

# Japan–World Bank Program

for Mainstreaming Disaster Risk Management in Developing Countries



ANNUAL REPORT

2020–21



**THE WORLD BANK**  
IBRD • IDA | WORLD BANK GROUP



**GFDRR**  
Global Facility for Disaster Reduction and Recovery



Democratic Republic of Congo. Photo: Alphonse

This Annual Report covers the period between July 1, 2020, and March 31, 2021 (2020-2021). It will be submitted for review at the Eighth Program Steering Committee Meeting, which will be held on June 15, 2021.

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# ABBREVIATIONS

<b>AFR</b>	Africa Region	<b>IUFRM</b>	Integrated Urban Flood Risk Management
<b>BRR</b>	Building Regulations for Resilience	<b>JICA</b>	Japan International Cooperation Agency
<b>CoP</b>	Community of Practice	<b>JIT</b>	Just-in-Time
<b>CMP</b>	Coastal Management Plan	<b>LAC</b>	Latin America and Caribbean Region
<b>DRFI</b>	Disaster Risk Financing and Insurance	<b>M&amp;E</b>	Monitoring and Evaluation
<b>DRM</b>	Disaster Risk Management	<b>MENA</b>	Middle East and North Africa Region
<b>DRR</b>	Disaster Risk Reduction	<b>MLIT</b>	Ministry of Land, Infrastructure, Transport and Tourism
<b>EAP</b>	East Asia and Pacific Region	<b>MoF</b>	Ministry of Finance, Japan
<b>ECA</b>	Europe and Central Asia Region	<b>PAD</b>	Project Appraisal Document
<b>EOC</b>	Emergency Operations Center	<b>PBA</b>	Philippine Building Act
<b>EP&amp;R</b>	Emergency Preparedness and Response	<b>PPE</b>	Public-Private Engagement
<b>EWS</b>	Early Warning System	<b>PWRI</b>	Public Works Research Institute
<b>FCI GP</b>	Finance, Competitiveness and Innovation Global Practice	<b>QII</b>	Quality Infrastructure Investment
<b>FDMA</b>	Fire and Disaster Management Agency	<b>SIDS</b>	Small Island Developing States
<b>GEJE</b>	Great East Japan Earthquake	<b>SAR</b>	South Asia Region
<b>GFDRR</b>	Global Facility for Disaster Reduction and Recovery	<b>SEADRIF</b>	South East Asia Disaster Risk Insurance Facility
<b>GIF</b>	Global Infrastructure Facility	<b>TA</b>	Technical Assistance
<b>GPURL</b>	Urban, Resilience and Land Global Practice (formerly known as GSURR, Global Practice for Social, Urban and Rural Development, and Resilience)	<b>TDLC</b>	Tokyo Development Learning Center
<b>GP</b>	Global Practice	<b>UNDRR</b>	UN Office for Disaster Risk Reduction
<b>IDA</b>	International Development Association	<b>UR</b>	Understanding Risk
<b>IWT</b>	Inland Water Transport (India)	<b>WACA</b>	West Africa Coastal Areas Management Program
		<b>WSS</b>	Water Supply and Sanitation

*All dollar amounts are US dollars unless otherwise indicated.*



# 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 to as the *Program*) from the period between **July 1, 2020, and March 31, 2021**.

Progress was measured mainly against the objectives of the Program and the targets stated in the Fiscal Year 21 (FY21) Work Plan submitted to the Ministry of Finance (MoF), Japan in September 2020.

## Key Highlights of FY21

FY21 marked a milestone for the Program with the closing of the Phase 1 Trust Fund (TF072129), which was implemented from January 27, 2014 – December 31, 2020. Additionally, the continued impacts of COVID-19 pandemic not only required the Program to support new ways of delivering technical assistance and investment projects to client countries, but also expanded the range of disaster risk management considerations and approaches needed to support client countries aiming to continue to strengthen disaster and climate resilience within the context of pandemic management.

## Completion of Program Phase 1

Under the Phase 1 Trust Fund, **58 country program and 20 knowledge technical assistance (TA) grants** were implemented and closed. A total amount of \$88,875,470 was allocated to these grants, which leveraged a total amount of approximately **\$17.22 billion in World Bank investments**. A total of **54 countries and approximately 87 million beneficiaries worldwide** benefited from these grants. The details of progress and results from Phase 1 can be referred to in the Phase 1 Completion Summary Report, which is to be submitted to the donor in June 2021. **More than 1,100 Japanese experts** contributed as resource persons to TA activities, investment project activities, knowledge exchanges, and conferences implemented throughout Phase 1. At closing, Phase 1 had an undisbursed balance of **\$5,338,161.93**. It was agreed between MoF and the World Bank that this balance would be transferred to Phase 2 to support activities in alignment with the Program concept note and agreed work plan.

## Supporting Resilience Across Sectors through Program Phase 2 in Times of Compounding Risks

In FY21, MoF disbursed the second tranche of its contribution (\$20 million) as the Program commenced the third year of its renewed phase. An additional \$5 million was included in the FY21 annual work plan to accommodate the estimated balance of Phase 1.

**Key highlights of Program activities in FY21 under the Phase 2 Trust Fund** include:

- By March 31, 2021, the Program **approved 40 (including 4 JIT grants) technical assistance (TA) grants amounting to \$15.83 million** under the Country Program (Component 1) and **\$0.5 million** under the Tokyo DRM Hub (Component 2). An **additional 10 grants amounting to \$4.41 million** are in the pipeline for approval under the Country Program by the end of June 2021.
- The Program continued to strengthen its close partnership with the Japan International Cooperation Agency (JICA) and the Ministry of Foreign Affairs through their Embassies. In FY21, all **35 proposals<sup>1</sup> submitted to MoF were reviewed** by the Ministry of Foreign Affairs/Japanese Embassies and JICA during the preparation and development of grant proposals to ensure synergies and collaboration during implementation of grant activities. JICA also provided valuable inputs and critical contributions towards the development and finalization of **all publications** launched by the Program in FY21. In addition, the Senior Vice President of JICA participated in the Special Seminar “Building Back Better: Reflections on the 10th Anniversary of the Great East Japan Earthquake” held on March 18.
- As of March 31, 2021, the Program’s total portfolio across the two trust funds **consists of 189 TA grants, including both active and closed, with a total allocation of \$146.48 million.<sup>2</sup>**
- Of the **\$15.83 million** financing committed thus far in FY21, **84 percent contribute to Resilient Infrastructure; 10 percent to Risk Identification, Risk Reduction, and Preparedness; and 6 percent to Disaster Risk Finance and Insurance (DRFI) grants.**
- **66 percent (\$10.48 million) of approved Country Program resources supported grants led by non-DRM World Bank Global Practices (GPs) from Energy; Environment, Natural Resources & Blue Economy; Finance, Competitiveness and Innovation (FCI); Transport; and Water.** This is in line with the FY21 Work Plan target of 56 percent and highlights the Program’s continued focus on diversifying support across sector teams, which was also an 18 percent increase in comparison to FY20’s 48 percent commitment to non-DRM teams.
- Through grants approved in FY21, the **Program is estimated<sup>3</sup> to inform a portfolio of approximately \$3.49 billion of World Bank investment projects under implementation.** Out of the \$3.49 billion, \$1.75 billion (50 percent of the total amount) is anticipated to be in infrastructure sectors (Transport, Water, and Energy GPs). The Program has leveraged a total of **\$20.84 billion<sup>4</sup>** to date since its inception in 2014.

<sup>1</sup> The DRFI grant received \$1 million to the original grant approved in FY19, therefore a proposal was not submitted to the donor this year.

<sup>2</sup> The Japan—World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries is comprised of two trust funds: Phase 1 (TF072129) and Phase 2 (TF073236). This Annual Report covers progress and achievements through the grants approved and implemented during this reporting period under the two trust funds and implemented during this reporting period.

<sup>3</sup> The figure is estimated as the information was taken from the grant proposals and not yet reported in the GFDRR’s monitoring and evaluation platform.

<sup>4</sup> The cumulative leveraging amount (\$20.84 billion for overall Program) was based on the grant reporting in

- **Grants approved in FY21 are anticipated<sup>5</sup> to support the mainstreaming of resilience within 24 World Bank operations under preparation, which amounts to \$4.94 billion of planned new lending.** This exceeds the corresponding target of 18 World Bank operations stated in the FY21 Work Plan.
- During FY21, the Program continued to expand and develop new engagements between client countries, Japanese experts, and World Bank Task Teams. The Program enabled the mobilization of **92 Japanese experts and firms** to support the design and implementation of Japan Program grants and World Bank investment projects and Program TA activities.
- In FY21, in response to COVID-19, the Program increased collaboration between DRM and Health Emergency Preparedness and Response (HEPR) programs, through the development of joint report, **“Frontlines: Preparing Healthcare Systems for Shocks from Disasters to Pandemics”**, capturing good practices and lessons learned on health emergency preparedness. In addition, one grant informed emergency health operations in Central America, in response to the COVID-19 (Coronavirus) Pandemic.
- In FY21, **37 out of 100 grants supported by the Program reported to utilize Program-commissioned knowledge products.** An example is the Japanese approach and case studies on planning resilient energy systems captured in the Lifelines report, informing the “Piloting project resilience in power systems” grant.
- **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,<sup>6</sup> and the Program’s Results Framework indicators.

## Structure of the Report

**SECTION 1:** provides the overall progress of Program’s Phase 2 Trust Fund activities in FY21 for the Country Program and the Tokyo DRM Hub components.

**SECTION 2:** details on the Program’s reports and achievements against its objectives, the Sendai Framework, and Program priority areas. It also includes FY21 results on Japanese expert engagement and total beneficiaries of Japan Program TA grants approved in FY21.

**SECTION 3:** highlights key stories of impact and results from the Program-financed grants.

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

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GFDRR’s Monitoring and Evaluation platform (including all cycles since inception of the platform) reporting on already active grants approved in previous fiscal years and figures already reported in “2017-2018 Annual Report” and the Mid-term Review Report of Phase 1.

<sup>5</sup> The figure is estimated as the information was taken from the grant proposals and not yet reported in the GFDRR’s monitoring and evaluation platform.

<sup>6</sup> 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.





Hoi An, Vietnam, October 29, 2020: Two girls on a flooded street in Hoi An city after Typhoon Molave. Photo: © Marco Gallo | Dreamstime.com



# SECTION 1: PROGRESS OF PROGRAM ACTIVITIES IN FY21

## 1.1 Program Overview

This section provides an overview of the Program's grants and finances along its two components, which are defined below 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. 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, 2021, in FY21 the **Program approved 40 (36<sup>7</sup> Country Program and 4 Just-in-Time) new grants under the Country Program** across the three priority areas of Resilient Infrastructure, Risk Identification, Risk Reduction, and Preparedness, and Disaster Risk Financing and Insurance (DRFI). These grants totaled \$15.83 million. Ten additional grants amounting to \$4.41 million are in the pipeline for approval under the Country Program by end of June 2021. The Program contributed **97 percent toward Component 1, the Country Program, and 3 percent toward Component 2, the Tokyo DRM Hub.**

In FY21, newly approved grants were provided to a total of **40<sup>8</sup> countries** under both components of the Program. The breakdown is as follows: **8 in Africa** (Cameroon, Ethiopia, Ghana, Madagascar, Mozambique, Niger, Nigeria, Senegal); **6 in East Asia and Pacific**

<sup>7</sup> The DRFI TA grant is counted as one grant, although there was no new proposal in FY21.

<sup>8</sup> Duplicated countries are not included in this total figure.

**(EAP)** (Cambodia, Lao People’s Democratic Republic, Mongolia, Myanmar, Philippines, Vietnam); **4 in Europe and Central Asia (ECA)** (Kosovo, Serbia, Tajikistan, Ukraine); **5 in Latin America and Caribbean (LAC)** (Argentina, Bolivia, Brazil, Haiti, Honduras); **2 in Middle East and North Africa (MENA)** (Egypt, West Bank and Gaza); **4 in South Asia (SAR)** (Afghanistan, Bangladesh, India, Sri Lanka); and **16 in Global** (Vietnam; Tuvalu; Tonga; Solomon Islands; Palau; Philippines; Papua New Guinea; Myanmar; Federated States of Micronesia; Marshall Islands; Lao People’s Democratic Republic; Kiribati; Indonesia; Fiji; Cook Islands; Bangladesh). The total number of countries supported by the Program since 2014 is 98.

## 1.2 Component 1 – Country Program

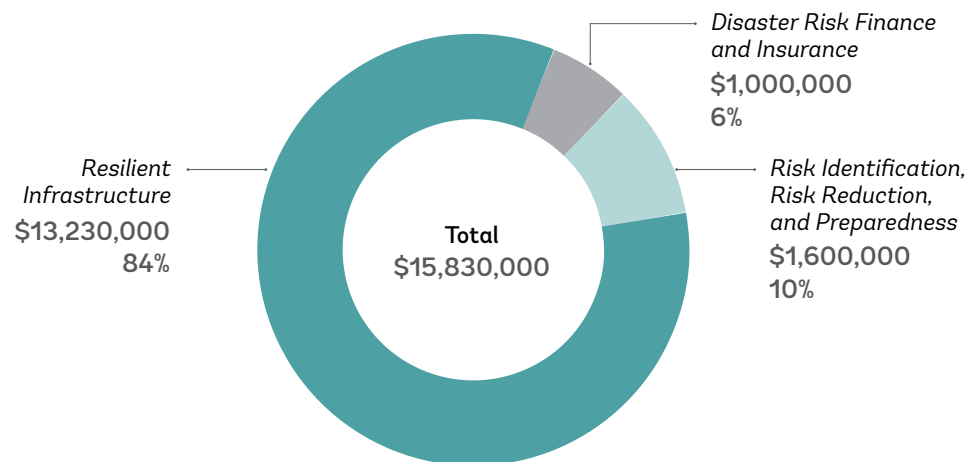
### 1.2.1 Portfolio Overview

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.

Despite the slowing down of activities due to the COVID-19 Pandemic, the Program continued to scale up activities in FY21 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 FY21, out of **40 new grants** amounting to **\$15.83 million**, **84 percent contribute to Resilient Infrastructure**; **10 percent to Risk Identification, Risk Reduction, and Preparedness**; and **6 percent to Disaster Risk Finance and Insurance**, as of March 2021 (Figure 1).

**Figure 1** FY21 Funding Commitments by Priority Area for Component 1, Country Program (calculated by US\$ amount)





**Table 1 Grants Approved in FY21 under the Country Program (as of March 31, 2021)**

#	TA Grants	Country	Value in US\$, millions
<b>Resilient Infrastructure</b>			
1	Integrating Disaster and Climate Resilience into Transport Planning in Douala, Cameroon	Cameroon	0.35
2	Developing Intervention Options for Coastal Resilience in Ghana	Ghana	0.20
3	Mozambique Electricity Sector Emergency Preparedness Project	Mozambique	0.60
4	Strengthening Urban Resilience and Disaster Preparedness in Mozambique		0.50
5	Building Urban Resilience in Niger	Niger	0.60
6	Developing a Multi Sector Investment Plan for Coastal Resilience in Nigeria	Nigeria	0.30
7	Cambodia: Urban Flood Resilience Diagnostics	Cambodia	0.30
8	Lao PDR: Strengthening Urban Flood Resilience and DRM Institutional Capacity	Lao People's Democratic Republic	0.40
9	Mainstreaming Resilience in the Transport Sector in Lao PDR		0.25
10	Mongolia: Ulaanbaatar Transport Infrastructure Asset Management and Design for Resilience	Mongolia	0.45
11	Supporting Multi-Hazard Resilience of Lifeline Infrastructure - Interdependency of Lifeline Water and Power Supplies in Yangon	Myanmar	0.40
12	Assessment of Flood Management Infrastructure and Water Security in the Pasig-Marikina River Basin	Philippines	0.42
13	Enhancing DRM for Hanoi Metro Line 5	Vietnam	0.44
14	Strengthening Urban Resilience in Vietnam: Investment Support and Analysis		1.00
15	Integrating Resilience Principles and Processes into Water Infrastructure Planning and Investment Preparation in Kosovo	Kosovo	0.275
16	Improving Resilience of the Local Road Transport Infrastructure Network in the Republic of Serbia	Serbia / Western Balkans	0.40
17	Strengthening Resilience of the Power Transmission Infrastructure in Ukraine	Ukraine	0.75
18	Transport Network Resilience in Western Ukraine	Ukraine (Western Oblasts)	0.25
19	Resilient Water Supply and Sanitation Services in Urban Areas in Bolivia	Bolivia	0.30
20	Implementing Resilient Urban Transport Systems for Improved DRM in Belo Horizonte - MG	Brazil	0.35
21	Strengthening Disaster Risk Management and Dam Safety in the State of Ceará, Northeast Brazil		0.30
22	Enhancing Capacity to Design and Implement Resilient Transport Systems in Haiti	Haiti	0.50
23	River Basin Management for Resilient Water Security in the Dry Corridor	Honduras	0.30
24	Upper Egypt Resilient Road Transport Technical Assistance	Egypt	0.30
25	Strengthening the Resiliency and Sustainability of Wastewater Investments and Management to Mitigate Urban Flood Risks in Gaza	West Bank and Gaza	0.30

#	TA Grants	Country	Value in US\$, millions
<b>Resilient Infrastructure (cont.)</b>			
26	Enhancing Disaster Response and Resilience of the Afghanistan Urban Water Supply and Sewerage Corporation	Afghanistan	0.435
27	Integrating Extreme Weather and Natural Hazard Resilience in the Bangladesh Power System	Bangladesh	0.60
28	Strengthening Resilient Logistic Infrastructure in Bangladesh		0.35
29	Resilient Mobility in Chennai	India	0.45
30	Supporting Tools for Improving the Safety and Resilience of Dams and Downstream Communities in India	India	0.33
31	Supporting Resilient Public Transport Infrastructure in Kandy, Sri Lanka	Sri Lanka	0.25
32	Water Security and Drought Resilience for Water Supply in Sri Lanka		0.30
<b>Total amount</b>			<b>12.95</b>
<b>Just-In-Time</b>			
33	Madagascar – Resilient Infrastructure Governance and Lifeline Connectivity Program for Results	Madagascar	0.07
34	Strengthening the Resilience of Power Transmission Assets in GBAO Region of Tajikistan	Tajikistan	0.07
35	Improving Resilience of Railway Investments and Strengthening Institutional Capacity to Mainstream Disaster Risk Management in Railway Maintenance and Operation	Argentina	0.07
36	Enhancing IWT Resilience in Kolkata through Spatial Planning	India	0.07
<b>Total amount</b>			<b>0.28</b>
<b>Risk Identification, Risk Reduction, and Preparedness</b>			
37	Enhancing Disaster Resilience in Ethiopia	Ethiopia	0.50
38	Strengthening Disaster Resilience in Senegal	Senegal	0.50
39	Support to the Comprehensive National Earthquake Risk Mitigation Program	India	0.60
<b>Total amount</b>			<b>1.60</b>
<b>Disaster Risk Financing and Insurance</b>			
40	Development and Implementation of Policy Framework for Financial Risk Management against Disasters	Global	1.00
<b>Total Amount</b>			<b>1.00</b>
<b>Total of all Program Priority Areas</b>			<b>15.83</b>

### 1.2.2 Sectoral Distribution

The Program is continuing to actively expand TA activities to a wider range of sectors and partner GPs across the World Bank, to further advance DRM mainstreaming across sectors. Overall, the **Program allocated 66 percent (\$10.48 million) of approved Country Program resources to grants led by non-DRM World Bank GPs** such as Transport (25 percent), Water (19 percent), Energy (13 percent), FCI (6 percent), and Environment, Natural Resources and Blue Economy (3 percent). This was an 18 percent increase over FY20's 48 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).

In addition, the Program has witnessed growth in new sectors, such as energy, which saw an increase in programming from \$300,000 in FY20 to \$2.09 million in FY21. The energy sector also was the recipient of two JIT grants. In total under FY21, the energy sector is providing support across 5 countries (Bangladesh, Madagascar, Mozambique, Tajikistan, and Ukraine) and helping to inform \$330 million in ongoing and \$1.11 billion in the preparation of new World Bank lending.<sup>9</sup>

## 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 Tokyo DRM Hub also actively coordinates with the Quality Infrastructure Investment (QII) Partnership Trust Fund to plan upstream engagements and share 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.



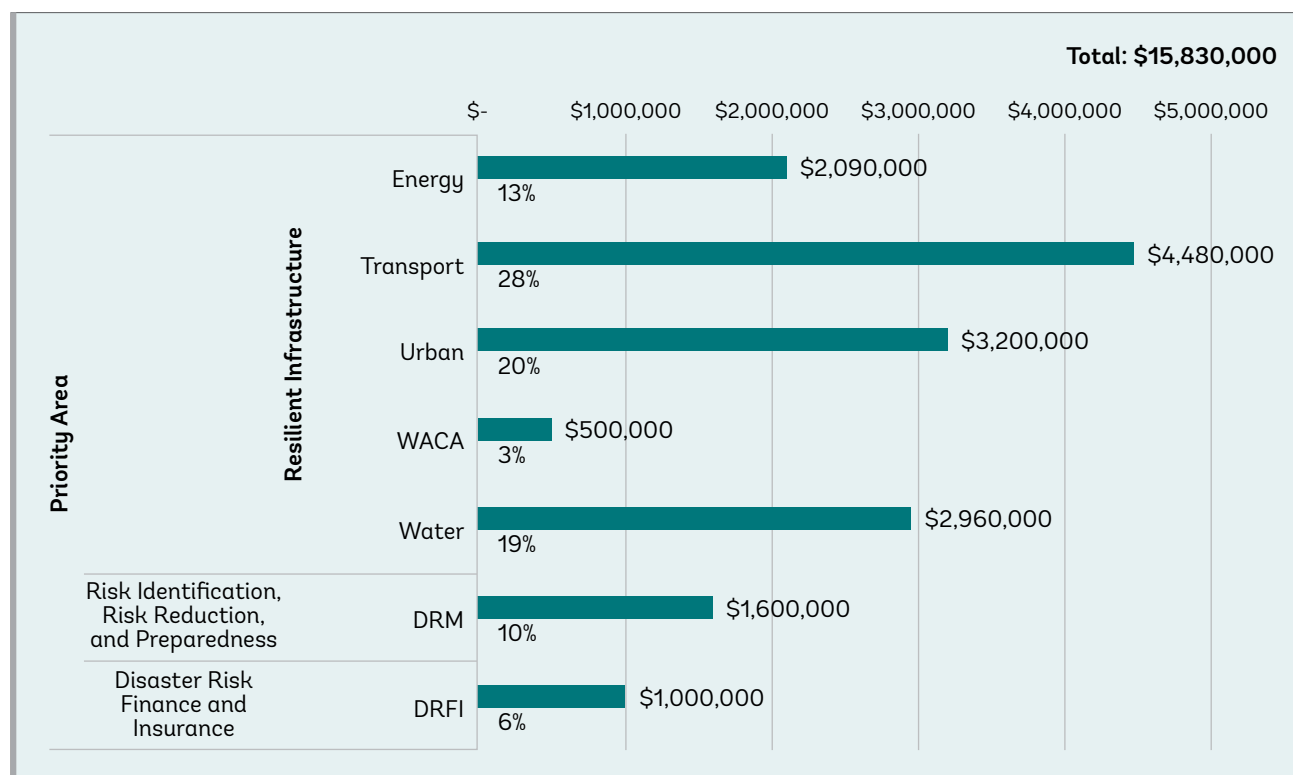
Under Priority 1, the grants contributing to resilient transport were allocated the most funding, at 28 percent (\$4.48 million), followed by 20 percent (\$3.2 million) to urban infrastructure, and then to water at 19 percent (\$2.96 million)<sup>10</sup>. This was followed by

<sup>9</sup> These figures are taken from the grant proposals approved by MoF in FY21.

<sup>10</sup> Support to the water sector covered sub-sectors for water supply and sanitation, dam safety, and river basin management for floods and drought.

energy at 13 percent (\$2.09 million), and coastal resilience support under the West Africa Coastal Areas Management Program (WACA) at 3 percent (\$0.5 million). Under Priority Area 2, 10 percent (\$1.6 million) of the funds were allocated to DRM. Under Priority Area 3, 6 percent (\$1 million) was allocated to DRFI (Figure 2).

**Figure 2** FY21 Sectoral Funding Distribution (calculated by US\$ amount)



\*Note: The detailed figures for the graph above are: Energy (13.20%); Transport (28.30%); Urban (20.21%); WACA (3.16%); Water (18.70%); DRM (10.11%); and DRFI (6.32%), which add up to 100%.

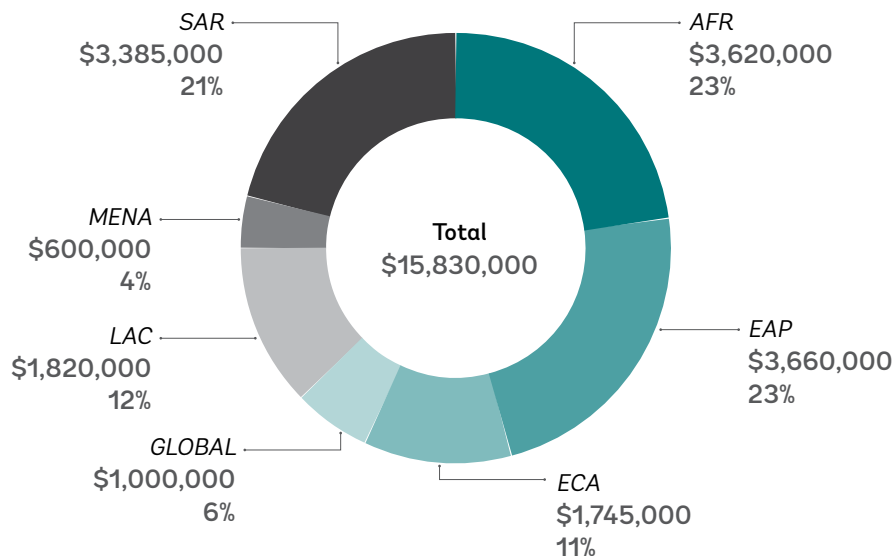
### 1.2.3 Regional Distribution of Financing

Across World Bank regions, the order of financial distribution in FY21 was East Asia and Pacific Region (EAP, 23 percent), followed by Africa Region (AFR, 23 percent)<sup>11</sup>, South Asia Region (SAR, 21 percent), Latin America and the Caribbean Region (LAC, 12 percent), Europe and Central Asia Region (ECA, 11 percent), Global (6 percent), and Middle East and North Africa Region (MENA, 4 percent), as shown in Figure 3.

In FY21, the EAP and AFR regions were the greatest recipients of Country Program funding, representing nearly one-fourth of contributions each, followed by 21 percent in SAR. In comparison to FY20, the EAP region saw an increase in allocation mainly because of the increase in demand in the resilient infrastructure sectors (transport, water, and urban), where the number of grants doubled from 4 to 8.

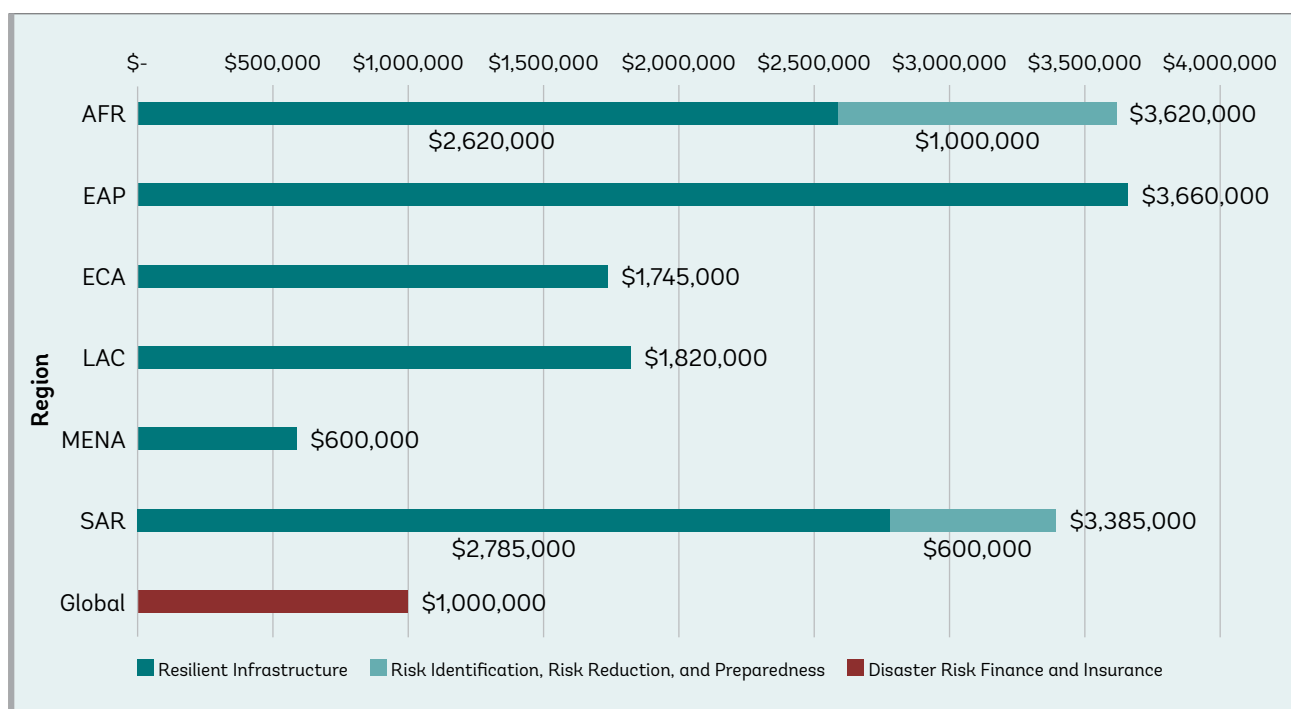
<sup>11</sup> Allocation to EAP was 23.12 percent and 22.87 percent to AFR.

**Figure 3** FY21 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. This global grant provided in-country support to 16 countries in total in FY21 (please refer to page 10 for list of countries). In EAP, ECA, LAC, and MENA 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, and SAR regions, grants worth 72 and 82 percent respectively, contributed to Priority 1, Resilient Infrastructure, and a balance of 28 and 18 percent to Priority 2, Risk Identification, Risk Reduction, and Preparedness. For Priority 3, DRFI, one global grant is supporting technical assistance in exploring options and solutions to strengthen financial resilience of critical infrastructures in Lao, Pacific, and the Philippines, as well as provided technical contributions to APEC's DRFI working group through the development and dissemination of the report on "Financial Protection of Critical Infrastructure Services" (Figure 4).

**Figure 4** FY21 Commitments to the Program's Priority Areas by Region (in US dollar amount)



### 1.2.4 Just-In-Time Window

As of March 31, 2021, the Just in Time (JIT) has approved 9 grants—valuing \$630,000—since the initiation of the window in FY20. Between March 31, 2020, and July 1, 2020, three additional grants were approved for Turkey (April), Serbia (May), and Egypt<sup>12</sup> (June). Based on reporting in the Monitoring and Evaluation (M&E) Platform, four grants in Serbia, Tajikistan, Timor-Leste, and Turkey have supported the preparation of \$418.5 million in World Bank infrastructure investment projects.

In FY21, four JIT activities were approved for Argentina, India, Madagascar, and Tajikistan, providing support of \$858 million to increase the resilience of World Bank infrastructure investment projects for energy (2) and transport (2) (please refer to Annex 1 for details). In the energy sector, JIT activities are assessing infrastructure vulnerabilities and multi-hazard risks to strengthen design criteria and define prioritized actions and locations for future investments. In the transport sector, technical assistance activities are providing support across multi-modal infrastructure for buses, railway, and inter-water transport to primarily address earthquake, urban and river flooding, and extreme heat risks. Support to these projects will integrate resilience in the design and development of railway maintenance and operations, and mainstream disaster risks in masterplans along transportation waterfronts.

<sup>12</sup> This grant, “Egypt: Enhancing Disaster Risk Management in E-Mobility” is anticipated to support the preparation of the investment project “Greater Cairo Air Pollution Management and Climate Change Project (P172548, \$200 million)”.

### 1.2.5 Support to COVID-19 (Coronavirus) Pandemic response

Since the start of the COVID-19 outbreak, the World Bank Group has swiftly acted to deploy emergency health operations around the world and begin work on programs that will support people during the downturn and strengthen the recovery. The Program is playing a part by providing technical support over the last few months.

#### **Scaling DRM approaches, including early warning systems, that link DRM preparedness and response systems to health emergencies in Central America**

In FY21, the grant “Strengthening Hydrometeorological Services, Preparedness and Response Capacities in Central America (TF0B4469)” supported the Central American Integration System for Natural Disaster Prevention, Mitigation and Response (CEPREDENAC) in assisting the implementation of the Regional Contingency Plan oriented to complement national efforts for: (i) disaster preparedness and response mechanisms, and (ii) hydrometeorological and climate services. As CEPREDENAC is the regional body responsible for regional response and preparation for health emergencies such as COVID-19, the strengthening of its institutional capacity in the first area also supported their regional response and preparation for the recent pandemic. This grant provided critical support in mitigating compound risks in the region because damages from potential seismic and hydro and meteorological events are anticipated to be exacerbated by the pandemic.

### 1.3 Component 2 – Tokyo Disaster Risk Management Hub

Under Component 2, the Tokyo DRM Hub performs the following functions:

- **Program management and administration**, including (i) coordination and administrative management supporting the governance arrangements and related meetings; planning and execution of work plans and budgets, managing communications and outreach, report on progress, monitoring and evaluation, and audits.
- **Operational support to World Bank task teams**, including: (i) identification of Japanese and global experts; (ii) facilitate deployments of such resources to support country and IBRD and/or IDA investment projects; and (iii) monitoring and reporting on the implementation of Program-financed projects, in coordination with World Bank task teams.
- **Dissemination of knowledge and lessons learned from projects**, including: (i) mainstreaming knowledge products developed under Phase 1 in operations and investments financed by IBRD and/or IDA, (ii) connecting knowledge and expertise produced to date with World Bank task teams to improve the design and/or implementation of projects, (iii) structuring partnership programs and communities of practice to advance DRM and resilience within and across key sectors. The Program will also leverage the expertise and capacities of the Tokyo Development Learning Center (TDLC) to support the development of Technical Deep Dives (TDDs) and training.



- **Partner relations management**, including: (i) liaising with the Government of Japan (GOJ) on matters relating to Program governance, (ii) coordinating with relevant Japanese agencies for Program implementation and knowledge mobilization, and (iii) connecting World Bank task teams with JICA and other Japanese development partners.

During this reporting period, the Tokyo DRM Hub managed and supported a large portfolio of grants activities under the Phase 1 (TF072129) and Phase 2 (TF073236) Trust Funds. The Hub also enhanced the mechanisms to monitor and report on the Japanese expert engagements across the expanded portfolio, that is increasingly supporting in-country operational activities. Despite the impacts of COVID-19, which initially caused delays and slowing down of grant activities and hindered physical travel and interactions with Japanese experts, during this reporting period, a wide range of Japanese partners and experts were engaged across both knowledge (Phase 1 Trust Fund) and country program (Phase 1 and 2 Trust Funds) grants. Remotely, through video conferences, virtual workshops, and provision of written analysis and technical reviews, Japanese experts continued to expand operational support to World Bank task teams and client country stakeholders, capturing and sharing Japanese knowledge and lessons learned on resilience with client countries, and foster new strategic partnerships.

In October 2020, the Phase 1 Programmatic Advisory Service Analytics (PASA) activity which supported 22 knowledge subtasks with approximately \$13.6 million on thematic areas identified by the Tokyo DRM Hub in close consultation with World Bank GPs, Practice Managers, DRM Regional Coordinators and DRM specialists was successfully closed. Through this PASA, the Tokyo DRM Hub delivered 54 knowledge products and facilitated Japan's world leading DRM expertise, technologies, and innovations to developing countries through a range of partnerships with Japanese academia, research institutes, the private sector, civil society organizations, and national and local governments.

Similarly, during this reporting period, a PASA activity to support the activities of the Tokyo DRM Hub under Phase 2 Trust Fund was developed, reviewed, and activated. This Phase 2 Trust Fund PASA will serve as the key mechanisms for the Tokyo DRM Hub to continue providing and enhancing the delivery of program management, operational support, Japanese engagement, and partnership building, as the Program closes all Phase 1 Trust Fund supported activities, and fully transitions into Phase 2 Trust Fund activities in FY22.

### 1.3.1 Experts Engagement

For this 2020-2021 Annual Report, the methodology for monitoring and reporting the Program's Japanese expert engagement was updated<sup>13</sup> to enable a more in-depth and

<sup>13</sup> Until the previous 2019-2020 Annual Report, Japanese expert engagements were reported based on a manually recorded list of tracked engagements by the Tokyo DRM Hub. For this 2020-2021 Annual Report, in addition to the manually recorded engagements between January 1st 2020 – March 31st 2021, the GFDRR Biannual Reporting on the M&E platform was reviewed where World Bank task teams that are the recipients of the Program grants report on the number and types of Japanese expert engagement that have occurred during the reporting period. For the 2020-2021 Annual Report, the GFDRR Biannual Reporting covering the period of January to December 2020 (FY20B and FY21A) were reviewed. Given that the previous Annual Re-



portfolio-wide analysis of various types of grants across the two-program phases that were active during this reporting period. Under Phase 1 Trust Fund, the majority of the Japanese expert engagements were through, or enabled by, the Knowledge Program Component that focused on capturing and sharing the Japanese experiences and lessons learned on resilience across various sectors and themes. As the Program fully implements its second Phase, which focuses more on engagements that enable application of the Japanese DRM knowledge to the design and implementation of technical assistance and investment projects in developing countries, there is a need for the Program to enhance monitoring of the engagements that are occurring through the Country Program grants. Therefore, with the updated methodology, the Program is now able to capture not only the number and types of Japanese experts that were engaged through knowledge development and dissemination activities (i.e. workshops and events), but also gain a better understanding on how these engagements are contributing to the delivery of advisory services and investment projects in country.

The updated methodology found that **150 Japanese experts** (figures 6 and 7) were engaged across **42 grants** (figure 5) financed by Phase 1 and Phase 2 Trust Funds between January 1st 2020 – March 31st 2021.

Within the total 42 grants that engaged Japanese experts, a quarter (26 percent) were Phase 1 Country Program grants, another quarter (24 percent) were Phase 1 Knowledge Program grants, while nearly half (48 percent) were through the Phase 2 Country Program grants. This illustrates **significant progress and a shift towards integrating the Japanese engagements to support country-level technical assistance activities**. This shift was also observed in the breakdown of the engagement objectives. The majority (72 percent) of the grants engaged Japanese experts to support project implementation, including the implementation of Japan-financed technical assistance activities as well as the World Bank investment projects, where many of the Japan-financed grants are supporting. In comparison, a smaller number of grants (9 grants, 21 percent) supported the development and transfer of knowledge, all of which were under the Phase 1 Knowledge Program. While many of the Japanese engagements aiming to support project implementation also often play a significant role in transferring Japanese experiences and lessons learned, the primary objectives of these engagements tend to focus more on supporting implementation of tasks specific to the country and/or project contexts. Therefore, with the conclusion of Phase 1 Trust Fund, **it is expected that Japanese engagements facilitated through grants where their primary objectives are on the development and transfer of knowledge will be significantly reduced moving forward**. Number of grants that were able to engage Japanese experts in the preparation of World Bank investment projects remained low at 2 grants (5 percent).

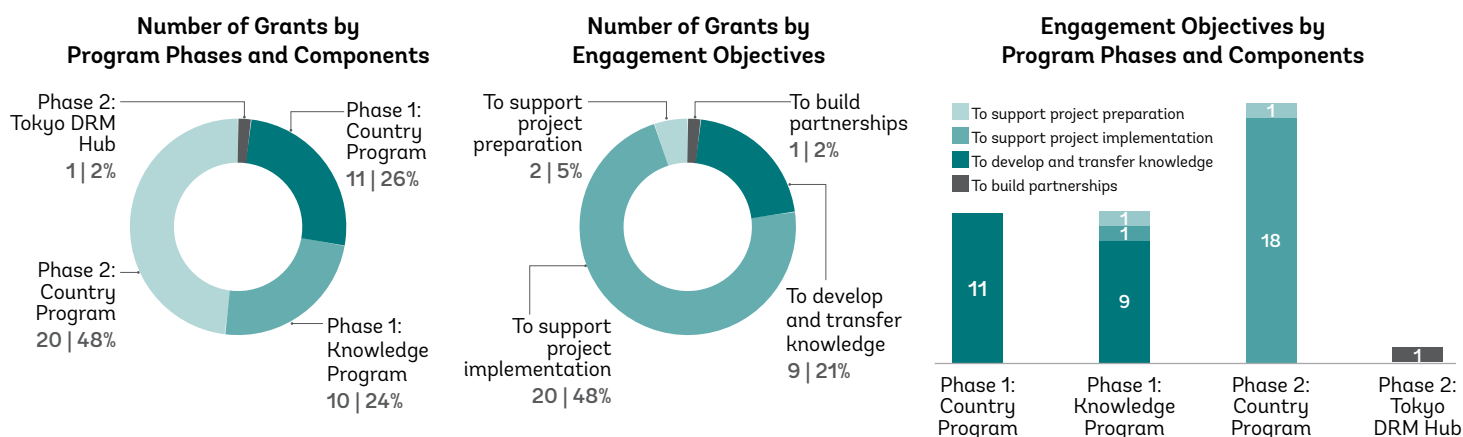
**Timing remains a key barrier when engaging Japanese experts in the preparation of World Bank investment projects.** Given the strict milestones and associated schedules of World Bank investment project preparation, aligning the timing for grant

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port covered the period until March 31st, 2020, some duplications may exist, which may have increased the total number of engagements for this reporting period.

proposal development, consultations (with JICA and Japanese Embassies) is often a challenge, given limited time and predictability. Timing is also a challenge in terms of the availability of qualified Japanese experts. The short lead time between request for expressions of interests, application, and the delivery of assignments associated with project preparation makes the barrier for application higher for Japanese experts, compared to technical assistance assignments that are associated with project implementation, that may have more flexibility in terms of timelines. **To overcome this challenge, it is expected that the Phase 2 Trust Fund’s Tokyo DRM Hub Component will serve a critical role.** As seen in the facilitation of Japanese expert engagement in Vietnam through the Phase 1 Trust Funds’ “Japan-World Bank Country Program Design and Implementation Support” grant this year, through the Tokyo DRM Hub PASA, ways of overcoming the issue of timing to support the preparation of World Bank investment projects may be further explored in the coming years.

**Figure 5** Grants with Japanese Engagements<sup>14</sup> (between January 1<sup>st</sup> 2020 – March 31<sup>st</sup> 2021)

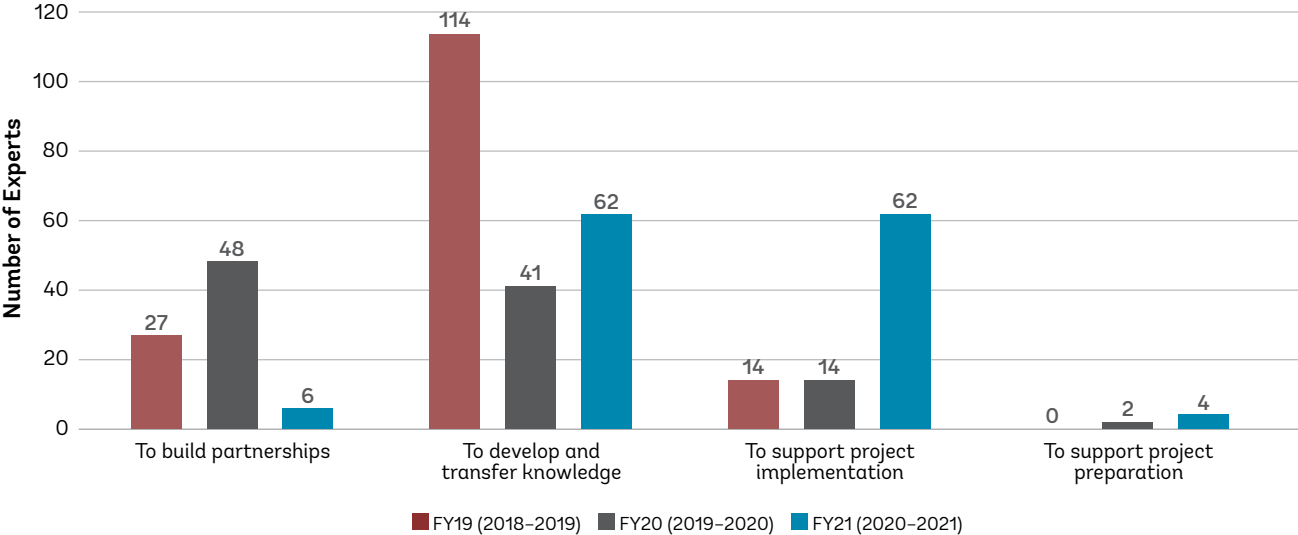


<sup>14</sup> The definitions of **project implementation, preparation, knowledge transfer, and partnership and outreach**, that comprise the Program’s key engagement objectives remain the same as 2019-2020 Annual Report and are included below.

- **Project implementation** - Includes the engagement of Japanese experts to provide technical assistance to implement Japan Program grants and/or World Bank investment projects. This includes an expert who provided support and inputs to the Resilient Housing Global Program Roadmap as part of an ongoing grant and/or investment project.
- **Project preparation** - Includes the engagement of Japanese experts to provide technical assistance to the preparation of World Bank investment projects. This includes experts from firms, who provide support remotely, virtually, or in country as speakers or resource persons at workshops, conferences, and trainings, as well as lead, contribute to, or review 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.
- **Knowledge transfer** - Includes the engagement of Japanese experts to develop and transfer 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 Dives (TDDs), workshops, training, technical visits, public seminars, brown bag lunches, and conferences that were held in Japan or internationally and virtually.
- **Partnership and outreach** - Includes the engagement of Japanese stakeholders in exchange events such as conferences organized by the Tokyo DRM 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.

Despite significant limitations posed to the modality of engagements due to COVID-19, the Program facilitated the engagement of 150 Japanese experts<sup>15</sup> between January 1, 2020 – March 31, 2021. **The majority (88, 55 percent) of the experts supported the implementation of Program grants and associated World Bank investment projects, which were engagements that were captured through the updated monitoring and reporting methodology.** Many experts (62, 39 percent) also supported the development and transfer of Japanese lessons and good practices on DRM supported through the Phase 1 Trust Fund Knowledge Program grants, where many knowledge products and publications were finalized and launched during this reporting period in conjunction with the conclusion of the grant activities. Figure 6 highlights the shift of Japanese engagements across the past three years.

**Figure 6** Number of Expert Engagement by Objectives<sup>16</sup> (2019-2021)



As illustrated in Figure 7, 76 percent of the Japanese expert engagements during this reporting period were provided through in-kind, non-contractual arrangements, and 24 percent were through consultancy contracts. A diverse range of stakeholders including national and local governments, public specialized agencies, private sector firms, and advisors and technical staff of JICA contributed to the Program through in-kind support. **Contractual engagements, especially of private sector (firm contract) and academia (short-term consultants: STCs) were significant. Many of these engagements were through Country Program grants, which is a notable shift from previous years where contractual engagements were mostly financed through the Knowledge Program**

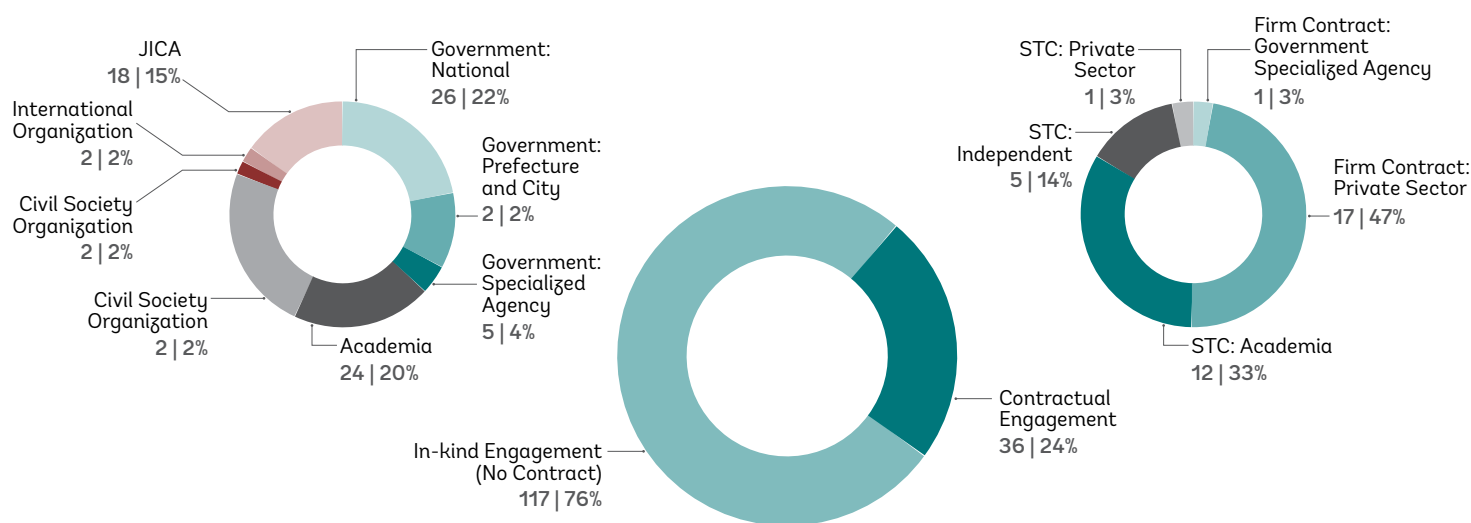
The definitions of *project preparation and implementation* are also indicated in the document “Proposed Definitions and Targets of Key Indicators,” submitted to MoF during the 6th Steering Committee in March 2019.

<sup>15</sup> This number aims to capture the total unique number of experts engaged during this reporting period. Many experts were engaged across various grants and activities, and through both contractual and in-kind arrangements. However, if the same expert was engaged, then this is counted as 1 expert within the total number of experts engaged.

<sup>16</sup> During this reporting period, 10 experts contributed to more than one engagement objectives.

**grants.** The Tokyo DRM Hub continues to actively share information on relevant requests for expressions of interests (REOIs) that are advertised under the Program grant activities and related projects with the network of Japanese experts and gather information, where possible on engagement results. These efforts seek to contribute so that more Japanese firms apply to World Bank DRM assignments<sup>17</sup>.

**Figure 7** Types of Experts Engaged and Their Modalities (between January 1<sup>st</sup> 2020 –



March 31<sup>st</sup> 2021)

### Stories of Japanese Expert Engagements

- **Building Partnerships** – A Special Seminar co-organized by the Government of Japan and World Bank “Building Back Better: Reflections on the 10th Anniversary of the Great East Japan Earthquake”, was held virtually on March 18, 2021. The objectives of the seminar were to understand the reconstruction efforts to build back better, re-examine lessons learned, reflect upon what the Great East Japan Earthquake (GEJE) has taught us on enhancing future resilience, and discuss how to tackle the challenges that lie ahead. Six high-level Japanese experts<sup>18</sup> from the national government, JICA, academia, and media participated as keynote speakers, panelists and moderator, at the event attended by 300<sup>19</sup> participants.

<sup>17</sup> For example, during this reporting period, Yachiyo Engineering Company applied and was shortlisted for a Framework Agreement for Urban Flood Risk Assessment for the World Bank’s City Resilience Program (CRP). This is an example where a Japanese firm has built on collaboration with the Tokyo DRM Hub through the Integrated Urban Flood Risk Management (IUFRM) knowledge grant (under Phase 1 Knowledge Program), to which they led the compilation and integration of Japanese experiences and case studies, and utilized this knowledge to support operational work in client countries.

<sup>18</sup> Experts include: Yusuke Amano (Senior Vice President, JICA); Aiko Doden (Special Affairs Commentator, Senior Director, NHK World TV); Fumihiko Imamura (Professor of Tsunami Engineering and Director of the International Research Institute of Disaster Science (IRIDeS), Tohoku University); Naoko Ishii (Professor, Executive Vice President, and Inaugurating Director for Center for Global Commons, the University of Tokyo); Former CEO and Chairperson of the Global Environment Facility (GEF); Kazuko Kohri (Mayor of Sendai City); Masakatsu Okamoto (Former Vice-Minister of Reconstruction Agency)

<sup>19</sup> Including speakers and moderators

- **Developing and transferring knowledge** – 13 Japanese experts<sup>20</sup> contributed to the development, review and sharing of Knowledge Notes on Learning from Japan’s Experience in Integrated Urban Flood Risk Management (English and Japanese versions), E-learning course on the Knowledge Notes, and Mini Studio Handbook. Experts were also engaged as speakers at the “23rd Disaster Risk Management Seminar - Learning from Japan’s Experience in Integrated Urban Flood Risk Management: Launch of A Series of Knowledge Notes.” One expert also organized and participated as panelist at the 2020 Understanding Risk Forum (UR2020) - Session “ON DEMAND Virtual Site Visit: Green Infrastructure and Nature-Based Solutions for Urban Flood Resilience in Singapore” showcasing the Mini Studio Handbook that includes Japanese experiences and lessons on green infrastructure.

### Supporting project implementation

- Through the “**Improving the Democratic Republic of Congo’s Capacity to Manage, Monitor, and Respond to Natural Hazards in the Region of Goma grant**” (Phase 1 Country Program grant) **Emeritus Professor, Minoru Kasahara, Hokkaido University** was contracted as a short-term consultant (STC) and contributed to the development of the local and national disaster management plan, and made recommendations on how to involve more children and their parents in the problem of disaster management and prevention using games and carnivals like the “Mikaeru Dai Caravan” implemented in Japan. The team was also preparing an engagement with Professor Koji Suzuki, Executive Director of Asian Disaster Reduction Center to share his experiences in reducing the risks of natural disasters. However, the engagement is pending due to travel restrictions associated with the spread of Ebola disease and COVID-19 in the target regions.
- **Kyoto University professors provide inputs to online training course on resilient transport** – Under the “Climate and Disaster Resilient Transport in Small Island Developing States (TF0B0672)” grant, an online training course was developed by the International Road Federation (IRF) and the World Bank with the objective to build capacity for our Small Island Developing States (SIDS) clients in managing their transport network toward climate change and disaster resiliency. Three professors from Kyoto University have provided inputs to this six-hour training course, assessing how the training course is addressing resilience in asset management systems and provided recommendations from Japan on how DRM can be embedded in operations and management systems. The primary target audience for the course includes World Bank counterparts in client SIDS countries; those who have already received this training are government staff of all SIDS countries working in the transport and DRM sectors involved in the construction of resilient transport projects. This course will be launched in May 2021.

<sup>20</sup> Experts include: Hiroaki Furumai (Professor, the University of Tokyo); Jun Hayakawa (MLIT); Kenya Endo (Lecturer, National University of Singapore); Masahiko Murase (Dr. Eng., MLIT); Michiru Sasagawa (Rain City Support and People for Rainwater); Mikio Ishiwatari (the University of Tokyo / JICA); Mr. Muranaka (Gesuido Shimbun Japan); Takashi Toyoda and Mr. Ueki (Yachiyo Engineering Company); Takanori Fukuoka (Associate Professor, Tokyo University of Agriculture); Takuji Nakagato (Former Metropolitan Government of Tokyo official); Tomoki Takebayashi and Yukihiro Shimatani (Professor, Kyushu University & Labs for Rainwater Society (LRwS))

- **Japanese retrofitting technologies contribute to resilient housing** – The Resilient Housing Global Program is developing a Roadmap to provide guidance to strengthen houses not built to standards, which are exposed to different natural hazards – specifically earthquake and wind hazards. Through the Resilient Housing TA (Phase 2 Country Program grant), a professor from the University of Tokyo provided his research and retrofitting techniques for masonry buildings for the integration into this roadmap, to showcase potential solutions to retrofit and strengthen existing substandard houses in LAC countries. This tool “disaster imagination” was also shared in the roadmap to share the importance of nurturing people and government officials’ capacity to imagine what measures need to be taken in order to prevent disaster risks
- Through the “Building Community Inclusive Flood Management in **Sri Lanka**” project (Phase 2 Trust Fund Country Program grant), one expert from **the University of Tokyo**<sup>21</sup> was hired as an STC and supported a piloting of Business Operation Supporting System (BOSS), a visualization tool of disaster management processes developed by Disaster Management Training Center (DMTC), to support Sri Lanka’s Disaster Management Center (DMC) operation in the hydromet component of the project.
- Through the “**Bhutan** Hydromet Services and Disaster Resilience Regional Project” grant (Phase 2 Trust Fund Country Program grant) **Kokusai Kogyo Co. Limited** was contracted for design of National Emergency Operation Center through a Joint Venture with United Consultancy (Bhutan).
- Through the “Green and Resilient Industries to Enhance Competitiveness in **Bangladesh**” grant (Phase 2 Trust Fund Country Program grant), significant collaboration, inputs and partnership from **Sumitomo Corporation** took place through in-kind support, where their experts reviewed and made substantial inputs to the Bangladesh Green and Resilient Economic Zone Guideline. Sumitomo has also expressed interest for continued partnership in the piloting and further development of the GREZ Guideline within their zone, which is under development. Furthermore, REOs for two pre-feasibility contracts (solar and waste management) for the Green and Resilient economic zone development were shared by the Tokyo DRM Hub with relevant Japanese companies. One Japanese firm was shortlisted but not selected.

#### *Supporting project preparation*

- **Just-in-Time Consulting Services were provided by Vietnam Tokyo Metro One Member LLC and Tokyo Metro Co., Ltd.**, where they made recommendations on how to improve the management capacity of the metro network by incorporating resilience into the design and plans for Hanoi Metro’s Network Operations Control Center (NOCC), supporting the development of a new TA and preparation of a new operation. Vietnam Tokyo Metro One Member LLC and Tokyo Metro Co., Ltd were contracted under the Phase 1 Trust Fund Country Program grant, “**Japan-World Bank Country Program Design and Implementation Support (TFOA0450 / P155071)**” from April to September 2020 to provide recommendations to the Hanoi Government

<sup>21</sup> Muneyoshi Numada, Associate Professor, Institute of Industrial Science – the University of Tokyo, Disaster Management Training Center (DMTC)

on how to strengthen the reliability, resilience and sustainability of the metro network by: (i) defining opportunities to enhance disaster resilience in the development of a NOCC, and (ii) through a comprehensive case study about rail transportation asset management at Tokyo Metro. Link: <https://www.worldbank.org/en/news/feature/2020/04/01/how-vietnam-integrate-drm-aspects-in-transport-sector-by-utilizing-japanese-expertise-drmhubtokyo>

- **Miyamoto International and Yachiyo Engineering Company** conducted a Technical Assessment on “Enhancing Competitive, Green and Resilient Industries in Bangladesh: Integrating Resilience within the Design and Costing of Bangabandhu Sheikh Mujib Shilpa Nagar (BSMSN) Economic Zones 2A & 2B).” This assessment served as one of the Pre-Feasibility Studies for a \$500 million IDA/IBRD investment project and was integrated within the Project Appraisal Document (PAD). The consultancy was financed under the Phase 2 Trust Fund Country Program grant, “Green and Resilient Industries to Enhance Competitiveness in Bangladesh (TF0B0854 / P170688)” and was completed in March 2020. (This engagement was also reported within the 2019-2020 Annual Report.)

A list of Japanese engagements by grants is included in Annex 3.

### 1.3.2 New Engagement with Health Sector

In response to COVID-19, the Tokyo DRM Hub has increased collaboration between DRM and Health Emergency Preparedness and Response (HEPR) programs. The newly established World Bank HEPR program supports eligible countries and territories to improve their capacities to prepare for, prevent, respond to, and mitigate the impact of epidemics on populations. The Hub is working with HEPR program to apply lessons from previous disasters and strengthen coordination with DRM institutions to enhance preparedness and response systems, procedures and institutional capacities during public-health emergencies.

This support included the launch of the “**Frontlines: Preparing Healthcare Systems for Shocks from Disasters to Pandemics**” report, which assesses the institutional and operational challenges around healthcare system preparedness and response, and provides guidance and recommendations to strengthen the resilience of health systems to shocks and pressures from natural disasters. The report looks across five priority areas for action:

- 1) Foundations: Building the capacity of health systems to effectively manage routine demands is a prerequisite for increasing their resilience to shocks;
- 2) Health care facilities need to be prepared to meet surge demand during emergencies and be protected themselves again shocks (e.g., earthquakes or floods);
- 3) Health care systems – systems planning, and flexible solutions can be key to meet surge demand through coordinated regional and system-level response;
- 4) National emergency management – the crisis response by health systems needs to be coordinated with all emergency management agencies and systems, including the military and civil protection;



- 5) Quality infrastructure – resilient water, electricity, transport, and digital systems are essential for effective health services, and the findings of this report will be tested and informed by country case studies throughout 2021.

### 1.3.3 Partnerships

The Tokyo DRM 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.

#### *JICA and Japanese Embassies*

JICA continues to be one of the key partners in furthering the objectives of the Program. The Senior Vice President of JICA was invited to the Special Seminar “Building Back Better: Reflections on the 10th Anniversary of the Great East Japan Earthquake” held on March 18 as a panelist to provide valuable inputs on JICA’s initiatives in applying lessons learned from the Great East Japan Earthquake (GEJE) to developing countries. Furthermore, JICA staff and advisors provide strategic advice and inputs, and opportunities for technical collaboration not only during program development but also for the implementation of grant activities. During this reporting period, 18 JICA advisors and staff contributed in the implementation of program activities in Bangladesh, Myanmar and Vietnam to support the Country Program grants (Phase 1 and Phase 2 Trust Funds) as well as to Knowledge Program grants on Emergency Preparedness and Response, Resilient Industries, and Building Regulations for Resilience. A description of how JICA staff and experts contributed to the implementation of grants during this reporting period is included in Annex 3.

The Program continues to benefit from close consultation with Ministry of Foreign Affairs (MOFA)/Japanese Embassies and JICA during the preparation and development of grant proposals. In FY21, all **35<sup>22</sup> proposals submitted to MoF were reviewed by both stakeholders** to ensure synergies and collaboration during implementation of grant activities.

The Program also continues its close collaboration with MOFA/Japanese Embassies and JICA through the implementation of TA grants by inviting representatives from in-country offices to official events held to present findings and progress of these grants. Out of many of such engagements, some examples are shown below.

- **Philippines Building a Culture of Disaster Preparedness at the Local Level: Ready to Rebuild Program**

A high-level event was held virtually on March 4, 2021, to launch the Ready to Rebuild Program including the participation of the National Disaster Risk Reduction and Management Council (NDRRMC) Chairperson and National Defense Secretary Delfin Lorenzana, National Economic and Development Authority (NEDA) Secretary

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<sup>22</sup> This is the number of all TAs under the Country Program approved by MoF, excluding the DRFI and JIT grants.



Karl Chua, World Bank Country Director Ndiame Diop, senior officials from national government, Governors, Mayors, Legislators, DRM practitioners, and media. The Second Secretary of the Embassy of Japan in the Philippines and JICA Philippines were also invited to join the launch. The event was livestreamed in the official sites of the NDRRMC and Office of Civil Defense. This was covered by national and local media. During the launch, the Ready to Rebuild workbook, training manual and video were also introduced. The Ready to Rebuild Program aims to train more than 100 Local Government Units and 500 technical staff to prepare them to respond faster and recover from disasters better.

In preparation for the launch event, a meeting was also held on March 2, 2021, between the World Bank Task team with the JICA Philippines Office to share details on the Ready to Rebuild Program, a joint program of the National Disaster Risk Reduction and Management Council and World Bank supported by GFDRR and the Government of Japan. The Embassy of Japan through Second Secretary Tomohiro Matsubara is supportive of these initiatives and will continue to welcome opportunities to promote projects supported by the Government of Japan.

- **Climate and Disaster Resilient Transport in Small Island Developing States - Tonga**

Under the “Climate and Disaster Resilient Transport in Small Island Developing States” project, the Ambassador of Japan to Vanuatu, provided introductory remarks for the online training course developed by the well-known International Road Federation (IRF) and the World Bank-managed Open Learning Campus (OLC) that is aimed at building capacity for our Small Island Developing States (SIDS) client in managing their transport network toward climate change and disaster resiliency. The Ambassador highlighted how the Government of Japan (GOJ) is providing support to developing countries, especially the SIDS, to tackle the impacts from the climate change and natural hazards. This course training is targeted at government staff of all SIDS countries working in the transport and the DRM sectors.

- **Informing WBG lending operations financing resilient school infrastructure in Central America**

A meeting was held on March 8, 2021, with the objective to present to the Minister of Education, the: (i) description of the challenges for learning spaces in El Salvador and a proposed strategy to address them in a comprehensive manner, (ii) ongoing technical support activities to ensure that school infrastructure investments in El Salvador incorporate measures to address climate resilience, and (iii) TA’s action plan for 2021. The Third Secretary of the Embassy of Japan in El Salvador was also invited to participate in this meeting to be informed of TA activities and ensure synergies and collaboration.

- **Building Regulation for Resilience Program Phase 2 - Morocco**

A workshop was held on April 1, 2021, by the Ministry of Interior with the World Bank, in collaboration with the Ministry of National Territory Planning, Land Planning, Housing and City Policy with the support of the Government of Japan through the Program, with the objective to present the main recommendations and results of the evaluation report, “Urban Assessment of the Moroccan Regulatory Framework

for Risk Prevention in Land Use Planning and Construction” for the development of a roadmap with all stakeholders. The First Secretary of the Embassy of Japan in Morocco was invited to provide the opening remarks of the workshop and the World Bank team continues close collaboration with the Embassy regarding activities and progress of the TA.

### *Public Sector, Private Sector, Research Institutions, Academia, and Civil Society*

As described in Section 1.3.1, during this reporting period, the Program engaged a range of Japanese stakeholders and experts. 8 firms<sup>23</sup> were engaged through contractual arrangements and many others<sup>24</sup> were engaged non-contractually through in-kind support. Many experts from the academia were also engaged contractually and non-contractually<sup>25</sup>. Various experts from the national and local governments<sup>26</sup>, specialized agencies<sup>27</sup>, international organizations<sup>28</sup> and civil society<sup>29</sup> also contributed to the Program during this reporting period. A description of how Japanese experts were engaged within the active grants during this reporting period is included in Annex 3.

### *TDLC and QII*

In addition, the Tokyo DRM 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 FY21, support was provided to align DRM JIT financing to assist the implementation of action plans that have been developed during Technical Deep Dives (TDDs). This support was provided for 3 TDDs which were jointly supported by QII and TDLC. The Hub also coordinated with QII to expand Program activities on Resilient Infrastructure and create broader links between Quality Infrastructure and DRM.

## **1.3.4 Knowledge and Outreach**

The Tokyo DRM Hub continued to work to increase visibility of the Program through several platforms including the Hub website, social media, public events, and other dissemination activities.

<sup>23</sup> Included: Vietnam Tokyo Metro One Member LLC; Tokyo Metro Co., Ltd.; Yachiyo Engineering; Miyamoto International; CTI Engineering Co., Ltd.; Kokusai Kogyo Co. Limited; KaçUAV; and Gesuido Shimbun.

<sup>24</sup> 28 private sectors experts from the following firms were engaged non-contractually: Weathernews, Development Bank of Japan; Nippon Steel Sumikin Bussan Corporation; Mitsubishi Corp, Insurance Ltd; Takram; Teikoku Data Bank; Toyota Motors Company; Yachiyo Engineering.

<sup>25</sup> Academic institutions engaged included: Tokyo University of Agriculture; Nagoya University; Nagoya Institute of Technology; Waseda University; Kyushu University; Hokkaido University; Kyushu Sangyo University; Kyoto University; Tohoku University; the University of Tokyo, etc.

<sup>26</sup> Included: Cabinet Office; MoF; Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Japan Meteorological Agency (JMA); Fire and Disaster Management Agency (FDMA); Tokyo Metropolitan Government; Fukutsu City; Shingu Town; Fukuoka City; Fukuoka Prefecture; Kyoto City, etc.

<sup>27</sup> Included: Japan Aerospace Exploration Agency (JAXA); the International Centre for Water Hazard (ICH-ARM)/ Public Works Research Institute (PWRI); NHK; National Research Institute for Earth Science and Disaster Resilience (NIED); New Energy and Industrial Technology Development Organization (NEDO), etc.

<sup>28</sup> Included: United Nations Centre for Regional Development and UNESCO

<sup>29</sup> Included: Rain City Support and People for Rainwater; Labs for Rainwater Society (LRwS), etc.

## Publications

In FY21, a total of **17 new publications** were completed under Phase 1 Knowledge Program grants and the Country Program grants and Tokyo DRM Hub support of Phase 2 (please refer to Annex 4 for the list of publications and details of each publication). **Two publication launch events** were held for the “Financial Protection of Critical Infrastructure Services” and “The Power of Partnership: Public & Private Engagement in Hydromet Services”; details can be found in Annex 3.

**Two E-learning courses were launched** on World Bank’s Open Learning Campus (OLC) based on knowledge reports produced under the Phase 1 knowledge grants “Learning from and Operationalizing Japanese Experience in Comprehensive Flood Risk Management for Reducing Urban Flood Risk” and “Resilient Infrastructure: Roads, landslides and DRM”. The OLC is available for World Bank staff.

- **Learning from and Operationalizing Japanese Experience in Comprehensive Flood Risk Management for Reducing Urban Flood Risk**

The OLC captures key lessons from Japanese cities, which mitigate acute flood risks through monitoring and evaluation of flood risk reduction investments and continue to improve and innovate to enhance their urban flood resilience through a comprehensive approach by drawing from lessons from the catastrophic events. The IUFRM approach taken in Japan focuses on all sources of flooding, and balances structural and non-structural management measures according to stakeholder goals and environmental contexts. These experiences and lessons learned from managing various types and combinations of flood risk, offers a unique knowledge opportunity for other countries seeking to adopt and advance IUFRM. This course benefitted from reviews by experts from the University of Tokyo and Yachiyo Engineering.

**Link:** <https://olc.worldbank.org/content/integrated-urban-flood-risk-management-iufrm-lessons-japan>

- **Resilient Infrastructure: Roads, landslides and DRM**

The OLC provides a comprehensive how-to guide for policymakers and practitioners, based on the publication produced under this grant, covering several key areas including institutional capacity and coordination, systems planning, engineering and design, operations and maintenance, and contingency planning. The OLC is based on “Road Geohazard Risk Management Handbook” which was produced this fiscal year, which benefitted from inputs by experts including: Nippon Koei; MLIT; JICA; Japan Landslide Society; International Sabo Network, Tokyo; and Sabo and Landslide Technical Center, Tokyo. The handbook and best practices and knowledge from Japanese experts were also featured in the ASCE journal<sup>30</sup>.

**Link:** <https://olc.worldbank.org/content/road-geohazard-risk-management-e-learning>

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<sup>30</sup> <https://sp360.asce.org/PersonifyEbusiness/Register-Customer?https%3A%2F%2Fascelibrary.org%2Faction%2FsoReturn%3FreturnUrlString%3D%252F>

### *Website and other dissemination media*

Between July 1, 2020, and March 31, 2021, a **total of 811 downloads of publications had occurred (432 downloads of those relating to Resilient Infrastructure; 154 downloads of those relating to Risk Identification, Risk Reduction, and Preparedness; five relating to DRFI; and 220 relating to Annual Reports and Program Brochures)** from both the Tokyo DRM Hub's English and Japanese websites. To date, the number of **visitors to the Hub website is reaching 400,000 since the Program's launch in 2014, with about 30,000** visiting the site in the last 12 months, as of March 31, 2021.

As of March 31, 2021, **three new events stories; seven new feature stories; six new blog entries; two new videos; and one press release were published to the Tokyo DRM Hub website.** In FY21, the Hub continues to update the interactive map in both English and Japanese to offer the audience information on the active and closed TA grants the Program supports.

In response to a request by Suido Shimbun, DRM Specialists provided inputs on how Japanese experiences on water supply and sanitation may be applied to developing countries. This was featured together with the Special Seminar "Building Back Better: Reflections on the 10th Anniversary of the Great East Japan Earthquake" in an article by Suidoshinbun on April 19, 2021. The Special Seminar was also featured in an article by Kyodo News; The To-o Nippo Press; Mainichi Shimbun; Kahoku Shimpō; and Nagasaki Shimbun.

The Hub continues to link and announce new website content through World Bank Tokyo Office's twitter and Facebook page, and weekly World Bank Tokyo Office's E-news newsletter, which is distributed to DRM experts who have been engaged in the past Hub and external events, and those who have registered to receive the newsletter through the website.

## SECTION 2:

# RESULTS MONITORING

### 2.1 Overall Results

The activities highlighted in this section showcase the Program's continued proactive efforts 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 FY21 Japan Program Annual Work Plan established a target of project preparation support for 18 new World Bank investment projects. **As of March 31, 2021, in FY21 project preparation support was provided to 24 investment projects valuing \$4.94 billion and supporting teams across the Transport (four projects); Urban, Resilience, and Land (nine projects); Water (six projects); Environment, Natural Resources & the Blue Economy (one project); and Energy (four projects) GPs (please refer to Annex 1).** The cumulative figure of World Bank investment projects whose preparation was supported by grants approved in FY19 and FY20 is approximately \$4.21 billion<sup>31</sup>.

In FY21, 86 percent (\$4.24 billion, 21 grants) of project preparation support is helping to strengthen the Priority Area 1 in resilient infrastructure, while 14 percent (\$705 million, three 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 Tajikistan, for example, JIT support is being provided to conduct assessment of disaster impact on transmission infrastructure in the Gorno-Badakhshan Autonomous Oblast (GBAO) region which suffers from a very high degree of exposure to natural disasters, including earthquakes, landslides, avalanches, and floods in general. The results of these assessments will be used for informing the design and other solutions under the Rural Electrification Project (P175456) and for future investments in GBAO. 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 AFR (7), SAR (6), while the remaining operations are spread across EAP (5), ECA (2), and LAC (4).

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<sup>31</sup> The cumulative figure (\$4.21 billion) was based on the grant reporting in GFDRR's Monitoring and Evaluation platform.





Drone shot of Seyshelles shoreline. Photo by Kamil Rogalinski on Unsplash



### 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.



During the Seventh Steering Committee of the Program held in Tokyo in June 2020, the donor expressed the need for the Program to increase support to client governments to enhance DRM policy design and reforms, including within World Bank Development Policy Loans, and as a result help recipient governments design policies to strengthen their preparedness against disasters. Below is an example of such support provided during FY21.

Planting mangrove forests to reduce the impact of coastal erosion.  
Source: © Wachiraphorn Thongya | Dreamstime.com

- **Grant contributed to the enhancement of coastal resilience in Seychelles**

The “Strengthening Coastal Resilience in Seychelles” grant is contributing to the enhancement of coastal resilience of the vulnerable Small-Island State of Seychelles by supporting the Government of Seychelles with the implementation of the country’s first Coastal Management Plan (CMP). This plan has laid out a holistic set of priorities for coastal management including monitoring and research, coastal protection infrastructure, nature-based solutions, risk-based spatial planning and capacity needs. The implementation of the CMP supported by a grant financed by the Program will reduce flood and erosion risk to coastal communities and infrastructure and will help sustain economic activity in the coastal zone.

To date, the grant has financed the development of prefeasibility studies of coastal solutions at five priority sites identified in the CMP. In addition, the grant performed an institutional assessment of the Ministry of Environment, Energy and Climate Change and identified capacity constraints within the government; strengthening of monitoring and assessment capacities will allow the government to better track erosion processes affecting lives and livelihoods in the coastal zone and take strategic action. The CMP also identified Resilient Land Use (RLU) planning as a priority for promoting long term coastal resilience. The World Bank team provided training on basic concepts of RLU planning with an emphasis on developing instruments and



skills to promote resilient coastal development, ensured hazards and risks informed coastal set-back policies and developed in-house technical capacity in addition to providing continuous technical support to the Seychelles Planning Authority to work with hazard exposure and risk information. The World Bank team has also prepared a draft guidance note for assessing the status of resilient land use planning.

Results from this work has informed the implementation of the country's first Catastrophic Deferred Drawdown Option (CAT DDO) operation, which enhances its capacity to plan for and manage a crisis by securing access to financing before disaster strikes. This early funding is most effective when it is part of a broader risk management strategy in a country like Seychelles that is highly exposed to natural disasters. Nature systems such as mangroves, coral reefs and beaches benefit tourists and fishers, and provide an incentive for co-financing of such solutions. To that end, grant activities are supporting the Government of Seychelles to develop a strategy on financing coastal resilience and adaption. The financing priorities in coastal resilience and ecosystem-based adaption will require innovative combinations of public and private financing in a second phase of proposed investments.

### 2.1.1 Results Against Work Plan

During this reporting period, the Hub is implementing activities to reach the targets set out for FY21. A summary of the targets set in the FY21 Work Plan and outputs delivered in FY21 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.

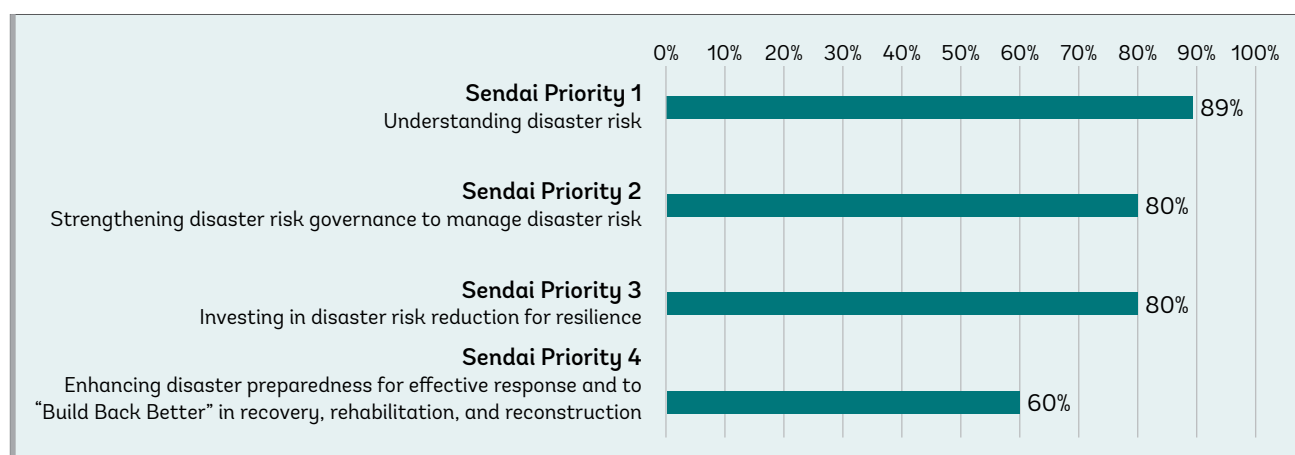
**Table 3 Results against Work Plan**

Objective	Indicator	FY20 and FY21 Target and Actual			
		FY 20 (projected)	FY20 (actual) <sup>32</sup>	FY21 (projected)	FY21 (Actual, as of March 31, 2021)
Mainstreaming of DRM in World Bank Strategies and Operations	Grants supporting Resilient Infrastructure	74%	79%	73% <sup>33</sup>	84% <sup>34</sup>
	Grants led by World Bank GPs from Energy, Environment, FCI, and Transport and Water	52%	48%	56%	66%
	Number of World Bank operations prepared with Program support	10	21	18	24
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	10	16	10	92 <sup>35</sup>

### 2.1.2 Results Against Sendai Framework Priorities

The FY21 portfolio is anticipated<sup>36</sup> to contribute 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. More than 70 percent of the grants reported that they would contribute to Priorities 1, 2, and 3, as shown in Figure 8.

**Figure 8 Percentage of Grants Contributing to Each Sendai Priority**



<sup>32</sup> FY20 Actual figures are based on reporting as of March 31, 2020, and don't include proposals since approved, pending approval, or under development.

<sup>33</sup> Resilient Infrastructure targets include activities from both GPURL and non-traditional DRM GPs

<sup>34</sup> Percentages are based on total programable funding for FY 21 (US\$ 22 million)

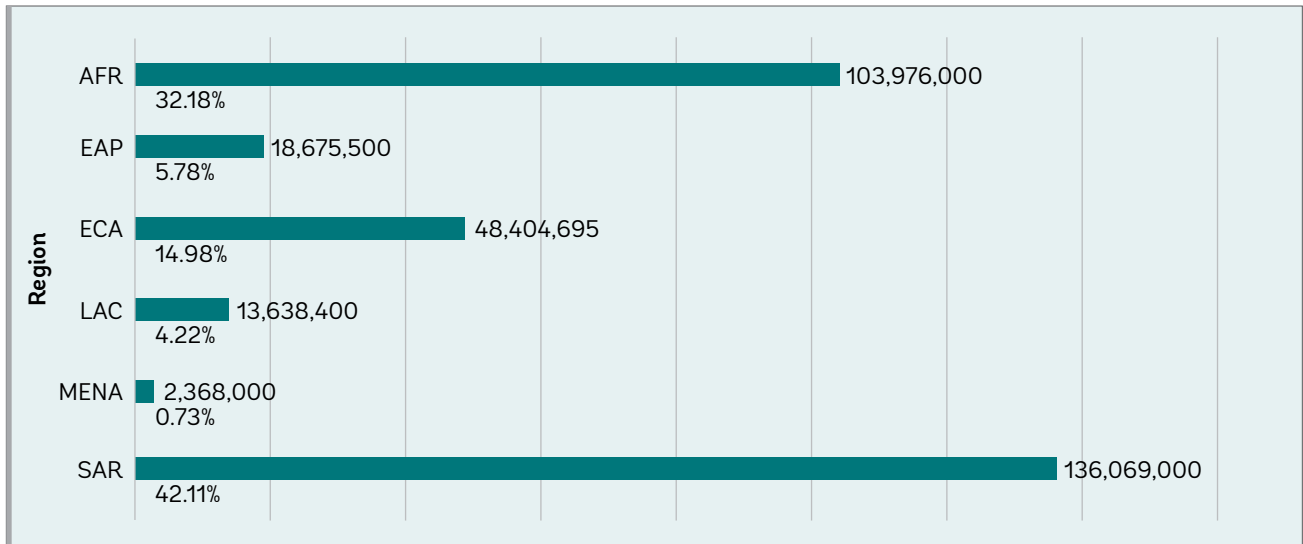
<sup>35</sup> As indicated in Section 1.3, there is some overlap with figures of Japanese experts informing project implementation and preparation reported in FY20 Annual Report.

<sup>36</sup> Contribution to Sendai Framework Priorities are taken from the grant proposals.

## 2.2 Beneficiaries

The indirect beneficiaries across regions are shown in Figure 9, also showing that grants approved in FY21 are planning to benefit approximately 323 million people across six regions (see Figure 9). The highest number of indirect beneficiaries is seen in SAR and AFR regions, which is due to the high allocation for transport, energy and urban projects in the region, which tend to span a wide geographical area.

**Figure 9** Number of Anticipated Indirect Beneficiaries across regions<sup>37</sup>



<sup>37</sup> These figures were taken from the grant proposals which were approved by MoF in FY21. As most grants are in the early stages of implementation, there is not sufficient data in the M&E Portal to report on actual figures.

## SECTION 3

# RESULTS IN RESILIENCE

### 3.1 Strengthening Resilience of the Energy Sector Infrastructure in Pacific Small Island Development States



#### 3.1.1 Background / Context

The Western and Central Pacific region is highly vulnerable to extreme weather and climate risks, such as cyclones, extreme winds, heavy rain, storm and king tide surges and consequent flooding. For example, Tropical Cyclone Harold recently devastated Fiji, Tonga, and Vanuatu in April 2020. Around 174 cyclones and typhoons hit this region since 1842, and about 45 percent of them reached hurricane-level. Seven Pacific Island Countries (PICs) are among the top 20 most affected countries globally, based on average annual losses per GDP (%) from 1997 to 2016.

The energy infrastructure is highly susceptible to recurrent extreme weather events and natural hazards in the region. These events cause significant damages to the infrastructure and frequently lead to disruption of electricity services to all productive sectors of the economy as well as residents. Incurred costs due to repair and/or replacement of damaged infrastructure and losses of revenue leave utility companies struggling to remain solvent and provide reliable services.

Fiji's recovery from Cyclone Winston.  
*Source:* GFDRR / World Bank Disaster Risk Management / Vlad Sokhin

### 3.1.2. Investment for energy sector against disaster

To help strengthen the resilience of the power sector, the Tokyo DRM Hub is providing technical assistance to strengthen climate resiliency of energy infrastructure assets and to enhance utility companies' preparedness in the region. Such supports include the "Pacific Regional Program for Enhancing Energy Resilience to Natural Hazards and Extreme Weather" project that was initiated on October 15, 2019. Under this project, technical assistance activities are provided to help improve the adaptation of power systems to withstand extreme weather and climatic impacts in Federated States of Micronesia (FSM) and Republic of the Marshall Island (RMI). Specifically, the project has developed high resolution multi-hazards maps and climate models to assess exposure of energy assets to disaster risks and evaluate vulnerabilities of the power systems. The project aims to support efforts to develop energy infrastructure designs that are resilient to natural hazards and extreme weather, identify gaps in utility disaster preparedness, strengthen O&M resilience practices across the Pacific utilities, and create investment plans based on engineering solutions to increase the resilience for six utility companies.

Support to FSM and RMI is part of a larger effort to strengthen energy resilience across all PICs and complements technical assistance provided by the Hub under the "Sustainable Energy Industry Development Project". Completed in June 2020, the Sustainable Energy Industry Development Project provided technical assistance to the Samoa Electric Power Corporation (EPC), Tuvalu Electricity Corporation (TEC), PNG Ltd (PPL) of Papua New Guinea, and the Pacific Power Association (PPA) to strengthen utility capacity and continuity planning during and after disasters. This activity provided support to build capacity in PICs power sector utilities through a training program in renewable energy integration, grid stability modelling software, online resource mapping tools, online benchmarking tools, and development of competency standards and guidelines.

These two activities are reinforced through technical assistance under the Hub Disaster Risk Financing window that is supporting the development of a Pacific Disaster Assistance Program (PDAP), which is a mutual disaster assistance fund, similar to the one existing in the Caribbean region led by Caribbean Electric Utility Services Corporation (CARILEC). The aim of PDAP and the mutual fund is to enable quick deployment of personnel and equipment to disaster-affected Pacific utilities for post-disaster response, and as a result reduce the potential power disruption time.

### 3.1.3. Results

PIC's high exposure and vulnerability to natural hazards and extreme weather make energy resilience a top priority for national governments and utility companies. The sustainability of power access and quick restoration of electricity service after disaster events is essential to critical services, including hospitals, water sanitation, and wastewater treatment. The proper functioning of these essential services during disasters has a direct impact on reducing lives lost during a disaster as well as minimizing economic losses. The management of these risks requires each utility to carry out an assessment of the probability of the event happening and an assessment



of the possible consequences of the event or simultaneous events happening, identify what preventative measures could be taken prior to any event, and document standard responses to restore supply after the event or events.

Through the Japan-World Bank DRM Program, technical assistance activities are defining a roadmap for utility companies to strengthen the resilience of vulnerable power generation, transmission, and distribution infrastructure to climate and disaster impacts. Investment plans across the five PICs provide recommendations and prioritized investment solutions based on the risks of each country and are defining strategies for infrastructure upgrades based on assessments of incremental costs of infrastructure investments and the benefits of enhanced resilience measures. This helps PIC utility companies decide whether improving the resilience of a power system investment is beneficial.

These plans are helping to define a multi-phase regional strategy and potential investment operation on Pacific Regional Energy Resilience that would enhance energy resilience and sector planning tools and promote regional emergency response readiness. This is an important step towards the establishment of pre-arranged regional assistance mechanisms amongst the PICs' utility companies to effectively provide quick and cost-effective post-disaster response and recovery support.

## 3.2 Increasing Resilience of Vietnam's Coastal Areas



### 3.2.1 Background/Context

Vietnam is highly vulnerable to natural hazards such as typhoons, storm surges, flooding, coastal erosion, droughts, and saline intrusion. The concentration of population and assets—particularly in coastal areas—combined with high levels of vulnerability make disasters a common occurrence in the country.

Flooded streets in Hoi An, Vietnam. *Source:* Toomas Tartes/Unsplash

One of the most destructive storms in Vietnam's South-Central Coast in living memory, Typhoon Damrey, hit Khánh Hòa province with its full force on November 4, 2017. With 107 deaths and severe impacts on people's livelihoods and property, the storm served as a devastating reminder of the destructive force of nature. In the coming years, these disaster risks are bound to increase with rapid urbanization, economic growth, and climate change. Yet despite these risks, coastal regions host thriving economic sectors—including, tourism, industry, and aquaculture—which are a powerful engine for Vietnam's continued socioeconomic development.

### 3.2.2 Risk Reduction in Coastal Areas

Over the past five years, the Government of Vietnam has already invested about US\$530 million towards the development of structural (i.e., sea dikes, coastal revetments) and non-structural disaster mitigation and preparedness systems (i.e., mangroves, early warning and awareness-raising systems) in the most prioritized coastal provinces. These recent actions also reflect a clear shift from ex-post disaster relief and response to ex-ante risk reduction through preparedness and resilience.

Recognizing the links between development, sustainability, and coastal resilience in Vietnam, the Japan-World Bank DRM Program financed the technical assistance grant "Increasing Resilience of Vietnam's Coastal Areas" with the objectives of: (i) supporting Vietnam's coastal regions in strengthening their resilience to natural shocks and stresses; (ii) assessing the risks to socio-economic development of coastal areas, in the face of natural disasters and climate change; and, (iii) developing recommendations for policy actions and investments for building resilience.

This technical assistance grant responded to the Government of Vietnam's request to support an integrated approach to coastal risk reduction, and at a broader level, contributed to supporting coordination of country-level DRM investments. This activity also built on the World Bank's extensive partnership with the Government of Vietnam by leveraging and extending previous initiatives in multi-sector DRM mainstreaming. The activities under this grant aligned with World Bank investment lending projects that seek to mainstream disaster resilience in Vietnam and contributed to formulating a multi-phased investment program centered on coastal risk reduction.

This initiative ultimately provided key inputs for the enhancement of the integrated coastal zone management (ICZM) policy under the government's climate change policy dialogues platform. In addition, the grant also undertook the development of coastal resilience strategy for Vietnam to assess how current and future natural hazards jeopardize development objectives and to what extent these are adequate in mitigating risks and safeguarding future development. Based on this assessment, recommendations were developed and delivered through the coastal resilience strategy to complement and strengthen existing efforts. Furthermore, concrete recommendations for raising financing were offered, thus providing the foundation for further operational engagements.

### 3.2.3 Results

#### *Development of Coastal Hazard Map*

Coastal hazard mapping covering the entire coastal area of Vietnam was delivered, which overlays detailed hazard information and socio-economic development plans and assess the extent to which socio-economic development and poverty reduction are being impacted by natural hazards. This hazard map also assessed how future trends such as urbanization, sectoral reallocation of jobs, and climate change may affect development prospects in a business-as-usual scenario – i.e., in the absence of widened and enhanced DRM actions.

#### *Findings of the Coastal Hazard Map: Increasing natural risks to coastal communities*

The risks to people are substantial. The analysis showed that around 12 million people in coastal provinces are at risk of intense flooding, and over 35 percent of settlements are located on eroding coastlines. As safe places are increasingly occupied, new developments concentrate in areas where flood risks are twice as high as in established urban areas.

Natural hazards also cause significant damage to key economic sectors and public services. Each year, about \$852 million (0.5 percent of the national GDP) and 316,000 jobs in the agriculture, aquaculture, tourism, and manufacturing sectors are at direct risk from flooding. Coastal tourism is heavily reliant on intact beaches and ecosystems, but 42 percent of coastal hotels are estimated to be located near eroding beaches. Nationally about half of the health care facilities are in high-risk flood zones, while in some provinces

Aquaculture ponds at risk: High-resolution satellite data can enable systematic risk assessments. *Source:* data by Ottinger et al 2018.





it is nearly all of them. Over a third of Vietnam’s electric transmission and distribution grid is in forested areas, thus making them vulnerable to falling trees during storms. The resulting power outages disrupt production and lower equipment utilization rates.

While natural risks are already substantial, climate change is expected to intensify these hazards. In a pessimistic scenario, a 30 cm sea level rise could increase urban coastal areas’ exposure to intense flooding by seven percent, exposing an additional 4.5 million people. Up to 1.2 million people could be pushed into poverty by 2030 due to climate change.

### *Development of Integrated Coastal Resilience Framework*

While the government of Vietnam has made impressive progress in managing disaster risks in recent decades, these measures fall short of the country’s needs. Hazard and socioeconomic risk information is fragmented and often incomplete. A lack of guidance, enforcement, capacity and funding have led to shortcomings in implementing risk-informed spatial planning, building codes and safety standards, and systematic maintenance of infrastructure systems.

For instance, analytical work developed through the grant shows that two-thirds of Vietnam’s sea dike system, which stretches over 2,659 km, does not meet the prescribed safety standards. In many provinces, even the set standards are not strong enough to offer the needed protection. Nature-based systems can boost coastal resilience but are underappreciated and coming under increasing pressure from development and over-exploitation. Furthermore, onshore tourism and aquaculture development is degrading coastal dune systems and exacerbating erosion. Although Vietnam has made progress in managing residual disaster risks, intensifying risks mean that it must further improve its systems for risk financing, and disaster relief and response.

Considering these challenges, actionable policy and investment recommendations for strengthening coastal resilience were developed as an “*Integrated Coastal Resilience Framework*” for Vietnam. To ensure that Vietnam’s coastal regions can safely realize their economic potential, initiatives must be taken. Delaying measures by 10 years could expose an additional \$4.3 billion of economic growth to natural shocks.



Settlements on sensitive coastal dunes in Nui Thanh District, Quang Nam Province. Source: Google Earth

The *Integrated Coastal Resilience Framework* presents a concrete action plan to strengthen resilience in coastal areas, with five strategic intervention areas:

1. Strengthening data and decision-making tools by establishing openly accessible databases of detailed hazard and risk data, as well as asset management systems for critical infrastructure, such as transport, water and sanitation, and electricity;
2. Enforcing risk-informed spatial planning to ensure that economic growth in coastal zones does not irreversibly lock in unsafe development patterns – such as new settlements in high-risk flood zones, guiding development into safer areas and mitigating disaster risks based on up-to-date hazard data;
3. Strengthening the resilience of infrastructure systems and public services by integrating risk information into the planning, design, and maintenance stages of all infrastructure investments as well as upgrading sea and river dikes, starting in the most exposed and under-protected areas;
4. Taking advantage of nature-based solutions through the rehabilitation, conservation, monitoring, and management of ecosystems—relevant policies, regulatory frameworks, and technical guidelines must be strengthened;
5. Improving disaster preparedness and response capacity by upgrading its early warning system, strengthening local response capacity, adapting social safety nets, and implementing a comprehensive risk financing strategy. By taking these decisive actions, Vietnam has an opportunity to safeguard the prosperity of future generations in the face of climate change and disaster risks.

Finally, throughout the development of the coastal resilience strategy, the World Bank team worked with Japanese firms and the JICA Hanoi Office to develop the Integrated Flood Management Plan for Vietnam’s central region. JICA experts were regularly consulted on issues of coastal resilience and joined grant implementation missions every six months to provide inputs and feedback on the development of the plan for three river basins.

### 3.3. Financial Protection of Critical Infrastructure

#### Strengthening Resilience of Critical Infrastructure Assets and Services Against Disasters and Shocks

##### 3.3.1 Background/Context

Critical infrastructure are the assets, systems, and networks that provide us with the essential services, such as energy, transport, water, medical care, and education; they are the backbone to our lives, societies, and economies. When these critical, often lifeline infrastructure services are disrupted due to natural hazards and shocks, this can cause significant impacts to the infrastructure assets, but also to the services provided that sustain our lives and livelihoods. These impacts are felt most by groups that are most vulnerable. Therefore, ensuring high-quality, reliable, sustainable, and resilient critical infrastructure, both in terms of its assets and services, is a growing priority,



Power personnel, including from off-island, fixing power poles damaged by Super Typhoon Yutu last Oct. 24 and 25 in Guam. Source: <https://www.saipantribune.com/index.php/bulk-of-cucs-11-7m-yutu-expenses-gpa-labor/>



and an area where there is a strong need to understand how operational and financial mechanisms could be put in place, in advance, to strengthen these services.

However, global and local knowledge and experiences on how to select, design, and implement financial protection mechanisms for critical infrastructure are limited. Therefore, under the second phase of the Japan-World Bank Program for Mainstreaming DRM in Developing Countries, GFDRR in partnership with the Crisis and Disaster Risk Finance team of the Finance, Competitiveness, and Innovation Global Practice (CDRF, FCI GP), Disaster Risk Financing and Insurance for Resilient Infrastructure (DRFI for RI) project (P170893) was initiated<sup>38</sup>. The project aims to increase the financial resilience of developing countries against natural disasters by strengthening their capacities to better understand, mitigate, plan for, and meet post-disaster financing needs. This is supported through:

- Developing analytical tools and financial solutions to identify, assess and manage disaster-related financial risks to public infrastructure assets and services. This component leverages skills, experience and innovation of the public and private sectors to develop new analytical tools, guidelines and financial solutions. The work draws upon good practices from developing and developed countries and should leverage regional and international partners and policy dialogues; and

<sup>38</sup> The project start date (Activity Initiation Note Sign Off) is April 2019. The project is financed by the TA grant, "Development and Implementation of Policy Framework for Financial Risk Management against Disasters" (TF0B0110).

- Operational support to partners with infrastructure-related projects to embed a disaster risk financing approach into operations. This would include disaster risk financial assessment, advisory services and technical assistance. This component focuses on upstream operational support to pilot DRFI methodologies and tools combined with the ongoing infrastructure-related project preparation and implementation support. The outcome of these pilot initiatives could be taken up within the design of infrastructure ASA and IPF projects that integrate DRFI solutions.

### 3.3.2 Developing an operational framework for financial protection of critical infrastructure services

In FY21, “Financial Protection of Critical Infrastructure Services” report<sup>39</sup> and supporting Case Studies from Japan, USA and the Caribbean, were developed, published, and shared. This technical report was prepared by the World Bank Group under the disaster risk-financing and insurance agenda of the 2020 Asia-Pacific Economic Cooperation (APEC) Finance Ministers’ Meeting under the presidency of Malaysia. It informed the activities of APEC Working Group on Regional Disaster Risk Financing and Insurance Solutions, where Japan’s Ministry of Finance and the Philippines were co-chairs during the period of February to November 2020.

The report proposes an operational framework for strengthening the financial preparedness of critical infrastructure through shock-responsive systems that are embedded in strong national risk management and financial preparedness. It builds on existing principles and approaches to disaster risk finance, including many developed and implemented by APEC member economies in collaboration with the World Bank, as well as global experiences and recommendations about managing critical infrastructure risks. Emerging evidence about the impacts of COVID-19 on critical systems has also been reviewed in the report, and it draws initial conclusions on including pandemics and other risks within an operational framework. The framework also learns from experience in working to implement financial protection for critical infrastructure in lower and middle-income countries. For some, particularly lower-income countries, the capacities, data availability, and resources will be more constrained. As such, the framework aims to draw out actions and good practices relevant to all contexts so it can strengthen both financial protections and ideal standards.

The report was launched on March 11, 2021. The launch presented the study’s key findings and brought together experiences from across countries and academia on how to design, implement and scale actions to strengthen the resilience of infrastructure services against shocks. A panel of seasoned speakers from various sectors, including from the Japanese insurance sector, gave framing presentations that ignited talks. Over 170 attendees joined from client countries on four different continents, international organizations, non-governmental organizations, the private sector, and academia<sup>40</sup>.

<sup>39</sup> Link to report: <https://www.financialprotectionforum.org/publication/financial-protection-of-critical-infrastructure-services>

<sup>40</sup> The [post-event page here](#) brings together the recording of the webinar, presentation slides, and the report.

Japanese experts engaged include:

- Deputy Director of Research Division, International Bureau, Ministry of Finance, Japan (report development, review, and launch)
- Visiting Researcher at Toyo University and World Bank STC (development and review of Japan Case Study within the report)
- General Manager International Initiatives, Tokio Marine & Nichido Fire Insurance Co., Ltd. (Panelist at the report launch event)

### **3.3.3 Piloting Analytics to Explore and Design Financial Protection Solutions for Critical Infrastructure**

Understanding infrastructure risks at the system scale, especially during the initial planning and design phase of infrastructure investment can help governments make more informed decisions on how to take cost-effective actions to safeguard their infrastructure investments against disaster and climate risks and put in place plans to ensure rapid recovery of critical services if disasters occur. However, limited data, time, and financial resources have been a barrier to conduct analysis detailed enough to provide sufficient information needed for decision-makers to plan effectively and integrate fit-for-purpose financial protection measures within their infrastructure investments. An ongoing pilot study is investigating whether and how criticality analyses and vulnerability assessments for critical infrastructure systems can be used to inform financial risk management by governments and what type of decision-support tools for financial protection of critical infrastructure services could be developed in the future.

“Analytics for Financial Risk Management of Critical Infrastructure in South East Asia: Scoping & Feasibility Study” was initiated in partnership with Oxford University in FY21, aiming for completion by April 2021. The findings of this preliminary pilot analytics will provide an understanding on what can be done by existing methodologies and data for evidence-based exploration and design of financial protection strategies and solutions for critical infrastructure assets and services, especially for power and road networks in Southeast Asia. Also, the preliminary pilot platform developed incorporating open-source data and simple analysis for Southeast Asia is envisioned to serve as a starting point for criticality analyses needed to discuss and inform financial protection priorities and solutions for critical infrastructure investment projects in Southeast Asia such as in Laos.

Japanese experts are yet to be engaged but are expected, especially in the fields of InsurTech for resilience. While not directly an activity of the Program, Japanese space industry startup Synspective provided satellite data and derived solutions, using small-sized SAR (Synthetic Aperture Radar) satellites and launched a SAR-based “Flood Damage Assessment Solution” service. At the UR2020 conference on risk management, Southeast Asia Disaster Risk Insurance Facility (SEADRIF), supported by the World Bank and Singapore Space & Technology Ltd., launched a challenge to find a solution that will help to better analyze flood spread and the resulting damage and Synspective’s “Flood Damage Assessment Solution” tool was selected as one of the four finalists.

### 3.3.4 Integrating Financial Protection to Strengthen Resilience of Critical Infrastructure in Southeast Asia and the Pacific

In FY21, operational support was advanced to pilot infrastructure-related projects, in order to embed a disaster risk financing approach into World Bank's investment projects in resilient infrastructure, through engagements and analytics, ongoing and newly initiated, to support projects in the Pacific on energy and in Lao PDR on transport (road and waterways). Furthermore, advance discussions on conducting analytics in the Philippines on critical assets and services in the tourism sector has also been initiated. A Guidance for Task Teams on Support on Disaster Risk Finance and Insurance for Resilient Infrastructure was developed, as well as templates for in-country support were developed to systematically solicit, engage, and track progress.

The program is supporting the Pacific Power Association (PPA) to develop a post-disaster mutual assistance program (PDAP) among Pacific Island Countries' power utilities. The Pacific Island Countries (PICs) are highly vulnerable to the impacts of climate change and natural disasters. Power infrastructure disruptions have a significant impact on the economy, business, and livelihoods. Energy production and distribution infrastructure in the Pacific is highly vulnerable to the impacts of disasters and climate hazards.

COVID-19 has posed additional downside risks to energy supply and distribution in the Pacific. The PPA is a key regional organization for power utilities in Pacific Island Countries and Territories.

TA grants supported by the Program enabled PPA and member utilities to explore the potential financial instruments for the Pacific Power Disaster Assistance Program (PDAP) to institutionalize a mutual disaster recovery support system for power utilities and enable the rapid restoration of power infrastructure. Through PDAP, the affected utilities will receive recovery assistance through the dispatchment of technical crews and equipment from other member utilities, and subsequently reimburse the assisting utilities for the incurred costs. In FY21, the detailed financial design of the mutual assistance fund has been developed through discussions with the 14 interested power utilities through workshops and surveys. A knowledge exchange between the PPA member utilities and CARILEC (Caribbean Electric Utility Services Corporation) was also organized for Pacific utilities to learn about the Caribbean Disaster Assistance Program (CDAP).

In Lao PDR, the program is supporting the government to explore financial protection mechanisms to strengthen the resilience of roads and waterways. In conjunction with the TA grant financed under the Program's Resilient Infrastructure window aiming to design engineering solutions, asset management and O&M mechanisms for road and waterway infrastructure will be able to withstand more severe and/or frequent disaster risks. The DRFI technical assistance looks at criticality of road and waterway assets and networks through financial analysis of direct and indirect impacts of disasters, and designs targeted financial solutions for critical assets and services by putting in place pre-arranged financial and operational arrangements to enable quick post-disaster

response and reconstruction in advance. An analysis to assess options to strengthen the resilience of roads and waterways infrastructure through risk financing and insurance strategies for the Department of Roads (DOR) and Department of Waterways (DOW), Ministry of Public Works and Transport in Lao PDR is underway for proposed completion in FY22.

### 3.3.5 Results

#### **Developing an operational framework for financial protection of critical infrastructure services:**

- APEC Report on “*Financial Protection of Critical Infrastructure Services*” published, March 2021
- Implementation of *Launch Event for the Financial Protection of Critical Infrastructure Services*, March 2021

#### **In-depth financial instruments for disaster response case studies:**

- “*Financial Instruments for Disaster Response and Recovery in US Utilities Sector*”
- “*Financial Instruments for Disaster Response and Recovery in CARILEC’s Member Utilities*” to be published, May 2021

#### **Analytics for Financial Risk Management of Critical Infrastructure in South East Asia: Scoping & Feasibility Study:**

- Report and prototype platform for “*Analytics for Financial Risk Management of Critical Infrastructure in South East Asia: Scoping & Feasibility Study*” to be completed, April 2021

#### **Integrating Financial Protection to Strengthen Resilience of Critical Infrastructure in Southeast Asia and the Pacific:**

- *Discussion Note on Proposed Financial Arrangements for the Pacific Power Disaster Assistance Program (PDAP)* submitted and reviewed in July 2020
- Workshop to discuss *Proposed Financial Arrangements for the Pacific Power Association Disaster Assistance Program (PDAP)* in August and December 2020
- *Knowledge Exchange between the Pacific Power Association (PPA) and the Caribbean Electric Utility Services Corporation (CARILEC)*, December 2020
- Proposal to conduct DRFI analytics for Lao transport sector (waterways and roads) approved in October 2020 and analysis started



## ANNEX 1.

# World Bank Investments Leveraged in FY21

After 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 FY21 (anticipated figures based on grant proposals approved by MoF in FY21)	\$ 2.67 billion	\$ 2.27 billion	\$ 1.60 billion	\$ 1.89 billion
Figures from TA grant reporting in FY21 (actual figures based on FY21A M&E)	\$ 1.36 billion	\$ 1.36 billion	\$ 270 million	\$ 291 million

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

**Table A2** List of World Bank investments to which support to project preparation was provided<sup>41</sup>

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)
<b>Priority Area 1: Resilient Infrastructure</b>						
Cameroon	Integrating Disaster and Climate Resilience into Transport Planning in Douala, Cameroon	2021	Douala Urban Mobility Project (P167795)	Transport	2022 (Pipeline)	270 (IBRD: 220, Private Capital 50)
Ghana/ Western Africa	Developing Intervention Options for Coastal Resilience in Ghana	2021	West Africa Coastal Areas Resilience Investment Project AF2 Nigeria (P173355)	Environment, Natural Resources & the Blue Economy	2022 (Pipeline)	300 IDA
Nigeria / Western Africa	Developing a Multi Sector Investment Plan for Coastal Resilience in Nigeria	2021				
Mozambique	Mozambique Electricity Sector Emergency Preparedness Project	2021	Sustainable Energy and Broadband Access in Rural Mozambique Project (P175295)	Energy & Extractives	2022 (Pipeline)	205 (IDA: 200, Trust Funds: 5)
Niger	Building Urban Resilience in Niger	2021	Niger Integrated Urban Development and Multi-sectoral Resilience Project (P175857)	GPURL	2022 (Pipeline)	250 IDA
Mongolia	Mongolia: Ulaanbaatar Transport Infrastructure Asset Management and Design for Resilience	2021	Ulaanbaatar Sustainable Urban Transport Project (P174007)	Transport	2021 (Pipeline)	70.45 (IBRD: 50, Total Government Contribution: 20, Trust Funds: 0.45)
Myanmar	Supporting Multi-Hazard Resilience of Lifeline Infrastructure - Interdependency of Lifeline Water and Power Supplies in Yangon	2021	Myanmar Southeast Asia Disaster Risk Management Project - Additional Financing (P173181)	GPURL	2022 (Pipeline)	113 IDA
Philippines	Assessment of Flood Management Infrastructure and Water Security in the Pasig-Marikina River Basin	2021	Pasig-Marikina River Basin Flood Management Project (P171897)	Water	2022 (Pipeline)	435 (IBRD: 400, Government Contribution: 35)
Vietnam	Strengthening Urban Resilience in Vietnam: Investment Support and Analysis	2021	Integrated Resilient Development Project (P174156)	GPURL	2022 (Pipeline)	470 (IBRD: 330, Counterpart gov: 140)
			Vinh City Priority Infrastructure and Urban Resilience Development Project (P174157)	GPURL	2021 (Pipeline)	168 (IBRD: 130, Total Government Contribution: 38)

<sup>41</sup> These figures are taken from the FY21 grant proposals approved by MoF and World Bank's Operations Portal.

**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)
<b>Priority Area 1: Resilient Infrastructure (cont.)</b>						
Serbia	Improving Resilience of the Local Road Transport Infrastructure Network in the Republic of Serbia	2021	Serbia Local Infrastructure and Institutional Development Project (P174251)	Transport	2022 (Pipeline)	100 IBRD
Bolivia	Resilient Water Supply and Sanitation Services in Urban Areas in Bolivia	2021	BO Wastewater Treatment and Reuse (P162305)	Water	2022 (Pipeline)	150 (IBRD: 140, Total Government Contribution: 10)
			Bolivia - Water and Sanitation in Peri-Urban Areas (P162005)	Water	2022 (Pipeline)	70 IBRD
Brazil	Implementing Resilient Urban Transport Systems for Improved DRM in Belo Horizonte - MG	2021	Reducing flood risks and improving living conditions in Ribeirao Isidoro Basin, Belo Horizonte (P174619)	Water	2021 (Pipeline)	168 (IBRD: 134.4, Total Government Contribution: 33.6)
Afghanistan	Enhancing Disaster Response and Resilience of the Afghanistan Urban Water Supply and Sewerage Corporation	2021	Afghanistan Water, Sanitation, Hygiene and Institutional Support Project (P169970)	Water	Dec 11, 2020	200 (IDA: 50, Trust Funds: 150)
Bangladesh	Integrating Extreme Weather and Natural Hazard Resilience in the Bangladesh Power System	2021	Electricity Distribution Modernization Program (P174650)	Energy & Extractives	2022 (Pipeline)	952 (IDA: 500, Government Contribution: 332, Trust Funds: 120)
India	Resilient Mobility in Chennai	2021	Chennai City Partnership: Sustainable Urban Services Program (P175221)	GPURL	2021 (Pipeline)	841 (IBRD: 150, Government Contribution: 691)
India	Supporting Tools for Improving the Safety and Resilience of Dams and Downstream Communities in India	2021	Second Dam Rehabilitation and Improvement Project (P170873)	Water	Dec 15, 2020	463.41 (IBRD: 250, Counterpart Funding: 213.41)
<b>Sub-Total</b>	<b>5225.86 Million (IBRD: 1974.4, IDA: 1413, Others: 1838.46)</b>					

**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)
<b>Just In Time</b>						
Madagascar	Madagascar – Resilient Infrastructure Governance and Lifeline Connectivity Program for Results	2021	Madagascar - Infrastructure Governance and Lifeline Connectivity Program for Results (P173932)	Energy & Extractives	2021 (Pipeline)	400 (IDA: 400)
Tajikistan	Strengthening the Resilience of Power Transmission Assets in GBAO Region of Tajikistan	2021	Additional Financing to Rural Electrification Project (P175456)	Energy & Extractives	2021 (Pipeline)	10 IDA
Argentina	Improving Resilience of Railway Investments and Strengthening Institutional Capacity to Mainstream Disaster Risk Management in Railway Maintenance and Operation	2021	Buenos Aires – Mitre Passenger Railway Line Modernization Project (P175138)	Transport	2021 (Pipeline)	398 (IBRD: 343, Total Government Contribution: 55)
India	Enhancing IWT Resilience in Kolkata through Spatial Planning	2021	West Bengal Inland Water Transport, Logistics and Spatial Development Project (P166020)	GPURL	Nov 30, 2020	150 (IBRD:105, Counterpart Funding: 45)
<b>Sub-Total</b>	<b>958 Million (IBRD: 448, IDA: 410, Others: 100)</b>					
<b>Priority Area 2: Risk Identification, Risk Reduction, and Preparedness</b>						
Ethiopia	Enhancing Disaster Resilience in Ethiopia	2021	Ethiopia Integrated Disaster Risk Management Program (P176327)	GPURL	2022 (Pipeline)	300 IDA
Senegal	Strengthening Disaster Resilience in Senegal	2021	Senegal Stormwater Management and Climate Change Adaptation 2 (P175830)	GPURL	2021 (Pipeline)	155 IDA
India	Support to the Comprehensive National Earthquake Risk Mitigation Program	2021	India Comprehensive National Earthquake Risk Mitigation Project (P174830)	GPURL	2022 (Pipeline)	500 (IBRD: 250, Government Contribution: 250)
<b>Sub-Total</b>	<b>955 Million (IBRD: 250, IDA: 455, Others: 250)</b>					
<b>Grand Total</b>	<b>7,138.86 Million (IBRD: 2672.4, IDA:2278.0, Others: 2,188.46)</b>					

**Table A3** List of informed World Bank Investment implementation in FY21<sup>42</sup>

Country	TA Grant Name	TA Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY	Funding Source (\$M)	
						\$	World Bank
<b>Priority Area 1: Resilient Infrastructure</b>							
Cameroon	Integrating Disaster and Climate Resilience into Transport Planning in Douala, Cameroon	2021	Cameroon: Inclusive and Resilient Cities Development Project (P156210)	GPURL	Aug 22, 2017	160	IDA
Mozambique	Strengthening Urban Resilience and Disaster Preparedness in Mozambique	2021	Mozambique: Cyclone Idai & Kenneth Emergency Recovery and Resilience Project (P171040)	GPURL	Sept 30, 2019	190	(IDA: 130, Cofinancing - Other Sources (IFIs, Bilaterals, Foundations): 60)
			Mozambique Disaster Risk Management and Resilience Program (P166437)	GPURL	Mar 19, 2019	132.27	(IDA: 90, Counterpart Funding: 36.27, Trust Funds: 6)
Cambodia	Cambodia: Urban Flood Resilience Diagnostics	2021	Cambodia Southeast Asia Disaster Risk Management Project (P160929)	GPURL	Apr 14, 2017	62.5	(IDA: 60, Counterpart Funding 1.5, Trust Funds 1)
Lao People's Democratic Republic	Lao PDR: Strengthening Urban Flood Resilience and DRM Institutional Capacity	2021	Lao PDR Southeast Asia Disaster Risk Management Project (P160930)	GPURL	Jul 6, 2017	31	(IDA: 30, Trust Funds: 1)
	Mainstreaming Resilience in the Transport Sector in Lao PDR	2021					
Myanmar	Supporting Multi-Hazard Resilience of Lifeline Infrastructure - Interdependency of Lifeline Water and Power Supplies in Yangon	2021	Myanmar Southeast Asia Disaster Risk Management Project (P160931)	GPURL	Jun 15, 2017	117	(IDA: 116, Trust Funds: 1)
Kosovo	Integrating Resilience Principles and Processes into Water Infrastructure Planning and Investment Preparation in Kosovo	2021	Fostering and Leveraging Opportunities for Water Security Program (Project 1) (P169150)	Water	Jun 9, 2020	28.49	(IDA: 27.4, Cofinancing - Other Sources (IFIs, Bilaterals, Foundations): 1.09)

<sup>42</sup> These figures were taken from the FY21 grant proposals approved by MoF, and World Bank Operations Portal.



**Table A3 (cont.)**

Country	TA Grant Name	TA Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY	Funding Source (\$M)	
						\$	World Bank
<b>Priority Area 1: Resilient Infrastructure (cont.)</b>							
Ukraine	Strengthening Resilience of the Power Transmission Infrastructure in Ukraine	2021	Second Power Transmission Project (P146788)	Energy & Extractives	Dec 22, 2014	378.43	(IBRD: 330, Trust Funds: 48.43)
Ukraine	Transport Network Resilience in Western Ukraine	2021	Road Sector Development Project (P149322)	Transport	Nov 3, 2015	337.80	IBRD
Brazil	Implementing Resilient Urban Transport Systems for Improved DRM in Belo Horizonte - MG	2021	Improving Mobility and Urban Inclusion in the Amazonas Corridor in Belo Horizonte (P169134)	Transport	Mar 24, 2020	100	(IBRD: 80, Counterpart Funding: 20)
Brazil	Strengthening Disaster Risk Management and Dam Safety in the State of Ceará, Northeast Brazil	2021	Ceará Water Security and Governance (P165055)	Water	Aug 8, 2019	174.85	(IBRD: 139.88, Counterpart Funding: 34.97)
Haiti	Enhancing Capacity to Design and Implement Resilient Transport Systems in Haiti	2021	AF Haiti Rural Accessibility & Resilience Project (P173281)	Transport	Jun 18, 2020	33	IDA
			Cap Haitian Urban Development Project (P168951)	GPURL	Mar 6, 2020	56	IDA
Honduras	River Basin Management for Resilient Water Security in the Dry Corridor	2021	Water Security in the Dry Corridor of Honduras (P169901)	Water	Jun 12, 2020	85	(IDA:70, Counterpart Funding: 15)
Egypt, Arab Republic of	Upper Egypt Resilient Road Transport Technical Assistance	2021	Upper Egypt Local Development PforR (P157395)	GPURL	Sept 29, 2016	500	IBRD
West Bank and Gaza	Strengthening the Resiliency and Sustainability of Wastewater Investments and Management to Mitigate Urban Flood Risks in Gaza	2021	Wastewater Management Sustainability Project (P172578)	Water	Jun 10, 2020	13.7	Trust Funds
Bangladesh	Strengthening Resilient Logistic Infrastructure in Bangladesh	2021	Bangladesh Regional Connectivity Project 1 (P154580)	Transport	Apr 5, 2017	170.42	(IDA: 150, Counterpart Funding: 20.42)
India	Supporting Tools for Improving the Safety and Resilience of Dams and Downstream Communities in India	2021	IN Dam Rehabilitation and Improvement Project (P089985)	Water	Jun 29, 2010	350	(IBRD: 139.65, IDA:139.65, Counterpart Funding: 70.70)

**Table A3 (cont.)**

Country	TA Grant Name	TA Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY	Funding Source (\$M)	
						\$	World Bank
<b>Priority Area 1: Resilient Infrastructure (cont.)</b>							
Sri Lanka	Supporting Resilient Public Transport Infrastructure in Kandy, Sri Lanka	2021	Kandy Multimodal Transport Terminal Development Project (P172342)	Transport	May 18, 2020	69.33	IDA
Sri Lanka	Water Security and Drought Resilience for Water Supply in Sri Lanka	2021	LK Water Supply and Sanitation Improvement Project (P147827)	Water	Jun 15, 2015	183.90	(IDA: 165, Counterpart Funding: 18.90)
<b>Sub-Total</b>	<b>3,251.69 Million (IBRD: 16,05.33, IDA: 1,296.38, Others: 349.98)</b>						
<b>Priority Area 2: Risk Identification, Risk Reduction, and Preparedness</b>							
Ethiopia	Enhancing Disaster Resilience in Ethiopia	2021	Ethiopian Urban Institutional and Infrastructure Development Program (P163452)	GPURL	May 14, 2018	859.50	(IDA: 600, Counterpart Funding: 248.70, Cofinancing - Other Sources (IFIs, Bilaterals, Foundations): 10.80)
<b>Sub-Total</b>	<b>859.5 Million (IDA: 600, Others: 259.5)</b>						
<b>Total</b>	<b>4,111.19 Million (IBRD: 1,605.33, IDA: 1,896.38, Others: 609.48)</b>						

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

**Table A4** Cumulative list under FY21 of World Bank investments to which support to project preparation was provided<sup>43</sup>

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)
<b>Priority Area 1: Resilient Infrastructure</b>						
Angola	Informing WBG lending operations financing Resilient School Infrastructure in Angola	2020	Girls Empowerment and Learning for All Project (P168699)	Education	2021 (Pipeline)	250 IBRD
Tanzania	Strengthening Drought Resilience in Tanzania	2020	Tanzania Water Security for Growth (P168238)	Water	2022 (Pipeline)	350 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)
Turkey	Support to Building Urban Resilience in Turkey	2018	Urban Resilience Project (P173025)	GPURL	2022 (Pipeline)	553.08 IBRD
Bangladesh	Improving Planning and Design of Resilient Infrastructure	2020	Resilient Infrastructure Building Project (P173312)	GPURL	2022 (Pipeline)	400 IDA
Nepal	Strengthening Resilience of the Road and Drainage Network in Nepal's secondary cities	2020	Nepal Urban Governance and Infrastructure Project (P163418)	GPURL	Sep 28, 2020	150 IDA
Pakistan	Building Disaster Resilient Water Resources Management Capacity in Sindh	2020	Sindh Water and Agriculture Transformation Project (SWAT) (P167596)	Water	2022 (Pipeline)	480 (IDA: 350, Counterpart Funding: 30, Trust Funds: 100)
<b>Sub-Total</b>	<b>2,893.08 Million (IBRD: 1,303.08, IDA: 1,250, Others: 340)</b>					
<b>Just In Time</b>						
Serbia	Improving Capacity for Disaster Risk Management in the Serbian Rail System by Establishing a Contingency Plan in the Safety Management System	2020	Serbian Railway Sector Modernization (P170868)	Transport	2021 (Pipeline)	125 (IBRD: 62.5, Non-World Bank Group Financing: 62.5)
<b>Sub-Total</b>	<b>125 Million (IBRD: 62.5, Others: 62.5)</b>					
<b>Priority Area 2: Risk Identification, Risk Reduction, and Preparedness</b>						

<sup>43</sup> These figures are taken from GFDRR's M&E platform cycle FY21-A and World Bank's Operations Portal

**Table A4 (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)
Afghanistan	Supporting capacity for DRM, Early Warning and Hydromet Services and Community Resilience in Afghanistan	2019	Early Warning, Early Finance and Early Action Project (P173387)	Social Protection & Jobs	Feb 16, 2021	222.5 (IDA: 97.5, Trust Funds: 125)
Bhutan	Bhutan Weather and Disaster Resilience	2015	Strengthening Risk Information for Disaster Resilience in Bhutan (P175081)	GPURL	2021 (Pipeline)	2.3 Recipient Executed Activities
Bhutan	Bhutan Weather and Disaster Improvement Regional Project	2016				
Bhutan	Strengthening Data and Information Management for Improved Understanding of Disaster and Climate Risk in Bhutan	2019				
<b>Sub-Total</b>	<b>224.8 Million (IDA: 97.5, Others: 127.3)</b>					
<b>Priority Area 3: Disaster Risk Financing and Insurance</b>						
Tonga	Pacific Resilience Program (PREP) - Tonga - GFDRR Cofinancing Grant	2015	Tonga Safe and Resilient Schools Project (P174434)	GPURL	2022 (Pipeline)	13 IDA
<b>Sub-Total</b>	<b>13 Million (IDA: 13)</b>					
<b>Grand Total</b>	<b>3,255.88 Million (IBRD: 1,365.58, IDA: 1,360.5, Others: 529.8)</b>					

**Table A5** List of cumulative informed ongoing World Bank Investments in FY21<sup>44</sup>

Country	TA Grant Name	TA Grant Approval FY	Investments Leveraged	Lead GP	Investment Approval FY	Funding Source (\$M)	
						\$	World Bank
<b>Priority Area 1: Resilient Infrastructure</b>							
El Salvador	Informing WBG lending operations financing Resilient School Infrastructure in Central America	2020	Growing Up and Learning Together: Comprehensive Early Childhood Development in El Salvador (P171316)	Education	Mar19, 2020	250	IBRD
Nicaragua			Alliance for Education Quality Project (P161029)	Education	Apr 13, 2017	55	IDA
Bangladesh	Improving Planning and Design of Resilient Infrastructure	2020	Emergency Multi-Sector Rohingya Crisis Response Project (P167762)	GPURL	Mar 7, 2019	165	IDA
Lao People's Democratic Republic	Improving the Resilience of Dams and Downstream Communities	2019	Mekong Integrated Water Resources Management (P104806)	Water	Mar 8, 2012	51.59	(IDA: 51, Counterpart Funding: 0.59)
Nepal	Disaster and Climate Resilient Renewable Energy Power System in Nepal	2020	Nepal: Private Sector-Led Mini-Grid Energy Access Project (P149239)	Energy & Extractives	Jan 30, 2019	16.97	Recipient Executed Activities (Counterpart Funding: 6, Trust Funds: 7.61, Commercial Financing (Unguaranteed Commercial Financing: 3.36)
<b>Sub-Total</b>	<b>538.56 million (IBRD: 250, IDA: 271, Others: 17.56)</b>						
<b>Priority Area 2: Risk Identification, Risk Reduction, and Preparedness</b>							
Central America / El Salvador	Strengthening Hydrometeorological Services, Preparedness and Response Capacities in Central America	2019	El Salvador COVID-19 Emergency Response Project (P173872)	Health, Nutrition & Population	Apr 17, 2020	20	IDA
Central America / Honduras			Honduras COVID-19 Emergency Response Project (P173861)	Health, Nutrition & Population	Apr 15, 2020	20	IBRD
<b>Sub-Total</b>	<b>40 million (IBRD: 20, IDA: 20)</b>						
<b>Total</b>	<b>578.56 million (IBRD: 270, IDA: 291, Others: 17.56)</b>						

<sup>44</sup> These figures are taken from GFDRR's M&E platform FY21-A cycle and World Bank's Operations Portal.



## ANNEX 2.

# Financial Statement

### Statements of Receipts, Disbursements and Fund Balance

	For the fiscal year 2020 until April 15th, 2021	For the fiscal year ended June 30th, 2020	For the fiscal year ended June 30th, 2019
<b>Opening Balance:</b>	49,942,846	52,899,536	51,023,381
<b>Receipts:</b>			
Donor Contributions	20,000,000	20,000,000	20,000,000
Net Investment and other incomes	164,703	1,095,500	1,414,114
<b>Total Receipts</b>	<b>20,164,703</b>	<b>21,095,500</b>	<b>21,414,114</b>
<b>Disbursements:</b>			
Project Disbursements	15,366,476	22,403,463	18,126,254
World Bank Administration Fee	24,594	0	0
Program Management and Administration Expenses	1,240,524	1,648,727	1,411,705
<b>Total Disbursements</b>	<b>16,631,594</b>	<b>24,052,190</b>	<b>19,537,959</b>
Excess of (disbursements over receipts)/ receipts over disbursements	3,533,109	-2,956,690	1,876,155
<b>Ending Balance:</b>			
Ending Balance	<b>53,475,955</b>	<b>49,942,846</b>	<b>52,899,536</b>
Less: Undisbursed Commitments	38,637,176	31,171,046	37,921,661
Fund Available for New Grants	<b>14,838,780</b>	<b>18,771,800</b>	<b>14,977,875</b>

## ANNEX 3.

# List of Japanese Expert Engagement and Events

### Description of Japanese Expert Engagement in Grant

**Table A6** Phase 1 Trust Fund Country Program Grants

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/End Date	Objective of Engagement	Description of Japanese Expert Engagement
1	Building Resilience in Turkey	TF018854/ P168167	ECA/ Turkey	1,500,000	Jan-07- 2015/Jun- 30-2018	To support project implementation	1 expert was contracted as a STC to review and provide inputs for the interim reports and final outputs to be produced on the BCP-leg of the Project and help benefit from Japanese expertise on (Area) BCP and BCM.
2	Improving the Democratic Republic of Congo's Capacity to Manage, Monitor, and Respond to Natural Hazards in the Region of Goma	TF0A1623 (RE), TF0A1637 (BE)/ P153085	AFR/ Congo, Democratic Republic of	2,000,000	Dec-03- 2015/Sep- 30-2020	To support project implementation	Emeritus Professor, Minoru Kasahara, Hokkaido University, has collaborated with the team on how to develop a local and national disaster management plan, how to involve more children and their parents in the problem of disaster management and prevention using games and carnival like the "Mikaeru Dai Caravan", and organizing a frequent (at least once a year) simulation exercise. There is also Professor Koji Suzuki, Executive Director of Asian Disaster Reduction Center, who was expected to come and share his experiences in reducing the risks of natural disasters.
3	Pacific Resilience Program (PREP) - Tonga - GFDRR Cofinancing Grant	TF0A2272 (BE), TF0A1232 (RE)/ P154840	EAP/ Tonga	1,650,000	Dec-16- 2015/Sep- 30-2020	To support project implementation	1 Japanese seismic expert has been advising the Government of Tonga on the seismic aspects of their MultiHazard Early Warning System design.
4	Strengthening Financial Planning and Rural Infrastructure for Disaster Resilience in Cambodia	TF0A4487 (BE), TF0A4488 (RE)/ P160929	EAP/ Cambodia	1,300,000	Feb-15- 2017/Oct- 31-2020	To support project implementation	Exchange with 10 officials from Japan's MoF was held on regional financial cooperation on disaster risk finance as related to Cambodia's participation.

**Table A6 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/End Date	Objective of Engagement	Description of Japanese Expert Engagement
5	Bangladesh - An Integrated Approach to Enhance Urban Resilience in Dhaka	TF0A4752/ P149493	SAR/ Bangladesh	500,000	Mar-23-2017/Sep-30-2020	To support project implementation	2 JICA staff and experts contributed Japanese expertise, solutions and case studies related to urban resilience, building code enforcement, risk sensitive land use practice and construction permitting systems and community outreach programs. The WB team was working closely with the JICA team and the Urban Resilience Program being supported by JICA, and closely collaborating with the JICA technical experts in Architecture and Engineering Design, who have shared many examples of Japanese experience during the consultations and workshops. 1 Japanese expert has been sharing the Japan expertise, solutions, and case studies across the various platforms, virtual discussions, consultations on urban resilience, building code enforcement, risk sensitive land use practice and construction permitting systems and community outreach programs.
6	Urban Resilience in Yangon	TF0A5034/ P160931	EAP/ Myanmar	1,100,000	May-07-2017/Sep-30-2020	To support project implementation	The task team met with OYO International at a workshop on January 20, 2020 in Yangon, where OYO presented their pilot work on developing visual screening tools to identify seismically vulnerable buildings in Myanmar, which is relevant to this TF's activities.
7	Dominica - Reducing Debris Flow Risk for Infrastructure Resilience in Dominica	TF0A5352/ P129992	LAC/ Dominica	800,000	Jun-26-2017/Sep-30-2020	To support project implementation	Miyamoto International was hired to provide an overview of the cost and benefits of multiple engineering options for more resilient infrastructure in Caribbean countries. (Miyamoto International is an international firm with HQ in US, but with office in Tokyo, Japan. They have many Japanese experts including the CEO.)
8	Strengthening the Institutional Capacity of the Government of Vietnam on Flood Risk Management and Recovery Preparedness	TF0A5436 (BE), TF0A5606 (RE), TF0A7344 (BE)/ P163146	EAP/ Vietnam	2,495,000	Jul-17-2017/Sep-30-2020	To support project implementation	2 experts and officials from JICA Hanoi Office participated in all Implementation Support Missions and discussions with counterparts and partners regarding the implementation of the RETF component. 1 Japanese firm (CTI) was selected via a highly competitive procurement process to support the development of the integrated flood risk management plan in the 3 targeted river basin in the Central Region. This plan was successfully completed and delivered in July 2020. 2 experts from CTI led the assignment

**Table A6 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/End Date	Objective of Engagement	Description of Japanese Expert Engagement
9	Coastal Resilience: Developing New and Innovative Approaches in Bangladesh	TF0A7346/ P128276	SAR/ Bangladesh	1,550,000	Apr-02-2018/ Sep-30-2020	To support project implementation	2 JICA staff and expert, including coastal engineer, shared many Japanese experiences during the consultations and workshops. There was a plan to have a knowledge exchange to Japan. Much of the preparatory work had been undertaken, and the WB team had started to reach out to potential experts, specifically Japanese coastal experts, to provide guidance to the government officials. However, due to the global Covid-19 pandemic, this knowledge exchange to Japan had to be cancelled.
10	Investing in Urban Resilience and Emergency Preparedness in Indonesia	TF0A7473/ P156711	EAP/ Indonesia	2,500,000	Apr-17-2018/ Sep-30-2020	To support project implementation	21 Japanese experts were engaged and consulted for the proposed technical visit to Japan in Feb 2020, postponed due to the COVID-19 pandemic. However, all the materials developed for the visit were translated to Bahasa and shared with Indonesian stakeholders. 2 STCs were engaged to support the preparation of the technical visit of Indonesian national and city government stakeholders working on flood-resilient urban development to Japan to share Japanese solutions and case studies related to urban flood resilience. However, the planned visit had to be postponed due to COVID-19.
11	Scaling up efforts to improve the safety and resilience of school infrastructure in Eastern Europe and Central Asia	TF0A7901/ P165246	Regional	998,370	Jun-25-2018-/ Sep-30-2020	To support project implementation	1 firm (KazUAV) provided data collection approaches for school infrastructure using drones.

**Table A7 Phase 1 Trust Fund Knowledge Program Grants**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date /End Date	Objective of Engagement	Description of Japanese Expert Engagement
1	Operationalizing Japanese Expertise and Lessons Learned in Hydrological and Meteorological Services in World Bank Client Countries	TF0A0412/ P155072	Global	1,435,500	Jun-01-2015/ Sep30-2020	To develop and transfer knowledge	3 experts from JMA and 2 experts from Weathernews participated in UR 2020 (virtual event) to share Japanese experiences in the session titled, "The Power of Partnership: Sparking Public-Private Engagement in Hydromet Services".
2	Integrating Japan's Experience into the Global Program for Safer Schools Project	TF0A0420/ P155718	Global	1,350,000	Jun-01-2015/Sep-30-2020	To develop and transfer knowledge	1 Japanese architect (Takaharu Tezuka) shared his experience in developing safer schools in Japan at the UR 2020 session on Designing Schools of the Future to Build Education Resilience post COVID-19.
3	Japan-World Bank Country Program Design and Implementation Support	TF0A0450/ P155071	Global	2,200,000	Jun-04-2015/Oct-31-2020	To support project implementation; To support project preparation	3 firms and 6 STCs were engaged to provide technical support to CP projects in Vietnam. Tokyo Metro One Member LLC and Tokyo Metro Co., Ltd. provided Just-in-Time Consulting Services on Resilience for Hanoi Metro's Network Operations Control Center (NOCC) supporting the development of new TA and preparation of new operation (31 Apr 2020 -15 Sep 2020). In Myanmar, Public Works Research Institute provided Just-in-Time Consulting Services on Myanmar - Agriculture Development Support Project Technical Support for Flood Simulation in Downstream Areas of Swa Chaung Dam (30 Jun 2020 - 11 Sep 2020). Tokyo Metro Asset Management Case Study was also developed and shared with operational teams in country.
4	Resilient Infrastructure: Roads, Landslides and DRM	TF0A0453/ P155073	Global	700,000	Jun-04-2015/Sep-30-2020	To develop and transfer knowledge	1 expert from United Nations Centre for Regional Development (former MLIT and WB Senior Transport Specialist) reviewed the report, Road Geohazard Risk Management Handbook, as a peer reviewer.
5	Leveraging Japanese Experience for Building Regulation for Resilience	TF0A1891/ P159505	Global	500,000	Jan-21-2016/Oct-31-2020	To develop and transfer knowledge	1 JICA Technical Advisor contributed to the peer review of the Urban FRAME Diagnostic and the development of the Building Regulations for Resilience (BRR) Roadmap. 1 expert from UNESCO contributed to the peer review of the Urban FRAME Diagnostic and the development of the BRR Roadmap.



**Table A7 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date /End Date	Objective of Engagement	Description of Japanese Expert Engagement
6	Japan-World Bank Knowledge Program Support	TF0A2148/P155077	Global	1,850,000	Feb-25-2016/Sep-30-2020	To develop and transfer knowledge	6 STCs were engaged to provide support for knowledge development and transfer.
7	Learning from and Operationalizing Japanese Experience in Comprehensive Flood Risk Management for Reducing Urban Flood Risk	TF0A2211/P159464	Global	820,000	Mar-06-2016/- Sep-30-2020	To develop and transfer knowledge	11 Japanese experts have contributed directly to the development, review and sharing of Knowledge Notes on Learning from Japan's Experience in Integrated Urban Flood Risk Management (English and Japanese versions), E-learning course on the Knowledge Notes, and Mini Studio Handbook. Experts were also engaged as speakers at the "23rd Disaster Risk Management Seminar: Learning from Japan's Experience in Integrated Urban Flood Risk Management: Launch of A Series of Knowledge Notes." 1 STC organized and participated as panelist at the 2020 Understanding Risk Forum (UR2020) - Session "ON DEMAND Virtual Site Visit: Green Infrastructure and Nature-Based Solutions for Urban Flood Resilience in Singapore" showcasing the Mini Studio Handbook that includes Japanese experiences and lessons on green infrastructure.
8	Learning from the Japanese Experience in Emergency Preparedness and Response (EP&R)	TF0A5605/P165057	Global	500,000	Aug-10-2017/Oct-31-2020	To develop and transfer knowledge	1 JICA Senior Advisor was engaged in the final review of Japan Case Study report. 2 experts from the Cabinet Office and 3 experts from the University of Tokyo were engaged in the final review of Japan Case Study report. 1 expert from the University of Tokyo also shared Japanese good practices on emergency preparedness and response during the SPEAKER SERIES: Building Resilience During the COVID-19 Crisis "Session 2   Managing Tropical Storms During COVID-19: Early Lessons Learned".

**Table A7 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date /End Date	Objective of Engagement	Description of Japanese Expert Engagement
9	Business Continuity Planning for Climate Resilient Industries	TF0A6124/ P165781	Global	1,000,000	Oct-30-2017/Oct-31-2020	To develop and transfer knowledge	2 JICA Senior Advisors were engaged in the final review of Resilient Industries in Japan report. 12 experts were engaged in the final review of Resilient Industries in Japan report including: Cabinet Office; MLIT; Nagoya University; Development Bank of Japan; Nippon Steel Sumikin Bussan Corporation; Mitsubishi Corp, Insurance Ltd; Nagoya Institute of Technology; Takram; Teikoku Data Bank; Toyota Motors Company; Waseda University. 9 experts from Yachiyo Engineering Company contributed to the review and finalization of the Resilient Industries Global and Japanese reports.
10	Learning from and Operationalizing Japanese Experience in Comprehensive Flood Risk Management for Reducing Urban Flood Risk	TF0A2211/ P159464	Global	820,000	Mar-16-2016/Sep-30-2020	To develop and transfer knowledge	2 STCs and 1 firm were engaged to review and finalize the Community- and Nature-Based Solutions for Integrated Urban Flood Risk Management: Mini Studios for Water-Sensitive Urban Design - A Handbook for Organizers and Facilitators and developed Japanese version of the publication, Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes.

**Table A8 Phase 2 Trust Fund Country Program Grants**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
1	Increasing Resilience of Vietnam's Coastal Areas	TF0B0049/ P161556	EAP/ Vietnam	493,119	Mar-30-2019/Sep-30-2020	To support project preparation	2 JICA experts shared experiences of JICA support on flood risk management, resilient roads, and coastal flood and erosion in Vietnam and other countries, which have been studied and informed the development and finalization of the coastal resilience study. 4 experts have been consulted and contributed to the design and early implementation of the grant activities.
2	Building Community Inclusive Flood Management in Sri Lanka	TF0B0052/ P160005	SAR/ Sri Lanka	500,509	Apr-05-2019/Dec-30-2021	To support project preparation	1 expert from the University of Tokyo (Prof. Numada) was hired as STC and supported a piloting of BOSS (Business Operation Supporting System), a visualization tool of disaster management processes developed by Disaster Management Training Center (DMTC), to support Sri Lanka's Disaster Management Center (DMC) operation in the HydroMet component of the project.
3	Development and Implementation of Policy Framework for Financial Risk Management against Disasters	TF0B0110/ P170893	OTHER/ World	1,000,000	Apr-17-2019/Jun-31-2023	To support project preparation	In relation to InsurTech, Tokyo University and JAXA were contacted for their availability and interest to participate in the SSSL x The World Bank HADR Challenge as a mentor and/or reviewer. Unfortunately, due to timing and availability these stakeholders were unable to participate but are open to exploring future opportunities of collaboration and partnership. Furthermore, MoF and Tokio Marine & Nichido Fire Insurance Co., Ltd. participated and shared Japanese good practices and lessons learned at World Bank Group Virtual Report Launch: Financial Protection of Critical Infrastructure Services. (March 11, 2021). 2 STC were engaged to compile and share good practices and lessons learned from Japanese power sector on strengthening disaster preparedness and response, including how to develop and execute BCPs for utilities.

**Table A8 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
4	Philippines – Support to the Earthquake-Resilient Greater Metro Manila Program	TF0B0164/P169511	EAP/ Philippines	597,589	May01-2019/Sep-30-2021	To support project implementation	Initial engagements with 3 experts from the University of Tokyo were initiated to share good practices in Japan's Emergency Operation Centers and response to large-scale incidents, to support the implementation of this project related to Component 2 (Emergency Preparedness and Response).
5	Yangon Safe Affordable Expansion Initiative (Yangon SAFE)	TF0B0544/P160931	EAP/ Myanmar	700000	Jun-05-2019/Dec-31-2021	To support project implementation	Information and knowledge on using of LIDAR for mapping of catchments and waterways as well as lessons learned from past efforts of JICA in supporting Yangon City in improving the accuracy for mapping of urban infrastructure through the Yangon Mapping Project, have been shared by a JICA expert. A firm (Air Asia Survey) that conducted the LiDAR survey between 2018 and 2019 through a JICA-supported project has shared useful resources for both flood risk management and urban planning activities in Yangon which the project draws upon heavily.
6	Scaling up Disaster Risk Management in the Kyrgyz Republic	TF0B0560/P162635	ECA/ Kyrgyz Republic	459,650	Jun-07-2019/Jun-30-2022	To support project implementation	A knowledge exchange session between Kyrgyz Republic's Center for Training and Retraining of Civil Defense (CoTRCD) and 2 experts from Japan's Fire and Disaster Management Agency (FDMA) was held through video conferencing. During the video conference the Kyrgyz Counterparts were informed about how to monitor and evaluate the performance and usage of the platform and why FDMA initiated and established this e-college platform.
7	Bhutan: Hydromet Services and Disaster Resilience Regional Project	TF0B0586/P154477	SAR/ Bhutan	491,879	Aug-08-2019/Dec-31-2021	To support project implementation	Kokusai Kogyo Co. Limited was contracted for design of National Emergency Operation Center through a Joint Venture with United Consultancy (Bhutan).
8	Climate and Disaster Resilient Transport in Small Island Developing States	TF0B0672/P164157	OTHER/ World	1000000	Jun-26-2019/Dec-31-2021	To support project implementation	2 Japanese Professors from Kyoto University peer-reviewed for the e-learning short course on Climate Resilient Transport Asset Management in Small Island Developing States (SIDS).

**Table A8 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
9	Green and Resilient Industries to Enhance Competitiveness in Bangladesh	TF0B0854/ P170688	SAR/ Bangladesh	800,000	Jul-29-2019/Jul-31-2022	To support project implementation; To support project preparation	3 JICA staff reviewed and made substantial inputs to Green and Resilient Economic Zone (GREZ) Guideline. Significant collaboration, inputs and partnership from Sumitomo Corporation took place, where 4 experts reviewed and made substantial inputs to the Bangladesh GREZ Guideline. Sumitomo has also expressed interest in continued partnership in the piloting and further development of the GREZ Guideline within their zone, which is under development. Furthermore, REOs for 2 Pre-FS contracts (solar and waste management) were shared with the Tokyo DRM for circulation with relevant Japanese companies. 1 Japanese firm was shortlisted but not selected. Miyamoto International and Yachiyo Engineering Company conducted a Technical Assessment, "Enhancing Competitive, Green and Resilient Industries in Bangladesh: Integrating Resilience within the Design and Costing of BANGABANDHU SHEIKH MUJIB SHILPA NAGAR (BSMSN) Economic Zones 2A & 2B Infrastructure", which was completed in March 2020. This served as a Pre-FS to which accompanied the PAD for Bangladesh Private Investment & Digital Entrepreneurship Project (P170688). The contribution of the Japan Program was mentioned in the PAD.
10	Strengthening Capacity and Information Management for Improved Disaster Risk Assessment in Bhutan	TF0B0888/ P175081	SAR/ Bhutan	250,000	Aug-01-2019/Dec-31-2021	To support project implementation	2 experts were engaged as STCs. 1 expert on conservation and disaster risk management of cultural heritage both from Japan and Bhutan worked on linking the DRM plan to the cultural heritage management plan. 1 Professor with expertise management of fire risks to heritage sites also provided inputs to the implementation of the grant activities.



**Table A8 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
11	Coastal Resilience: Developing New and Innovative Approaches in India	TFOB0916/ P171324	SAR/ India	999,900	Oct-10-2019/Sep-30-2020	To support project implementation	Extensive consultations were held with the International Center for Water Hazard and Risk Management (ICHARM), Japan to coordinate the grant-financed activities with their proposed activity to “assess and simulate, based on floods occurred in Kerala in 2018 and 2019, to what extent an appropriate dam operation based on real time observational data and forecast in flood time can decline flood water level, with keeping the operation of water utilization such as electricity.” Ultimately, ICHARM was not able to proceed with the activity due to complications surrounding COVID-19. However, the WB team and ICHARM kept the communication, and hope that the ICHARM activity will proceed at some point in the near future.
12	India: Risk Mitigation in Vulnerable Cities	TFOB0954/ P171323	SAR/ India	1,778,828	Oct-23-2019/Sep-30-2020	To support project implementation	Omron International and Fujita Corporation have been engaged to explore ways in which Japanese seismic know how and technologies can benefit a Seismic Project that is being prepared for IPF / IBRD.
13	Strengthening Coastal Resilience in Seychelles	TFOB1706/ P148861	AFR EAST/ Seychelles	220,305	Dec-04-2019/Dec-31-2021	To support project implementation	2 Japanese experts (technical advisor at Central Consultant Inc (CCI) and Managing principal at CTI Engineering International Co., Ltd (CTII)) were engaged to discuss opportunities for sourcing Japanese knowledge on coastal management and nature-based solutions.
14	Supporting Multi-risk Assessment of Greater Monrovia	TFOB2111/ P169718	AFR WEST/ Liberia	200,000	Feb-03-2020/Jan-31-2022	To support project implementation	1 Japanese STC was engaged to support project implementation by introducing relevant Japanese experts and expertise that could be considered in the grant design and implementation.
15	Improving Rural Accessibility and Road Resilience to Natural Disaster and Climate Risks in Cambodia	TFOB2418/ P169930	EAP/ Cambodia	64,424	Mar-11-2020/Mar-31-2022	To support project implementation	ICHARM was engaged to explore the possibility of sharing Japanese good practices and technical support on climate downscaling methodology, application to analyzing water-related risks such as flooding

**Table A8 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
16	Leveraging Cadasters and Technology to increase Housing Resilience in Peru	TF0B2471/ P162278	LAC/ Peru	149,901	Mar-20-2020/Dec-31-2020	To support project implementation	1 expert from the University of Tokyo shared the Japanese experience and expertise, which informed the national and local governments in Peru and helped to enhance government officials' knowledge on housing policies, programs and interventions to improve the quality of the existing housing stock.
17	Identifying Japanese Actionable Knowledge that could increase Housing Resilience in LAC countries	TF0B2474/ P167747	OTHER/ World	150,000	Mar-20-2020/ Aug31-2021	To support project implementation	A professor from the Institute of Industrial Science at the University of Tokyo has been engaged as STC to identify and analyze Japanese best practices on housing resilience, extract lessons for policy makers, and assess how these experiences could be adapted to Latin American contexts in order to increase the resilience of the housing stock to earthquakes and other hazards.
18	Turkey Urban Resilience	TF0B2526/ P173025	ECA/ Turkey	1,000,000	Mar-27-2020/Apr-23-2023	To support project implementation	2 STCs (financed through CP support grant) supported the WB task team to explore and identify Japanese expertise in the design of the Urban Resilience project, particularly in the following areas: resilient infrastructure including in housing, public buildings, and critical and protective infrastructure; financing mechanisms for the national urban resilience framework, including financing options for public buildings, infrastructure and public space; regulatory and policy mechanisms in identification of disaster and climate risks; and resilient urban planning and urban transformation plans.
19	Myanmar Strengthening Seismic Resilience	TF0B2607/ P160931	EAP/ Myanmar	500,000	Apr-09-2020/Apr-30-2022	To support project implementation	4 JICA experts contributed to the Building Regulatory Capacity Assessment (BRCA) process.

**Table A8 (cont.)**

	Grant Title	TF # Child Fund/ PCode	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
20	Disaster and Climate Resilient Renewable Energy Power System in Nepal	TF0B2719/ P171183	SAR/ Nepal	300,000	May-08-2020/ Jun-30-2022	To support project implementation	7 Japanese counterparts shared a wide range of knowledge and expertise in the area of resilient distributed power system and micro-grids in remote areas which have been developed by NEDO, TEPCO Power Grid and Toshiba in the context of Sendai Micro-grid and micro-Energy Management System in Maldives, as well as resilient power generation, transmission and distribution system developed by TEPCO Power Grid and TEPCO Renewable Power. These knowledge and expertise have been useful for Nepal to develop technical designs and operation manuals on the disaster resilient renewable energy distributed power system as well as the entire renewable energy system. 2 STCs participated in discussions and consultations were made with Japanese experts on their expertise, solutions and case studies, in the areas of disaster/climate resilient power generation, transmission and distribution, which are continuing to be utilized to support the client to prepare its disaster resilient renewable energy technical designs and operation manuals.

**Table A9 Phase 2 Trust Fund Tokyo DRM Hub Program Grants**

	Grant Title	TF # Child Fund	Region/ Country	Total Grant Amount (USD)	Start Date/ End Date	Objective of Engagement	Description of Japanese Expert Engagement
1	Knowledge and Outreach Program Phase 2	TF0B4405/ P175863	OTHER/ World	1,000,000	Nov-05-2020/ Aug-31-2025	To build partnerships	6 experts participated as keynote speakers, panelist and moderator at the special seminar co-organized by the Government of Japan and World Bank, "Building Back Better: Reflections on the 10th Anniversary of the Great East Japan Earthquake".

## Events by the Tokyo DRM Hub or with Its Inputs in FY21

**Table A10** List of Events

Event	Summary and Japanese experts engaged	Link to web story
<b>July</b>		
Virtual Speaker Series: “Managing Tropical Storms During COVID-19: Early Lessons Learned”	<p>The second session: “Managing Tropical Storms During COVID-19: Early Lessons Learned” of the virtual speaker series, “Building Resilience During the COVID-19 Crisis” was organized by GFDRR to share lessons learned from various countries on key improvements and adaptations made to the emergency preparedness and response systems to tackle compound risks posed by COVID-19 Pandemic and natural disasters. An Associate Professor of the Institute of Industrial Science and Head of the Disaster Management Training Center (DMTC) at the University of Tokyo spoke on the five main challenges faced by Japanese municipalities preparing for compound risks, and key suggestions to improve preparedness.</p> <p>Expert: Associate Professor at the University of Tokyo</p>	<a href="https://www.worldbank.org/en/news/feature/2020/07/09/managing-japanese-evacuation-centers-during-covid19-drmhubtokyo">https://www.worldbank.org/en/news/feature/2020/07/09/managing-japanese-evacuation-centers-during-covid19-drmhubtokyo</a>
<b>December</b>		
2020 Understanding Risk Forum (UR2020) - Session “ON DEMAND Designing Schools of the Future to Build Education Resilience post COVID-19”	<p>This session was organized by the Global Program for Safer Schools to discuss key tools to enhance the resilience of global education systems by investing in safer and high-quality school infrastructure as well as planning and management systems that allow these investments to be equitable, cost-effective, and sustainable in the long term, in the context of the COVID-19 Pandemic. From Japan, world-renowned Architect Tezuka, shared his innovative school design of the Fuji Kindergarten that has broken free of the traditional mold which may serve as inspiration for these ‘schools of the future’.</p> <p>Experts: Architect Takaharu Tezuka</p>	<a href="https://understandrisk.org/school-infrastructure-resilience-reimagined-after-covid-19-designing-schools-of-the-future-to-build-education-resilience/">https://understandrisk.org/school-infrastructure-resilience-reimagined-after-covid-19-designing-schools-of-the-future-to-build-education-resilience/</a>
2020 Understanding Risk Forum (UR2020) - Session “The Power of Partnership: Sparkling Public, Private and Academia Engagement in Hydromet Services”	<p>This session presented the recently launched report “The Power of Partnership,” and discussed key recommendations for creating more vibrant public-private-academic engagements in hydromet sector and how these can be applied in the real world. Distinguished speakers included representatives from Royal Haskoning DHV, Spire Global,</p> <p>Weathernews America, Inc. (WNI), IBM, and the University of Oklahoma.</p> <p>Experts: Weathernews America Inc. (WNI)</p>	<a href="https://understandrisk.org/the-power-of-partnership-sparking-public-private-engagement-in-hydromet-services-2/">https://understandrisk.org/the-power-of-partnership-sparking-public-private-engagement-in-hydromet-services-2/</a>
2020 Understanding Risk Forum (UR2020) - Session “ON DEMAND Virtual Site Visit: Green Infrastructure and Nature-Based Solutions for Urban Flood Resilience in Singapore”	<p>This technical session explored the benefits of integrated nature-based solutions (NBS) in the design of stormwater infrastructure in Singapore as part of the Active, Beautiful, Clean Waters (ABC Waters) Program. PUB, Singapore’s national water agency, shared four projects that demonstrate solutions to (1) mitigate the impact of heavy storms, such as multi-use floodplains; (2) detain and treat stormwater runoff; and (3) achieve social and environmental co-benefits.</p> <p>Experts: Lecturer at National University of Singapore</p>	<a href="https://understandrisk.org/virtual-site-visit-green-infrastructure-and-nature-based-solutions-for-urban-flood-resilience-in-singapore/">https://understandrisk.org/virtual-site-visit-green-infrastructure-and-nature-based-solutions-for-urban-flood-resilience-in-singapore/</a>

**Table A10 (cont.)**

Event	Summary and Japanese experts engaged	Link to web story
<b>July (cont.)</b>		
Green Infrastructure and NBS for DRM at Japanese Green infrastructure Platform Workshop	<p>World Bank DRM Specialists participated in a virtual workshop hosted by the <i>Green Infrastructure (GI) Public and Private Platform</i> led by the Ministry of Land Infrastructure Transport and Tourism (MLIT) Japan. They presented the World Bank's global experience in strengthening resilience through green infrastructure, showcasing initiatives on Nature-Based Solutions (NBS) implemented through knowledge development and technical inputs to investment projects and TA activities. During the event, more than 350 viewers were connected to the livestream and the presentation received more than 990 views.</p> <p>Experts: MLIT</p>	<a href="https://www.worldbank.org/en/events/2020/12/17/sharing-world-banks-experiences-at-the-gi-public-and-private-platform-2020-public-seminar-drmhubbokyo">https://www.worldbank.org/en/events/2020/12/17/sharing-world-banks-experiences-at-the-gi-public-and-private-platform-2020-public-seminar-drmhubbokyo</a>
<b>January</b>		
International Recovery Forum 2021	<p>The International Recovery Forum 2021 featured discussions between recovery policy makers and experts on lessons for governance, planning, financing, inclusion and other key areas which can be applied to recovery. Building on the COVID-19 Recovery Policy Brief, published by International Recovery Platform (IRP) in June 2020, panelists considered the unique challenges and opportunities for recovery, including the unprecedented challenge of managing the dual risks of natural hazards and the pandemic, and recovery under the continued threat of climate-induced hazards.</p> <p>Experts: Cabinet Office; Disaster Reduction and Human Renovation Institution; Governor of Hyogo Prefecture;</p>	
<b>March</b>		
Financial Protection of Critical Infrastructure Services Webinar	<p>A launch event for a 2021 report: "Financial Protection of Critical Infrastructure Services" which presented an operational framework for economies to improve the financial resilience of critical infrastructure services. The approach builds on existing principles and approaches to disaster risk financing. With representation from governments, critical infrastructure, academia, and financial sectors, this virtual webinar conducted a dialogue on how to design, implement, and scale priority policy actions to strengthen resilience of infrastructure services against shocks.</p> <p>Experts: Japan Ministry of Finance, CLP Holdings Limited, Tokio Marine &amp; Nichiko Fire Insurance Co., Ltd.</p>	<a href="https://www.financialprotectionforum.org/event/world-bank-group-virtual-report-launch-financial-protection-of-critical-infrastructure">https://www.financialprotectionforum.org/event/world-bank-group-virtual-report-launch-financial-protection-of-critical-infrastructure</a>
Special Seminar Co-organized by the Government of Japan and World Bank Building Back Better: Reflections on the 10th Anniversary of the Great East Japan Earthquake	<p>To commemorate the Great East Japan Earthquake's 10th anniversary, the event reflected on lessons learned from this tragic disaster which reminded the world that no country or community is totally safe from extreme natural hazards and their devastating impacts. Japanese experts from various disciplines were invited for discussion to understand the reconstruction efforts to build back better, re-examine lessons learned, reflect upon what GEJE has taught us on enhancing future resilience, and how to tackle the challenges that lie ahead.</p> <p>Experts: Sendai City; Former Vice-Minister of Reconstruction Agency; NHK World TV; JICA; Tohoku University; and the University of Tokyo</p>	<a href="https://www.worldbank.org/en/events/2021/03/18/building-back-better-reflections-on-the-10th-anniversary-of-the-great-east-japan-earthquake-drmhubbokyo">https://www.worldbank.org/en/events/2021/03/18/building-back-better-reflections-on-the-10th-anniversary-of-the-great-east-japan-earthquake-drmhubbokyo</a>



## ANNEX 4:

# New Publications Launched in FY21<sup>45</sup>

Themes	Publication Title	Type of Product	Language
<b>RESILIENT INFRASTRUCTURE</b>			
Cultural Heritage	Resilient Cultural Heritage: Learning from the Japanese Experience	Report	English
Resilient Transport	Road Geohazard Risk Management Handbook; Road Geohazard Risk Management Appendix A (Terms of Reference) and Appendix B (Operations Manual); Road Geohazard Risk Management Appendix C: Japan, Serbia and Brazil Case Studies	Report	English
Resilient Transport	Road Geohazard Risk Management Japan Case Study	Report	English
Integrated Urban Flood Risk Management	Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes	Report	English
Integrated Urban Flood Risk Management	Learning from Japan's Experience in Integrated Urban Flood Risk Management: A Series of Knowledge Notes	Report	Japanese
Integrated Urban Flood Risk Management	Community- and Nature-Based Solutions for Integrated Urban Flood Risk Management: Mini Studios for Water-Sensitive Urban Design - A Handbook for Organizers and Facilitators	Report	English
Resilient Industries	Resilient Industries: Competitiveness in the Face of Disasters	Report	English
Resilient Industries	Resilient Industries in Japan: Lessons Learned in Japan on Enhancing Competitive Industries in the Face of Disasters Caused by Natural Hazards	Report	English
Resilient Industries	Resilient Tourism: Competitiveness in the Face of Disasters	Report	English
Building Regulation for Resilience	Morocco Building Regulatory Capacity Assessment (French)	Report	French
Building Regulation for Resilience	Urban FRAME: Urban Fire Regulatory Assessment and Mitigation Evaluation Diagnostic	Report	English
Safer Schools	Roadmap for Safer and Resilient Schools: Guidance Note 2	Report	English
<b>RISK IDENTIFICATION, RISK REDUCTION AND PREPAREDNESS</b>			
Health	Frontline: Preparing Healthcare Systems for Shocks from Disasters to Pandemics	Report	English
Social Risk Management and Disaster Risk Management	The Ibasho Toolkit: A Toolkit for Strengthening Community-Driven Preparedness and Resilience	Grant Document	English
Social Risk Management and Disaster Risk Management	Ibasho - A Colorful Guide to the Core Principles	Grant Document	English
Social Risk Management and Disaster Risk Management	Ibasho - Strengthening Community-Driven Preparedness and Resilience in Philippines and Nepal by Leveraging Japanese Expertise and Experience	Grant Document	English
<b>DISASTER RISK FINANCING AND INSURANCE</b>			
Development and Implementation of Policy Framework for Financial Risk Management against Disasters	Catastrophe Insurance Programs for Public Assets – Operational Framework	Grant Document	English

<sup>45</sup> Publications produced under Phase 1 and Phase 2 TA grants are not included here.

## ANNEX 5.

# Status of FY21 TA grants in pipeline, as of May 20, 2021

Country	Region	Japan TF Phase 2 FY21 Envelope	GP	Priority Area	Value (USD)	Status	FY Allocation
Nepal	SAR	Nepal Dam Safety and Disaster Risk Management	Energy / DRM	1	550,000	Approved on April 6	FY21
Somalia	AFR	Kismayo Urban Flood Risk Reduction and City-wide Storm Water Drainage Plan	GPURL	1	400,000	Approved on April 14, 2021	FY21
Angola	AFR	Building Dam Safety and Urban Resilience to Natural Hazards in Angola	GPURL	1	560,000	Submitted, Pending Approval	FY21
Nile Basin	AFR	Strengthening Resilience through Institutionalization of Dam Safety in the Nile Basin	Water	1	300,000	Submitted, Pending Approval	FY21
Burkina Faso / Senegal	AFR	Safer Schools	GPURL / Edu	1	400,000	Submitted, Pending Approval	FY21
Indonesia	EAP	Top-Up: Investing in Urban Flood Resilience and Seismic Risk Mitigation in Indonesia	GPURL	1	250,000	Submitted, Pending Approval	FY21
Vietnam	EAP	Strengthening Coastal Resilience in Vietnam: Coastal Protection Program	GPURL	1	475,000	Submitted, Pending Approval	FY21
Romania	ECA	Romania Resilient Public Infrastructure	GPURL	1	500,000	Submitted, Pending Approval	FY21
Turkey	ECA	Turkey – Strengthening Seismic Resilience and Energy Efficiency in Public Buildings	Energy (IECE) / GPURL	1	825,000	Submitted, Pending Approval	FY21
Iraq	MENA	Informing WBG Lending Operations Financing Resilient and Learning Oriented School Infrastructure in Iraq	GPURL / Edu	1	300,000	Submitted, Pending Approval	FY21
Bangladesh	SAR	Scale-up and Consolidation of Urban Resilience Institutions in Bangladesh	GPURL	1	500,000	Submitted, Pending Approval	FY21
India	SAR	Informing the Design of a Statewide Strategy to Build Resilient and Equitable Schools in Nagaland	Edu / GPURL	1	300,000	Submitted, Pending Approval	FY21
Uganda	AFR	Strengthening Knowledge of Farmers and Government Staff in Irrigation in Uganda	Water	1	300,000	Under Development	FY21
TBD	AFR	Transport	Transport	1	600,000	Under Development	FY21
Cambodia	EAP	Building Disaster Resilience of Siem Reap City and Cultural Heritage	GPURL	2	225,000	Under Development	FY21
Global	EAP	EAP	GPURL	TBD	950,000	Under Development	FY21

Country	Region	Japan TF Phase 2 FY21 Envelope	GP	Priority Area	Value (USD)	Status	FY Allocation
ECA	ECA	Sustainable and Resilient Cities and Infrastructure	GPURL	1	750,000	Under Development	FY21
Iraq	MENA	Strengthening Resilient Infrastructure in Morocco and Tunisia.	GPURL	1	500,000	Under Development	FY21
Morocco / Tunisia	MENA	Building Resilient Housing and Infrastructure in Iraq	GPURL	1	500,000	Under Development	FY21
India	SAR	Enhancing Resilience to Extreme Weather in India	GPURL	2	400,000	Under Development	FY21
Sri Lanka	SAR	Advisory Support to Disaster and Climate Resilience Investments	GPURL	2	400,000	Under Development	FY21

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



