



World Food Programme

SAVING  
LIVES  
CHANGING  
LIVES

## WFP EVALUATION

# IMPACT OF ANTICIPATORY ACTION FOR FLOODS IN NEPAL

Over the past 20 years, extreme weather events have become more frequent, with floods affecting at least 1.65 billion people worldwide, hitting poorer households the hardest.

**Anticipatory Action**, also known as **Forecast-based Financing**, uses forecasts to trigger assistance before flood peaks, potentially reducing their impact. This innovative approach can strengthen preparedness and resilience.

WFP launched its anticipatory action efforts in 2015 and has since expanded, reaching 4.1 million people across 36 countries in 2023.

For the 2022 monsoon season, WFP was prepared to assist 12,500 vulnerable households in Nepal's western Karnali river basin (Kailali and Bardiya districts). Given that acting early requires a trade-off between speed and precision, the WFP Nepal country office reached out to WFP's Office of Evaluation (OEV) to conduct a rigorous impact evaluation. In a randomized trial, OEV, with the World Bank's Development Impact department (DIME), compared the impacts of early (anticipatory) cash transfers with transfers sent after the flood.

In [October 2022](#), flood triggers were activated three days before severe flooding hit the area. Support included early-warning messages and a one-time unconditional cash transfer of US\$117.

The response was coordinated by the UN Office for the Coordination of Humanitarian Affairs (OCHA) and funded by the UN Central Emergency Response Fund (CERF).

## KEY EVIDENCE 🔑

The study compared two groups in a randomized trial: a group receiving early assistance based on the forecast triggers (anticipatory action), and a group receiving later assistance, after the flood peak subsided (the "post-shock" group).

The evaluation found clear benefits of anticipatory cash transfers. In the short-term, households that received cash early, consumed more food (especially animal protein), had better food security, used fewer negative coping strategies, and reported improved mental health. Food consumption scores (FCS) were 6 percent higher for those who received cash early, than those who received it after the flood. Negative coping strategies also decreased. In the short-term, 19 percent fewer households relied on less preferred food, and 25 percent fewer households relied on borrowing food. Mental health improved as well. Early transfers reduced measures of anxiety and depression by 3 percent, three to four weeks after the flood.

As the post-shock group recipients also received cash, the initial gains for the anticipatory action group diminished over time. However, households in the anticipatory action group maintained similar or better outcomes indicating the overall net benefit of anticipatory action.

READ  
THE FULL  
REPORT



April 2025



WFP/Srawan Shrestha

## KEY FINDINGS

**1** What is the impact of providing anticipatory humanitarian assistance in the form of an unconditional cash transfers ahead of a severe flooding event (based on pre-defined forecast triggers) on food security, coping, and psychological well-being?



### Food security

Households receiving early cash (the anticipatory action group) showed significantly better food security immediately after the floods. They also bought more protein rich food.

While the initial boost in food security subsequently faded by the second round of data collection, increased meat consumption persisted across all three rounds.

In the longer-run, there were no significant difference on both food, and non-food consumption and expenditures.



### Coping

Although both groups reported resorting to negative coping strategies immediately after the floods, the anticipatory action group was significantly less likely to resort to negative coping strategies such as reducing or skipping meals, borrowing, or selling assets. However, the impact on coping strategies was short-term, and disappeared by the second data collection round.



### Mental health

Compared to the post-shock group, anticipatory action recipients had lower anxiety (2 percentage points, or 9 percent reduction) and lower depression (3 percentage points). They also reported higher subjective well-being. The findings suggest the benefits of anticipatory action transfers in mitigating negative mental health impacts after natural hazards. However, these differential effects on mental well-being diminished over time, after the second group also received the transfer.

**2** How does providing anticipatory (unconditional) cash transfers impact agricultural and financial outcomes?



Early cash transfers had significant effects for **agricultural outcomes**, but only for the sub-group of households who were most flood-affected.

There were no impacts on other measures of livelihoods and **financial outcomes**.

**3** What is the impact of providing anticipatory cash transfers ahead of severe floods on migration?



The evaluation did not find any statistically significant impacts on **migration**.



# KEY CONSIDERATIONS

## 1 OPTIMIZE CASH TRANSFER DELIVERY.

50 percent of programme recipients in the anticipatory action group received funds within six days of peak flooding. While this is significantly faster than standard humanitarian responses, delivering assistance even earlier could further enhance outcomes.

Additionally, strengthening the remittance agent network, exploring digital payment solutions, and gathering more data on market functionality would further improve programme effectiveness and accessibility, particularly in hard-to-reach areas.

## 2 IMPROVE TARGETING AND PRIORITIZATION.

To enhance the effectiveness of anticipatory action, targeting should focus on two key household groups:

- Those most vulnerable to floods and
- Those whose livelihoods are significantly impacted

Currently, community nomination methods lack re-verification for households that are not selected, which may result in the underrepresentation of highly vulnerable individuals.

## 3 ADD PROGRAMME COMPONENTS TO ENHANCE SUSTAINED RECOVERY.

UCT and FFA have their respective merits given the objectives they were each set out to accomplish. Based on data from two years of programming, we cannot yet say which of these is more cost-effective in the long run. A follow up survey would help understand whether higher implementation costs from FFA are offset by more sustained impacts, following the increased agricultural production caused by FFA.

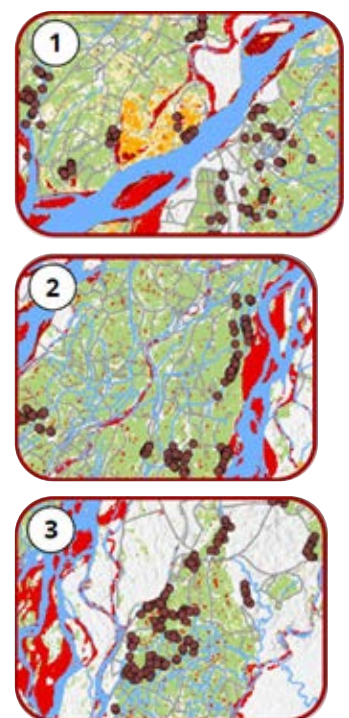
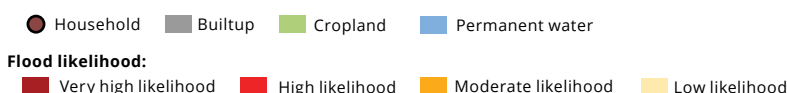
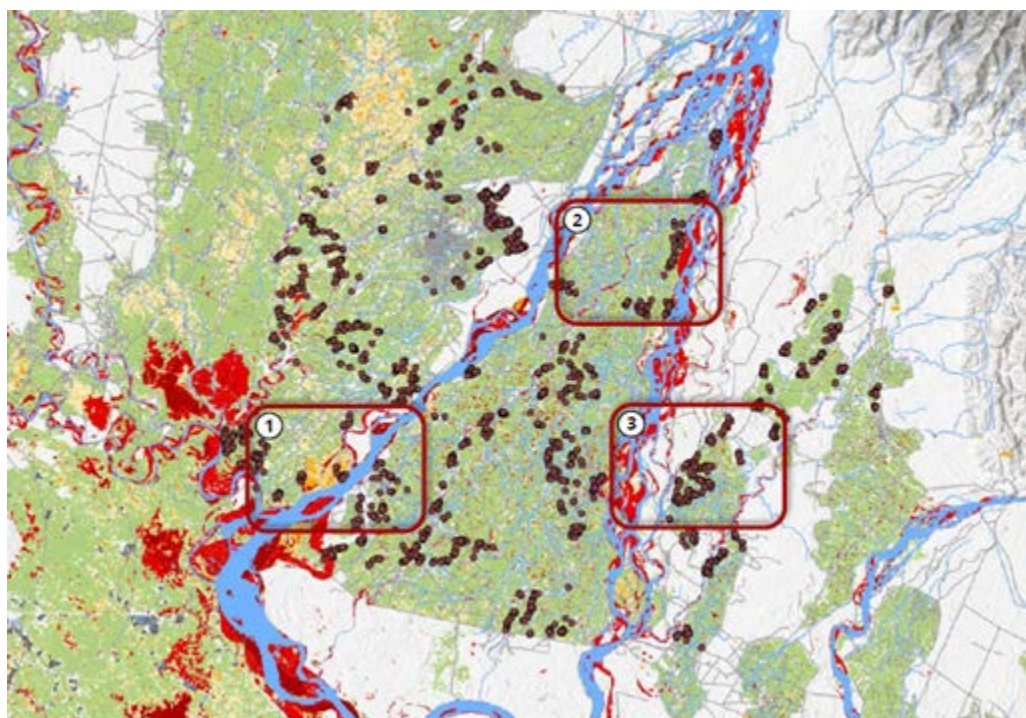
## 4 STRENGTHEN FORECASTING CAPACITY TO INCREASE LEAD TIME AND PRECISION FOR ANTICIPATORY ACTION RESPONSES.

Further enhancing forecasting capacity could potentially extend anticipatory action response lead times (currently between three days to three hours), thereby speeding up transfers.

Strengthening transboundary data-sharing with India, China, and Bangladesh could further refine predictions by leveraging shared meteorological and hydrological data. Additionally, leveraging the advancements in artificial intelligence and machine learning to enable the development of localized triggers, could allow for faster and more accurate humanitarian responses.

## 5 ENSURE SYSTEMATIC COLLECTION OF COST DATA FOR COST-EFFECTIVENESS ANALYSIS.

Cost-effectiveness analysis requires meticulous collection of granular costing data, capturing all relevant aspects of the anticipatory action programme, including support from headquarters and regional bureaux. A comprehensive approach ensures accurate cost analysis, providing valuable insights for informed decision-making on the scalability and sustainability of interventions.

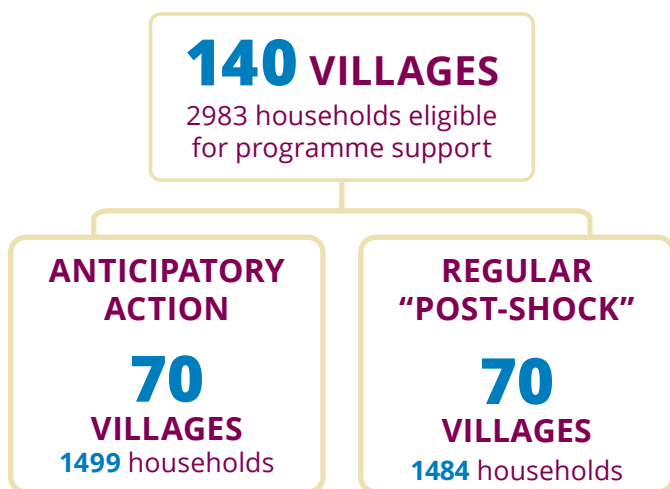


Source: WFP Asset Impact Monitoring System (AIMS), 2024

# EVALUATION DESIGN

The impact evaluation used a cluster randomized controlled trial (design, where 140 medium-sized settlements (incl. ca 3000 households) in the Karnali basin were randomly allocated to one of two following intervention groups.

- **70 VILLAGES - GROUP A: ANTICIPATORY ACTION GROUP:** receiving support as early as possible based on immediate flood triggers.
- **70 VILLAGES - GROUP B: REGULAR POST-SHOCK GROUP:** receiving support in accordance with regular WFP procedures, within ca. 1-2 months after the flood peak.



The one-time transfer for both groups was the same, valued at NRS 15,000 (approximately 117 USD). It was issued via remittance agents.

Given the humanitarian context, there was no “pure” control group (a group that does not receive any support), and instead both groups received a cash transfer. (The remaining 9500 non-study households all received the anticipatory action assistance.).

Due to political instability, two of the 140 sampled villages were dropped after randomization, resulting in a final sample of 138 villages – 68 in the anticipatory action group and 70 in the post-shock group.

# IMPACT MEASUREMENT STRATEGY

Due to cost constraints and uncertainty about flooding occurrence and locations, no dedicated baseline data was collected. Instead, the impact evaluation used WFP’s targeting database as a baseline, with follow-up panel data gathered in three rounds.

Each study settlement contained a range 8 to 70 transfer-eligible households (with an average of 30 transfer-eligible households). Households were (randomly) sampled proportional to village size, with an average of 20 sampled per village and five additional replacements. In villages with fewer than 20 households, all were included in the impact evaluation sample.

In addition to the quantitative data collection, the impact evaluation employed qualitative data gathering, in the form of focus group discussions to obtain perspectives of beneficiaries from both intervention arms.

## CLIMATE AND RESILIENCE IMPACT EVALUATION WINDOW

This impact evaluation is part of WFP’s Climate and Resilience Impact Evaluation Window, created by the WFP Office of Evaluation, the Climate and Resilience Division, in partnership with the World Bank’s Development Impact (DIME) department. It also forms part of the cross-window Humanitarian Workstream, focussed on [optimizing humanitarian interventions through impact evaluations](#).

**WFP EVALUATION** in partnership with



 [wfp.org/independent-evaluation](https://wfp.org/independent-evaluation)

 [wfp.evaluation@wfp.org](mailto:wfp.evaluation@wfp.org)

 @WFP\_Evaluation

 Via Cesare Giulio Viola 68/70, 00148 Rome, Italy


 T +39 06 65131

 Photo credits: WFP/Srawan Shrestha