SCALING UP FLOOD RISK MANAGEMENT IN BRAZIL TO BUILD COMMUNITY-LEVEL RESILIENCE

Identifying disaster risk and building capacity to inform urban resilience strategies at both the national and local levels

AT A GLANCE

Country Brazil

Risks Floods, landslides

Area of Engagement Promoting open access to risk information; Scaling up city resilience; Deepening financial protection; Promoting resilient infrastructure; Building resilience at the community level

Creating cutting-edge disaster risk management tools, growing applied knowledge and deepening financial protections not only strengthens Brazil's ability to mitigate smaller-scale, recurrent disasters at the local level, but also helps to build urban resilience throughout the country.

Disaster risk identification and institutional and community-level capacity building helps countries to more effectively manage preparedness and post-disaster efforts at both the national and local levels. (Source: World Bank)

CHRONIC, SMALL-SCALE DISASTERS FACING BRAZIL

In Brazil, a common misconception was that disasters do not exist. While Brazil is not highly exposed to large, disruptive hazards like tsunamis, volcanic eruptions or large earthquakes, it is not disaster-free and the country continues to suffer from smaller, ongoing disasters.

Larger cities with growing economies have drawn people from across the country in search of job opportunities. However, due to outdated regulations on urban planning and vast socio-economic inequalities, many cities in Brazil have substantial pockets of overpopulated areas that are highly prone to disasters. Landslides, flash floods, and flooding are the cause of 87 percent of disaster-related deaths in southern Brazil. These hazards occur with increasing frequency and are concentrated in the densely populated, economic hubs of the south and southeast regions. For example, in Porto Alegre in the state of Rio Grande do Sul, the annual rainy season often leads to widespread flooding of the Guaiba River. Recurrent floods do not only damage property and endanger people's lives, but also deliver constant disruptions to basic needs such as transportation,

education, and electricity. This vicious cycle prevents communities from thriving and retaining hard-fought social progress. These disasters are also is a huge burden for local municipal finances, as well as state and national economies.

To better understand the economic volume of the chronic disasters, the Government of Brazil with support from the World Bank, undertook a study which revealed that year after year, the country is losing an estimated $1 billion Brazilian reais per month (approximately US$175 million) from over 30,000 disaster events. This was realized through data collected by the National Civil Defense from 1994-2019, which highlighted human and economic impacts of previous disasters, and helped the government to better identify the disaster risk profile of the country. Despite recent progress in disaster risk management (DRM), governments, such as Brazil with chronic and constant disasters, are in need of capacity building to develop and access relevant knowledge necessary to create strategic plans, prioritize actions, and secure essential funding to address disasters, thereby reducing the social impacts of disaster events, including health, livelihoods, and access to basic services.

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STRENGTHENING DISASTER RISK IDENTIFICATION & CAPACITY AT THE LOCAL LEVEL

With financial support over US$ 1.5 million in Trust Funds from the Government of Japan through the Japan-World Bank Program for Mainstreaming DRM in Developing Countries, the World Bank team has managed to significantly contribute to the Government of Brazil by developing and sharing knowledge, promoting capacity building and ultimately approving a US$ 100 million investment project to mitigate disaster risks in southern Brazil. Among the several engagements, with focus on disaster-prone economic hubs in Brazil, the World Bank team, in partnership with government institutions and universities / knowledge centers, delivered significant outcomes to: Porto Alegre (Rio Grande do Sul State) and Santa Catarina State by supporting subnational authorities to strengthen the understanding of their disaster risk profiles and develop adequate disaster risk financing strategies and instruments. Additionally, this support promoted sustainability and scale-up opportunities for other vulnerable areas around the country. With focus in disaster prevention and mitigation through disaster risk identification, involved parties were able to better understand the locations of high-risk areas and how to invest in risk mitigation and design post-disaster response strategies. For example, at the national level the grant supported a comprehensive analysis of the National Disaster Data Base allowing stakeholders to deeply assess damage and loss in the national territory from 1995 to 2019 leading to a better understanding of the different geographical and social contexts in light of exposure to natural hazards and therefore improve overall national disaster risk assessment and mapping methodologies.

Important risk identification measures also led to the development of disaster maps of high-risk areas within vulnerable communities. Vulnerable populations living in high-risk areas were given the opportunity to begin building risk awareness of natural hazards while also taking an active role in mitigating those risks. For example, in the city of Porto Alegre, the project evaluated the social impacts of floods in the target communities by identifying and quantifying vulnerability and resilience aspects, and then incorporating these results into a detailed diagnosis of the municipal DRM system. All of this work around flood risk assessment implemented through the grant complemented JICA's project GIDES (Project to Strengthen the National Strategy for Integrated Risk Management in Natural Disasters) which produced Landslide Risk Assessment Manuals tailored to the unique Brazilian context.

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Approximately **800** municipalities in southern Brazil are now eligible to strengthen urban resilience with a **US $100 million investment**

NEW KNOWLEDGE ACCESSED

Through this grant, the first-ever Catastrophe (CAT) Model was developed in Santa Catarina providing critical knowledge to the state's government thus informing the climate and disaster risk management agendas. The study employed a rigorous process, including the generation of geospatial information plans, the development of residential and nonresidential vulnerability models, and hydrological modelling.

BUILDING RESILIENCE AT LOCAL LEVEL

Critical risk identification pinpointed the social impacts of flood-prone areas. This was further strengthened by engagement activities with local communities and city government officials, leading to the creation of the Community Action Group on Floods in Porto Alegre, which aim at mobilizing funds for disaster management in the area. The social impact analysis built capacity of community leaders and taught targeted communities how to strategically plan and mitigate projected events.

ESTABLISHED AN INNOVATIVE DRM FINANCING SOLUTION

A valuable partnership between the World Bank and the Southern Brazil Regional Development Bank (BRDE) led to the approval of US$100 million investment to finance urban resilience investments enabling about 800 small and medium municipalities to access financing previously only available to larger cities.