent line of credit based on progress achieved toward disaster risk management. As of June 2020, 15 countries in all six regions triggered Cat DDOs in response to COVID-19, providing access to $1.7 billion in funds to help prepare for and respond to COVID-19.

Developing cutting-edge analytical products

GFDRR has also drawn on its analytical tools and expertise to develop critical insights and lessons learned that are already informing the global World Bank COVID-19 response. For instance, its hydromet program produced an analytical report about the lessons learned from multi-hazard impact-based early warning systems and how they can be applied to COVID-19. The report highlighted the importance of not only incorporating health events into these systems but also providing targeted, clear communication around both health and weather events.

Meanwhile, the analytics program has expanded a resilient tourism survey in the Caribbean to include information about the impact of COVID-19 on the loss of demand within the sector. This information will inform how different types of firms are affected at different stages of the crisis and across different countries, providing insights into how policies have and can affect this sector of the economy.

Finally, the GFDRR Labs team is exploring ways to support subnational decision-making through a compound risk tool that will highlight urban COVID-19 and natural hazard hotspots. The Labs team is also assessing—along with World Bank teams—the applicability of the GFDRR-financed Global Rapid post-disaster Damage Estimation (GRADE) methodology to deliver quick economic impact assessments in relation to the COVID-19 crisis.

Promoting knowledge exchange

Drawing on its convening role in resilience and disaster risk management, GFDRR has also promoted knowledge exchange for building resilience in times of COVID-19. For instance, partnering with the Global Resilient Cities Network and the City Resilience Program, GFDRR established a weekly speaker series highlighting the various approaches used by cities to respond to COVID-19. As of the end of fiscal year 2020, over 5,000 participants had joined remotely to learn from policy makers and scientists about how they have addressed the crisis.

Going forward

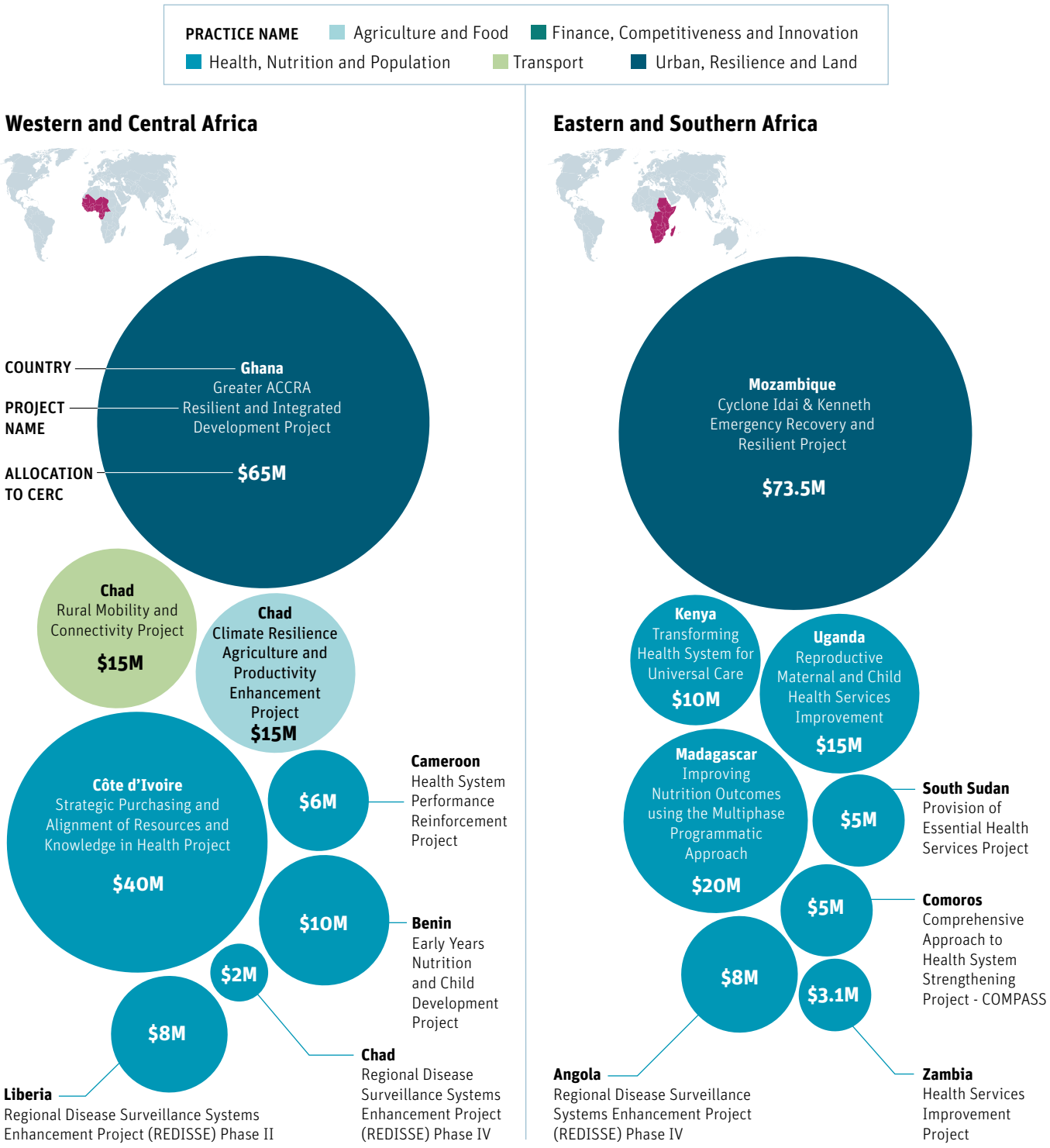
The experience of responding to the COVID-19 crisis in many countries around the world has highlighted the inadequate level of preparedness. As the world copes with the challenges of COVID-19, emergency preparedness, response, and recovery will become more critical than ever. Countries will need to develop and/or update their emergency plans and response protocols; prepare appropriate policy and legal instruments; improve coordination and communications mechanisms; improve engagement with local organizations and communities; and mobilize and stock resources, among other things. All of this will require further investments to enhance countries' disaster risk management capacities, alongside investments in the health sector. For GFDRR, these activities may include:

- Providing strategic advisory services, as well as technical and financial assistance, to strengthen governments' emergency preparedness and response systems for COVID-19 by establishing legal and institutional frameworks for clear mandates and accountabilities, and making recommendations for investments in personnel, facilities, equipment, and information management;
- Supporting DRM and civil protection agencies to apply or activate existing DRM frameworks for health-related emergencies, including developing a tailored approach for vulnerable groups and strengthening the capacities of local organizations and communities (e.g., reinforcing emergency operating centers at national and local levels, revising of coordination and response protocols, etc.);
- Providing strategic advisory services and technical support on the ex ante adaptation of DRM systems in the context of disasters during the COVID-19 response (e.g., revising, testing, and harmonizing operations plans and response protocols, improving risk communication with scientific knowledge, and repurposing existing DRM capacities/resources); and
- Designing and implementing contingent financial instruments, such as Cat DDOs and CERCs.

GFDRR stands ready to work with partner countries to effectively and efficiently support preparedness, response, and recovery from natural hazard-related disasters, the impact of which is potentially compounded by COVID-19.

GFDRR'S SUPPORT FOR THE COVID-19 RESPONSE: CERC

Contingent 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.



Updated as of June 2020. Source: data are based on information collected from the teams.

Latin America and the Caribbean

Grenada
OECS Regional Health Project
$2.5M

Saint Lucia
Disaster Vulnerability Reduction Project
$5.5M

Dominica
OECS Regional Health Project
$2.5M

Dominica
Emergency Agricultural Livelihoods and Climate Resilience Project
$3.6M

Haiti
Resilient Productive Landscapes in Haiti
$9.9M

Haiti
Municipal Development and Urban Resilience Project
$19M

Suriname
Saramacca Canal System Rehabilitation Project
$0.4M

Honduras
Disaster Risk Management Project
$0.5M

$1.5M

Nicaragua
Second Land Administration Project (PRODEP II)

$5M

Saint Lucia
Health System Strengthening Project

St. Vincent and the Grenadines
OECS Regional Health Project
$4.5M

Europe and Central Asia

Kyrgyz Republic
Enhancing Resilience in Kyrgyzstan
$9M

North Macedonia
Local Roads Connectivity Project
$54M

Middle East and North Africa

Djibouti
Towards Zero Stunting in Djibouti
$10.8M

$7.9M

Egypt
Transforming Egypt's Healthcare System Project

East Asia and Pacific

Samoa
Pacific Resilience Project under Pacific Resilience Program
$0.5M

Tuvalu
Maritime Investment in Climate Resilient Operations
$2.5M

Federated States of Micronesia
Maritime Investment Project
$2.5M

$2.9M

Cambodia
Health Equity and Quality Improvement Project (H-EQIP)
$14M

Tonga
Climate Resilient Transport Project

South Asia

Bangladesh
Livestock and Dairy Development Project
$96.2M

India
Jhelum and Tawi Flood Recovery Project
$50M

$5M

Pakistan
Khyber Pakhtunkhwa Integrated Tourism Development Project (KITE)

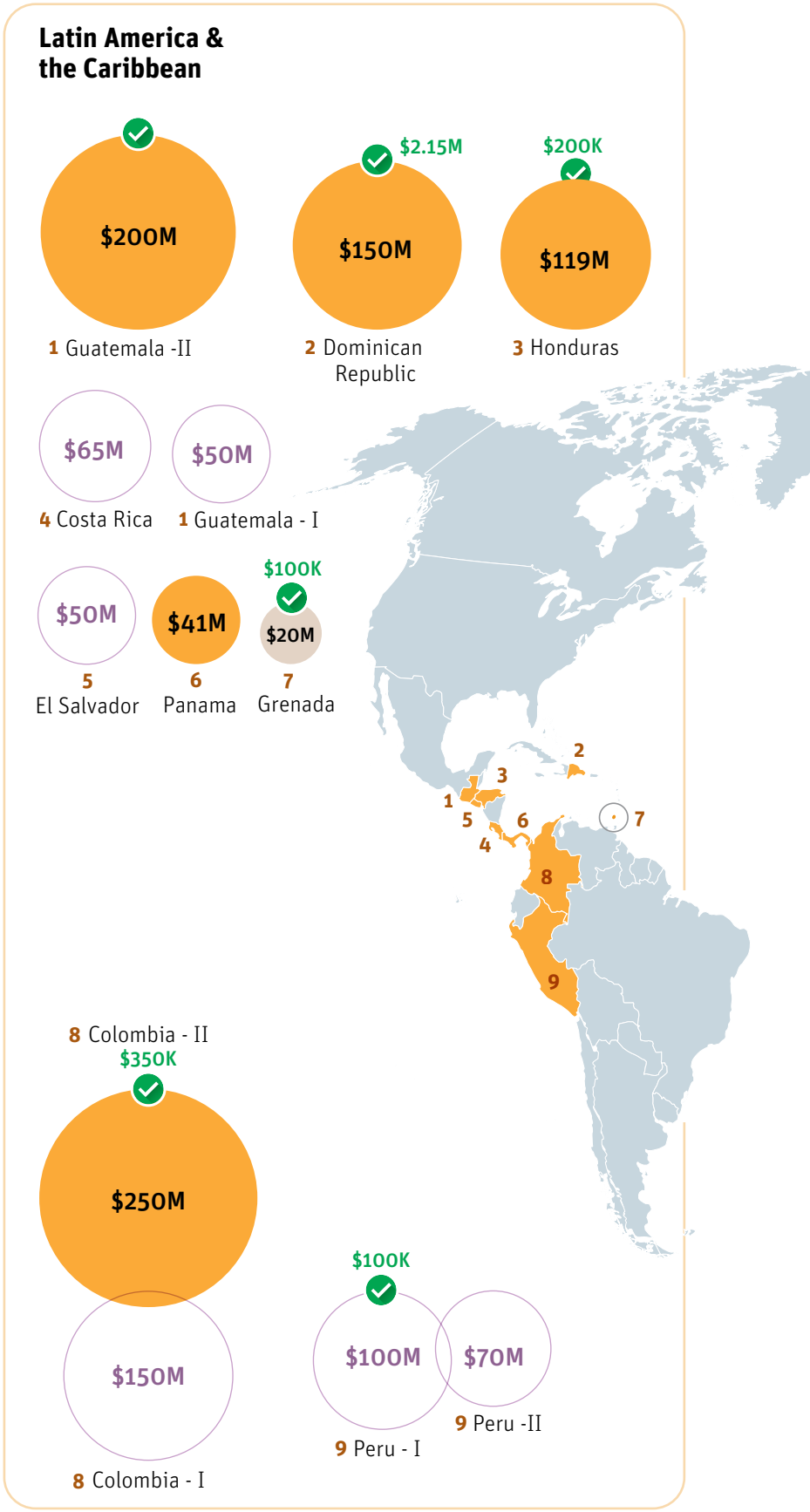
GFDRR'S SUPPORT FOR THE COVID-19 RESPONSE: CAT DDOs

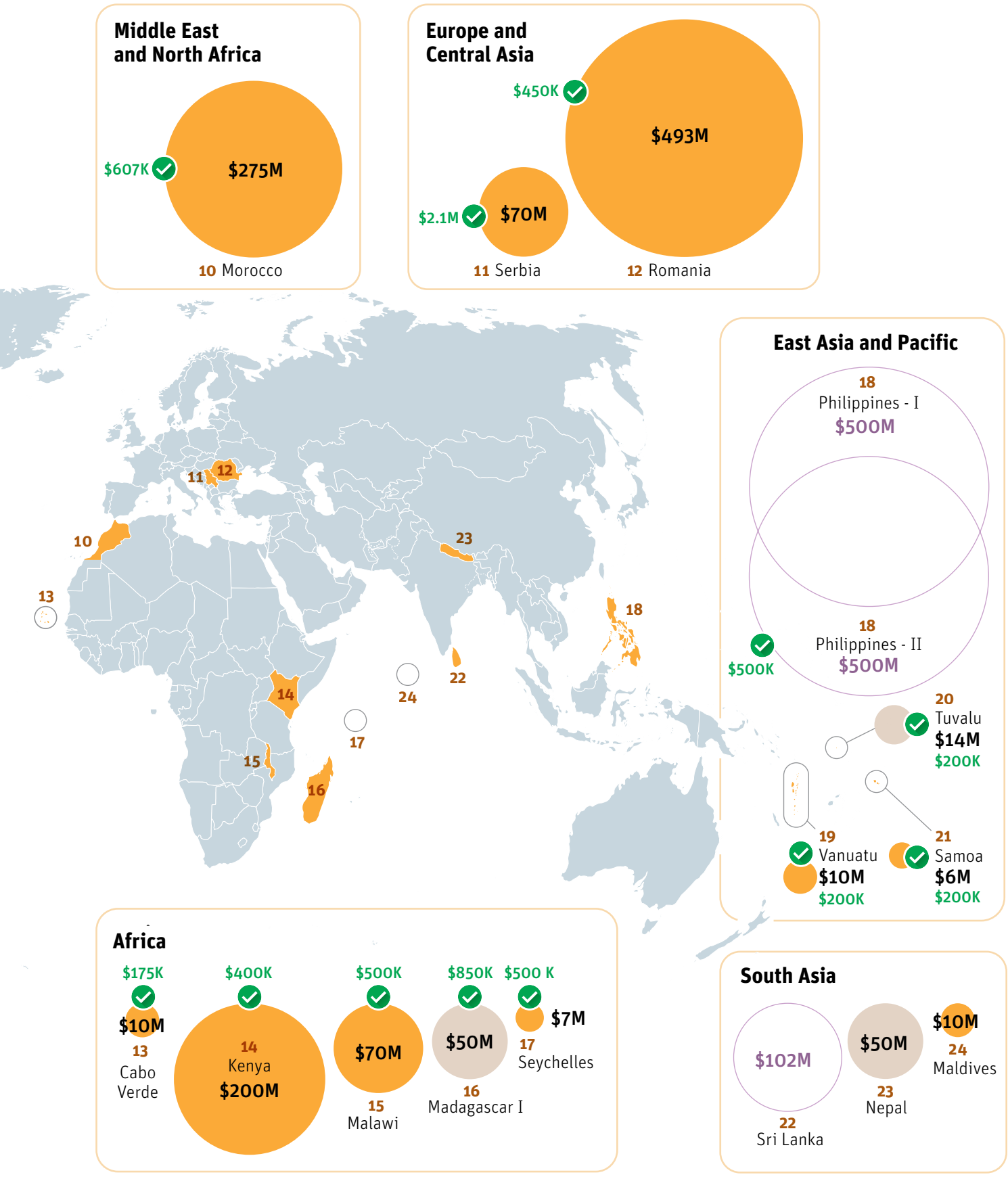
- Catastrophe Deferred Drawdown Options (Cat DDOs) are development policy operations that offer a contingent line of credit against progress achieved toward disaster risk management.
- GFDRR grants have been supporting the design of the operations with technical assistance and support to policy dialogue, helping countries prepare for disaster emergencies while also structuring pre-agreed financing that can be used rapidly when most needed.
- As of June 30, 2020, 15 countries in six regions have triggered Cat DDOs in response to COVID-19, providing access to $1.73 billion in pre-approved funds to help prepare for and respond to the pandemic.

GFDRR's support
$9.58 million

Key

- Cat DDO Amount
- $X — Activated for COVID-19
- $X — Support by GFDRR
- Not activated for COVID-19
- Closed




Middle East and North Africa
$607K
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Europe and Central Asia
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12 Romania
East Asia and Pacific
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Philippines - I
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Philippines - II
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Tuvalu
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Samoa
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Kenya
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The Art of Resilience **Hanna Riyanto** | Indonesia | *Makeshift Structure within the Post-Disaster Housing* | 2018 | Digital photograph | 25.4 x 30.5cm| Image courtesy of the artist.

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 is the fastest urbanizing continent and faces mounting challenges as the population rapidly concentrates in under-resourced cities. The continent will be home to an estimated 4.2 billion people by 2100, most of them settling in urban areas. The rapid processes of urbanization mean that the disaster risk profile of African countries is changing from predominantly rural, with drought and food security challenges, to predominantly urban, with floods, cyclone, and earthquakes as the main hazards. Many cities have not fully captured the benefits of urbanization either: economic growth remains below population growth and poorly managed urban expansion has exacerbated existing infrastructure challenges. Without proper investment in resilience, disasters can undermine Africa's precious development progress in an instant.

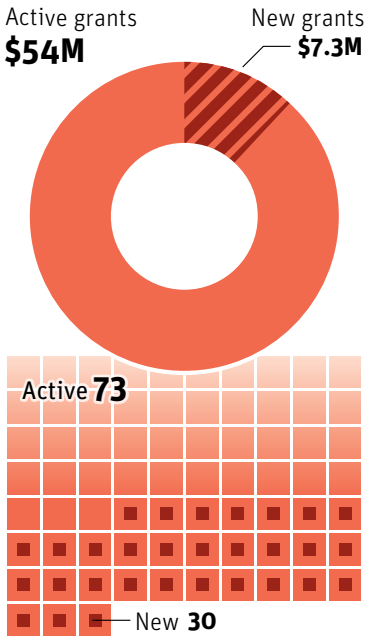
Response

GFDRR's strategy for building resilience in Africa is structured around four pillars. The facility uses new and innovative technologies through its pilot programs to foster human capital, sustainable development, and long-term resilience.

- **Supporting disaster risk management (DRM) policy and strategy for ministries of finance.** GFDRR supports the preparation and/or implementation of disaster risk financing strategies and instruments (i.e., contingent lines of credits, shock responsive safety nets, etc.) and the building of institutional capacity. Strengthening overall disaster risk governance (policies, competence, and coordination) is also necessary to develop an effective and efficient management of disaster risks and build climate resilience. In **Malawi**, technical assistance to finalize a DRM bill facilitated key policy reforms and promoted resilience measures in the urban, transport, education, and social protection sectors.

- **Strengthening urban resilience.** As the built environment provides the first line of defense against natural hazards, mainstreaming resilience into urban planning and strategic infrastructure investments is critical. For cities and local governments to implement proactive and multisectoral risk reduction strategies, it is important to expand their capacity to utilize technologies such as drones, satellite imageries, and geospatial tools. In **Liberia**, a citywide drone mapping was conducted to integrate multi-risk assessments into urban planning of the Greater Monrovia region to strengthen its urban resilience.

- **Modernizing hydrometeorological (hydromet) services.** GFDRR provides technical assistance that includes strengthening institutional, regulatory, and networks assessments; upgrading regulatory frameworks and capacity building for interpreting data; and delivering timely and reliable weather forecasts. In **Democratic Republic of Congo**, technical assistance to strengthen institutional setup and to modernize equipment and infrastructure for basic observation and forecasting is supporting accurate, timely, and user-friendly hydromet services to communities.



- **Strengthening resilient recovery.** Technical assistance for disaster damage assessments often informs the design of large infrastructure investments during the recovery period and enhances the mobilization of resources. In **Somalia**, technical assistance for the 2019 floods impact and needs assessment informed the design of an IDA-financed $137.5 million Crisis Recovery Project, which will support the recovery for the flood- and drought-affected areas. It will also strengthen capacity for disaster preparedness nationwide and advance a multisectoral approach to the COVID-19 crisis.

Engagement Highlights

- In response to the COVID-19 crisis, GFDRR-supported Development Policy Loans with a Catastrophe Deferred Drawdown Option (Cat DDO) were triggered in **Cabo Verde** ($10 million), **Kenya** ($200 million), **Madagascar** ($50 million), **Malawi** ($70 million), and **the Seychelles** ($7 million).

These instruments are designed to provide a flexible financing option for governments to respond to natural catastrophes swiftly.

- In Freetown, **Sierra Leone**, a comprehensive forest inventory was developed based on the data collected through remote sensing technology to support a community-led, large-scale tree planting pilot program. This green recovery program promotes nature-based solutions for integrated flood and landslide risk reduction with an emphasis on forest regeneration and urban greening. The intervention created about 500 short-term jobs, especially for the youth, women, and others suffering from the economic impact of COVID-19.
- In **Botswana**, an automated social registry database was created to help the government scale up its adaptive social protection program and increase access to beneficiaries, especially vulnerable households. Another DRM intervention was the development of an operations manual and user guide for a newly launched drought-monitoring system.
- In **Côte d'Ivoire**, the flood risk data gathered through a Post-Disaster Needs Assessment informed the prioritization of potential interventions and the design of an IDA-financed $315 million Urban Resilience and Solid Waste Management Project. This technical assistance also supported Abidjan's participation in the Open Cities Africa initiative, which strengthened the city's overall DRM capacity, especially for data collection and assessment of drainage network vulnerabilities to enhance flood resilience.

Lessons Learned

Strengthening countries' disaster risk governance and financial resilience through institutional and technical capacity building remains critical for prioritizing and scaling up DRM investments in the long term. In **Cabo Verde**, operations manuals for the National Emergency Fund were developed to ensure transparency and accountability so that public resources can be properly mobilized to assist the most vulnerable.

Aerial view of Ibadan, Nigeria. Photo: bolarzeal.

A regional pilot program on disruptive technologies for DRM fostered new knowledge and strengthened countries' overall technical capacities in risk evaluation and monitoring. In Ibadan, **Nigeria**, identifying and engaging with local champions and institutions was critical in developing a user-friendly and sustainable GIS visualization portal for urban development and disaster response planning. Securing the participation of committed stakeholders was key to increasing the impact of the pilot and its chances to be scaled throughout investment projects.

Santo Antão, Cabo Verde: Photo: Salvador Aznar / Shutterstock.com.

Africa

In Focus Building urban resilience in Sub-Saharan Africa

The world's fastest urbanizing region, Sub-Saharan Africa, is home to over 30 cities, each with a population exceeding 2 million people. The population of cities across the region is growing at over 4 percent per year, about twice the global average.

Yet, while urban growth is a key driver of economic progress in Sub-Saharan Africa, it is also bringing new challenges to the region's development. For example, as cities expand without adequate planning, many have sprawled into river deltas, low-elevation coastal zones, and wetlands—areas that are highly prone to natural hazards such as floods, landslides, and cyclones. Even in cities where adequate plans exist, gaps in enforcement and investment mean that the risk of sprawl into high-risk areas persists.

Working in partnership with governments, the private sector, and civil society, GFDRR is providing support to nearly 30 cities in Sub-Saharan Africa to prepare for and adapt to the shocks and stresses of rapid urbanization in a changing climate. In spite of the unique set of challenges faced by coastal cities such as sea level rise, erosion, and coastal flooding, over half of these cities are on Africa's coastline.

Recognizing the increasing complexity of the disaster and climate risks confronted by cities, a key priority for GFDRR's engagement is to support analytical work that provides a comprehensive picture not only of these risks, but also of the relevant legal, regulatory, and institutional frameworks for addressing these risks—with an eye to driving resilience-building policies and strategies at both a national level and a local one.

To cite just a few examples: in Gondar and Dire Dawa, Ethiopia, a technical team used a scalable methodology to conduct multi-hazard assessments that have informed the development of emergency contingency plans in the two cities.

In Comoros, a team engaged with nearly 300 stakeholders on a comprehensive urbanization review that unpacked the challenges and opportunities in the national government's urban resilience agenda and offered seven recommendations to take that agenda forward, including the need to strengthen the solid waste management framework. And in Saint Louis, Senegal, young academics—half of whom are women—have taken the lead in collecting and analyzing geospatial data as part of Open Cities Africa, an effort that is informing initiatives to reduce local communities' exposure to natural hazards.

Across the participating cities, technical teams are engaged directly with both national and local officials to provide training and guidance to help leverage these insights into resilience-building policies and strategies. For instance, in Ethiopia, 50 city, regional, and federal officials attended training sessions that featured real-world simulations for implementing the emergency contingency plans informed by the analytical work. These sessions were adapted to a virtual environment following the emergence of COVID-19. In November 2019, technical teams engaged with experts and practitioners from 30 African countries at the Understanding Risk (UR) West and Central Africa Conference in Abidjan, Côte d'Ivoire, covering key challenges in urban resilience ranging from disaster risk financing to coastal adaptation.

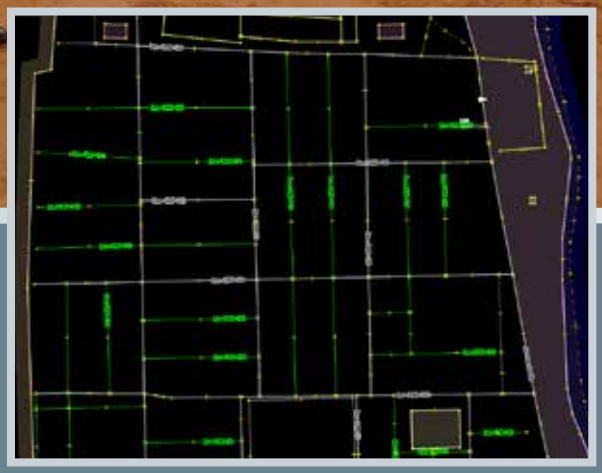
The analytical work made possible through GFDRR's support is already informing close to a dozen World Bank lending operations in Africa. Among them are the $500 million, IDA-funded Kinshasa Multisector Development and Resilience Project; the $315 million, IDA-funded Urban Resilience and Solid Waste Management Project in Côte d'Ivoire; and the $265 million, IDA-funded Mozambique Disaster Risk Management and Resilience Program.

Lessons Learned

By providing support on a regional scale, the technical teams are now able to glean and exchange critical insights that draw on the efforts of cities across Sub-Saharan Africa and that can drive and inform action for urban resilience across the region. To cite just one example, lessons learned from these efforts are informing analytical work currently underway to estimate flood risk, combining coastal and inland flood risk, in Sub-Saharan Africa.

Results in Numbers

Nearly 30 cities are better prepared to tackle the shocks and stresses of rapid urbanization in a changing climate through analytical work that provides a comprehensive picture of city-level resilience challenges and opportunities.



Top: A drone used to map areas vulnerable to floods in Niger. Photo: © GFDRR / Aziz Kountche, Africa Drone Service.

Extract from the OpenStreet Map database on the north of the Barbary language in July 2018 (above) and September 2018 (bottom) following the visit of the Open Cities Saint-Louis team.

East Asia and Pacific

Context

East Asia and Pacific (EAP) is the world's most disaster-prone region, bearing the impacts of nearly 70 percent of natural hazard events globally and affecting more than 1.6 billion people in the past 20 years.[3] In parallel, economic growth propelled by urbanization lifted 655 million people out of poverty;[4] but this has also resulted in significant concentrations of people, infrastructure, and assets exposed to natural hazards. In addition, nearly 250 million people in the region dwell in informal communities—the largest slum population in the world[5]—where infrastructure is often less than adequate. In FY20, flooding across Indonesia in December 2019 and January 2020 affected over 1.5 million people, and direct damage from Tropical Cyclone Harold amounted to about 10 percent of Vanuatu's 2018 GDP.

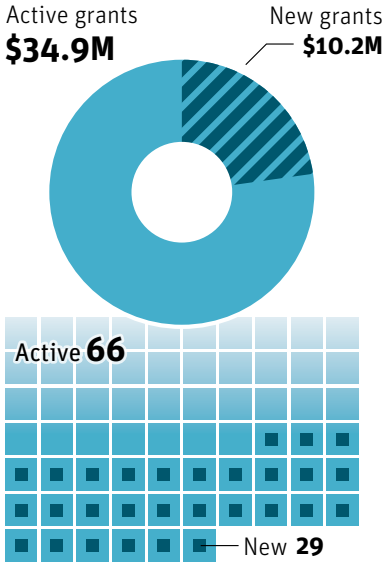
Response

- **Strengthening urban resilience.** Municipal governments are being trained on how to utilize multi-hazard approaches in land use planning and infrastructure upgrades. These include elevation modeling; intercity connectivity analysis; and vulnerability diagnostics for earthquakes, floods, and climate impacts. In Ulaanbaatar, **Mongolia**, the facility is funding the integration of climate considerations into a $100 million IBRD-financed job creation and urban regeneration project, resulting from dedicated, multiyear GFDRR technical assistance support.

- **Supporting climate adaptation in small island developing states.** Given their high exposure to sea level rise and natural hazards, risk assessments are important for informing policies and investments to increase the long-term structural resilience and habitability of entire island nations. In the **Solomon Islands**, data modeling of greater Honiara's river system helped develop and assess hard and soft risk mitigation options to reduce the impacts of urban flooding.

- **Promoting resilient infrastructure.** Asset mapping and diagnostics are identifying rehabilitation needs of critical public facilities such as schools so they can be retrofitted to better withstand natural hazard impacts. In **Vietnam**, downstream communities are benefitting from diagnostics that help the government account for climate variability in dam operations. And in Pacific Island countries, asset mapping is helping to improve power system planning.

- **Spearheading multi-hazard early warning systems (MHEWS).** Databases in Southeast Asian countries are being integrated, systems are being modernized, and operating procedures are being improved to ensure all people receive early warnings. In **the Marshall Islands** and **the Federated States of Micronesia**, communities were surveyed to improve the local-level early warning systems that contributed to enhancing the effectiveness of emergency response agencies.



- **Expanding disaster risk finance and insurance.** A regional platform—the Southeast Asia Disaster Risk Insurance Facility (SEADRIF)—offers analytical and risk finance advisory services that are paving the way for countries such as **Cambodia**, the **Lao People's Democratic Republic**, and **Myanmar** to access private insurance markets as a region. In **Fiji**, **Tuvalu**, and **Vanuatu**, technical analysis is promoting future policy reforms required to access Catastrophe Deferred Drawdown Options (Cat DDO), which allow for timely access to post-disaster financing.

- **Ensuring inclusive and participatory approaches to disaster risk management.** In Indonesia and Pacific Island countries, trainings are helping public officials to better design gender-inclusive infrastructure, implement gender-based violence risk mitigation measures, and promote equal coverage from risk-reducing infrastructure. In **the Marshall Islands**, communities are participating in hazard and vulnerability mapping to better plan

[3] Germanwatch, Global Climate Risk Index 2020. https://germanwatch.org/en/17307
[4] Baker, J. and G. Gadgil. 2017. *East Asia and Pacific Cities: Expanding Opportunities for the Urban Poor.* World Bank.
[5] Ibid.

for and respond to disasters.

Engagement Highlights

- In **the Philippines**, work is underway to reduce the seismic risk of selected public buildings and strengthen the resilience of critical infrastructure in greater Metro Manila. In addition, the Department of Public Works and Highways is strengthening its capacity to prepare for and respond to emergencies by consolidating post-disaster responsibilities following earthquakes and typhoons. With the recent onset of COVID-19, such emergency management frameworks are being applied to pandemic response.
- To strengthen flood resilience in **Lao PDR**, lightweight aircrafts are collecting digital terrain information to inform detailed designs of municipal flood defense infrastructure and innovative urban resilience approaches in Muang Xay, Luang Prabang, and Pakxan cities. In parallel, hydrometeorological services are being modernized through institutional changes and stakeholder consultations. A gap analysis of meteorological forecasting capacity was conducted, and a national forecast verification methodology is being developed to better assess the accuracy of forecasts.
- In **Kiribati** and **the Marshall Islands**, GFDRR assisted in developing analytical frameworks tailored to these countries' unique hazard vulnerabilities, such as the low elevation of atoll islands and the growing climate and disaster risks. Through this framework, infrastructure investments appropriate for medium- and long-term resilience of human settlements are being assessed. In addition, a stock-take of globally implemented technical options addressing common vulnerabilities is underway, while also weighing the feasibility of applying such options from a technical, economic, policy, and legislative perspective.

Lessons Learned

New technologies and innovations are in high demand to enable remote monitoring and supervision during COVID-19. Across Southeast Asia, mobile tools with open data kit software are being piloted and demonstrating early positive results. In the Pacific, this requires investment in core communications infrastructure. Data and information sharing agreements can also help mitigate delays, and more accurate and granular hazard data can improve understanding of risk.

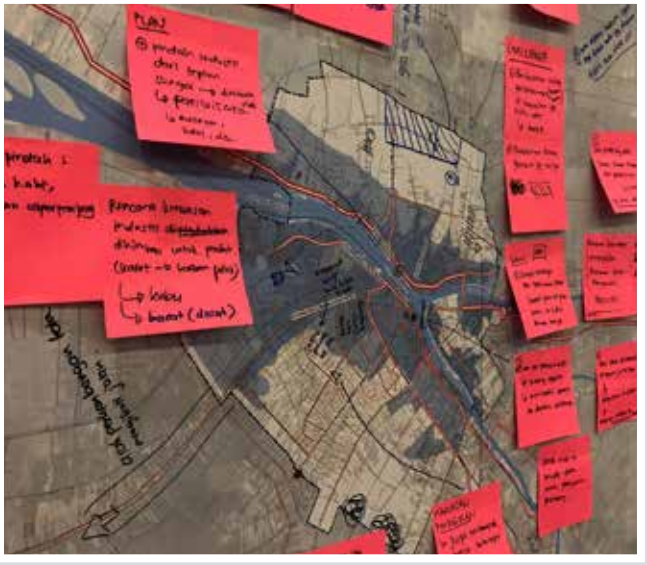


Photo: World Bank.

Photo: World Bank.

Experience implementing urban flood resilience measures in Indonesia and Lao PDR have highlighted the need to strengthen technical knowledge and understanding of integrated approaches, particularly on green infrastructure and risk-informed urban design and planning, at subnational levels.

East Asia and Pacific

In Focus Bolstering integrated urban flood risk management in Indonesia

Over the past two decades, Indonesia's urban population has been hit hard by an increasing frequency and intensity of flooding. Early in 2020, devastating floods in and around the capital Jakarta displaced more than 36,000 people from their homes and claimed the lives of at least 66. In 2019 alone, floods in South Sulawesi, Papua, and Bengkulu caused over 200 fatalities, with damages and losses estimated at $128 million. Rapid urbanization, poor-quality infrastructure, and climate change effects are just a few of the factors exacerbating flood risk in Indonesian cities.

Indonesia is no stranger to natural hazards. Recognizing the importance of tackling these challenges, the government has been developing a national program for urban flood resilience. Under the Japan-World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries, GFDRR has provided technical and financial support that has been critical to developing diagnostics for three cities: Bima, Manado, and Pontianak. These urban areas are highly vulnerable to flooding and have been selected as pilot cities for the national program.

Over 300 officials thus far—representing both local governments in these three cities and ten national-level line ministries—have received training as well as advisory and technical support in several key areas in integrated urban flood risk management. Areas addressed include water-sensitive urban design, investment prioritization, innovative financing mechanisms such as land value capture, and participatory design approaches.

In partnership with local government officials, a technical team has completed flood hazard modeling for the three focus cities, taking into consideration population growth and climate change effects. Each of the cities has a unique flood risk profile, and this analytical work has painted a far more vivid picture of the flood hazards than has been previously available. For instance, the work in Bima identified upstream deforestation and unsustainable farming practices as among the principal drivers exacerbating flood risk in the city.

In close consultation with stakeholders at the community level, including civil society, the private sector, and academia, and with support from GFDRR, officials have also identified challenges and opportunities in flood resilience, including an initial matrix of potential interventions that tackle flood risk while also advancing environmental sustainability and social cohesion in their respective communities.

GFDRR's engagement has put a strong emphasis on building up officials' knowledge base about green infrastructure and nature-based solutions, in keeping with the Indonesian government's commitment to a balanced approach to flood resilience that enhances climate co-benefits. At one workshop, local government officials participated in design "charrettes" (a participatory design process) to explore nature-based solutions for flood resilience. The city of Pontianak is already drawing on insights from that exercise in its efforts to revitalize its riverfront area.

All these efforts are setting the stage for a comprehensive urban resilience diagnostic and roadmap in the three cities, which was expected to be finalized in October 2020. These are also informing a proposed IBRD-supported National Urban Flood Resilience Project. It is anticipated that the highly participatory methodology for flood risk analysis and planning will be utilized by participating cities in the proposed national program.

Photo: World Bank.

Lessons Learned

A participatory planning approach to urban flood resilience can help identify opportunities and barriers to investment, and such planning should embrace a set of stakeholders that includes people of all abilities, ages, and genders. GFDRR leveraged this approach in Indonesia through the support of participatory design workshops in three focus cities. These workshops utilized urban design mapping techniques informed by a wide range of stakeholders' experiences with flooding in their respective cities.

"There are unique issues of flooding in Manado, Bima, and Pontianak. Whether in terms of natural conditions, urban areas, rivers, rainfalls and types of floods, a more in-depth study in each city is certainly required to develop comprehensive flood mitigation plans."

—**Abdul Malik Sadat Idris**, Director of Water and Irrigation at the Ministry of National Development Planning

Results in Numbers

Flood hazard and risk modeling for 3 focus cities
prepared to inform urban design and engineering options to strengthen urban flood resilience

Over 300 officials trained in key areas
in flood risk management, including flood risk analytics and investment planning

Europe and Central Asia

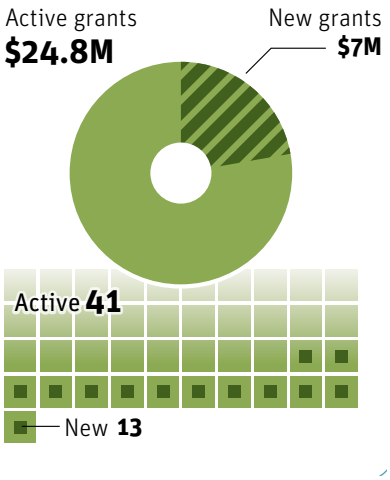
Context

Europe and Central Asia is a region highly prone to seismic and weather-induced hazards, particularly floods, in addition to the intensifying impacts of climate change. Despite this high risk, the level of institutional commitment and investment toward disaster risk management (DRM) varies across countries. GFDRR has made significant strides in the region—including in Serbia, Tajikistan, and Turkey—in advancing DRM with the use of geospatial analytics and by mainstreaming climate and disaster risks in sectoral policies, such as urban and infrastructure investments. Efforts to expand awareness of potential risks and engagements in countries where DRM and climate change adaptation agendas are less rigorous remain a strategic priority in the region.

Response

- **Investing in resilient and green infrastructure.** In FY20, GFDRR funded technical assistance efforts to support the design and implementation of resilient and green infrastructure investments in water, transport, and education sectors. In **Serbia**, a contingency plan is being established to improve the DRM capacity of the country's rail network system. In **Kazakhstan**, highway authorities are investing in a green road plan with detailed assessments of planting needs and locations for vegetation, which is expected to have an impact on the net reduction in greenhouse gas emissions.

- **Strengthening seismic and financial resilience.** Seismic risk and vulnerability assessments across key sectors are important first steps in building resilience to frequent earthquakes. In **Georgia**, such assessments have quantified potential economic and social impacts that could lead to the creation of an effective seismic resilience strategy and a prioritization of risk reduction investments. Following the 2019 earthquake in **Albania**, GFDRR supported the government's post-earthquake disaster assessment and continues to assist in developing risk financing strategy and improving the availability and use of disaster risk information for decision-making. GFDRR is also supporting **Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan,** and **Uzbekistan** in strengthening financial resilience and improving risk-informed investment planning toward building disaster and climate resilience.



- **Strengthening urban resilience.** While most of the cities in the region are shrinking, population growth is increasingly concentrated in a few cities where local infrastructure and services are under pressure to absorb and integrate their growing populations. In **Bosnia and Herzegovina**, the Sarajevo government made high-level framework and redevelopment scenarios for selected sites to create disaster- and climate-resilient urban regeneration plans. In **Turkey**, the government conducted a review of housing subsidy programs, including the role of the private sector in areas of urban transformation to build climate and disaster resilience in participating municipalities.

- **Reinforcing local resilience-building practices with conflict-sensitive considerations.** A new way of managing disaster risks is being undertaken in **Tajikistan**. Local communities are engaging in conflict-sensitive DRM to strengthen socioeconomic resilience for everyone, including marginalized groups.

Engagement Highlights

- GFDRR is supporting Tashkent, **Uzbekistan**, with the city government's urban resilience strategy Tashkent 2025: Transformation Strategy for Development of Resilient Tashkent by providing an analysis of shock events, risk factors, and stressors that can then feed into the city's longer-term development strategy. Through the assessment and utilization of hazard and vulnerability data, the facility is supporting the development of a macro-level risks and hazards profile; urban resilience elements in the overall development strategy for Tashkent; a short- to medium-term investment plan to increase resilience; and improvements in municipal governance to enhance the city's preparedness and response capacity.
- The **Tajikistan** government is training project teams, local officials, and communities on how to monitor disaster shocks and their impacts on violence and disputes and teaching them to manage and resolve conflicts in the aftermath of disasters. Marginalized groups are also being empowered to help prepare communities for disasters. This socioeconomic resilience strengthening project also includes the development of a conflict-sensitive disaster risk mitigation manual, a "training the trainers" manual, and a survey module on coping with disaster risks.
- In Central Asia, the Regional Scientific and Technical Council for Emergency Situations was established to provide a platform for knowledge exchange and collaboration among national and international experts.

Lessons Learned

Focusing on investments in urban resilience can motivate decision-makers to address complex development challenges and strengthen links between municipalities and central authorities. In Turkey, the government has put sustainable and resilient cities at the center of its 2019–2023 national development plan. It highlighted the pivotal role played by healthy, safe, and disaster-resilient urban settlements, which also helped to slow the spread of COVID-19.

Istambul: Photo: aydngyn / Shutterstock.com.

Khorog, Tajikistan. Masar1920 | Dreamstime.com.

When communities take the lead in including resilience-building measures as part of the local development initiative, service delivery is socially inclusive and forward-looking. In Tajikistan's rural mountainous areas, local organizations, such as *mahalla* committees, play an important role in building communities' resilience to disasters. Building the capacity of such committees and ensuring that they are accountable for resources and responsive to the needs of their communities can improve local service delivery and encourage communities to better manage climate and disaster risks. These resilience-building measures include activities such as cleaning up irrigation canals, repairing bridges, and monitoring river embankments.

Europe and Central Asia

In Focus Engaging with and empowering civil society to strengthen disaster resilience in Romania

Facing the specter of intensifying natural hazards due to climate change, Romania can draw on its long history of confronting disasters. Over the past five decades, upwards of 85 catastrophic events have been recorded, resulting in over $6 billion in losses and damage. The country is especially vulnerable to earthquakes and floods. More than 75 percent of the population live in areas that could be hit by earthquakes at any time; in the last 100 years, more than 400,000 people have been affected by seismic events.

In a country that is home to a thriving nongovernmental sector, the government of Romania, in partnership with GFDRR, has been stepping up its efforts to engage with and empower civil society organizations (CSOs) in national efforts to build resilience to disasters and climate change.

A major thrust of GFDRR's support has been toward the establishment of a dedicated platform for CSOs designed to deepen their engagement with other CSOs, as well as with the Romanian government and international and private sector partners, on disaster risk management (DRM) efforts in Romania. Even before the COVID-19 pandemic, the platform was designed to accommodate virtual participation, including through social media channels.

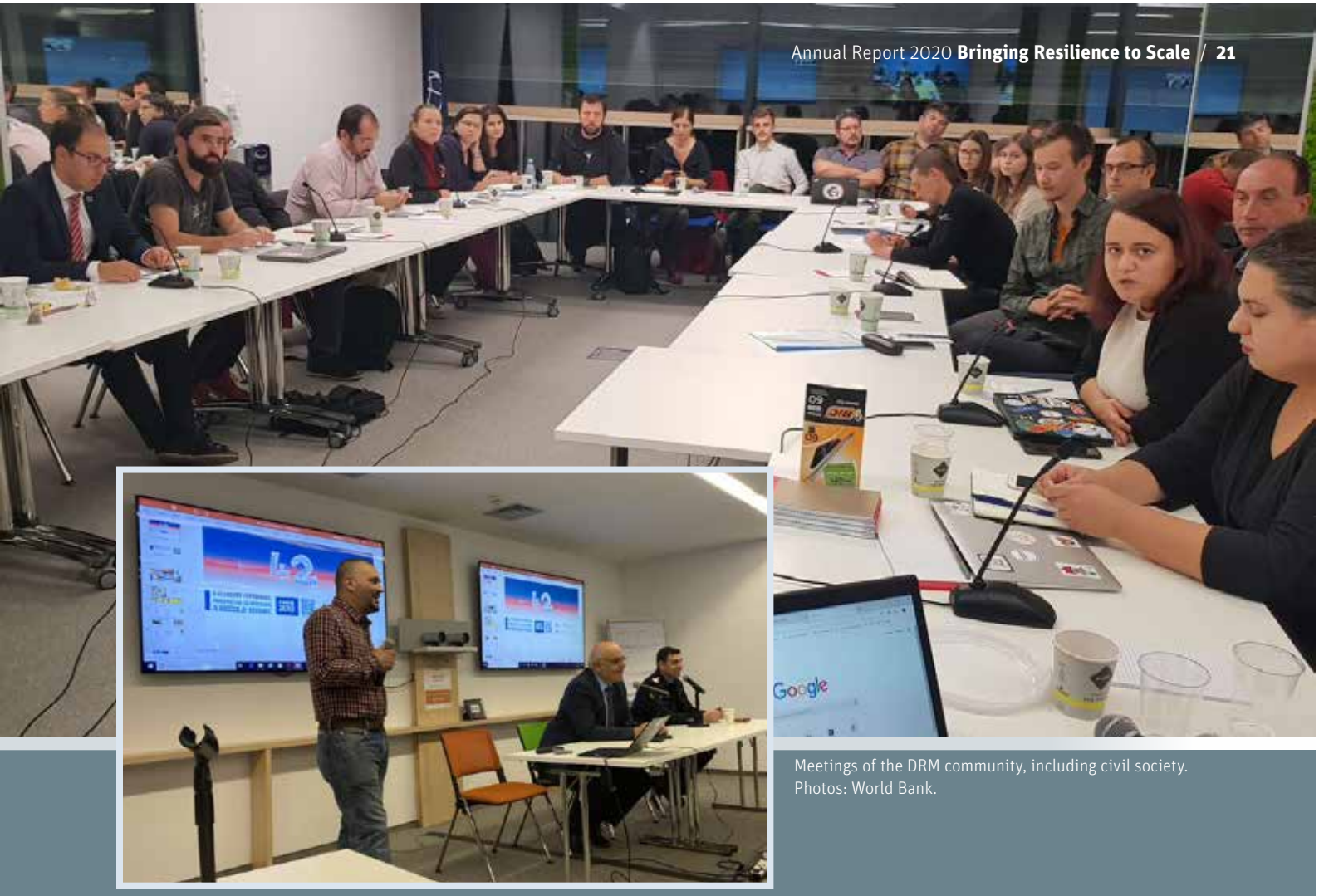
In the two years since it was launched, the platform has played a key role in enabling knowledge sharing, fostering partnerships, and crowdsourcing scalable solutions for DRM in Romania, with a focus on drawing from the expertise and experience of civil society.

For instance, the platform helped the country's tech community, Code for Romania, connect with the Department of Emergency Situations (DES), laying the groundwork for an ongoing collaboration between the 1,600-strong grassroots coding organization and the country's leading emergency response agency. DES now uses an open source application developed by Code for Romania to manage and track the deployment of civil society volunteers and resources for disaster relief in the country. Code for Romania's design for this application was based on extensive feedback not only from DES representatives, but also from members of the platform. After its launch in March 2020, Code for Romania and DES trained the first batch of CSOs in how to use the application.

Another civil society group, the Bucharest Community Foundation, turned to the platform to deepen its engagement with several of its private sector donors—IKEA Romania, ING Bank, and Lidl Romania—in the field of DRM. Under the auspices of the platform, a technical team, supported by GFDRR, organized a workshop that was attended by representatives from the group's donors to explain the importance of investing in DRM in Romania. These efforts have been key to the sustainability of Bucharest Prepared, a fund managed by the Bucharest Community Foundation that has been supporting nonprofit organizations to scale up disaster preparedness efforts.

In November 2019, Bucharest hosted the regional gathering of the Understanding Risk (UR) community at UR Europe, providing an opportunity for dozens of Romanian CSOs to exchange knowledge on DRM with peer organizations in Europe and beyond. On the sidelines of UR Europe, CSOs participated in a hands-on workshop focused on how civil society groups can mobilize their respective communities toward concerted action for a more resilient Romania. A key insight from the workshop is that CSOs should strive to find advocates within local government units as part of those efforts.

GFDRR's support for civil society is only one among a range of resilience engagements in Romania. For example, a technical team has engaged with the Ministry of Public Finance to develop a tool to analyze the fiscal impacts of disasters; this will support the government's World Bank–supported Development Policy Financing with Catastrophe Deferred Drawdown Option (Cat DDO) program. Designed to provide the government of Romania with immediate liquidity in the aftermath of a disaster or emergency, the Cat DDO program disbursed a total of €400 million ($475 million) within weeks of the COVID-19 pandemic's spread to the country.



Meetings of the DRM community, including civil society. Photos: World Bank.

Lessons Learned

While they are often eager to contribute to resilience and disaster risk management efforts, it may be difficult for CSOs to find the right partners. As shown in its support for the DRM civil society platform in Romania, international organizations such as GFDRR can play a key role in tackling this challenge by using their convening power to bring CSOs together with prospective partners in the government, nonprofit, and private sectors, both at home and abroad.

"As a team of nonspecialists in disaster risk management, we were happy to find out that the World Bank had already developed a DRM community platform, with the support of GFDRR. From the first meetings, we improved our knowledge on the local issues, based on expert presentations and discussions. We met people and organizations who became key in advancing our program—members of the jury, partners, grantees."

—**Alina Kasprovschi,** Executive Director, Bucharest Community Foundation

Latin America and the Caribbean

Context

Over the past year, Latin America and the Caribbean was mostly spared from large-scale disasters. Nevertheless, the region remains highly vulnerable to natural hazards that threaten to set back development gains at a time when COVID-19 is also having adverse impacts. Key sectors such as tourism and the informal economy have suffered significantly, contributing to added social vulnerabilities. Caribbean countries have been forced to contend with the pandemic while preparing for the hurricane season. Along the Pacific coast, El Niño resulted in localized drought, water scarcity, and small-scale floods; in the Amazon, wildfires swept across five South American countries.

Response

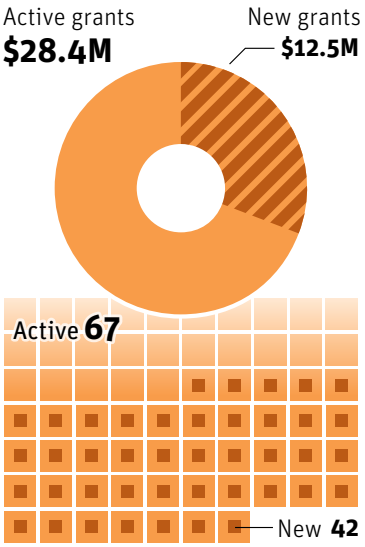
GFDRR, together with the World Bank, is continuing to help the region build preparedness capacity and long-term resilience through comprehensive interventions to address vulnerability in multiple sectors.

- **Strengthening urban resilience.** Across Central and South America, GFDRR-financed technical assistance is working with municipalities to identify and implement resilience-building interventions in city centers and informal communities. In San José, **Costa Rica**, an investment plan for urban watersheds is being developed based upon probabilistic risk modeling, cultural considerations, and gender perspectives.

- **Promoting resilient infrastructure.** A multi-hazard approach is being used to identify strategic infrastructure investments that both reduce risk and promote development. In **Bolivia**, technical experts helped design, manage, and identify financing options for slope stabilization and river canalization works in La Paz's low-income areas. In **Haiti**, ecosystem-based solutions were introduced to strengthen the climate resilience of critical roads.

- **Strengthening preparedness and response.** In response to wildfires in **Bolivia**, Just-in-Time recovery support has expanded into developing a national coordination platform for forest fire prevention and management. Emergency cash transfer systems are being modified to become more disaster-responsive in the **Dominican Republic, Ecuador, Honduras, Jamaica, Mexico, Peru,** and **Saint Lucia**. In specific cases, such systems have been utilized to strengthen household resilience to COVID-19.

- **Ensuring inclusive and participatory approaches to disaster risk management (DRM).** In recent years, significant efforts have been made to reach last-mile beneficiaries and overcome social barriers. Gender gap analysis is identifying how **Central America** can advance the gender equality agenda regionally by promoting inclusive risk-reducing interventions. In **El Salvador**, local vendors are participating in the economic development plan for the San Salvador Central Market, thus ensuring that their specific needs are represented in future structural rehabilitations of the market.



- **Expanding disaster risk finance and insurance.** GFDRR is funding advisory services that support national governments to develop national disaster risk financing strategies while considering various financial instruments and risk transfer options. In the **Caribbean**, analytical work is helping 12 Overseas Countries and Territories determine appropriate risk financing options (including regional parametric insurance) to respond to disasters and COVID-19.

- **Spearheading multi-hazard early warning systems (EWS).** Because of its unique vulnerability to hurricanes, technical assistance across the wider Caribbean basin is strengthening the modernization and investment planning capacity of national hydrometeorological services. In **Honduras**, technical assistance is working with national EWS authorities in assessing capacity needs required to introduce impact-based climate forecasting and improve database and institutional coordination.

Engagement Highlights

- In **Brazil**, GFDRR financed a multiyear dialogue on risk reduction at the national, state, and local levels, resulting in a comprehensive urban resilience program in Porto Alegre. A strategy for land value capture, which finances resilient infrastructure projects from expected property value increases, is being developed, while economic and hazard analyses are informing the design of risk mitigation investments in southern Brazil.
- In **Panama**, the capital is identifying policy actions and civil works to reduce disaster risk among waterfront communities, focusing on financeable redevelopment options to withstand floods and storm surges. Work includes implementing a new maritime resilience and conservation zone as well as urban infrastructure improvements to ensure continuous waterfront access to the Pacific coast.
- In the **Dominican Republic**, government capacity is being strengthened to lead and conduct rapid damage assessments of public assets by consolidating data platforms and training users in its mobile and web applications. Importantly, tracking the capability of financial resource use by sectors has also been developed.
- In Cali, **Colombia**, city authorities are working to integrate seismic resilience into their ambitious school infrastructure program—since nearly 53 percent of Cali's 1,550 school buildings were built before seismic building standards were introduced. To this end, a 12-year Municipal School Infrastructure Plan was developed to guide the municipality's policy decisions and investments for new and existing school infrastructure and ultimately create safer learning environments for over 180,000 students.

Lessons Learned

The proliferation of gender mainstreaming initiatives has increased the potential risk of redundant efforts, and a comprehensive diagnostic is a necessary first step to identifying gaps to be filled by different development partners. Gender analysis also often serves as a strategic entry point to understanding differentiated approaches for various socially vulnerable groups, including youth, the elderly, and the disabled.

Honduras. Photo: Alex Gakos / Shutterstock.com.

As disaster impacts are often experienced at the household level, investing in disaster-responsive cash transfer systems as part of a national strategy for disaster risk financing is critical for safeguarding gains made in reducing poverty. Adaptable social protection systems help reduce implicit contingent liabilities of governments, support the most vulnerable, and, in the long-term, have proven to be more cost-effective than ad hoc emergency aid measures.

Bolivia. Photo: Shutterstock.com.

Latin America and the Caribbean

In Focus Promoting resilient economic development in El Salvador

Though the smallest country in Central America, El Salvador has the fourth largest economy in the region. Even as it faces the economic headwinds of the COVID-19 pandemic, the country remains committed to a path toward inclusive growth and development for all its citizens. Keenly aware of El Salvador's long history of destructive earthquakes, volcanic eruptions, tropical storms, and droughts, the national government is working with GFDRR to ensure that its economic development strides are resilient to the intensifying climate and disaster risks facing the country and the wider region.

Strengthening infrastructure and public services are key priorities for the Salvadoran government. Accordingly, GFDRR has been providing support to analytical and capacity-building work that will enable the government and local municipal authorities to identify, prioritize, and implement resilient economic development in up to 262 municipalities across El Salvador.

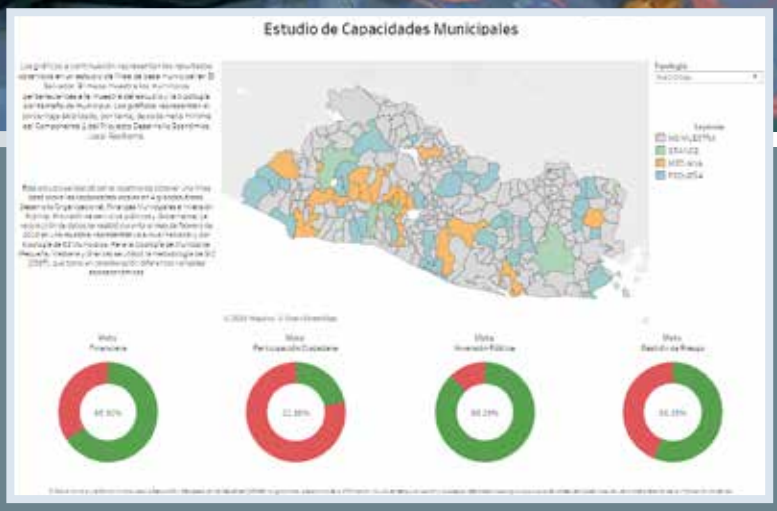
In partnership with a technical team supported by GFDRR, the Ministry of Local Development has developed a comprehensive framework for officials to assess the feasibility of investments in local economic development while taking into account a range of resilience considerations, including disaster exposure and vulnerability, social and environmental impact, and the sustainability of operations and maintenance. The framework has been paired with an interactive toolkit that will help officials prioritize investments based on baseline assessments of four areas: municipal public finance, public investment, disaster risk management, and citizen engagement.

Furthermore, at the request of the Salvadoran government, GFDRR has also directed its support toward the development of a community engagement framework for resilient economic development in municipal marketplaces—vital economic infrastructure that serves as a lifeblood for commercial activity in El Salvador. Early in 2020, a technical team conducted extensive focus groups and interviews at San Salvador's central market, gleaning critical insights into vendors, suppliers, consumers, and other key stakeholders' perceptions of and experiences with disaster risks and broader social resilience challenges. Focus groups revealed that reducing congestion and improving hygiene were key concerns for the vendors.

Drawing on these insights as well as a systematic review of hazards facing the country's municipal marketplaces, the completed community engagement framework provides a template for action on resilient economic development, covering such areas as social capital, structural vulnerability, community environment, and information and communications. The framework also includes a methodology for a participatory contingency plan that local municipal administrations can put into action in the event of a disaster or emergency.

GFDRR's support for analytical work toward resilient economic development in El Salvador has been complemented by a range of capacity-building activities designed to maximize uptake of the findings. For instance, the team has been providing technical assistance to the Ministry of Local Development and the Ministry of Finance to apply insights from the analytical work toward efforts to enhance public finance and investment guidelines at a municipal level. Both ministries, along with the Secretariat of Strategic Projects of the Presidency, have taken the lead in disseminating the findings from the analytical work, reaching six ministries and 95 percent of municipalities.

GFDRR's engagement with local resilient economic development is only one among a broader suite of resilience efforts in El Salvador. Against the backdrop of the country's response to the COVID-19 pandemic, GFDRR has supported the government in stress testing its disaster and emergency recovery process. This work has involved, among other things, a comprehensive assessment of El Salvador's disaster risk management fund called FOPROMID, as well as a series of emergency preparedness simulation exercises that have recently been adapted to the evolving COVID-19 situation.



Top: Capacity building workshop participants. Above: An interactive toolkit has been developed that will help officials assess public finance, public investment, disaster risk management, and citizen engagement at a municipal level. Source: GFDRR/World Bank.

Lessons Learned

In order to ensure effective disaster risk management, it is critical that national and local stakeholders have a shared understanding and vision of resilient development. Accordingly, as part of this effort, the technical team facilitated efforts by the Ministry of Local Development, the Ministry of Finance, and the Secretariat of Strategic Projects of the Presidency to disseminate the findings of the analytical work—including the theory of change behind resilience as a key driver of development—among the local municipal authorities.

Results in Numbers

Analytical and capacity-building work will enable government and local municipal authorities to identify, prioritize, and implement resilient economic development in

up to 262 municipalities across El Salvador.

"Every project has a social and economic impact. However, the level of impact generated will depend on the capacity to cover current challenges within a comprehensive approach, and flexibility to be able to address future constraints. This will help El Salvador to achieve social and economic development sustainability. Moreover, by including disaster risk management in the designing of strategic projects we will be more efficient in the use of public resources and help to public services continuity in case of emergency. This approach will also lead to a favorable investment climate."

—Luis Rodriguez, Presidential Commissioner of Strategic Projects of El Salvador

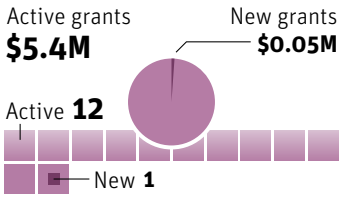
Middle East and North Africa

Context

The Middle East and North Africa (MENA) region faces a variety of threats from extreme heat, drought, heavy rainfall, and strong winds associated with tropical cyclones, sand and dust storms, and geohazards such as earthquakes and tsunamis. These challenges are compounded by climate change, which is a key driver of risk for the region. It is estimated that, compared with the global average of 35 percent, 60 percent of MENA's population live in areas with high or extremely high surface water stress, which could reduce economic output by 6–14 percent annually by 2050.[6]

Response

In response to these challenges, GFDRR is supporting the region to accelerate climate adaptation and disaster risk management (DRM) through technical assistance activities for urban resilience and hydrometeorological (hydromet) services. These efforts are complemented by support to increase capacities for recovery readiness and disaster preparedness in conflict settings. This heavily urbanized region faces complex challenges, including institutional capacity limitation, increased exposure of refugee communities to natural hazards, service delivery deterioration, and increased pressure on infrastructure, as well as social tensions between host communities and refugees. GFDRR support has been crucial in enabling the preparation and implementation of operations and has helped to position disaster risk management in the forefront of the regional country interest.



Engagement Highlights

- **Strengthening urban resilience planning and infrastructure.** In **Morocco**, technical assistance is helping to support two pilot cities design and prepare urban resilience strategies, and to prioritize three-to-five year financeable action plans that strengthen the country's overall resilience to disasters. These activities have supported rapid resilience diagnostic reports and face-to-face workshops in Fez and Mohammedia, as well as urgent diagnostics and action plans in response to the COVID-19 pandemic. In **West Bank and Gaza**, technical assistance is helping the Gaza City Municipality assess spatial and sectoral disaster risks and providing trainings to increase capacity to develop a resilience plan and inform DRM measures. Furthermore, support is being provided to Beirut, **Lebanon**, to strengthen technical understanding of seismic and tsunamic hazard and flooding, define micro-risk zones, and update a city resilience strategy to help generate interest in city-level investment plans needed to protect lives and assets.

- **Strengthening hydromet services across the MENA region.** Across MENA, technical assistance activities are enhancing institutional capacity of national meteorological and hydrological services agencies. In partnership with the World Meteorological Organization (WMO), governments have drawn on analytical and advisory support as they formulate strategic capacity-building frameworks and deliver technical and management training of staff supporting operational change management. In-depth technical support has also been piloted in **Djibouti** and **Tunisia**. Technical support to these countries is helping to enhance counterparts from relevant ministries and agencies (mainly from the Ministry of Agriculture and the National Meteorological Agency) build capacities to assess policy-institutional conditions and develop strategies needed to strengthen hydromet services. Furthermore, activities are informing the development of a roadmap with a phased approach, and a financeable action plan to achieve realistic steps toward modernizing national hydromet systems. These efforts will help to minimize growing economic losses from hydromet hazards, facilitate adaptation to climate change, and guide economic development across different sectors.

- **Improving disaster preparedness and recovery readiness.** In **Yemen**, technical assistance activities are supporting a programmatic approach to generate analysis on the scale and consequences of conflict in affected MENA countries and to inform World Bank Group support for social, economic, and physical recovery and reconstruction. These activities have enhanced global understanding of the on-the-ground situation in Yemen through the development of the Yemen Dynamic Damage and Needs Assessment and the current situation

[6] Durrell, J. 2018. *Investing in Resilience: Addressing Climate Induced Displacement in the MENA Region,* Discussion Paper. Beirut, Lebanon. International Center for Research in the Dry Areas (ICARDA) https://reliefweb.int/sites/reliefweb.int/files/resources/Investing-in-resilience-addressing-climate-induced-displacement-in-the-MENA-region.pdf.

of Syrian refugees in the region. In **Djibouti**, technical assistance is strengthening the government's ability to respond to disasters and weather-related incidents, as well as to minimize the ensuing economic impact. As a result, the World Bank supported the government in finalizing its national emergency plan and drafting disaster communication guidelines and a document outlining disaster risk financing options for the country, which will soon be submitted to the government. Furthermore, guidelines based on global good practices on legal and institutional framework for crisis and post-disaster recovery and the Government Emergency Management Plan were also developed.

Lessons Learned

The expansion of urban resilience activities in complex environments and those impacted by conflict were strengthened through the establishment of local committees and the development of strategies in an iterative and participative manner. This process has been instrumental for creating local ownership of these strategies.

Activities to support the modernization of hydromet services and early warning systems in MENA were established through a regional multi-country approach. A regional approach helped to establish a benchmark on capacity limitations and strengths across the region. This proved to be an effective mechanism for identifying national capacity limitations and prioritizing support to the most vulnerable of the countries.

Beirut, Lebanon. Photo: Shutterstock.com.

Middle East and North Africa

In Focus Developing comprehensive urban resilience strategies for Fez and Mohammedia, Morocco

Rapid urbanization has fundamentally transformed Morocco's society and economy. Today, 60 percent of Moroccans reside in urban areas, compared with 35 percent in 1970. At the same time, cities represent an even more outsized share of the country's economic activities, and they now account for three-quarters of Morocco's gross domestic product.

In view of these demographic and economic trends, fortifying the resilience of Morocco's cities to shocks and stresses will be key to advancing the country's development prospects. In partnership with the World Bank and under the auspices of the Japan-World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries, GFDRR has supported communal and prefectural authorities in developing comprehensive resilience strategies for two of Morocco's major urban centers, the Commune of Fez and the Prefecture of Mohammedia.

Drawing on several rounds of data collection and in-depth interviews with communal and prefectural officials and representatives from urban, hydraulic, education, health, and civil protection agencies, a key first step for the technical team was to conduct in-depth diagnostic studies of the shocks and stresses associated with intensifying disaster and climate risks in Fez and Mohammedia. The team analyzed the intensity and frequency of hazard events, appraised the sensitivity and coping capacity of people and assets, and examined the institutional and regulatory framework for DRM in each urban center. A major finding from the diagnostic studies for both Fez and Mohammedia is that there is a need for better coordination between the various agencies involved in disaster response, including civil protection and the communal and prefectural authorities.

The diagnostic studies have informed the development of resilience strategies by the Commune of Fez and Prefecture of Mohammedia, work that has since been completed. Both strategies outline priority urban resilience actions as well as a timeline, barriers to implementation, potential funding sources, and a monitoring and evaluation plan. Some of the priority urban resilience actions outlined by the Commune of Fez in its resilience strategy include the launch of a climate adaptation plan and support for capacity-building on nature-based solutions for DRM. Meanwhile, actions outlined by the Prefecture of Mohammedia include the development of a local strategic framework for flood risk and coastal erosion management and the integration of disaster awareness and risk training into the education curriculum.

At a national level, the comprehensive urban resilience strategies for Fez and Mohammedia are expected to inform the Moroccan government's policies, planning, and investment for resilience and DRM. In keeping with the government's integrated DRM framework, it also anticipated that other urban centers will look to the example set by Fez and Mohammedia in developing their own locally tailored urban resilience strategies.

In the wake of the COVID-19 pandemic, which has not spared Morocco, the team rapidly adapted its engagement to support communal and prefectural authorities in ensuring that the strategies are fully responsive to the current health emergency, as well as to a future pandemic situation. As part of these efforts, the team developed a knowledge note highlighting best practices and tools for health emergency response and preparedness in the urban resilience context of Morocco. One of the key urban resilience actions outlined by the Commune of Fez in its resilience strategy is to integrate lessons from the COVID-19 crisis into future urban development actions.

Panoramic view of Fez. Photo: Robert Way.

Lessons Learned

When it comes to developing an urban resilience strategy, it is important that this effort be underpinned by a shared vision of resilience. In talking directly with communal and prefectural authorities in Fez and Mohammedia, the team learned that both communities defined resilience broadly to include a range of shocks and stresses, and subsequently worked with their local counterparts to take the diagnostic and analytical work forward on that basis. This proved critical to the deep and broad support for the strategies once they were developed.

"There are a number of lessons learned from this exercise: the need for a shared territorial diagnosis, the importance to take into account risks in any new city building, and prevention and preparation prior to a disaster cost less than recovery and reconstruction. In brief, it is crucial to have the 'culture of urban resilience' as part of any decision affecting the urbanization of the city."

—Yahya Grari, Prefecture of Mohammedia, Morocco

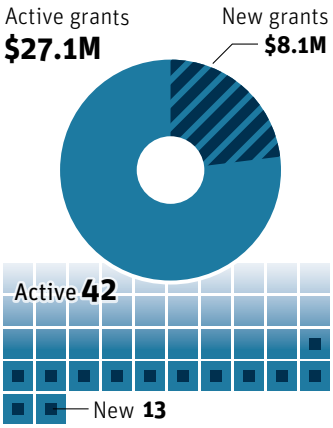
South Asia

Context

South Asia is exposed to a variety of hazards primarily because of the geo-climatic characteristics of the region: avalanches and earthquakes in the Himalayas, droughts and floods in the Indo-Gangetic Plain, and cyclones in the Bay of Bengal and the Arabian Sea. Between 2000 and 2017, disasters in South Asia have incurred estimated damages of $149.3 billion.[7] Increasing frequency and severity of hydrometeorological (hydromet) hazards as a result of climate change is also putting the region's fast-growing urban population at risk. South Asia's rapid urbanization is putting pressure on critical infrastructure, increasing multidimensional poverty, and lowering capacity to cope with shocks—thus amplifying risks for the vulnerable population.

Response

- **Scaling up resilient infrastructure.** A GFDRR grant supported the operationalization of a new India-led initiative, the Coalition for Disaster Resilience Infrastructure (CDRI), which is a global partnership to support resilient infrastructure systems. The establishment of CDRI helped to raise interest for resilient infrastructure investments. For example, in FY20, GFDRR funded six proposals valued at $1.5 million for technical assistance in **Bangladesh, India, Nepal,** and **Pakistan** to enhance resilient infrastructure for the transport, water, and energy sectors. These activities informed $2.1 billion in World Bank investments, including the preparation of $1.8 billion in new investment operations.
- **Modernizing hydromet services and early warning systems.** The second South Asia Hydromet Forum held in November 2019 in **Nepal** showed the region's continued commitment to strengthen regional engagement to deliver reliable and timely weather information. GFDRR helped to improve the capacity of agencies handling hydromet and disaster management in **Afghanistan**, and it operationalized SMART-Met, a common operating platform for automated hydromet services delivery in Bhutan.
- **Deepening financial protection.** Safety net programs are known to be very efficient in transferring resources to vulnerable households and disaster-affected people, thus helping countries respond to shocks in a timely manner. The data and information from these programs also help build better early warning systems and set up pre-arranged financing. In **Afghanistan** and **Bangladesh**, the facility continues to provide support to improve the equity, efficiency, transparency, and shock responsiveness of major safety net programs.
- **Strengthening coastal and urban resilience.** In selected cities across the region,[8] assessments of vulnerabilities in critical infrastructure systems are taking place, along with knowledge development and capacity building of agencies to address the issues. These activities will inform national governments, municipal authorities, and the World Bank about how to better target, design, and finance the preparation and implementation of urban resilience programs and investments.



- **Mainstreaming social inclusion in disaster risk management (DRM) and climate resilience.** Since 2018, GFDRR has been supporting the development of analytical work and field studies to mainstream social inclusion in DRM and climate resilience projects. As a result, social inclusion action plans have now been developed in five countries: **Bangladesh, India, Nepal, Pakistan,** and **Sri Lanka**. For instance, Bangladesh is making multipurpose cyclone shelters accessible to persons with disabilities. In **Sri Lanka**, the government is striving to make the new early warning system deliver messages for people with visual, hearing, and other types of impairments.
- **Responding to COVID-19.** Upon **Pakistan's** request, GFDRR has expanded funding to cover federal and provincial government work on improving data and risk communications to respond to the pandemic undertaken by the National Disaster Management Authority.

[7] Calculations are based on EM-DAT (International Disaster Database) data, available at https://www.emdat.be/.

[8] These cities are in **Bangladesh** (Dhaka), **India** (Mangalore, Kakinada, Chennai, and Urban Local Bodies in the state of Kerala), **Nepal** (selected cities), and **Pakistan** (Islamabad and Rawalpindi).

Engagement Highlights

- In **Nepal**, a regional funding for disaster- and climate-resilient renewable energy has produced better technical designs and standards for renewable energy mini grids and generation facilities as well as operations manuals for emergency preparedness and recovery.
- In **India**, GFDRR is supporting the mainstreaming of a climate change action plan across sectors by investing in systems and processes that are cleaner, efficient, and sustainable, as well as by developing a roadmap for implementing the India Cooling Action Plan—a cross-sectoral requirement and an essential element for economic growth.
- In **Sri Lanka**, the legal and institutional framework for the safety of dams has been established; this includes structural and nonstructural improvements and technical support for a multisectoral agency for water, irrigation, hydropower. These activities are part of IBRD-funded $69.5 million water resource management project.
- **Bhutan's** capacity in information management (mapping hazards, data collection on exposure, and disaster risk and vulnerability assessments) has been enhanced to allow for disaster- and climate risk–informed planning and decision-making in key sectoral agencies.

Lessons Learned

National disaster management agencies in Kerala, India, and in Pakistan are using existing DRM mechanisms to lead country efforts to respond to COVID-19. GFDRR's long-term support in strengthening the institutional capacity of DRM agencies in the region are proving to be instrumental in building resilience to many types of disasters, including a pandemic.

Consistent and dedicated sources of funding for regional interventions have proven to be critical in sustaining technical assistance and establishing country engagements in ways that would not be otherwise possible, as seen with the first energy project in Nepal and dam safety project in Sri Lanka.

Peshawar, Pakistan. March 23, 2020. Rescue workers spray disinfectant on the streets of Peshawar in an effort to curb the spread of COVID-19. Photo: Hasnain Ali/ IMAGESLIVE/ZUMA Wire/Alamy Live News.

South Asia

In Focus Engaging with citizens and communities to build a resilient Afghanistan

For much of its recent history, Afghanistan's development progress has been set back by conflict. Eager to turn the page and rebuild the bonds of trust that have frayed over the years, the national government has prioritized the implementation of the Citizens' Charter Afghanistan Project (CCAP), a comprehensive program to put the needs and aspirations of citizens front and center in the development of the country's infrastructure and service delivery.

In line with the Citizens' Charter, the national government, with the support of GFDRR and the World Bank, has been making marked progress toward strengthening community-based disaster risk management practices in Afghanistan. No stranger to disaster, the country is highly vulnerable to natural hazards such as flooding, earthquakes, avalanches, landslides, and droughts.

In 10 communities in Badakhshan, Panjshir, and Kandahar provinces, local teams have gathered firsthand information about the disaster risks and challenges people face and, just as critically, the opportunities for building resilience at the community level. Focus group discussions involved over 800 participants, nearly 40 percent of whom are female. Alongside the focus group discussions and key informant interviews, staff from the Disaster Risk Management (DRM) Resource Center (piloted at the Ministry of Reconstruction and Rural Development) have been conducting field surveys to document and better understand past hazard events.

Drawing on insights from these efforts as well as Afghanistan's repository of geospatial disaster data in the country's Geonode platform, which has also been supported by GFDRR, the DRM Resource Center has developed multi-hazard risk profiles for each of the 10 communities. These profiles include maps of buildings and farmlands that identify residents and categorize the different levels of risk in each of the communities.

With feedback from the wider population, community development councils have begun using these profiles to inform deliberations around the identification and prioritization of resilience measures to be undertaken by the Afghan government under its CCAP. For instance, the Allani council in the northwest region of the Darayim District, Badakhshan Province, has identified the construction of a protection wall against floods, landslides, and avalanches as a priority investment for the Ministry of Rural Rehabilitation and Development. To ensure that council members and the wider population are able to participate fully in the deliberations, the risk profiles have been converted to a video format, narrated in both Dari and Pashto.

With an eye for long-term sustainability, GFDRR has also supported training and capacity-building activities that complement these efforts for community members. Within each local team, a leader has been trained and recruited to help ensure consistent engagement and buy-in from the community. At the same time, community development councils and community champions have received training in key disaster risk management concepts and principles.

GFDRR and World Bank support for community-based disaster risk management in Afghanistan is aligned with a wider portfolio of resilience engagements in the country. For instance, several community leaders have also participated in training to operate and maintain low-cost and locally assembled weather stations as part of ongoing support toward strengthening the country's hydrological and meteorological (hydromet) and early warning services. Coupled with weather boards located in mosques, along with a free mobile weather application in Dari and Pashto to use on a phone, these efforts are helping ensure that Afghan citizens in the 10 communities have access to local weather data and forecasts. Furthermore, insights and lessons from the community-based DRM engagement are also informing the development of the IDA-funded, Drought Early Warning, Finance, and Action Project in Afghanistan, which is currently under preparation.




Clockwise top to bottom: Focus group discussions with female Community development council members in Tolat village. Weather station installation and training in Naw Abad Pingani during the Bridge Project. DRM and Risk Profile Review during Bridge Project. Review of Risk Profiles with Community development council. Photos: World Bank.

Lessons Learned

Developing a gender-sensitive approach to community-based disaster risk management requires strategies for engaging women and girls that are appropriate to the local context. In this work in Afghanistan, the technical team helped cultivate a network of male and female allies that was crucial to ensuring that women and girls' needs and capacities were fully considered in the resilience-building efforts.

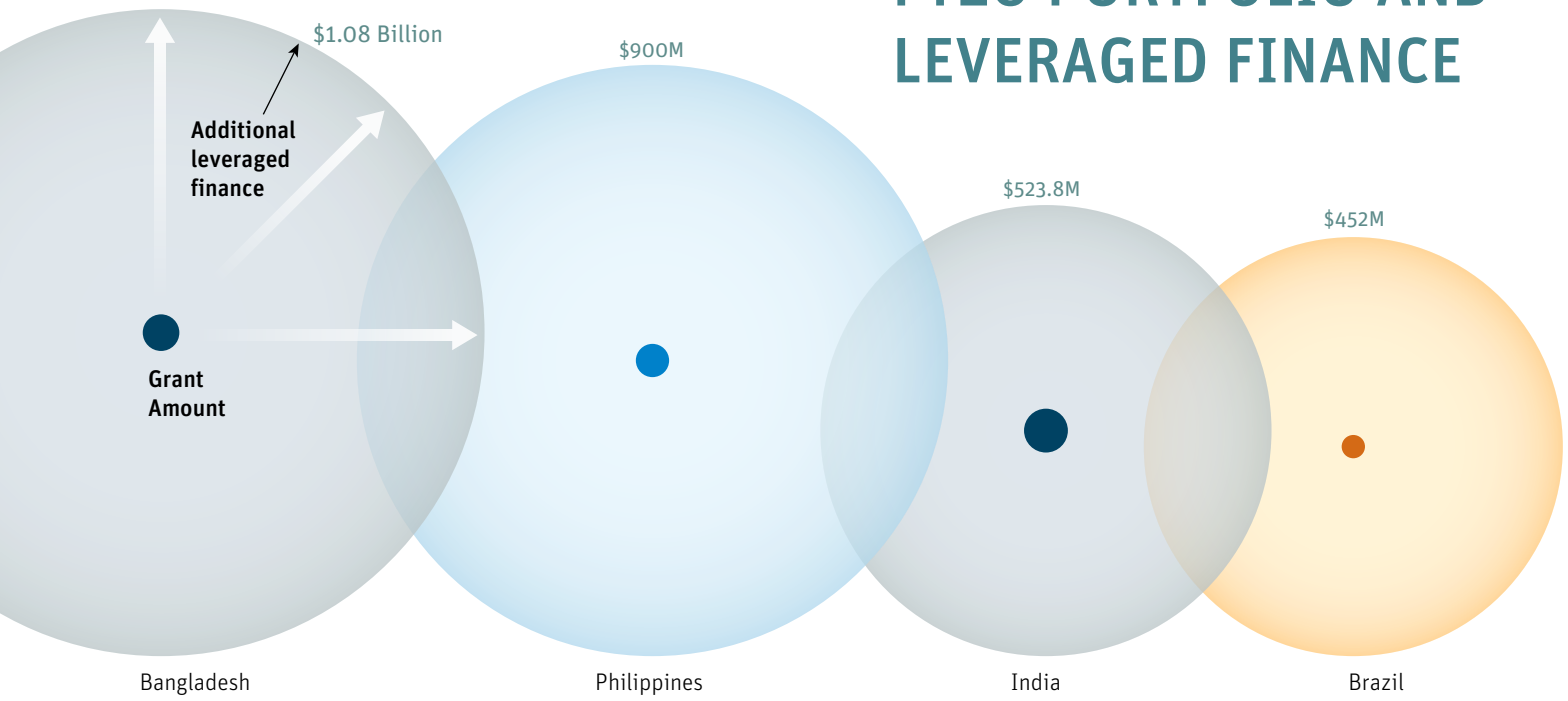
Results in Numbers

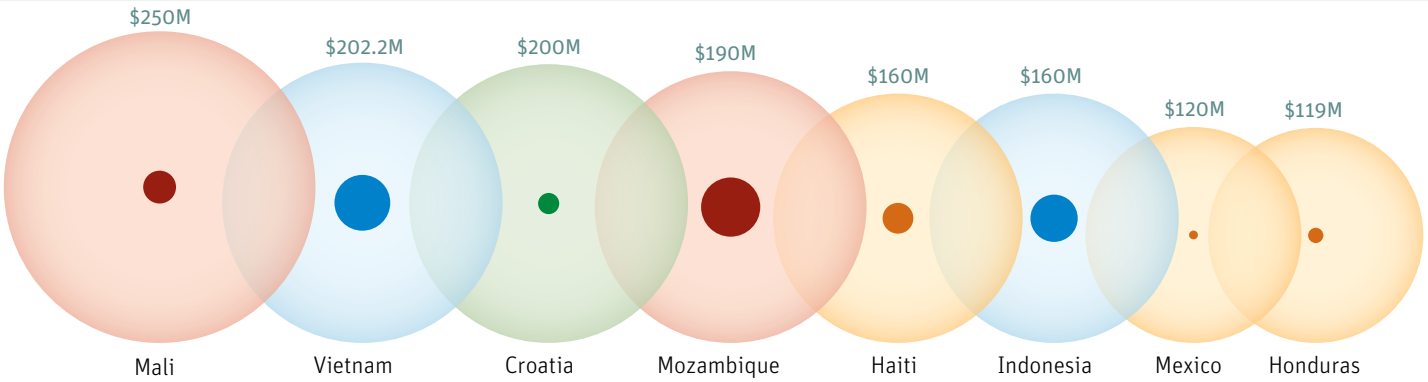
Over 800 citizens in 10 communities across 3 provinces

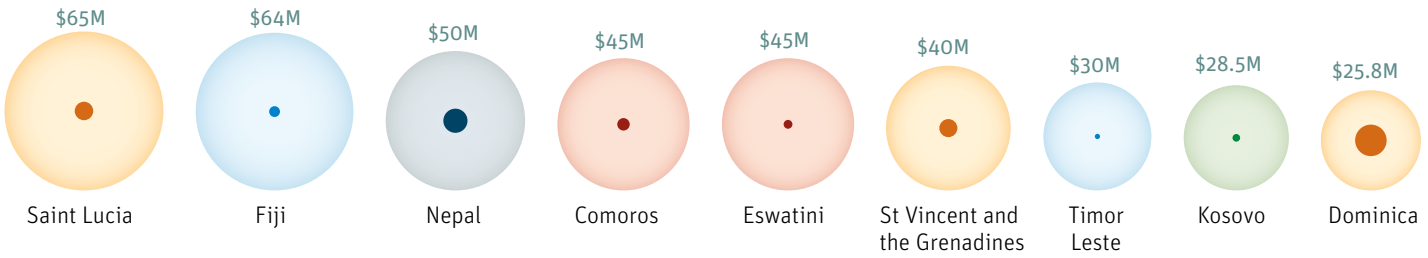
informing the identification and prioritization of resilience measures by the Afghan government considered in the resilience-building efforts

FY20 PORTFOLIO AND LEVERAGED FINANCE

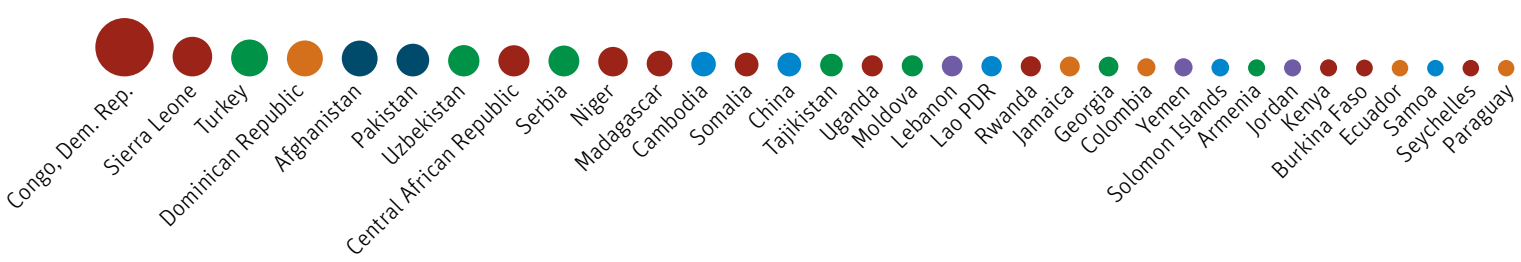
Grants with Leveraged Finance



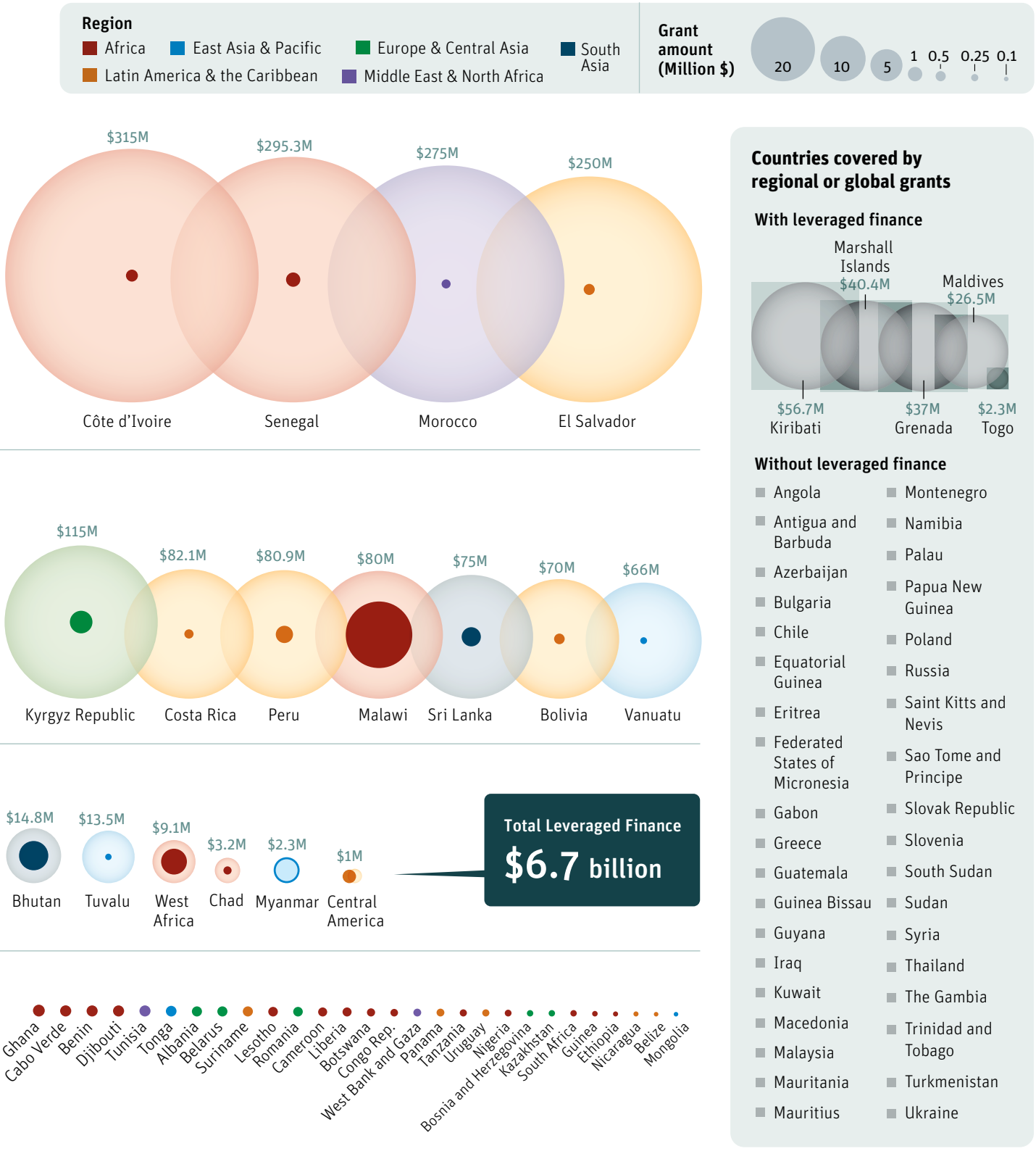




Grants without Leveraged Finance



GFDRR's FY20 portfolio covered 144 countries. Many of these grants leveraged additional finance, helping to bring resilience to scale. This graphic shows GFDRR's FY20 grant activities through in-country, regional or global activities, and the $6.7 billion in leveraging they have helped inform, enable, or co-finance. For more information on leveraging through the FY20 portfolio, see pages 127-132.

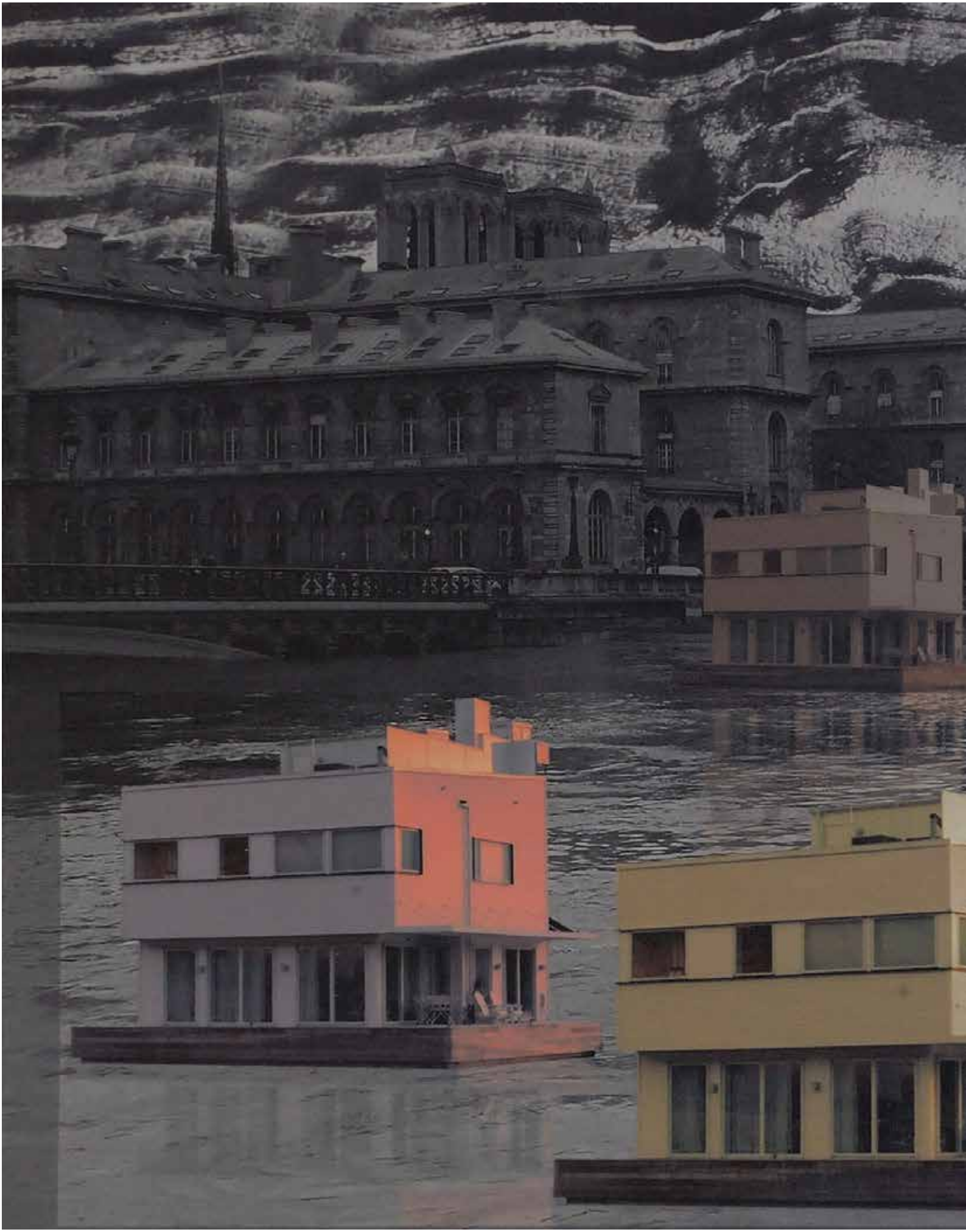


Countries covered by regional or global grants

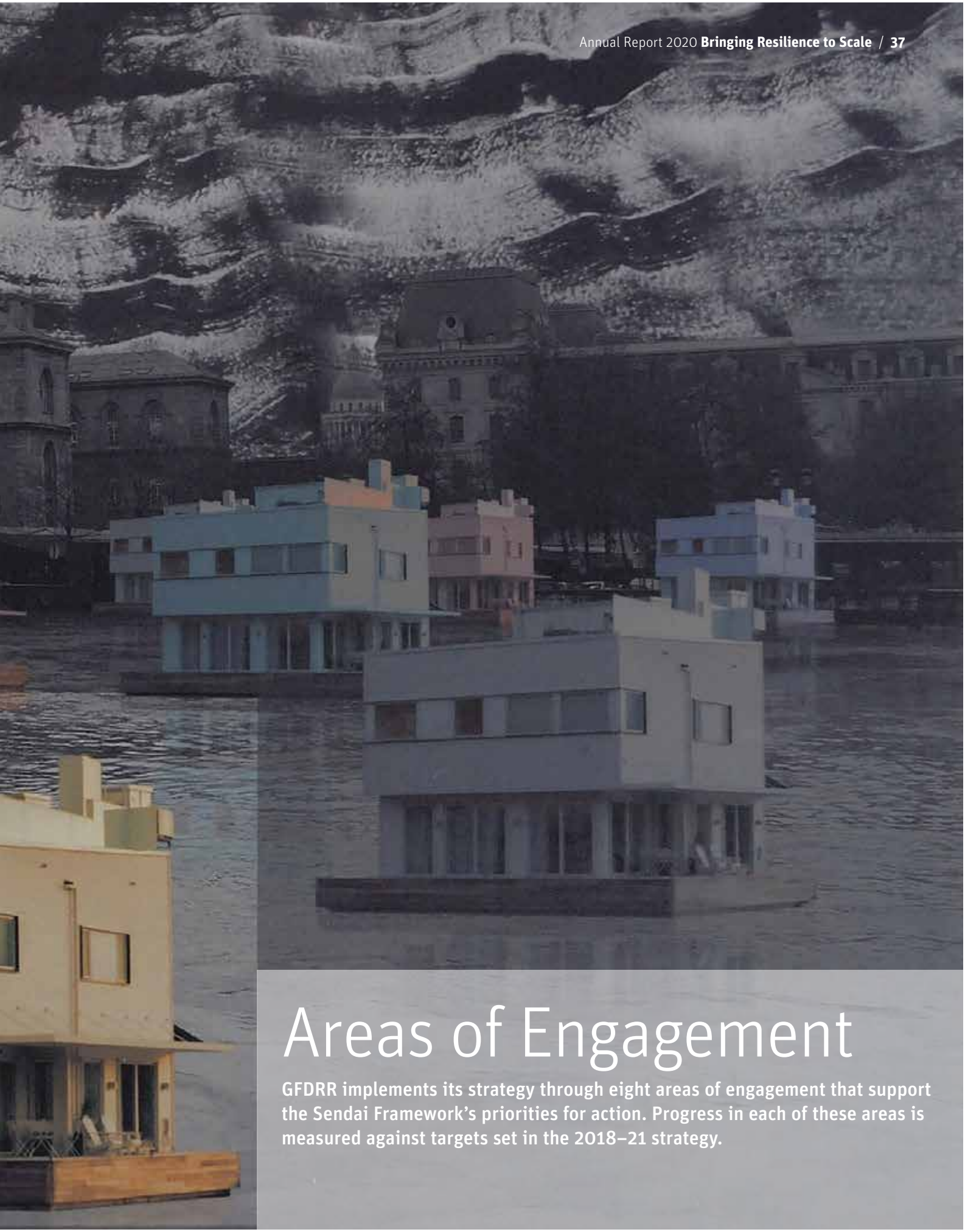
With leveraged finance

Without leveraged finance

- Angola
- Antigua and Barbuda
- Azerbaijan
- Bulgaria
- Chile
- Equatorial Guinea
- Eritrea
- Federated States of Micronesia
- Gabon
- Greece
- Guatemala
- Guinea Bissau
- Guyana
- Iraq
- Kuwait
- Macedonia
- Malaysia
- Mauritania
- Mauritius
- Montenegro
- Namibia
- Palau
- Papua New Guinea
- Poland
- Russia
- Saint Kitts and Nevis
- Sao Tome and Principe
- Slovak Republic
- Slovenia
- South Sudan
- Sudan
- Syria
- Thailand
- The Gambia
- Trinidad and Tobago
- Turkmenistan
- Ukraine



The Art of Resilience **Yky** | France | *La Seine* | 2018 | Argentic paper | 17.8 x 24cm | Image courtesy of the artist.



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

Recurring weather and geophysical shocks cost lives and livelihoods, trapping millions in poverty. Disasters continue to impact developmental goals and disproportionately affect the poorest and the most vulnerable. By 2050, two-thirds of the world's population will live in urban areas, and as cities grow, so do the magnitude and complexity of the challenges they face.

To address these challenges, communities and governments need access to risk information. But often these cities confront a vast "digital map gap." Outdated information, restricted access to data, and incomplete data sets all limit the ability to prepare for and manage disaster threats. Having access to robust scientific data and information is a fundamental part of understanding risk—this is the foundation on which all resilience actions are built.

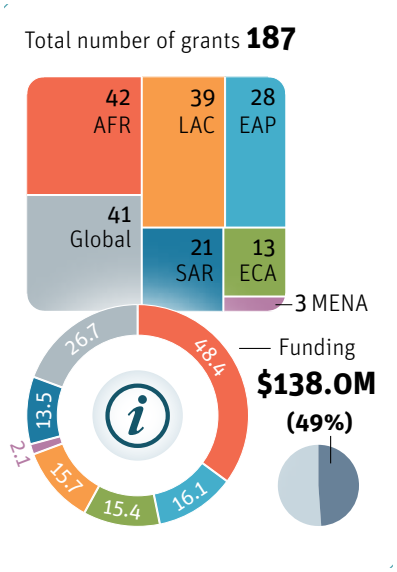
Scientific advances have enabled new ways of identifying risk, and innovation offers the opportunity to assess these faster, cheaper, and with more precision than ever before. GFDRR supports 144 countries to have accessible, understandable, and usable disaster risk information. GFDRR Labs is tasked with creating new data and innovative solutions to further the understanding and communication of disaster risk and to open risk information access.

This year, GFDRR contributed to creating and opening access to risk data through the following activities:

- Landslides have devastating impacts on people and the built environment, yet there is little globally available data to help countries address this threat. GFDRR Labs, in collaboration with the engineering firm Arup, produced a state-of-the-art landslide hazard map using data from NASA and applying an innovative machine learning model. These data are now available on Thinkhazard!, an online platform accessed by up to 10,000 people a month.
- Risk assessments provide decision-makers with an understanding of vulnerable areas and identify where investment is needed for the reduction and prevention of risks. However, finding and preparing data for risk assessments is challenging. GFDRR Labs has developed a series of freely available and user-ready data sets through the recently launched Risk Data Library Project to help experts conduct risk assessments more efficiently and effectively.

At the core of the facility's mandate is to engage communities in disaster risk management (DRM). Community mapping can help with collecting data on critical assets that may be vulnerable to disasters. GFDRR Labs has been supporting mapping across cities in Africa through the Open Cities Africa Program program by training communities, university students, and civil servants. From 2018–19, location data on 500,000 buildings, roads, markets, schools, hospitals, parks, canals, and other features were collected in 12 cities and shared on OpenStreetMap, a free and collaborative map of the world. The data products developed through Open Cities Africa informed $150 million in urban infrastructure investment via World Bank operational projects. Building on this achievement, GFDRR Labs sought to explore how to scale these efforts using artificial intelligence (AI).

- When community mapping meets AI, local data collection and validation efforts can be achieved across a much larger geographic area. The Open Cities AI Challenge, which attracted 1,100 participants, was an open call for AI experts to build models that can identify building footprints from aerial imagery across several African cities. Teams were able to show how AI can provide an accurate, fast, and lower-cost approach to mapping urban areas. The applications developed through the competition are open source and available to practitioners in African cities who can use the data to ensure risk-informed operations. Guidance and best practices when using this technology have also been shared to ensure that the interventions are inclusive and ethical.



Making data and information open and accessible is only the first step in understanding risk. The data also need to be used. That requires effective communication that considers the needs of different users—whether they are from the government, the public, or vulnerable communities.

- Visualizing information through maps is a powerful way to communicate scientific data. In collaboration with Mapbox, a private sector geospatial firm, and the Data Visualization Society, GFDRR Labs held a competition that asked geospatial experts to transform data into stories

Clockwise top to bottom: Freetown, Sierra Leone, August 2019—Participants of the Resilient Urban Mobility Hackathon working on their prototypes. Community mappers/Open Cities Africa Program. OpenStreetMap in Africa. Photos: World Bnk.

that can inform DRM planning. The winning team Riesgo performed a risk analysis of Marikina, a city in the Philippines, visualizing high-risk flood zones, population density, and the location of evacuation centers.

- Art provides a powerful way to communicate complex ideas, inspire action, and connect communities. It can also help advance resilience. To understand how contemporary artists are engaging with the themes of disaster and climate change in their work, GFDRR Labs engaged 139 artists and curated an exhibition and catalogue of artwork called The Art of Resilience. The exhibition demonstrated how projects for building disaster and climate risk resilience can productively and meaningfully engage with artists and their work.

Sharing this learning and best practice is a key part of raising awareness and equipping communities and governments with the tools they need. The Understanding Risk (UR) community of 10,000 members worldwide does just that. Three regional UR events—Europe, West and Central Africa, and Central America—plus one local event in Tanzania, took place this year, raising awareness about the importance of risk assessment and communication, solidifying the value of evidence-informed DRM, and continuing to build the global community of risk experts and practitioners.

Promoting Open Access to Risk Information

In Focus GFDRR Labs: Addressing the gender divide in digital technologies

GFDRR Labs focuses on delivering solution-driven research and development in disaster risk management to address identified gaps and obstacles. It identifies challenges, undertakes research, consults a broad range of stakeholders, connects to existing communities, and develops pilot global public goods. Committed to continuous learning, successes and failures inform the continued development and improvement of the ideas.

This year, one of the challenges GFDRR Labs examined is the gender divide in digital technologies and mapping. The lack of women engaged in digital projects has tangible consequences and can run the risk of worsening inequalities. Labs sought to better understand why it is difficult for women to take part in digital participatory mapping projects through the Open Cities Africa project and pursued ways to address the obstacles in the program design.

Women face many hurdles and challenges, including lack of education and decision-making authority as well as having more responsibilities at home than men have, while also facing security concerns when going out into the field. Moreover, there is a lack of role models that women can look up to in the field, all contributing to the digital gender gap.

The Open Cities teams tried to address these barriers by providing comprehensive training to every participant in the program. A team in Ngaoundéré in **Cameroon** met with local heads of households to introduce the project and explain the benefits of involving women and girls in this work. To accommodate responsibilities at home, data collectors in several cities were allowed flexible schedules, which let women select times to work when they were available. In Antananarivo, **Madagascar**, teams traveled through communities in pairs to ensure the security of female members. And in Accra, **Ghana**; Kinshasa, **the Democratic Republic of Congo**; and Pointe-Noire, **the Republic of Congo** women led community outreach efforts, serving as role models to women interested in data collection and mapping.

Efforts taken to promote women's participation have produced tangible benefits. Among these is an emerging cohort of female Open Cities Africa alumni with digital skills who are now serving as role models for other women in their communities. Through the Open Cities Accra project, Pascalina Awelana Abadum, a member of the data collection team, developed an interest in data quality and the use of drone imagery. Encouraged by her project supervisor, she went on to complete an internship with local drone imagery provider Soko Aerial Robotics, and she was ultimately selected to participate in the 2020 Africa Drone Forum in **Rwanda**. Today, Abadum works on data quality for the Humanitarian OpenStreetMap Team, where she supports community projects focused on COVID-19 response and promoting girls' access to education.

Actions taken to address barriers to women's participation can begin to close the digital gender gap in cities across the region and promote the creation of maps and mapmakers that represent the needs of all community members. Supporting better representation and the growth of more female local champions like Abadum will, in turn, support more inclusive and resilient urban development.

One Female Mapper's Open Cities Africa Experience: Pascalina Awelana Abadum (front center). Photo: World Bank.

Forecast-based financing pilot in Indonesia

The GFDRR Labs Challenge Fund supports innovative solutions for identified disaster risk management obstacles. This year, the topic focused on how to support early action and better target vulnerable communities with funding following forecasted disasters—otherwise known as forecast-based financing.

Photo: World Bank.

Implementing forecast-based financing is difficult because, when a hydrometeorological forecast is issued, it is not clear to risk managers what kind of impacts to expect. Questions like "Will houses be destroyed?" or "What roads will be impacted, and where?" usually arise. Without information about potential impact, risk managers do not know what early actions to take and where to implement them.

Partnering with the Red Cross Red Crescent (RCRC) Climate Centre and Kartoza, a tech start-up, Labs supported the development of the first of its kind impact-based forecasting tool to address floods in Indonesia. The pilot has adopted the concept of impact-based forecasting—an approach that combines the understanding of forecasts, impact-hazard curves, and risk analysis—to generate an intervention map that will inform when and where funds for early action should be deployed. These efforts will support anticipatory action and help reach vulnerable communities and provide broad support for the strategies once they were developed.

Promoting Resilient Infrastructure

Infrastructure that is planned and designed without considering disaster risks is a major threat to life and assets and can delay recovery and have economic impacts. Disaster risks can worsen if the maintenance and the operation of existing infrastructure are inadequate. GFDRR's Resilient Infrastructure Program is an overarching program that mainstreams disaster risk management (DRM) across multiple infrastructure sectors—from schools and housing to transportation, water, and energy—promoting resilient infrastructure through knowledge and analytics and technical assistance. This support is complemented by flagship analytics such as the *Lifelines* report and the development of operational tools based on key findings to strengthen the integration of DRM in infrastructure investments (see Analytical Work in GFDRR p. 88).

Strengthening resilience of the built environment

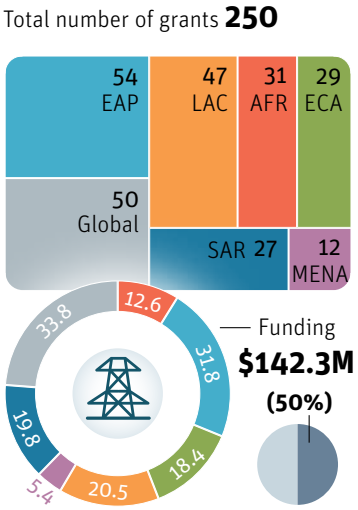
Global Program for Safer Schools: To date, support for the World Bank's Safer Schools program has benefitted 90 million students in 500,000 schools in over 20 countries and informed $1.4 billion in World Bank operations. In FY20, activities were extended to the **Dominican Republic, El Salvador, the Kyrgyz Republic, the Philippines,** and **Uzbekistan**. In partnership with education sectors, the program integrated resilience measures in the design of schools and increased government capacities in **El Salvador** and **Nicaragua**. Furthermore, the Global Library of School Infrastructure—a worldwide catalogue of building types, vulnerabilities, and potential solutions—was expanded by 15,000 facilities, covering 2.7 million students. This is strengthening the understanding of risks and helping governments prioritize resilience investments.

Global Program for Resilient Housing: Launched in 2019, this World Bank program is supporting the integration of resilience into national housing programs in **Colombia** and **Peru**. In **Colombia**, for example, seismic risks assessments are defining high-risk areas and helping to prioritize home improvement subsidies for those at risk under the IBRD-funded $100 million World Bank Resilient and Inclusive Housing in Colombia investment project.

Scaling up the Resilient Transport Program

Transport is the largest sector supported under GFDRR's Resilient Infrastructure Program. Launched in FY18 with $2 million in technical assistance for seven countries, the program has grown to support 22 countries with roughly $5.5 million in technical assistance activities. In FY20, GFDRR supported 11 countries, informing the implementation of $1.75 billion in ongoing projects and the design of $1.7 billion in new World Bank investments. The program provided resilience-building activities across multi-modal transportation networks for roads, railways, airports, and water transportation.

In **Burkina Faso**, technical assistance is helping to prioritize the selection of transit routes and to incorporate flood risk in the spatial planning and technical design of mass transit infrastructure for the capital city of Ouagadougou. Through the utilization of drones, rapid remote hazard assessments are being conducted to map flood risks and identify safe investment locations for multi-modal bus terminal and maintenance facilities, and for the construction of a pilot Bus Rapid Transit network.



Mainstreaming DRM in the water sector

Since its launch in FY19, the Resilient Water Partnership Program has supported roughly $3.9 million in technical assistance grants across 17 countries to support the mainstreaming of DRM in water supply and sanitation systems, hydraulic infrastructure such as dams, and within river basin and irrigation infrastructure. In FY20, a total of $2.7million was provided to 13 countries in all regions except the Middle East and North Africa, informing the implementation of $633 million in World Bank operations and the design and preparation of $1.4 billion in new investments.

In **India**, technical assistance supported the development of a dam Risk Assessment and Classification Framework, enabling the government of India to develop risk profiles of all 5,334 large dams based on structural, social, environmental, economic, geological, and institutional capacity considerations. This screening and risk ranking of the dams across India, accounting for nearly

(Top) Lima, Peru. Global Program for Safer Schools; (Left) Sri Lanka: Minimizing risks for the transport sector.

10 percent of the world's large dams, will help to identify and prioritize critical improvements within the IBRD-funded $500 million Second Dam Rehabilitation and Improvement Project financed by the World Bank.

Developing a new Resilient Energy Program

In FY20, GFDRR launched a new program in partnership with the Energy Sector Management Assistance Program (ESMAP) to mainstream disaster resilience in World Bank power generation, transmission, and distribution network projects. This program supports the integration of DRM into energy infrastructure planning, design, and operational practices, while also consolidating the analytical approaches, necessary data, and capacity-building efforts needed by utilities and regulatory agencies.

In **Nepal**, technical assistance is supporting the establishment of resilient technical designs and standards for renewable energy mini-grids, generation facilities (micro/mini-hydro, solar, and wind), and relevant electrical facilities. These standards, underpinned by the development of operation manuals for emergency preparedness and recovery, will ensure approximately 20,000 rural resident and commercial beneficiaries have access to reliable and renewable energy services during and after a disaster.

New Just-in-Time window

In February 2020, GFDRR launched a Just-in-Time for Resilient Infrastructure grant window. In FY20, technical assistance under this short-term grant mechanism was provided to **Egypt, Serbia, Tajikistan, Timor-Leste,** and **Turkey** helping the preparation of $782 million worth of World Bank infrastructure investment projects. These activities provided support ranging from developing disaster resilient design and engineering principles for e-Mobility infrastructure improvements to ensuring the continuity of critical green and gray infrastructure services during and after the occurrence of disaster events.

Promoting Resilient Infrastructure

In Focus Ensuring post-disaster business continuity for water utilities in the Danube region

Stretching from Germany's Black Forest region all the way to the Black Sea, the Danube region has known more than its fair share of disasters, including earthquakes, droughts, and floods. These disasters have all too often put the region's access to water at risk. Case in point: at the peak of the May 2014 floods around the Sava River Basin, roughly 1 million people in Bosnia and Herzegovina were left without access to drinking water because of disruptions in the country's water supply. In recent years, authorities in the Kosovar capital of Pristina have also been forced to curb water services because of severe drought.

In six countries of the Danube region—**Albania, Bosnia and Herzegovina, Croatia, Kosovo, North Macedonia,** and **Serbia**—GFDRR has been delivering support to water utility providers to ensure business continuity in the aftermath of a disaster. The key focus of this engagement has been the development and dissemination of a comprehensive water safety and crisis management curriculum in post-disaster contexts for their respective technical and managerial staff. These efforts have been made under the umbrella of the Danube Learning Partnership (D-LeaP), a capacity-building initiative representing water utility providers across the region, in partnership with the World Bank–supported Danube Water Program.

Drawing on the expertise of the International Association of Water Service Companies in the Danube River Catchment Area—a regional platform for knowledge exchange in the water sector—the curriculum covers several key areas in water safety and crisis management. These include risk identification, measurement and mitigation, and the design and implementation of operating procedures for managing disaster events, as well as business recovery plans in their aftermath. Recognizing the value of learning by doing, the curriculum features scenario-based training exercises for decision-making in emergencies.

In an effort to ensure country ownership and long-term sustainability, a technical team, with the support of GFDRR, subsequently provided advice to water utility associations in **Bosnia and Herzegovina, Kosovo, North Macedonia,** and **Serbia** so that they could take the lead in disseminating the curriculum through both in-person training and virtual lessons in the local language. Overall, these associations have helped distribute the curriculum to over 150 technical and managerial staff at water utility providers in these four countries.

COVID-19 has not spared the Danube region, and it poses a significant challenge to business continuity in the water utility sector. As of the close of the fiscal year, GFDRR has been providing support for upgrading the water safety and crisis management curriculum to more strongly incorporate preparedness and response in health emergencies, including a broadened approach to risk assessment. As part of this effort, dedicated webinars have highlighted insights that are most relevant for utility companies in pandemic situations, including the essential elements of preparation during day-to-day operations to ensure rapid emergency response, subsequent crisis management, and, later, recovery.

Credit: ADKOM (Association of public utility services providers of the Republic of North Macedonia). Photo: World Bank.

Lessons Learned

Building local ownership plays a key role in driving the sustainability of resilience efforts. This was proven when the technical team worked closely with water utility associations in four countries to ensure knowledge transfer and develop the skills to lead and disseminate the water safety and crisis management curriculum for the long haul.

"In the state of emergency and declared pandemic, the water safety planning and crisis management training allowed us to propose and immediately implement measures to protect workers in the vital facilities of the water supply and wastewater treatment plant."

—Stojan Eftimov, Crisis Manager at PCU Komunalec, Strumica, North Macedonia

Results in Numbers

Over 150 officials from water utility providers in **4 countries** trained in water safety and crisis management, with a focus on post-disaster contexts

Scaling Up the Resilience of Cities

Urbanization is expanding continuously and more rapidly than ever before. By 2050, the share of the world's population living in urban areas is expected to increase to 68 percent, or billion people;[9] 90 percent of this urban expansion is expected to take place in developing countries. In Africa, cities are already crowded, disconnected, and costly because they have developed as collections of fragmented neighborhoods. These cities lack reliable transportation and job opportunities, which prevents firms from economies of scale.[10] Investing in urban resilience is therefore key to sustainable development and poverty reduction.

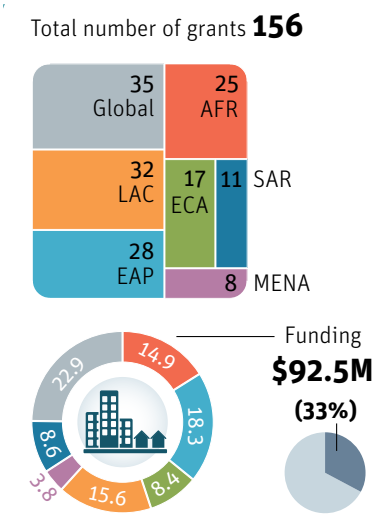
However, lack of financial and technical resources could hold cities back from pursuing a resilient future. The global need for urban infrastructure investment amounts to over $4.5 trillion per year, of which an estimated premium of 9–27 percent is required to make this infrastructure low carbon and climate resilient.[11] As of FY20, 35 percent of GFDRR's active core program grants contributed to scaling up urban resilience. These grants covered 202 cities across 78 countries and included capacity building, improved resilience of urban services, flood risk reduction, coastal resilience, and emergency preparedness activities. The percentage of funding is 33 percent.

[9] UN DESA (United Nations Department of Economic and Social Affairs). 2018. *2018 Revision of the World Urbanization Prospects.* New York: United Nations.
[10] Lall, S.V., J.V. Henderson, & A.J. Venables. 2017. *Africa's Cities: Opening Doors to the World.* Washington, DC: World Bank.
[11] GFDRR. 2015. Investing in Urban Resilience: Protecting and Promoting Development in a Changing World. Washington, DC: World Bank.

Engagement highlights

- In **Senegal**, an ongoing grant is supporting an evidence-based decision-making process for improving the living conditions of the most vulnerable communities and strengthening coastal zone management and urban planning in the city of Saint-Louis. The grant has provided technical assistance to the community-based planning and participatory planning process, and it is delivering spatial planning content to relocate and resettle people affected by coastal erosion.
- The government of **Bangladesh** and the World Bank designed the Bangladesh Urban Resilience Project to reinforce its emergency disaster response systems, strengthen key public infrastructures, and integrate disaster risk into urban development planning. GFDRR provided a $500,000 grant to enhance the implementing agencies' capacity to conduct complex multisectoral analyses and disaster risk modeling as well as needs assessments. The staff also received training in emergency communications, risk-sensitive land use planning, building code implementation and enforcement, and a geospatial data sharing platform; this training will allow them to utilize valuable risk information in municipal decision-making processes.

In **St. Vincent and the Grenadines**, an ongoing grant supported improved school safety and housing resilience through the drafting of the School Safety Policy and Housing Policy White Paper, which incorporated various stakeholder inputs through consultations. The grant also helped to develop a Resilient Urban Development Survey in order to better understand urban conditions and challenges in the country.



City Resilience Program (CRP)

CRP's vision is to build resilient cities with the capacity to plan for and mitigate adverse impacts of disasters and climate change. Since its launch in 2017, the program has engaged with nearly 120 cities in 50 countries, including about 25 new cities that were added in FY20. In response to the COVID-19 crisis, CRP introduced health-related layers in the City Scan tool—one of CRP's core products to diagnose urban sustainability. It contributed to the organization of the weekly event series Cities on the Frontline, which promoted knowledge exchange among cities responding to the crisis and planning for a resilient recovery. CRP also provided direct support to the establishment of the new COVID-19 Big Data Observatory in partnership with the World Bank's Governance Global Practice.

- In **Côte d'Ivoire**, the government is working to enhance the resilience and reduce the carbon footprint of Abidjan's solid waste management system. The World Bank's IDA-financed $315 million Urban Resilience and Solid Waste Management project will assist the government in the construction of

(Top) Saint-Louis, Senegal. Photo: Renaud Philippe | Dreamstime.com; (Left) Kabalagala, Uganda—Building construction site. Photo: Andreas Marquardt / Shutterstock.com.

a new engineered landfill and the optimization of waste transit routes. CRP worked in conjunction with the World Bank teams to provide a financial and economic analysis of a potential public-private partnership, allowing local private partners to engage in the resilience-building process.

- In Tanzania, the World Bank's Urban Resilience Program is working to transform one of Dar es Salaam's most vulnerable neighborhoods, the Msimbazi Basin, as a beacon of urban resilience. CRP provided a visual overview of the city's vulnerabilities through its City Scan tool giving decision makers a better understanding of the challenges that lie ahead. CRP also assisted World Bank teams by undertaking a market and financial analysis which envisions a coordinated investment plan to bring 6,000 new housing units to the Msimbazi Basin.

Building Regulation for Resilience (BRR)

In FY20, the BRR Program expanded its contribution to the World Bank disaster risk management portfolio by supporting the design and implementation of risk-informed regulatory systems for land use and construction. For example, BRR conducted Building Regulatory Capacity Assessments (BRCA) in **Morocco** and **Uganda**, providing a diagnostic assessment of the legal and regulatory framework for each country's building codes and clarifying the institutional capacity of local governments and relevant stakeholders to implement them. To support client countries beyond the scope of BRCA, the BRR developed a range of tools to assess risks in the built environment and to support the implementation of building regulation. For example, the Urban Fire Risk Assessment Mitigation tool is integrated into the BRCA, the Training Needs Assessment Methodology tool will support building departments in identifying and addressing training gaps, and the new ePermitting Governance Framework will empower national and local government to undertake reforms to drive efficiencies in land use and construction permitting processes.

Scaling Up the Resilience of Cities

In Focus Strengthening risk data for urban resilience in Bangladesh

Over much of the past decade, Bangladesh's development prospects have been buoyed by a record of strong and sustained economic growth. Yet even as the country's bustling urban areas, including the capital city Dhaka, have helped fuel that growth, rapid and unplanned development is leaving millions of people more vulnerable not only to natural hazards, including cyclones, floods, and earthquakes, but also to the impacts of climate change.

In response to this challenge, Bangladesh has embarked on a comprehensive urban resilience agenda. The government strongly recognizes the importance of risk data for informing and driving that agenda. Under the Japan-World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries, GFDRR has been supporting national efforts to strengthen the infrastructure for collecting, sharing, and analyzing risk data.

Until recently, government agencies as well as the private sector in Bangladesh had been producing vast amounts of geospatial data, but largely without the ability to share these data seamlessly without delay. Accordingly, a key focus for GFDRR's engagement has been to provide technical and financial support toward the development and sustainability of GeoDASH, Bangladesh's first ever open source geospatial data collection and sharing platform. As of the end of the current fiscal year, nearly 3,000 users representing over 50 public, private, and civil society organizations have shared data, making available 740 data sets from road network maps and building footprints to the location of water, gas, and utilities in a secure platform. All of these data sets are available to the public in a widely usable format.

Government agencies in Bangladesh, including in the city of Dhaka, are now leveraging the GeoDASH platform to reduce duplication and minimize costs in their geospatial data collection efforts. The Dhaka North and South City Corporations, the Capital Development Authority, and the Dhaka Water Supply and Sewerage Authority, for instance, have agreed to utilize the platform to collaborate on mapping roads as well as on gathering data on building footprints, water supply, and sewerage facilities.

At the same time, government agencies are also making use of GeoDASH's web application, which enables users to visualize and analyze the data to inform their resilience planning. For example, through this application, Bangladesh's Local Government Engineering Department has been using geospatial layers from the Department of Disaster Management's multi-hazard risk and vulnerability assessment to produce cyclone risk maps for critical infrastructure. These maps will, in turn, inform its investment plans for cyclone shelters in both urban and rural areas of Bangladesh.

To ensure that the government of Bangladesh is able to sustainably utilize GeoDASH in its resilience efforts, GFDRR has also been supporting a comprehensive training program for officials on how to use and administer the platform. As a testament to its commitment, the national government, which manages GeoDASH, has integrated the platform into its National Spatial Data Infrastructure policy.

GFDRR's support for strengthening risk data is one of a range of urban resilience engagements with the government of Bangladesh. For instance, under the Japan-World Bank Program for Mainstreaming DRM in Developing Countries, technical assistance is currently being provided toward developing a strategic environmental assessment of Dhaka, now in its final stages. The assessment, which makes use of the data layers uploaded in GeoDASH, will integrate environmental concerns into the government's ongoing plans to enhance resilience in Dhaka—such as retrofitting public buildings and updating land use plans and building codes. Furthermore, GFDRR has partnered with the World Bank on the $173 million IDA-funded Bangladesh Urban Resilience Project, a multisectoral disaster risk reduction program that has been informed by geospatial data analysis through GeoDASH.

Bangladesh, busy Mirpur 2 road flooded after heavy rainfall. Photo: SO Photography.

Lessons Learned

Despite increasing interest among both public and private sector stakeholders in Dhaka to exchange critical geospatial data, many had hesitated to do so, in part because of privacy and security concerns. Accordingly, GeoDASH was established in line with best practices in data privacy and security; for instance, it allows organizations to utilize the sharing platform while limiting other users' ability to see more sensitive data uploaded to the platform.

"If Bangladesh is to thrive, we must make our cities more resilient, and we must do so quickly. Through this project, we expect to have an impact on the long-term disaster resilience of the urban centers of Bangladesh."

—**Abdul Latif Helaly,** Chief Engineer, Capital Development Authority (RAJUK) and Project Director, Bangladesh Urban Resilience Project

Results in Numbers

Nearly 3,000 users representing over 50 public, private, and civil society organizations have shared data on the GeoDASH platform, **making available 740 data sets**—from road network maps and building footprints to the location of water, gas, and utilities.

Strengthening Hydromet Services and Early Warning Systems

Low-probability but high-impact global events are not new to hydrometeorology. Supporting low- and middle-income countries to make accurate weather forecasts and issue timely warnings using probabilistic approaches and tools such as impact-based forecasting are what the global Hydromet Program does. The lessons learned from strengthening multi-hazard early warning services can also be extended to low-probability events such as a pandemic, since those lessons are applicable to areas such as public health and civil and environmental protection.

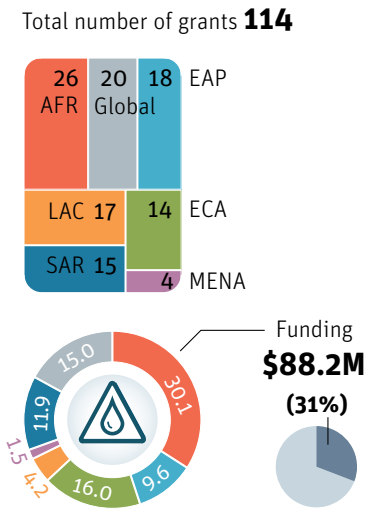
Changing trends in the hydromet portfolio

Strengthening hydrological and meteorological (hydromet) services and early warning systems (EWS) to support more than 60 countries across all regions remains an important part of the World Bank's sustainable development agenda supported by the GFDRR global Hydromet Program. Conservative estimates show that from 2016 to 2020, close to 120 million people benefited from better access to hydromet services and EWS; this could reach 300 million once World Bank hydromet investments are completed. Among the regions, South Asia ($360 million) has the largest program, followed by Africa ($313 million). The global Hydromet Program provides technical and financial support to specific projects while also helping them apply lessons learned and best practices in preparation and implementation of investment projects.

In FY20, nine grants totaling $5.35 million were allocated from the program, of which $3.79 million directly supported activities for hydromet services and EWS. A positive emerging trend is that more investments are now part of comprehensive multi-phased programs with longer implementation periods (up to 15 years) rather than standalone projects (an average 5 years of implementation). The longer timeframe allows project teams to develop a model that can be sustained by the government once the project is completed. For example, Sri Lanka's Climate Resilience Multi-Phased Programmatic Approach ($310 million) was approved in FY20 and includes $50 million in hydromet investments. The West Africa Food System Resilience Program, which is under preparation, tentatively includes $150 million to support the development of digital weather and climate services for agriculture. Another trend is a stronger focus on end-users and communities and the specific hydrometeorological services they receive. In addition to institutional strengthening of national systems, more projects directly support targeted services such as agrometeorology, early warning, hydrology/flood forecasting, and digital services for food security tailored to the needs of specific user groups and economic sectors.

Boosting advisory and analytical support

In January 2020, The Power of Partnership: Public and Private Engagement in Hydromet Services flagship report was published. This report lays out different scenarios for strengthening public and private sector engagement across the entire hydromet value chain. It analyzes models used in different countries and the strengths and weaknesses of various approaches to public and private engagement.



In response to COVID-19 challenges, an analytical note—"Learning from Multi-Hazard Early Warning Systems to Respond to Pandemics"—was issued to provide recommendations on how to address compound risks and how to prepare for integrated (multiple) hazards. One of the lessons from the pandemic is that we need to better understand specific vulnerabilities among distinct communities. Meteorology and hydrology are making good progress in this direction and can offer guidance to other sectors.

Whether resources are plentiful or scarce, it is important to prioritize investments for critical needs. The program analyzed and recommended high-impact investments to achieve key priorities for national hydromet services in the technical note "Mind the Gap: Addressing Critical Technical Issues in Strengthening National Hydrometeorological Services." This resource provides insight into some of the challenges National Meteorological and Hydrological Services (NMHSs) face and suggests possible solutions.

Resident collects water from a rain gauge in Los Encuentros, San Juan de Limay, Nicaragua. Photo: Florian Kopp.

Strengthening work through partnerships

GFDRR and the World Bank played key roles in establishing the Alliance for Hydromet Development during the COP25, a partnership led by the World Meteorological Organization (WMO) and joined by 12 multilateral development banks and other partners to close the hydromet capacity gap by 2030. GFDRR is contributing to technical discussions such as the development of Country Hydromet Diagnostics and the *Hydromet Capacity Gap Report*, as well as the Systematic Observation Financing Facility (SOFF). Other important partnerships are with leading forecasting centers (e.g., the European Centre for Medium-Range Weather Forecasts or ECMWF) and NMHSs (e.g., the UK Met Office, the National Oceanic and Atmospheric Administration or NOAA) where GFDRR continues to play the key coordinator role.

Under the Global Weather Enterprise Forum,[12] GFDRR organized several events, including the "Vision for Numerical Weather Prediction in 2030" webinar, where the prominent climate physicist Professor Tim Palmer of Oxford University advocated using multi-model ensemble forecasts that encompass all plausible outcomes and the likelihood that they will occur instead of further developing deterministic forecasts that derive a single outcome from an initial condition. The webinar, with close to 200 participants, was well received, and generated several follow-up discussions between national meteorological services on how developing countries can use this emerging vision for future modernization.

[12] Global Weather Enterprise Forum (www.gweforum.org)—an informal consultative body supported by the GFDRR that includes representatives from public, private, and academic sectors—focuses on various topics such as the operational sustainability of national met services as well as data access and management and possible models of engagement between public, private, and academic sectors, and others.

Strengthening Hydromet Services and Early Warning Systems

In Focus Understanding and tackling flood risk in Serbia

As Serbia charts a path of progress toward the future, the new normal of extreme weather is posing a challenge to the country's development prospects. In May 2014, the country suffered its worst flooding in over a century. The floods caused nearly 1.7 billion euros ($2 billion) in damage and losses, forcing more than 125,000 people into poverty and pushing the country into a recession. Even more recently, in June 2020, heavy rains caused flash floods in dozens of cities and municipalities, affecting the lives of over 50,000 people.

Although Serbians wrestle with a range of natural hazards, floods are, by far, the most frequent. With the support of the European Union, GFDRR has been partnering with the Serbian government in its drive to strengthen the country's ability to understand and tackle flood risks, including through flood risk assessment and the development of early warning systems.

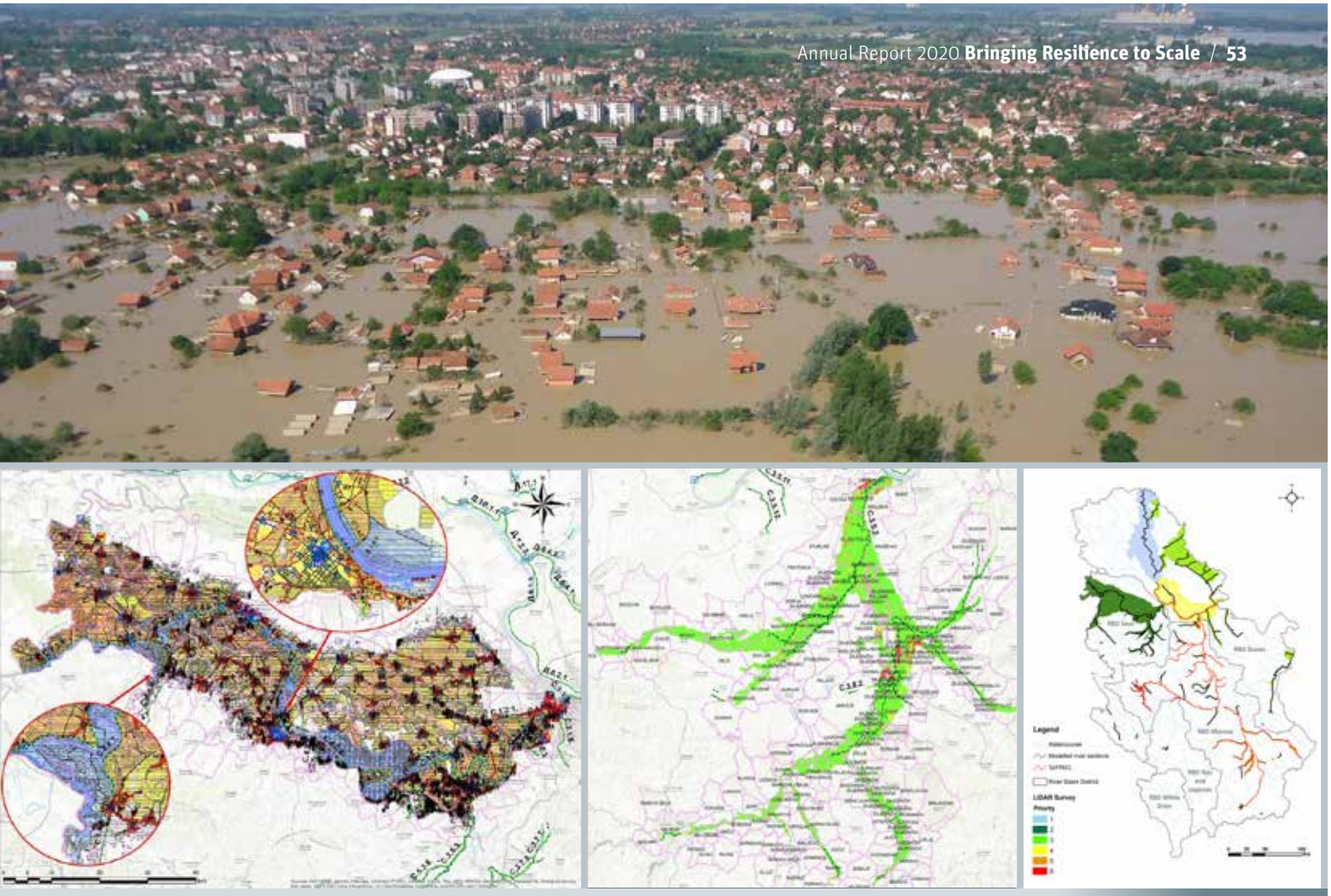
Until recently, Serbia had lacked the ability to produce sufficiently high-resolution digital terrain models, which authorities need to map flood risk across the country. Accordingly, a key focus in our engagement was to build the Serbian government's capacity to use cutting-edge LiDAR technology in conducting aerial surveys of flood-prone areas across the country. By using LiDAR, a remote sensing technology that is one of the most advanced methods for the mass acquisition of geospatial data, the government's aerial surveys have since been able to produce extremely refined digital terrain models of the flood-prone areas.

That work set the stage for the Ministry of Agriculture, Forestry and Water Management's national flood risk assessment, which has since been completed. By using LiDAR technology, Serbian officials produced flood risk maps of 75 flood-prone areas, covering a total of 2,750 kilometers of river reaches. Determined to ensure the sustainability of this effort, the ministry has developed a rulebook distilling guidance for Serbian authorities should they implement a similar assessment in the future. One sobering finding from the assessment overall is that 115 towns and municipalities, home to about 5.5 million people or approximately 75 percent of the total population of Serbia, could be in harm's way in the event of a 100-year flood.

In conjunction with these efforts to deepen Serbia's understanding of its flood risk challenges, GFDRR has also been providing support to national authorities to strengthen real-time flood forecasting and early warning systems, helping ensure that lives and livelihoods will be better protected the next time there is a major flood event.

These efforts, thus far, have focused on the Velika Morava river, one of the country's most flood-prone areas, building on previous engagement on flood forecasting and early warning for the Sava River basin. In partnership with the Republic Hydro-Meteorological Service of Serbia (RHMS), a technical team has built a hydrological forecasting model for the Velika Morava river basin, drawing on various sources of data, including precipitation, radar, and weather forecasts from hydrometeorological (hydromet) services within Serbia and across Europe. On a national level, the facility has also been providing technical assistance toward the upgrade of RHMS's hydromet infrastructure, including the installation of real-time data transmission equipment that will expand the hydrological monitoring capacity of the country's lead hydromet agency.

GFDRR's support for bolstering the Serbian government's ability to understand and tackle flood risk are aligned with broader resilience efforts in the country, including by the World Bank. For example, the flood risk maps developed as part of this engagement are being included in the Serbian government's spatial data platform called GeoSerbia, which was developed with the support of the World Bank. As a result of these efforts, 25 government agencies and over 100 municipalities and cities will have the opportunity to draw on these maps to inform their own resilience efforts, including at the local level.



Clockwise top to bottom: Flooding in Obrenovac, Serbia (2014). Photo: Mathijs van Ledden. Flood Risk Maps: Sava River, Kolubara, and Serbia.
Source: Support to Serbia National DRM Program Under IPA II 2014-2020.

Lessons Learned

A multisectoral approach is key to understanding the hazards and risks posed by floods and other natural hazards. Accordingly, over the course of the effort, the technical team engaged with specialists from a wide range of sectors—including hydrology, water management, infrastructure, education, health, and transport—to ensure that the program was based on a full picture of the flood risks facing Serbia.

"As the awareness is growing that the extreme weather events, especially floods, are becoming more frequent and more devastating, the need for having adequate resources to tackle them is evident. Projects such as development of flood hazard and flood risk maps and acquisition of equipment which enables relevant Serbian institutions to collect and process data and to better forecast and monitor flood events greatly enhances the country's ability to reduce the damages of future floods. Serbia is now certainly safer than before, and we are grateful to all partners—donors and implementing agencies alike—who have assisted us in projects like this one, aimed at building our capacities to prevent and mitigate flood disaster risks."

—Marko Blagojevic, Director of the Public Investment Management Office, Government of the Republic of Serbia

Results in Numbers

Flood risk maps produced for 75 flood prone areas, covering a total of 2,750 km of river reaches

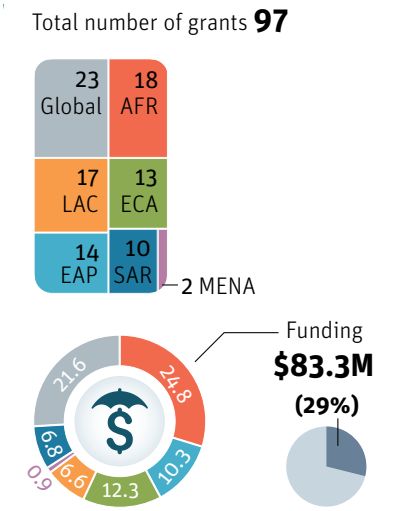
Deepening Financial Protection

Disasters continue to inflict hundreds of billions of dollars in financial losses each year, far exceeding available development funds. Disaster risk financing (DRF) instruments are used to reduce risk exposure to and financial losses from natural and man-made hazards, and innovations in data management and modeling have resulted in better products. GFDRR continues to play an important role in initiating dialogue on the importance of prearranging financial solutions and making available financing and expertise to support countries where there is demand for financial solutions.

Demand for disaster risk financial planning has increased, but uptake is limited to mostly high- and middle-income countries.[13] For low-income countries, investments in financial solutions are often impaired by high premiums, lack of data and modeling, moral hazard, inadequate regulatory frameworks, and an absence of political will. Private financial institutions also remain unconvinced of the value of investing in DRF in such contexts, and international humanitarian aid is therefore often the modus operandi when disasters occur.

GFDRR is tackling these issues. In collaboration with the World Bank's Disaster Risk Financing and Insurance (DRFI) Program, the facility has been working alongside countries to develop the analytics and tools needed for a stronger understanding of contingent liabilities. It has also supported the development of strategies that outline what countries can do to better plan their finances for periodic smaller disaster events, as well as less frequent larger events that tend to impose higher financial impacts on people and economies. The nature of this technical work has varied across countries, depending on geographic and economic vulnerabilities. Some highlights of the work in FY20 include:

- The Global Risk Financing Facility (GRiF)—a multi-donor trust fund housed at GFDRR and implemented by DRFI— initiated more than a dozen scoping and feasibilities studies in FY20. A significant share of these studies is dealing with the fallout of the COVID-19 pandemic, including the assessment of financial impacts on small and medium enterprises to target shock-responsive liquidity support. In **Albania, Brazil,** and **Colombia**, assessments for water service providers are under way in preparation for a potential Water Liquidity Facility that will provide emergency funds. Another example is the Crisis and Disaster Risk Finance Analytics Project, which will leverage innovative analytics at the global, country, and project level for improved risk management and risk financing.
- As part of the EU–World Bank/GFDRR Global Partnership on Disaster Risk Finance Analytics, the production of a first set of analytics tools to assess emergency funding gaps, optimize financing strategies, and assess emergency response has been finalized. The tools are open source and their application has been promoted in a number of countries, including **Albania, Morocco, Serbia,** and **Tunisia**. Furthermore, an e-learning module on the Fundamentals of DRF Analytics was launched in April 2020 and is publicly available on the World Bank's Open Learning Campus.



- In **Saint Lucia**, GFDRR funding provided technical assistance to develop a comprehensive shock-responsive social protection system that links social risk from disasters to the national DRF framework. Next steps will be coordinating with stakeholders to quantify social impacts, model the final adaptive social protection system, and develop a training program to increase understanding of quantitative risk information. This work is a continuation of an analytical report from 2018 that identified gaps and provided specific recommendations for strengthening the country's disaster risk financing framework.

Through technical assistance provided by the Japan-World Bank Program on Mainstreaming Disaster Risk Management (DRM) in Developing Countries, DRFI produced a report titled *Catastrophe Insurance Programs for Public Assets—Operational Framework* that contributed to the APEC Working Group on Disaster Risk Financing

[13] According to Munich Re, in 2019, only a small proportion of disaster losses in Africa and only 25 percent in Asia were covered by insurance. In comparison, in North America and Europe, this share is 52 and 65 percent, respectively.

Top: Rio de Janeiro, Brazil—A biologist holds blood samples at a laboratory to check for corona virus COVID-19 antigens. Photo: antonio scorza / Alamy Stock Photo. Left: Tirana, Albania—Public transportation amid the COVID-19 pandemic. Photo: Xinhua / Alamy Stock Photo.

and Insurance. Support is also being provided to strengthen resilience of World Bank–financed infrastructure investment projects by integrating DRF solutions. For example, in **Myanmar**, the World Bank conducted risk engineering and critical systems analytics on the country's energy generation and distribution systems under the IBRD/IDA-funded Myanmar National Electrification Project to find ways to provide immediate and effective response in case of an emergency. In **the Pacific**, technical analysis is ongoing to support the Pacific Power Authority to develop a disaster mutual assistance program which includes a fund to enable the deployment of experts from one Pacific utility to another in case of a large-scale disaster event.

Deepening Financial Protection

In Focus Strengthening disaster risk finance in the Philippines

Even as the Philippines has made great strides in strengthening its disaster and climate resilience, the high risk of natural hazards, including typhoons, floods, earthquakes, and volcanic hazards, remains a major roadblock to its development prospects. In addition to the devastation and lives lost, the country faces significant economic and fiscal impacts because of its vulnerability to disaster. Over the past two decades, economic losses in the agriculture and infrastructure sectors alone have amounted to 0.5 percent of the Philippines' gross domestic product.

Deepening a partnership with the Philippines that has lasted for over a decade, GFDRR has been supporting the Philippine government in the implementation of a comprehensive disaster risk financing (DRF) strategy designed to bolster the country's financial resilience to disasters. A key focus of these efforts has been to strengthen the country's public asset financial risk management practices, which is a priority of the DRF strategy.

A technical team, supported by GFDRR, has worked closely with the government to establish the National Asset Registry System (NARS). To date, covering almost 400,000 public assets from five national government agencies, NARS represents the first comprehensive and detailed view of assets under the custody of the national government. It will support the Philippine government in systematically managing financial risks to public assets such as roads, bridges, and schools before, during, and after a disaster, while also informing the country's resilience and disaster risk management practices overall.

In line with the recent adoption of the country's first national public asset management policy, which has also been supported by the technical team, NARS has been equipped with the technology and governance infrastructure to enable regular updates to the data that capture, among other things, the condition, location, and value of the assets. The government is using the data in NARS to help guide the development of a new insurance program for critical infrastructure.

In conjunction with its engagement on public asset management strengthening, GFDRR support is also paving the way for the government to deepen its understanding of the financial resilience challenges and opportunities facing the country, another priority of the national DRF strategy. A team of specialists has worked with the government on a comprehensive public expenditure review, now in its final stages, that for the first time will provide a detailed picture of public spending on disasters in the Philippines.

The team has also carried out an evaluation documenting lessons learned from a recently concluded World Bank–supported Parametric Insurance Pilot program that helped the government transfer almost $600 million of typhoon and earthquake risk to international financial markets. Parametric insurance issues payments following a triggering event such as a disaster without the need for a loss assessment, ensuring payouts at a more accelerated pace than traditional indemnity coverage. A key finding of the evaluation is that such risk transfer instruments must be paired with the appropriate governance and public financial management structures to ensure the efficient flow of funds to affected communities following a disaster.

As the Philippines braces for intensifying disaster risks due to climate change, as well as the ongoing threat from COVID-19, support for the implementation of the DRF strategy also includes the introduction of pre-arranged financing instruments, in partnership with the World Bank. In 2019, IBRD issued a two-tranche, catastrophe-linked bond (CAT bond) that will provide the Philippines with pre-arranged financial protection of up to $75 million against losses from earthquakes and $150 million against losses from tropical cyclones. This is the first CAT bond issued by the government in the region. These efforts to advance the country's implementation of its DRF strategy are informing a range of World Bank policy reform lending in the Philippines, such as the IBRD-funded $500 million Third Disaster Risk Management Development Policy Loan.

Aerial photo of Nagpayong and Pasig River in Pasic City, Metro Manila, the Philippines. Photo: Jorgen Udvang.

Lessons Learned

Good data infrastructure is key to effective disaster risk financing and insurance. When the Philippine government decided to embark on a new risk insurance program for critical infrastructure, it quickly identified inadequate data—including the location, condition, and values of assets—as a key challenge. Accordingly, the government invested in building the National Asset Registry System, including the technology and governance infrastructure needed to ensure the completeness, timeliness, quality, and accuracy of the data.

"The road to well-managed government assets is long and will be full of difficulties. However, we recognize the benefit that it will ultimately serve within the government, and most especially the people. With improved asset management, the government will be able to maximize its resources, understand better its assets, and improve its delivery of services to our people. We see this as another step in our continued quest for a more resilient and responsive government."

—**Rosalia de Leon,** National Treasurer of the Philippines

Results in Numbers

Nearly 400,000 public assets from 5 national government agencies recorded in national government's first ever comprehensive public asset registry

Building Resilience at the Community Level

Disasters are not neutral. The severity of the impacts of natural hazards and climate change on people, economies, and societies are not only a consequence of the exposure to a physical hazard, but they are also shaped by social, political, and economic factors that drive vulnerability.

GFDRR is working to improve understanding of the social dimensions of risk to enhance resilience-strengthening investments. This involves understanding and addressing the underlying drivers of vulnerability—particularly social inequality and exclusion; making visible and supporting community-level risk management strategies and partnering with communities in meaningful ways for local action. Support for social resilience and local level action is core to GFDRR's mandate. Throughout the portfolio, 12 percent of core program funding supported activities at the local level, and over 55 percent of core program grants report communities as beneficiaries. Additionally, nearly 43 percent of core program-funded grants contributed to building resilience at the community level.

Promoting inclusive DRM

In **Tajikistan**, a technical team, in partnership with the government of Tajikistan, has been developing practical tools and guidance on conflict-sensitive DRM for community-based organizations and local government officials in *jamoats*, the country's lowest administrative division. The tools and guidance will include training modules for engaging women as leaders in community-level DRM efforts.

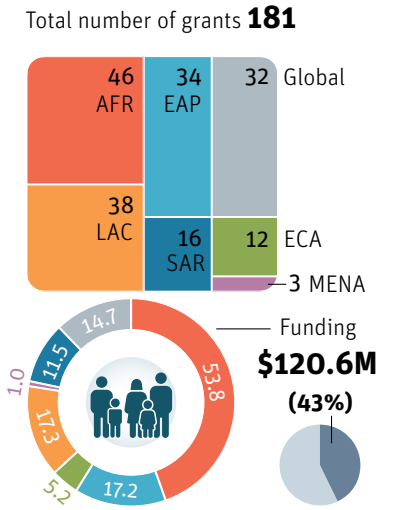
In **Nepal**, GFDRR has been supporting efforts to develop and implement a training program to foster entrepreneurship among persons with functional limitations and disabilities. Part of a broader engagement on enabling post-disaster livelihood recovery in the country, a key focus of the program is to enable trainers and participants to jointly identify suitable business opportunities for persons with functional limitations and disabilities. The government of Nepal is now considering scaling up the initiative, which has already reached 15 districts across the country.

In **Eswatini**, a technical team has been engaging communities to inform the development of a drought monitoring and early warning system. The team organized workshops with local stakeholders from all four regions of the country, which served as an opportunity to integrate indigenous knowledge and local observations from citizen scientists into that process. Participants in one workshop highlighted that monitoring vegetation changes over time to depict water stress in plants could be a form of indigenous early warning system in the case of droughts.

Increasing citizen engagement in managing risk

In **Guinea** and the **Lake Chad Region**, GFDRR has been supporting efforts by community-based organizations and local governments to integrate disaster and climate risks in their development planning, including through the creation of a pilot tool for risk identification and response based on participatory scenario planning. A key focus of this engagement is to ensure that local planning efforts take into account how disaster and climate risks interact with fragility, conflict, and violence risks.

Similarly, in Costa Rica, a team has been facilitating citizen engagement in efforts to identify, plan, and assess



options for managing flood risk in the Torres River basin in the capital of San José. The team, for instance, conducted in-depth interviews and workshops with community leaders, gleaning critical insights for the development of a comprehensive diagnostic of flood risk in the Torres River basin, including the identification of a priority neighborhood for future flood resilience engagement.

In **West Bank and Gaza**, a team has been working with the National Disaster Risk Management Center of the Prime Minister's Office to help ensure that citizens and civil society alike are actively involved in driving and shaping the DRM agenda in West Bank and Gaza. Accordingly, the team has supported the design and development of a fully consultative process for soliciting inputs and views for draft DRM legislation, which is under review by the government's cabinet.

In **Bangladesh**, a team has been carrying out a community needs survey on flood preparedness in order to better understand the experiences of flood-affected communities in targeted districts before, during, and after flooding events. The findings of the survey will be utilized to strengthen

Inclusive Resilience aims to build awareness and share knowledge on how Disaster Risk Management investments can be designed to better advance social inclusion. Top photo: Ann Gaysorn / Shutterstock.com. Bottom: South Asia Inclusive Resilience video

citizen engagement activities under the Bangladesh Urban Resilience Project and the Bangladesh Multipurpose Disaster Shelter Project, both of which are funded by the World Bank's IDA.

In **Papua New Guinea** and **the Solomon Islands**, GFDRR has been supporting efforts to deepen awareness and understanding of participatory approaches to disaster risk management. A major pillar of this work has been to capture lessons and best practices from DRM efforts in a range of World Bank, national government, and civil society initiatives across the Pacific. These efforts are expected to inform future DRM engagements in Papua New Guinea, the Solomon Islands, and the wider region.

Building Resilience at the Community Level

In Focus Applying behavioral science to disaster risk management in Haiti

Haiti's geographic location makes it highly exposed to hurricanes, and climate change is increasing their frequency and intensity. And while much remains to be done, the country has been making headway in strengthening its resilience to hurricanes and other adverse events by developing early warning systems that provide local populations with immediate and actionable information to prepare for and minimize the impact of these events.

Research has shown that many fatalities can be prevented if people evacuate to a safer place in a timely fashion. Notwithstanding the progress in improving Haiti's early warning systems, behavioral barriers often interfere with people's decision-making when they are faced with a catastrophic event.

With the support of the ACP-EU Natural Disaster Risk Reduction Program managed by GFDRR, a World Bank technical team dug deep into these behavioral barriers, with the goal of identifying opportunities for strengthening the effectiveness of early warning and evacuation systems. In Haiti, these systems are managed by Municipal Civil Protection Committees (Comités Communaux de Protection Civile, or CCPCs) under the direction of the country's Civil Protection General Directorate (Direction Générale de la Protection Civile, or DGPC), utilizing a range of communication channels including radio and door-to-door visits, as well as short message services (SMS). Haiti has a cell phone penetration rate approaching 60 percent.

Through interviews and focus groups carried out in Port-au-Prince and in the Nippes and South departments of Haiti, the team identified five main behavioral barriers to evacuation:

1. Often the population does not receive the alert messages.
2. When the information does arrive, messages are not always presented in a format that is easy to understand.
3. Even when the information arrives and is understood, sometimes people do not internalize the risk level. For instance, the average person may struggle to believe that a hurricane, which is perceived to be a low probability event, will hit their home, or they may stay behind to protect their livestock.
4. Even when people internalize risk levels, structural challenges—such as the lack of a shelter close to their homes or lack of transportation—make it impossible to heed warnings.
5. Moreover, people who have had a bad experience with shelters might be hesitant to evacuate because they are worried about their safety in the shelter. For example, they may be concerned that the structure may not be resilient enough or safety measures in the management of the shelter may not be well implemented.

Drawing on these findings, the team developed strategic recommendations for strengthening Haiti's early warning systems. These include simplifying warnings and messages, improving the timeliness of dissemination, and promoting trust between local populations and the CCPCs, which play a key role in the communication of messages.

These recommendations are already informing and catalyzing resilience and disaster risk management efforts across Haiti. Recently, with support from the EU-funded Caribbean Regional Resilience Building Facility, managed by GFDRR, the country's DGPC launched a national communications campaign to build awareness and preparedness during the 2020 hurricane season through a variety of platforms—including national and local radio, SMS, social media, and other online platforms in audio, video, text, and graphic formats. As part of the campaign, over 1 million people have viewed a music video featuring a song and dance number by popular Haitian artists that conveyed the importance of being prepared for hurricanes and other disasters.

At the same time, the World Bank's IDA-funded Strengthening Disaster Risk Management and Climate Resilience Project is putting an emphasis on understanding the mindset and beliefs of target populations for its comprehensive resilience engagement in Haiti. With support from GFDRR and in partnership with the government of Haiti, this project is helping the country simplify early warning system messages, including the use of salient visuals, in addition to strengthening the training of CCPCs to facilitate evacuation. This project is also financing the construction of multifunctional emergency shelters while integrating the behavioral insights in the design and functional aspects, ensuring not only the resilience of the infrastructure but also the safety of the people evacuated.

Haiti's Municipal Civil Protection Committees, under the direction of the Civil Protection General Directorate, play a key role in implementing the country's early warning and emergency evacuation systems. Photo: ©Vincent Theodore.

Lessons Learned

People may not evacuate despite warnings because they may not understand the messages and do not trust the messengers. Accordingly, a national communications campaign, informed by the behavioral study, featured popular Haitian artists who conveyed the importance of being prepared for disasters through the relatable and accessible medium of song and dance.

"This activity was key to build awareness of the risks associated with hurricanes and strengthen communication in preparation for an emergency situation."

—Lolo of the band Boukman Eksperyans, one of the artists involved in the communications campaign informed by the study

Results in Numbers

Over 1 million people have viewed a music video featuring a song and dance number by popular Haitian artists that drew on the behavioral study to convey the importance of being prepared for hurricanes and other disasters

Deepening Engagement in Resilience to Climate Change

In a world already facing growing risks from natural hazards, climate change is bound to aggravate risks to development, especially in low- and middle-income countries. New research shows that up to 132 million people will be pushed into extreme poverty by climate change by 2030.[14] This year, global extreme poverty is expected to rise for the first time in over 20 years as the COVID-19 pandemic compounds the already existing threats.[15] As so often is the case, the most adverse effects of these crises are being felt the most by poor and vulnerable populations, with critical implications for poverty, food security, health, quality of life, and economic productivity.

As countries around the world grapple with the COVID-19 pandemic and plan for recovery, they also have a once-in-a-generation chance to set themselves on a sustainable, inclusive, and resilient development path. To help countries take ambitious climate action, the World Bank Group increased its support through a dedicated Action Plan on Climate Change Adaptation and Resilience. Under this plan, the World Bank Group will ramp up direct adaptation climate finance to reach $50 billion over FY21–FY25—more than double what was achieved during FY15–FY18.

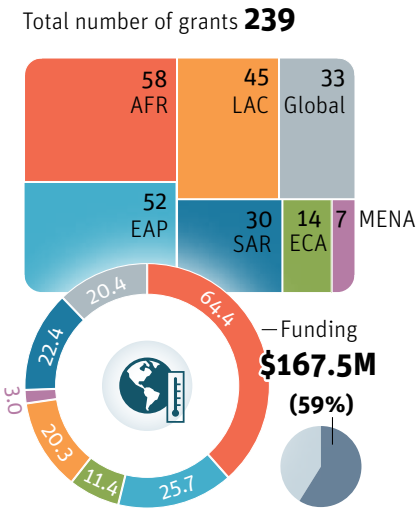
[14] Jafino, B. A., B. Walsh, J. Rozenberg, and S. Hallegatte. 2020. "Revised Estimates of the Impact of Climate Change on Extreme Poverty by 2030." Policy Research Working Paper 9417, World Bank, Washington, DC.
[15] World Bank, 2020, *Poverty and Shared Prosperity 2020: Reversals of Fortune.* Washington, DC: World Bank.

Alongside the World Bank, GFDRR helps countries reduce damages by increasing their understanding of risks under current and future climate conditions, promoting innovative solutions to reduce these risks, and assisting in the planning and design of climate-resilient policies and investments. In FY20, over 95 percent of newly approved grants included climate considerations. The facility's climate engagement builds on the Resilience to Climate Change initiative, which was set up in 2014 with funding from the Swiss Agency for Development and Cooperation's Global Programme Climate Change, and which concluded in FY19.

Integrating climate and disaster risks

In **India**, GFDRR has been supporting efforts by subnational authorities to mainstream disaster and climate considerations into the development planning and processes of selected states and provinces, including Kerala, Sikkim, and Uttarakhand. As part of this engagement, work is underway on a comprehensive assessment that will take a deep dive into the gaps and opportunities for disaster and climate mainstreaming and set out policy and institutional actions for moving that agenda forward.

In **Vietnam**, a technical team has been engaged with provincial authorities in Thừa Thiên-Huế and Quảng Ninh on strengthening the integration of disaster and climate risk in coastal development planning. Drawing on GFDRR's analytical work on coastal resilience in Vietnam, a priority for this engagement is to develop and update guidance on mainstreaming disaster and climate considerations that will be applicable in other provinces, with the support of the Ministry of Natural Resources and Environment.



Supporting a wider range of vulnerable sectors

In the **Federated States of Micronesia**, GFDRR has partnered with the national government on enhancing the resilience of the country's power systems to better adapt to natural hazards and extreme weather. A major focus of this engagement is to identify stresses and vulnerabilities, with an eye toward developing recommendations for the national government's power sector development agenda as well as a planned World Bank regional lending operation on resilient energy.

In Greater Ulaanbaatar, **Mongolia**, a technical team is supporting city officials, as well as officials from the Ministry of Food, Agriculture and Light Industry, in deepening their understanding of the resilience challenges and opportunities facing small and medium enterprises. As part of this effort, a team has been

Kerala, India. Photo: travelstock44 / Alamy Stock Photo. Left: Back from fishing, Tarrafal, Cabo Verde. Photo: Iacob Madaci.

conducting in-depth surveys of leather and wool processing firms to get a better grasp of their efforts to mitigate climate and disaster risks including in the context of the COVID-19 pandemic.

Influencing World Bank engagement

In **Honduras**, GFDRR has been supporting the national government in strengthening its legal, institutional, and financial frameworks for climate and disaster risk management. A key focus for the technical team has been to collaborate with their government counterparts to identify policy gaps and priority policy actions. This partnership was instrumental in laying the groundwork for the country's first Development Policy Credit with a Catastrophe Deferred Drawdown Option (Cat DDO). Approved by the World Bank in April 2020, the Cat DDO has made available $119 million in IDA funding to help Honduras manage the risk of adverse events, including disease outbreaks such as COVID-19.

In **Zimbabwe**, a technical team has been working with the national government to facilitate the development and operationalization of the Zimbabwe Recovery and Resilience Framework (ZRRF), which is guiding the country's long-term recovery and climate and disaster resilience efforts, including prioritization, financing, and institutional coordination. ZRRF also continues to inform the implementation of the $72 million, IDA-funded Zimbabwe Idai Recovery Project. GFDRR's engagement on these efforts has been in tandem with $3 million in supplemental support from the World Bank's State and Peace-Building Fund.

Deepening Engagement in Resilience to Climate Change

In Focus Assessing the costs and benefits of investments for climate-resilient infrastructure in South Asia

Against the backdrop of rapid economic growth, the countries of South Asia have seen remarkable progress in improving people's lives and livelihoods over the past two decades. The impacts of a changing climate, including intensifying disaster risk, however, now threaten to reverse those gains. In the past decade alone, nearly 700 million people, or half of the region's population, were affected by one or more climate-related disasters.

Recognizing these realities, South Asian governments are determined to build a climate-resilient future for their economies and citizens, an effort that will require major investments in scaling up resilient infrastructure across the region. With the support of GFDRR and the World Bank, a technical team has been assessing options for climate adaptation investments in resilient infrastructure, focusing on Bangladesh and Pakistan.

A key first step of this analytical work has been to assess climate hazards and their impact on priority infrastructure sectors. In line with country priorities, the team's work focused on the water sector, mainly flood protection, in Bangladesh and the road sector in Pakistan. The team subsequently developed comprehensive climate risk profiles for asset types within each sector. These profiles characterize the climate impacts with respect to a particular asset type. For instance, the climate risk profile for unpaved roads in Pakistan revealed that this asset type might see reduced integrity as a result of a projected increase in the risk of river flooding.

Drawing on the climate risk profiles, the team has estimated incremental costs for different targeted options for climate adaptation investment for flood protection in Bangladesh and roads in Pakistan. While not exhaustive, these options cover both structural and nonstructural measures that take into consideration the local context in each country. In the case of flood protection in Bangladesh, for example, investment options include stabilizing and raising the height of embankments, constructing smart stormwater tunnels and integrated stormwater collection systems, developing species-sensitive mangrove reforestation, and dredging and creating large green areas to convey floodwater that are often called "green rivers."

The team has also compared the costs and benefits of these various investment options. The analysis has taken into account both capital and operational investment requirements on the cost side and adaptation and resilience gains on the benefit side. In contrast to most cost-benefit analyses, which are often based on a probability estimation of future conditions—an increasingly tenuous approach in view of the uncertainties of a changing climate—this part of the analytical work analyzed costs and benefits in increments over an extended period of time, through the year 2070. Based on this methodology, in the future, policy makers could be in a position to better understand some of the trade-offs between taking investment decisions on adaptation now, as opposed to deferring them into the future.

A further key overall finding of the cost-benefit analysis is that Bangladesh and Pakistan have a range of cost-effective climate adaptation investment options that offer value for money for their respective priority sectors of flood protection and roads. In Bangladesh, some options, such as embankments, were found to yield climate adaptation benefits that are between four and eight times greater than the expected costs of deployment.[16]

This identification and cost-benefit analysis of investment options for climate-resilient infrastructure in South Asia is only one among a suite of analytical work supported by GFDRR in the region. For example, the facility has been supporting an analysis of the gaps and opportunities in the data, knowledge, and institutional capacities of Bangladesh, Nepal, and Pakistan, work that has contributed to the design of the World Bank's IDA-funded Climate Adaptation and Resilience for South Asia (CARE) Project.

[16] All 8 different adaptation options for flood protection in Bangladesh considered in this analytical work shows the high benefit-cost ratio (BCR) of between 4.4:1 and 7.7:1 using the country-specific discount rate.

Keeping up with floods in the village of Kalabogi in Bangladesh Photo: ©Vincent Theodore.

Lessons Learned

Governments and policy makers could benefit from understanding the trade-offs between implementing policy actions now as opposed to deferring them into the future, and thus being able to plan those actions accordingly. By using an incremental approach to cost-benefit analysis, this analytical work hopes to make that possible by demonstrating that select climate adaptation measures, even if not currently advisable because of a lack of cost-effectiveness, would eventually see their benefits outweigh costs as a result of climate trends.

Results in Numbers

In Bangladesh, options for resilient infrastructure investments were found to **yield climate adaptation benefits of up to 8 times greater than the expected** costs of deployment

Enabling Resilient Recovery

In FY20, GFDRR worked closely with government counterparts and World Bank task teams to adapt existing engagements to help countries manage the COVID-19 pandemic. These efforts included (1) developing emergency preparedness plans and response protocols; (2) supporting the identification and repurposing of public facilities to address the pandemic; and (3) scaling approaches that link disaster risk management (DRM) preparedness and response systems to health emergencies.

Strengthening government systems

The facility's broad experience in promoting and supporting the design of World Bank contingent financing instruments, such as the Contingent Emergency Response Component (CERC), provided a solid foundation for the World Bank Group's broad and fast action to help countries initially respond to the crisis. This support allowed countries to reallocate funding from investment operations and respond to disasters and health emergencies. It involved (1) capacity building training to more than 600 World Bank staff; (2) hands-on technical support to operational teams across all regions; and (3) the development of knowledge products such as a CERC resource website and analytical products. In FY20, 39 CERCs have been activated across all regions in response to COVID-19, amounting to $610 million in financing.

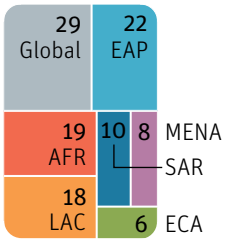
Reinforcing recovery systems

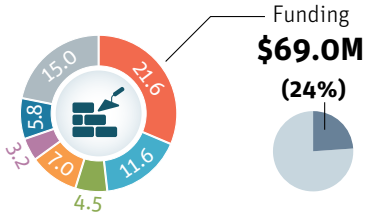
New knowledge products ranged from a guide for engaging local stakeholders in disaster recovery frameworks to an advocacy paper on the use of satellite imagery to support recovery from major disasters, written in partnership with EU, the UN, and other international organizations. The report *Pre-Disaster Baseline Datasets for Disaster Assessment and Recovery Planning*, which included a five-year project proposal for testing and dissemination, was published, as well as an updated disaster recovery framework guide. In partnership with the private sector and civil society organizations, a discussion paper on the metrics for measuring civil protection readiness was produced, as well as several short guidance notes on assessment and recovery. These covered topics such as remote assessment, disability-inclusive recovery, private sector participation, social protection, and communication.

In FY20, Post-Disaster Needs Assessments (PDNAs) were carried out for floods in Bamako, **Mali**, soon after the disaster there, followed by the development of a Disaster Recovery Framework (DRF). PDNAs were also applied for an earthquake in **Albania**, for floods in **Djibouti**, and for floods in **Tanzania** (the DRF is ongoing). Global Rapid Post-Disaster Damage Estimations or GRADEs to immediately address specific damage information needs were conducted for a hurricane in the **Bahamas**, an earthquake in Zagreb, **Croatia**, floods in **Myanmar**, and a tropical cyclone in **Vanuatu**. Damage assessments for erosion in Kananga, **Democratic Republic of Congo**, and for floods in **Somalia** were also carried out.

The Just-in-Time, on-demand small grants were distributed to support assessments, totaling $400,000 for **the Bahamas, the Democratic Republic of Congo, Djibouti, Myanmar, Somalia,** and **Tanzania**. Those small grants helped inform World Bank Investment Project Financing operations estimated at around $420 million.

Total number of grants **112**





On capacity building, GFDRR contributed to a regional training of trainers in Eastern Africa for PDNAs and DRFs, together with the Intergovernmental Authority on Development (IGAD), the United Nations Development Programme (UNDP), and the EU; a regional training in Europe for Western Balkan countries; and many other national trainings (**Central African Republic, Djibouti, Kenya, the Republic of Congo**, and so on). These trainings were attended by 178 government officials in total, of whom 21 percent were female.

Coordinating global partnerships

GFDRR/World Bank, the EU, and the UN continue collaborating to better coordinate post-crisis disaster response as well as to mobilize necessary resources and enhance partnerships. The 2008 joint declaration brought together a common platform for partnership and action to deliver an effective and sustainable international response based on a jointly developed methodology—PDNA for disaster response and Recovery Peace Building Assessment (RPBA) for conflict-related crises.

Above: Theinzeik, Myanmar—A family walks along a flooded street. Photo: REUTERS/Ann Wang. Left: Tegucigalpa, Honduras—Comité Permanente de Contingencias (COPECO) mass casualty drill. Photo: David Wa / Alamy Stock Photo.

In FY20, since the World Health Organization (WHO) declared COVID-19 to be a global pandemic, these organizations have used an adapted version of the PDNA/RPBA methodology to assess the macroeconomic impact of COVID-19 on countries and develop a recovery strategy. This joint approach is intended to ensure development community alignment behind a single comprehensive government-owned process. Moreover, it capitalizes on pre-existing partnerships, government recognition, an expert group of practitioners, and pre-existing tools.

Since April 2020, when the COVID-19 Recovery Needs Assessment (CRNA) Guidance Note was drafted by the UNDP and the EU, four countries have already conducted assessments using this methodology (**Azerbaijan, Ecuador, El Salvador,** and **South Africa**). Four other countries are preparing to carry out CRNAs (**Cabo Verde, Haiti, Liberia,** and **Serbia**).

Enabling Resilient Recovery

In Focus Advancing emergency preparedness and response in Cabo Verde

Located 500 kilometers off the western coast of Africa, the small island developing state of Cabo Verde grapples with a range of natural hazards that are increasingly exacerbated by climate change, including hurricanes and tropical storms, droughts, and flash floods. In 2017–18, sustained low levels of precipitation led to a severe drought that devastated the agriculture sector. Highly vulnerable to geological hazards, in 2014–15 Cabo Verde wrestled with the impacts of a volcanic eruption on the island of Fogo that displaced nearly a thousand people and caused a great deal of damage in road infrastructure and nearby villages.

Cabo Verde has been stepping up its efforts to build the country's resilience to disasters and climate change, and in late 2018, the national government approved an overarching framework for those efforts: the National Disaster Risk Reduction Strategy. GFDRR and the World Bank have been working closely with the government of Cabo Verde and other development partners to operationalize this strategy, including strengthening the emergency preparedness and response (EP&R) system. This engagement has deepened following the World Bank's June 2019 approval of Disaster Risk Management Development Policy Financing with a Catastrophe Deferred Drawdown Option (Cat DDO), a contingent line of credit that can be accessed when a natural catastrophe occurs. The financing arrangement will support the government in strengthening its institutional and legal framework for disaster and climate resilience.

In partnership with the National Civil Protection Service and with the support of the government of Luxembourg, GFDRR and the World Bank provided critical technical and financial assistance toward a comprehensive EP&R diagnostic assessment for Cabo Verde. The assessment draws upon the World Bank's Ready2Respond methodology, which assesses EP&R capacity based on quantitative data covering five core areas: legal and institutional frameworks, information, facilities, equipment, and personnel. A technical team engaged with over 150 stakeholders—spanning the government's ministries, agencies, and public institutions, along with the private sector and civil society—to collect and validate the data, which included 72 indicators across the five core areas.

A key conclusion of the assessment, which was completed in December 2019, is that Cabo Verde's EP&R would be well-served by a shift toward a more proactive, systematic approach that draws on good practices already in place. These include the current strong commitment of emergency responders and local communities to react effectively to emergencies and crisis situations, while also learning and innovating for future crises, in addition to the government's extensive engagement with the private sector and civil society.

Moreover, the assessment also identified several key investment opportunities that, even with limited targeted funding, could significantly strengthen Cabo Verde's EP&R system. These include the establishment of a national emergency operations center, the implementation of crisis management plans, and the completion of the EP&R legal framework. The technical team has been working with the government of Cabo Verde to develop a sequenced investment plan that seizes on these opportunities.

GFDRR's support for strengthening the EP&R system in Cabo Verde is only one among a broader suite of efforts to advance the country's resilience to disaster and climate change. For instance, as part of the World Bank–supported Cat DDO program in Cabo Verde, the technical team has also been working with the Ministry of Finance to enable the establishment and operation of the National Emergency Fund (NEF), including the preparation of an operational manual that was adapted to allow the use of the NEF as a critical financial instrument for the country's COVID-19 response. The Cabo Verde Cat DDO was financed with $5 million from IBRD and $5 million from IDA; it was fully and rapidly disbursed in April and May 2020 to support the government's response to the impact of COVID-19. The Cat DDO was the first instance of international financial support for the government during the pandemic.

Neighbors in Cabo Verde. Photo: Eric Valenne geostory.

Lessons Learned

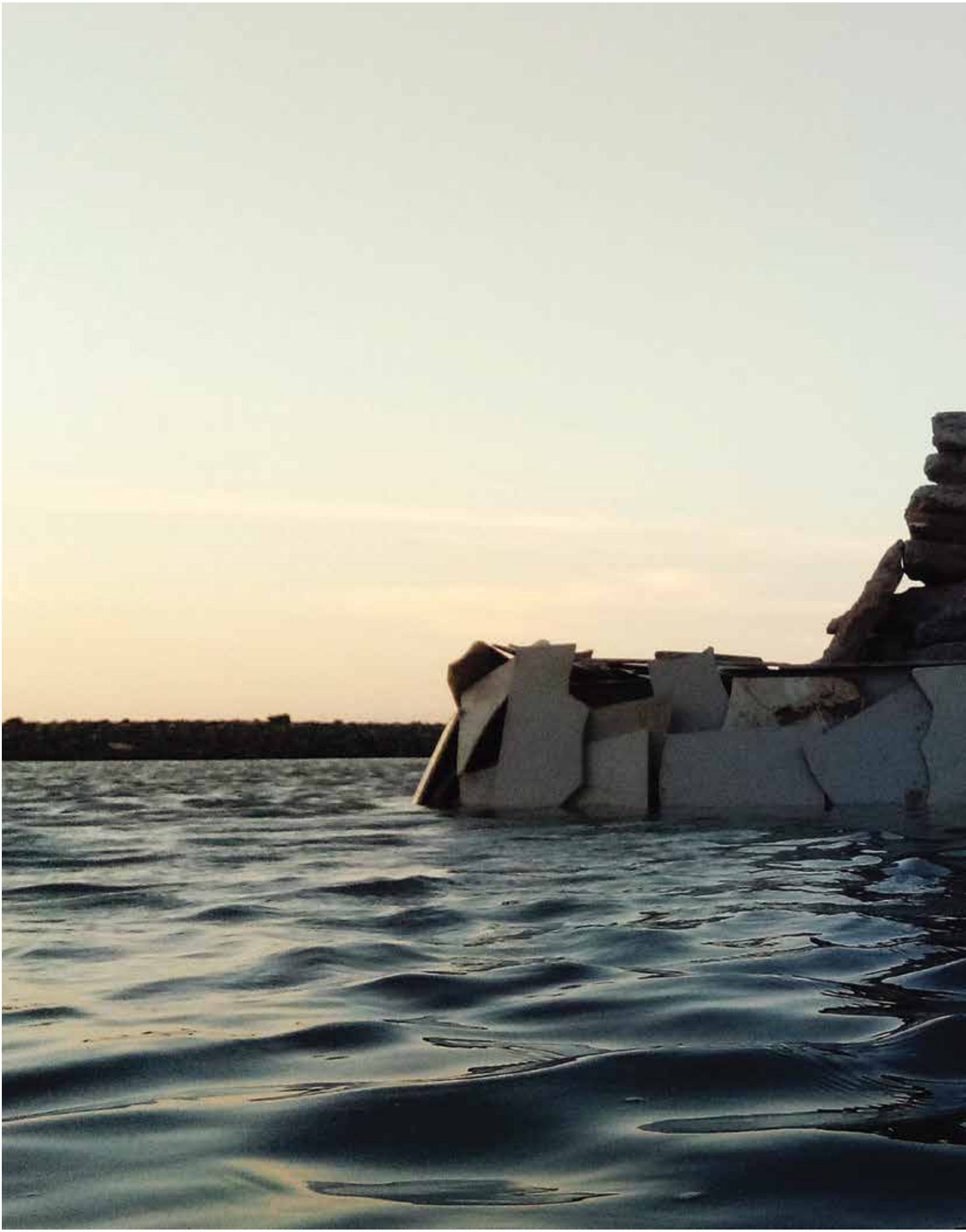
It is important to help country leaders understand the value of improving EP&R, not only in terms of the significance of investing in upgrades to their systems' capabilities and capacities, but also in terms of EP&R's role in enabling a government to undertake its core responsibility of protecting its citizens. This investment must be systematic to be both effective and coordinated since operating in silos does not work in responding to emergency and disaster situations.

"[The assessment] gives us critical recommendations to guide investments required to strengthen the national emergency preparedness and response system to have an effective and efficient service that save lives when extreme events hit our country."

—Renaldo Rodrigues, President of the National Civil Protection Service of Cabo Verde

Results in Numbers

Engaged with over 150 stakeholders to collect and validate data spanning **72 indicators** for analyzing emergency preparedness and response capacity in Cabo Verde



The Art of Resilience **Kukuh Ramadhan** | Indonesia | *Otonom (The Tale of Ngata)* | 2019 | Natural debris from 2018 earthquake on the coast of Palu Bay | Dimensions variable | Image courtesy of the artist.

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 Consultative Group (CG) 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. The MDTF provides funding for in-country engagements across all regions and thematic areas; supports analytical work, presenting new evidence and proposing new ways for action and helping develop new tools; and provides a mechanism to explore work in new areas of interest and the seed funding needed to initiate new thematic programs driven by country demand.

The MDTF also supports existing partnerships and helps develop new ones; finances the facility's monitoring and evaluation (M&E), learning, and knowledge sharing; and supports the governance structure and program management function. The MDTF is the main vehicle of support for efforts to mainstream climate and disaster risk into disaster risk management (DRM) and development policies. Most grants under the MDTF are for in-country activities or engagements at the regional level, and it also provides funding for the development of public goods. FY20 has intensely focused on grant implementation because the main MDTF closes in December 2020. Established in 2016, the MDTF has funded over $130.7 million in resilience activities through nearly 400 grants. At the end of FY20, the MDTF had an active portfolio of approximately $57.8 million through 143 grants.

Responding to emergencies, supporting resilient recovery

The MDTF funds rapid response and recovery activities, such as the completion of post-disaster needs assessments and other essential diagnostic work. It also funds grants that assist countries in developing frameworks for resilient recovery and in strengthened capacity to manage future events. In FY20, GFDRR funded disaster assessments in five countries—including in the **Bahamas** after Hurricane Dorian and in **Djibouti, Myanmar, Somalia,** and **Tanzania**—and supported recovery operations in **Somalia** and **India**.

FY20 has been a year marked by the COVID-19 pandemic, adding a layer of complexity to the multi-hazard risks client countries are already facing. The flexible nature of the MDTF has allowed GFDRR to assist countries to meet this dual challenge by supporting them so they can stay on course to address the resilience challenge of increasingly frequent and intense adverse natural events, and by mobilizing the DRM community to help address the impact of the COVID-19 crisis. This has been especially relevant in disaster response and recovery efforts—for example, in **Croatia**, when in March 2020, at a high point of COVID-19 contagion, the country was struck by an earthquake.

Generating and sharing knowledge

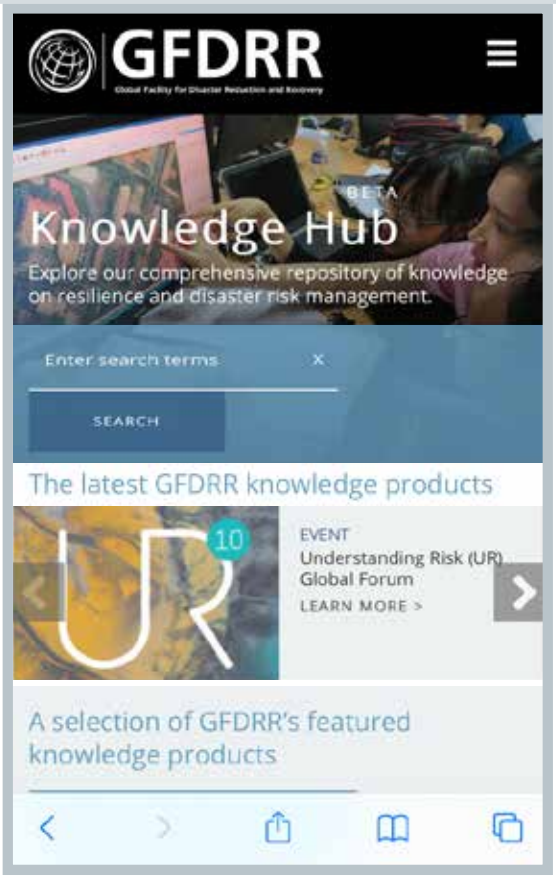
GFDRR continues to invest in generating new evidence, tools, and analytics for better decision-making around DRM and climate adaptation. The MDTF is the main source for GFDRR's analytics work, which helps provide answers to some of the most pressing questions facing development practitioners. At a time when virtual learning has never been more critical, GFDRR's new website features the first-ever Knowledge Hub—a comprehensive repository of knowledge on resilience and DRM—with nearly 2,500 publications, blogs, feature stories, and videos. All these are now easily searchable by topic, region, country, and hazard. Knowledge assets have been curated to help users efficiently find the resources most relevant to their search.

Measuring results

The MDTF funds core Secretariat activities, including those related to governance, M&E, and knowledge management. A multiyear effort to revamp its M&E system continues to enhance capacity to monitor portfolio progress and introduced an evaluation policy for the facility in FY19. The M&E system also tracks portfolio contributions to help developing countries achieve targets and priorities set out within the Sendai Framework for Disaster Risk Reduction. As the current MDTF comes to a close, it is funding a number of thematic reviews in FY20 and FY21 to better understand which types of activities have worked, which have not, and what lessons the facility can apply to its programming going forward. These reviews include one that is related to social resilience engagements; a portfolio review of GFDRR grants in fragile states in FY16–FY20; and a portfolio review of urban resilience activities over FY10–FY20. Additionally, an evaluation of the current MDTF is planned for FY21.

An MDTF for future resilience needs

A new MDTF, established in November 2019, will ensure continuity of the program after the current MDTF closes in December 2020 and will provide a financial base for GFDRR to help countries build resilience, respond to, and recover from disasters.



Top: Zagreb, Croatia earthquake, March 2020.
Photo: REUTERS/Antonio Bronic.

Left: GFDRR Knowledge Hub
https://www.gfdrr.org/en/knowledge-hub

Multi-Donor Trust Fund

In Focus Strengthening health emergency preparedness and response in South Asia

In recent years, the countries of South Asia have made steady, if uneven, progress toward building robust health emergency and preparedness systems that will be critical to ensuring a healthier, brighter future for all their citizens. Recognizing the often mutually reinforcing challenges posed by public health threats and disaster and climate risks, GFDRR has been a partner in that effort, drawing on the fundamental pillars of the facility's work, including risk identification, risk reduction, and preparedness.

As COVID-19 unfolded across South Asia in the second half of FY20 and threatened to roll back the region's hard-won gains, GFDRR's engagement, which has since adapted to the evolving needs of a pandemic situation, has become more important than ever.

The countries of South Asia have a long history of dealing with health emergencies—from the global H1N1 pandemic in 2009 to the dengue outbreaks in **Bangladesh** and **Pakistan** in 2019. In the first half of FY20, a key focus for the region's technical team, supported by GFDRR, was to distill and assess lessons learned from the experiences of four countries: **Bangladesh, Bhutan, Nepal,** and **Pakistan**. Now in its final stages of development, the multi-country report will highlight the importance of a holistic approach to resilience that incorporates public health, disaster risk, and climate change considerations.

This critical work was well underway when the impacts of COVID-19 began to be felt in South Asia. At the request of national governments, the technical team began to work closely with key officials in five countries: **Bangladesh, Bhutan, Maldives, Nepal,** and **Pakistan** to strengthen national efforts to respond to the pandemic. A main thrust of this engagement was to support the design and implementation of the World Bank's COVID-19 lending and technical operations in South Asia.

For example, in Pakistan, collaboration between the team and their Pakistani counterparts in the Ministry of National Health Services Coordination and Response helped pave the way for the design and early implementation of the IDA-funded Pandemic Response Effectiveness Project in the amount of $200 million, of which $100 million is provided through the World Bank Group's COVID-19 Fast-Track Facility. Under this project, efforts are underway to bolster Pakistan's response to the pandemic while also strengthening national systems for public health preparedness.

Meanwhile, in **Bhutan**, the team engaged with national government officials, including the Ministry of Works and Human Settlements, the Ministry of Health, and the Department of Disaster Management, to ensure that the country's new, $14.8 million Development Policy Financing with Catastrophe Deferred Drawdown Option (Cat DDO) program, funded by IDA, would be able to provide additional liquidity to the government of **Bhutan** not only in the event of a disaster induced by natural hazards, but also in the case of a public health emergency such as the current crisis.

In line with a recommendation from the forthcoming multi-country report, the technical team has also been engaged with their government counterparts in **Bangladesh, Bhutan,** and **Pakistan** to ensure that countries have appropriate plans in place to tackle the next health emergency. Specifically, this includes pandemic plans in **Bhutan** and **Bangladesh**, and the National Action Plan for Health Security in **Pakistan**.

In **Bhutan**, the team supported their government counterparts to revise the National Influenza Preparedness and Response Plan, in alignment with the country's 2016 Health Emergency and Disaster Contingency Plan (HEDCP) as well as the National Disaster Management Act of 2013. At the request of the national government, standard operating procedures have been developed that provide practical guidance for how to carry out the plan, which covers key areas of pandemic preparedness such as surveillance and outbreak response.

In a testament to the government of **Bhutan's** commitment to address the mutually reinforcing challenges posed by public health threats and disaster and climate risks, the HEDCP mandates that all hospitals should develop early warning systems, carry out vulnerability assessments, and facilitate the capacity-building of health workers on emergency and disaster management.

March 20, 2020, Kathmandu, Nepal, amid concerns of COVID-19, people leave the city. Photo: Subash Shrestha/Pacific Press/Sipa USA.

Lessons Learned

Given the often mutually reinforcing challenges posed by public health threats and disaster risk, there is a pressing need to break down the silos that all too often prevent effective collaboration and coordination between the global health and disaster risk management fields. As the world grapples with COVID-19, GFDRR, as shown by its record of partnership in South Asia, is well positioned to advance the dialogue between the two sectors—with an eye toward a holistic approach to resilience that integrates public health, disaster risk, and climate change considerations.

EU-Funded Programs

The European Union (EU) has been a key partner of GFDRR since 2008. In FY20, the EU funded nine programs managed by GFDRR, three of which are managed in close collaboration with the Secretariat of the African, Caribbean and Pacific (ACP) Group of States.

The **African, Caribbean and Pacific-EU Natural Disaster Risk Reduction (ACP-EU NDRR) Program** was launched as an initiative of the ACP Group of States in 2011, with $74.6 million in contributions from the EU. The program enhances preparedness for disasters and mitigates impacts in ACP countries by supporting governments in their efforts to integrate risk management approaches into planning. In FY20, the ACP-EU NDRR Program had 17 new grants totaling over $4.5 million, and it also granted additional funding projects in **Dominican Republic, Ghana, Malawi, Rwanda, Saint Lucia, Saint Vincent and the Grenadines**, and **the Solomon Islands**.

In FY20, investment in flood risk mitigation was a priority for the governments of **Ghana, Rwanda,** and **the Solomon Islands**. These countries focused on building resilience to flood hazards through better identification and modeling of urban risk areas; flood mitigation solutions; and investments in green, climate-resilient infrastructure to develop solutions that tackle the drivers behind the ever-increasing frequency of floods. The government of **Eswatini** and its National Disaster Management Agency sought to reduce its vulnerability to droughts by holding workshops for disaster risk management (DRM) practitioners where participants learned about improving early warning mechanisms, risk insurance mechanisms, and drought contingency planning, with the objective of disseminating this knowledge to their own communities. In **Haiti**, the Civil Protection Directorate and the Ministry of Women's Affairs and Rights are evaluating current gender approaches and gaps in disaster settings. They are finding solutions to promote women's leadership in disaster recovery and to address the aggravation of gender inequalities during and in the aftermath of disasters—such as through the promotion of guidelines to increase safety and operating procedures.

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. GFDRR implements two result areas that are each worth $22 million:

1. The **African Regional Economic Communities (RECs) DRM Program (Result Area 2)** contributes to disaster risk reduction (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 FY20, **ECCAS** organized capacity-building workshops on DRR to improve communication and coordination between national experts. One such workshop was an event in **Cameroon** that shared information on climate forecasting and populations exposed to disaster risk to strengthen the response mechanisms at the regional and national levels. **ECOWAS** validated a West Africa flood management strategy under its ongoing hydromet initiative, which will guide member states on regional coordination, mitigation, and responses to floods. **IGAD** continued to provide strategic guidance to help members build capacity to make informed decisions about adapting and building resilience to climate change. **SADC** organized meetings and regional workshops to enhance regional disaster preparedness and response and to reinforce institutional and coordination mechanisms. For instance, in **Mozambique**, experts from across the region shared tools and strategic impact-driven actions as lessons to develop contingency scenarios for drought or floods. All four RECs made significant progress in designing regional strategies to integrate gender considerations in disaster risk management and reduction.
2. The **Africa Disaster Risk Financing (ADRF) Initiative (Result Area 5)** ended in February 2020; it supported 21 Sub-Saharan African countries during its implementation. This included the development of risk financing strategies in **Kenya** and **Malawi**; the introduction of new approaches for strengthening shock-responsive safety nets in **Benin, Kenya, Malawi, Niger, Sierra Leone,** and **Uganda**; and the access to credit for low-income farmers in **Kenya, Rwanda, Uganda,** and **Zambia**. The program has contributed to help Sub-Saharan African countries drive their disaster risk financing agendas, adopt innovative solutions to meet their risk financing needs, and lay the groundwork for further investments in risk financing.

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 tools. In FY20, **CRRBF** started supporting the **Dominican Republic's** Ministry of Economy and Planning in implementing a framework to develop the country's urbanization and territorial planning review. Sectoral notes, or a series of technical reviews of relevant policies that increase resilience to disasters and climate risks, are currently being produced.

The $3.5 million **Technical Assistance Program for Disaster Risk Financing and Insurance in Caribbean Overseas Countries and Territories** (OCTs) helps Caribbean OCTs assess their contingent liability to disasters, the feasibility of developing new disaster risk financing options, and knowledge sharing. With technical assistance, **Sint Maarten** proposed a national decree that appoints a permanent cross-ministerial steering committee for disaster risk management, which was approved in December 2019. The program team also unveiled a learning tool—a simulation game called Hurricane Hurry—where players are asked to make timely decisions under pressure and with limited resources after a hurricane strikes. The game conveys the key concepts of disaster risk financing to government officials and simulates decision-making in complex environments.

The $6.6 million **EU-WB/GFDRR Global Partnership on Disaster Risk Financing (DRF) Analytics** helps countries build financial resilience by improving their understanding of risk and increasing their capacity to make informed decisions. In FY20, progress was made in promoting the application of developed analytics tools in additional non-pilot countries, including **Albania, Morocco, Serbia,** and **Tunisia**. The first training programs for these analytical tools were disseminated, including an e-learning module on the Introduction to DRF Analytics (April 2020). DRF Analytics was also involved in a regional workshop with the UN in Dakar, **Senegal** (July 2019) and the Executive Education Program in Cape Town, **South Africa** (September 2019). The program's mid-term evaluation showed that solid foundations were established for continuity and ownership of the DRF Analytics agenda in partner countries, and that **Morocco, the Philippines,** and **Vietnam** are extensively using delivered outputs.

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 natural hazard risks. In FY20, the program supported policy makers and experts in integrating geohazard risk management into their infrastructure programs, notably in **Bangladesh, India,** and **Nepal**. For example, the Department of Roads in Nepal implemented various slope protection measures for its major road, the Narayanghat Mugling Highway, focusing on systems planning, engineering, and design. In addition, a grant was given in February 2020 to support the operationalization of the Coalition for Disaster Resilient Infrastructure (CDRI).[17] This included needs-based support toward setting the agenda for the coalition, establishing pertinent institutional arrangements, building technical capacities, and initiating partnerships.

The $6.5 million **Serbia National Disaster Risk Management Program** is supporting Serbia in its efforts to enhance DRM and flood prevention systems by reducing existing and avoiding future flood risks. In FY20, the government conducted further light detection and ranging LIDAR surveys of the Drina and Danube river basins. For the river basins already surveyed, ongoing technical assistance helped to produce high accuracy and resolution digital terrain models (DTMs) to be used for flood risk management.

The $4.9 million **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 FY20, a regional scientific and technical working group was established to function as a platform between national and international experts on quantifying regional disaster risks and on developing multi-hazard risk assessments. Work also started to review the availability of open risk data in the same group of countries.

[17] CDRI is a partnership of national governments, UN agencies and programs, multilateral development banks and financing mechanisms, the private sector, and knowledge institutions that promotes the resilience of new and existing infrastructure systems to climate and disaster risks, thereby ensuring sustainable development. For more information see https://cdri.world/.

EU-Funded Programs

In Focus Advancing inclusive resilience-building in Saint Lucia's critical infrastructure and beyond

Located on the southern edge of the Atlantic hurricane belt and characterized by a steep and rugged topography, the Caribbean island nation of Saint Lucia is all too familiar with the devastation caused by natural hazards, including hurricanes, landslides, flooding, droughts, and earthquakes. Most recently, in May 2020, the government of Saint Lucia declared a water emergency amid growing imbalances between water supply and demand, a situation the country is observing with increasing frequency.

Recognizing the challenge posed by intensifying disaster and climate risks to Saint Lucia's development prospects, the national government is strongly committed to charting a more resilient future for its citizens, including the implementation of climate change adaptation strategies for critical infrastructure and economic sectors. With the support of the ACP-EU Natural Disaster Risk Reduction (NDRR) Program, which is managed by GFDRR, Saint Lucia has been making strides toward not only strengthening the resilience of public infrastructure, but also ensuring that its resilience-building efforts put the needs of the poor and socially vulnerable front and center.

A technical team, with the support of the ACP-EU NDRR Program, has been providing support to Saint Lucia's government in its efforts to understand and tackle resilience gaps across the country's critical infrastructure.

The team has worked closely with the Saint Lucia Solid Waste Management Authority to develop a deep dive assessment, policy, and action reform plan for the country's solid waste management system. The assessment and action plan, which will inform the government's solid waste management strategy, calls for the establishment of community-based collection systems near residences that are not located on roadways where authority contractors collect waste. These efforts are expected to increase public awareness around the roles and responsibilities of waste generators in properly managing their waste, and to optimize basic waste collection and disposal services and infrastructure to ensure that core solid waste management services are provided in an environmentally sound and sustainable manner.

Furthermore, the team has also engaged with the Saint Lucia Water Resource Management Agency to provide analytical support to update the 2004 National Water Policy. This analytical work has highlighted the tension between outdated land use management regulations and the protection of water supply sources for potable use, and the need to improve the governance both of water resources management and water supply, and of sanitation services. While focusing on the long-term planning of water infrastructure, the analytical work also considered the impacts of aging water supply infrastructure and inefficiencies in water usage and service delivery, among other key challenges.

In conjunction with these initiatives, the technical team, with support from the ACP-EU NDRR Program, has also engaged with the government of Saint Lucia on analytical work that will inform the country's efforts to ensure that the poor and socially vulnerable are not left behind in the country's resilience-building. Efforts that have been completed include the development of a shocks module that was incorporated into the country's living standards measurement survey, which was used by national authorities to quantify the impact of past disasters.

This suite of analytical work has informed the targeting and implementation of the government's social protection measures—a key pillar of the national resilience program. For instance, the social safety net targeting instrument was updated to better identify poor and vulnerable households, including female-headed households. This will enable the government to provide focused support to those most at risk and more likely to experience debilitating effects from disasters. The analytical work is also informing initiatives to improve farmers' access to climate risk finance through the Climate Adaptation Financing Facility (CAFF), a component of the World Bank's IDA-funded Disaster Vulnerability Reduction Project.

As Saint Lucia wrestles with the impacts of COVID-19, the national government has been working with the technical team to adapt its engagement to respond to the pandemic. For instance, the team has been providing technical assistance to ensure the resilience of critical infrastructure works, including medical facilities, which are part of the government's efforts to respond to COVID-19 and to stimulate the economy amid the downturn.

The Marchand River Bed. Department of Infrastructure Engineer (center) flanked by staff of the Project Coordinating Unit (PCU). Photo: World Bank.

Lessons Learned

Effective targeting of disaster risk management and resilience measures is critical to ensure that these measures do not leave vulnerable populations behind. Accordingly, a key priority for the analytical work was to enable the government of Saint Lucia to update its social safety net targeting instrument to better identify poor and vulnerable households, thus helping ensure focused support for those most likely to experience debilitating effects from disasters.

"Over the hurricane seasons, when Saint Lucia has actually been hit by a hurricane, our infrastructure that has really been damaged has always been the highest cost of government rebuilding. With new infrastructure that is being built, . . . we've taken that into consideration from a climate perspective to ensure that we can reduce the risk of very high hurricane storms or Category 5+ storms and sea-level rise and everything else."

—Nadia Wells-Hyacinth, Director of Financial Administration, Government of Saint Lucia

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. It is managed and implemented by GFDRR through its Tokyo Disaster Risk Management (DRM) Hub. The program supports both 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 December 2018, the partners agreed to renew the program for an additional five years with an emphasis on program-supported technical assistance (TA) grants directly assisting the World Bank lending projects through their preparation and implementation in the following three priority areas: (1) resilient infrastructure; (2) risk identification, risk reduction, and preparedness; and (3) disaster risk financing and insurance (DRFI). Since its establishment, the Japan Program has supported 70 countries through 139 TA grants totaling over $120 million.

Technical assistance for developing countries

In FY20, the Japan Program awarded 44 grants totaling $12.71 million in funding and spanning 37 countries. Africa received the highest allocation as a result of increased IDA lending to the region and the program's focus on supporting the preparation of investment projects, which was underpinned by strong demand for resilient infrastructure. Next came Latin America and the Caribbean, followed by East Asia and Pacific and then South Asia. Support for mainstreaming DRM in infrastructure sectors—including transport, water, and energy sectors—represented a key focus of FY20, with 82 percent of funds allocated to grants addressing resilient infrastructure demands. The remaining 18 percent was allocated to priority areas of risk identification, risk reduction, and preparedness (10 percent) and DRFI (8 percent). These grants leveraged an estimated $329 million of ongoing World Bank investment projects. The program has leveraged a total of $10.7 billion[18] in FY20.

The program emphasized funding activities linked to the preparation of investment projects, including the Just-in-Time (JIT) financing window for resilient infrastructure established to provide short-term grants to integrate DRM into World Bank infrastructure projects during the preparation phase. Under this window, five grants ($350,000) have been approved, and two of them supported the preparation of $691 million in World Bank infrastructure investment projects to ensure that disaster risk considerations are integrated into project design. Overall, 10 TA grants approved in FY20 leveraged approximately $2.07 billion through 10 World Bank investment projects under preparation. For example, a JIT grant funded an economic analysis of the proposed interventions by **Mexico**'s National Water Agency and Mexico City's Water Utility that are part of the investment project to incorporate resilience to climate change and natural hazards. Results from this work informed the design of the $120 million IBRD-funded Water Security and Resilience for the Valley of Mexico Project and supported the prioritization of investment options.

Sharing expertise and promoting partnerships

In FY20, the Tokyo DRM Hub further deepened and developed new partnerships, facilitating 20 exchanges that brought together 104 experts from the public sector, the private sector, academia, and civil society organizations. Most notably, the Tokyo DRM Hub supported Japanese expert contribution from the private sector and academia in the preparation and implementation of World Bank investment programs. Some examples include:

- Expertise on integrating green and resilience considerations into the designs of industrial zones was provided by experts from Yachiyo Engineering, which supported the preparation of the newly approved $500 million IDA-financed Bangladesh Private Investment & Digital Entrepreneurship Project.
- Drone technology by KazUAV—a subsidiary of the Japan-based company Terra Drone—was utilized to survey and map 12 schools in the city of Bishkek, **the Kyrgyz**

[18] This figure is based on FY20 task team reporting through GFDRR's M&E platform and includes leveraging from both World Bank projects under preparation and under implementation.

Kyrgyz Republic—Scaling Up Efforts to Improve the Safety and Resilience of School Infrastructure. Photo: World Bank.

Republic, for the grant Scaling Up Efforts to Improve the Safety and Resilience of School Infrastructure in Eastern Europe and Central Asia, implemented by the World Bank's Safer Schools Program. This informed better preparation of World Bank operations to support decision making for relevant stakeholders to improve the safety and functional conditions of schools.

- Expertise on Ultra High-Performance Concrete (UHPC) design, construction techniques, and quality assurance were shared by experts from Hokkaido University and Taisei Corporation, which contributed to the assessment of one of the completed pilot UHPC bridges constructed in **Vietnam** under the $385 million IDA-financed Local Road Asset Management Program.

Use of BOSS (Business Operation Support System) in Kumamoto Prefecture at EOC. Photo: World Bank.

Japan-World Bank Program

In Focus Strengthening resilience in the transport sector

Investing in a country's transport sector is integral to its continued development and fundamental to the functioning and development of economies and societies. However, as climate change continues to exacerbate disasters caused by natural hazards, these investments are becoming increasingly susceptible to risks.

To manage and reduce these risks, countries are seeking new approaches to plan, design, construct, operate, and maintain their transportation systems. Recognizing their high disaster and climate risk, the governments of **Kenya, the Lao People's Democratic Republic, Paraguay, Peru,** and **Serbia** partnered with the Japan-World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries, through GFDRR, to harness $1 million for a strategic and scalable initiative to increase the resilience of their transport sectors. The grant, which began as a five-country initiative, resulted in an entire program impacting and building resilience in 20 countries worldwide.

The original five-country transportation projects across four regions were the initial steps of a broader program with the goal of mainstreaming a systematic approach and sectorwide consideration of climate and disaster risk issues within the transport sector. The initiative sought to increase the capacity of authorities to integrate climate resilience into the transport sector, build technical expertise on resilient transport, and create knowledge products and exchange ideas for opportunities to mainstream the resilient transport agenda globally. Technical assistance activities focused on developing assessments, building technical knowledge, and providing support to implement resilient transport projects.

In the five-country initiative, countries sought to enhance their road asset management systems based on comprehensive geospatial data to create regular road condition checks for road operation and maintenance. This led to the countries developing knowledge of their road assets that are exposed to natural hazards and enabled them to take preventive measures through early warning and risk reduction measures. For example, a climate vulnerability analysis identified transport assets that would most likely experience high economic losses following a disaster in each of the five countries. This analysis helped develop a risk assessment, guidelines for risk assessments, and technical recommendations on road rehabilitation and improvements in **Peru**.

Japanese experts offered advice to the government officials from the five countries, presenting best practices on ways to reduce disaster risks in transport infrastructure. Officials from Japan's Ministry of Land, Infrastructure, Transport and Tourism and the Japan International Cooperation Agency (JICA) participated in the knowledge exchange, as well as regional road authorities from the Iwate Reconstruction Bureau and Hyogo Prefecture. Kyoto University, the Nippon Expressway Company, and the World Road Association in Japan also participated in the knowledge exchange.

Through knowledge exchange events, workshops, and site visits, countries such as **Peru** were able to conduct geohazard risk assessments to understand how their rural road assets are exposed to flooding and landslides and then address those risks through mitigation measures. Geohazard risk assessments can produce geohazard maps that allow users to visualize the data and address risks through implementation plans; incorporate road adaptation or measures for local road projects; and tackle risks with innovative solutions, including nature-based solutions and slope interventions. In **Serbia**, a technical team also conducted a road geohazard risk assessment with best practices learned from Japan.

The experiences and the knowledge generated from the initiative were also discussed at workshops in **Kenya, Lao PDR, Japan,Paraguay, Peru, Serbia,** and the **United States**. These broader knowledge exchanges built technical capacity that supported the implementation of resilient transport projects, specifically in systems planning, engineering and design, asset management, and contingency programming. In Kenya, the partnership of Japan's Ministry of Finance and MLIT with the Kenyan National Highway Authority helped to improve transportation designs and methodologies, and recommendations were made for institutional reforms and investment.

Moreover, the governments in the five vulnerable countries have gained access to additional investments to expand disaster and climate resilience building—helping to leverage $400 million across the countries for projects such as road rehabilitation and transport connectivity to build resilience worldwide.

An aerial view shows a landslide caused by a quake in Yurimaguas, in the Amazon region, Peru May 26, 2019. Photo: REUTERS/Guadalupe Pardo.

"A knowledge base integrating DRM and resilience aspects into road infrastructure was developed, applied, and operationalized. It has provided a platform to further our dialogue with our clients and changed the way the World Bank has designed and implemented infrastructure projects."

— **Shomik Raj Mehndiratta,** Practice Manager for Transport, South Asia Region, World Bank

Results in Numbers

200,000 beneficiaries are better protected through improved policies and plans to build a resilient future. These include climate-resilient road policies, road maintenance procedures, and management and investment plans developed in Lao PDR and Peru for safer and more resilient roads and transportation services.

Special Programs and Additional Programs Managed by GFDRR

GFDRR activities are funded through a combination of core programs, special programs, and additional 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 FY20, there are two special programs: the Canada-Caribbean Resilience Facility (CRF) and the City Resilience Program (CRP). There are two additional programs managed or implemented by GFDRR: the Global Risk Financing Facility (GRiF) and the Climate Risk and Early Warning Systems (CREWS) Initiative.

Special programs

Canada-Caribbean Resilience Facility (CRF)

In 2019, in partnership with Canada, GFDRR established the Canada-Caribbean Resilience Facility (CRF) to support Caribbean countries achieve more effective and coordinated gender-responsive and climate-resilient preparedness, recovery, and public financial management practices. The program works in **Antigua and Barbuda, Belize, Dominica, Grenada, Guyana, Jamaica, St. Lucia, St. Vincent and the Grenadines,** and **Suriname**.

In FY20, CRF programmed $2.4 million to help countries fast-track the implementation of recovery and resilience building projects by transferring knowledge to government staff and addressing implementation bottlenecks, as well as enhancing the responsiveness of public financial management (PFM) systems to extreme events. For example, CRF financed 15 deployments to eight countries of experts in coastal engineering, procurement, and other areas. It also built capacity through training activities in contract management, project management, and gender-informed budgeting and planning for all CRF-eligible countries. Experts have also helped the governments of **Belize, St. Lucia,** and **Suriname** activate the Contingent Emergency Response Component (CERC) of World Bank projects to make about $20 million immediately accessible for COVID-19 response. In eight countries, post-disaster PFM assessments have identified a set of activities to improve the readiness of PFM systems during emergency situations. For example, in St. Lucia, CRF is helping the government strengthen its legal and regulatory framework to administer disaster risk finance, reorient expenditure controls, and streamline emergency procurement.

City Resilience Program (CRP)

The City Resilience Program (CRP) was established in June 2017 with the vision of building resilient cities with the capacity to plan for and mitigate adverse impacts of disasters and climate change. The program is funded with contributions from the Swiss State Secretariat for Economic Cooperation (SECO), the Austrian Ministry of Finance, and the GFDRR's MDTF. At the end of FY20, it was implementing $11.6 million in activities. It has continued to evolve during this fiscal year, relying on the lessons learned in its first years of implementation. To better respond to country demand, CRP now supports cities in three thematic areas: planning, finance, and partnerships for resilience. Each addresses distinctive features of resilience building in urban development.

Cities are now being offered a more comprehensive suite of services through various partnerships, allowing the team to deepen existing engagements with local authorities. The City Scan—one of CRP's core products—uses spatial data to help cities visualize the interplay of climate and infrastructural challenges. During FY20, 25 additional cities have been supported in preparing more comprehensive and better-structured project concepts and identifying potential to finance part of their projects with additional concessional or private sector financing. Since the launch of the program, CRP has supported nearly 120 cities in over 50 countries. Together with the Global Resilient Cities Network, CRP has been co-organizing the 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.

Additional programs managed or implemented by GFDRR

Global Risk Financing Facility (GRiF)

The Global Risk Financing Facility (GRiF) was launched in 2018 with the objective of pre-arranging finance in advance of need so countries are better prepared for climate shocks, disasters, and crises. To integrate financial resilience in the agenda of finance ministers, GRiF provides (1) financing for scoping and preparing financial risk management solutions, (2) co-financing for World Bank projects to implement

Canada-Caribbean Resilience Facility—Gender-Responsive. The Carenage, St. George's, Grenada. Photo: Ana del Castillo.

financial risk management solutions, (3) technical assistance linked to co-financing for implementation solutions, and (4) financing for global public goods. The program is a strong partnership between climate and finance teams within the World Bank, with the trust fund housed at GFDRR in the Climate Change group and the technical program implemented by the Disaster Risk Financing and Insurance Program in the Finance, Competitiveness, and Innovation Global Practice.

At the end of FY20, the GRiF portfolio consists of 26 grants in implementation for a total of $38 million, including both small-scale scoping grants and full-scale projects. The current indicative pipeline is valued at nearly $240 million, which will be rolled out gradually over the next fiscal years. As a result of the COVID-19 crisis, the objectives of several projects in the pipeline have been restructured to focus on the compounding shocks of disasters during the pandemic. During this fiscal year, 14 scoping grants have been initiated and four full-scale projects commenced implementation. Through a $21 million grant, for instance, GRiF is working with the government of **Malawi** to design and roll out a social cash transfer program, making approximately 250,000 households more resilient to extreme weather–related events. In **Sierra Leone**, GRiF allocated $2.5 million to design and build systems for a national shock-responsive safety net program, ensuring rapid crisis response through IDA-financed social cash transfers. Additionally, GRiF is investing over $5 million in Earth observation and big data technologies as well as multi-hazard crisis risk analytics to expand the global knowledge pool of crisis and disaster risk finance.

Climate Risk and Early Warning Systems (CREWS) Initiative

Established in 2015 by the French government as part of the COP21 Solutions agenda, CREWS contributes to the Sendai Framework for Disaster Risk Reduction by increasing access to multi-hazard early warning systems and disaster risk information in least developed countries (LDCs) and small island developing states (SIDS)—the world's most vulnerable countries. It also supports the International Network on Multi-Hazard Early Warning Systems. CREWS projects are implemented by the World Metrological Organization (WMO), the UN Office for Disaster Risk Reduction (UNDRR), and the World Bank through GFDRR.

The CREWS portfolio consists of 16 projects for a total of $42.1 million, half of which are implemented by the World Bank. Two new CREWS projects in West Africa and **Sierra Leone** and one additional financing in the Pacific were approved in FY20. A CREWS project in **Afghanistan** assessed the drought early warning system and included an innovative initiative to build hydromet stations using 3D printing technology. In **Chad**, a collaboration with French institutions and national mobile phone operators enabled optimal use of remote sensing techniques for monitoring rainfall. In FY20, CREWS activities overall—including those supported through GFDRR—expanded to support 44 LDCs and SIDS, up from 41 countries in 2018 and 19 countries in 2017. Through these, over 10 million people are gaining access to better early warning services.

The Art of Resilience **Fresh Flowers Collective** | Colombia | S*crubland–Map, Legend, and Detail Images* | 2019 | Watercolor on paper | 36 x 51cm; 25.4 x 38.1cm (Detail) | Image courtesy of the artist.

Areas of Involvement

A closer look at some of our initiatives at the cutting edge of resilience and disaster risk management.

Analytical Work at GFDRR

The GFDRR Analytics Program offers data-driven approaches to mainstream and strengthen disaster resilience in development projects. It develops new models and analytical tools to better quantify and harness the socioeconomic benefits of resilient development strategies. In particular, it supports World Bank country engagements with applied analytical solutions that identify and prioritize opportunities for mainstreaming resilience in World Bank operations—and thus contributes to more resilient and inclusive societies.

Scope of engagements

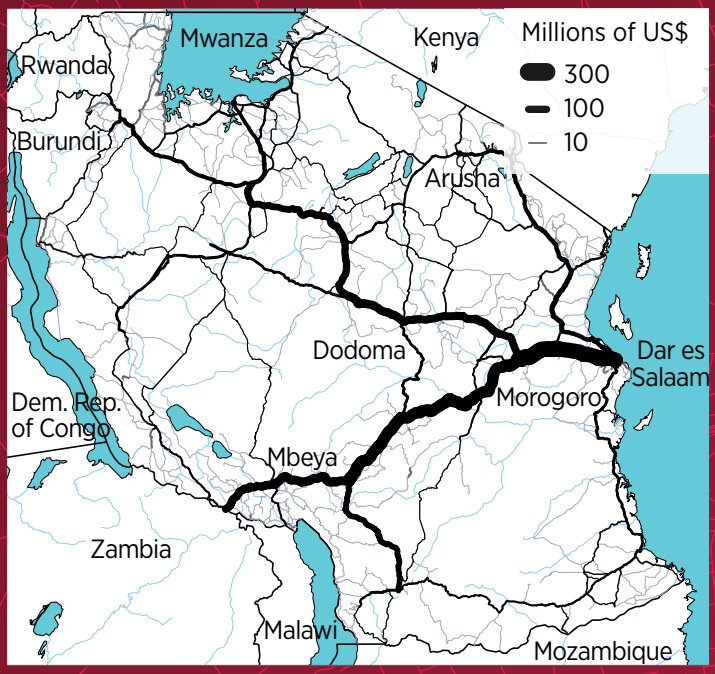
Disasters know no sectoral divisions. To effectively mainstream resilient solutions in all sectors of development, the Analytics Program engages in wide-ranging themes in an integrated way. These themes encompass the socioeconomic resilience of people and communities, the structural resilience of infrastructure systems and cities, and the macro-fiscal resilience of economies as a whole. For each of these themes, tailored analytical tools include cutting-edge methods from economic and systems analysis, including spatial and urban modeling, macroeconomic modeling, network criticality analysis, primary data collection and econometric analysis, and holistic investment appraisals. In FY20, the Analytics Program made contributions to all of these themes:

- **Socioeconomic resilience:** The program developed several novel applications of a socioeconomic resilience metric at national and regional scales. These engagements resulted in practical insights and strategic guidance for partners focused on the question of how to draw attention to and minimize the consequences of shocks on human development. Within weeks of the COVID-19 crisis onset, the program applied these methods in **Bolivia** and **the Philippines** to identify households pushed into poverty by COVID-19–related income shocks and evaluate emergency cash support programs instituted in response. These efforts aided clients and World Bank teams to identify groups most likely to be affected by disasters or other shocks before they occur and to establish strategies that protect the most vulnerable effectively and efficiently. To increase public awareness of and engagement with these concepts, an online platform was developed to consolidate insights on how to measure the human costs of disasters in 150 countries and how to build socioeconomic resilience for when these shocks occur.
- **Resilient lifeline infrastructure systems:** Following the launch of the *Lifelines* report in 2019, the program worked extensively with World Bank operational teams and client governments to implement the report's key insights and concepts. These engagements use advanced spatial and network analysis tools to identify concrete investment options for boosting infrastructure resilience and estimating their economic and societal benefits. In FY20, the program provided technical support to operations in a range of countries, including **Bangladesh, Cambodia, India, Indonesia, Myanmar, Nepal, Pakistan, Tanzania,** and **Vietnam**. These efforts directly inform World Bank lending operations that are designed to strengthen infrastructure resilience in these countries, including the innovative South Asia regional investment operation on climate resilient infrastructure.
- **Resilient cities and public services:** With their complex, dense, and rapidly changing environments, cities require dedicated solutions for boosting their resilience. The Analytics Program has developed a suite of tools to measure the impacts of natural shocks on livelihoods and essential public services in urban areas. In FY20, these tools were scaled up to estimate the socioeconomic benefits of urban resilience interventions; they also provide methods to prioritize investments and maintenance. A study for Kampala, **Uganda**, has shown that urban flooding can constitute the difference between life and death, as they put many residents out of reach of hospitals within 30 minutes. The program has provided further city-level assessments in support of World Bank financing operations in Kinshasa, **the Democratic Republic of Congo**, and Manila, **the Philippines**. Through such analyses, the program helps to target interventions that strengthen the resilience of urban livelihoods and people's access to jobs, education, and health care.

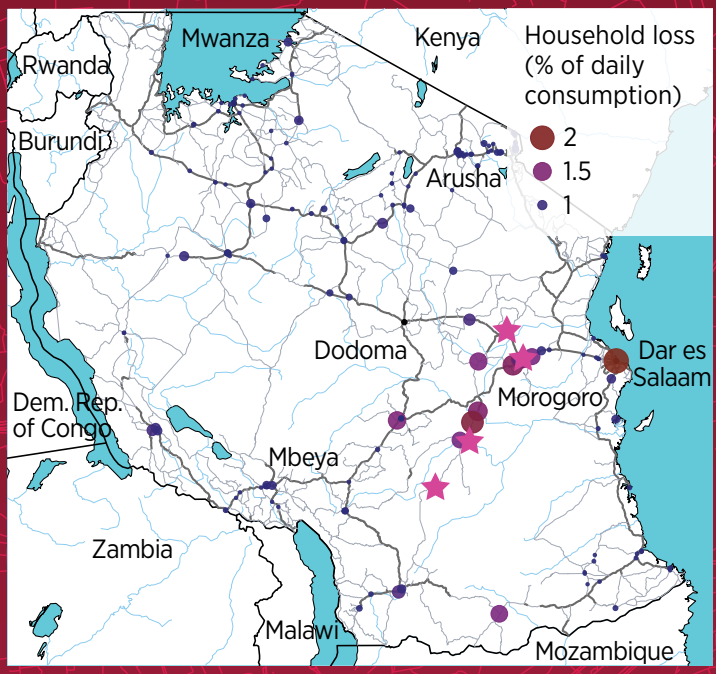
Piloting new tools for stronger resilience

- As new needs and challenges arise, the Analytics Program is continuously developing and expanding its toolbox for estimating the full benefits of resilience and for strengthening and prioritizing actions in all sectors of development policy. In FY20, the program developed a suite of new tools—in collaboration with World Bank project teams, clients,

a. Weekly supply chain flows



b. Household losses



Mapping Tanzania's supply chains onto its transport network (left) reveals the impact of floods and transport disruption on households (right).
Source: Hallegatte, Rentschler, Rozenberg (2019). *Lifelines: The Resilient Infrastructure Opportunity.* Washington DC: World Bank.

and partners—that are ready for operational deployment. For instance, urban simulation models can capture the complex trade-offs of investments and are being used to inform engagements in Buenos Aires, **Argentina**, to help stakeholders assess the full benefits of resilience projects. Modeling and survey methods are shedding new light on the potential of land value creation thanks to resilience investments—for instance, to assess flood mitigation and drainage upgrades in Beira, **Mozambique**. A key focus area in the fiscal year has been to adapt household survey tools to enable more nuanced assessments of vulnerability, including gender-disaggregated evaluations.

Analytical Work at GFDRR

In Focus Coastal resilience in Vietnam

From analytics to action

An ongoing engagement in Vietnam illustrates how the GFDRR Analytics Program conducts rigorous data-driven analytics to shed light on disaster risks and the opportunities for action. But analysis can be useful only if it influences actual decisions—hence the program is also shaping a dialogue with government counterparts and local stakeholders, and thus initiates and informs concrete investment projects and policy reforms. To guide effective action, *Resilient Shores*—a new report jointly developed in FY20 by the government of Vietnam, the World Bank, and GFDRR, and formally launched in FY21—provides an in-depth and multisectoral analysis of natural risks in coastal Vietnam. It reviews current efforts in risk management and proposes a concrete action plan to balance the risks and opportunities of coastal development. The Analytics Program is now partnering with the World Bank's country teams and the government of Vietnam to facilitate the realization of the report's recommended investment programs and policy actions.

Vietnam has long experience with disasters, particularly along its coast. Typhoons, storm surges, flooding, coastal erosion, droughts, and saline intrusion are all-too-familiar threats to most people living along the coast. Storms and floods sweep away crops, damage yields, inundate ponds, kill livestock, destroy buildings, and disrupt essential public assets such as hospitals and power lines. Droughts and storm surges cause saline intrusion, which can devastate soil fertility for years. The effects of these disasters have direct consequences on the jobs and incomes of millions of people.

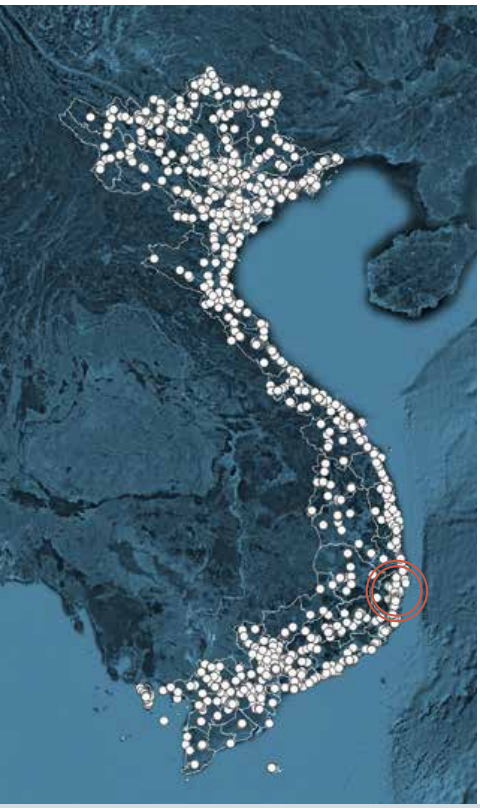
Typhoon Damrey, for instance, was one of the most destructive storms in Vietnam's South Central Coast in living memory. Its full force hit Khánh Hòa Province on November 4, 2017, causing over 100 deaths as well as severe impacts on people's livelihoods and property. In Vietnam's extensive experience with disasters, unfortunately Damrey is not an isolated event—in late 2020, severe weather and flooding along the country's central coast is on track to exceed the devastation by Typhoon Damrey.

Rapid urbanization, economic growth, and climate change also mean that disaster risks are bound to increase in the future. New development in coastal areas is increasing in high flood risk zones because safe places are already occupied. Entire villages are built on sensitive dunes, vulnerable to erosion. In some places the coastline has retreated as much as 300 meters, displacing hundreds of households and disrupting their livelihoods. While such natural risks are already substantial, climate change and human pressures on natural ecosystems are exacerbating risks.

Yet despite these risks, GFDRR's *Resilient Shores* report shows that coastal regions host thriving economic sectors, providing livelihoods for a growing and rapidly urbanizing population. Home to half of the country's people, Vietnam's coastal regions are undergoing rapid development, offering opportunities in tourism, agriculture, industry, and other sectors that have helped sustain prosperous livelihoods, decrease poverty rates, and keep drawing more people into these areas. If the growing natural risks to these regions can be managed, then they could continue to act as powerful engines for Vietnam's socioeconomic development. To this end, *Resilient Shores* recommends the government to take actions in five critical areas:

1. **Strengthen data and decision-making tools** by establishing openly accessible databases of detailed hazard and risk data.
2. **Enforce risk-informed spatial planning** to ensure that economic growth in coastal zones does not irreversibly lock in unsafe development patterns.
3. **Strengthen the resilience of infrastructure systems** and upgrade sea and river dikes, starting in the most exposed and under-protected areas.
4. **Take advantage of nature-based solutions** through the rehabilitation, conservation, monitoring, and management of ecosystems.
5. **Improve disaster preparedness and response capacity** by upgrading early warning systems, adapting social safety nets, and implementing a comprehensive risk financing strategy.

As part of the report, the GFDRR Analytics Program developed detailed five-year action plans to facilitate the implementation of the key recommendations. From high-level policy reforms to investments in risk reduction in the most exposed coastal districts, the *Resilient Shores* report forms the basis for the ongoing collaboration between the World Bank and the government of Vietnam, and GFDRR will continue to actively support the design and implementation of these concrete projects. These actions, if taken decisively, are an opportunity to strengthen the resilience of coastal communities and hence the prosperity of coming generations.



Source: *Resilient Shores: Vietnam's Coastal Development Between Opportunity and Disaster Risk*. Based on data from OpenStreetMap.
Disclaimer: The boundaries, colors, denominations, and other information shown on this map do not imply any judgment on the part of The World Bank concerning the legal status of any territory or the endorsement or acceptance of such boundaries.

Strengthening the Nexus between DRM and FCV

An increasing number of disaster-prone countries are affected by protracted crises associated with fragility, conflict, and violence (FCV) while simultaneously facing recurring natural hazards. According to the Overseas Development Institute (ODI),[19] 58 percent of the casualties of disaster events occur in the 30 most fragile states, with this number increasing in part as a result of climate change, a threat multiplier. In addition, conflict-blind action in response to disasters threatens to deepen grievances and existing tensions between social groups and trigger violence and conflict. The complexity of the interlinks between, fragility, conflict, climate, and disaster risk requires a holistic approach to building disaster resilience without undermining the peacebuilding process or exacerbating preexisting social tensions but instead fostering long-term positive impacts for peaceful development.

Intersectionality with disaster, climate, and FCV risks

For nearly 15 years, GFDRR's investments in FCV-affected states have been steadily increasing. Since 2007, GFDRR has granted close to $100 million in financial support to fragile and conflict-affected countries. The majority of the funding has been assigned in the last four years, with $47.5 million allocated for 35 fragile and conflict-affected situations to strengthen resilience to natural hazards and support post-disaster recovery efforts. GFDRR's engagements in FCV countries have also evolved over the years, from just adapting post-disaster assessment methodologies in post-conflict scenarios to developing new methodologies and tools for remote data collection, investing in new analytical research, and testing cross-sectoral operational solutions.

To fully explore the intersectionality of disaster and FCV situations, GFDRR launched its Disaster Risk Management (DRM)-FCV Nexus Program in December 2018 with an initial $1.5 million contribution from Germany. The program has funded and provided support to nine countries in Africa, Latin America and the Caribbean, East Asia and Pacific, and Europe and Central Asia through 11 technical assistance grants, which included the development of a toolkit on how to engage in a complex overlay of rapid onset disasters and conflicts. Several analytics products and case studies have also been produced to enhance operational approaches. Among them are analytics to address global migration and forced displacement in cities and towns and a case study in **Zimbabwe** to ensure inclusion of persons with disabilities in disaster planning and response. In **South Sudan**, a case study was produced that encompasses an analysis of these intersectional risks at the local level, specifically regarding internally displaced people and their disaster vulnerability.

Engagement highlights in FY20

- **Adopting conflict-sensitive community-based disaster risk management (CBDRM) in Myanmar.** The grant Strengthening Resilience and Collaboration for Disaster Preparedness and Response in **Myanmar** Southeast Region (Mon, Kayin and Kayah States) funded a study that identifies gaps and opportunities to improve Myanmar's early warning system by taking into account the complexities of working in conflict-affected states. A guidance note, a training toolkit, and the publication *Intersectional Risk Profile and Multi-sectoral Collaboration on Disaster Preparedness and Response* (in Burmese and English) were produced to mainstream CBDRM approaches in the country.
- **Developing an innovative approach to generate technical and operational knowledge in Haiti.** The grant Strengthening Disaster Risk Management at the Local Level in a Fragile Context expanded civil protection capacities for preparedness and response, including early warning and shelter management, and increased the understanding of citizen's perception of DRM at the local and national levels. For instance, the hurricane preparedness communication campaign, designed for the Civil Protection Directorate, included a musical video, a prevention song, educational radio podcasts, and powerful visuals to communicate the various phases of a hurricane to help communities prepare for the hurricane season.[20]
- **Analyzing subregional conflict and disaster dynamics in Papua New Guinea.** This grant funded an analysis that produced subregional intersectional risk profiles for Bougainville, East New Britain, and the Highlands and Hela Provinces. These profiles explored data, views, and experiences showing how disaster and climate risk are exacerbated by, or may exacerbate, challenges related to violent conflict and/or fragile social and state institutions. The analysis enabled cross-disciplinary, cross-sectoral discussions across stakeholders to combine theory and pragmatic expertise on DRM, with a focus on keeping gender aspects front and center.

[19] For more information about ODI, see https://www.odi.org/.

[20] To see the video, go to https://pacifico.la/#/hurricane-preparedness-in-haiti/.

Refugee children in Greece. Photo: Giannis Papanikos / Shutterstock.com

Importance of knowledge and collaboration

Working in FCV contexts is always challenging and requires special consideration and approaches. There are many practitioners who remain reluctant to engage because of a lack of operational knowledge. Within a year of implementation, the DRM-FCV Nexus program has generated several key analytical studies and tested tools with deliberate consideration of fragility risks, thus enabling World Bank project teams to be more prepared in navigating challenges in future DRM project design. For example, in **Papua New Guinea** and **Zimbabwe**, integrating risk analysis to inform future DRM programming has been a prerequisite for project design in FCV countries. This will enable a project team to navigate the volatile environment and better support the client's needs.

The cross-thematic collaboration also maximizes opportunities for long-lasting solutions. The combination of DRM team members with practices such as land and urban resilience, social development, social protection, and poverty have proven to have enriched the approaches tested, resulting in some potential innovative solutions to use when working in the nexus space.

Strengthening the Nexus between DRM and FCV

In Focus Leveraging citizen engagement to tackle the DRM-FCV nexus in Guinea and Kenya

Across the globe, an increasing number of countries is affected by the interrelated and mutually reinforcing challenges of disaster and climate risks and those of fragility, conflict, and violence (FCV). **Guinea** and **Kenya** are no exception to this trend. The northern region of Kenya has been dealing with the complex interplay of droughts and communal and armed conflict over natural resources. Guinea, meanwhile, is highly exposed to disaster and climate hazards even as it copes with longstanding social and political tensions.

Locally led efforts in both Guinea and Kenya, including those by local governments, are at the forefront of tackling these critical challenges. In FY20, the GFDRR DRM-FCV Nexus Program supported these efforts, with a focus on leveraging citizen and community engagement at the nexus of disaster risk management (DRM) and FCV.

A focus of GFDRR's efforts in both Guinea and Kenya has been to better understand the barriers to citizen and community engagement with respect to marginalized groups such as women, young people, and traditional leaders. For example, in Kenya, a technical team worked with local partners to conduct a survey of stakeholders' perceptions and experiences at the country level. Even as the survey revealed an increasing appreciation for the importance of resilience-building, including in the context of the DRM-FCV nexus, it also highlighted two potential barriers to engagement: gaps in applying DRM-FCV resilience-building practices to county-level planning processes and a lack of tools to help stakeholders drive resilience development in their local communities.

In conjunction with these efforts, technical teams in both Guinea and Kenya have also been working with local partners to develop frameworks and methodologies for better integrating citizen and community engagement in local development plans, with a focus on the DRM-FCV nexus. For instance, in Guinea, a team has been supporting the National Agency for Local Development Financing, which has selected two local governments to pilot the methodology that integrates challenges around the DRM-FCV nexus in the development planning processes across both rural and urban areas. These efforts are also expected to influence local governments' annual investment plans. In the past, local development plans, although formed with extensive community participation, had not systematically integrated DRM-FCV risks.

Even at this early stage of the work, these engagements are already informing governments and other key stakeholders as they move forward with resilience-building efforts in Guinea, Kenya, and beyond. For example, it is expected that the methodology for integrating challenges around the DRM-FCV nexus will be adapted to a forthcoming World Bank regional operation in the Lake Chad region (**Cameroon, Chad, Niger,** and **Nigeria**).

Nairobi, Kenya. June, 2020. Women migrating to find a better and cheaper life away from Kibera. Photo: SOPA Images Limited/Alamy Live News

Lessons Learned

Understanding key stakeholders' perceptions and experiences is critical to effective resilience-building. Accordingly, as part of this effort, a team in Kenya surveyed county-level stakeholders to better understand the gaps and opportunities when it comes to leveraging citizen and community engagement. A major opportunity identified in that survey is the strong appreciation by county-level stakeholders for the importance of resilience-building at the nexus of DRM and FCV.

"For a long time, we have talked of strategies for integrated climate- and hazard-related risk reduction and peacebuilding in planning. The integrated framework gives us a practical tool to achieve climate change adaptation and disaster risk reduction. We at the Isiolo County are really excited about applying this tool and hope to generate experiences that can help other counties."

—Salad Tutana, County Chief Officer, Department of Livestock and Agriculture, Isiolo County Government, Kenya

Results in Numbers

75 percent of the stakeholders consulted in Kenya said tackling the interplay of climate and conflict risks represents a key opportunity for resilient development at a local level

Gender-Responsive Disaster Risk Management

Evidence shows that when disaster risk reduction and management efforts take into account the differences in socio-cultural roles, norms, and values of women and men, the preparedness and overall resilience of the entire community is strengthened and the number of deaths resulting from a disaster reduced significantly. However, progress in mainstreaming gender-responsive approaches to disaster risk management (DRM) has been slow. Much has yet to be done to make sure DRM efforts respond to the particular needs and vulnerabilities of women and girls, and that steps are being taken to harness women's leadership to accelerate progress. GFDRR remains committed to ensuring that DRM activities reach and empower women and girls and to promoting greater inclusion of women in decision-making processes.

An increasing number of activities take into account gender considerations, though progress continues at an incremental pace. In FY20, 75 percent of newly approved grants were gender informed—an increase of 16 percent over FY19; and 50 percent of newly approved grants have taken specific action to address gender equality and women's empowerment, a slight decline of 6 percent from FY19.

In **Mozambique**, the capital city of Maputo is undertaking a climate and social vulnerability risk analysis and an action plan to enhance the understanding of the intersectionality between urban poverty, climate change, and crime and violence, with a specific focus on gender-based violence. The findings will inform the government's efforts to remove barriers for women's access to more and better jobs and to facilitate the ownership and control of assets that can help cushion them from external shocks. The analysis will also help design policies to enhance women's voice and agency to respond to disasters and human-caused conflicts. In **Indonesia**, GFDRR's support in earthquake-hit Central Sulawesi is making recovery efforts more gender inclusive. These efforts include capacity building for gender-responsive design and universal access as well as technical training for gender-based violence risk mitigation and management. Audits to increase access and gender equality in the recovery processes are being developed and piloted, and focus group discussions with diverse user groups are being held to enhance investment designs. In **Sri Lanka,** GFDRR has undertaken a planning exercise with the government to promote joint ownership with both women and men of lands and assets among community members who will be relocated to flood-safe locations as part of the World Bank's Climate Resilience Multi-Phase Programmatic Approach project.

Busting myths and stereotypes: Investing in analytics

Narratives depicting women as perpetually vulnerable and men as inevitably antagonistic ignore ways in which women are agents of change and neglect challenges faced by men. These narratives perpetuate myths that undermine progress; in order to refute them, GFDRR has increased investments in analytics for more evidence-based interventions. In FY20, the facility launched a global scoping study on the gender dimensions of DRM to review existing evidence and data on how men and women, and boys and girls, are impacted by, prepare for, react to, and cope with disasters. The study will provide more in-depth actionable evidence and will also help identify the most important knowledge gaps. In Europe and Central Asia, a new report covering 11 countries in the region reviewed gender dynamics and practices to provide guidelines on how to incorporate gender-sensitive and gender-inclusive approaches in DRM strategies when helping communities. In the Caribbean, an ongoing study is reviewing existing practices in nine countries to make disaster risk reduction activities more gender sensitive. And in Central America, GFDRR is undertaking a gender gap analysis of institutional capacity at the regional, national, municipal, and community levels to support the implementation of the Central American Policy of Integral Management of Disaster Risk under the leadership of CEPREDENAC, Coordination Center for the Prevention of Disasters in Central America and Dominican Republic.

Increasing knowledge and promoting learning

To foster knowledge about the underpinnings of gender-responsive DRM, GFDRR launched a free online training in English, "Introduction to Gender and Disaster Risk Management."[21] A Spanish version tailored to the Central America context and a Caribbean-focused version will also be available soon. In addition, GFDRR is working with the World Bank's Mind, Behavior, and Development (eMBeD) unit to understand better the drivers for behavior change and apply them in the World Bank's and GFDRR's disaster preparedness programming. After the first project funded by GFDRR and carried out by eMBeD in **Haiti** and later in **Sri Lanka**, there has been increasing interest from other countries such as **Armenia** and **Brazil** to better understand the motivations of people to change behavior.

[21] See https://olc.worldbank.org/content/introduction-gender-and-disaster-risk-management.

Maputo, Mozambique, March 2, 2020. A group of women and some men march during the launching ceremony of Women's Month. Photo: Israel Zefanias/Xinhua.

Gender-Responsive Disaster Risk Management

In Focus Advancing gender-inclusive water and sanitation in Tongan schools

One of the world's most disaster-prone countries, Tonga, faced widespread devastation from Tropical Cyclone Gita in February 2018. The country's education infrastructure was not spared: more than 100 schools were severely damaged or destroyed by the storm.

While Tonga has made impressive headway in its recovery and reconstruction in the aftermath of Tropical Cyclone Gita, the national government recognizes that building the resilience of all its citizens, including women and girls, will be critical to the longer-term sustainability of that progress.

In partnership with the Australian government and the World Bank, GFDRR has supported an analytical study on gender inclusion of water, sanitation and hygiene (WASH) in Tongan schools—with an eye for unpacking and assessing the gender gap in WASH facilities and informing a way forward for tackling the gap.

A first step for the technical team on the ground was to collect baseline data and information regarding the condition of WASH facilities in Tongan schools and the disproportionate impact inadequate facilities may have on female students. This is the first time that this effort was undertaken in Tonga.

The team subsequently engaged in extensive interviews and focus groups with key stakeholders from 10 Tongan schools—including teachers, parents, students, and staff—in order to get a better grasp of the gender gap. Interviews and focus groups with female stakeholders were conducted separately to help ensure the validity of the study. The team also conducted site visits in each of the 10 schools and conducted a survey of over 500 students on their WASH practices as well as their gender attitudes. The schools surveyed were designed to be representative of the Tongan education sector, accounting for geographic location, school type, levels of education taught, and gender mix.

Drawing on this comprehensive, multi-methods approach, the team uncovered several important findings that are now driving and informing the national government's efforts toward closing the gender gap in education, WASH, and beyond, including through the ongoing revision of health and safety standards for WASH facilities in schools.

For starters, the study revealed that while the latrine-pupil ratio at Tongan schools is generally better than the regional basic standards of 1:40 for girls and 1:60 for boys, equity of access for girls and boys is often lacking. In some schools, girls are disadvantaged, while in others it is boys who are disadvantaged. WASH facilities that do exist are typically in poor condition and often lack gender-appropriate WASH facilities such as locks on bathroom doors and sufficient lighting, as well as menstrual hygiene management materials including waste disposal and hand wash dispensers. Furthermore, most WASH facilities do not cater to the needs of people with disabilities.

Moreover, the study also identified some of the ways the gender gap in WASH facilities in Tongan schools is undermining national efforts toward gender equality. For example, approximately 34 percent of post-pubescent girls at primary school and 32 percent at secondary school who were surveyed said that they prefer not to use WASH facilities on school grounds, which can have negative implications for school attendance.

The team has developed an action plan proposing a set of strategic recommendations, paired with progress indicators, for the national government to consider as it carries out efforts to tackle these challenges. Drawing on regional and global experience, the team highlighted the importance of strengthening policy guidance for gender-inclusive WASH in schools and the need to promote a culture of gender-inclusive WASH management in the country's education sector, among other key recommendations.

These recommendations are also informing the World Bank–supported Pacific Resilience Program (PREP), which, among other avenues of support, is providing nearly $14 million in IDA funding and nearly $2 million in funding from Australia toward the resilient reconstruction and repair of 25 Tongan schools affected by Tropical Cyclone Gita. Under PREP, the team has developed design standards for gender-inclusive WASH facilities tailored to the local context. By March 2021, the Tongan government will construct 18 schools in accordance with these standards.

Tongan students. Photo: ©TEdwards/World Bank.

Lessons Learned

Informed by the findings of the assessment, the government of Tonga is now more determined than ever to close the gender gap in WASH facilities at Tongan schools. But to move forward, there has been a need to make those findings more readily applicable and fit for purpose for the national government's ongoing efforts toward resilient school infrastructure. Accordingly, the team has worked with Tongan authorities to develop design standards that are tailored to the local context for gender-inclusive WASH facilities in schools.

Results in Numbers

A survey of over 500 students on their WASH practices revealed that **34 percent** of post-pubescent girls at primary school and **32 percent** at secondary school prefer not to use school WASH facilities during menstruation

UR Central America, San José de Costa Rica. Photo: World Bank.

Events and Publications

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

Summary of Events

Understanding Risk
The Understanding Risk (UR) community showed continued growth this year as regional community members convened to focus on local concerns, remedies, and networks through regional conferences. Nearly 2,000 people gathered across three continents to connect and exchange ideas for a more resilient future.

UR Europe (November 27–29, 2019) Bucharest, Romania
Set against a backdrop of high natural hazard risk, climate change, and aging infrastructure, more than 350 European UR community members gathered in Bucharest, Romania, to highlight the need to accelerate action toward the identification and management of disaster and climate risks, including through technology and innovation.

UR West and Central Africa (November 20–22, 2019) Abidjan, Côte d'Ivoire

In the first UR conference in West Africa and the first in French, UR West and Central Africa attracted close to 600 experts and practitioners from over 45 countries, including 30 African countries. Over three days, this new chapter of the UR community focused on urban resilience, disaster risk financing, coastal adaptation, hydrological and meteorological (hydromet), and technical innovation.

UR Tanzania 2019 (October 2–3, 2019) Dar es Salaam, Tanzania
This two-day conference focused on improving resilience in Tanzania. First, the 250 attendees worked together to effectively build a case for climate smart infrastructure and planning in Tanzania, and then turned their attention to innovation and education for sustained resilience-building.

UR Central America (February 12–14, 2020) San José, Costa Rica
Through regional collaboration and integration processes, UR's first conference in Central America presented best practices and innovations for understanding disaster risk and climate risk, spread among four crowd-sourced tracks that included disruptive technologies to community engagement.

Other Events

South Asia Hydromet Forum II
"Pathways for Regional Collaboration" was the theme and the aspiration of this forum, which drew more than 100 attendees from all over South Asia and Myanmar to Kathmandu in November 2019. Over three days, forum participants resolved to launch a regional capacity building initiative for training and technical assistance and create a regional hydromet information portal for forecasters to exchange information.

World Bank Regional Emergency Operations Centre Workshop
Convening in Bangkok in July 2019, this workshop worked to build the capacity of various South Asian countries in emergency preparedness and coordination by enhancing the participants' understanding of the planning and development process involved in establishing an emergency operations center and its role, functions, and management processes.

The Art of Resilience Exhibition
This first-of-its-kind art exhibition brought together artists, technologists, and makers from around the world in October 2019. Curated from a global call for entries, The Art of Resilience demonstrated how art can unite a range of disciplines—big data, scientific research, and community organizing—to further the understanding and communication of disaster and climate risk.

Resilience Investment Planning Workshop
The City Resilience Program's Resilience Investment Planning Workshop, held in July 2019 in Madrid, focused on capital mobilization and resilience enhancement. Over three days, 150 participants representing 26 client cities engaged in problem mapping, solutions development, and capital investment planning, culminating in an Investment Pitch Day.

8th Central Africa Platform and 4th Central Africa Ministerial Conference on Disaster Risk Reduction
More than 90 stakeholders from all 11 Economic Community of Central Africa States (ECCAS) members, comprising civil society organizations and various levels of government, convened for these joint conferences in October 2019 in Kinshasa. Participants worked to strengthen coordination as outlined in the Africa Caribbean Pacific–European Union's Result 2 Program, as well as to exchange ways of addressing the Ebola crisis in the region and improve disaster risk financing.

Webinars

Building Resilience During the COVID-19 Crisis: Learning from Multi-Hazard Early Warning Systems to Respond to Pandemics
https://www.gfdrr.org/en/feature-story/speaker-series-building-resilience-during-covid-19-crisis

As the COVID-19 pandemic made clear the need to understand the vulnerability of individuals, communities, and societies in order to have reliable, targeted guidance and early warnings, this inaugural session of GFDRR's Building Resilience series convened a discussion on the relevant experiences of hydrology and meteorology in communicating risk and the prospects for applying Multi-Hazard Impact-Based Early Warning Systems to pandemics.

Building Resilience During the COVID-19 Crisis: Managing Tropical Storms During COVID-19: Early Lessons Learned
https://www.gfdrr.org/en/feature-story/speaker-series-building-resilience-during-covid-19-crisis

Recognizing the need to manage recurring cyclone risks in the new, more challenging environment of the pandemic, the second session of the Building Resilience series brought together officials working on the front lines in the Caribbean, India, Japan, and Vanuatu to discuss what they have learned so far about responding to and preparing for tropical cyclones during COVID-19, and what advice they have for others who are facing similar challenges.

Kickstarting the Sustainable Recovery: Promoting Innovation in Climate Change Adaptation
https://innovate4climate.pathable.co/meetings/qzmmB5RZMMsB9juaF

Through the presentation of new research, this webinar explored what is holding back innovation in climate change adaptation technology even as mitigation technologies have surged forward. The discussion covered factors such as gaps in technological capacity, market failures, and a lack of technological transfers from high-income to lower-income countries.

Cities on the Frontline Coronavirus Speaker Series: Sharing Knowledge to Respond with Resilience
https://medium.com/@RCitiesNetwork/coronavirus-speaker-series-sharing-knowledge-to-respond-with-resilience-5a8787a1eef5

GFDRR's City Resilience Program partnered with the Global Resilient Cities Network to present the Cities on the Frontline Coronavirus Speaker Series. Covering a diverse array of topics, the weekly webinar series has provided a way for cities to learn from each other as they manage everyday risks compounded by the COVID-19 pandemic.

Sushma Joshi | Nepal | *The Quake* | 2016-2017 | Watercolor on paper | 24 x 30cm | Image courtesy of the artist.

Carlos Rolón | USA | *Maria* | 2018 | Hand-cut silver mirror on aluminum panel | 250 x 250 x 22cm | Image courtesy of the artist.

In Focus
The Art of Resilience

Scientists are constantly getting better at knowing when the next hurricane, landslide, or flood will occur. However, scientific communication about these hazards still lags. Building resilience will continue to be difficult unless there is a meaningful connection to the communities and people that experience these risks. That is why GFDRR Labs and the World Bank Art Program developed The Art of Resilience, an exhibition that explores how art can be used to communicate scientific information about disaster risks, encourage community participation in resilience, and serve as a call to action around disaster and climate risk management.

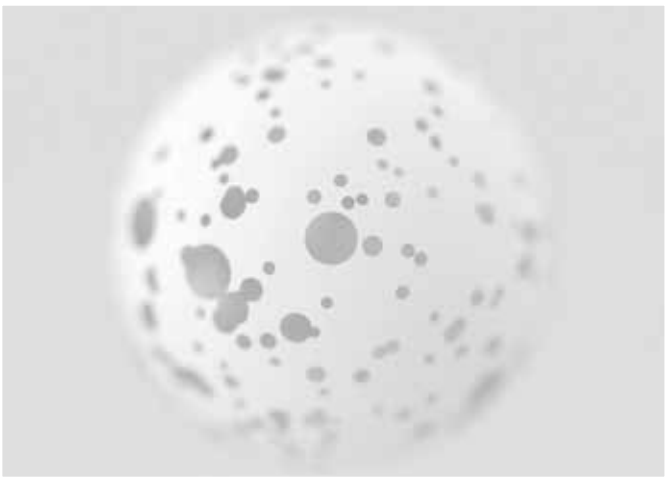
Why art? Because art is a powerful way to communicate complex ideas, inspire action, question received wisdom, and connect communities. In the 21st century, there is perhaps no more important set of challenges than understanding the impacts of disasters and environmental changes on our communities and societies, particularly in the developing world. As scientific and engineering knowledge about disasters and climate change has increased, so has the understanding that, in the oft-repeated phrase, "there is no such thing as a natural disaster." In other words, the vulnerabilities that allow natural events to become disasters are ultimately social in their origin. They stem directly from political, cultural, and economic decisions about where and how human settlements are built, how resources are distributed, and what level of risk we are willing to bear.

Maurice Mbikayi | Democratic Republic of Congo | *Après moi, le déluge (After me, the flood)* | 2019 | Computer keys, mutton cloth | 230 x 266 x 4cm | Image courtesy of the artist.

By looking at disasters as social challenges as much as environmental ones, links to art become clear. Artistic expression has the power to synthesize complex stories and themes in ways that are immediately captivating. Emotions evoked by art can convey deeply felt urgencies and immediate needs.

Disasters have shaped some of the most influential works of art in history. Joseph Mallord William Turner's sunsets and Mary Shelley's Frankenstein were both composed in the shadow one of the greatest volcanic eruptions ever recorded, that of Mount Tambora in 1815. The Great Wave off Kanagawa, the iconic image from the Edo period created by the 19th-century Japanese artist Hokusai, was inspired by the artist's awareness of tsunami and rogue wave threats. Expanding their

Adrien Segal | USA | *Trends in Water Use* | 2011 | Carved plywood, steel | 56 x 105 x 96cm | Image courtesy of the artist.



Frederik de Wilde | Belgium | *NEO_2034_2019-04-10-00-55-51-305 (NEO: Near Earth Object)* | 2019 | Photographic 3-D rendering |140 x 140cm (dimensions variable) | Image courtesy of the artist.

Hanna Riyanto | Indonesia | *The Resilience Kit* | 2018 | 3-D printing, balsa wood, acrylic and cardboard, digital drawing, recycled paper | 40 x 30 x 30cm | Image courtesy of the artist.

Eduardo Feuerhake Aguero | Chile | *The Indus River Game* | 2011 | Mixed media on paper |82 x 54cm (dimensions variable) | Image courtesy of the artist.

approach, contemporary artists use diverse means to communicate the multifaceted and interconnected effects of disasters and climate change—drawing on new materials and techniques, scientific knowledge of risk, and engagement with their communities.

Curated from a global call for entries, the exhibition, catalogue, and website share how art can unite a range of disciplines—big data, scientific research, and community organizing—to further the understanding and communication of disaster and climate risk. The global call yielded 450 entries from 139 artists representing 53 countries. A jury consisting of curators, cultural institution directors, and resilience project managers from a range of organizations—the Smithsonian's Renwick Gallery, the US National Academy of Sciences, the Climate Museum, the World Bank Group Art Program—evaluated all the pieces. Artists were judged on their creativity, conceptual engagement with the theme of resilience, artistic skill, and craftsmanship. Ultimately, 21 pieces from 15 artists were selected for the exhibition that was held in the World Bank Headquarters from October 2019 through January 2020. The World Bank Group has continued to build on The Art of Resilience initiative through a new art series on supporting resilient recovery as a result of COVID-19 that highlights artists and their resilience stories.

Yky France | *Shakes* | 2018 | Argentic paper | 17.8 x 24cm | Image courtesy of the artist.

Key Publications FY20

The Power of Partnership: Public and Private Engagement in Hydromet Services

https://www.gfdrr.org/en/publication/power-partnership

This report illustrates the current landscape of public-private-academic partnerships for strengthening the provision of hydromet services. Drawing on the experiences of eight different countries, it submits ways to structure a balanced model using comparative advantages and emphasizing a shared commitment to improving global public goods to strengthen global resilience.

Global Library of School Infrastructure (GLOSI)

https://gpss.worldbank.org/en/glosi/library

The GLOSI library is an online repository with open access to five main sections: taxonomy, catalog of building types, vulnerability information, vulnerability reduction solutions, and data collection tools, all available with accompanying guidance documents. In-country data are also available with restricted access.

Solid Ground: Increasing Community Resilience through Improved Land Administration and Geospatial Information Systems

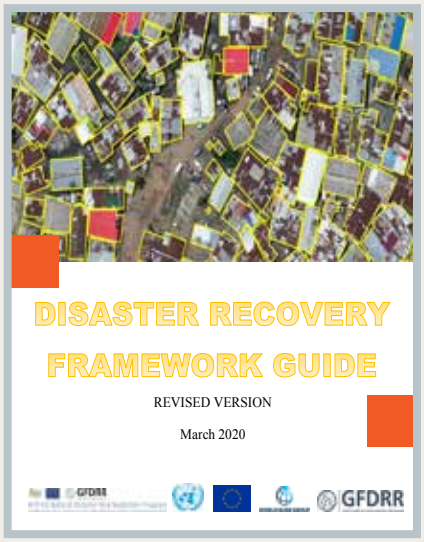
https://openknowledge.worldbank.org/handle/10986/33706

Focusing on the key roles that land administration systems and geospatial information play in the planning, monitoring, and implementation of responses before, during, and after disasters, this report provides several approaches and tools that can help a country assess the degree of resilience of these systems and help it plan for and establish more resilient ones.

Disaster Recovery Framework Guide (2020)

https://www.gfdrr.org/en/publication/disaster-recovery-framework-guide

Originally issued in 2015, this revised and updated version of the Disaster Recovery Framework Guide provides new and improved examples of recovery experience that emphasize results. It includes two new sections: one focusing on the specificities of disaster recovery at the local level, and one focusing on recovery in conflict and post-conflict contexts.



at the local level, and one focusing on recovery in conflict and post-conflict contexts.

Private Sector Participation in Disaster Recovery and Mitigation

https://www.gfdrr.org/en/publication/private-sector-participation-recovery

This note in the Disaster Recovery Guidance Series explains actions that can encourage, enable, and facilitate successful private sector participation in post-disaster recovery. Drawing on case studies and examples of existing private sector engagements, it helps address knowledge gaps on how to facilitate new modes of participation.

Road Geohazard Risk Management Handbook

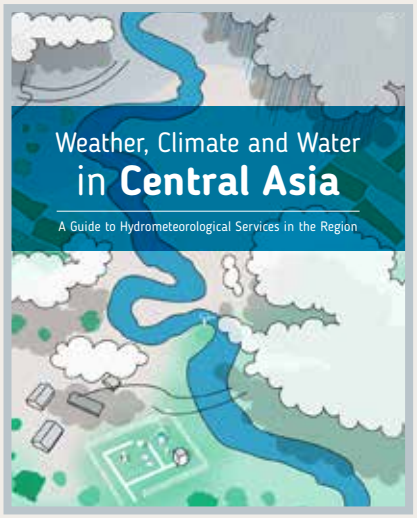
https://www.gfdrr.org/en/road-geohazard-handbook

This handbook outlines an approach used to proactively manage the risks of geohazards on roads for road users and the people living near and affected by roads through risk identification, risk avoidance, preparedness, and post-disaster recovery. The handbook is accompanied by terms of reference, an operations manual, and in-depth case studies.

Communication During Disaster Recovery

https://www.gfdrr.org/en/publication/communication-during-disaster-recovery

Part of the Disaster Recovery Guidance Series, this note provides practical guidance for governments to effectively communicate with communities during the recovery phase following an emergency. It explains how to identify communication needs and presents "best fit" communication methods and strategies to deploy to support Disaster Recovery Frameworks and recovery strategies.



Weather, Climate and Water in Central Asia: A Guide to Hydrometeorological Services in the Region

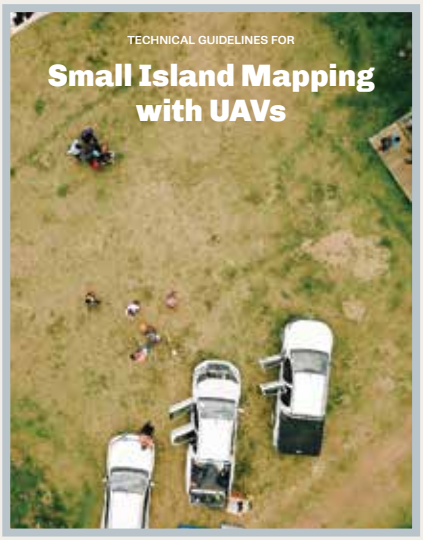
https://www.gfdrr.org/en/publication/weather-climate-and-water-central-asia

By providing easy-to-understand overviews of the weather and climate in the region, the utility of weather and water information for society, and the role and needs of the National Meteorological and Hydrological Services, this atlas can be used to inform decision-making, scope possible investments in development, and educate people.

Technical Guidelines for Small Island Mapping with UAVs

https://gfdrr.org/sites/default/files/publication/WB_UAV4R_Report_FA01_S_0.pdf

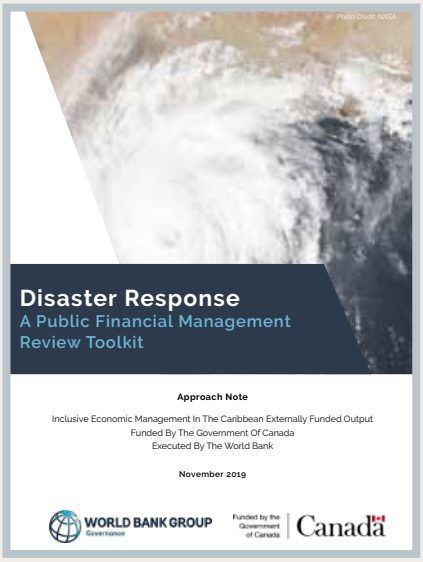
Responding to the growing interest in the use of unmanned aerial vehicles (UAVs) as a low-cost data collection and survey-mapping instrument, this guidance note documents the best uses of UAVs in collecting geospatial data in Pacific Island States. It includes discussion on the requisite capacity building, safety training, and preparation that need to be taken into consideration.

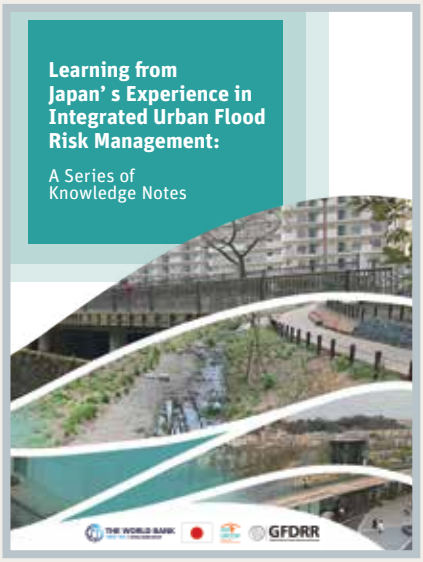


Disaster Response: A Public Financial Management Review Toolkit

https://gfdrr.org/en/publication/disaster-response-public-financial-management-review-toolkit-2019

This toolkit provides an overview of the conceptual framework and core principles that underpin the design of the Post-Disaster Public Financial Management (PD-PFM) Review and Engagement Framework. The PD-PFM Review focuses on four key elements of the PFM system: legal and institutional foundations, budget appropriation arrangements, financial management controls, and procurement arrangements.

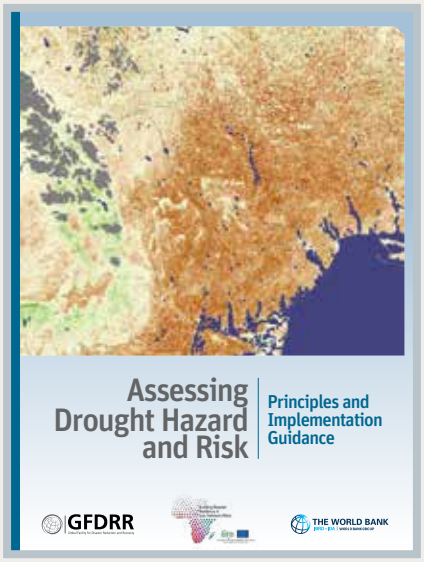




Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes

https://openknowledge.worldbank.org/handle/10986/33379

Drawing on Japan's deep knowledge and experience with integrated urban flood risk management, this series of knowledge notes compiles many key lessons learned. Spanning four notes, the series covers urban flood risk assessment and risk communication, urban flood risk reduction investment planning and prioritization, designing and implementing urban flood risk management investments, and ensuring sustainability through operations and maintenance.



Assessing Drought Hazard and Risk

https://www.gfdrr.org/en/publication/assessing-drought-hazard-and-risk

Using progressive levels of detail, this guide is intended to support nonexpert professionals seeking solutions to mitigate and adapt to drought. Starting with key definitions for drought risk assessments, it goes on to outline four guiding principles for those assessments. It follows these with an implementation guide and illustrates the guidance with examples of applications.

Toward Scaled-Up and Sustainable Agriculture Finance and Insurance in Uganda

https://openknowledge.worldbank.org/handle/10986/32331

Following a technical and diagnostic review of the Uganda Agricultural Insurance Scheme (UAIS), this technical report covers the rapid assessment of agriculture finance and its recommendations, the findings of the situation and gap analysis of the UAIS, and, where appropriate, presents the World Bank's recommendations for strengthening the scheme.

Key Publications in FY20

In Focus

The *Kaalavastha* podcast series: Stories behind creating a more resilient future for Kerala

https://www.worldbank.org/en/news/video/2020/06/16/keralapodcastseriess

In August 2018, heavy monsoons in the Indian state of Kerala led to the most devastating floods in nearly a century, impacting 5.4 million people, one-sixth of the state's population. In October, the World Bank prepared a Rapid Disaster Needs Assessment—a multisectoral assessment of losses, emergency response, and resilient recovery needs. This formed the basis for the government of Kerala's Rebuild Kerala Development Program, a comprehensive roadmap for a green and resilient Kerala and the supporting World Bank programmatic engagement.

In August 2019, rains came back with fury and force. For two consecutive years, Kerala faced extraordinary floods that led to widespread loss of life, property, and habitats. Then, in 2020, Kerala found itself at the forefront of India's battle with COVID-19. Kerala has approached this turbulent period with determination, seeing the opportunity to accelerate long-pending policy, institutional, budgetary, and resource management reforms to address core vulnerabilities and drivers of risks. The First Resilient Kerala Program started a transformational reform process across 14 different sectors, completely reorganizing the state's agriculture department along climatic and ecological zones and creating the first diaspora bond in India, just to name a couple of outcomes from this effort. The reforms led to the development of a long-term World Bank–Kerala state partnership framework based on two pillars: (1) enhancing institutional and financial capacity for managing disasters and (2) mainstreaming disaster and climate resilience into critical infrastructure and services.

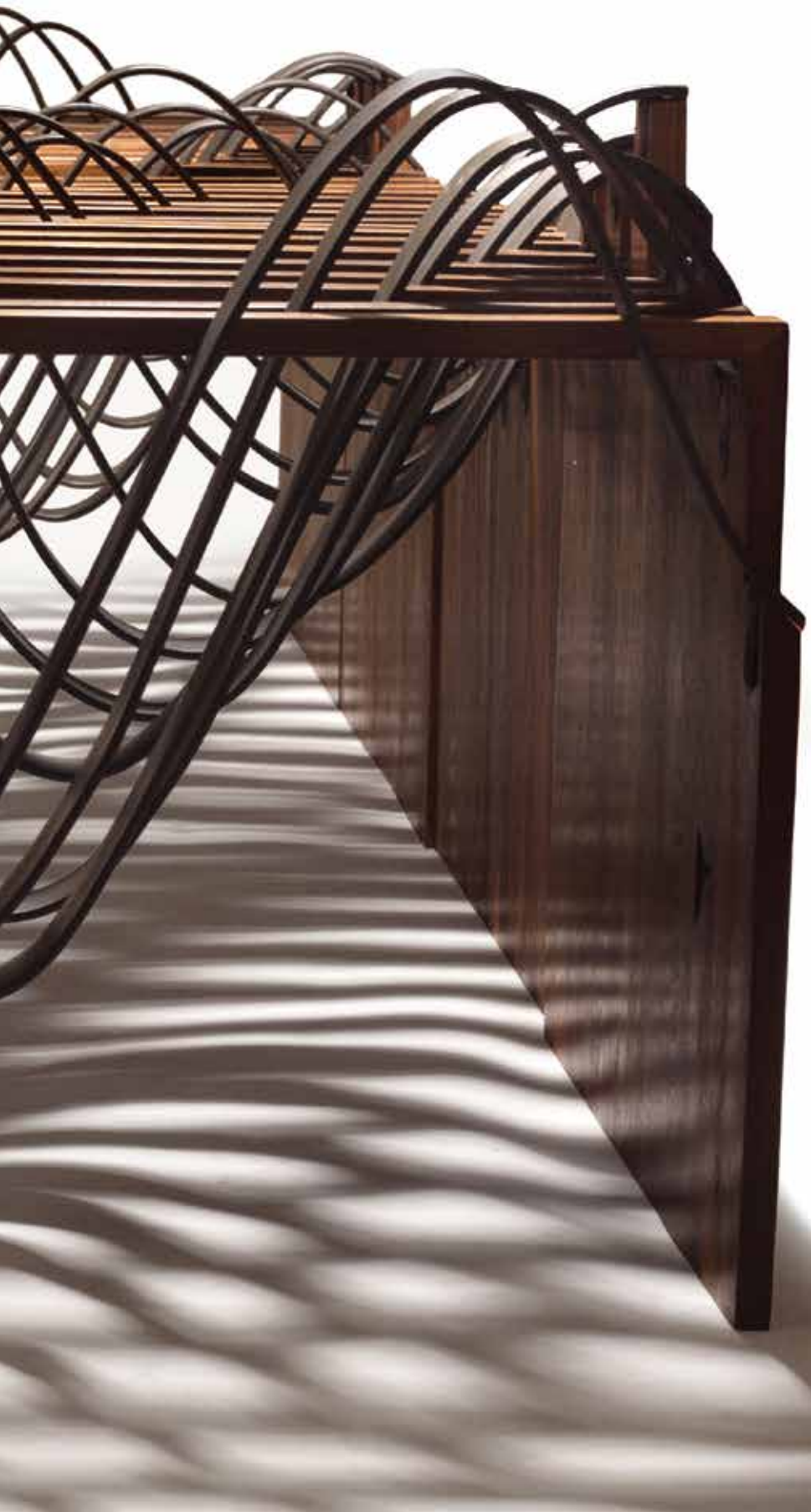
Complementing the partnership, the podcast series *Kaalavastha*—meaning "the state of climate" in Malayalam (the spoken language in Kerala)—was launched by the World Bank with funding from GFDRR to share stories, emotions, and voices of the people involved in this reform process. Taped over the course of a year, this podcast uniquely captures the process of creating a more resilient state: from the rebuilding that occurred after the 2018 floods and the experience of how those reforms helped in the 2019 floods to the application of risk management of natural hazards and the 2020 pandemic. Currently, the Resilient Kerala Program-for-Results (PforR) is under preparation to further enhance resilience against the impacts of climate change and natural hazards, including disease outbreaks and pandemics.

Kaalavastha, released in June 2020, has captured a global audience with its behind-the-scenes look into what exactly it takes for a state to comprehensively and systematically build a more resilient future. Through six immersive episodes, multiple protagonists—communities, volunteers, government officials, scientists, diaspora, and World Bank staff, among others—give their first-hand accounts of the reforms. These stories are interwoven with traditional music from the region, historic short stories, and immersive soundscapes of local elements, drawing in the listener to Keralite culture.

Episodes take listeners through the history of Kerala's relationship with geography, environment, and climate; showcase community-driven response; and follow new government enterprises as they rise to the task. The podcast series also explores how to implement reform overhauls of existing systems such as those in river management, agriculture, and remittances; shares how local livelihoods are building back better; and, finally, ends with a retrospective on disaster response and decentralization in the case of the floods and the pandemic.

While each of these reforms address a vulnerability in themselves, *Kaalavastha* aims to show that sustainable resilience is not the result of a single static intervention. Instead it is defined by many instances across time, across disasters, through the small decisions that people have made to pick up and carry on.

The Art of Resilience **Adrien Segal** | USA | Tidal Datum, San Francisco | 2007 | Steel, walnut | 66 x 82 x 184cm | Image courtesy of the artist.



Annex

This annex provides information about GFDRR's portfolio in FY20. It includes commitments, disbursements, donor resources available, and results progress. It also includes a financial report covering the period of July 1, 2019, to June 30, 2020.

Portfolio Summary

GFDRR's total portfolio as of June 30, 2020, included 360 active grants covering 144 countries,[1] for a total commitment amount of $223 million. Of the active grant portfolio as of close of FY20, 167 grants were funded through the Multi-Donor Trust Fund (MDTF) and related core funding windows (46 percent) (see figures 1.a and 1.b). One hundred and three grants were funded through the Japan–World Bank Program (29 percent). Sixty-five grants were funded through the ACP–EU Natural Disaster Risk Reduction Program (18 percent) and 19 grants were funded through other EU programs (5 percent). In addition to the activities funded by core funding windows, seven grants were funded through the Special Programs (2 percent). Thirty-six grants were funded through other programs managed or implemented by GFDRR, namely the GRiF MDTF and the CREWS Initiative. Because of the management of these programs, they are not included in the FY20 portfolio analysis.

Total funding commitments of the active grant portfolio from the MDTF and related core funding windows amounted to $68.8 million (31 percent). The Japan–World Bank Program accounted for $71.3 million (32 percent). The ACP–EU NDRR Program accounted for $51.5 million (23 percent) and other EU-funded programs represent $21 million in active commitments (9 percent). In addition to activities funded by core funding programs, Special Programs accounted for $10.4 million (5 percent). Other programs managed by GFDRR accounted for an additional $54.6 million in active commitments.

Figure 1.a
Distribution of Active Commitments by Funding Window, FY20 = $223 M

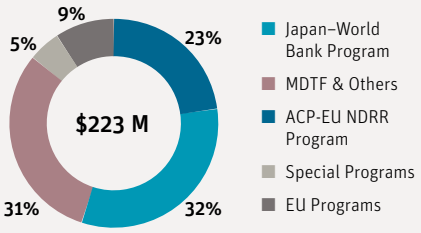


Figure 1.b
Distribution of Active Grants by Funding Window, FY20 = 360

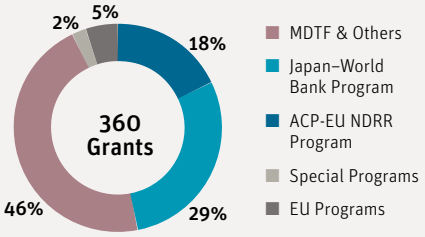
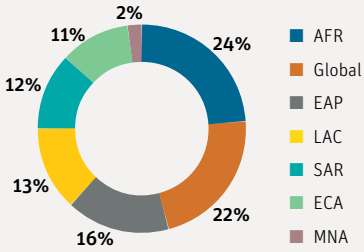


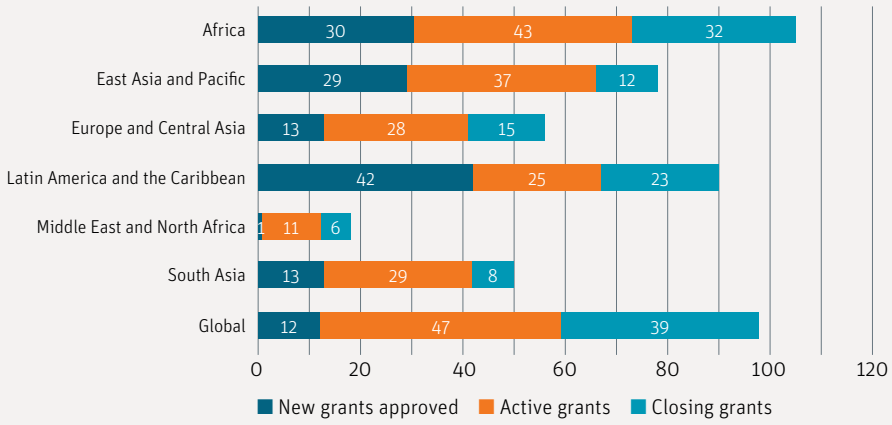
Figure 2.
Distribution of Active Funding by Region, FY20



Throughout the fiscal year, 135 grants ($82.2 million) reached completion (see figure 3), bringing the total number of grants active at some point during the FY to 495 grants. This is a 47 percent increase in grants closing (115 percent increase in funding closing) from FY19, driven by the completion of the Africa Disaster Risk Financing Single Donor Trust Fund (SDTF) in FY20 and the forthcoming completion of eight parent trust funds in FY21/22.[2]

Across regions, the largest share of active grants covered Sub-Saharan Africa, representing 24 percent of active funding (see figure 2). This is consistent with previous fiscal years. This was followed by East Asia and Pacific, at 16 percent of active funding; Latin America and Caribbean, at 13 percent of active funding; South Asia, at 12 percent of active funding; and Europe and Central Asia at 11 percent of active funding. A smaller proportion of active funding supported the Middle East and North Africa (2 percent). Global and cross-regional activities represented 22 percent of active funding.

Figure 3. Distribution of Grants, FY20
Total = 369



[1] This includes countries receiving benefits from GFDRR grants either through activities implemented directly in-country or covered through global or regional activities.

[2] In FY21, the MDTF (TF072236, parallel TF072584), first phase of the Japan–World Bank Program SDTF (TF072129), EU-Serbia National DRM Program SDTF (TF072528), EU-DRAF SDTF (TF072535), EU-SAR SDTF (TF072458), and DFAT Indo-Pacific SDTF (TF072835) will come to completion. In FY22, the ACP–EU NDRR Program SDTF (TF071630) and USAID SDTF (TF072896) will come to completion.

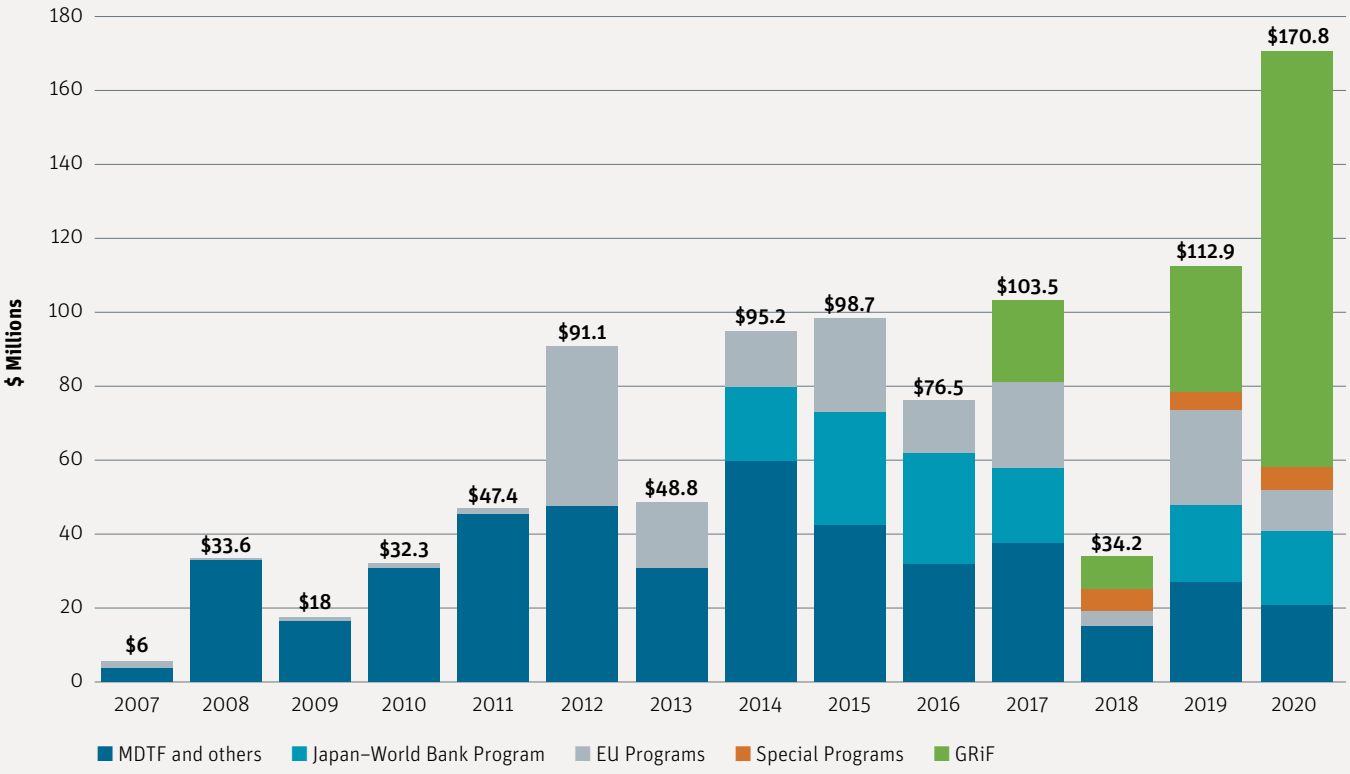
Sources of Funding

Over the fiscal year, 11 donors contributed an additional $58.4 million[3] in support of GFDRR's broad-based disaster resilience program (see figure 4). Core funding into the MDTF during the fiscal year amounted to $19.7 million, or 34 percent of overall contributions, including $3 million for the current MDTF and $16.7 million for the third MDTF, which goes into implementation in FY21. During the same period, $32.5 million was received for other core programs, representing 56 percent of contributions in FY20. This includes $20 million in contributions for the Japan–World Bank Program and $6.8 million for EU-funded SDTFs. Of FY20 contributions, $6.2 million, or 10 percent, supported Special Programs. This includes $3 million in contributions for a new Canada-Caribbean SDTF and $3.2 million for the City Resilience Program. Overall contributions for core and special programs were approximately 13 percent lower than average annual contributions received by GFDRR over the previous three years ($66.8 million). Some donors have indicated an expectation to make decisions on new contributions following the approval of the new GFDRR strategy, which may help explain part of the decrease in total contributions.

Additional contributions went toward other programs managed or implemented by GFDRR, namely $112.4 million in contributions for the GRiF MDTF.

[3] Before trust fund administration fees of $0.26 million.

Figure 4. Contributions to GFDRR, FY07–20 ($ M)



Uses of Funding

In FY20, overall GFDRR trust fund disbursements amounted to approximately $97.2 million. Of these, 94 percent ($92 million) of disbursements were project related (see figure 5). FY20 project disbursements represented a 15 percent increase compared with FY19. GFDRR achieved an annual disbursement rate of 46 percent. This was driven by continued progress in implementation across most activities in the portfolio, coupled with proactive actions taken by the Secretariat to address slower disbursing activities and challenges due to the COVID-19 pandemic.[4]

GFDRR's program management and administration expenditures—which include staff, consultancy fees, travel, rent, communications, information technology, equipment, and other non-overhead costs—were $5.2 million.

[4] This included regular monitoring of existing commitments to ensure timely disbursements; extensions of activities delayed due to COVID-19 restrictions; reallocation of grant resources to faster disbursing activities; and restructuring of grants, for example.

The share of program management and administration expenditures when compared with total expenditures decreased to 5 percent (see figure 6) from 8 percent in FY19, when Program Management Administration (PMA) stood at $6.9 million. This decrease was due to a reduction in Secretariat staff size; a shift to more virtual events, including Consultative Group meetings; and reduced travel and in-person knowledge exchange due to the COVID-19 pandemic.

Figure 5. Project Disbursements, FY14–FY19

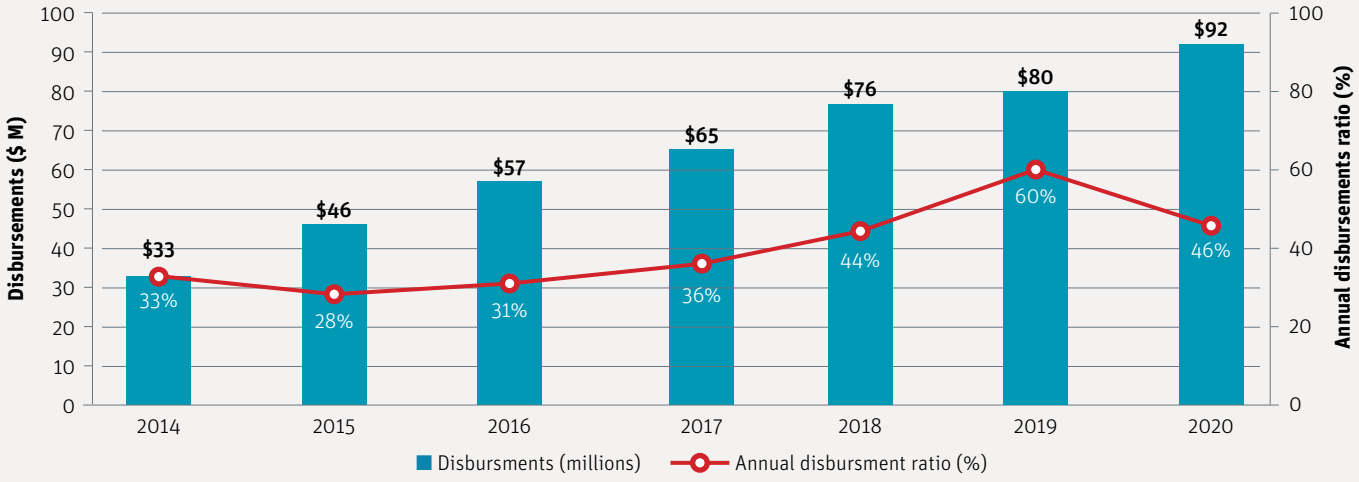
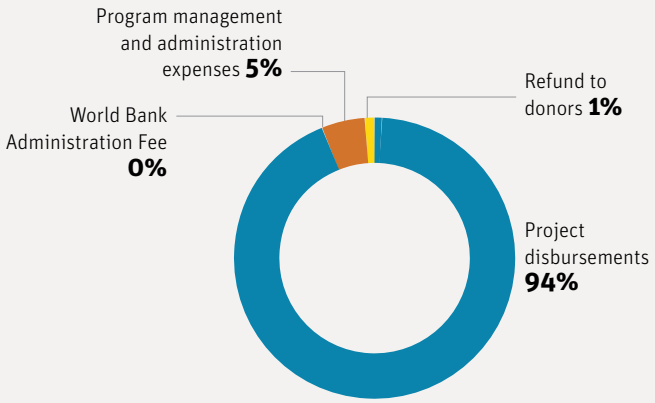


Figure 6. Distribution of Disbursements, FY19



New Grant Commitments in FY20

Throughout FY20, the Secretariat committed a total of $57.6 million to grant activities. This included $48.2 million to 140 new grants,[5] and $9.3 million provided as additional funds to scale up 39 ongoing activities.

During fiscal year 2020, Latin America and the Caribbean received the largest share of new support (26 percent of new commitments in dollar terms; 30 percent of new grants) (see figure 7). This was driven by two new EU-funded SDTFs supporting resilience building in the Caribbean, as well as a number of smaller grants supporting the region through the MDTF and the ACP–EU NDRR Program. This was followed by the East Asia and Pacific region (21 percent of new commitments in dollar terms; 21 percent of new grants); the South Asia region (17 percent of new commitments in dollar terms; 9 percent of new grants); Africa (15 percent of new commitments in dollar terms; 21 percent of new grants); and Europe and Central Asia (14 percent of new commitments in dollar terms; 9 percent of new grants). The Middle East and North Africa received the smallest share of new support (less than 1 percent of new commitments in dollar terms; 1 percent of new grants). Global activities represented 7 percent of new commitments in dollar terms and 9 percent of new grants.

From a funding perspective, the MDTF and related funds accounted for $16.8 million (35 percent) of funding for new grant commitments (see figure 8). The Japan–World Bank Program accounted for $17.5 million (36 percent) in new funding. The ACP–EU NDRR Program accounted for $4.5 million (9 percent) and other EU-funded programs accounted for $7.2 million in new funding (15 percent). Special Programs provided $2.1 million in funding for new grant commitments during FY20 (4 percent).

Other programs managed or implemented by GFDRR committed $34.3 million to 24 new grant activities in FY20. Of these, the majority went toward activities supporting the Africa region (82 percent of funding for new grant commitments in dollar terms; 50 percent of new grants).

The average activity size for FY20 approved grant activities was approximately $358,000 for both country-based activities and global engagements.[6] This represents a decrease from the four previous fiscal years, which had an average approved grant size of approximately $513,000.

Of the $48.2 million committed to new activities during FY20, about 97 percent ($46.7 million; 93 percent of new grants) related broadly to mainstreaming ex ante DRM and climate change adaptation activities, while about 3 percent ($1.5 million; 7 percent of new grants) went toward activities linked to post-disaster and resilient recovery interventions (see figure 9). This is a small increase from FY19 and represents a continued emphasis on helping countries strengthen resilience to shocks before disaster strikes.

[5] The new grants include six Just-In-Time grants.

[6] This does not include in Just-in-Time grants, which had an average size of $49,825. Core program grants had an average size of $347,200. Special Program grants had an average size of $1,042,000. Other programs managed by GFDRR had an average size of $1,428,000.

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

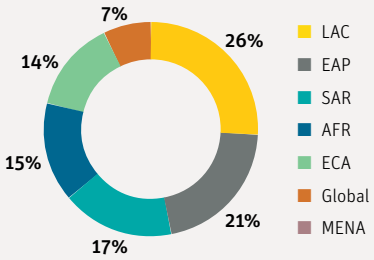


Figure 8. Distribution of Financing for New Commitments by Funding Source (%)

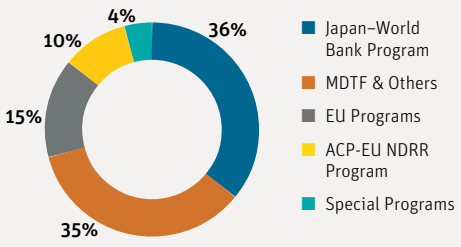
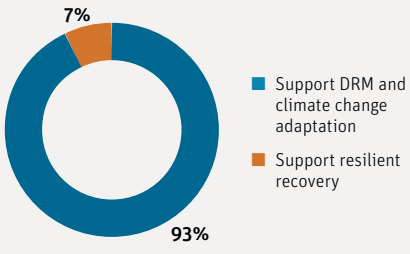


Figure 9. New Commitments Approved in FY20 (%)



Portfolio Profile and Beneficiaries

During FY20, GFDRR-funded active grants targeted natural hazards that pose the greatest risks to vulnerable countries. Most core program grant activities addressed flood-related natural hazards, including urban flooding (65 percent), river flooding (63 percent), and coastal flooding (50 percent) (see figure 10).[7] Grant activities also addressed geohazards, including earthquakes (56 percent) and landslides (48 percent).

In FY20, GFDRR-supported activities had a range of beneficiary types. Similar to FY19, 98 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 other government partners.

Communities benefited from over half of the grant activities (55 percent), and CSOs and NGOs were beneficiaries in over 20 percent of activities (21 percent each). The private sector was engaged in 27 percent of activities, while academia were beneficiaries in 30 percent of activities (see figure 11).

Additionally, 75 percent of active grants in FY20 supported activities at the national level and over 25 percent of activities (37 percent of funding) contributed in strengthening regional

[7] Most grant activities address more than one natural hazard, so the numbers shown do not sum to 100 percent.

Figure 10. FY20 Portfolio—Natural Hazards Addressed (%)

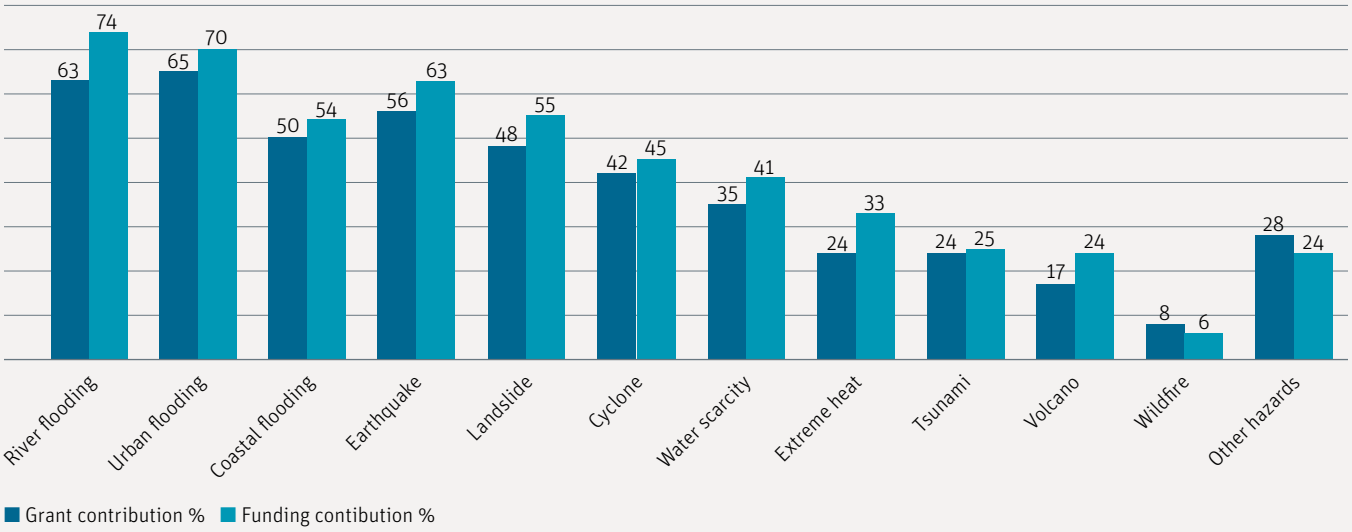


Figure 11. Beneficiaries of FY20 Grant Activities (by portfolio $)

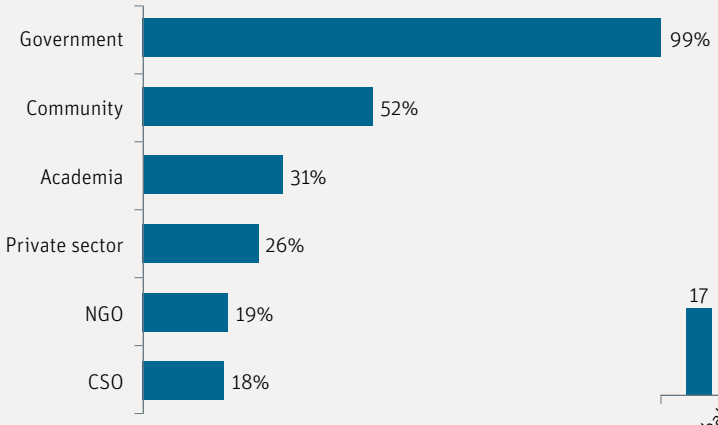
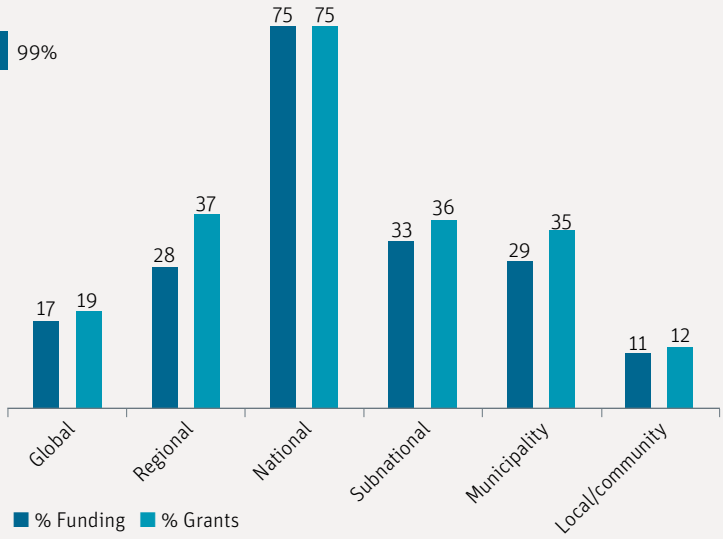


Figure 12. FY20 Portfolio Coverage Level (%)



level resilience. During the year, over 35 percent of funding contributed toward activities at municipal and subnational levels (see figure 12).

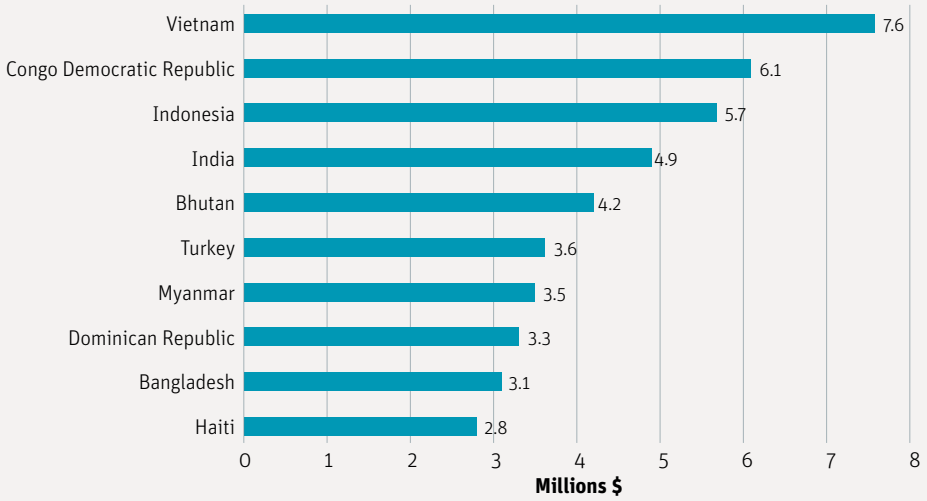
Ten countries accounted for $44.7 million of in-country grant support (20 percent of overall commitments) (see figure 13). Many of these grant activities support integrated risk reduction and preparedness efforts, with a focus on resilient infrastructure and strengthening hydromet services. It also demonstrates GFDRR's commitment to strengthening resilience in FCV contexts, as three of the top countries supported—the Democratic Republic of Congo, Myanmar, and Haiti—are affected by protracted crises associated with fragility, conflict, and violence. Examples include multiple ongoing engagements to enhance the climate resilience of Haiti's infrastructure and activities to integrate a gender- and behavioral-sensitive approach to enhance DRM in the country; newly funded activities to strengthen both flood and seismic resilience in Myanmar; and concluding engagements to strengthen hydrometeorological and early warning services in the Democratic Republic of Congo.

During FY20, top recipients of new in-country commitments include India ($4.3 million for five grants), Haiti ($1.5 million for five grants), the Philippines ($1.4 million for two grants), Turkey ($1.1 million for two grants), Vietnam ($0.9 million for two grants), and Peru ($0.9 million for five grants). Examples of newly funded in-country activities include developing new and innovative approaches for coastal resilience in India; strengthening the social protection system as a disaster risk mitigation measure in Peru; and enhancing the resilience of dam safety and downstream communities in Vietnam. In addition to these country-specific commitments, activities across the Caribbean received $5.3 million for 15 grants and the Pacific received $4.2 million for four grants.

In-Kind Support via Staff Exchanges and Secondments

GFDRR's program benefits from in-kind resources that several donors have made available in the form of secondments and staff exchanges. It hosted two staff members in FY20 from the governments of Germany and Switzerland. This staff exchange helped strengthen GFDRR's technical expertise, particularly its thematic initiatives, and provided partners with opportunities to establish more direct connections with the work of the Secretariat.

Figure 13. FY20 Active Commitments: Top In-Country Support
Total = $44.7 M



Portfolio Results

This is the third fiscal year reporting results on the GFDRR partnership, as anchored in implementing the facility's FY18–FY21 Strategy. This section outlines progress and achievements of the partnership as measured against GFDRR's Results Framework and targets. 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 during FY20 and facilitate decision-making. It is not to assess longer-term impact, which is a role performed by 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 includes:

- Evidence of contributions to supporting 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 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:** Government 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 progress of its core program–funded grant portfolio (see page 112).

Monitoring Grant Progress

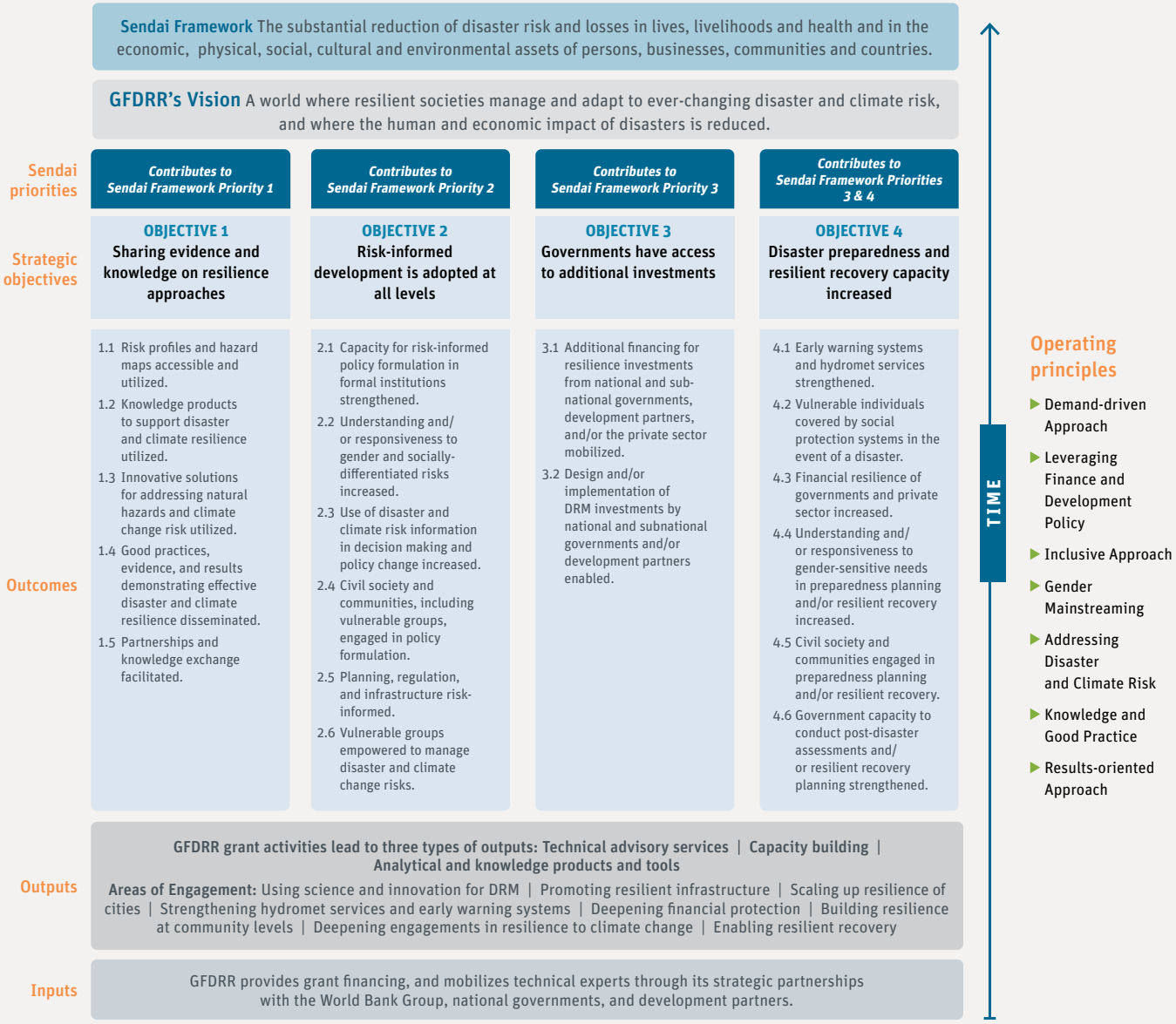
The data presented in this section is derived primarily from monitoring reports for core program–funded grants active in FY20. During the fiscal year, GFDRR had two reporting periods covering July to December 2019 (382 grants; $257 million in funding) and January to June 2020 (405 grants; $240 million in funding). 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.

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 action 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 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 grants supported activities in its beneficiary countries align with the nine targets and four priority actions of the Sendai Framework.

Figure 14. GFDRR Logical Framework



All GFDRR-funded grants align with at least one Sendai Framework target and priorities for action (see tables 1 and 2). A few examples include grant activities that are integrating disaster risk management (DRM) in the management of cultural heritage sites in Myanmar; strengthening crisis management capacity in Jordan; accelerating climate resilience in Romania through policy reforms and investment in risk reduction; enhancing the resilience of local governments against impacts of hazards in Peru; building a foundation for a drought preparedness program in Eswatini; and developing resilience-oriented policies in India.

An overview of how the total active trust fund portfolio indirectly contributes to the Sendai Framework targets is outlined in the table below.

Table 1. GFDRR Contributions to Sendai Framework Global Targets

Sendai Framework Global Targets	GFDRR Portfolio
Target A: Substantially reduce global disaster mortality by 2030, aiming to lower average per 100,000 global mortality between 2020–2030 compared with 2005–2015.	• 30 percent of grants indirectly contribute • Supported through 34 percent of funding • Grants covered 126 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.	• 51 percent of grants indirectly contribute • Supported through 54 percent of funding • Grants covering 130 countries
Target C: Reduce direct disaster economic loss in relation to global GDP by 2030.	• 46 percent of grants indirectly contribute • Supported through 50 percent of funding • Grants covering 131 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.	• 52 percent of grants indirectly contribute • Supported through 48 percent of funding • Grants covering 121 countries
Target E: Substantially increase the number of countries with national and local disaster risk reduction strategies by 2020.	• 28 percent of grants indirectly contribute • Supported through 36 percent of funding • Grants covering 123 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.	• 19 percent of grants indirectly contribute • Supported through 18 percent of funding • Grants covering 117 countries
Target G: Substantially increase the availability of and access to multi-hazard early warning systems and disaster risk information and assessments to the people by 2030.	• 37 percent of grants indirectly contribute • Supported through 47 percent of funding • Grants covering 130 countrie

Table 2. GFDRR Alignment with Sendai Framework Priorities for Action

Sendai Framework Priorities for Action	GFDRR Contributions
Priority 1: Understanding disaster risk	• Aligns with GFDRR Strategic Objectives 1 and 2 • 65 percent of GFDRR grants contribute through 76 percent of funding • Grants covering 135 countries
Priority 2: Strengthening disaster risk governance to manage disaster risk	• Aligns with GFDRR Strategic Objective 2 • 56 percent of GFDRR grants contribute through 69 percent of funding • Grants covering 133 countries
Priority 3: Investing in disaster risk reduction for resilience	• Aligns with GFDRR Strategic Objectives 3 and 4 • 59 percent of GFDRR grants contribute through 67 percent of funding • Grants covering 135 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 • 42 percent of GFDRR grants contribute through 41 percent of funding • Grants covering 138 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: 382 grants representing $257 million in funding; January-June: 405 grants representing $240 million in funding).

Toward **Strategic Objective 1**, 47 percent of grants in FY20 helped make risk or hazard information accessible and utilized, and 35 percent of grants supported knowledge products. Forty-one percent of grants attempted elements of innovation to develop solutions to address climate change risk. Grants have reported implementation of nature-based solutions, usage of drones for risk assessments, and development of mobile applications for participatory data collection and mapping as innovative approaches to manage natural hazards and climate risks.

In addition, the data show that GFDRR's grants facilitated over 765 knowledge exchange activities, with approximately 47 percent held in later half of the fiscal year despite COVID-19-related challenges. These grants supported virtual meetings, online workshops, and webinars as part of knowledge dissemination and exchange activities.

Toward **Strategic Objective 2**, 56 percent of grants contributed to disaster and climate risk–informed policy formulation, and activities have supported 131 countries in improving institutional capacity in disaster and climate risk–informed policy design and analysis. For example, in Lesotho, an ongoing GFDRR-funded grant is providing technical assistance to improve the coordination of institutions in the aftermath of disasters in order to strengthen the government's regulatory and policy framework for disaster risk management. The grant is currently helping the government of Lesotho to prepare a multi-hazard contingency plan, update the Meteorology Services Strategy for 2019–2030, and review the Disaster Risk Management Bill 2020. Further, the data show that 49 percent of grant activities have supported risk-informed planning, regulation, and infrastructure. This can be seen in a grant in Tuvalu where GFDRR is supporting the government to integrate DRM and climate adaptation considerations into policy frameworks related to infrastructure, buildings, and housing.

Nine percent of activities supported policies or planning that included responsiveness to gender and socially differentiated risks. Additionally, GFDRR's grants continued to support citizen engagement in disaster and climate resilience–related policy reform. A grant in Haiti that aims at integrating gender- and behavioral-sensitive approaches in DRM has included communities and women's associations in consultations and focus group discussions for its analytical activities. In Democratic Republic of Congo, an ongoing GFDRR-funded grant helping to manage volcanic risk in the region of Goma has included civil society awareness and preparedness as part of its objective. The grant has reported conducting consultations with the local citizens and organizing emergency drills, workshops, and trainings to increase awareness of risk of volcanic eruptions and evacuation plans among the Goma population.

For progress toward **Strategic Objective 3**, please see the section on

"Leveraging Development Financing" (see page 127).

Toward Strategic Objective 4, data analyses show that 15 percent of in-country and global grant activities contributed to strengthening early warning systems and hydromet services, covering 102 countries. For example, an ongoing grant in Myanmar is helping to strengthen institutional and regulatory processes through capacity building of the Department of Meteorology and Hydrology to modernize hydromet systems and services. Regarding financial resilience, 14 percent of FY20 grants contributed to financial risk resilience programs to increase financial protection of governments in the case of disasters. These grants have helped developing countries by supporting sovereign disaster risk financing, risk transfer instruments, contingency financing, and financial protection strategies. Furthermore, 7 percent of grant activities have contributed to disaster risk-informed social protection systems. Some of the social protection mechanisms supported were emergency cash transfers, drought protection insurance, safety net programs, and social welfare schemes.

Table 3. FY20 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	FY20 Results
1.1 Risk profiles and hazard maps accessible and utilized.	• 135 countries supported to have accessible, understandable, and usable disaster risk information and assessments • 47 percent of grants contribute to making risk or hazard information accessible and utilized • 30 percent of grants support the creation or utilization of risk profiles or hazard maps
1.2 Knowledge products to support disaster and climate resilience utilized.	• 35 percent of grant activities support the utilization of knowledge products for disaster and climate resilience
1.3 Innovative solutions for addressing natural hazards and climate change risk utilized.	• 41 percent of grant activities support utilizing innovative solutions for addressing natural hazard and/or climate change risk
1.4 Good practices, evidence, and results demonstrating effective disaster and climate resilience disseminated.	• 51 GFDRR commissioned publications were made available and accessible on the facility's website
1.5 Knowledge exchange activities facilitated.	• 35 percent of grants support facilitating international, regional, and/or bilateral knowledge exchange activities • Over 765 international, regional, and/or bilateral knowledge exchange activities were facilitated

Table 3. FY20 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	FY20 Results
2.1 Capacity for risk-informed policy formulation in formal institutions strengthened.	• 120 countries supported for improved disaster risk governance • 131 countries supported for 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.	• 9 percent of grant activities support policy and/or planning documents that include the needs of individuals based on gender, disability, and socioeconomic status
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.	• 17 percent of grant activities supported increased citizen engagement in disaster and climate resilience–related policy reform
2.5 Planning, regulation, and infrastructure risk-informed.	• 49 percent of grants supported risk-informed planning, regulation, and/or infrastructure – 42 grant activities have helped strengthened building codes at the national or local government level – 78 grant activities have helped strengthen land use planning systems at the national or local government level – 158 grant activities have helped incorporate DRM measures into infrastructure at the national or local government level
2.6 Vulnerable groups empowered to manage disaster and climate change risks.	• 61 grant activities have helped empower vulnerable groups to manage disaster and climate change risks.

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

Intermediate Outcomes	FY20Results
3.1 Additional financing for resilience investments from national and subnational governments and/or development partners mobilized.	• $6.7 billion was leveraged through $43.3 million in GFDRR funding (59 grants)

Table 3. FY20 Outcome-Level Results (cont)

Strategic Objective 4: Disaster preparedness and resilient recovery capacity is increased at national, subnational, and community levels.

Intermediate Outcomes	FY19 Results
4.1 Early-warning systems and hydromet services strengthened.	• 15 percent of grant activities contribute to increased access to high-quality early warning systems (EWS) and hydromet services • 102 countries supported with strengthened EWS and hydromet services
4.2 Vulnerable individuals covered by social protection systems in the event of disaster.	• 5 percent of grant activities contributed to disaster risk-informed social protection systems
4.3 Financial resilience of governments and private sector increased.	• 14 percent of grant activities contributed to increased financial protection of governments in case of disasters
4.4 Understanding and/or responsiveness to gender-sensitive needs in preparedness planning/and or resilient recovery increased.	• 975 people were 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.	• 15 percent of grant activities engaged in preparedness planning and/or resilient recovery include civil society or community groups
4.6 Capacity to conduct post-disaster assessments and/or resilient recovery planning strengthened.	• 5 percent of grant activities supported resilient recovery training and capacity building

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. FY20 will be final year to measure progress against these targets, as a new strategy will commence in FY21. Table 4 presents progress made in FY20 and indicates that nearly all targets have been met or exceeded. The table also provides the results measured against the targets since FY18.

Table 4. Progress toward FY21 Targets

Areas of Engagement	Results Indicator	FY18 Results	FY19 Results	FY20 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	500
	People trained to use risk tools for decision making (#)	5,375	8,088	12,347	2,000
Promoting resilient infrastructure	Countries with safer school engagements (#)	44	45	60	30
	Classrooms made safer from disasters (#)	28,750	766,830	226,535	200,000
	Expected student beneficiaries (#)	4.8 million	18 million	6.6 million	7 million
Scaling up the resilience of cities[a]	Cities with resilient development investments (#)	45+	60	40	30
Deepening financial protection	Government officials trained in financial protection and direct and indirect insurance programs (#)	966	1,251	3,703	500
Building resilience at the community level	People who have access to coverage of social protection (#)	3.1 million	5 million	2.9 million	15 million
Strengthening hydromet services and early warning systems	Expected final beneficiaries (#)	51 million	75 million	14.3 million[b]	100 million
Enabling resilient recovery	Government officials trained on PDNA and/or recovery planning and coordination (#)	615	691	357	1,000
Deepening engagements in resilience to climate change[c]	Total climate resilience investments enabled by development partners ($)	$1.7 billion	$2.8 billion	$2.9 billion	$3 billion
	Countries with climate resilience investments enabled (#)	51	31	34	25

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

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

b FY20 results are based on an updated methodology and analysis led by the GFDRR hydromet program team.

c FY19 and FY20 results are based on analysis of World Bank climate co-benefits data.

Evaluation

In FY20, GFDRR further increased its emphasis on accountability and learning through beginning to implement its new evaluation policy.

GFDRR commissioned a rapid review of its current FY18-21 strategy to assess the relevance and effectiveness of the strategy, reflect upon lessons learned from implementation, and gather recommendations for the facility's new FY21-25 strategy. The review found the current strategy to be highly relevant and clearly aligned to international policy frameworks, including the Sendai Framework, and partner country needs. It also found it to be highly appropriate to focus on leveraging as core comparative advantage of GFDRR and recommended continued emphasis on leveraging in the new strategy, while also highlighting other comparative advantages of GFDRR. Regarding performance management, the review found the current strategy does not effectively articulate targets, and future targets should be specific, outcome-oriented, measurable, and timebound. Additional recommendations for GFDRR's next strategy include continuity of existing focus areas and current streams of funding, including for global public goods and innovation. It was also recommended to increase emphasis on learning and deepen the focus on community engagement, gender, and social inclusion.

During the fiscal year, an independent mid-term evaluation was completed for the Disaster Risk Financing and Analytics (DRFA) Program SDTF. Commissioned by the European Commission and managed by GFDRR, this evaluation found the DRFA Program has been well aligned with the needs of most recipient countries (Morocco, Philippines, and Vietnam) and made good progress delivering outcomes. For Fiji and Pakistan, the evaluation found the program was not yet aligned with the countries' needs due to insufficient involvement of pilot country governments in the design phase. It recommended future similar projects have more significant involvement from government authorities from the onset and take a demand-driven approach in selecting priority countries. Other recommendations include ensuring the analytics generated through the program are user-friendly, as well as striving to transfer the substantial knowledge generated through the program.

GFDRR also commissioned a review to examine the facility's contribution to advancing the social resilience agenda in DRM and climate change adaptation. It examines closed in-country grants that included activities aiming to enhance or support social resilience and were awarded between FY16-19, and findings will inform the operationalization of GFDRR's new MDTF and other future programming. The review will be conducted in two phases, with phase one beginning in FY20. Drawing on a sample of grants, the first phase examines what types of social resilience activities have been funded by GFDRR and how they were implemented, as well as identifying examples of innovative and promising practice. The second phase of the review will be evaluative and is anticipated to begin in mid-FY21.

Additionally, the Secretariat has developed an evaluation pipeline for FY21-22. Ongoing and forthcoming evaluations and reviews include:

- A completion evaluation of the GFDRR MDTF (FY21);
- A results-oriented monitoring evaluation of the EU-SAR SDTF (FY21);
- A review of GFDRR's urban resilience portfolio from 2010-2020 (FY21); and,
- A mid-term review of the second phase of the Japan-World Bank Program for Mainstreaming DRM SDTF (FY22).

Additionally, there will be an external evaluation for the CREWS Initiative, for which GFDRR is an implementer on behalf of the World Bank.

Mainstreaming Gender and Citizen Engagement

GFDRR monitors the progress and results on mainstreaming gender equality, women's empowerment, and citizen engagement through its grants to ensure that the GFDRR Gender Action Plan 2016–2021 (GAP) and GFDRR Citizen Engagement Action Plan 2019–2023 (CEAP) are implemented.

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 to move the World Bank's disaster risk management work beyond gender mainstreaming to outcomes and results. As shown in table 5, in FY20, 75 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. This is an uptick from previous years mainly because of an increase in the proportion of the newly approved grants that in FY20 have undertaken gender actions—50 percent of them, compared with 36 percent in FY19. These grants included specific actions to reduce gender gaps, such as gathering gender-disaggregated data and ensuring that both genders have equal opportunities in accessing benefits from grants. The proportion of new grants that included indicators to measure progress in closing gender gaps also increased, by 69 percent, to 22 percent from 13 percent in FY19.

FY20 has been a year in which GFDRR invested heavily in new analytics and data, which will help fill knowledge gaps and create a solid evidence base that will allow the facility to scale up its operational impact in the next years, under the auspices of the ambitious new GFDRR strategy currently under preparation. However, there are still some hard issues that need more attention and where progress is slower than expected. In FY20, the proportion of new grants that included gender analysis or considered existing gender analysis to inform the grant's design and/or implementation decreased to 56 percent from 59 percent in the previous year.

Mainstreaming Citizen Engagement within the GFDRR Portfolio

The CEAP's objective is to promote a more systematic and results-focused approach to the analysis, design, implementation, and monitoring and evaluation of the integration of citizen engagement within GFDRR's activities. The monitoring and results reporting of the CEAP is aligned with the updated Logical Framework and Results Framework to ensure GFDRR-wide monitoring and reporting of progress on citizen engagement. In FY20, 65 percent of grants included citizen engagement in their design, consistent with FY19 (see table 6). Of those, 44 percent included consultations with citizens/communities, 31 percent included citizens/communities in planning and decision-making, and 20 percent incorporated community control over planning decisions and investment resources. The progress indicates a steady increase in mainstreaming citizen engagement within GFDRR since FY17.

Table 5. Gender Mainstreaming (%)

Gender	Gender Results Indicators	FY17	FY18	FY19	FY20
Percentage of approved gender-informed grants (%)		70	72	59	75
Percentage of approved grants that include gender actions (%)		42	39	56	50

Table 6. Citizen Engagement (%)

Results indicators	FY18	FY19	FY120
Percentage of grants that include citizen engagement in their design (%)	57	65	65
Percentage of grants that include consultations with citizens (%)	37	41	44
Percentage of grants that engaged citizens in planning and decision-making (%)	25	27	31
Percentage of grants that support citizen control over planning decisions and investment resources (%)	15	17	20

Leveraging 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.

In FY20, GFDRR's funding or/and technical assistance mobilized nearly $6.7 billion in additional financing (see table 7). This is a 12 percent decrease from FY19. Of this, over $5.5 billion (83 percent) was leveraged through GFDRR's partnership with the World Bank. Approximately $1.1 billion (17 percent) was leveraged from national governments (e.g., the governments of Bangladesh and Vietnam), bilateral donors and other development banks (e.g., the government of France, the Asian Development Bank), and other partners (e.g., the private sector).

Since FY17, GFDRR has asked grant recipients to self-report on the way grant activities have leveraged additional financing from the World Bank, national governments, and/or other development partners. GFDRR categorizes the way in which its activities have leveraged 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 FY20, GFDRR activities **informed $3.5 billion** in leveraging (53 percent of total leveraging). Of this, most additional resources informed projects in the Africa region, including post-disaster operations in the Comoros and Mozambique, and in Latin America and the Caribbean, including a COVID-19 response operation in Haiti.

- *ENABLING development financing by directly supporting the design and/or implementation of a disaster risk management (DRM) operation from national governments or development partners.* For example, funding staff time to work on designing DRM projects at the World Bank or integrating DRM as a component in a development project. This occurs when a GFDRR grant funds technical advisory inputs for a project feasibility study and/or a project design. The larger investment is already conceived.

In FY20, GFDRR activities helped **enable $2.7 billion** in DRM financing (41 percent of total leveraging). Of this, most enabled financing occurred through projects in East Asia and the Pacific, including large-scale projects for enhancing resilience in the Philippines.

- *CO-FINANCING DRM operations with other development partners to increase the scale of interventions.* For example, co-mingled 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 FY20, GFDRR engagements were linked to nearly **$427 million in co-financing** activities (6 percent of total leveraging).

Detailed information on funding leveraged during FY20 can be found in the table 7.

Table 7. Development Finance Leveraged through FY20 Portfolio by Region and Leveraging Type

Leveraging Type	Country	Project Name	Funding Source ($M)			
			$	WB	$	Non-WB
Africa						
Informing	Malawi	Additional Financing to the Malawi Resilience and Disaster Risk Management Project (P171877)	80.0	IDA		
	Mali	Mali Sustainable Energy and Improved Service Delivery for Increased Stability Development Policy Financing (P167547)	250.0	IDA		
	Mozambique	Mozambique: Cyclone Idai & Kenneth Emergency Recovery and Resilience Project (P171040)	130.0	IDA	60.0	Government of the Netherlands
Enabling	Chad	Strengthening Hydromet and Early Warning Services in West Africa (P173768)			3.2	Climate Risk and Early Warning Systems (CREWS) Initiative
	Comoros	Comoros Post-Kenneth Recovery and Resilience Project (P171361)	45.0	IDA		
	Senegal	Senegal Municipal Solid Waste Management Project (P161477)	125.0	IDA	169.7	Government of Senegal, Government of France, Government of Spain, foreign private commercial sources
	Togo	Strengthening Hydromet and Early Warning Services in West Africa (P173768)			2.3	CREWS
	West Africa	Additional Financing - Regional Disease Surveillance System Enhancement Project in West Africa, Phase 1 (P170788)	9.1	IBRD		
Informing/ Enabling	Côte d'Ivoire	Urban Resilience and Solid Waste Management Project (P168308)	315.0	IDA		
Co-financing	Eswatini	Kingdom of Eswatini: Water Supply and Sanitation Access Project (P166697)	45.0	IBRD		
	Senegal	Building Coastal Resilience and Supporting the Blue Economy in Saint-Louis, Senegal			0.6	ProBlue
	Zimbabwe	SPF - Support to Zimbabwe Recovery and Resilience (P172176)	3.0	IBRD		
Subtotal			**1,002.1**		**235.8**	
Region Total				**1,237.8**		

Table 7. Development Finance Leveraged through FY20 Portfolio by Region and Leveraging Type (cont.)

Leveraging Type	Country	Project Name	Funding Source ($M)			
			$	WB	$	Non-WB
East Asia and Pacific						
Informing	Kiribati	South Tarawa Water Supply Project (P162938)	15.0	IDA	41.6	Asian Development Bank (ADB)
	Marshall Islands	Pacific Resilience Project II under the Pacific Resilience Program (P172014)	15.4	IDA	25.0	Green Climate Fund (GCF)
	Myanmar	Yangon Safe Affordable Expansion Initiative (Yangon SAFE)			2.3	Government of France / Agence Française de Développement (AFD)
	Vanuatu	Vanuatu Climate Resilient Transport Project (P167382)	66.0	IDA		
	Vietnam	Vinh Long City Urban Development and Enhanced Climate Resilience Project in Vinh Long Province (P171700)	126.9	IDA	75.3	Government of Vietnam, Government of the Netherlands
Enabling	Fiji	Fiji Second Fiscal Sustainability and Climate Resilience DPO (P168402)	64.0	IBRD/ IDA		
	Indonesia	Indonesia Disaster Resilience Initiatives Project (P170874)	160.0	IBRD		
	Myanmar	Yangon Integrated Flood Resilience Strategy			0.03	Government of the Netherlands /Netherlands Enterprise Agency
	Myanmar	Hlan Chi Programme - Cities and Infrastructure for Growth			0.05	Government of the United Kingdom
	Philippines	Promoting Competitiveness and Enhancing Resilience to Natural Disaster Sub-Program 1 DPL (P170052)	400.0	IBRD		
	Philippines	Philippines Third Disaster Risk Management Development Policy Loan (P171440)	500.0	IBRD		
	Timor-Leste	Timor-Leste Water Supply and Sanitation Project (P167901)	25.0	IDA	5.0	Government of Timor-Leste
Co-financing	Tuvalu	Tuvalu First Resilience Development Policy Operations with a Catastrophe-Deferred Drawdown Option (P170558)	13.5	IDA		
Subtotal			**1,385.8**		**149.3**	
Region Total				**1,535.1**		

Table 7. Development Finance Leveraged through FY20 Portfolio by Region and Leveraging Type (cont.)

Leveraging Type	Country	Project Name	Funding Source ($M)			
			$	WB	$	Non-WB
Europe and Central Asia						
Informing	Kosovo	Fostering and Leveraging Opportunities for Water Security Program (P169150)	27.4	IDA	1.1	European Commission
	Kyrgyz Republic	Kyrgyz Republic Regional Economic Development Project (P167428)	60.0	IDA		
	Kyrgyz Republic	Enhancing Resilience in Kyrgyzstan Additional Financing (P172761)	55.0	IDA		
Co-financing	Croatia	Croatia: Earthquake Recovery and Public Health Preparedness Project (P173998)	200.0	IBRD		
Subtotal			**342.4**		**1.1**	
Region Total				**343.5**		
Latin America and the Caribbean						
Informing	Brazil	Ceará Water Security and Governance (P165055)	139.9	IBRD	35.0	Government of Brazil
	Brazil	Ceara Rural Sustainable Development and Competitiveness Phase II (P167455)	100.0	IBRD	53.5	Government of Brazil
	Costa Rica	Costa Rica Sustainable Fisheries Development Project (P168475)	75.1	IBRD	7.0	Government of Costa Rica
	Dominica	Dominica - Caribbean Regional Air Transport Connectivity Project (P171224)	13.0	IDA		
	El Salvador	El Salvador - Growing Up and Learning Together: Comprehensive Early Childhood Development Project (P171316)	250.0	IBRD		
	Grenada	Grenada - Caribbean Regional Air Transport Connectivity (P172951)	17.0	IDA		
	Haiti	Caribbean Regional Air Transport Connectivity Project - Haiti (P170907)	84.0	IDA		
	Haiti	Haiti - COVID-19 Response and Resilience Development Policy Operation (P171474)	20.0	IDA		
	Honduras	Honduras - DRM Development Policy Credit with a Catastrophe Deferred Drawdown Option (Cat DDO) (P172567)	119.0	IDA		
	Saint Lucia	Saint Lucia Human Capital Resilience Project (P170445)	20.0	IDA		
	Saint Lucia	Saint Lucia - Caribbean Regional Air Transport Connectivity Project (P170860)	45.0	IDA		

Table 7. Development Finance Leveraged through FY20 Portfolio by Region and Leveraging Type (cont.)

Leveraging Type	Country	Project Name	Funding Source ($M)			
			$	WB	$	Non-WB
Latin America and the Caribbean (cont.)						
Enabling	Bolivia	Bolivia Urban Resilience (P165861)	70.0	IDA		
	Dominica	Additional Financing to the Disaster Vulnerability Reduction Project for Dominica (P174242)	12.8	IDA		
	Grenada	Grenada - Disaster Risk Management Development Policy Credit with a Catastrophe Deferred Drawdown Option (P171465)	20.0	IDA		
	Haiti	Cap Haitien Urban Development Project (P168951)	56.0	IDA		
	Mexico	Water Security and Resilience for the Valley of Mexico (PROSEGHIR) (P164389)	120.0	IBRD		
	Peru	National Urban Cadaster and Municipal Support Project (P162278)	50.0	IBRD	30.9	Government of Peru
Co-financing	Brazil	Linha de Credito Para Resilience Urban no Sul do Brasil (P170682)	98.8	IBRD	24.9	Government of Brazil
	Central America	Strengthening DRM and Resilience of Central American Municipalities (P162643)	1.0	IBRD		
	St. Vincent and the Grenadines	Second Fiscal Reform and Resilience Development Policy Credit with a CAT DDO (P169956)	40.0	IDA		
Subtotal			**1,351.6**		**151.3**	
Region Total				**1,502.8**		
Middle East and North Africa						
Co-financing	Morocco	Morocco - Disaster Risk Management Development Policy Loan with a Catastrophe Deferred Drawdown Option (P168580)	275.0	IBRD		
Subtotal			**275.0**		0	
Region Total			**275.0**			

Table 7. Development Finance Leveraged through FY20 Portfolio by Region and Leveraging Type (cont.)

Leveraging Type	Country	Project Name	Funding Source ($M)			
			$	WB	$	Non-WB
South Asia						
Informing	Bangladesh	Dhaka Sanitation Improvement Project (P161432)	100.0	IDA	143.0	Asian Infrastructure Investment Bank (AIIB)
	Bangladesh	Bangladesh Municipal Water Supply and Sanitation Project (P161227)	170.0	IDA	109.5	Government of Bangladesh, AIIB
	Bhutan	Bhutan Development Policy Financing with CAT DDO (P173008)	14.8	IDA		
	India	Assam Inland Water Transport Project (P157929)	88.0	IBRD	22.0	Government of India
	India	West Bengal Major Irrigation and Flood Management Project (P162679)	145.0	IBRD	268.8	Government of India, AIIB
	Maldives	Maldives: Development Policy Financing with a Catastrophe Deferred Drawdown Option and Pandemic Emergency Financing Facility (P163939)	10.0	IDA		
	Sri Lanka	Sri Lanka Integrated Watershed and Water Resources Management Project (P166865)	69.5	IDA	5.5	Government of Sri Lanka
	Bangladesh	Bangladesh Sustainable Coastal and Marine Fisheries (P161568)	240	IDA	41.6	Government of Bangladesh
Enabling	Bangladesh	Bangladesh Private Investment & Digital Entrepreneurship Project (P170688)	500.0	IDA	55.0	Government of Bangladesh
	Maldives	Maldives Urban Development and Resilience Project (P163957)	16.5	IDA		
	Nepal	Nepal Development Policy Financing with CAT DDO (P166788)	50.0	IDA		
Subtotal			**1,163.8**		**603.8**	
Region Total			**1,767.7**			

Financial Statements

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 purpose based on the exchange rate on June 30, 2020 (1 USD = 0.89 EUR)

	Notes	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019	For the fiscal year ended June 30th, 2018
Opening Balance:		250,299,118	221,259,738	271,516,113
Receipts:				
Donor Contributions	1	170,820,554	112,881,807	34,204,842
Net Investment and other incomes	2	4,590,626	5,117,900	1,906,735
Total Receipts		**175,411,180**	**117,999,707**	**36,111,577**
Disbursements:				
Project Disbursements	3	97,351,704	80,295,773	76,378,696
World Bank Administration Fee	4	1,157,157	669,617	39,959
Program Management and Administration Expenses	5	5,901,087	6,909,498	6,025,935
Refund to donors	6	847,510	1,085,439	1,923,362.00
Trustee Allocation	7	-	-	2,000,000.00
Total Disbursements		**105,257,458**	88,960,327	86,367,952
Excess of (disbursements over receipts)/ receipts over disbursements		70,153,722	29,039,380	-50,256,375
Ending Balance:				
Ending Balance		**320,452,840**	250,299,118	221,259,738
Less: Undisbursed Commitments	8	137,261,576	144,703,081	106,328,114
Fund Available for New Grants	9	**193,050,655**	102,519,462	114,931,624

NOTE 1: DONOR CONTRIBUTIONS

The following table provides details of contributions receivable by donor.

Donor	For the fiscal year ended June 30th, 2020 in US$	For the fiscal year ended June 30th, 2019 in US$	For the fiscal year ended June 30th, 2018 in US$	Contribution receivable*
Australia	–	2,879,020	5,999,090	–
Austria	2,217,410	–	3,208,950	–
Canada	6,009,782	2,970,512	–	8,962,581
European Union	11,024,053	25,977,575	3,810,169	16,481,825
Germany	70,703,100	44,405,567	5,977,407	46,840,000
India	167,000	167,000	–	166,000
Italy	–	4,553,200	–	–
Japan	22,000,000	20,000,000	2,000,000	63,000,000
Luxembourg	–	–	367,322	–
Norway	3,400,667	2,661,975	1,614,087	–
Serbia	181,075	158,267	368,000	–
Sweden	2,627,430	2,755,428	–	2,776,513
Switzerland	5,744,788	4,011,263	8,076,252	1,626,810
United Kingdom	45,295,250	–	2,783,565	10,450,300
United States	1,450,000	2,342,000	–	2,978,000
Total	**170,820,554**	**112,881,807**	**34,204,842**	**153,282,029**

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

The following table provides details of contributions received by main fund

Main Fund	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019	For the fiscal year ended June 30th, 2018	Contribution receivable
Core MDTF (TF072236)	–	–	2,000,000	–
Parallel Core MDTF (TF072584)	2,975,505	23,371,500	11,254,283	2,942,513
New Core MDTF (TF073410)	16,726,865	–	–	4,626,810
Japan Program (TF072129)	–	–	–	–
Japan Program Phase II (TF073236)	20,000,000	20,000,000	–	60,000,000
ACP-EU NDRR (TF071630)	4,169,441	–	–	–
Africa DRF SDTF (TF072281)	–	1,113,500	–	–
EU-SAR SDTF (TF072458)	2,235,600	–	2,336,600	2,342,000
EU-SERBIA NDRMP SDTF (TF072528)	586,802	–	1,473,569	–
EU-DRAF SDTF (TF072535)	665,610	2,010,150	–	–
EU-Caribbean OCTs SDTF (TF073230)	–	1,700,100	–	1,756,500
EU-Caribbean SDTF (TF073227)	–	21,153,825	–	10,861,025
EU-Central Asia (TF073297)	3,366,600	–	–	1,522,300
Australia Indo-Pacific SDTF (TF072835)	–	2,879,020	2,433,590	–
GRiF MDTF (TF072858)	112,434,350	34,111,200	8,706,800	57,290,300
USAID-SDTF (TF072896)	1,450,000	1,572,000	–	2,978,000
Canada-Caribbean SDTF (TF073283)	3,009,782	2,970,512	–	8,962,581
City Resilience MDTF (TF072921)	3,200,000	2,000,000	6,000,000	–
Total	**170,820,554**	**112,881,807**	**34,204,842**	**153,282,029**

NOTE 2: INVESTMENT AND OTHER INCOME
Net investment and other incomes in the amount of US$4,590,626 for the fiscal year ended June 30th, 2020.

NOTE 4: WORLD BANK ADMINISTRATIVE FEE
In the fiscal year ended June 30th, 2020, The World Bank charged an administrative fee of US$1,157,157 as agreed in the signed Administrative Agreements.

NOTE 6: REFUND TO DONORS
In fiscal year ended June 30th, 2020, funds in the amont of US$847,510 were refunded to donors on a pro-rata basis.

NOTE 7: TRUSTEE ALLOCATION
In the fiscal year ended June 30th, 2020 no funds were transferred from other Trust Funds.

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

Region	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019	For the fiscal year ended June 30th, 2018
Africa	26,198,773	22,800,948	18,627,302
East Asia and Pacific	13,884,498	8,234,429	9,341,374
Europe and Central Asia	12,362,446	8,800,434	9,975,229
Latin America and Caribbean	11,927,129	9,165,888	7,351,273
Middle East and North Africa	2,657,400	2,169,638	3,031,436
South Asia	8,623,242	6,674,510	6,407,826
Global	21,698,216	22,449,926	21,644,256
Total	**97,351,704**	**80,295,773**	**76,378,696**

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

Execution type	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019	For the fiscal year ended June 30th, 2018
Bank Executed	86,696,683	71,731,080	69,144,773
Recipient Executed	10,655,021	8,564,693	7,233,923
Total	**97,351,704**	**80,295,773**	**76,378,696**

NOTE 5: PROGRAM MANAGEMENT AND ADMINISTRATION DISBURSEMENTS

Program management and administration expenses for the fiscal year 2020 were in the amount of US$5,901,087

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

Expense category		For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30, 2019	For the fiscal year ended June 30, 2018
Staff cost	(1)	4,679,679	5,145,524	4,390,287
Short term consultants/temporary		722,446	576,354	684,319
Travel	(2)	170,177	455,467	390,314
Other expenses	(3)	328,785	732,153	561,015
Total		**5,901,087**	**6,909,498**	**6,025,935**

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

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

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

NOTE 8: UNDISBURSED COMMITMENTS

Commitments in the amount of US$137,261,576 are outstanding as of end of fiscal year 2020.
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	
ACP-EU (TF071630)	13,314,174
Japan Program Phase I (TF072129)	12,937,446
Japan Program Phase II (TF073236)	18,054,370
Core MDTF (TF072236)	1,680,795
Parallel Core MDTF (TF072584)	10,196,450
New Core MDTF (TF073410)	1,472,687
EU-SAR SDTF (TF072458)	1,480,219
EU-SERBIA NDRMP SDTF (TF072528)	782,971
EU-DRAF SDTF (TF072535)	1,885,660
EU-Caribbean OCTs SDTF (TF073230)	743,585
EU-Caribbean SDTF (TF073227)	4,711,015
EU-Central Asia SDTF (TF073297)	3,302,294
Australia Indo-Pacific SDTF (TF072835)	7,071,154
USAID SDTF (TF072896)	1,681,534
GRiF MDTF (TF072858)	38,696,162
Canada-Caribbean SDTF (TF073283)	2,783,655
City Resilience MDTF (TF072921)	3,325,408
CREWS (TF072789)	13,141,997
Total	**137,261,576**

The following table provides details of undisbursed commitments by region.

Region	
AFRICA	54,233,245
EAST ASIA AND PACIFIC	17,107,303
EUROPE AND CENTRAL ASIA	11,371,550
LATIN AMERICA AND CARIBBEAN	15,529,524
MIDDLE EAST AND NORTH AFRICA	805,000
SOUTH ASIA	14,097,744
GLOBAL	24,117,210
Total	**137,261,576**

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

Execution Type	
Bank Executed TF	105,717,469
Recipient Executed TF	31,544,107
Total	**137,261,576**

NOTE 9: FUND AVAILABLE FOR NEW GRANTS

Fund available for new grants in the amount of $102,519,462 are outstanding as of end of fiscal year 2020.

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

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

Main Fund	For the fiscal year ended June 30th, 2020
Core MDTF (TF072236)	29,870
Parallel Core MDTF (TF072584)	299,402
New Core MDTF (TF073410)	15,371,662
Japan Program (TF072129)	1,381,377
Japan Program Phase II (TF073236)	16,206,995
ACP-EU NDRR (TF071630)	592,710
Africa DRF SDTF (TF072281)	–
EU-SAR SDTF (TF072458)	1,808,005
EU-SERBIA NDRMP SDTF (TF072528)	–
EU-DRAF SDTF (TF072535)	–-
EU-Caribbean OCTs SDTF (TF073230)	411,919
EU-Caribbean SDTF (TF073227)	15,222,736
EU-Central Asia SDTF (TF073297)	16,991
Australia Indo-Pacific SDTF (TF072835)	479,444
GRiF MDTF (TF072858)	135,872,824
USAID-SDTF (TF072896)	(168,542)
City Resilience MDTF (TF072921)	3,107,082
Canada-Caribbean SDTF (TF073283)	2,418,179
Total	**193,050,655**

Abbreviations

ACP	African, Caribbean and Pacific
ACP-EU NDRR Program	ACP-EU Natural Disaster Risk Reduction Program
ADB	Asian Development Bank
ADRF	Africa Disaster Risk Financing
AfDB	African Development Bank
AFR	Africa
AI	artificial intelligence
AUC	African Union Commission
BCR	benefit-cost ratio
BDO	Big Data Observatory
BOSS	Business Operation Support System
BRCA	Building Regulatory Capacity Assessments
BRR	Building Regulation for Resilience
CAFF	Climate Adaptation Financing Facility
CARE	Climate Adaptation and Resilience for South Asia Project
CAT bond	Catastrophe-linked bond
Cat DDO	Catastrophe Deferred Drawdown Option
CBDRM	community-based disaster risk management
CCAP	Citizens' Charter Afghanistan Project
CCPC	Municipal Civil Protection Committee (Haiti)
CDEMA	Caribbean Disaster Emergency Management Agency
CDRI	Coalition for Disaster Resilient Infrastructure
CEAP	Citizen Engagement Action Plan
CEPREDENAC	The Coordination Center for Disaster Prevention in Central America and the Dominican Republic
CERC	Contingent Emergency Response Component
CG	Consultative Group
COP25	25th Conference of Parties
COS	civil society organizations
CREWS	Climate Risk and Early Warning Systems
CRF	Canada-Caribbean Resilience Facility
CRNA	COVID-19 Recovery Needs Assessment
CRP	City Resilience Program
CRRBG	Caribbean Regional Resilience Building Facility
CSO	civil society organization
D-LeaP	Danube Learning Partnership
DES	Department of Emergency Situations (Romania)
DGPC	Civil Protection General Directorate (Haiti)
DRF	disaster recovery framework
DRF	disaster risk financing

DRFI	disaster risk financing and insurance
DRM	disaster risk management
DRR	disaster risk reduction
DTMs	digital terrain models
EAP	East Asia and Pacific
ECCAS	Economic Community of Central African States
ECMWF	European Centre for Medium-Range Weather Forecasts
EOC	emergency operations center
ECOWAS	Economic Community of West African States
eMBeD	Mind, Behavior, and Development Unit (World Bank)
EP&R	emergency preparedness and response
ESMAP	Energy Sector Management Assistance Program
EWS	early warning systems
EU	European Union
FCS	fragile and conflict-affected situations
FCV	fragility, conflict, and violence
GAP	Gender Action Plan
GFDRR	Global Facility for Disaster Reduction and Recovery
GLOSI	Global Library of School Infrastructure
GPSS	Global Program for Safer Schools
GRADEs	Global Rapid Post-Disaster Damage Estimations
GRiF	Global Risk Financing Facility
HEDCP	Health Emergency and Disaster Contingency Plan (Bhutan)
hydromet	hydrometeorological
IAWD	International Association of Water Service Companies in the Danube River Catchment Area (IAWD)
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IGAD	Intergovernmental Authority on Development
JICA	Japan International Cooperation Agency
JIT	Just-in-Time
LAC	Latin America and the Caribbean
LDC	least developed country
LIDAR	light detection and ranging
M&E	monitoring and evaluation
MDTF	Multi-Donor Trust Fund
MENA	Middle East and North Africa
MHEWS	multi-hazard early warning systems
NARS	National Asset Registry System (Philippines)
NDRR	Natural Disaster Risk Reduction
NEF	National Emergency Fund (Cabo Verde)
NGO	nongovernmental organization
NMHSs	National Meteorological and Hydrological Services

NOAA	National Oceanic and Atmospheric Administration
OACP	Organization of African Caribbean Pacific States
OCTs	Overseas Countries and Territories
ODI	Overseas Development Institute
PCD	Project Coordinating Unit
PD-PFM	Post-Disaster Public Financial Management
PDNA	Post-Disaster Needs Assessment
P-for-R	Program for Results
PFM	public financial management
PMA	Program Management Administration
PREP	Pacific Resilience Program
RACF	Risk Assessment and Classification Framework
RAJUK	Capital Development Authority
RCRC	Red Cross Red Crescent Climate Center
RECs	Regional Economic Communities
RHMS	Republic Hydro-Meteorological Service of Serbia
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
RPBA	Recovery Peace Building Assessment
SAHF	South Asia Hydromet Forum
SADC	Southern African Development Community
SEADRIF	Southeast Asia Disaster Risk Insurance Facility
SIDS	small island developing states
SMS	short message services
SOFF	Systematic Observation Financing Facility
SSA	Sub-Saharan Africa
TA	technical assistance
UAIS	Uganda Agricultural Insurance Scheme
UAV	unmanned aerial vehicle
UHPC	Ultra-High Performance Concrete
UN	United Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNDRR	United Nations Office for Disaster Risk Reduction
UR	Understanding Risk
WASH	water, sanitation and hygiene
WHO	World Health Organization
WMO	World Meteorological Organization
ZRRF	Zimbabwe Recovery and Resilience Framework

www.gfdrr.org

The Global Facility for Disaster Reduction and Recovery (GFDRR) is a global partnership that helps developing countries better understand and reduce their vulnerabilities to natural hazards and adapt to climate change. Working with over 400 local, national, regional, and international partners, GFDRR provides grant financing, technical assistance, training and knowledge sharing activities to mainstream disaster and climate risk management in national and regional policies, strategies, and investment plans. Managed by the World Bank, GFDRR is supported and directed by a Consultative Group that has 17 members and 14 observers.