STRENGTHENING RESILIENCE IN THE TRANSPORT SECTOR

Addressing vulnerability by improving roads and transportation services worldwide

AT A GLANCE

Country Kenya, Lao PDR, Paraguay, Peru, and Serbia

Risks River, urban and coastal flooding; earthquakes, landslides, cyclones

Area of Engagement Deepening engagement in resilience to climate change, Promoting resilient infrastructure, Building resilience at the community level

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

Workers drain a flooded thoroughfare after a severe storm in Kisumu, Kenya. (Photo: Peter Kapuscinski / World Bank)

TRANSPORTATION INVESTMENTS ARE UNDER THREAT FROM DISASTERS

Investing in a country's transport sector is integral to its continued development and fundamental to the functioning and development of economies and societies. Roads and transportation methods, such as cars and buses, help connect people to jobs, health services, education, and more. However, as climate change continues to exacerbate disasters caused by natural hazards, these investments are becoming increasingly susceptible to risk.

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

A WORLDWIDE STRATEGIC TRANSPORT APPROACH

Country investments are increasingly exposed to disaster and climate hazards, including landslides, flooding, and earthquakes. To manage and reduce the risks these hazards may pose, low- and middle-income countries are seeking new approaches to plan, design, construct, operate, and maintain their transportation systems.

Recognizing their high disaster and climate risk, the governments of Kenya, Lao PDR, Paraguay, Peru, and Serbia partnered with the Japan–World Bank Program for Mainstreaming Disaster Risk Management (DRM) in Developing Countries, through the Global Facility for Disaster Reduction and Recovery (GFDRR), to harness US$1 million for a strategic and scalable initiative to increase the resilience of the transport sectors. The grant began as a five-country initiative and resulted in an entire program impacting and building resilience in 20 countries worldwide.

The original five-country transportation projects across the four regions comprised the initial steps in a broader program with the goal of mainstreaming a systematic approach and sectorwide consideration of climate and disaster risk issues within the transport sector for

the World Bank's client countries. The program sought to increase the capacity of integrating climate resilience in the transport sector, build technical expertise on resilient transport, and create knowledge products and exchange opportunities to mainstream the resilient transport agenda globally in collaboration with DRM and transport sector experts.

The program focused on developing assessments, building technical knowledge, and providing support to implement resilient transport projects. The countries sought to enhance their road asset management systems based on comprehensive geospatial data infrastructure to create regular road condition checks for road operation and maintenance. This led to the countries developing the knowledge of their road assets that are exposed to natural hazards and enabled them to take preventive measures through early warning and risk reduction measures.

Government officials from the project received input from the disaster risks affecting their transport sector with Japanese experts from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), the Japan International Cooperation Agency (JICA), the Iwate Reconstruction Bureau, Hyogo Prefecture, Kyoto University, Nippon Expressway Company (NEXCO), and the World Road Association (PIARC) in Japan. This input was complemented by site visits to the NEXCO Traffic Control Center and the Watarase Retarding Basin, which presented best practices for ways Japan is reducing disaster risks in transport infrastructure. By attending knowledge exchange events and workshops, countries learned about the importance of road asset management based on geospatial technology with the integration of risk data and countries. More specifically, through these events, countries such as Peru were able to conduct geohazard risk assessments to understand how their rural road assets are exposed to flooding and landslides and then address the risks through mitigation measures.

Best practices utilizing the geohazard risk assessments are to turn the assessments into geohazard maps that allow users to visualize the data and address risks through implementation plans; incorporate road adaptation or measures for local road projects; and tackle risks with innovative solutions, including nature-based solutions and slope interventions. More specifically, country teams learned about Japan's unique road geohazard risk management expertise at the Tokyo Resilient Transport Technical Knowledge Exchange in May 2017. Based on these exchanges, the countries developed action plans and applied Japanese best practices and lessons learned to their own country contexts. For example, in Serbia the team conducted a road geohazard risk assessment with best practices learned from Japan. Moreover, the governments in the five vulnerable countries have gained access to additional investments to expand disaster and climate resilience building—helping to leverage US$400 million across the countries for projects such as road rehabilitation and transport connectivity to build resilience worldwide.

200,000
beneficiaries are better protected through improved policies and plans to build a resilient future

ANALYSES, TECHNICAL REPORTS & GUIDES CREATED

A climate vulnerability analysis identified transport assets that would most likely experience high economic losses following a natural disaster in all five countries. Moreover, developed risk assessment, risk assessment guides, and technical recommendations on road rehabilitation and improvements in Peru.

CAPACITY BUILDING & PARTNERSHIPS STRENGTHENED

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

POLICIES & PLANS DESIGNED AND OPERATIONALIZED

Climate-resilient road policies, road maintenance procedures, and management and investment plans were developed in Lao PDR and Peru for safer and more resilient roads and transportation services. Policies and plans designed under this program are expected to give rise to improved plans and policies for 200,000 beneficiaries.