

WFP
World Food Programme

SAVING LIVES
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Emergency preparedness and response in Bhutan

Hazard overview

Bhutan is located in one of the most seismically active zones in the world. In addition, it is highly prone to floods, forest fires, landslides, urban fires, and glacial lake outburst floods (GLOF). 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 (2019-2023) 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 five areas of governance and coordination, data preparedness, logistics, emergency telecommunications, and food security.

Governance and coordination

To enhance governance and coordination in EPR, WFP and government finalized the Roadmap for Disaster Risk Management in Bhutan (2022-2026). The roadmap comprises Bhutan's hazard profile, national preparedness level, and actions to strengthen the government's disaster risk reduction framework, systems, and institutional coordination. It also mainstreams disaster risk reduction in development planning, budgeting, and implementation to enhance national disaster preparedness and response capacity. WFP, with Department of Local Governance and Disaster Management (DLGDM), carried out simulation exercises and revised the Disaster Management Contingency Plans (DMCP) at the national and district levels. These exercises help understand current gaps, identify areas for strengthening implementation of DMCPs, and aim to strengthen the capacity of first responders.

72-hour rapid assessment approach

To strengthen data preparedness, WFP supports the government in the 72-hour rapid assessment approach, and establishing a digital vulnerability database. This assistance will help estimate the likely impact of a disaster and enable a response within 72 hours.

A pre-disaster vulnerability index was completed at the third-level administrative division of Bhutan. The 72-hour approach provides critical information based on a pre-disaster vulnerability database that includes information on building typology, demographics, poverty, food insecurity, access to roads, drinking water, and household literacy. This is combined with data from previous disasters, such as the 2009 earthquake in Bhutan. The 72-hour approach offers a basis to make operational decisions, even in extremely complex situations with information refined through continuous updates.

WFP and DLGDM are currently upgrading the 72-hour approach using WFP's platform for real-time impact and situation monitoring (PRISM). PRISM automatizes the 72-hour approach, utilizes data from existing systems and overlays information from satellites, drones, and other data systems to enhance disaster impact analysis and facilitate a rapid lifesaving response.

Drone technology and remote sensing

As part of WFP's capacity strengthening assistance to the government, WFP provided

Contact Information: Carrie Morrison, Country Director (carrie.morrison@wfp.org)
Further Information: www.wfp.org/countries/bhutan
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two trainings in 2021 and 2022 on the use of drones for humanitarian response and climate change monitoring for government agencies and development partners. The trainings covered subjects such as drone technology and their use for impact assessments and mapping, including glacial mapping, data analysis and image processing, drone policies and regulations, and drone flying.

Earthquake impact assessment modelling

Populations living in the Himalayan region are the most at-risk for major earthquake disasters. To strengthen earthquake data 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 8.5 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.

WFP and DLGDM are working with national partners to identify earthquake preparedness and mitigation for public order, food security, health, logistics, WASH, housing, emergency telecommunications, power, and energy. Measures were identified, such as reinforcing buildings and prepositioning of water, food, and health supplies to remote areas to save lives and livelihoods, and building stronger national earthquake resilience. A national multiple hazard disaster simulation exercise will further elaborate on the gaps identified in the country's disaster preparedness and response level.

Glacial lakes outburst flood (GLOF) research

According to climate projections, the mean annual temperature in Bhutan will increase by 0.8 – 1°Celcius 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.

In 2019, WFP partnered with Newcastle University and Durham University 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 feed into the 72-hour approach and digital vulnerability database.

Emergency tele-communications

Through leadership in the emergency tele-communication (ETC) working group, WFP works with partners to further strengthen the ETC sector. In 2019, WFP undertook an information and communications technology capacity assessment that identified priority actions that would ensure continuity of tele-communications during an emergency. Based on the findings, WFP, the government, and development partners developed an ETC preparedness and response action plan.

WFP supports capacity development in emergency mobility and communication by strengthening the coordination capacity and communication platforms of frontline personnel. This includes equipping response hubs in the capital of Thimphu with appropriate communication materials. WFP provided two repeaters to the Disaster Communication Helpline Unit and supported the development of standard operating procedures for an effective disaster response.

Food security

In 2020, WFP supported the government on food security preparedness and response with the COVID-19 pandemic. This included assistance to the development of a National Food Security Emergency Action Plan for COVID-19, and development of standard operating procedures for targeting and food distribution. WFP also supported the government and private partners on the management of food safety and quality assurance to enhance country's National Food Security Reserve.

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