

Nepal in the Monsoon – tragedy tinged with hope

Our flood resilience work faced an extreme test in August in Nepal, where some of the worst floods in recent memory led to scores of deaths and displaced thousands of people.

Warning systems put to the test



In July our team of Zurich flood resilience specialists, together with experts from Practical Action, visited communities in the Karnali river basin in western Nepal, an area prone to serious floods. Practical Action is a key part of the Zurich flood resilience alliance and is working to reduce risks and enhance flood early warning systems in this area. We wanted to learn how flood protection there is working.

The Karnali river begins in the southern slopes of the Himalayas and flows south through Nepal to India. Monsoon rains often trigger flash floods and mudslides, posing significant risks. Timely warnings about imminent floods can save lives, and help people in the region to protect their possessions.

Our visit in July included a stop at the Chisapani river gauge station on the Karnali River, where we learned more about the design of early warning systems. Just four weeks after our visit, the Chisapani system and other systems monitoring the Karnali were put to the ultimate test.

The Chisapani gauge

On the night of August 14 into the early hours of August 15, torrential rain caused the Karnali to rise rapidly. At 1 a.m. on the morning of August 15, the river had risen to over nine meters, triggering an ‘amber’ alert. This set off a warning transmitted through a series of cascading telephone calls across the Rajapur area in Bardiya district. Immediately after receiving and reconfirming the message, members of the Community Disaster Management Committees (CDMCs) in at-risk communities in Rajapur sounded sirens. Community leaders began to help people to evacuate and move livestock to safety.

Worst floods in living memory

The flood conditions worsened. Within two hours the river had risen three more meters, prompting the warning station to send a ‘red’ alert. And the water was still rising. An hour later it was significantly above the maximum measure of the gauge at 15 meters, the Karnali’s worst flood in living memory.

People in many communities woke in the middle of the night to find water pouring through their villages. Some were forced to take refuge on the roofs of houses. Inhabitants scrambled to gather as much food and whatever valuables they could. It would have been difficult enough during daylight hours. In the dark it was harder still.

Chisapani station, Nepal

A combination of manual and electronic mechanisms provides alerts when the Karnali river level rises, which in turn allows warnings to be communicated across the districts and communities.

Bardiya and Kailali districts save lives

Following these crucial early warnings, the trails to the flood gauge station in Chisapani became blocked by landslides and torrents making it very hard to provide reliable information to authorities and CDMCs. The official government gauge-reader managed to keep in touch with authorities and communities in both Rajapur and in the neighboring Kailali district. Aware of the danger this situation posed, the area administrator of Rajapur asked the Kailali authorities to mobilize police to open the trail to the river gauge in Chisapani, which they did, re-establishing access to information that helped to save lives.

At least there were no fatalities in Rajapur, even though the devastation was significant. In the communities the shelters were not big enough for everyone. Many people lost homes, food and livestock.



Taking refuge on the roofs of houses as flood waters rise, Karnali, Nepal

Some villages in the Rajapur area were completely flooded. In Chakkhapur, a temple was inundated. There were no fatalities, although one woman was swept five kilometers downstream before she could be rescued from the torrent and taken to safety.

At least in Rajapur, despite problems, the warning system worked. By contrast, in the neighboring Babai River basin (also in the Bardiya district) a critical link seemed to be missing. People in that area got a warning from the river gauge station. But even though the gauge-reader told the authorities about the flood, they failed to grasp how serious the situation was until it was too late. The flood's destructive force came as a surprise. Even 'safe' shelters were inundated. Soon after the flood began, the monitoring station was swept away, preventing any further warnings from getting to communities. Lives were lost and property was destroyed.



Wading through flood waters, Karnali, Nepal

Lessons for the future

The flood's toll was high. Besides over 100 lives lost, across the Bardiya district including Rajapur, about 3,000 families' homes were completely destroyed and over 11,500 more houses were partially damaged, displacing nearly 81,000 people. The neighboring Kailali district faced a similar situation; nearly 1,000 houses were flooded, displacing 5,000 people.

Almost half of the residents affected in Bardiya and Kailali districts live in the Karnali River basin, one of the areas in Zurich and Practical Action's programs. As part of the Zurich flood resilience alliance, Practical Action's team is working to incorporate what we have learned from these latest floods into our efforts in this area. We have gained a better understanding about what works well and where there are still challenges that need to be overcome to make the early warning systems work even better.

The floods that affected Nepal and northern India are tragic but give rise to some hope: they have shown that early warning systems can help to save lives and, to some extent at least, protect property. With a longer lead time and better evacuation stations, the protection level can be increased. One important lesson is that it is of vital importance to protect river gauges not just during 'normal' floods, but also in extreme events.

The intensity of this year's flood underscores the danger of unexpected events and suggests that these extreme floods could become the 'new normal.' If communities are to survive, we need to continue our efforts to better protect those at risk from the devastating impact of floods in the Karnali area. Even when we have to accept a large degree of uncertainty, we still need to ensure that our flood resilience efforts include worst-case scenarios.

To read more about the work Zurich and Practical Action are doing in Nepal, visit <http://knowledge.zurich.com/flood-resilience/case-study-improving-early-warnings-for-nepals-most-vulnerable/>

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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