

Japan–World Bank Program

for Mainstreaming Disaster Risk Management in Developing Countries



ANNUAL REPORT

2019–20



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP



GFDRR
Global Facility for Disaster Reduction and Recovery



Photo: hadynyah

This Annual Report covers the period between July 1, 2019, and March 31, 2020 (2019-2020). It was submitted for review at the Seventh Program Steering Committee Meeting, which was held in Japan on June 17, 2020.

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ABBREVIATIONS

AFR	Africa Region	IDA	International Development Association
BBB	Brown Bag Breakfast	IDDR	International Day for Disaster Reduction
BRR	Building Regulations for Resilience	IWT	Inland Water Transport (India)
CoP	Community of Practice	JETRO	Japan External Trade Organization
DOISP2	Dam Operational Improvement and Safety Project Phase 2	JICA	Japan International Cooperation Agency
DRFI	Disaster Risk Financing and Insurance	JIT	Just-in-Time
DRM	disaster risk management	JWA	Japan Water Agency
DRR	disaster risk reduction	LAC	Latin America and Caribbean Region
DRVN	Directory of Roads in Vietnam	LRAMP	Local Road Asset Management Program
EAP	East Asia and Pacific Region	M&E	monitoring and evaluation
ECA	Europe and Central Asia Region	MENA	Middle East and North Africa Region
EOC	Emergency Operations Center	MLIT	Ministry of Land, Infrastructure, Transport and Tourism
EP&R	Emergency Preparedness and Response	MoF	Ministry of Finance, Japan
EWS	early warning system	PAD	Project Appraisal Document
FCI GP	Finance, Competitiveness and Innovation Global Practice	PBA	Philippine Building Act
FDMA	Fire and Disaster Management Agency	PPE	public-private engagement
GFDRR	Global Facility for Disaster Reduction and Recovery	QII	Quality Infrastructure Investment
GIF	Global Infrastructure Facility	SAR	South Asia Region
GPURL	Urban, Resilience and Land Global Practice (formerly known as GSURR, Global Practice for Social, Urban and Rural Development, and Resilience)	SEADRIF	South East Asia Disaster Risk Insurance Facility
GP	Global Practice	TA	technical assistance
IBRD	International Bank for Reconstruction and Development	TDD	Technical Deep Dives
ICHARM	International Centre for Water Hazard and Risk Management	TDLC	Tokyo Development Learning Center
		UHPC	ultra-high performance concrete
		UNDRR	UN Office for Disaster Risk Reduction
		WSS	Water Supply and Sanitation

All dollar amounts are US dollars unless otherwise indicated.



Ethiopia. Photo: © Dominic Chavez

EXECUTIVE SUMMARY

This Annual Report presents the progress and achievements made under the Japan–World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries (hereinafter referred as *the Program*) from the period between **July 1, 2019 and March 31, 2020**.¹

Progress was measured mainly against the objectives of the Program and the targets stated in the Fiscal Year 20 (FY20) Work Plan submitted to the Ministry of Finance (MoF) Japan in September 2019.

Key Highlights of FY20

In FY20, MoF disbursed the second tranche of its contribution (\$20 million) as the Program commenced the second year of its renewed phase.

Key highlights of Program activities in FY20 include:

- By March 31, 2020, the Tokyo DRM Hub (the Hub) had **approved 35 technical assistance (TA) grants amounting to \$10.75 million** under the Country Program (Component 1) and **\$1 million** under the Hub (Component 2). An **additional 7 grants amounting to \$1.95 million** is in the pipeline for approval under the Country Program by end of June 2020.
- The Program continued to benefit from close consultation with Ministry of Foreign Affairs/Japanese Embassies and the Japan International Cooperation Agency (JICA) during the preparation and development of grant proposals. In FY20, all **35 proposals submitted to MoF were reviewed by both stakeholders** to ensure synergies and collaboration during implementation of grant activities. JICA also provided valuable inputs and critical contributions towards the development and finalization of **6 publications** supported by the Hub. In addition, JICA and the Hub collaborated in **5 knowledge exchange events**, as co-organizers and participants.
- As of March 31, 2020, the Program's total portfolio **consists of 130 TA grants, including both active and closed, with a total allocation of \$123.19 million**.²
- Of the \$10.75 million financing committed thus far in FY20, **79 percent contribute to Resilient Infrastructure; 12 percent to Risk Identification, Risk Reduction, and Preparedness; and 9 percent to Disaster Risk Finance and Insurance (DRFI) grants**.

¹ March 31, 2020 was determined as the data cut-off date because it was the end of the third quarter of the fiscal year, which was the last quarter before the submission date of this Annual Report.

² Total allocations include commitment across Japan-World Bank Program Phase 1 (TF072129) and Phase 2 (TF073236).

- **Forty-eight percent (\$5.15 million) of approved Country Program resources supported grants led by non-DRM World Bank Global Practices (GPs) from Energy; Finance, Competitiveness and Innovation (FCI); Transport; and Water.** Along with grants currently in the pipeline, this is in line with the FY20 Work Plan target of 52 percent and highlights the Program’s continued focus on diversifying support across sector teams, which in FY19 committed only 38 percent to non-DRM teams.
- Through grants approved in FY20, the **Program is estimated to inform a portfolio of approximately \$3.19 billion of ongoing World Bank investment projects.** Out of the \$3.19 billion, \$2.12 billion (66 percent of the total amount) is anticipated to be in infrastructure sectors (Transport and Water GPs). The Program has leveraged a total of **\$15.32 billion³** to date since its inception in 2014.
- The Hub emphasized funding activities closely linked to project preparation for investment programs. **Grants approved in FY20 are supporting the mainstreaming of resilience within 21 World Bank operations under preparation, which amounts to \$4.40 billion of planned new lending.** This exceeds the corresponding target of 10 World Bank operations stated in the FY20 Work Plan.
- During FY20, the Hub further deepened and developed new partnerships, **deploying 13 Japanese experts to client countries** to support Japan Program grants and World Bank operations, which is higher than the target of 10. Additionally, **20 expert exchange activities were organized in total (5 in client countries), mobilizing a total of 104 Japanese experts.** The Hub actively sought opportunities to form 6 new engagements with external entities through knowledge exchange activities.
- In FY20, **44 out of all active grants supported by the Hub utilized Program-commissioned knowledge products.**
- The **flagship report “Lifelines: The Resilient Infrastructure Opportunity,”** prepared with the Program’s financial and technical support and inputs from Japanese experts, have been widely distributed within the World Bank and globally. Its analytical tools and strategic recommendations are currently being integrated across World Bank sector investment projects.
- **Sendai Framework (the Framework) priorities are critical principles and guidelines that inform all TA grants financed by the Program.** The Program continues to monitor grant progress and results throughout implementation, against the Framework’s four priorities of action and seven targets, the GFDRR Pillars for Action,⁴ and the Program’s Results Framework indicators.

³ The cumulative leveraging amount (\$15.32 billion for overall Program) reported was taken from the grant proposals that were submitted to MoF in FY20, and figures from the FY20 Monitoring and Evaluation platform reporting on already active grants approved in previous fiscal years (please refer to Annex 1, table A3).

⁴ GFDRR’s Five Pillars of Action were identified in GFDRR’s strategy for 2012–15; which are: Risk Identification, Risk Reduction, Preparedness, Financial Protection, and Resilient Recovery.

Structure of the Report



SECTION 1

Provides the overall progress of the Program's activities in FY20 for both components—the Country Program and the Tokyo DRM Hub.



SECTION 2

Provides results from monitoring the Program against its objectives, the Sendai Framework, and Program priority areas. It also includes results of expert's engagement and beneficiaries of Hub's TA grants and World Bank operations.



SECTION 3

Provides stories of impact and results of selected grants of the Program.

Finally, the Annexes include detailed data of the Program, which supports the information and analysis provided in the three sections mentioned above.

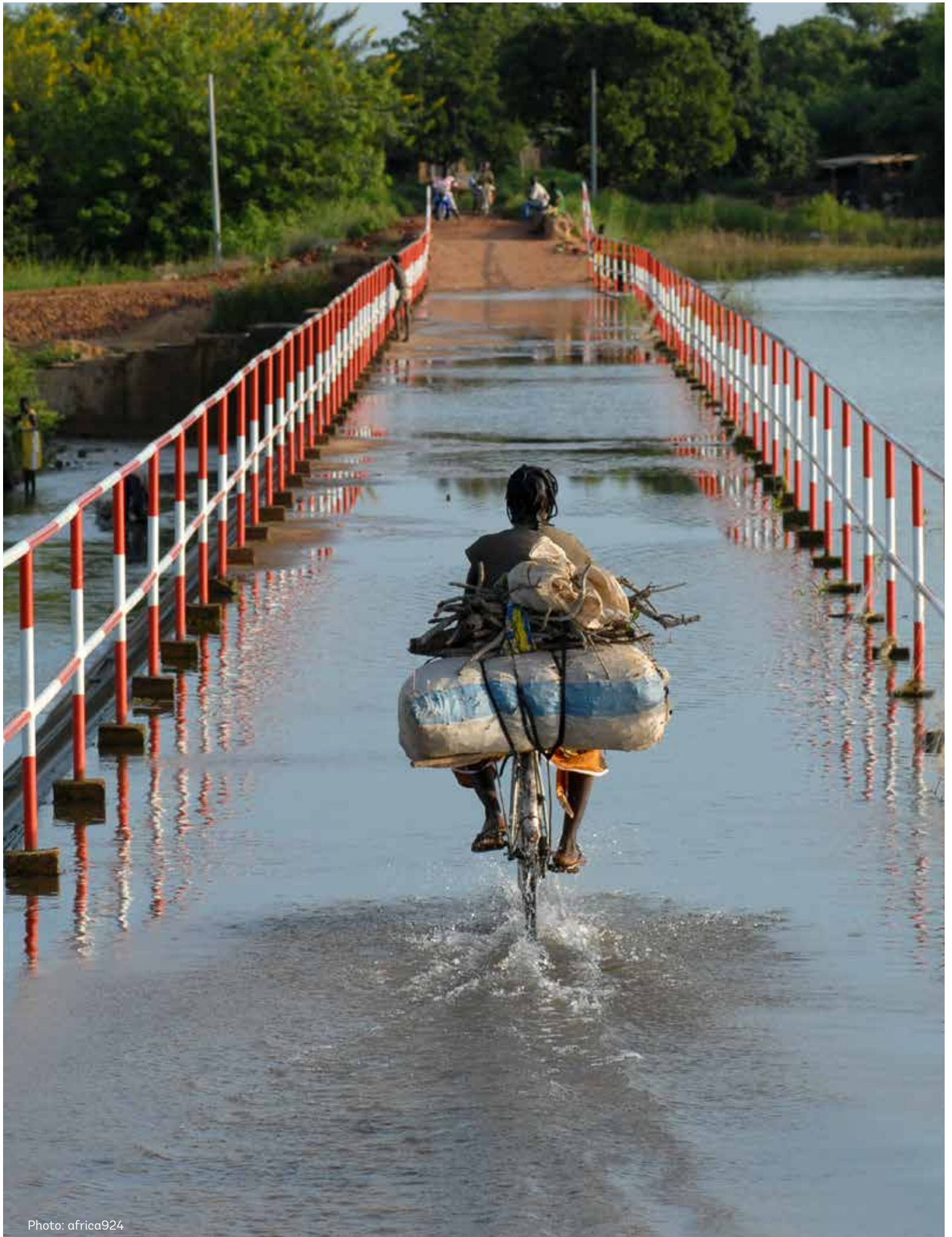


Photo: africa924

SECTION 1:

PROGRESS OF PROGRAM ACTIVITIES IN FY20

1.1 Program Overview

This section provides an overview of the Program's grants and finances along its two components, whose definitions are provided in Box 1.

Box 1: Program Components

Component 1: Country Program. The Country Program funds technical assistance (TA) to support and inform preparation of International Bank for Reconstruction and Development (IBRD) and/or International Development Association (IDA) investment projects.⁵ These include, for example, disaster risk analysis, technical assessments, analytical work, and expert engagements to improve capacity and technical knowledge to inform the design and implementation of investment projects.

Component 2: Tokyo DRM Hub. The Hub facilitates stronger links and in-country deployment of Japanese and global expertise, knowledge, and good practices for DRM, through operational support and project preparation, expert deployment, knowledge development and exchanges, and strengthened monitoring and evaluation (M&E).

As of March 31, 2020, in FY20 the **Program approved 35 new grants under the Country Program** across the three focus areas (please refer to table 1 for details), totaling \$10.75 million. Seven additional grants⁶ amounting to \$1.95 million are in the pipeline for approval under the Country Program by end of June 2020 (please refer to Annex 5 for details). The Program contributed **91.5 percent toward Component 1, the Country Program, and 8.5 percent toward Component 2, the Tokyo DRM Hub.**

In FY20, a total of **31 countries** are being supported under both components of the Program. The breakdown is as follows: 11 in Africa (Burkina Faso, Cameroon, Comoros, the Democratic Republic of Congo, Ethiopia, Ghana, Liberia, the Seychelles, Sierra Leone, Tanzania, Uganda); **5 in East Asia and Pacific (EAP)** (Cambodia, Indonesia, Myanmar, Philippines, Timor-Leste); **4 in Europe and Central Asia (ECA)** (Kazakhstan, Kosovo,

⁵ In this report, *grants* refer to TA grants financially supported by the Program, and *projects* refer to IBRD and/or IDA investment projects.

⁶ As of March 31, 2020

The Republic of Tajikistan, Turkey); **4 in Latin America and Caribbean (LAC)** (Brazil, Colombia, Mexico, Peru); **1 in Middle East and North Africa (MENA)** (Tunisia); and **6 in South Asia (SAR)** (Bangladesh, India, Maldives, Nepal, Pakistan, Sri Lanka). The total number of countries supported by the Program since 2014 is 68.

1.2 Component 1 – Country Program

1.2.1 Portfolio Overview

Program-funded activities continue to serve as catalysts to increase the World Bank’s capacity to support developing countries in mainstreaming DRM in national development planning and investment programs.

The Hub scaled up activities in FY20 to meet country and sector demand to enhance the resilience of infrastructure assets and systems; strengthen DRM and preparedness capacities of institutions and governance processes; and develop and apply disaster risk financing and insurance solutions to help governments enhance financial resilience.

In FY20, out of **35 new grants** amounting to **\$10.75 million**, **79 percent contribute to Resilient Infrastructure**; **12 percent to Risk Identification, Risk Reduction, and Preparedness**; and **9 percent to Disaster Risk Finance and Insurance**, as of March 2020 (figure 1).

Figure 1 FY20 Funding Commitments by Priority Area for Component 1, Country Program (calculated by US\$ amount)

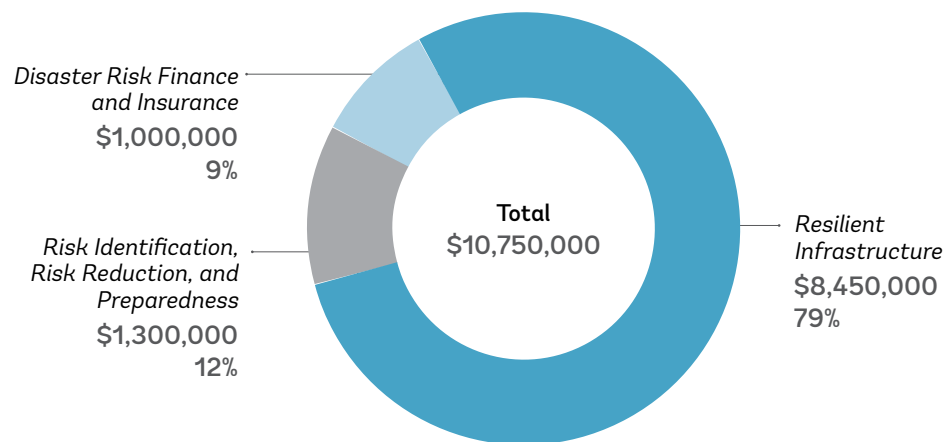


Table 1 Grants Approved in FY20 under the Country Program (as of March 31, 2020)

#	TA Grants	Country	Value in US\$, millions
Resilient Infrastructure			
1	Flood-Resilient Mass Transit Planning in Ouagadougou	Burkina Faso	0.20
2	Vulnerability Assessment and Adaptation Strategy of the Cameroun Road Network	Cameroon	0.20
3	Strengthening Infrastructure Resilience in the Comoros	Comoros	0.30
4	Strengthening the natural hazard and climate resilience of Airport-Cities in the Democratic Republic of Congo	Congo, Democratic Republic of	0.20
5	Ethiopia – Climate-Smart Resilient Water Supply and Sanitation (WSS) for Addis Ababa and Selected Secondary Cities	Ethiopia	0.20
6	Building Resilience in National Water Sanitation and Hygiene Infrastructure Systems	Liberia	0.20
7	Strengthening Coastal Resilience in Seychelles	Seychelles	0.50
8	Resilient Urban Transport Infrastructure in West-African Cities for ALL	Sierra Leone, Ghana	0.25
9	Strengthening Drought Resilience in Tanzania	Tanzania	0.20
10	Building Regulation for Resilience Phase II: Uganda	Uganda	0.15
11	Improving Rural Accessibility and Road Resilience to Climate and Disaster Risks in Cambodia	Cambodia	0.20
12	Resilient Urban Mobility Diagnostics for Indonesian Cities	Indonesia	0.18
13	Improving Resilient Design of Priority Greenfield Projects: Marikina Dam	Philippines	0.25
14	Philippines – Support for the Sustainable, Inclusive, and Resilient Tourism Program	Philippines	0.75
15	Building Resilience to Climate Change in the Road Sector	Kazakhstan	0.20
16	Enhancing Resilience and Safety of Dams in Kosovo	Kosovo	0.15
17	Turkey Resilient Urban Development	Turkey	1.00
18	Resilient Housing	Colombia and Peru (Regional)	0.60
19	Building Resilience to Natural Hazards in the Valley of Mexico	Mexico	0.20
20	Enhancing Dam Safety and Risk Assessments in Peru	Peru	0.15
21	Improving Resilience to Climate and Geophysical Hazards in the Design and Implementation of Cable Cars in Lima	Peru	0.23
22	Tunisia – Maintenance Planning for a Resilient Road Network	Tunisia	0.20
23	Improving Resilient Planning and Design for Coastal and Rural Infrastructure in Bangladesh	Bangladesh	0.25
24	Risk Management & Climate Resilient Infrastructure Development for Assam Inland Water Transport (IWT)	India	0.20
25	Strengthening Building Regulations in Maldives	Maldives	0.25
26	Disaster and Climate Resilient Renewable Energy Power System in Nepal	Nepal	0.30
27	Strengthening Resilience in the Road Network in Nepal's Secondary Cities	Nepal	0.35
28	Building Disaster Resilient Water Resources Management Capacity in Sindh	Pakistan	0.30
29	Strengthening Building Regulations in Sri Lanka	Sri Lanka	0.15
Total amount			8.31

Table 1 (cont.)

#	TA Grants	Country	Value in US\$, millions
Just-In-Time			
30	Timor-Leste Support to Ensure Sustainable and Resilient Water and Sanitation Services	Timor-Leste	0.07
31	Strengthening Resilience of Regional Connectivity in Tajikistan	Tajikistan	0.07
Total amount			0.14
Risk Identification, Risk Reduction, and Preparedness			
32	Supporting Multi-Risk Assessment of Greater Monrovia	Liberia	0.20
33	Myanmar – Strengthening Seismic Resilience	Myanmar	0.50
34	Improving National DRM systems in Brazil	Brazil	0.60
Total amount			1.30
Disaster Risk Financing and Insurance			
35	Development and Implementation of Policy Framework for Financial Risk Management against Disasters	Global	1.00
Total amount			1.00
Total of all program priority areas			10.75

1.2.2 Sectoral Distribution

To further advance DRM mainstreaming across sectors, the Hub is actively expanding TA activities to a wider range of sectors and partner GPs across the World Bank. In FY20, the **Program committed 48 percent (\$5.15 million) of approved Country Program resources to grants led by non-DRM World Bank GPs** such as Energy (3 percent), FCI (9 percent), Transport (20 percent), and Water (16 percent). This is a 10 percent increase over FY19’s 38 percent, which represents a continued focus on diversifying support across sector teams that has led to a growth of grants in Resilient Infrastructure (Priority 1) (see Box 2), especially in transport, as well as new partnerships initiated in water supply and sanitation and in energy.

Under Priority 1, the grants contributing to resilient transport were allocated the most funding, at 23 percent (\$2.48 million), followed by 19 percent (\$2.05 million) to urban infrastructure, and then to water supply and sanitation at 16 percent (\$1.72 million).⁷ Under Priority Area 2, 10 percent (\$1.1 million) of the funds was allocated to emergency preparedness and response (EP&R) activities, followed by 2 percent to risk identification and reduction activities (\$200,000). Under Priority Area 3, 9 percent (\$1.0 million) was allocated to DRFI (figure 2). In comparison to FY19, allocation to transport and water sectors (4 percent for both sectors in FY19) have increased significantly, and allocation to urban has decreased from 29 percent in FY19.

⁷ Under the Water Supply and Sanitation includes the following sectors: dam safety, water supply and sanitation, and drought.

Box 2. The Three Priorities for Grants

Priority 1: Resilient Infrastructure will finance grant activities that help integrate disaster risk management (DRM) principles and processes into infrastructure investments. Activities will foster (i) a life cycle approach to infrastructure resilience, (ii) the adoption of risk-informed solutions in the planning, design, management, and emergency contingency preparedness of infrastructure investments; and (iii) the strengthening of the institutional and regulatory capacities of implementing entities. To ensure support across all quality infrastructure principles, the Hub also actively coordinates with the Quality Infrastructure Investment (QII) Partnership trust fund to plan upstream engagements and shares TA requests for all activities not linked to resilient infrastructure.

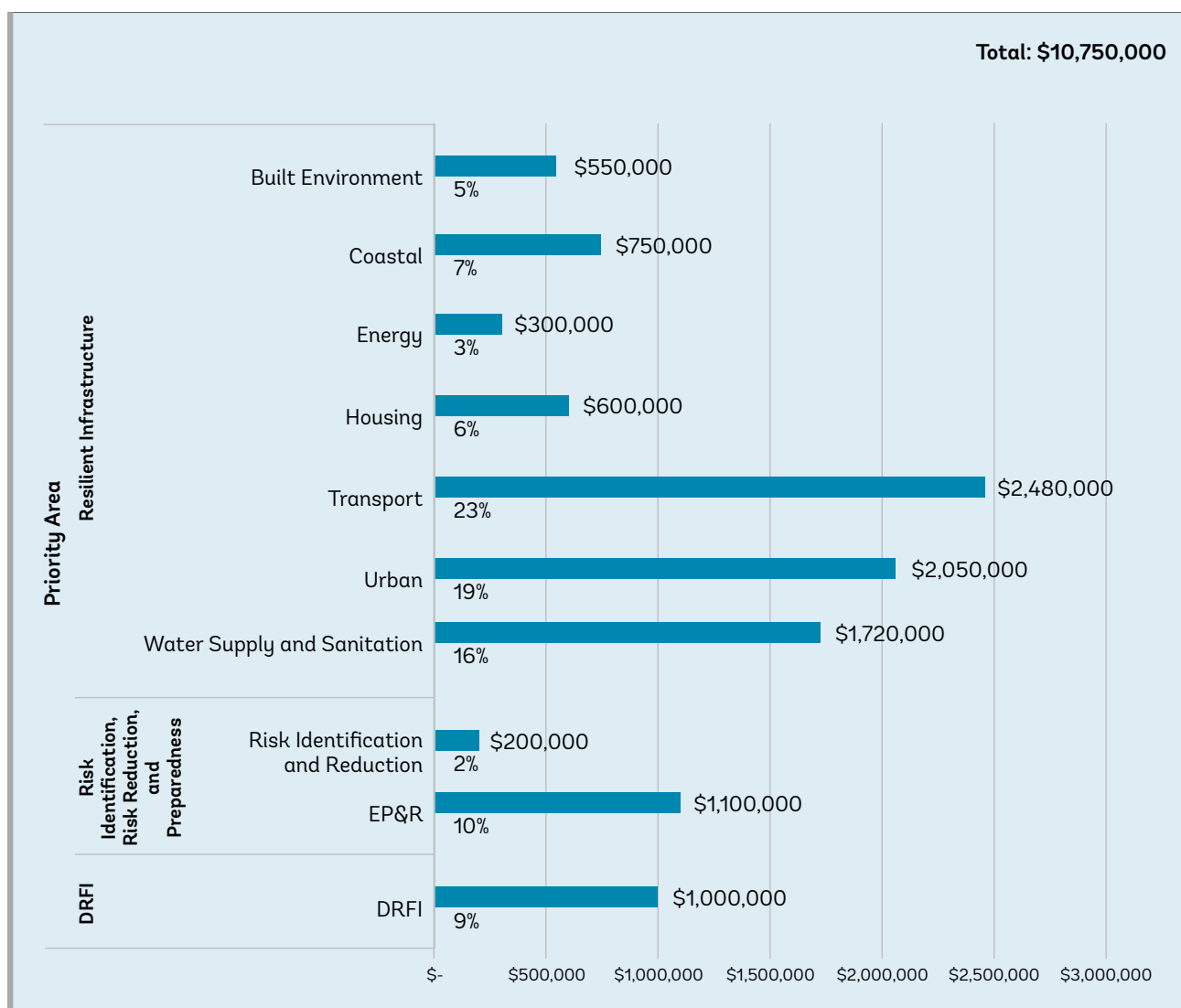
Priority 2: Risk Identification, Risk Reduction, and Preparedness will finance grant activities that help strengthen the comprehensive approaches to enhance risk identification, risk reduction, and preparedness in developing countries, including capacities of communities, governments and national DRM agencies on (i) risk information, (ii) hydromet services and early warning systems (EWS), (iii) resilient social protection and inclusion, and (v) emergency preparedness and prompt response (EP&R) post disaster.

Priority 3: Disaster Risk Finance and Insurance (DRFI) will finance grant activities that help advance policy in global and regional forums, as well as the application of DRFI in the country, particularly through designing and implementing financial solutions for countries and regions to better manage disaster risks and safeguard critical infrastructure and public/private assets.



Photo: 1001slide

Figure 2 FY20 Sectoral Funding Distribution (calculated by US\$ amount)



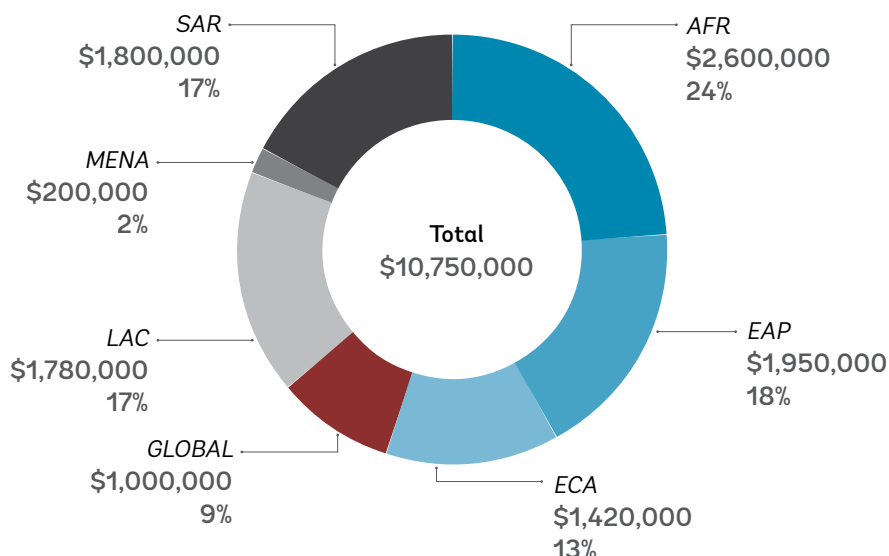
*Note: DRFI = Disaster Risk Financing and Insurance; EP&R = Emergency Preparedness and Response.

1.2.3 Regional Distribution of Financing

Across World Bank regions, the order of financial distribution in FY20 was Africa Region (AFR, 24 percent), followed by East Asia and Pacific Region (EAP, 18 percent), South Asia Region (SAR, 17 percent), Latin America and the Caribbean Region (LAC, 17 percent), Europe and Central Asia Region (ECA, 13 percent), Global (9 percent), and Middle East and North Africa Region (MENA, 2 percent), as shown in figure 3.

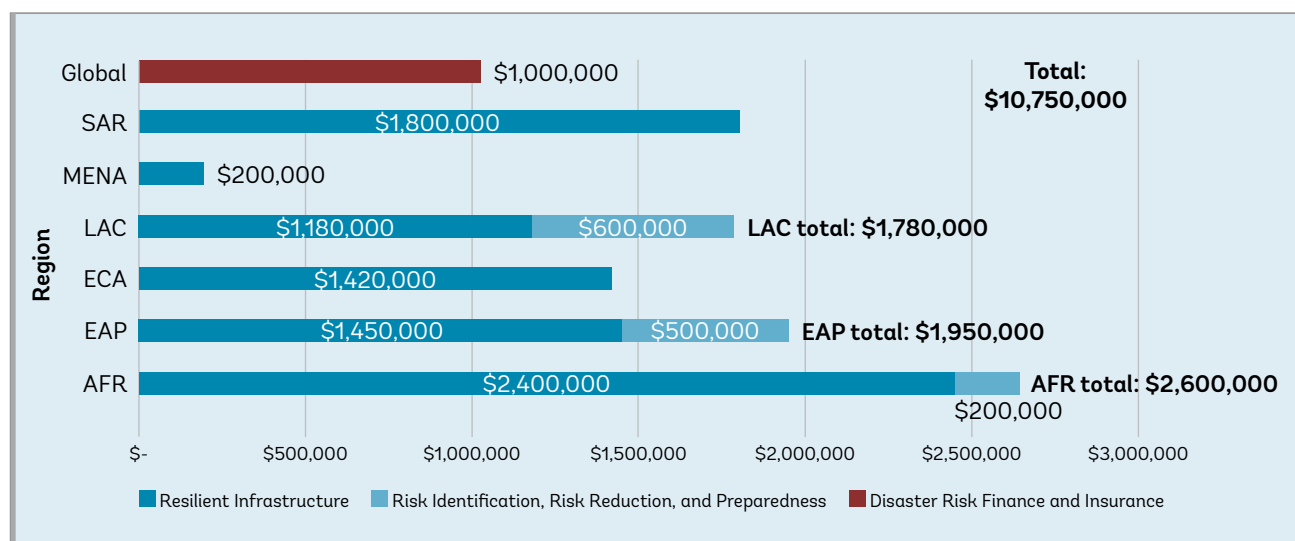
In FY20 the AFR region was the greatest recipient of Country Program funding, representing nearly one-fourth of contributions. This was the result of the increase in demands in the transport (four grants) and water (three grants) sectors under Resilient Infrastructure.

Figure 3 FY20 Regional Funding Distribution (calculated by US\$ amount)



Funding for grants that contribute to Priorities 1 and 2 were allocated across all six regions; the Priority 3 allocation was for the Global grant. **In ECA, MENA, and SAR regions, 100 percent of the grants contributed to Resilient Infrastructure. Other regions followed a similar pattern of increased resources devoted to Resilient Infrastructure, followed by Risk Identification, Risk Reduction, and Preparedness activities. In AFR, EAP, and LAC regions, grants worth 92, 74, and 66 percent respectively contributed to Priority 1, Resilient Infrastructure, and a balance of 8, 26, and 34 percent to Priority 2, Risk Identification, Risk Reduction, and Preparedness. For Priority 3, DRFI, one global grant had no specific regional focus (figure 4).**

Figure 4 FY20 Commitments to the Program’s Priority Areas by Region (in US\$ amount)





Left: Timor-Leste:
Landscape near the town
of Baucau. Photo: URF.
Right: Tajikistan: The road
from Khorog to Dushanbe
along the Panj River.
Photo: Lukasz-Nowak1



1.2.4 Just-In-Time Window

In February 2020, the Hub launched a Just-in-Time (JIT) for Resilient Infrastructure grant window to provide short-term grants to integrate DRM into World Bank infrastructure projects that were then under preparation. In total, \$700,000 was allocated to the JIT to support Education, Energy, Environment, Transport, Urban, and Water GP teams in the development of technical and analytical work required to ensure that disaster risk considerations are integrated into project design.

As of March 31, 2020, the JIT has approved two grants—valuing \$140,000—which are supporting the preparation of \$135 million in World Bank infrastructure investment projects in Tajikistan and Timor-Leste. In Tajikistan, the JIT is assisting the Transport GP to provide technical support to the Ministry of Transport to integrate geohazard risk considerations into designs for proposed road sections, while also promoting transport resilience in a systematic manner across the country. In Timor-Leste, assistance is provided to the Water team to support the implementation of institutional sector reform within the Ministry of Public Works, taking into consideration resilient infrastructure design and governance arrangements with the municipal water and sanitation service provider in the city of Baucau. The JIT has an unallocated balance of \$560,000, which is being allocated on a rolling basis to support new infrastructure investment projects.

1.3 Component 2 – Tokyo Disaster Risk Management Hub

1.3.1 Japanese Expert Engagement

In FY20, the Hub has been continuing to strengthen efforts to **increase Japanese expert engagement in project implementation and preparation**,⁸ such as in-country TA grant and operational activities. *Expert engagement* is categorized as per different modes described in figure 5.

Figure 5 Snapshot of Expert Engagement in FY20

<p>Project Implementation (14 experts)</p>	<p>Includes the number of Japanese experts (or firms) who provided technical assistance to implement Japan Program grants and/or World Bank investment projects. This includes experts who have provided support in country as speakers or resource persons at workshops, conferences, and trainings, as well as those who have led, contributed, or reviewed technical assessments and analytical reports as part of an ongoing grant and/or investment project.</p>
<p>Project Preparation (2 experts)</p>	<p>Includes the number of Japanese experts (or firms) who provided technical assistance to the preparation of World Bank investment projects. This includes experts who have provided support in country as speakers or resource persons at workshops, conferences, and trainings, as well as those who have led, contributed, or reviewed technical assessments and analytical reports during the preparation of a World Bank investment project. The work contributed directly or indirectly to Concept Note, Project Appraisal Document (PAD) development, etc.</p>
<p>Knowledge Transfer (41 experts)</p>	<p>Includes the number of Japanese experts who contributed to developing and transferring Japanese knowledge and expertise to client country and World Bank stakeholders. This includes experts who contributed to global reports, Japan case studies, and publications as resource persons, consultants, and committee members, and so on. It also includes speakers and resource persons who supported the design and implementation of knowledge exchange events such as Technical Deep Dive (TDD) workshops, training, technical visits, public seminars, brown bag lunches, and conferences that were held in Japan or internationally.</p>
<p>Partnerships and Outreach (48 experts)</p>	<p>Includes the number of Japanese experts who have participated in exchange events such as conferences and public seminars organized by the Hub or where Hub members participated in external events as session organizers or members. These engagements have often led to the Hub identifying opportunities for new partnerships and opportunities for collaboration and coordination with Japanese stakeholders.</p>

⁸ The definitions of S are indicated in the document “Proposed Definitions and Targets of Key Indicators,” submitted to MoF during the 6th Steering Committee in March 2019.

Project Implementation

Expert Deployment

In FY20, **13 Japanese experts were deployed** to multiple client countries to contribute to the Program's activities and World Bank investment projects; this is higher than the target of 10 deployments in the FY20 Work Plan. These deployments directly connected Japanese experts to in-country TA activities conducted through grants supported by the Japan Program, and World Bank investment projects related to DRM (please refer to Annex 3 for details of deployments). The increased connection of Japanese and global expertise is a direct result of the shift of the Program's focus to support in-country contribution through TA grants and World Bank operations.

In addition to expert deployments, a case where a Japanese group company in country supported the implementation of Program grant activities is captured below and counted as one expert deployment.

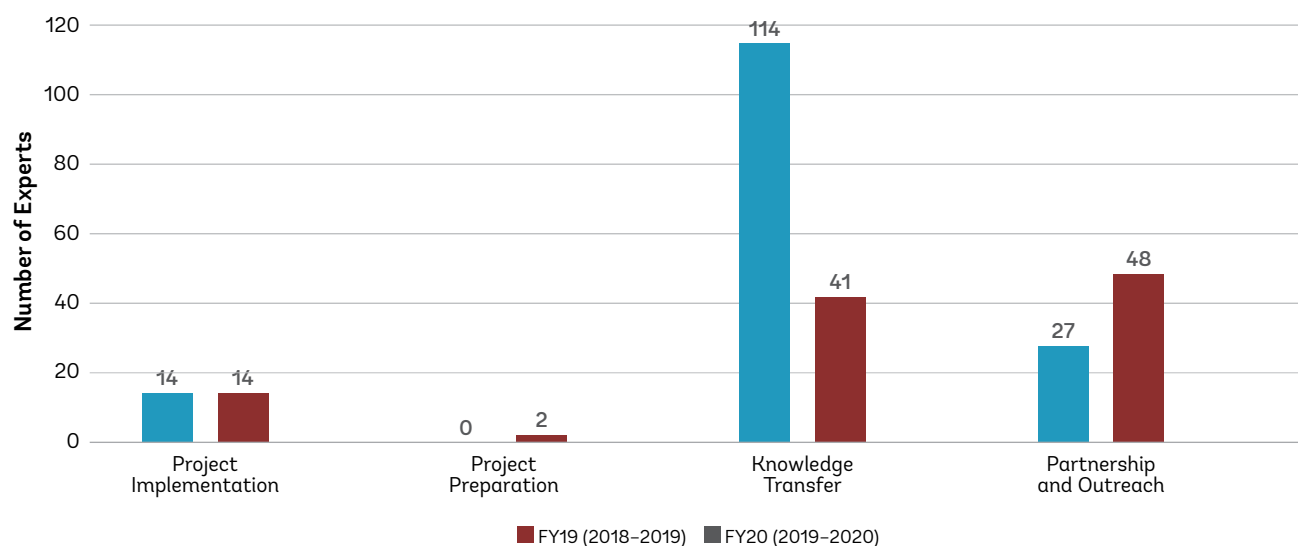
Informing Project Implementation in country: Providing data collection approaches for school infrastructure using drones

The TA grant "**Scaling up efforts to improve the safety and resilience of school infrastructure in Eastern Europe and Central Asia**" supports activities needed to consolidate existing school infrastructure data to inform the design of national long-term vulnerability and risk reduction strategies and investment plans. To explore innovative field data collection approaches using drones for school infrastructure information, the KagUAV—a subsidiary of the Japan-based company Terra Drone—provided technical support to the World Bank's Safer Schools team in Bishkek, the Kyrgyz Republic, on January 17, 2020, by surveying and mapping 12 schools in the city. A highly detailed database of the surveyed educational infrastructure facilities—consisting of geographic coordinates, aerial imagery, orthophoto maps, and 3D models of the school buildings—were developed by the company. This pilot project enabled both technical and operational understanding of the capacity, efficiency, and scalability of school infrastructure data collection using drones, which informs better preparation of World Bank operations to support decision making for relevant stakeholders to improve the safety and functional conditions of schools.

Project Preparation

Two experts from Yachiyo Engineering contributed expertise on integrating green and resilience considerations to the designs of industrial zones in order to support the preparation of the upcoming IDA *Bangladesh Private Investment & Digital Entrepreneurship Project* (P170688, \$500 million). Details of the definition of project preparation and of this engagement can be found in Section 2.1. Since the renewal of the Program, this was the first year the Japanese experts contributed to the project preparation of a World Bank investment project (figure 6).

Figure 6 Number of Experts Contributing to Program per Objective of Engagement



Knowledge Transfer

In FY20, the Hub actively facilitated events and participated in external events to promote partnerships and collaboration with Japanese centers of excellence. Participants included representatives from national governments, local governments, development partners, academia, the private sector, and civil society. The Hub participated in a total of **29 events** (20 facilitated by the Hub and 9 by external partners) and **engaged a total of 104 experts through Hub-facilitated events**. These events played a key role in disseminating Japan's knowledge, best practices, and experiences on DRM.

Out of the **41 experts who contributed to Knowledge Transfer**, **15 experts** contributed to the technical expert visit held in Japan for Indonesian government counterparts of the *IBRD Dam Operational Improvement and Safety Project Phase 2 Project* (P161514, \$125 million). Please refer to Section 2.1 for details of this engagement.

Contribution to Knowledge Products

Seven Japanese experts from the public sector, private sector, and academia contributed to the review and development of publications and reports developed and supported by the Program and other World Bank teams.

Knowledge exchanges in Japan and overseas

Thirteen knowledge exchange events were organized in FY20, **9 held outside of Japan and 4 in Japan**. Most of these engagements are captured under expert deployments, and other events include connecting Japanese experts to client government officials in the Kyrgyz Republic through video conference (please refer to Annex 3 for details) and launching of the transport program supported by the Program, in Washington, DC.

Speakers for public seminars in Japan

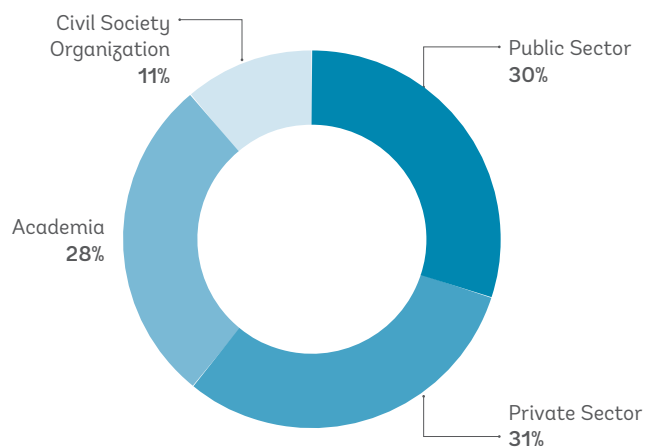
Two public seminars—the 22nd DRM Seminar on “*Lifeline: The Resilient Infrastructure Opportunity*” and the 23rd DRM Seminar “*Learning from Japan’s Experience in Integrated Urban Flood Risk Management: Launch of A Series of Knowledge Notes*”—were facilitated by the Hub. The third of the series, the “*2019 International Symposium on Managed Retreat as a Tool for Disaster Resilience with a Diversity/Gender Perspective*” was jointly organized with the Japan International Cooperation Agency (JICA). A total of 16 experts from the public and private sectors, academia, and civil society organizations were engaged as speakers for the seminars.

Partnerships and Outreach

Through eight knowledge exchange events facilitated by the Hub, 48 experts were mobilized to support the Hub in engaging external experts, mainly through events such as conferences and knowledge exchange events not directly linked to TAs or to World Bank operations. Some of the new engagements were with Hokkaido University, Hyogo University, Japan Radio Co. Ltd., and the Kesenuma Chamber of Commerce. Details on engagements with external experts can be found in Section 1.3.3.

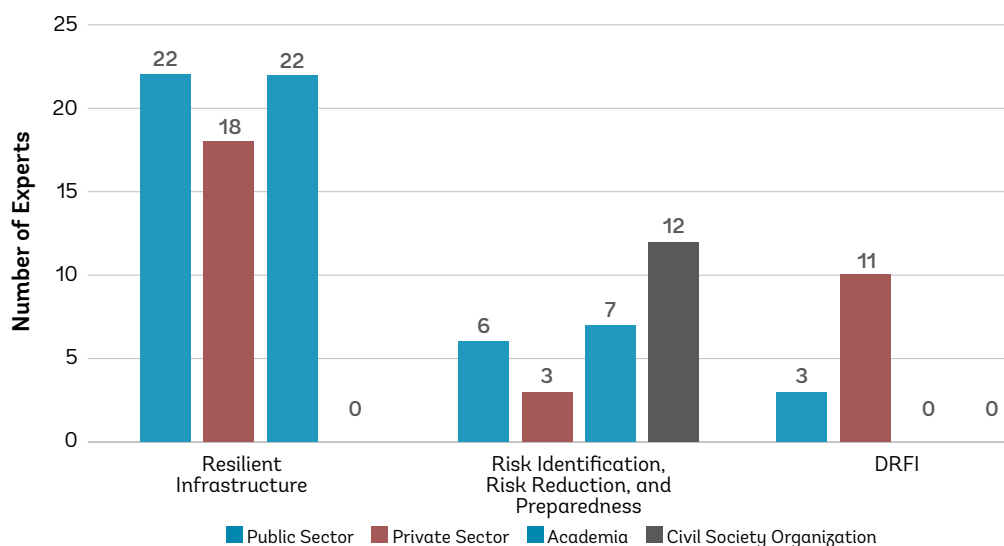
As highlighted in figure 7a, of all experts mobilized, 30 percent were from the public sector, notably JICA and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT); 31 percent from the private sector; 28 percent from academia and research institutions; and 11 percent from civil society.

Figure 7a Percentage of Experts Mobilized in FY20 by Type
(calculated by number of experts)



Of the total of 104 experts engaged in FY20, 62 experts were mobilized for activities under Resilient Infrastructure; 28 for activities under Risk Identification, Risk Reduction, and Preparedness; and 14 for activities under DRFI (figure 7b). Additionally, the expert exchange activities—including public seminars, workshops, and conferences—attracted **over 1,848 attendees throughout the reporting period.**

Figure 7b Number of Experts Mobilized in FY20, by Program Priority Areas



Stories of Japanese Expert Engagements

Development of early warning dissemination strategies in Sri Lanka

An expert from the Disaster Management Training Center at the University of Tokyo, whose deployment to the “**South Asia Regional Workshop on Emergency Operations Centers**” in Bangkok, (please refer to Annex 3 for details), was requested by Sri Lanka’s Disaster Management Center (DMC) team to contribute to the development of early warning dissemination strategy and concept. The main objectives of his engagement were to: propose suitable mechanisms for multi-hazard impact-based early warning generation and dissemination capable of reaching those at risk; and to work with team members to develop a plan for more integrated and effective DRM and warning services—especially to minimize losses due to floods and landslides caused by severe hydrometeorological events, through the Sri Lanka Climate Resilience Multi Phased Programmatic Approach (Cres MPA) (P160005, \$310 million) investment project. To support these efforts, the expert traveled to Colombo in December 2019 for two weeks and surveyed the existing DMC’s disaster warning and response systems, implemented consultations with DMC, and made a final presentation and report to share his observations and recommendations. His inputs will be translated into an operational plan that aligns with the project concept and needs.

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

On January 9, 2020, World Bank Vice President for Sustainable Development Laura Tuck chaired the launch event for the Tokyo DRM Hub publication “**The Power of Partnership: Public and Private Engagement in Hydromet Services**”. The study looks at the current landscape of public-private engagement (PPE) and analyzes the hydromet value chain in six countries. It is based on evidence collected through the analysis of eight countries

selected as case studies (Germany, Ghana, Indonesia, Israel, Japan, Myanmar, the United Kingdom, and the United States) and interviews with more than 50 stakeholders from the public, private, and academic sectors. It provides guidance to regulators, hydromet service providers, and private actors as well as development practitioners to achieve successful public-private-academic engagements. The launch event included a presentation by an expert from Japan's Weathernews Inc. on Japanese experiences and PPE practices.

Sharing Japan's best practices on propagation of disaster shocks in supply chains and social networks

Building on partnerships with Japanese researchers established through the development of the Flagship Report on Resilient Infrastructure "***Lifelines: The Resilient Infrastructure Opportunity***", the Brown Bag Breakfast (BBB) "***Chain Reactions and Network Effects: Propagation of Disasters and Shocks in Supply Chains and Social Networks***" with three Japanese economists from Waseda University was held on February 28 at World Bank office in Washington, DC. The objective was to present innovative methodologies and datasets that broaden the understanding of network propagation effects. Empirical studies from Japan were shared to show that the knowledge of network effects is essential to understand the impacts from disasters and shocks. Overall, the session emphasized that no shock or policy action occurs in an isolated setting but instead has effects that are transmitted and multiplied throughout infrastructure systems, supply chains, and social networks.

1.3.2 Knowledge and Outreach

The Tokyo DRM Hub developed new strategies to increase visibility of the Program through several platforms including publications, public events, and dissemination activities.

In FY20, a total of **6 new publications** were completed under ongoing grants under the Knowledge Program from Phase I and the Tokyo DRM Hub, Component 2 of Phase 2 (please refer to Annex 4 for the list of publications and details of each publication).

Between July 1, 2019, and March 31, 2020, a **total of 892 downloads of publications had occurred (675 downloads of case studies; 86 downloads of solution briefs and project briefs; and 131 downloads of project documents)** from the Tokyo DRM Hub's English website. To date, **visitors to the DRM Hub website surpassed 315,000 since the Program's launch, with over 66,189** visiting the site in the last 12 months as of March 31, 2020.

As of March 31, 2020, **3 new events stories; 11 new feature stories; 3 new blog entries; 8 new videos; and one press release were published to the Tokyo DRM Hub website.** In FY20, the Hub completed work to update the website (English and Japanese) with the objectives of providing more information on the Program and redesigning the interface for easier navigation by the audience. One focus of the update was to establish an **interactive map that provides basic information (e.g., grant title, target country,**

objective, active dates, etc.) for all active and closed grants supported by the Program.

Two interviews featuring Japanese experts from the University of Tokyo who contributed to the “*South Asia Regional Workshop on Emergency Operations Centers*” in Bangkok from July 22 to 24, 2019, have had 125 views. In addition, an **interview with the authors of the *Lifelines: The Resilient Infrastructure Opportunity*** was produced with the aim of widely disseminating the knowledge developed by supporting the Program highlighting the economic opportunities from investing in resilient, quality infrastructure. The interviews have received 112 views. The Hub continues to link and announce new website content through World Bank Tokyo Office’s Twitter and Facebook page, and weekly E-news newsletter, which is distributed to experts who have been engaged in the past Hub and external events, and those who have registered to receive the newsletter through the website.

As in previous years, the Hub participated in the Global Festa in Odaiba on September 28–29, 2019, to disseminate information on the Program’s activities and objectives and to raise awareness of the importance of DRM at the festival in Tokyo focusing on international cooperation in Japan.

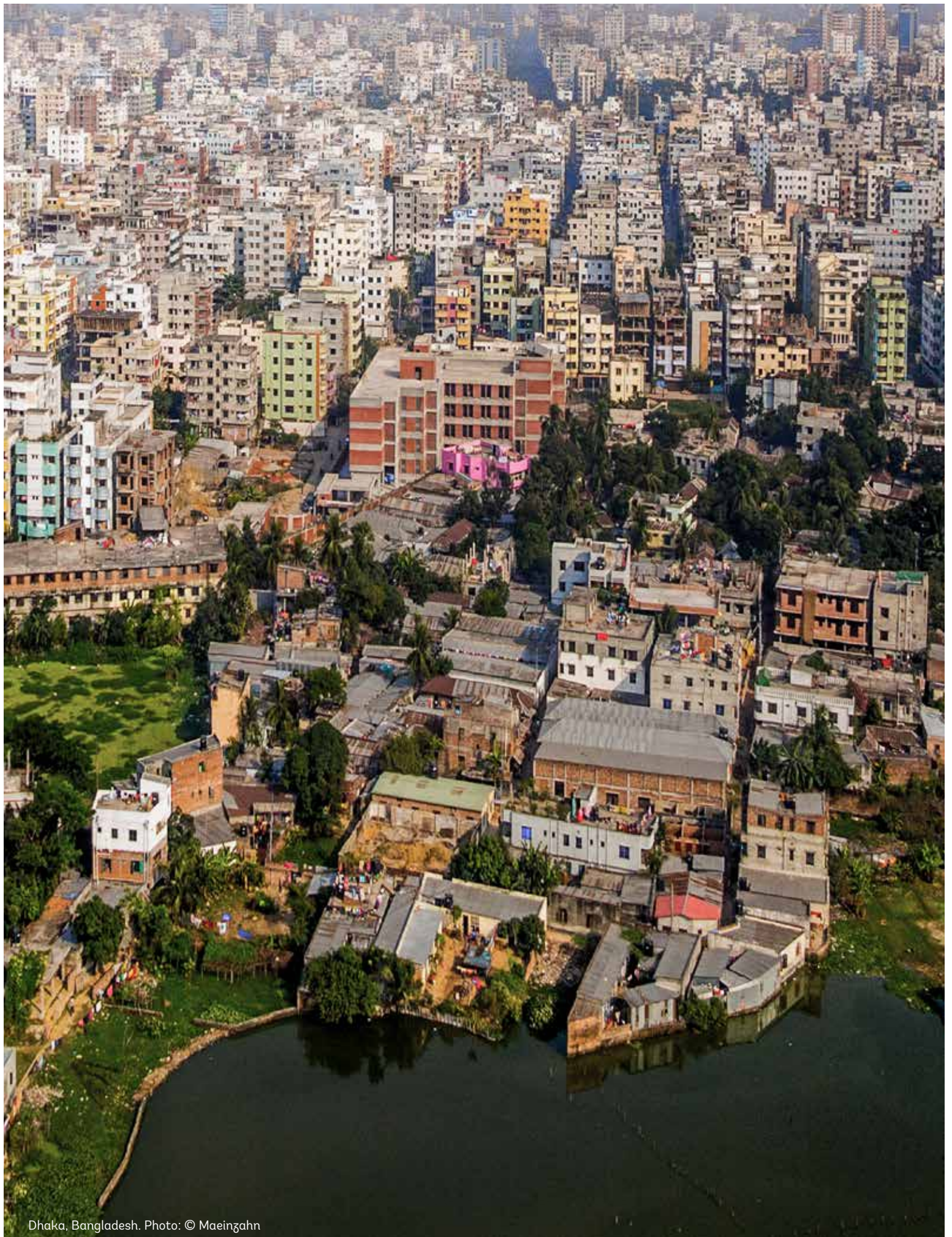
1.3.3 Partnerships

The Hub has continued to proactively connect Japanese DRM expertise and solutions to developing countries by mobilizing Japanese DRM experts from the public sector, private sector, civil society organizations, and academia to beneficiary countries.

Through the Hub’s activities, developing countries have accessed Japanese expertise and best practices, including from the country’s Cabinet Office; MLIT; the Fire and Disaster Management Agency (FDMA); the Japan International Cooperation Agency (JICA); the International Centre for Water Hazard and Risk Management (ICHARM); the Japan Water Agency (JWA); Hyogo Prefecture; Fukuoka City; Kyoto City; the Tokyo Metropolitan Government; the Japan Bosai Platform; Weathernews Inc.; Yachiyo Engineering; the University of Tokyo; and Waseda University; among many others.

In addition, the Hub continued to work closely with the Tokyo Development Learning Center (TDLC), Quality Infrastructure Investment Partnership (QII), and the Global Infrastructure Facility (GIF) to respond to operational demand and enable synergies between each program. In FY20, support was provided to align DRM JIT financing to assist the implementation of action plans that have been developed during Technical Deep Dives (TDDs). The Hub also coordinated with QII to expand Program activities on Resilient Infrastructure and create broader links between Quality Infrastructure and DRM.

JICA continues to be one of the key partners in furthering the objectives of the Program. The Hub was invited by JICA to co-host the public seminar 2019 International Symposium on Managed Retreat as a Tool for Disaster Resilience with a Diversity/Gender Perspective, which brought together 19 experts and gathered 44 people as participants (please refer to Annex 3 for more details).



Dhaka, Bangladesh. Photo: © Maeingahn

SECTION 2

RESULTS MONITORING

2.1 Overall Results

The activities highlighted in this section showcase the Hub's proactive work to increase direct contribution to ongoing and planned World Bank operational projects and connecting expertise in DRM with developing countries and World Bank teams.

The FY20 Japan Program Annual Work Plan established a target of project preparation support for 10 new World Bank investment projects. **As of March 31, 2020, in FY20 project preparation support was provided to 21 investment projects valuing \$4.40 billion and supporting teams across the Transport (6 projects); Urban, Resilience, and Land (8 projects); Water (6 projects); and FCI (1 project) GPs.** The cumulative figure for grants to support project preparation under the renewed Program (reported in fiscal years 19 and 20) is **\$9.82 billion**⁹ (please refer to annex 1).

In FY20, 88 percent (\$5,850,000, 19 grants) of project preparation support is helping to strengthen the Priority Area 1 in resilient infrastructure, while 12 percent (\$800,000, 2 grants) is helping to enhance Priority Area 2.

TA grants are supporting project preparation through technical studies; risk assessments; and the design of strategic frameworks, action plans, and guidelines to support project design and implementation upon approval (see Box 3 for a definition of project preparation). In Lima, for example, efforts to strengthen the resilience of a cable car investment are using geotechnical and hydrometeorological studies and risk assessments to integrate resilient technical specifications into the project design and enhance construction readiness and efficiency. Similarly, in the Philippines, TA is helping to strengthen the design of the Marikina Dam to consider the required strength and stability during extraordinary events, such as earthquake and flood. In addition, the Program influenced the preparation process for themes including urban resilient infrastructure, housing, and multi-risk assessment projects. Projects are distributed across five regions, with most of the TA supporting operations in EAP (6), LAC (5), and AFR (4), while the remaining operations are spread across ECA (3) and SAR (3).

⁹ This figure was taken from the grant proposals that were submitted to MoF in FY19 and FY20, and figures from the FY19 and FY20 Monitoring and Evaluation platform reporting on already active grants approved in previous fiscal years (please refer to Annex 1). This figure only includes World Bank IBRD and IDA project amount.

Box 3. Definition of Project Preparation

Project preparation under the Program is defined as direct technical assistance support to integrate disaster resilience into the design and development of a World Bank investment operation. *Support* is recognized as project preparation if contributions are included in Project Appraisal Documents (PADs) or provided to World Bank pipeline projects prior to approval by the World Bank Board of Directors. Project preparation grants include support to feasibility/technical studies and assessments, technical designs, strategies and framework development, and the organization of workshops and training sessions to inform counterpart governments of new investment projects or potential pipeline investment.

Note: The definition summarized here is based on the full definition provided in the “Proposed Definitions and Targets of Key Indicators” document submitted to MoF in FY19.

Informing Project Preparation of World Bank Operations

- **Integrating green and resilience considerations within the design of new World Bank investment on Economic Zone development in Bangladesh**

A joint TA effort, the “**Green and Resilient Industries to Enhance Competitiveness in Bangladesh**” grant, implemented through a partnership between the World Bank Finance, Competitiveness and Innovation GP and the Tokyo DRM Hub, was initiated in July 2019. Through this grant, various initiatives have been implemented during this fiscal year that have strengthened the Bangladesh Economic Zone Authority and World Bank task team’s capacity to understand, develop, and integrate industry resilience measures to design green and resilient economic zones. For instance, a technical assessment was conducted by Miyamoto International and Yachiyo Engineering to analyze the risks, resilience options, and additional costs that may be required to strengthen key infrastructure proposed within the upcoming *IDA Bangladesh Private Investment and Digital Entrepreneurship Project* (P170688, \$500 million).¹⁰

Because of this TA, during the initial screening, the project received an exceptionally high climate co-benefit (44.6 percent) for an economic zone development operation, which has been further enhanced within the final Project Appraisal Document. Additionally, the grant is continuing to provide support in integrating resilience solutions within the Bangabandhu Sheikh Mujib Shilpa Nagar Economic Zone Master Plan as well as the National Guidelines for Green and Resilient Economic Zone Guidelines, informed by global good practices and lessons learned from resilient industries, including those from Japan. Throughout the implementation of this effort, close coordination and information exchange with experts in Dhaka, from JICA, the Japan External Trade Organization (JETRO), and Sumitomo Corporation—key players in economic zone

¹⁰ This project is a proposed US\$500 million operation planned for Board review and approval in May 2020, though potential delays and/or cancellations may be expected as a result of the COVID-19 situation.

development and resilience in Bangladesh—continues. Opportunities for further collaboration and partnerships continue to be explored.

- **Assessment results to support water security and resilience strategy for the Valley of Mexico are used to prioritize investment options with resilience metrics in Mexico**
The “*Building Resilience to Natural Hazards in the Valley of Mexico*” grant approved in FY20 is supporting the National Water Agency and Mexico City’s Water Utility in the formulation of a Water Security and Resilience Strategy for the Valley of Mexico, and conducting an economic analysis of the proposed interventions that are part of the investment project with the incorporation of resilience to climate change and natural hazards. The grant consists of developing a Water Security and Resilience Strategy for the city’s water utility; it also provides an applied economic analysis of investment options incorporating resilience to natural hazards.

Results from this work informed the design of the 120 million IBRD *Water Security and Resilience for the Valley of Mexico Project* (P164389, \$120 million), whose objective is to improve water security and build resilience through improving the reliability of the Cutzamala System (one of the water transfer schemes) and strengthening the management of groundwater resources in the Valley of Mexico. The assessment helped provide significant support to the Government, through the formulation of a resilience strategy for the water utility and to the investment project by supporting the prioritization of investment options with resilience metrics and also by supporting the formulation of an economic analysis that incorporates resilience to natural hazards of the investment options selected in the investment project.

Informing Implementation of World Bank Operations

- **Technical exposure visit to Japan illustrates best practices in dam safety**
During October 7–12, 2019, the TA “*Investing in Urban Resilience and Emergency Preparedness in Indonesia*” supported the second exposure visit to Japan by delegates from Indonesia and Vietnam, who are working on the implementation of the IBRD *Dam Operational Improvement and Safety Project Phase 2 (DOISP2)* (P161514, \$125 million). The delegation consisted of representatives from the Meteorological, Climatological and Geophysical Agency, within the Ministry of Development Planning (BAPPENAS), Indonesia; National Disaster Management Agency (BNPB), Indonesia; the Ministry of Public Works and Housing (MPWH), Indonesia; and Central Project Office of Vietnamese Ministry of Agriculture and Rural Development.

The visit, hosted by the Japan Water Agency (JWA), was designed to enhance the delegation’s ability to implement resilience measures for dam operations in Indonesia and Vietnam. During the visit, Japan’s experiences on dam safety management—including the utilization of technology for integrated water resources management and early warning systems for floods; the management of flood forecasting and cascade operations of multiple dams, including early warning systems for earthquakes and seismic event response system; the standard operating procedure for earthquakes; and emergency response measures and disaster preparedness at dams—were shared by Japanese counterparts. These lessons learned from Japan will be localized to the

Indonesian and Vietnamese context through DOISP2, and deployment opportunities of Japanese experts in Dam Safety will be sought in the future through this project and the Resilient Water Program under GFDRR.

- **Experts provide technical inputs to the new design standards of ultra-high-performance concrete in Vietnam**

Building on collaborative efforts since FY19 with the World Bank’s Transport team in Vietnam, two Japanese experts were deployed to Hanoi in December 2019 to provide an assessment of the pilot ultra-high performance concrete (UHPC) bridges constructed under the IDA *Local Road Asset Management Project* (P155086, \$385 million) (please refer to Annex 3 for more details). The experts also worked with the Transport team to provide technical inputs and recommendations on how to improve the new design standards for UHPC, which the Government of Vietnam is currently developing in partnership with the World Bank. These inputs will be reflected in the standards that will be the first official standards for UHPC in the country.

2.1.1 Results against Work Plan

During this reporting period, the Hub is implementing activities to reach the targets set out for FY20. A summary of the targets set in the FY20 Work Plan and outputs delivered in FY20 are shown in table 3. The detailed results on Japanese expert engagement were indicated in section 1.3.1; therefore, only the target numbers indicated in the Work Plan are stated in this section.

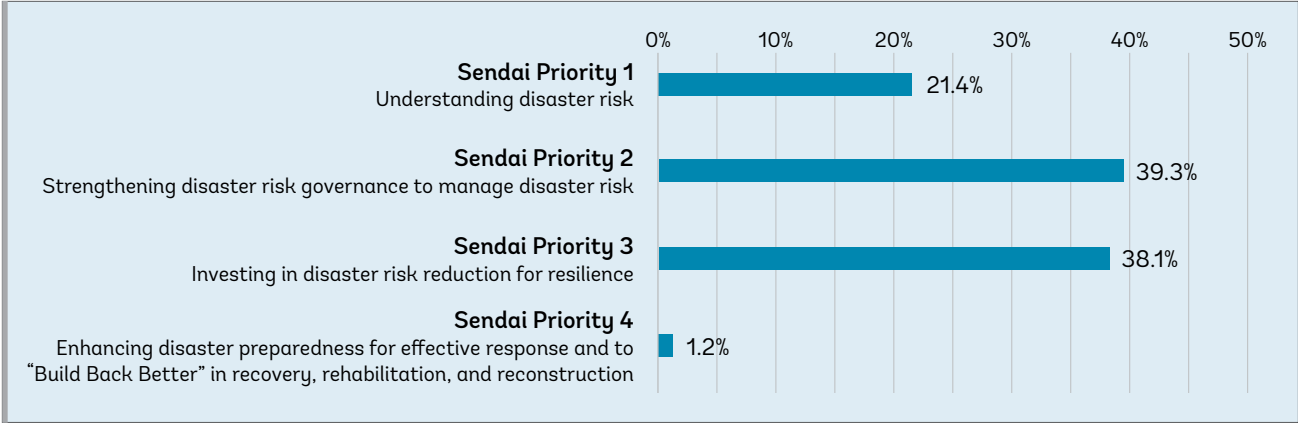
Table 3 Results against Work Plan

Objective	Indicator	FY19 (projected)	FY19 (actual)	FY20 (projected)	FY20 (Actual, as of March 31, 2020)
Mainstreaming of DRM in World Bank Strategies and Operations	Grants supporting Resilient Infrastructure	65%	65%	74%	79%
	Grants led by World Bank GPs from Energy, Environment, FCI, and Transport and Water	38%	38%	52%	48%
	Number of World Bank operations prepared with Program support	7	4	10	21
Increasing Connection of Japanese and Global Expertise to World Bank Investments	Number of Japanese experts engaged in the preparation or implementation of World Bank operations	6	14	10	16

2.1.2 Results against Sendai Framework Priorities

The FY20 portfolio contributed to all four Sendai Framework priorities—Priority 1: Understanding disaster risk; Priority 2: Strengthening disaster risk governance to manage disaster risk; Priority 3: Investing in disaster risk reduction for resilience; and Priority 4: Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation, and reconstruction. At 39 percent and 38 percent, Priority 2 and 3, respectively, had the highest contribution of grants, followed by 21 percent toward Priority 1, as shown in figure 8.

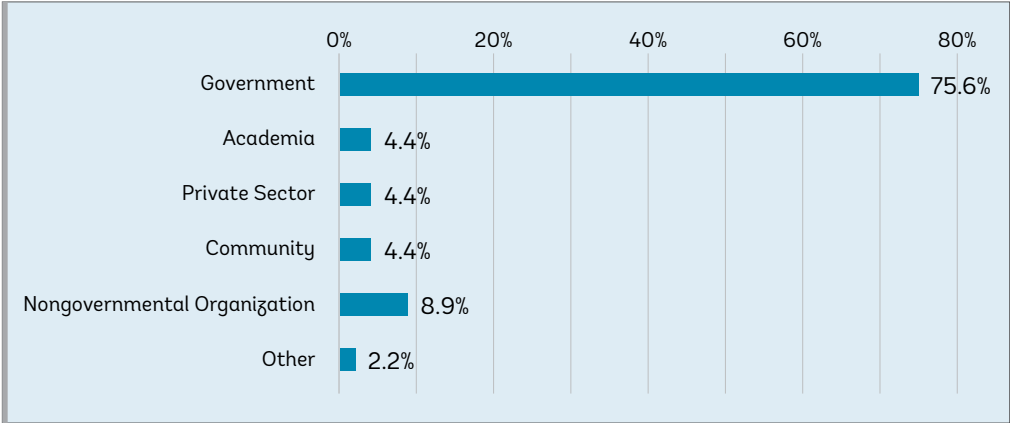
Figure 8 Percentage of Grants Contributing to Each Sendai Priority



2.2 Beneficiaries

The beneficiaries for each grant are categorized into (i) government, (ii) academia, (iii) private sector, (iv) community, and (v) civil society organizations. As shown in figure 9, 76 percent of the grants approved in FY20 indicated that client-country governments were the main beneficiary. Four percent of grants each would benefit academia, the private sector, and community; 9 percent would benefit nongovernmental organizations, and 2 percent others. Included in others are technical associations and regional banks.

Figure 9 Number of Active Grants in FY20 by Beneficiary Type





Workers drain a flooded thoroughfare after a night of severe thunderstorms in Kisumu, Kenya. Photo: Peter Kapuscinski / World Bank

SECTION 3

RESULTS IN RESILIENCE

3.1 Strengthening Resilience in the Transport Sector

Five countries across the globe are working to strengthen the transport sector to build resilience against disaster and climate risks, enabling a global resilient transport program that provided support to more than 20 countries.

3.1.1 Transportation Investments Are under Threat from Disasters

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 risk. Recent studies show that some countries around the world—including Kenya, Lao PDR, Paraguay, Peru, and Serbia—are particularly vulnerable to future changes in climate and precipitation, with weather-related events expected to only become more frequent and intense.

In the Balkans, countries such as Serbia are experiencing more frequent and severe disasters. For example, the devastating 2014 Southeast European Floods left an estimated 30 percent of the countries' regional motorways and bridges destroyed. In South America, Paraguay and Peru both experience harsh seasonal floods and drought. In Peru, this is compounded by earthquakes and tsunamis. In 2018, an earthquake shook the coastal Arequipa region of Peru, destroying over 400 homes. In Kenya, droughts, floods, and landslides also leave lasting damage on a seasonal basis. Moreover, in July 2018, tropical storm Son-Tinh struck Lao PDR, leaving 68 fatalities and over \$235 million dollars in damage.

3.1.2 A Worldwide Programmatic Transport Approach

Recognizing the high level of exposure to disaster and climate risk, the governments of Kenya, Lao PDR, Paraguay, Peru, and Serbia worked with the World Bank to utilize the \$1 million support from the Program to develop a strategic and scalable initiative to increase the resilience of the transport sectors. The grant that began as a five-country initiative resulted in an entire program impacting and building resilience through a twenty-country program worldwide.

The program focused on developing climate vulnerability analyses and investment plans, building technical knowledge, and providing support to implement resilient transport projects. Through the Technical Knowledge Exchange held in Japan, government officials

from client countries received inputs from the disaster risks affecting transport sectors with Japanese experts from the public sector, private sector, and academia. Site visits to NEXCO Traffic Control Center and Watarase Retarding Basin provided an opportunity to learn best practices on reducing disaster risks in transport infrastructure. Based on these exchanges, each country developed action plans applying Japanese knowledge to country contexts. For example, in Serbia, the team conducted a road geohazard risk assessment with best practices learned from Japan. 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.

3.1.3 Results

Improved Policies and Plans to Build a Resilient Future Better Protect 200,000 Beneficiaries

Analyses, technical reports, and guidelines were created: climate vulnerability analyses in all five countries were created and published, and disseminated technical reports were delivered by Serbian and Paraguayan officials. Moreover, the grant developed risk assessment, risk assessment guides, and technical recommendations on road rehabilitation and improvements in Peru.

Capacity Building and Partnerships Strengthened

Knowledge exchanges have resulted in a key partnership across all countries—for example, in Kenya a partnership between the Ministry of Finance, the Ministry of Transport, and the Kenyan National Highway Authority helped improve transportation designs and methodologies and recommended institutional reforms and investment. Additionally, knowledge exchanges in Kenya, Lao PDR, Japan, Peru, Paraguay, Serbia, and the United States built technical capacity that supported the implementation of resilient transport projects, specifically, for example, in systems planning, engineering and design, asset management, and contingency programming.

Policies and Plans Designed and Operationalized

The grant developed climate-resilient road policies, road maintenance procedures, management and investment plans in Lao PDR and Peru for safer and more resilient roads and transportation services.

“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

3.2 Managing Disaster Risk in Central America

As disaster risk intensifies in Central America from the impact of weather events and climate change, Honduras and Nicaragua are taking action to be better prepared for natural hazards by modernizing hydromet services.



Flooding in the north of Honduras on the Ulua River has displaced many from their small homes. Photo: Kristin Klein.

In Central America, adverse hydrometeorological events are the most frequent disasters generated by natural hazards in Honduras and Nicaragua. From 1990 to 2012, it is estimated that annual economic losses due to weather-related disasters—including hurricanes, tropical storms, floods, and landslides—were equivalent to 2.8 percent and 1.9 percent of GDP for Honduras and Nicaragua, respectively.

Both Honduras and Nicaragua are exposed to frequent hurricanes, resulting in extensive flooding, landslides, and destruction due to strong winds. This is treacherous for the rural economies that rely on income from the agriculture sector, leaving populations in an extremely vulnerable position. Moreover, these countries consistently face high levels of physical and financial risk and the loss of hundreds of lives every year due to extreme weather events such as intense storms, flooding events, and hurricanes that have left economic damage in the billions of dollars. Specifically, in Nicaragua, Hurricane Felix (2007) caused damage and losses equivalent to 14.4 percent of GDP, while heavy rains of 2007 in the northwestern region and the 2011 Tropical Depression 12E eliminated 3 percent and 6.8 percent of GDP, respectively. In Honduras, Hurricane Mitch (1998) represented the worst disaster in the country's recent history, affecting 90 percent of its territory, leading to over 5,700 deaths and 8,000 missing as well as displacing nearly half a million individuals.

The overall damage amounted to 81.0 percent of GDP. Subsequent extreme meteorological events since Hurricane Mitch would suggest that Honduras' disaster vulnerability is on the rise. In Honduras alone, between 1980 and 2010, over 15,000

people were killed and over 4 million were affected by disasters, while economic damage amounted to \$4.5 billion.

3.2.1 Applying Hydromet Expertise and Investment

More than 15 million citizens in Central America are at risk of not having access to public weather services, timely early warning systems, or hydrometeorological information. The lack of access to this information leads to not having the ability to be prepared. Ultimately, having the systems and processes in place allows countries to plan, prepare, and, if necessary, evacuate for a disaster situation.

During 2015–19, both countries embarked on an effort to strengthen the institutional capacities at the national level—to support early warning systems for meteorological, hydrological, and climate-related hazards in Honduras and Nicaragua, including at the subnational levels in the Nicaragua Caribbean coastal and Rio San Juan regions and the Honduras Chamalecón and Ulúa River basins. A three-year project was implemented to develop access to basic hydromet information for 4.5 million in Honduras and 3 million in Nicaragua through low-cost, high-impact activities such as newly digitizing all hydromet records, developing a hydromet database, and creating a roadmap and strategy on how to improve hydromet services in the upcoming years. The countries aimed to develop a strong hydromet and early warning system so governments can act quickly against an extreme weather event. In the end, having the most up-to-date and reliable information is key for a country and its citizens.

“Previously when we were asked, for example, a map with the accumulated rainfall of recent days, we took several hours to produce it. Now with the MCH [the WMO Meteorological, Climatological and Hydrological database management system] it is something that is produced and published on the website automatically.”

—Francisco Argueñal,
Chief Meteorologist of
the Honduran Emergency
Commission

The Government of Japan, through the Japan–World Bank DRM Program, provided a \$1.45 million grant to Honduras and Nicaragua to support hydromet modernization efforts. Building on the experience of Japan in identifying, predicting, and managing the risks posed by weather hazards, Honduras and Nicaragua developed modernization plans for hydromet infrastructure and improved weather forecasting capabilities. Overall, the investment not only helped to benefit more than 7 million people by giving them access to hydromet information, but also leveraged more than \$13 million dollars between the two countries to finance more activities described in the hydromet modernization plans. The criticality of installing a database using the low-cost database platform initiated the transformation and modernization of both national institutions. The development of hydromet service websites proved useful to increasing the visibility of the National Meteorological and Hydrological Services. These websites could have an important impact in both countries to gain the support of users and beneficiary institutions to make the case for improved hydromet services.

3.2.2 Results

Modernization Plans Developed

The modernization plans developed through this grant established a framework toward strengthening early warning systems and improved the weather services provided to end users in both countries.

Operational Procedures in Place

Through this grant, manuals and procedures were developed to help both governments improve the accuracy of the current weather forecasts by introducing the use of appropriate methods, tools, and operational procedures, along with recommendations to implement concrete actions on improving weather forecasts and capabilities.

Database and Websites Operational

Websites allowed real-time and historical information to be managed and stored with a new meteorological, hydrological, and climate database management system.

3.3 Enabling Scaled-Up Risk Reduction Investments in the Philippines

Strengthening DRM institutional systems and capacity of agencies reduces the risk of infrastructure in-country.



Pedestrians watch as city workers dredge the riverbed of the Taguig River, Philippines. Photo: Dominic Chavez/World Bank.

3.3.1 Background/Context

Since 1990, the Philippines has been affected by 565 natural disaster events, claiming nearly 70,000 lives and an estimated \$23 billion in damages. Disasters in the country can quickly roll back hard-won economic and social development gains.

For example, after Typhoon Haiyan hit the Philippines in November 2013, nearly half a million households were pushed into poverty, increasing the poverty rate from 41 percent to roughly 56 percent in some of the worst-affected areas. Just a month earlier, in October 2013, a 7.2 magnitude earthquake struck the island of Bohol. As a result, several centuries-old heritage structures (administrative buildings, churches, and other historically valuable public facilities) were either fully destroyed or severely damaged. In recognition of these irreplaceable losses, the Philippines Department of Tourism sought the World Bank's TA to improve the resilience of heritage structures so that

the multifaceted value and contribution to local economic development would not be compromised by natural disasters.

Most importantly, these back-to-back disasters brought to the center of public attention the need to mainstream DRM across sectors as necessary to increase resilience from the persistent earthquakes, storms, and flooding in the region that disrupt livelihoods and halt economic production.

3.3.2 Building a Comprehensive Disaster Risk Management Program

Building on the results already achieved under the World Bank's programmatic TA support to the Philippine DRM agenda since 2010, the Program provided a \$2 million grant for the Philippines with the objective of strengthening DRM institutional systems and sectoral agency capacities to enable phased implementation of risk reduction programs for key public buildings and infrastructure in the country. Working with the Department of Public Works and Highways, for example, DRM standards were integrated into the first revision of the Philippines' National Building Code; engaging with the Department of Tourism, the grant helped to address risk reduction for cultural heritage assets and with the Department of Education to develop retrofitting solutions for at-risk schools in metro Manila; and supporting the Department of Finance, it helped to implement a comprehensive protection strategy. These efforts have helped the Philippines address disaster risks in the medium and long term and advance its commitment to the Sendai Framework in the years to come.

The grant supported the development of a cost-benefit analysis and seismic-proofing guidelines for retrofitting schools in Metro Manila. The analysis showed that a small investment could save a large number of lives in the case of an earthquake. For example, by strengthening the most vulnerable 5 percent of school buildings, the country could potentially save 6,000 lives; doing the same to 40 percent of these buildings could potentially save 19,000 lives. As a result of this work, the Government of the Philippines introduced and committed to fund new regulations for building safe schools.

At the local level, grant funds accelerated the implementation of DRM reforms by building technical and institutional capacity. As a result, approximately 90 percent of provinces have now mainstreamed resilience measures into development plans, which are expected to result in investments that are selected, located, and designed to standards minimizing the vulnerability of communities. A joint disaster resilience insurance facility is also being set up by local governments to provide immediate payouts to provinces after disasters, improving the financial response capacity at the local level.

Finally, the grant also provided needed TA to the Government of the Philippines to develop a disaster risk financing strategy and action plan. The action plan, which was adopted by the government, identified potential mechanisms for reducing financial risk at the sovereign and household levels.

3.3.3 Integrating Disaster Risk Reduction into Cultural Heritage

Importantly, grant activities supported the Department of Tourism to assess and develop different options to reduce the vulnerability of 16 selected cultural heritage structures to multiple natural hazards, in three pilot locations: Intramuros Manila and the provinces of Cebu and Bohol. This involved detailed multi-hazard vulnerability assessments of selected cultural heritage structures, leading to specific recommendations, conceptual designs, and cost estimates for structural strengthening and restoration. This innovative solution goes beyond traditional DRM initiatives, which usually focus on strengthening public facilities such as schools and hospitals, not historical or cultural assets. The multi-hazard vulnerability assessments led to specific recommendations for risk reduction interventions for each structure, with conceptual designs and cost estimates for structural strengthening and restoration.

3.3.4 Japanese Engagement

JICA experts contributed to the review of technical standards, designs and solutions for seismic risks as well as the regulatory framework and enforcement of building standards to develop retrofitting solutions for public schools, hospitals, and public buildings which were used to inform the development of an updated Philippine Building Act. Close dialogue among the World Bank, JICA, and government agencies—including the Department of Finance and the Ministry of Housing and Public Works—have united diverse actors providing expertise and advisory services and considering investments in risk reduction and risk financing. As a result, the country is considering more comprehensive strategies to protect people and assets from harm and putting in place the necessary financial mechanisms for the country to recover when disasters occur, including insuring public assets. JICA and the World Bank have been critical partners of the Government of Philippines in this effort, and effective coordination and cooperation has been key to achieving impact at scale.

3.3.5 Results

The New Philippine Building Act

The new Philippine Building Act of 2018 (PBA) was filed in Congress under House Bill 7804 with the following salient features:

1. General requirements for design, considering multiple hazards and climate variability at the specific location, site, and zone of construction
2. General requirements for the maintenance of existing (including heritage) buildings, and provisions for corresponding incentives for retrofitting
3. General provisions for post-disaster/post-crisis reconstruction
4. Strengthening the institutional framework for building regulation at national and local levels



San Agustin Church of Paaoay, the Philippines, completed in 1710. Photo: JeJim

“I thank the Government of Japan, [the] World Bank and GFDRR for their support of the review and revision of the National Building Code, and in particular for the mainstreaming of disaster risk reduction measures into the National Building Code, which is long due for the Philippines. I consider this a very important step to build resilience for the country.”

*—Rogelio Lazo, Singson,
Secretary, Department of
Public Works and Highways,
Government of the
Philippines*

Standards Are Risk-Informed

Stakeholder workshops and training activities helped develop and disseminate the initiative’s methodology, which is planned for adoption in the forthcoming Philippine Conservation Guidelines. Without this initiative, risk reduction would be absent from these standards. Through public and private resources, additional locations in the Philippines will begin to integrate risk reduction into the conservation of cultural heritage sites.

ANNEX 1.

World Bank Investments Leveraged in FY20

After seven years of implementation, the Hub has achieved success in terms of influencing World Bank DRM investments. The Hub's support helps prepare client countries to access larger investments in DRM from the World Bank and other development partners, while providing key entry points to enhanced resilience options in existing investments.

Table A1 Total of IBRD and IDA World Bank investment projects supported by the Program

	Total of IBRD (project preparation)	Total of IDA (project preparation)	Total of IBRD (project implementation)	Total of IDA (project implementation)
TA Grants Approved in FY20	\$2.08 billion	\$2.32 billion	\$1.65 billion	\$1.54 billion
Cumulative (FY15-FY20)	\$4.81 billion	\$5.01 billion	\$1.80 billion	\$2.34 billion

Note: All leveraged figures are rounded down at the second decimal point to avoid over reporting.

Table A2 Cumulative list of World Bank investments to which support to project preparation was provided¹¹

Country	TA Grant Name	Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY (Board approval date indicated if already approved)	Total Funding and Source (\$M)
Priority Area 1: Resilient Infrastructure						
Burkina Faso	Flood-Resilient Mass Transit Planning in Ouagadougou	2020	Ouagadougou Urban Transport Project (P168963)	Transport	2021 (Pipeline)	150 IDA
Congo, Democratic Republic of	Strengthening the natural hazard and climate resilience of Airport-Cities in the Democratic Republic of Congo	2020	Transport and Connectivity Support Project (P161877)	Transport	2021 (Pipeline)	600 IDA
Seychelles	Strengthening Coastal Resilience in Seychelles	2020	Disaster Risk Management Development Policy Loan with a Catastrophe Deferred Drawdown Option – Supplemental Financing (P174298)	GPURL	2021 (Pipeline)	14 IBRD
Tanzania	Strengthening Drought Resilience in Tanzania	2020	Tanzania Water Security for Growth (P168238)	Water	2021 (Pipeline)	350 IDA
Cambodia	Improving Rural Accessibility and Road Resilience to Climate and Disaster Risks in Cambodia	2020	Cambodia Road Connectivity Improvement (P169930)	Transport	2021 (Pipeline)	100 IDA
Indonesia	Resilient Urban Mobility Diagnostics for Indonesian Cities	2020	Indonesian Mass Transit Program Support (P169548)	Transport	2022 (Pipeline)	710 (IBRD: 500, Counterpart Funding: 210)
Philippines	Improving Resilient Design of Priority Greenfield Projects: Marikina Dam	2020	Pasig-Marikina River Basin Flood Management Project (P171897)	Water	2021 (Pipeline)	435 IBRD: 400, Counterpart Funding: 35)
Philippines	Philippines – Support to the Sustainable, Inclusive, and Resilient Tourism Program	2020	Philippines - Sustainable Inclusive and Resilient Tourism Project (P171556)	GPURL	2021 (Pipeline)	150 IBRD
Kosovo	Enhancing Resilience and Safety of Dams in Kosovo	2020	Fostering and Leveraging Opportunities for Water Security (P169150)	Water	2020 (Pipeline)	28.49 (IDA: 27.42, Co-financing - Other Sources (IFIs, Bilaterals, Foundations: 1.09)
Turkey	Turkey Resilient Urban Development	2020	Urban Resilience Project (P173025)	GPURL	2022 (Pipeline)	553 IBRD

¹¹ Board approval dates are as of March 31, 2020. Tamil Nadu Housing And Habitat Development Project (P168590), SRI LANKA INTEGRATED WATERSHED AND WATER RESOURCES MANAGEMENT PROJECT (P166865), and Honduras DRM Development Policy Credit With A Catastrophe Deferred Drawdown Option (Cat DDO) (P172567) were approved after March 31, 2020 and before the report submission date of May 31, 2020. The approval dates are May 18, 2020; May 18, 2020; and April 10, 2020, respectively.

Table A2 (cont.)

Country	TA Grant Name	Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY (Board approval date indicated if already approved)	Total Funding and Source (\$M)
Priority Area 1: Resilient Infrastructure (cont.)						
Colombia	Resilient Housing	2020	Colombia: Resilient and Inclusive Housing Project (P172535)	GPURL	2021 (Pipeline)	115 (IBRD: 100, Trust Fund: 15)
Mexico	Building Resilience to Natural Hazards in the Valley of Mexico	2020	Water Security and Resilience for the Valley of Mexico (PROSEGHIR) (P164389)	Water	Feb 27, 2020	120 IBRD
Peru	Enhancing Dam Safety and Risk Assessments in Peru	2020	Mobilizing Private Long-Term Finance for Infrastructure and Water Security for Lima (P165334)	FCI	2021 (Pipeline)	1,050 (Private Sector Equity: 1,000, Guarantee Provided by World Bank: \$50)
Peru	Improving resilience to climate and geophysical hazards in the design and implementation of cable cars in Lima	2020	Lima Teleferico San Juan de Lurigancho-(Series 1) (P170609)	Transport	2021 (Pipeline)	123 (IBRD: 100, Counterpart Funding: 23)
Bangladesh	Improving resilient planning and design for coastal and rural infrastructure in Bangladesh	2020	Resilient Infrastructure Building Project (P173312)	GPURL	2021 (Pipeline)	400 IDA
Nepal	Strengthening resilience in the road network in Nepal's secondary cities	2020	Nepal Urban Governance and Infrastructure Project (P163418)	GPURL	2020 (Pipeline)	150 IDA
Pakistan	Building Disaster Resilient Water Resources Management Capacity in Sindh	2020	Sindh Water and Agriculture Transformation Project (SWAT) (P167596)	Water	2021 (Pipeline)	480 (IDA: 350, Counterpart Funding: 30, Trust Funds: 100)
Philippines	Philippines – Support to the Earthquake-Resilient Greater Metro Manila Program	2019	Philippines Seismic Risk Reduction and Resilience Project (P171419)	GPURL	2021 (Pipeline)	300 IBRD
Vanuatu	Climate and Disaster Resilient Transport in Small Island Developing States	2019	Vanuatu Climate Resilient Transport Project (P167382)	Transport	Jan 23, 2020	66 IDA
El Salvador	Mainstreaming Disaster Risk Management in Local Economic Resilience Infrastructure in El Salvador	2019	El Salvador Local Economic Resilience Project (P169125)	GPURL	Apr 17, 2019	200 IBRD
Morocco	Building Regulation for Resilience Program Phase II	2019	Municipal Performance Program (P168147)	GPURL	Nov 7, 2019	760 (IBRD: 300, France: French Agency For Development: 114, Counterpart funding: 346)

Table A2 (cont.)

Country	TA Grant Name	Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY (Board approval date indicated if already approved)	Total Funding and Source (\$M)
Priority Area 1: Resilient Infrastructure (cont.)						
Bangladesh	Green and Resilient Industries to Enhance Competitiveness in Bangladesh	2019	Bangladesh Private Investment & Digital Entrepreneurship Project (P170688)	FCI	2020 (Pipeline)	555 (IDA: 500, Counterpart Funding: 55)
India	Urban Resilience in SAR	2019	Kerala Solid Waste Management Project (P168633)	GPURL	2021 (Pipeline)	300 (IBRD: 210, Counterpart Funding: 90)
			The First Resilient Kerala Program Development Policy Operation (P169907)	GPURL	Jun 27, 2019	250 IDA
			The Second Resilient Kerala Development Policy Operation (P170521)	GPURL	2021 (Pipeline)	350 IBRD
			Tamil Nadu Housing And Habitat Development Project (P168590)	GPURL	2020 (Pipeline)	72 (IBRD: 50, Counterpart Funding: 22)
			Nepal Development Policy Financing With Cat DDO (P166788)	GPURL	Mar 10, 2020	50 IDA
Sri Lanka	Building Community Inclusive Flood Management in Sri Lanka	2019	Climate Resilience Multi-Phase Programmatic Approach (P160005)	GPURL	Jun 25, 2019	317 (IBRD: 310, Counterpart Funding: 7)
	Strengthening Capacity of Dam Operators and Practitioners through Technical Guidance and Augmented Reality Application	2019	Sri Lanka Integrated Watershed and Water Resources Management Project (P166865)	Water	Jun 25, 2019	75.03 (IDA: 69.53, Counterpart Funding: 5.5)
Brazil	Implement a pilot of Agriculture Drought Monitoring and Prediction	2018	Ceará Water Security and Governance (P165055)	Water	Aug 8, 2019	174.85 (IBRD: 139.88, Counterpart Funding: 34.97)
			Ceará Rural Sustainable Development and Competitiveness Phase II (P167455)	Agriculture and Food	Jul 18, 2019	153.53 (IBRD: 100, Counterpart Funding: 53.53)
Dominica	Reducing Debris Flow Risk for Infrastructure Resilience in Dominica	2017	Additional Financing Dominica Disaster Vulnerability Reduction Project (P166540)	GPURL	Sep 18, 2018	31 IDA

Table A2 (cont.)

Country	TA Grant Name	Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY (Board approval date indicated if already approved)	Total Funding and Source (\$M)
Priority Area 1: Resilient Infrastructure (cont.)						
Kenya	Operationalizing Building Regulation for Resilience	2017	Disaster Risk Management Development Policy Credit with a Catastrophe Deferred Drawdown Option (Cat DDO) (P161562)	GPURL	Jun 21, 2018	200 IDA
Maldives			Development Policy Financing with a Catastrophe Deferred Drawdown Option and Pandemic Emergency Financing Facility (P163939)	GPURL	Jul 1, 2019	10 IDA
			Maldives Urban Development and Resilience Project (P163957)	GPURL	Feb 27, 2020	16.5 IDA
Bangladesh	Promoting Resilient Infrastructure in South Asia – Phase 2	2017	Dhaka Public Transport Improvement Project (P166435)	Transport	2021 (Pipeline)	500 (IDA: 475, Counterpart Funding: 25)
Nepal			Nepal: Private Sector-Led Mini-Grid Energy Access Project (P149239)	Energy and Extractives	Jan 30, 2019	16.97 Recipient Executed (Counterpart Funding: 6.00, Trust Funds: 7.61, Commercial Financing: 3.36)
Pakistan			Competitive and Livable City of Karachi Project (P161402)	GPURL	Jun 27, 2019	240 (IBRD: 230, Counterpart Funding: 10)
India	EAP Comparative Study of the Legal and Institutional Frameworks for Dam Safety and Disaster Resilience	2016	Dam Rehabilitation & Improvement Project - Restructuring and Additional Financing (P166977)	Water	Feb 28, 2019	201.06 (IBRD: 137, Counterpart Funding: 64.06)
Lao People's Democratic Republic	Resilient Transport Infrastructure Program	2016	Lao Road Sector Project 2 (LRSP2) (P158504)	Transport	Dec 13, 2016	47.4 (IDA: 25, Counterpart Funding: 10, Co-financing - Nordic Development Fund: 12.4)
Paraguay			PY Transport Connectivity (P147278)	Transport	Jul 25, 2016	100 IBRD

Table A2 (cont.)

Country	TA Grant Name	Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY (Board approval date indicated if already approved)	Total Funding and Source (\$M)
Priority Area 1: Resilient Infrastructure (cont.)						
Pacific Islands	Sustainable Energy Industry Development Project	2015	Regional Sustainable Energy Industry Development Project (P152653)	Energy & Extractives	Sep 29, 2015	5.66 Recipient Executed Activities (Trust Funds: 5.66)
Sub-Total	10.52 Billion					
Priority Area 2: Risk Identification, Risk Reduction, and Preparedness						
Liberia	Supporting Multi-risk Assessment of Greater Monrovia	2020	Monrovia Integrated Development Project (P169718)	GPURL	2022 (Pipeline)	40 IDA
Brazil	Improving National DRM systems in Brazil	2020	Linha de Crédito para Resiliência Urbana no Sul do Brasil (P170682)	GPURL	Mar 24, 2020	123.65 (IBRD: 98.8, Counterpart Funding: 24.85)
Myanmar	Strengthening Seismic Resilience	2019	Myanmar Southeast Asia Disaster Risk Management Project (P173181)	GPURL	2022 (Pipeline)	120 IDA
Uzbekistan	Learning from Japanese Experience in Disaster Risk Management for Cultural Heritage and Tourism	2017	Medium-Size Cities Integrated Urban Development Project (P162929)	GPURL	Dec 18, 2018	120 (IBRD: 100, Counterpart Funding: 20)
Burkina Faso	Africa Hydromet Technical Assistance, Capacity Building and Knowledge Exchange Program	2016	Strengthening Climate Resilience in Burkina Faso (P164078)	GPURL	Sep 26, 2019	33 (IDA: 8.5, Counterpart Funding: 2, Trust Funds: 22.50)
Mali	Africa Hydromet Technical Assistance, Capacity Building and Knowledge Exchange Program	2016	Strengthening Climate Resilience in Mali Project (P161406)	GPURL	May 23, 2019	33 (IDA: 8.25, Counterpart Funding: 2M, Trust Funds: 22.75)
Ethiopia			One Wash— Consolidated Water Supply, Sanitation, and Hygiene Account Project (One Wash— CWA) (P167794)	Water	Jul 13, 2019	350 (IDA: 300, Counterpart Funding: 50)
Congo, Democratic Republic of			Strengthening Hydro-Meteorological and Climate Services (P159217)	GPURL	Mar 8, 2017	8.03 (Trust Funds - Global Environment Facility: 5.33, GFDRR: 2.7)
Western Africa			West Africa Regional HydroMeteorological Services Modernization Program Phase I (P166987)	GPURL	2021 (Pipeline)	101.7 (IDA: 79.2, Trust Funds: 22.50)

Table A2 (cont.)

Country	TA Grant Name	Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY (Board approval date indicated if already approved)	Total Funding and Source (\$M)
Priority Area 2: Risk Identification, Risk Reduction, and Preparedness (cont.)						
Honduras	Strengthening disaster risk management and resilience of Central American municipalities	2016	Honduras DRM Development Policy Credit With A Catastrophe Deferred Drawdown Option (Cat DDO) (P172567)	GPURL	Apr 10, 2020	119 IDA
Guatemala			Guatemala DRM Development Policy Loan with CAT DDO II (P159710)	GPURL	May 24, 2019	200 IBRD
Ethiopia	Operationalizing Japanese Expertise and Lessons Learned in Hydrological and Meteorological Services in World Bank Client Countries	2015	Ethiopia Resilient Landscapes and Livelihoods Project (P163383)	Environment, Natural Resources & the Blue Economy	Jul 30, 2018	129 (IDA: 100, Counterpart funding: 10, Trust Fund: 19)
Ghana			Greater Accra Resilient and Integrated Development Project (P164330)	GPURL	May 29, 2019	200 IDA
Nicaragua			Water Management Capacity and Infrastructure Development Project (P164286)	Water (Pipeline)	2021 (Pipeline)	50 IDA
Bhutan	Bhutan Weather and Disaster Resilience	2015	Preparation of Strategic Program for Climate Resilience (P159600)	GPURL	Feb 20, 2017	1.5 Recipient Executed Activities (Trust Funds: 1.5)
Sub-Total	1.62 Billion					
Priority 3: Disaster Risk Financing and Insurance						
Tonga	Pacific Resilience Program (PREP) - Tonga - GFDRR Co-financing Grant	2015	Additional Financing for the Pacific Resilience Project under the Pacific Resilience Program (P167166)	GPURL	Jul 18, 2018	17.31 (IDA: 14.95, Government of Australia, 1.96, Counterpart funding: 0.4)
Sub-Total	17.31 Million					
Just In Time						
Timor-Leste	Timor-Leste Support to Ensure Sustainable and Resilient Water and Sanitation Services	2020	Timor Leste Water Supply and Sanitation Project (P167901)	Water	Apr 22, 2020	30 (IDA:25, Counterpart Funding:5)
Tajikistan	Strengthening Resilience of Regional Connectivity in Tajikistan	2020	Fourth Phase of The Central Asia Regional Links Program (P166820)	Transport	2021 (Pipeline)	131 IDA
Sub-Total	161 Million					
Grand Total	12.32 Billion					

Table A3 List of cumulative leveraged World Bank Investments in FY20

Country	TA Grant Name	TA Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY	Funding Source (\$M)	
						\$	World Bank
Priority Area 1: Resilient Infrastructure							
Cameroon	Vulnerability Assessment and Adaptation Strategy of the Cameroon Road Network	2020	Cameroon Transport Sector Development Project (P150999)	Transport	Oct 27, 2016	206.7	(IBRD: 192, Counterpart Funding: 14.7)
Comoros	Strengthening Infrastructure Resilience in the Comoros	2020	Comoros Post-Kenneth Recovery and Resilience Project (P171361)	GPURL	Dec 18, 2019	45	IDA
Ethiopia	Ethiopia - Climate-Smart Resilient WSS for Addis Ababa and selected Secondary Cities	2020	Second Ethiopia Urban Water Supply and Sanitation Project (P156433)	Water	Mar 31, 2017	505	(IDA: 445, Counterpart Funding: 60)
Liberia	Building Resilience in National Water Sanitation and Hygiene Infrastructure Systems	2020	Liberia Urban Water Supply Project (P155947)	Water	Mar 24, 2016	10	IDA
			Liberia Urban Water Supply Project Additional Financing (P169031)	Water	Jun 14, 2019	30	IDA
Seychelles	Strengthening Coastal Resilience in Seychelles	2020	Disaster Risk Management Development Policy Loan with CAT DDO (P148861)	GPURL	Sep 26, 2014	14	IBRD
Sierra Leone	Resilient Urban Transport Infrastructure in West-African Cities for ALL	2020	Integrated and Resilient Urban Mobility Project (P164353)	Transport	Jun 13, 2019	52	(IDA: 50, Counterpart Funding: 2)
Uganda	Building Regulation for Resilience Phase II: Uganda	2020	Competitiveness and Enterprise Development Project (P169435)	FCI	Mar 2, 2020	99.8	IDA
			Second Kampala Institutional and Infrastructure Development Project (P133590)	GPURL	Mar 20, 2014	183.75	(IDA: 175, Counterpart Funding: 8.75)
			Uganda Support to Municipal Infrastructure Development Program (P117876)	GPURL	Mar 28, 2013	150	IDA
Kazakhstan	Building Resilience to Climate Change in the Road Sector	2020	East-West Roads Project (Almaty-Korgos Section): Western Europe - Western China International Transit Corridor (CAREC - 1b) (P128050)	Transport	May 1, 2012	1256	(IBRD: 1068, Counterpart Funding: 188)
Peru	Resilient Housing	2020	National Urban Cadaster and Municipal Support Project (P162278)	GPURL	Jan 10, 2020	80.9	(IBRD: 50, Counterpart Funding: 30.90)
	Enhancing Dam Safety and Risk Assessments in Peru	2020	Integrated Water Resources Management in Ten Basins (P151851)	Water	Apr 28, 2017	88.15	(IBRD: 40, Counterpart Funding: 48.15)

Table A3 (cont.)

Country	TA Grant Name	TA Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY	Funding Source (\$M)	
						\$	World Bank
Priority Area 1: Resilient Infrastructure (cont.)							
Tunisia	Tunisia – Maintenance planning for a resilient road network	2020	TN-Road Transport Corridors (P146502)	Transport	Jul 14, 2015	231.01 (IBRD: 200, Counterpart Funding: 30.10, Trust Funds: 0.91)	
Bangladesh	Improving resilient planning and design for coastal and rural infrastructure in Bangladesh	2020	Coastal Embankment Improvement Project - Phase I (CEIP-I) (P128276)	GPURL	Jun 26, 2013	400 (IDA: 375, Trust Funds: 25)	
		2020	Emergency Multi-Sector Rohingya Crisis Response Project (P167762)	GPURL	Mar 7, 2019	165 IDA	
India	Risk Management & Climate resilient infrastructure development for Assam IWT	2020	Assam Inland Water Transport Project (P157929)	Transport	Dec 13, 2019	110 (IBRD: 88, Counterpart Funding: 22)	
Nepal	Disaster and Climate Resilient Renewable Energy Power System in Nepal	2020	Nepal: Private Sector-Led Mini-Grid Energy Access Project (P149239)	Energy and Extractives	Jul 10, 2018	13.61 Recipient Executed Activities (Counterpart Funding: 6, Trust Funds: 7.61)	
Dominican Republic	Mainstreaming Disaster Risk Management in School Infrastructure Management in Dominican Republic	2018	Dominican Republic DRM Development Policy Loan with a Cat DDO (P159351)	GPURL	Sep 28, 2017	150 IBRD	
India	Urban Resilience in SAR	2018	The First Resilient Kerala Program Development Policy Operation (P169907)	GPURL	Jun 27, 2019	250 IDA	
Nepal			Earthquake Housing Reconstruction Project (P155969)	GPURL	Jun 29, 2015	300 IDA ¹²	
India	Coastal Resilience: Developing New and Innovative Approaches in India	2018	Andhra Pradesh Disaster Recovery Project (P154847)	GPURL	Jun 17, 2015	370 (IDA: 250, Counterpart Funding: 120)	
Sub-Total		4.71 billion					
Total		4.71 BILLION					

Note: FCI = Finance, Competitiveness and Innovation; GPURL = Urban, Resilience and Land Global Practice; IWT = Inland Water Transport.

¹² P155969 was reported in the 2017-18 Annual Report for TA project Disaster-Linked Social Assistance Delivery Support System Development in Nepal for the amount \$200M. Total Financing is \$500M in current date. Therefore, the difference of \$300M is listed in this table.

ANNEX 2.

Financial Statement

Statements of Receipts, Disbursements, and Fund Balance

Expressed in US Dollars

	For the fiscal year 2020 until March 31, 2020	For the fiscal year ended June 30, 2019	For the fiscal year ended June 30, 2018
Opening Balance:	52,899,536	51,023,381	70,046,568
Receipts:			
Donor contributions	20,000,000	20,000,000	0
Net investment and other incomes	962,119	1,414,114	972,401
Total Receipts	20,962,119	21,414,114	972,401
Disbursements:			
Project disbursements	14,949,085	18,126,254	18,792,269
World Bank administration fee	0	0	250,000
Program management and administration expenses	1,199,246	1,411,705	953,319
Total Disbursements	16,148,330	19,537,959	19,995,588
Excess of (disbursements over receipts)/ receipts over disbursements	4,813,789	1,876,155	-19,023,187
Ending Balance:			
Ending balance	57,713,325	52,899,536	51,023,381
Less: Undisbursed commitments	34,504,509	37,921,661	26,580,895
Funds available for new grants	23,208,816	14,977,875	24,442,486

The \$3.56 million unallocated funds reported in FY19 was allocated toward grants approved under the Country Program in FY20. The \$500,000 grant Georgia Seismic Resilience Project was approved by MoF in FY20 as part of this balance. There is a remaining FY19 balance of \$3.06 million as of March 31, 2020, which is being programmed and is pending proposal submission.

In FY20, \$16 million was programmed for Country Program.

ANNEX 3.

List of Deployments and Events

Deployment of Japanese experts supported by the Tokyo DRM Hub in FY20

Integrating Green Solutions for Urban Flood Resilience



Delegates from Bima and Ambon discuss and design innovative solutions for stormwater management in the design site with facilitator. Photo: World Bank

The World Bank is supporting the Government of Indonesia in developing the design of a national urban flood resilience program. To inform these efforts, the Indonesian team organized an interactive design-studio workshop to inform assessments and planning processes in Ambon, Bima, Manado, Padang, and Pontianak. Building on the partnership strengthened during collaborative work for the implementation of the Urban Floods TDD in FY19, the Hub supported the workshop through the Program's TA Learning from and Operationalizing Japanese Experience in Comprehensive Flood Risk Management for Reducing Urban Flood Risk.

The workshop was held on July 12, 2019, in Bogor, Indonesia. It was attended by local government representatives from these five Indonesian cities, where participants learned firsthand the challenges and opportunities for integrating nature-based and green solutions to enhance urban flood resilience. The workshop utilized a "mini studio approach" whereby participants collaborated with the facilitators and one expert deployed from Japan to develop a vision and investment proposals on "what a flood resilient urban development looks like," based on a process of site analysis, stormwater runoff calculation, and conceptual design of nature-based and green solutions. Various lessons learned from Japan, captured in the Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes, were utilized to inform the workshop.

Story: <https://www.worldbank.org/en/news/feature/2019/07/12/integrating-green-solutions-for-urban-flood-resilience-drmhubtokyo>

South Asia Regional Workshop on Emergency Operations Centers (EOCs)

When disaster strikes, effective emergency response is critical to saving lives and minimizing damage. South Asia is no exception, and countries in the region are now at various stages of setting up emergency operations centers (EOCs), a central coordination hub for emergency response.

From July 22 to 24, 2019, 60 participants representing eight South Asian countries (Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka) gathered in Bangkok, Thailand, for the South Asia Regional Workshop on Emergency Operations Centers. Drawing on best practices and lessons learned from EOCs in the United States and Japan, as well as the host country Thailand, participants' understanding of the planning and development processes involved in establishing an EOC and its role, functions, and management processes were enhanced. The participants also discussed how respective EOCs can accomplish the core functions of an EOC within the organizational and leadership structures of their respective national governments.

The TA Learning from the Japanese Experience in Emergency Preparedness and Response (EP&R) supported the deployment of three renowned Japanese experts from the Disaster Management Training Center at the University of Tokyo to share best practices and experiences with EOCs. The experts presented and highlighted the Japanese response systems at the national, prefectural, and municipal levels and experiences working with governments on disaster response in the aftermath of the Great East Japan Earthquake and Tsunami of March 2011, the 2016 Kumamoto earthquakes, and the 2019 torrential rains in Chiba.

Rescue team after the 2011 tsumai destroyed the town of Rikugentakata, in Iwate Prefecture, Japan.
Photo: RyuSeungil

Story: <https://www.gfdr.org/en/event/south-asia-regional-workshop-emergency-operations-centers-eocs>



Experts from Japan and Nepal Contribute to Building Resilient Energy Systems in Nepal



Interactive discussions were made by and among presenters and discussants

The World Bank is supporting the Government of Nepal's efforts to increase electricity generation capacity from renewable energy mini-grids in selected areas by mobilizing Energy Service Companies through the Private Sector-Led Mini-Grid Energy Access Project (P149239). As part of the activities, the Government of Nepal and Alternative Energy Promotion Center, in partnership with the World Bank, organized the workshop Enhancing Climate/Disaster-Resilient Renewable Energy Distributed Power System in Nepal on September 10–11, 2019, with the objective of providing support to stakeholders in Nepal to improve the country's overall energy supply situation by mobilizing energy-service companies to increase capacity of renewable energy mini-grids, capturing private sector efficiencies through public-private partnerships and encouraging private capital investment in the sector, while ensuring the resiliency of the system. Six Japanese experts from the energy sector were deployed through the Japan Program TA Promoting Resilient Infrastructure in South Asia to provide best practices in constructing resilient renewable energy distribution power systems in Nepal. Japanese experts from New Energy and Industrial Technology Development Organization, Tokyo Electric Power Company Power Grid Incorporated and Toshiba Energy Systems and Solutions Corporation shared their practical knowledge and designs for enhancing the resilience of micro-grid systems to flood and earthquake risks.

Story: <https://www.worldbank.org/en/news/feature/2019/09/10/experts-from-nepal-and-japan-discuss-best-solutions-to-build-resilient-renewable-energy-distributed-power-system-in-nepal-drmhubtokyo>

Sharing Japan's Experience of Financing Rapid Response through Pre-Arranged Agreements

Dr. Hitoshi Baba, Senior Advisor, Japan International Cooperation Agency (left) presenting at session moderated by Ms. Samantha Cook, Senior Financial Sector Specialist, World Bank Group (right) on "Assessing and addressing the fiscal and economic impacts of natural disasters: recent experiences and innovations on country financial resilience".
Photo: Ms. Alanna Simpson



The World Bank Group and the Global Facility for Disaster Reduction and Recovery (GFDRR), in collaboration with the Government of Romania, organized the Understanding Risk Europe conference, which took place on November 27–29, 2019, in Bucharest, Romania. With support from the Hub, Dr. Hitoshi Baba, Senior Advisor of JICA, participated in the session on “Assessing and addressing the fiscal and economic impacts of natural disasters: Recent experiences and innovations on country financial resilience.” He presented Japan’s experience on enabling rapid response through various mechanisms, including the pre-arranged financial, policy, and technical arrangements that enabled the restoration of the collapsed highway in six days after the Great East Japan Earthquake in 2011; this was possible because of the cooperation arrangements that existed between the public and private sectors. He also stressed the importance of disaster risk reduction, highlighting that ex-ante arrangements for contingency actions including pre-arranged financing are critical in ensuring Building Back Better.

Story: <https://www.worldbank.org/en/news/feature/2019/11/27/lessons-learned-from-japan-on-emergency-preparedness-arrangements-shared-at-understanding-risk-europe-drmhubtokyo>

Disaster Resilient Bridges in Vietnam



Through the Local Road Asset Management Program (LRAMP) (P155086), the World Bank is supporting the Government of Vietnam with the construction of more than 2,000 bridges nationwide with the objective of improving road and bridge connectivity for rural communities in Vietnamese provinces. The TA Vietnam: Piloting and Scaling Up Building Climate Resilient Bridges in Poor Rural Areas, supported by GFDRR, is supporting the pilot construction of three bridges using ultra high-performance concrete (UHPC), which is a material known for its strength and durability. As part of the support for this TA, on December 11 and 12, 2019 the Hub facilitated and supported the deployment of two experts from Taisei Corporation and Hokkaido University to contribute to the assessment of one of the completed pilot bridges and to participate in the knowledge exchange workshop as part of the LRAMP activities. During the workshop, the Japanese experts exchanged technical expertise on design and construction methods with experts from the Directory of Roads in Vietnam (DRVN), universities, and the private sector from Vietnam. Experts also discussed the possibility of scaling up LRAMP initiatives in UHPC bridge construction and exchanged ideas on how to maintain assurance of construction quality and areas of support required by DRVN moving forward.

(Left) Lang Co bridge in Thai Nguyen Province. (Right) Mr. Musha (second from left) and Professor Matsumoto (Right) assess Lang Co bridge.

Story: <https://www.worldbank.org/en/news/feature/2019/12/11/uhcp-experts-contribute-to-assessment-of-pilot-uhcp-bridges-under-the-local-roads-asset-management-project-drmhubtokyo>

Events by the DRM Hub or with Its Inputs

Event	Summary and Japanese experts engaged	Link to web story
August		
BROWN BAG LUNCH Resilient Transport Program: A Review of Phase I & Launching of Phase II	The Disaster Risk Management and Transport Practices of the World Bank Group, with support from the Program, launched the first phase of Resilient Transport Program in 2017. The results from first phase activities were reviewed and overall approach of the second phase was discussed to identify innovative ways to support a systematic deepening of DRM engagements in World Bank transportation operations.	None
CONFERENCE TICAD7 JICA side event – Integrated Approach for Climate	The Hub was invited to present the Program’s activities in Africa at this session to discuss how African countries and the global community can together address challenges caused by climate change in Sub-Saharan Africa with science-based knowledge and promote actions to accelerate global efforts. <i>Experts:</i> Ministry of Environment; JICA; ICHARM; Komaga	None
CONFERENCE TICAD 7 side event – Strengthening Resilience against Water-Related Disasters Workshop	The Hub was invited to present the World Bank’s activities in Africa, and Japan Program’s support to the African Hydromet Program. <i>Experts:</i> MLIT, JICA, ICHARM	None
September		
PUBLIC SEMINAR Lifeline: The Resilient Infrastructure Opportunity	The Hub organized its 22nd public seminar to commemorate the launch of the World Bank’s new report <i>Lifeline: The Resilient Infrastructure Opportunity</i> . <i>Experts:</i> MoF, Cabinet Secretariat, Hamamatsu City, West Nippon Expressway Company	Link
PARTNERSHIP DEVELOPMENT Lifeline: Seminar for JICA staff	The Hub organized a seminar for JICA staff to present activities on resilience initiatives by the World Bank and an overview of the <i>Lifelines</i> report and its application. <i>Experts:</i> JICA	None
KNOWLEDGE SHARING Lifeline Seminar at Waseda University	Information sharing with faculty, researchers, and students at Waseda University, on the World Bank’s efforts on resilience and partnership with Japan and key findings from the <i>Lifelines</i> report. <i>Experts:</i> Waseda University	Link
October		
CONFERENCE Tsukuba Conference 2019 SCIENCE FOR RESILIENCE – Viewing from the scene of a meteorological disaster	The Hub was invited to this session to present the Hub’s efforts in mainstreaming DRM in developing countries and illustrate how innovative tools are utilized in doing so. Particular emphasis was placed on how the DRM Hub was enabling support strengthening the resilience of infrastructure. <i>Experts:</i> Hiroshima City, ICHARM, The National Research Institute for Earth Science and Disaster Resilience	None

*BBL: Borwn Bag Lunch

Events by the DRM Hub or with Its Inputs

Event	Summary and Japanese experts engaged	Link to web story
October (cont.)		
WORKING GROUP MEETING Southeast Asia Disaster Risk Insurance Facility (SEADRIF) – Technical Briefing with Insurance Industry	MoF and the World Bank co-organized a technical briefing for Japanese insurance industry on the SEADRIF. The session aimed to present recent updates on SEADRIF to receive feedback on (i) updated timelines toward the launching of a catastrophe risk pool for Lao PDR and Myanmar; (ii) the SEADRIF Flood Risk Monitoring Tool, and (iii) the proposed insurance product design. <i>Experts:</i> MoF; Guy Carpenter Japan, Inc.; Mitsui Sumitomo Insurance Company, Limited; MS&AD InterRisk Research & Consulting Inc.; SOMPO Holdings, Inc.; SOMPO Risk Management Inc.; Tokio Marine & Nichido Fire Insurance Co., Ltd.	None
TRAINING DOISP2 Delegates to Japan – Group 2 Flood Forecasting & Multiple Dam Cascade Operation	The training was arranged by the Japan Water Agency (JWA) to share knowledge and information from Japan’s experience across the main technical areas of dam safety and management issues that can be applied in DOISP2. <i>Experts:</i> CTII; Japan Radio Co., Ltd; JWA; The University of Tokyo	Link
WORKSHOP JICA Knowledge Co-Creation Program (KCCP) Training on Gender and Diversity for Disaster Resilience	The Hub was invited by the JICA Tohoku Center to participate in the public event Leave No One Behind: Talks by Women DRR Leaders from the World on Roles of Women Civil Society Organizations and contribute to the action planning workshop presented by participating countries. <i>Experts:</i> JICA, Japan Women’s Network for Disaster Risk Reduction (JWNDRR)	None
CONFERENCE United Nations University (UNU) – Institute for the Advanced Study of Sustainability, International Day for Disaster Reduction (IDDR) 2019	The Hub was invited to deliver a keynote presentation to discuss the World Bank’s Resilient Infrastructure Program at the 2019 IDDR at UNU. <i>Experts:</i> Asian Development Bank Institute; Cabinet Office	None
November		
KNOWLEDGE EXCHANGE Embassy of Brazil – Minas Gerais delegation visit to the Hub	Five members of the Civil Defense Department of Minas Gerais, Brazil, requested an official visit to the Hub to receive an overview of Program activities in Brazil, support in Dam Safety, and recommendations from the <i>Lifelines</i> publication.	None
CONFERENCE World Bosai Forum – Opening Session	The World Bank’s Special Representative of Japan, Mr. Masato Miyazaki, was invited to give the opening remarks at this Forum.	None
CONFERENCE World Bosai Forum – Session Technology and Disaster Management Education for adults	The Hub was invited by the University of Tokyo’s Institute of Industrial Science to participate in their session to present World Bank practices and trends in capacity building activities for government officials and community members. <i>Experts:</i> The University of Tokyo’s Disaster Management Training Center	None
PUBLIC SEMINAR 2019 International Symposium on Managed Retreat as a Tool for Disaster Resilience with a Diversity/Gender Perspective	The Hub co-organized this symposium with the University of California, Davis; JICA; and JWNDRR. The World Bank’s efforts in inclusive resilience in South Asia Region was presented during the panel discussion. <i>Experts:</i> JICA, JWNDRR	Link

Events by the DRM Hub or with Its Inputs

Event	Summary and Japanese experts engaged	Link to web story
November (cont.)		
CONFERENCE The Fifth Tokyo Fiscal Forum	The Hub facilitated the World Bank's presentation on "Mainstreaming Disaster Risk Management in Infrastructure Investment in Asia".	None
January		
CONFERENCE World Bank Group Policy and Human Resources Development seminar Bringing Resilience to Scale: Sharing Japanese Expertise with Partner Countries – Informing World Bank Policy	As one of Policy and Human Resources Development– funded programs, the Hub was invited to present an overview of the Program. The India Dam Rehabilitation and Improvement Project: Enhancing Dam Safety Operations through Disaster Resilience Practices was introduced as an example of Hub activities.	Link
SEMINAR Tech 4 Bosai #2: Leveraging Japanese Experience for Resilience	The Hub supported this seminar organized by the Government of Japan, the World Bank, GFDRR, and Keidanren USA. The seminar showcased how Japan utilizes innovative solutions in its disaster risk reduction and management efforts. <i>Experts:</i> Institute for Earth Science Visualization Technology Co., Ltd.; JR-Central; Keidanren USA; Fujitsu Laboratories Ltd.; Nippon Telegraph and Telephone	Link
CONFERENCE International Recovery Forum 2020	The Hub represented GFDRR as Chair of the International Recovery Platform and was invited to Chair the Steering Committee meeting with the Cabinet Office. The Hub presented on the importance of mainstreaming resilient infrastructure to reduce disaster risks and ensure quick recovery. <i>Experts:</i> Cabinet Office; Hyogo Prefecture; Reconstruction Agency; Toyo Construction Co., Ltd.; University of Hyogo	None
February		
PUBLIC SEMINAR Learning from Japan's Experience in Integrated Urban Flood Risk Management: Launch of A Series of Knowledge Notes	In partnership with Urban Flood Community of Practice, the Hub organized its 23rd public seminar with the objective to commemorate the launch of Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes. <i>Experts:</i> MoF; MLIT; Yachiyo Engineering; The University of Tokyo	Link
KNOWLEDGE SHARING Distant Learning Platform for the Ministry of Emergency Situations of Kyrgyz Republic	The Hub facilitated a video conference between the Center for Training and Retraining of Civil Defense (CoTRCD) of the Kyrgyz Republic and Fire and Disaster Management Agency Japan to share knowledge on FDMA's E-College System. This was part of the Kyrgyz Republic's effort to improve disaster awareness of the public and ongoing activity aiming to improve the quality of DRM training for the public by introducing an e-learning system and outreach. <i>Experts:</i> FDMA	None

Note: DOISP2 = Dam Operational Improvement and Safety Project Phase 2; FDMA = Fire and Disaster Management Agency; GFDRR = Global Facility for Disaster Reduction and Recovery; ICHARM = International Centre for Water Hazard and Risk Management; JICA = Japan International Cooperation Agency; JWDRR = Japan Women's Network for Disaster Risk Reduction; MLIT = Ministry of Land, Infrastructure, Transport and Tourism; MoF = Ministry of Finance.

ANNEX 4.

New Publications in FY20

The Program has supported and informed many publications in FY19 under various DRM and non-DRM sectors. A list of these publications is given below.

	DRM Hub Program	Publication Title	Type of Product	Language	
Focus Area	Resilient Infrastructure	Learning From and Operationalizing Japanese Experience in Comprehensive Flood Risk Management for Reducing Urban Flood Risk	Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes	Case Study	English (Japanese version to be published by end of FY20)
		Resilient Industries	Resilient Industry Global and Japan Case Studies (upcoming)	Case Study	English
		Resilient Infrastructure PPP: Contracts and Procurement	Technical Brief on Resilient Infrastructure Public-Private Partnerships: Policy, Contracting, and Finance	Case Study	English
		Resilient Infrastructure: Roads, Landslides and DRM	Road Geohazard Risk Management – Handbook	Case Study	English
	Risk Identification, Risk Reduction and Preparedness	Data and Risk Assessment	Seismic Risk Information in Japan for Resilience and Decision Making (upcoming)	Case Study	English
		Emergency Preparedness and Response	Emergency Preparedness and Response: The Case Study of Japan (upcoming)	Case Study	English
		Emergency Preparedness and Response	World Bank Regional Emergency Operations Center Workshop	Summary Report	English
		Information Communications Technology for DRM	Information and Communication Technology for Disaster Risk Management in Japan	Case Study	English
		Modernized Hydro-Meteorological Services	The Power of Partnership: Public and Private Engagement in Hydromet Services	Case Study	English
		Social Risk Management and Disaster Risk Management	Adaptive Social Protection and Disaster Risk Management: A Case Study of Japan	Case Study	English
DRFI	Development and Implementation of Policy Framework for Financial Risk Management against Disasters	Discussion Note on DRFI for Infrastructure for 2020 APEC Finance Ministers Meeting (upcoming)	Discussion Note	English	

Note: PPP = public-private partnership.

ANNEX 5.

Status of FY20 TA grants in pipeline

(as of May 31, 2020)

Country	Region	Japan TF Phase 2 FY20 Envelope	GP	Priority Area	Value (USD)	Status	FY Allocation
Nicaragua / El Salvador	LAC	Informing WBG lending operations financing resilient school infrastructure in Central America	GPURL	1	600,000	Approved: 5/13/2020	FY20
Angola	AFR	Informing WBG lending operations financing resilient school infrastructure in Angola	GPURL	1	400,000	Approved: 5/13/2020	FY20
Peru	LAC	Enhancing Resilience of Water Utilities to Natural Disasters in Peru	Water	1	200,000	Approved: 5/13/2020	FY20
India	SAR	Improving institutions for dam safety and downstream resilience	Water	1	150,000	Approved: 5/13/2020	FY20
Vietnam	EAP	Building Resilience to Saline Intrusion in the Mekong Delta: A Focus on Impacts and Solutions for Drinking Water Supply Systems	Water	1	200,000	Approved: 5/13/2020	FY20
Ethiopia	AFR	Building Resilience of Critical Urban Transport Infrastructure in Addis Ababa	Transport / GPURL	1	200,000	Submitted, Pending Approval	FY20
Bangladesh	SAR	Enhancing Transport Sector Resilience in Bangladesh	Transport / GPURL	1	200,000	Submitted, Pending Approval	FY20
Central America	LAC	Strengthening hydrometeorological services, preparedness and response capacities in Central America	GPURL	2	600,000	Submitted, Pending Approval	FY19
Multi-country		Resilient Energy Program	Energy	1	1,500,000	Under Development	FY20
Nigeria	AFR	Enabling Investments for Coastal Resilient Infrastructure in Nigeria	ENV	1	500,000	Under Development	FY20
Myanmar	EAP	Integrated Resilience Building	GPURL	1	200,000	Under Development	FY20

Country	Region	Japan TF Phase 2 FY20 Envelope	GP	Priority Area	Value (USD)	Status	FY Allocation
Angola	AFR	Risk Management Strategy for Operation and Maintenance of Dams in Angola	Water	1	150,000	Under Development	FY20
Multi-country	EAP	Enhancing River Basin Scale Dam Safety and Resilience: Mekong River basin	Water	1	250,000	Under Development	FY20
Multi-country		Resilient Transport Program	Transport	1	140,000	Under Development	FY20
Sri Lanka	SAR	Enhancing Citizen Engagement and Social Inclusion in Flood Risk Management Investments	GPURL	2	250,000	Under Development	FY19
Nepal	SAR	National Emergency Preparedness and Response Systems Assessment and Strengthening	GPURL	2	250,000	Under Development	FY19
India	SAR	Assessment to improve disaster prevention, emergency preparedness and response mechanisms	GPURL	2	250,000	Under Development	FY19
Philippines	EAP	Disaster Preparedness and Resilient Recovery Planning	GPURL	2	250,000	Under Development	FY19
Armenia	ECA	Armenia - Informing Risk Reduction and Resilience Project	GPURL	2	500,000	Under Development	FY19
Indonesia	EAP	Enhancing Urban Flood and Earthquake Resilience	GPURL	1	200,000	Under Development	FY19
Indonesia	EAP	Improving Structural Resilience of Subsidized Housing	GPURL	1	100,000	Under Development	FY19
Cambodia	EAP	Building Resilience by Reducing Disaster Risks in Cities and Cultural Heritage Sites	GPURL	1	200,000	Under Development	FY19
Lao PDR	EAP	Vientiane Urban Resilience	GPURL/FCI	2	400,000	Under Development	FY19
Multi-country	MENA	Strengthening Urban Resilience	GPURL	1	560,000	Under Development	FY19

Country	Region	Japan TF Phase 2 FY20 Envelope	GP	Priority Area	Value (USD)	Status	FY Allocation
Resilient Infrastructure Just-in-Time Window							
Multi-country		Resilient Infrastructure Just-in-Time Window (balance)	Multi-GP	1	420,000	Under Development	FY20
Serbia	ECA	Improving Capacity for Disaster Risk Management in the Serbian rail system	Transport	1	70,000	Approved: 5/15/2020	FY20
Turkey	ECA	Turkey disaster proofing of green and grey infrastructure in the Bolaman Basin	Env. / Water	1	70,000	Approved: 4/22/2020	FY20

Note: The pipeline information in this table is indicative and projects under development are subject to change.

