

# IMPROVED COMMUNITY FLOOD RESILIENCE

## Flood Resilience Programme: Nepal Snapshot 2018–2024

### SUMMARY

Practical Action is working with communities to make resilience a way of life and finding ways to adapt, reduce disaster risks, and thrive by reducing the negative impacts of floods. We share our knowledge and experience of what works with communities, practitioners, and decision-makers.

<b>Title:</b>	Flood Resilience Programme
<b>Programme period:</b>	2018–2024 (phase II)
<b>Locations:</b>	Bardiya and Kailali Districts
<b>Implementing partner:</b>	Centre for Social Development and Research (CSDR), Bheri Environmental Excellence (BEE) Group, and Ujjyalo Multipurpose Cooperative.
<b>Participants:</b>	18,680 (Direct) from 25 communities and 281,375 (Indirect) from five local governments
<b>Donor:</b>	Z Zurich Foundation and InsuResilience Solutions Fund (ISF)

**Zurich Flood Resilience Alliance Partners:** Concern Worldwide, the International Federation of Red Cross and Red Crescent Societies (IFRC), the International Institute for Applied Systems Analysis (IIASA), the Institute for Social and Environmental Transition (ISET-International), London School of Economics (LSE), Mercy Corps, Plan International, Practical Action, and Zurich Insurance Group.



### BACKGROUND

Floods affect more people globally than any other natural hazard and cause the largest economic, social, and humanitarian losses. Climate change combined with population growth, urbanization, and economic development will only make flooding worse (IPCC, 2018).

Practical Action has been a member of the award-winning Zurich Flood Resilience Alliance since 2013. Following the success of our work within the Alliance, other funding and research partners are now supporting our Flood Resilience Programme.

Between 2010–2019,  
floods impacted more than

**673M  
PEOPLE**

(EM-DAT, 2020)



## CONTEXT



Damaged approach section of a bridge in Phanta by the flood in September 2022.

Nepal normally experiences monsoon-induced flooding every year between June and September. However, the monsoon season now regularly extends through to October, and the magnitude of the floods has also increased, which is often linked with the impact of climate change. The country's diverse topography and insufficient infrastructure amplify the impact of intense rainfall, leading to riverine flooding in vulnerable areas, particularly in the Terai region. Recurrent threats to lives, homes, and critical infrastructure underscore the need for ongoing efforts to protect the development achieved in these vulnerable communities and regions and reduce future losses through effective disaster risk reduction, early warning systems, and sustainable land use specifically designed to reduce the cyclical impact of this phenomenon. We worked directly with communities and governments to improve resilience to flooding and other climate hazards at all levels.

## APPROACH

We work towards the three key objectives of the flood resilience programme: increasing flood resilience knowledge and actions of communities to make them more flood resilient, increasing flood resilience investment by local municipal governments, and improving plans and policies at the national/sub-national level for flood resilience. The programme applies the system thinking principles embedded in the [Flood Resilience Measurement for Communities \(FRMC\) tool](#). The FRMC tool is applied to collect data and assess the resilience of communities. The tool guides us in selecting suitable resilience-building actions in the communities we work with and for. The tool helps us to measure community resilience through 44 indicators 'sources of resilience', and to examine the findings through various lenses, including the 5C-4R framework, (the 5Cs/capitals: human, social, physical, natural, and financial, and the 4Rs: robustness, redundancy, resourcefulness, and rapidity) and the disaster risk management cycle lens with five phases- preparedness, response, recovery, prospective risk reduction, and corrective risk reduction.

## PROGRAMME IMPACT



Training on FRMC Framework and tools for staff and practitioners, organized in September 2021 in Mahendranagar, Kanchanpur.

### Introduction of Index-Based Flood Insurance (IBFI)

To address the impact of floods at the community level, an Index-Based Flood Insurance (IBFI) was introduced as a risk transfer mechanism. The initiative involved raising awareness of flood insurance among residents by distributing informational materials such as brochures and organizing awareness activities. Collaboration with national authorities was established to approve policies related to index-based insurance. Additionally, partnerships with national-level insurance companies were formed to endorse index-based insurance in specific areas. To ensure effective implementation, local cooperatives received training for digital administration of insurance, facilitating the linkage of local individuals to insurance companies through these cooperatives as aggregator and group policy holder on behalf of farmers. As a result, 4,564 households purchased insurance policies through 46 cooperatives, providing a localized and community-driven approach to flood risk transfer.

# 281,375

 People benefited

# 4,564

 Households benefitting from IBFI policy

# 46

 Local cooperatives enrolled in an IBFI

### Resilient Development Practices

The programme committed for climate smart risk-informed development addressing disaster risk reduction, climate change adaptation, and development together. In 25 communities across the programme municipalities, the programme strengthened 17 evacuation routes with flood-resilient culverts, facilitating efficient evacuation pre-, during, and post-disaster. Flood mitigation efforts involved widening and concrete lining in 13 drainage/irrigation systems to prevent water intrusion

# 50

 Interventions constructed



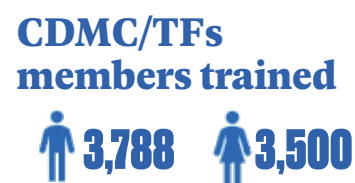
Reinforced concrete wall lining was introduced as a measure to avoid flood intrusion into communities in Sonaha, Geruwa Municipality.

into communities. To avert disastrous floods, livelihoods were fortified by establishing irrigation facilities and agricultural irrigation canals. Three safe shelters were constructed, two were repaired, and solar lights were installed in eleven. Six raised handpumps were constructed, and 10 were maintained to ensure water availability even during floods, safeguarding communities against the detrimental impacts of a disaster. Three bio-dykes as nature-based solutions protected the communities from the flood.



### Knowledge and Capacity Building

Regular simulations and drills were conducted at the grassroots level in five municipalities, strengthening community response capability. Extensive disaster risk management and flood response training empowered local responders and cooperatives working on IBFI. Community Disaster Management Committees (CDMCs) and locally formed task forces (first aid, light search and rescue, early warning system, and women volunteer) have been formed in each community. Such committees along with five schools were supported through drills, meetings, specialized capacity building, and knowledge enhancement activities. The programme's multifaceted approach disseminated vital knowledge and fortified the local capacity to tackle disasters, creating a resilient and well-prepared community.



Provincial workshop on flood early warning system organized in June 2022, in Dhangadhi, Kailali.

### Equipped Plans and Policies and Support to Emergency Operation Centres

The programme supported local governments (LGs) prepare for disaster risks in two ways. First, it worked with them to create plans and policies, like the Local Disaster and Climate Resilience Plan (LDCRP) for three LGs, the Disaster Preparedness and Response Plan (DPRP) for two LGs, the Strategic Action Plan for Disaster Risk Reduction and Management for two LGs, and multi-hazard early warning system strategic action plan for the Sudurpaschim province. Second, the programme ensured the emergency operation centres in the Sudurpaschim province, Kailali and Bardiya districts and five local levels had the right tools, like equipment for search and rescue and first aid. In addition, early warning systems for floods were strengthened in Aurahi river by installing two automatic rainfall stations and a flood gauge station to better inform local people about the flood hazard risk.

2022



### Increased Public and Private Investment

The programme effectively boosted public and private investment to achieve flood resilience success by fostering local government collaboration across 10 interventions. The initiative effectively encouraged local governments to co-finance the mitigation activities, ensuring heightened accountability for the outputs of such activities. Additionally, the programme engaged local communities, utilizing their skills in construction-related activities, thus fostering a sense of ownership and commitment. Through this collaborative approach, the programme increased financial support and promoted active community participation, contributing to the overall success of the endeavour. Through index-based insurance, we have created a business for an insurance company as insurers benefitting the flood-impacted farmers.



2023

A year after the construction of bio-dyke in Pharela community in Janaki Rural Municipality.





Mangali Tharu, a farmer from Kailali district with her raised nursery.

## Improved Livelihood

Training on diversified livelihoods equipped at least 500 individuals with essential skills in different trades, and more than 75% of the same households are now generating income through diverse livelihood opportunities. Farmers received support in constructing elevated facilities, including raised nurseries and granaries in 19 households, constructing/maintaining six raised handpumps, and enhancing access to safe drinking water through 25 shallow irrigation facilities, achieving livelihood resilience through increased productivity and irrigation capabilities even during the dry season. Implementation of flood mitigation measures has safeguarded agriculture from the destructive impacts of floods. Additionally, introducing innovative insurance schemes has minimized the economic fallout from unforeseen disasters. Notably, the programme contributed to sustainable livelihoods by upgrading one of the local markets (Haat Bazaar) and fostering economic growth.

## Programme's Engagement

The programme strategically harnessed media engagement through Media Fellowship to communicate impacts of project intervention in communities. Three local radio stations and online media provided further coverage, ensuring the programme's activities reached a wider audience. In addition, jingles are regularly broadcasted as an activity to promote disaster preparedness before the monsoon and cold wave. In 2023, the programme highlighted its achievements by showcasing impactful outcomes to national stakeholders at the National Conference on Disaster Risk Reduction. The programme has a regular presence in national- and provincial-level discussions, dialogues, and conferences.

## Resources

Sample of media fellowship reports related to the programme:

Article on how SMS-based early warning system saves lives of people, [Fellowship Report 1](#)

Story of flood vulnerable communities, [Fellowship Report 2](#)

IBFI product to compensate for the loss in crops, [Fellowship Report 3](#)

### More publications:

Zurich Flood Resilience Programme in Nepal (Video), [Link](#)

Impact through collaboration: ten years of the Alliance in Nepal, [Link](#)

Article on the introduction of innovative Index Based Flood Insurance (IBFI) in Lower Karnali, [Link](#)

Solution brief on the innovative raised nursery and raised granary, [Link](#)



## Links to further resources



## For more information, visit:

[practicalaction.org/our-work/projects/flood-resilience-programme/](https://practicalaction.org/our-work/projects/flood-resilience-programme/)

[www.floodresilience.net](http://www.floodresilience.net)

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## Flood Resilience Measurement for Communities

As a key partner in the Zurich Flood Resilience Alliance, Practical Action has pioneered the use of an innovative, inclusive, action-research approach: the [Flood Resilience Measurement for Communities](#). By generating robust evidence to illustrate community resilience, Practical Action's Flood Resilience Programme has attracted donors and support from a variety of sources to deliver meaningful change for the people we work with and for.



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