PROJECT HIGHLIGHTS

Region: East Asia and Pacific
Country: China

Focus Area:
Resilient Reconstruction
Resilient recovery and reconstruction policies, ex-ante design of institutional response mechanisms, etc.

Supporting Resilient Post-earthquake Recovery in China

Reconstruction from the Wenchuan Earthquake

Background

On May 12, 2008, an earthquake of magnitude 8.0 struck Southwestern China, centered in Wenchuan County of the Sichuan Province. As a result of the Wenchuan Earthquake and 30,000 significant aftershocks, more than 47 million people were affected; over 69,000 people died, 374,000 were injured and 18,000 went missing.

General infrastructure was also overwhelmingly damaged, resulting in the destruction of 34,000km of highway, the damage of 1,263 reservoirs, the collapse of 7,444 schools and 11,028 hospitals and clinics and the destruction or significant deterioration of 5.5 million rural homes and 860,000 urban homes. The Sichuan and Gansu Provinces were the hardest hit, with direct economic losses estimated at US$112.2 billion and US$7.1 billion respectively.

Challenges

China is among the top natural disaster areas in terms of mortality, total economic loss and economic loss as a proportion of gross domestic product (GDP). It is estimated that economic losses caused by disasters amount to between three and six percent of China's total GDP.

The 2008 Wenchuan Earthquake was the costliest and most deadly earthquake in China since the 1976 Tangshan earthquake. The 2008 earthquake, with total direct economic losses estimated to be over US$133 billion, left behind significant damage to the infrastructure, health and education sectors of ten provinces, with the Sichuan and Gansu Provinces sustaining the most damage. Furthermore, the areas that were affected by the earthquake had relatively weak economies and local governments, making the challenge of reconstruction even greater.

Approach

In order to plan for reconstruction in an efficient and effective manner, damage and loss assessments, geological assessments and environmental assessments were conducted immediately after the earthquake by the relevant professionals. The Chinese Government's State Council issued the Overall Plan for the Post-Wenchuan Earthquake Recovery and Reconstruction which lays out the framework for all recovery and reconstruction efforts.

Innovative mechanisms to secure the funds necessary to conduct these works, such as private/public partnerships, tax incentives and the mobilization of public support are utilized thoroughly. The central Government has also set up a "twin assistance" mechanism by which affected counties are paired with a donor province responsible for offering financial aid (one percent of annual income) and other aid, intended to rationally allocate resources in accordance with the economic strength of donor provinces and the degree of damage to recipient counties. Such measures accelerated the progress in recovery and reconstruction by minimizing bureaucracy and facilitating the exchange of knowledge. The program also emphasized the non-structural aspects of building resilience in communities through better emergency preparedness and training programs.

Highlights

Reparation of 2.9 million rural houses and 1.5 million urban houses in Gansu, Sichuan and Shaanxi Provinces.

Reconstruction of 1.9 million rural houses and 290,000 million urban houses.

Construction of 110 km of roads; 100 km storm water pipelines; 93 km of sewers; two km of bridges; nine km of embankments; 105 km of water supply pipelines; water tanks; two pumping stations; one solid waste transfer station; three solid waste storagestations; two water supply plants; and 60 health projects in the Sichuan Province.

Construction of 31 civil works (infrastructure investments in buildings, roads, water and sanitation); six schools; four hospitals; one bridge; one water treatment plant; and two waste water treatment plants in the Gansu Province.

Building resilience through nonstructural aspects in communities through better emergency preparedness and training programs.

The project supports the Government of China's reconstruction strategy articulated in the National Masterplan for Rehabilitation and Reconstruction of the Wenchuan Earthquake (National Masterplan). It also assists in: (i) financing post-earthquake reconstruction and recovery in infrastructure, health and education sectors in the Sichuan and Gansu Provinces; and (ii) laying the foundation for the longer-term sustainable economic recovery of areas severely affected by the Wenchuan Earthquake.

Results

A total of 2.9 million rural houses and 1.5 million urban houses have been repaired in the Gansu, Sichuan and Shaanxi Provinces, and 1.9 million rural houses and 290,000 urban houses have been reconstructed. Destroyed schools, hospitals, retirement homes, community centers, community activity centers and other public service facilities have also been restored or rebuilt. Earthquake-resistant standards for all schools and hospitals have been upgraded and the capacity of all public service facilities have been improved, resulting in the equalization of levels for basic public services in western China. A total of US$23 billion is invested in projects related to industrial production, layout and regulation. Industrial parks have been established to speed up industrial development. The businesses that were destroyed in the earthquake have been restored, subsequently raising capacity and sales volume.

In addition, facilities are now updated to conform to environmental standards and to ultimately minimize pollution. With support from the World Bank, the Government is protecting the ecological environment of the area, as well as contributing to the mitigation of future disasters. Finally, specific measures are taken to ensure that the cultural heritage and the distinctive local flavor of the cities of the affected areas are preserved.

Partnership

GFDRR was one of the first international organizations to offer support to the Chinese authorities following the earthquake and provided the technical assistance to make them aware of international practices. This led to the World Bank providing an emergency recovery loan in the amount of US$710 million in order to restore infrastructure, as well as health and education services to, at the minimum, levels existing prior to the Wenchuan Earthquake, and to provide for expansion of services where needed. In parallel, GFDRR supports a review of the National Masterplan for Rehabilitation and Reconstruction of the Wenchuan Earthquake and six sector-specific (rural reconstruction, urban and rural housing, public services and infrastructure, industrial recovery, relocation and organization and implementation) recovery plans. Besides efforts to "build back better", the World Bank-financed project also emphasizes the importance of capacity building and developing emergency response plans to equip staff and hospitals to better cope with future disasters.

As part of the project, the GFDRR funds are also utilized for training teachers, school staff and hospital staff ways to improve emergency preparedness and response in schools and hospitals. Other partners included in the coordination and information dissemination of the project are the Government of China, the Asian Development Bank (ADB) and the United Nations.

Next Steps

GFDRR will support the training of recovery teams in the region, continue to strengthen its partnership with the Government of China on disaster risk management activities and disseminate China's great experience and expertise in disaster preparedness and relief to other countries in the region and worldwide. Already in Beijing, China, the China Emergency Relief Training Center (CERT), with support from GFDRR, through the World Bank, has offered a one-week "Emergency Response and Relief Training" to selected rescue teams from Indonesia. Likewise, a full report on the lessons learned from the reconstruction has been published for international dissemination.

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Students at one of the inaugurations of a reconstructed high school school that had been destroyed from the Wenchuan Earthquake in the Gansu Province.

"It is so rewarding to see that the infrastructure in this county has improved so much [from pre-disaster times]. Thus, the overall environment and image of the county have also been largely upgraded."

Xia Zhiqiang
Engineer, Sinohydro Company
Sichuan Province, China

Lessons Learned

Past experience has shown that the goal is not only to restore basic services and living conditions in an incrementally improved way, but rather that it is necessary to strategically embed the reconstruction efforts into the overall development strategy of the area; ensuring that after reconstruction is complete, economic development in the earthquake affected areas is sustainable and surpasses pre-disaster levels. Accordingly, reconstruction does not only restore services, but is laying the foundation in appropriate locations, for sound, sustainable social and economic development.