



PROJECT HIGHLIGHTS

Enhancing Safety and Improving Living Conditions for 100,000 Vulnerable Families

Building a Culture of Resilient Reconstruction in India

Overview

Babita Devi is a disabled woman who heads a family of six in Bihar, India. In the Kosi River Floods of 2008, they lost their home and all their assets. Her family, along with 3 million other families, were completely devastated by the event.

The Kosi River originates in the Tibetan plateau in China and flows across Nepal into Bihar, India, joining the Ganges River near Kursela, India. On August 18, 2008, the Kosi River breached its embankments in Nepal's Sunsari district, resulting in massive flooding across Nepal and downstream in northeastern Bihar. The flood was declared a national calamity by the Government of India. The flood affected more than 3 million people, most of whom already lived below the poverty line or came from landless households; damaged approximately 284,000 hectares of agricultural land and over 330,000 housing units in five districts; and destroyed roads, water drains and bridges in 412 villages.

India is a highly disaster prone country and has been victim to almost half of the natural disasters (droughts, earthquakes, floods and storms) affecting South Asia in the past few decades. The country has been hit by 243 floods* alone, cumulatively taking the lives of more than 60,000 people and affecting close to 800 million more. The Kosi River basin is subject to annual floods and other natural hazards. For communities residing in this area, poor construction quality, lack of detailing and inadequate housing safety measures put lives and livelihoods at extreme risk during hazard events, while also hindering the development of the region.

To support "build back better" efforts aimed at helping the people of Bihar recover from the disaster and build resilient communities for the long-term, the Government of Bihar partnered with the World Bank and GFDRR to launch the Bihar Kosi Flood Recovery Project (BKFRP). Through the BKFRP, the Government of the state of Bihar is assisting families in rebuilding their lives and livelihoods. As a part of the project, an owner-driven housing reconstruction (ODR) component to rebuild 100,000 damaged houses was launched. Through ODR, families receive grants to construct their own houses with support from the Government, non-governmental organizations and technical experts. ODR has been successfully implemented in post-earthquake Gujarat, India (2001); post-earthquake Pakistan (2005); and post-tsunami Sri Lanka and Thailand (2004). ODR is often cited for its high satisfaction levels among affected communities and for its quick and cost-effective implementation.

The ODR approach includes multi-layered support and a monitoring system that provides a regulatory framework, enforcement of building codes, access to quality material and technical guidance. A support mechanism is put in place for vulnerable groups such as widows, single women headed families and the elderly. Additionally, reconstruction grants dispersed in three tranches help families build hazard-resilient houses which will benefit future generations as well. ODR also generates local employment, allows people to build according to their needs and strengthens local building capacities; all of which contribute to a culture of resilient reconstruction and safer communities for generations to come.

Communities spread over three flood-affected districts in Bihar are working to create a culture of resilience by focusing their efforts on resilient reconstruction by putting in place better building standards through techniques that will ultimately address the vulnerability of the area. As a consequence, families such as Babita's are constructing houses resilient to high-wind velocities, earthquakes and floods.

Challenges

Lack of infrastructure, damaged infrastructure and the remote location of the affected communities have made transport of materials difficult, driving up the cost of construction materials. However, through the BKFRP, access has been improved and alternative routes have been provided. Project teams have mobilized and empowered communities to rebuild and repair damaged roads and culverts. While the project has faced some challenges in the implementation of hazard resilient construction details, e.g., people wanting to make changes in the building plan at an advanced stage of construction or who do not want to follow Government guidelines, these issues were best addressed by training, engaged dialogue and regular supervision and monitoring.

*Available through the World Health Organization's (WHO) Collaborating Centre for Research on the Epidemiology of Disasters (CREDE) Emergency Events Database (EM-DAT) since 1900 (<http://www.emdat.be>).

Region: South Asia
Country: India



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



Highlights

Large portions of India are prone to flooding and over 800 million people have been affected by flood events over the past century. Through the World Bank's Bihar Kosi Flood Recovery Project (BKFRP) with additional support from GFDRR, the Government of Bihar is assisting families to rebuild their lives and livelihoods through an owner driven housing reconstruction component in which families receive grants to construct their own houses with support from the Government, non-governmental organizations and technical experts.

Resilient reconstruction includes risk reduction measures such as plinths raised above the average annual flood level and useable lofts, which serve as shelter during floods, preparing families for future disasters.

Owner-driven reconstruction generates local employment, allows people to build according to their needs and strengthens local building capacities, contributing to a culture of resilient reconstruction, making communities safer for generations to come.



Approach

The World Bank provides financial and technical assistance to homeowners to reconstruct their own properties through the ODR approach. Homeowners are given housing reconstruction grants of approximately INR 60,000 (US\$1,114) in three tranches. The first tranche of INR 35,000 is to be used for construction up to lintel level. Once this level of construction is certified, the second tranche of INR 20,000 is disbursed. The last grant of INR 5,000 is released upon certification of completion. This disbursement strategy serves as an incentive for homeowners to finish building their homes. Housing designs have common multi-hazard resilient features. These include a plinth raised above the average annual flood level and a built-in loft that serves as shelter during flood events. The loft and roof structure are built with treated bamboo; the foundation details vary based on the soil types. Additionally, homeowners are encouraged to use solar power in their constructions. The technical team and the construction workers are well trained and the construction is carefully monitored to ensure that all details are properly executed.

Results

As of August 2012, funds have been issued to over 50,500 families. The houses being built are at various stages of construction, with a large number of houses already completed. Program funds are expected to be distributed to all 100,000 families that are part of this program in the near future. Of the total houses under construction, approximately 87 percent are brick homes with corrugated galvanized iron sheet roofing; 10 percent are brick homes with reinforced cement concrete roofing; and 3 percent are bamboo homes with corrugated galvanized iron sheet roofing.

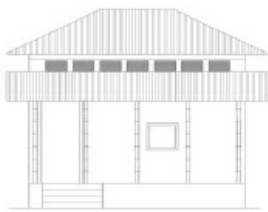


Figure 1: 215sq ft house with bamboo and CGI sheet roofing

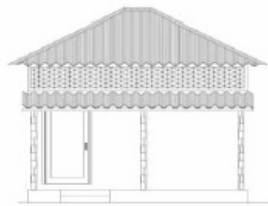


Figure 2: 215sq ft house with brick and CGI sheet roofing

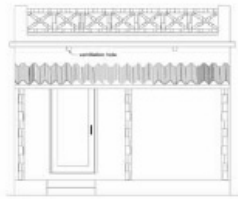


Figure 3: 215sq ft house with brick and RCC roofing

Social mobilization from the very start leads to less conflict and greater progress. A multi-faceted support system is vital to effectively carry out an ODR project. As such, progress has been positive where: (i) support hubs known as Kosi Setu Kendras (KSKs) oversee and interact with homeowners; and (ii) masons have been placed in the villages prior to actual construction. Additionally, the ODR approach allows people to reconstruct according to their needs, strengthens local building capacities and encourages incremental construction allowing for early occupancy. Finally, a housing program that incorporates rich local construction systems, traditional building skills, culturally sensitive house plans and local materials into building standards is more likely to succeed and have a higher level of acceptance.

Partnership

With assistance from the World Bank and GFDRR, the Government of Bihar has put into place a multi-layered support and monitoring system that is led by the Bihar Aapada Punarwas Evam Punarnirman Society (Bihar Disaster Rehabilitation and Reconstruction Society). A field-based Chief Program Officer oversees the housing program, while each district has a District Magistrate Support Unit supervised by a Rural Management Specialist and a Disaster Risk Management Specialist. At the sub-district level, support hubs or KSKs, oversee roughly 4,000 houses each. The KSKs: (i) provide training to bamboo craftsmen and brick masons; (ii) organize the community; (iii) facilitate bank transactions; (iv) monitor the quality of work; and (v) act as an interface between the Government and the homeowners. Local engineers called Gram Panchayat (Village) engineers, working under the KSK engineers, oversee roughly 1,000 houses each.

Next Steps

The ODR component of the BKFRP, which is supported by the World Bank and GFDRR, is not only fulfilling its primary objective of rebuilding damaged houses, but is also reducing vulnerability by building capacity for resilience. By involving entire communities, government authorities, landlords, construction workers and engineers, the BKFRP is contributing to the larger long-term project objective of enhancing disaster management capacity at the state and national level.

GLOSSARY

Owner-driven housing reconstruction (ODR): Where conditional financial assistance is provided to the owner along with technical support in the reconstruction of homes. This ensures that houses are "built back better."

LEARN MORE

Video: A Home of One's Own (www.gfdr.org/gfdr/videos)



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Amirka Devi, beneficiary of the owner-driven housing reconstruction project, with a KSK staff member in front of her newly-constructed house in Bihar, India.

"We now have a house! We have been able to build a three-room home and it would not have been possible without the government program and KSK staff."

Amirka Devi
Beneficiary, Owner-driven Housing Reconstruction Project

Lessons Learned

The more social mobilization there is and the earlier it starts, the less conflict there will be, and more progress will be made. Where Kosi Setu Kendras teams are already interacting with homeowners and masons are placed in the villages in advance of actual construction, progress has been made.

A housing program that incorporates rich local construction systems, traditional building skills, culturally sensitive house plans and local materials into building is more likely to succeed and have a higher level of acceptance within the community.

The owner-driven reconstruction approach allows people to reconstruct according to their needs, strengthen local building capacities and encourage incremental construction allowing for early occupancy.

A multi-faceted support system is vital to effectively carry out an owner-driven reconstruction project.