



Emergency preparedness and response in Bhutan

Hazard overview

Bhutan is located in one of the most seismically active zones in the world. The country is also highly prone to floods, forest fires, landslides, urban fires, and glacial lake outburst floods (GLOFs). The risks imposed by these hazards are intensified by the climate crisis. The COVID-19 pandemic added to the risks, challenging the sustainability of development gains made so far.

Focus and partners

WFP Bhutan's country strategic plan (2024-2028) identifies enhancing resilience to natural disasters and climate crisis as a key focus area. To develop stronger national resilience to disasters and the climate crisis, WFP supports the Royal Government of Bhutan's emergency preparedness and response (EPR) initiatives in governance and coordination, data preparedness, logistics, emergency telecommunications, and food and nutrition security, in collaboration with frontline agencies like the Department of Local Governance and Disaster Management (DLGDM), *De-Suung* (national service volunteers) and the Royal Bhutan Police.

Governance and coordination

WFP, in collaboration with DLGDM, updated the disaster management contingency plans at national and district levels and organized disaster simulation exercises. The simulation exercises helped identify gaps, strengthen contingency plan implementation and enhance the capacity of first responders. WFP support to DLGDM has standardized incident reporting form, which will mitigate duplication and errors and contribute to an effective emergency response.

To strengthen governance and coordination, WFP has supported the *De-Suung* to establish four strategic emergency coordination hubs in Thimphu. The hubs will serve as coordination centres and food distribution points during

emergencies. WFP has also supported the *De-Suung* to develop an EPR strategy, which outlines a roadmap for effective emergency response for the agency. In late 2023, WFP, in partnership with UNDP and the global logistics company DHL, initiated a *Getting Airports Ready for Disasters* programme for Paro International Airport. The initiative will equip the airport for disaster relief surges during a disaster event by enhancing the capacity of national authorities such as the Department of Air Transport and Bhutan Civil Aviation Authority.

72-hour rapid assessment approach

WFP established a digital vulnerability database as part of its support to the Government in implementing a 72-hour rapid assessment approach. The database, which has critical information on demographics, poverty, food insecurity, building typology, access to roads and drinking water, and household literacy, will help estimate the likely impact of a disaster and enable a response within 72 hours. The 72-hour approach offers a basis to make operational decisions, even in complex situations with up-to-date information. A rapid assessment form will be used as part of the approach.

Drone technology and remote sensing

Globally, WFP is increasingly using technology and innovation as a part of its strategy to end hunger by 2030. In Bhutan, drones are used by



frontline agencies to monitor glacial lakes, map forest fires, for search and rescue, and for disaster-impact analysis. WFP, in partnership with DLGDM, provided two trainings on the use of drones for EPR to strengthen the capacity of frontline agencies. WFP will also be supporting the Disaster Communication Helpline Unit in strengthening the capacity of frontliners in drone usage. These initiatives represent WFP's commitment to enhancing local capacities through innovative technologies, fostering a robust and efficient approach to addressing humanitarian needs and monitoring climate change impacts in the country.

Earthquake impact assessment modelling

Populations living in the Himalayan region are highly at risk for major earthquake disasters. To strengthen earthquake preparedness, WFP partnered with the Universities of Durham and Newcastle, UK, in 2020 to develop an impact assessment modelling of earthquakes for Bhutan.

The modelling presents quantifiable earthquake impacts for 110 possible scenarios, including the numbers of fatalities, casualties, and displaced persons. In Bhutan's worst-case scenario, an earthquake with a magnitude of 7.5 on the Richter scale may result in 9,000 fatalities, 10,000 people with serious injuries, and 45,000 people displaced countrywide. There are five different scenarios in which over 5,000 fatalities occur.

Glacial lakes outburst flood research

According to climate projections, the mean annual temperature in Bhutan will increase by 0.8 – 1°Celsius by 2039. This will increase the risk of climate crisis related disasters, such as GLOFs, with the potential to undermine the country's resilience and ability to safeguard lives, livelihoods, and development progress. Bhutan is particularly vulnerable to GLOFs, as its population and hydropower infrastructure are largely concentrated downstream.

WFP partnered with the Universities of Newcastle Durham, U.K., in 2019 on GLOF modelling for early warning. With 567 glacial lakes in Bhutan, the probability of a GLOF occurrence in Bhutan is very high. WFP aims to identify potential triggers and undertake quantifiable modelling to

translate the GLOF hazards into downstream flood risks. This research will provide vital information to support early warning and prevention activities. It will also complement the 72-hour approach and digital vulnerability database.

Emergency telecommunications (ETC)

WFP supports Bhutan's developing ETC sector through active engagement with DLGDM and the Disaster Communication Helpline Unit. In 2023, WFP carried out a comprehensive assessment of Bhutan's ETC sector and DCHU.

The findings, which recommended the development of an enhanced technical approach and improved resource utilization, serve as a foundation for collaborative efforts by WFP and partners to address identified challenges in EPR capacity. Key recommendations included the development of an EPR strategy for DCHU and the skills development of DCHU personnel in deploying VHF (very high frequency) and HF (high frequency) radio technology. WFP provided two repeaters to DCHU, which are vital for amplifying the communication capabilities of the Government and the UN for effective disaster response.

Emergency logistics and food security

In Bhutan, WFP supports the strengthening of EPR through emergency logistics preparedness. Coordination hubs are designated as distribution points for emergency food and nutrition assistance. In collaboration with the Ministry of Agriculture and Livestock, and the Food Corporation of Bhutan Limited, WFP will provide warehouse management and inventory systems training for *De-Suung* personnel. This strategic partnership ensures a robust and coordinated approach to addressing food and nutrition insecurity during emergencies and strengthening Bhutan's resilience to climate-related and other shocks. WFP has also provided mobile storage units to DCHU and *De-Suung* for the positioning of emergency response items. For emergency preparedness, WFP supported the logistics working group in developing the national logistics operation manual for disaster, including agency-specific manuals for key stakeholders.

