

Improving early warnings for Nepal's most vulnerable

A case study of the Zurich flood resilience program in Nepal



River boat on the Karnali river, Gulariya, Nepal

"Last year (2013), 2,500 families were directly affected by flooding, and some 500 to 600 houses were destroyed. Yet, since the devastating floods of 2008, no fatalities have been reported thanks to the Early Warning System."

Basant Kumar Kanwajiya, Section Officer, Ministry of Home Affairs, Government of Nepal



Evacuation platform and safe water source in Daulatpur, Karnali, Nepal

Returning to the beginning of our flood resilience program

Zurich first visited Nepal in November 2012 when developing ideas for our flood resilience program. This visit resulted in plans for working with our partners in the country. In the summer of 2014, our team returned to the fertile western lowlands to check on developments. Our visit coincided with the onset of life-giving but hazardous monsoon rains. Being there when the flood danger is high gave us an opportunity to see how the partners in the programs are working together, using their expertise and strengths to cooperate on the ground. We were able to observe first-hand the progress that has been made so far – and the challenges that still remain.

Implementing an early warning system in the Karnali river basin

In Karnali, about two hour's drive from the city of Nepalgunj, a community-based early warning system (EWS) for floods originating in the Karnali highlands is one example of recent, successful improvements. Zurich alliance partner Practical Action, has worked with the Nepalese government's Department of Hydrology and Meteorology to set up the system, which includes a river gauge station manned by an experienced station manager. The gauge station records the Karnali river's levels. When the river rises to predetermined 'amber' or 'red' levels, this activates a series of alerts that are transmitted to authorities, and to communities where the necessary infrastructure, including emergency shelters and equipment, has already been set up as part of the program. People in the communities are trained to respond when they receive an alert. Regular drills ensure everyone knows how to get out of harm's way.

But there is still more to be done. Those living in communities threatened by floods often depend on agriculture and handicrafts for their livelihood. Flood resilience needs to do more than address the immediate danger. It should also contribute to the physical health, financial stability, personal safety and ensure that people can get to market to sell their goods, even during the rainy season.

There are many factors that need to be considered to be able to further help communities in the Karnali river basin. We need to better understand the relationships between flood hazards upstream and how they can affect the river's course during the rainy season by making better use of modern weather forecasting and rainfall-to-runoff models. We need to know more about how dams and construction downstream increase siltation rates and make it harder to grow crops along the river. We also need to find ways to extend the lead time from when a warning is received, preferably from a few hours to a day or two before the onset of a flood. Over the next four years, Practical Action, along with local NGO partners with strong community links, will consider other aspects of flood resilience as they implement the projects in the beautiful and remote lowlands of the Karnali river basin.

Bringing our alliance partners together in the Koshi river basin

The valuable experience gained in Karnali provides a great opportunity to transfer knowledge to provide a similar early warning system along the Koshi river, where the long-term effects of devastating floods in 2008 still cast a shadow over the region. In this area, Practical Action is supporting the Nepalese Red Cross in a project led by the World Bank and the Nepal Risk Reduction Consortium under the 'Flagship 4' initiative (see flagship4.nrrc.org.np for details). We met with those living in these communities to discuss progress on the current project. The work includes vulnerability and capacity analyses, as well as consideration of the challenges still to be faced, potential solutions and how these might be implemented.

One challenge that already has been addressed is in the town of Prakashpur, where two administrative wards – '4' and '5' – are 'split' by a tributary of the Koshi river. Half of each ward is located on the right bank and the other on the left bank. This division between communities makes it more difficult to implement projects in the respective wards, because the people living on the same side of the river feel a greater connection to each other than to people in their own administrative areas across the river. A community disaster management committee has therefore been set up to reflect this, covering the more natural grouping than the official administrative boundaries.



Planting rice outside the town of Tikapur, Karnali, Nepal



Community meeting in Nuklipur, Karnali, Nepal

This situation illustrates the challenges of operating a community-based program where the definition of a community can vary extensively and where the administrative set-up is not always optimal to respond to the challenges that communities are facing.

Zurich's role in these projects

Zurich is contributing its hazard and risk expertise in a number of different ways to enhance flood disaster risk-reduction approaches in the Karnali and Koshi river basins. We have provided a more consistent hazard and risk-based approach to selecting communities to ensure the most vulnerable are included in the program. We have also taken into consideration new approaches that have already been developed in our other country programs in Indonesia, Mexico and Peru to create practical, long-term solutions for flood-affected communities. Among the possible solutions, those harnessing new technologies, while at the same time offering low-cost solutions are especially appealing. The community programs in the Karnali and Koshi river basins will be an important measure of our success in enhancing flood resilience. It will also offer valuable insights for similar projects elsewhere.

The flood resilience program is a key part of Zurich's corporate responsibility strategy. To find out more about our activities, please visit: <http://www.zurich.com/en/corporate-responsibility> or contact us at corporate.responsibility@zurich.com

About the Zurich flood resilience alliance

An increase in severe flooding around the world has focused greater attention on finding practical ways to address flood risk management. In response, Zurich Insurance Group launched a global flood resilience program in 2013. The program aims to advance knowledge, develop robust expertise and design strategies that can be implemented to help communities in developed and developing countries strengthen their resilience to flood risk.

To achieve these objectives, Zurich has entered into a multi-year alliance with the International Federation of Red Cross and Red Crescent Societies, the International Institute for Applied Systems Analysis (IIASA) in Austria, the Wharton Business School's Risk Management and Decision Processes Center (Wharton) in the U.S. and the international development non-governmental organization Practical Action. The alliance builds on the complementary strengths of these institutions. It brings an interdisciplinary approach to flood research, community-based programs and risk expertise with the aim of creating a comprehensive that will help to promote community flood resilience. It seeks to improve the public dialogue around flood resilience, while measuring the success of our efforts and demonstrating the .benefits of pre-event risk reduction, as opposed to post-event disaster relief.

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