



CBFEWS at a transboundary pilot site on the Nepal–India border

Bhutan | Water | National Centre for Hydrology and Meteorology | Project status: Exploratory | National hydrology agencies and citizens in urban centers

Community-Based Flood Early Warning System

01

Climate risk

Floods account for **one-third of all reported disasters** in the HKH, contributing to **over USD 6 billion** in losses in 2024 alone.

Bhutan faces higher annual rainfall and more intense precipitation, raising flood exposure of urban centers and infrastructure.

02

Adaptation investment

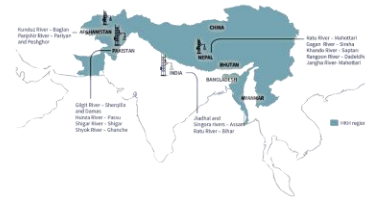
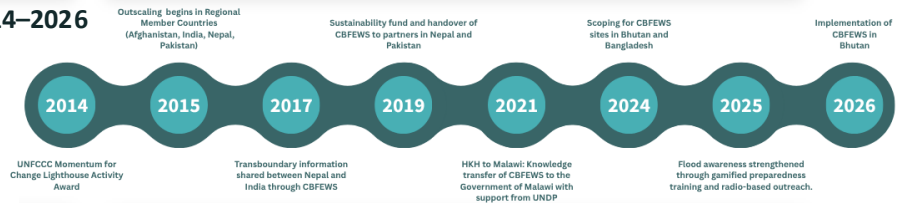
Flood protection needs already equal one-third of Bhutan's total climate mitigation cost. Priority investments:

- urban flood risk reduction in Thimphu, Gasa, Haa and Gelephu
- national guidelines for flood-resilient adaptation
- early warning systems in flood hotspots

CBFEWS links upstream monitoring to downstream action; community ownership ensures long-term sustainability.

CBFEWS scaling pathway, 2014–2026

Cost approx.
USD 30,000-50,000
per unit (depending on popn support)



03

Resilience outcomes and transformational impact

By 2030, all major urban centers will have integrated flood response plans, including:

- flood modelling of impacts on key infrastructure
- early warning systems reinforced by nature-based solutions
- impact-based forecasting capabilities

04

Investment case

What investing in EWS delivers:

10:1
RETURN ON INVESTMENT

30%
DAMAGE REDUCTION WITH 24-HOUR WARNING

23,000
LIVES POTENTIALLY SAVED ANNUALLY

With government partners mobilising climate finance, CBFEWS scales into integrated flood risk management for vulnerable urban centers across Bhutan.

KEY TAKEAWAY: Bhutan can scale a proven community-based model into an integrated flood risk system, protecting national assets by 2030.