

ANTICIPATORY CRISIS FINANCING AND ACTION: CONCEPTS, INITIATIVES, AND EVIDENCE



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● CONTENTS

About this paper	4
Section 1: Concepts and initiatives	5
What is anticipatory action?	6
Anticipatory action requirements	7
Summary of initiatives and financing mechanisms	7
Section 2: Evidence	9
What type of evidence is there?	10
Data and evidence gaps	12
What does the evidence say?	13
Enhanced effectiveness of disaster preparedness and response through anticipatory action	13
Reduced disaster impacts on households from early action before crises become acute	14
Mitigating the impact of drought on agricultural production	14
Protecting pastoralist livelihoods	14
Mitigating the impact of floods and waterborne disease	15
Conclusions and next steps	16
References	17

● ABOUT THIS PAPER

This paper outlines the current state of anticipatory action and discusses some of the existing evidence on its impact. It is not intended to provide a comprehensive literature review or a meta-analysis of the impacts of early warning or early action initiatives. Rather, it presents some examples of different types of impact associated with a range of anticipatory action in developing countries. This is in recognition of the diversity of anticipatory action mechanisms and variety of activities being implemented in different contexts, as well as the range of studies that have been carried out focusing on different outcomes. The paper also highlights evidence gaps and points out some of the methodological challenges in measuring impact.

Relevant studies were identified through keyword searches in Google and Google Scholar. Further published and unpublished documents were provided by organisations implementing and supporting anticipatory action, including the Start Network, the Red Cross Red Crescent Climate Centre, World Food Programme (WFP), Food and Agriculture Organization (FAO), Save the Children and the Centre for Disaster Protection. Building on this initial screening of the literature, reference tracing was used to select additional studies. A total of 22 documents form the basis of this paper, although we recognise that there is a larger body of literature on the impact of early warning systems and of preparedness more broadly. These studies are not included here to keep the scope manageable and because much of the literature on the returns from investing in early warning systems focuses on high-income countries or regions.

CONCEPTS AND INITIATIVES

SECTION 1



At their peak the flood waters were up to 20 feet deep in Pakistan's Sindh province in August 2010. Image: DFID/Vicki Francis

● WHAT IS ANTICIPATORY ACTION?

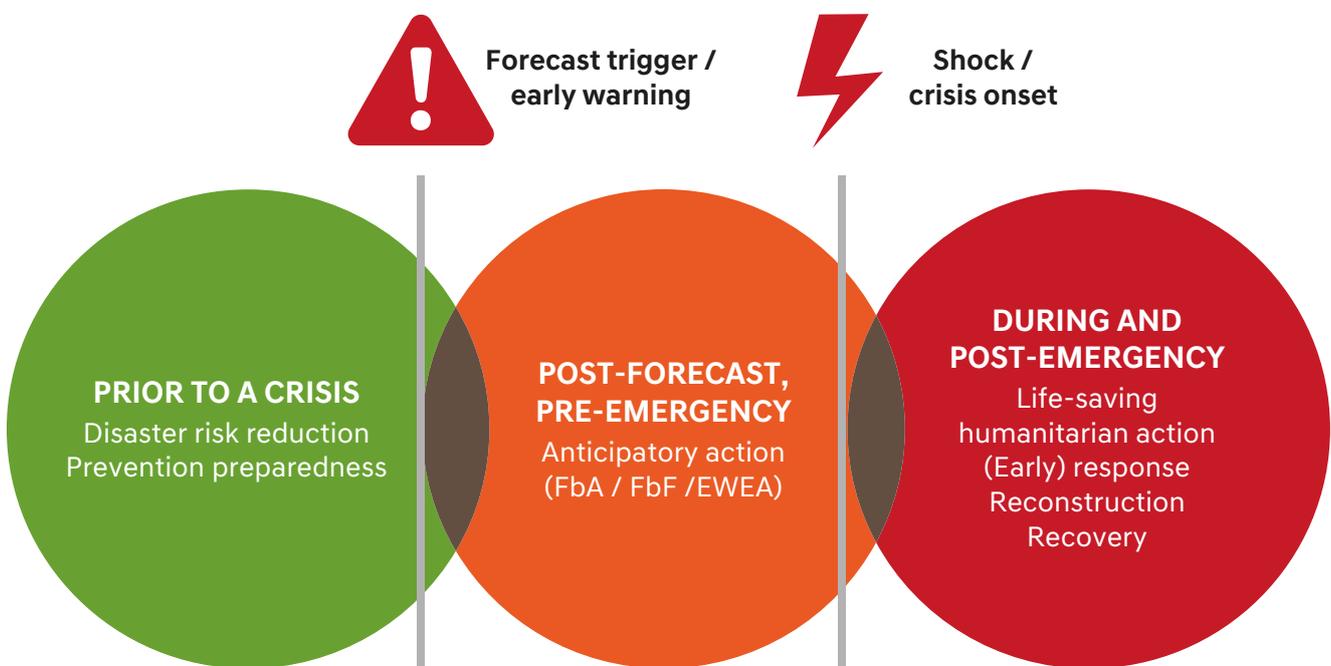
Forecast-based financing (FbF), forecast-based action (FbA), early warning early action (EWEA) and other anticipatory action approaches are gaining increasing traction with donors, humanitarian agencies, and disaster risk managers as mechanisms for providing critical support to at-risk communities before disasters occur. These anticipatory actions are aimed at reducing or mitigating the impact of disasters and enhancing post-disaster response, using forecasts or early warnings of imminent shock or stress.

Anticipatory action can help save lives, reduce human suffering, offset some of the economic impacts of disasters, improve the effectiveness of emergency

preparedness, response and recovery efforts, and reduce reliance on ad hoc, slow and costly humanitarian aid after a disaster.

Acting early intuitively makes sense. As evidence on the effectiveness of anticipatory action increases, forecasts and early warning systems improve and many crises are recurrent and predictable, there is also a moral imperative to do so.

Figure 1: Anticipatory action along disaster timelines



Source: Adapted from Pichon (2019)

With new ‘anticipatory’ or ‘early’ action initiatives, new concepts and language have proliferated. A recent inter-institutional initiative between the Centre for Disaster Protection, the Red Cross Red Crescent Climate Centre, the UN Office for the Coordination of Humanitarian Affairs (OCHA) and the Forecasts for Anticipatory

Humanitarian Action (FATHUM) project aims to facilitate mutual understanding in the emerging field by reflecting on similarities and differences in how terms are defined and used across organisations (De Wit, 2019).

● ANTICIPATORY ACTION REQUIREMENTS

Anticipatory action requires pre-determined (1) forecasts, triggers and decision-making protocols, (2) timed and planned early actions, (3) financing mechanisms and (4) delivery channels. Anticipatory action planning relies on risk information, specifically: hazard forecasts; vulnerability and exposure data; and records of impacts from past emergencies. Ideally, this information is used to determine trigger levels, inform the selection of suitable actions and help target these actions to reach those most vulnerable to disaster impacts. Reliable, accurate forecasts may be available several months, weeks or days in advance of an event, depending on the hazard.

To be effective, anticipatory action requires establishing and maintaining systems as well as capacity to implement. This means, more investment in preparedness and integration of early action plans or protocols with processes for preparedness and (early) response at national and local levels are needed.

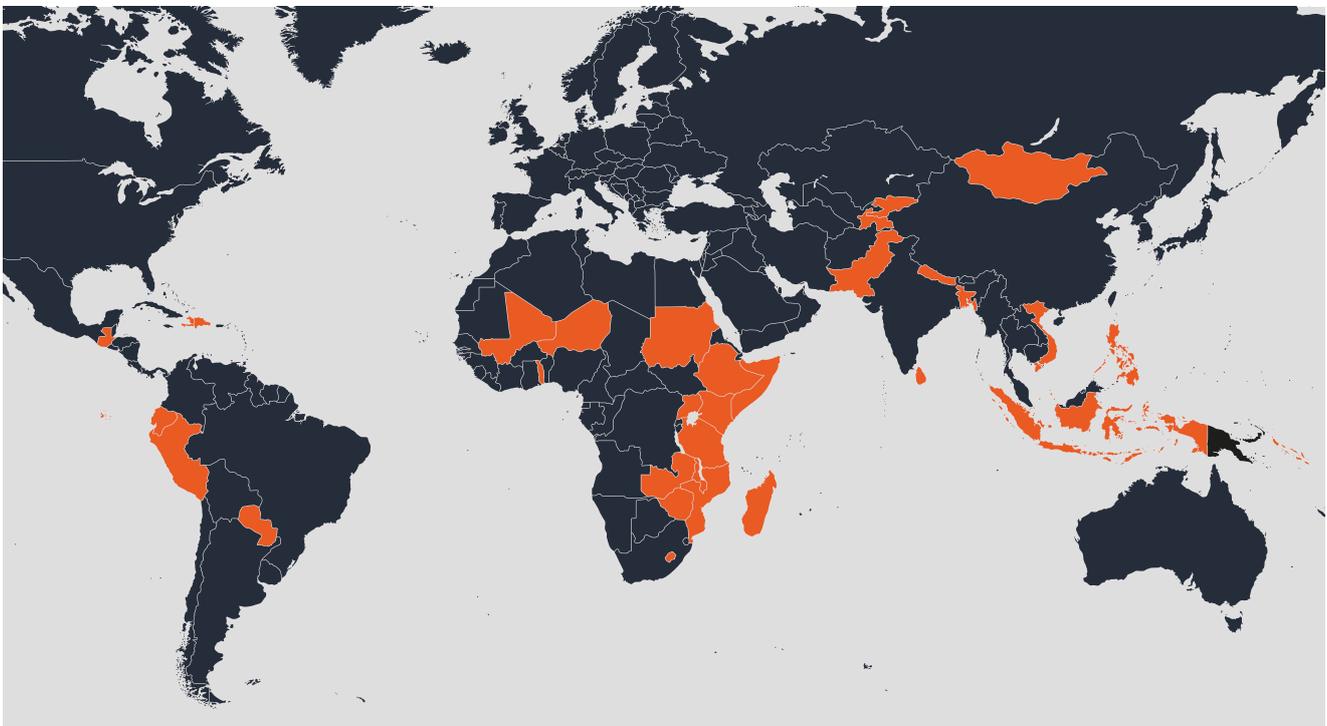
Most practitioners share a common vision of the importance of anticipation but the initiatives are diverse, with different approaches to the timing of decisions and actions, and the types of forecasts, risk information, financing instruments and delivery mechanisms used.

● SUMMARY OF INITIATIVES AND FINANCING MECHANISMS

Over the past seven years, international humanitarian and development agencies have implemented a range of pilot initiatives across Latin America and the Caribbean, Africa, Asia and the Pacific. The Red Cross and Red

Crescent Movement, WFP, FAO and Start Network are at the forefront and have driven innovation in the sector.

Figure 2: Anticipatory action pilot countries



Source: Wilkinson et al. (2018); IFRC and German Red Cross (n.d.); FAO (n.d.) WFP (2019)

The focus now is on moving from small-scale pilots to anticipatory action at scale. This includes linking anticipatory action and financing mechanisms with those for preparedness and response. There are many crossovers between anticipatory humanitarian financing and disaster risk financing, for example, in the types of actions facilitated and instruments used. Beyond the humanitarian field, governments and disaster risk managers are using or exploring options for acting earlier, for instance through early action plans developed by national disaster agencies or by integrating forecasts with their social protection programmes.

New initiatives are now starting to increase the geographic reach of anticipatory action and the hazard types covered.

- FAO and WFP are using dedicated early action pockets within pre-existing emergency funds to back their EWEA and FbF mechanisms.
- In 2016, the Start Fund began operating an Anticipation Window allowing its member NGOs to access resources for anticipatory interventions. To date, GBP 3.7 million has been disbursed through the mechanism (Start Network, 2019).
- In 2018, IFRC set up 'Forecast-based Action by the DREF'. The mechanism guarantees allocation of funds for early action to those National Red Cross or Red Crescent Societies that have Early Action Protocols (EAPs). Four EAPs (for CHF 1 million approx.) have been developed and approved. They include EAPs for cyclones in Mozambique, volcanic eruptions in Ecuador, cold waves in Peru and cyclones in Bangladesh. A further seven are under development or in the review stage (IFRC, 2019).

- The World Bank, the UN and the International Committee of the Red Cross (ICRC), together with a range of private sector partners including Google, Microsoft and Amazon Web Services are developing a Famine Action Mechanism (FAM), which will enhance famine forecasting and link pre-arranged financing with early warnings to improve famine prevention and anticipatory action.
- OCHA is exploring a formalized approach for CERF to finance anticipatory humanitarian action, beginning with two pilot case studies for anticipatory action against drought in Somalia and southern Africa. In addition, OCHA is looking into the possibility of piloting a cholera spread prediction model in support of CERF-funded interventions.

To enhance coordination of anticipatory actions, in 2018, the Inter-Agency Standing Committee (IASC) produced global, regional and national Standard Operating Procedures (SOPs) for earlier action ahead of El Niño-Southern Oscillation (ENSO)-related extreme weather events (such as flooding, droughts, cyclones and extreme cold/heat). These SOPs outline actions that need to be taken to mitigate or prevent impacts, assign responsibilities for these actions to different agencies and set thresholds that determine when actions are triggered (IASC, 2018).

EVIDENCE

SECTION 2

Recently sown paddy fields following
Pakistan floods in Sindh, Pakistan,
December 2010.
Image: DFID/Russell Watkins



● WHAT TYPE OF EVIDENCE IS THERE?

The evidence base on anticipatory action in low and middle-income countries is slowly building but the number of studies remains low, the quality is varied, and most are produced by implementing agencies. Independent and peer-reviewed evidence is (still) scarce.

This is partly because anticipatory action mechanisms are relatively new—but there are also significant challenges to conducting rigorous research in emergency contexts.

Table 1: Types and number of studies considered in this paper

TYPE OF STUDY	NUMBER OF STUDIES COMPILED FOR THIS PAPER
Impact evaluation	6
Return on investment study	6
Value for money and cost-effectiveness study	3
Cost benefit analysis	6
Ex-ante impact study	1
Other monitoring, evaluation and learning study	5

There is a huge diversity of early action initiatives, and few studies touch on the same kinds of actions. While the main focus of this paper is on the post-forecast and pre-emergency phase, there are overlaps with other crisis phases (Figure 1). Therefore, a few studies on preparedness and response are consulted where the types of actions considered and timelines considered are similar enough to anticipatory action (Table 2).

Studies on the impact, effectiveness, and efficiency of anticipatory action cover a range of countries, but most do not have more than one assessment. Ethiopia, Bangladesh and Kenya, where the Red Cross and Red Crescent Movement as well as several NGOs and UN agencies are implementing anticipatory action initiatives, have more impact studies.

Table 2: Focus of studies in terms of emergency phase

PRIOR TO AN EMERGENCY	POST-FORECAST AND PRE-EMERGENCY	DURING AND POST-EMERGENCY
Three studies	Four anticipatory cash transfers Six non-cash anticipatory action Five cash and non-cash action	Four studies

Figure 3: Geographic distribution of studies



● DATA AND EVIDENCE GAPS

Major challenges with the evidence base on anticipatory action that need to be considered include the following:

- **The depth, quality and methodological rigour of studies varies**, making it difficult to judge how reliable and comparable findings are without a thorough assessment of the methodology. Evidence on the impacts of anticipatory action is drawn largely from the monitoring, evaluation and learning (MEL) of implementing institutions. This means not all evidence and detailed information on how it was produced always publicly available.
- **The diversity of anticipatory actions is another major challenge to building a coherent evidence base.** Because early actions are designed to meet specific needs in one context, the same set of actions will not necessarily work in the same way and yield the same results elsewhere.
- **There is no agreement regarding suitable counterfactuals.** Studies have taken different views on what the costs and benefits of early action should be compared against: no action, early response or late response. Developing a range of different possible alternative scenarios could help decision-makers weigh options and assess anticipatory actions against other types of interventions. Critically, agencies will have to agree on how to account and control for different assumptions and variables in developing these scenarios, as well as how to assess the appropriateness of anticipatory actions (and associated costs) to the risks faced.
- **The enabling environment for anticipatory action is critical but not well considered in return on investment and value for money studies.** This means, findings from one context are not necessarily generalisable to others. For instance, some countries have much better records on historical disaster impacts and more advanced risk data inventories than others. This changes the level of investment needed to get a system up and running. It could also influence the accuracy of forecasts and the adequacy in targeting beneficiaries.
- **Reducing mortality and human suffering is a humanitarian imperative** and is as, or even more, important in guiding investment in anticipatory action, yet there is only limited evidence on these impacts; and much less than on the economic benefits of anticipatory action.

- **The types of benefits and costs that are calculated vary across studies and defy comparison.** From delivering cash transfers ahead of expected flooding in Bangladesh, to training district health facilities in anticipation of a cholera outbreak in Malawi, providing animal feed based on a drought warning in Ethiopia, and digging channels for water run-off before flooding and landslides in Tajikistan; each action produces very different outcomes for targeted individuals and communities. Some benefits are more quantifiable and easily translated into monetary gains than others, and wherever human suffering and lives have to be translated into monetary terms for the sake of comparability, arbitrary assumptions have to be made for these calculations to be feasible.

There have been advances in assessing the costs, benefits and returns on investment of anticipatory actions but the results from such studies cannot be easily generalised, compared or transferred. Instead, they should be treated with caution and interpreted with the specific initiative in mind. This is because of the variety of actions implemented and the diversity of contexts in which their impacts are assessed. In addition, each approach is based on specific assumptions which vary between studies and depending on which costs and benefits are included in the calculations, results can change considerably. The evidence and studies discussed in the following section are therefore not to be taken as entirely comprehensive or generally applicable. Instead, they are discussed as examples of the different types of outcomes, costs and benefits various anticipatory action systems have been found to produce to date. A more in-depth review of the evidence on anticipatory action was commissioned by WFP and is currently underway for publication ahead of the United Nations General Assembly in September 2019. This will include a discussion of the types of costs and benefits that already are or could be considered in different assessments, how various actors understand and measure success of anticipatory action, and how the quality of studies could be controlled and enhanced.

● WHAT DOES THE EVIDENCE SAY?

The evidence on anticipatory action suggests there are positive returns on investment for donors and beneficial impacts on households and communities. However, contexts strongly affect the results, and impacts from the same type of anticipatory action vary from case to case. With the focus so far on short-term economic costs and benefits, strengthening the evidence base to assess a wider set of (longer-term) impacts is work in progress.

In this section we summarise the evidence for two different types of intended outcomes: (1) enhanced

effectiveness of disaster preparedness and response through anticipatory action and (2) reduced disaster impacts on households from early action before crises become acute. The latter includes examples of anticipatory action aimed at a reduction in drought impacts on agricultural production, the protection of pastoralist livelihoods, and a reduction in flood impacts and waterborne disease outbreaks.

● ENHANCED EFFECTIVENESS OF DISASTER PREPAREDNESS AND RESPONSE THROUGH ANTICIPATORY ACTION

Evidence indicates that substantive savings in responding to disasters could be made by preparing in anticipation, for instance in the form of pre-positioning relief items or emergency communication systems in areas likely to be affected by an imminent shock.

This was demonstrated through a series of actions taken by the IFRC West and Central Africa Zone in 2008 based on a seasonal forecast indicating flooding in the region. These actions included ‘pre-positioning relief items, improving disaster response capacity through trainings, development of flood contingency plans, and launching of pre-emergency funding requests for preparedness activities and response’. At the time, this represented a significant shift from reactive to more proactive disaster management by the Red Cross and Red Crescent Movement. It resulted in a substantial time saving where most countries had access to the required supplies in a matter of days instead of the 40 days delay in starting flood operations without a seasonal forecast in 2007. Early action and flood response in 2008 also cost 33% less per beneficiary than the flood response alone in previous years (IFRC, 2009).

Evidence from a more recent study of WFP and UNICEF emergency preparedness interventions in Chad, Madagascar, and Pakistan reveals a positive impact in terms of cost and time savings for humanitarian response. One of the interventions it considers is the pre-positioning of emergency supplies, which has been used as an anticipatory action in some FbA, FbF or EWEA initiatives. Internationally procured commodities (which may not be available in sufficient quantity in local markets

or are needed to bridge post-disaster gaps until local markets have recovered) mostly have a positive return on investment, reducing the costs of transportation ahead of an emergency. Pre-positioning internationally procured commodities also results in time savings of around 16 days on average across the three countries, thus facilitating a quicker response (Meerkatt et al., 2015).

A series of studies commissioned by DFID and USAID modelled the effects from various types of actions on reducing and mitigating disaster impacts in several African and Asian countries with an overall positive verdict on the potential gains from acting earlier, before acute impacts are felt.

In Bangladesh, Ethiopia, Kenya, Mozambique, and Niger, an early response to natural hazards is estimated to be much more cost effective than an alternative late humanitarian response.¹ In Kenya, the study estimates a saving of USD 20 billion over a 20-year period, i.e. an annual average of USD 1 billion from acting at the first signs of a possible drought. This means activities such as commercial animal destocking, early procurement of food and other aid, or animal health interventions would be carried out ahead of peak humanitarian needs; before significant livestock deaths occur and before people start resorting to high-risk coping strategies. The study also addresses fears of ‘getting it wrong’, i.e. taking actions early when an expected crisis does not materialise later on. It finds that actions based on false alarms could be taken two to six times before the total costs would reach those of a single late response (Cabot Venton et al., 2013).

¹ The original study uses the term ‘early response’ to describe activities considered in the assessment. Since this includes actions such as

early procurement, reducing disaster-related losses, and saved lives due to evacuation, there is significant overlap with what would

be considered anticipatory/early action in this review.

A similar more recent study in Ethiopia, Kenya, and Somalia confirms that action taken to mitigate drought impacts before prices for consumption goods destabilise and people start resorting to negative coping strategies is cost effective compared to a later response. However, the magnitude of savings modelled across the three countries

in this case was much smaller than for the earlier Kenya country study, amounting to USD 1.6 billion over 15 years. When avoided losses are taken into account, savings could be as much as USD 2.5 billion, or USD 163 million per year on average (Cabot Venton, 2018).

● REDUCED DISASTER IMPACTS ON HOUSEHOLDS FROM EARLY ACTION BEFORE CRISES BECOME ACUTE

At household level, reduced economic losses and changes in consumption are the most commonly assessed outcomes of anticipatory action. In addition, some studies consider aspects such as psychological wellbeing or disease rates, access to clean drinking water or school attendance, depending on the type of action studied. Overall, effects appear to be mainly positive, though not all expected outcomes are observed in all cases. Whether these short-term outcomes make a difference for households in the long-term remains to be established. In assessing the value of early action for household welfare, a recent World Bank study finds that the most common coping mechanism households use in the face of different types of slow onset and rapid onset shocks is reducing consumption. In the case of drought, failure to meet the consumption needs of affected populations results in 3.9% lower income per capita in the long run. The authors estimate that an emergency response that is one month quicker than usual results in gains of 0.8% of income per capita in the long run (Hill et al., 2019).

Focusing on Ethiopia, a Save the Children study assesses the socio-economic benefits from anticipatory action against the costs of its Early Action Fund release in 2017. To do so, the study compares early action in advance of a drought to two different scenarios: Firstly, a humanitarian response and secondly, early action when the event does not actually materialise. Benefits considered include a range of socio-economic outcomes spanning income, consumption, nutrition, education, access to drinking water and livestock assets. Overall, the study finds that every GBP 1 invested in the early action fund results in an average of GBP 2.58 in social value for targeted households. It also concludes that, even if no crisis occurs, GBP 1 spent yields GBP 1.61 in social value per household (Atkinson, 2018).

● MITIGATING THE IMPACT OF DROUGHT ON AGRICULTURAL PRODUCTION

In Madagascar, the FAO EWEA mechanism for drought was triggered in 2017, with 8,460 households receiving seeds and agricultural tools, distribution of water pumps and micro-irrigation kits and training of community

leaders and extension workers on farming techniques and crop diversification. On average, beneficiary households gained USD 78 from avoided crop losses and increased vegetable production. With costs per household estimated at USD 31.8, there is a positive benefit-cost ratio of USD 2.5. Households targeted by the EWEA initiative also had a more diversified diet and used negative coping strategies less frequently than those not receiving the assistance (FAO, 2019).

● PROTECTING PASTORALIST LIVELIHOODS

A range of FbF and EWEA initiatives focus on protecting pastoralist livelihoods from the impacts of drought in Ethiopia and Sudan, and cold waves in Mongolia.

Some areas of Mongolia were of high risk of a dzud event in November 2017, and the FAO EWEA system triggered a distribution of animal health equipment, nutrient supplements and feed along with destocking of small livestock for cash targeted at 1,008 households. Herder households, on average, saw a reduction in losses from livestock mortality or worsening condition, and reaped benefits of up to USD 2,008 from additional milk and cashmere production. Costs per household totalled USD 285, resulting in a benefit to cost ratio of 7.1 (FAO, 2018).

In the same instance of dzud in Mongolia, the Red Cross Red Crescent FbF mechanism triggered unconditional anticipatory cash grants of USD 100 equivalent and the delivery of animal care kits to 2,000 herder households. Almost all beneficiary households used nearly all of the cash they had received to purchase additional hay or feed for their animals. Whether buying feed in bulk and distributing this to pastoralists—similar to the FAO EWEA activities—would be more or less effective than cash in light of these findings remains to be assessed. The FbF intervention as a whole had a positive effect on livestock survival but does not reveal any significant effects ‘on the ability of households to afford basic necessities during the dzud period, their overall food intake; or experience of psychosocial stress’ (Red Cross Red Crescent Climate Centre, forthcoming).

● MITIGATING THE IMPACT OF FLOODS AND WATERBORNE DISEASE

In 2017, a flood forecast triggered FbF cash grants of USD 60 equivalent to 1,039 poor households in flood prone, highly vulnerable communities in Bangladesh through the Red Cross Red Crescent FbF mechanism. Cash transfers released before the first flood peak enhanced beneficiary households' access to food and helped reduce the accumulation of high-interest debt. It also decreased the psychosocial stress people experienced related to the flood (Figure 4). However, the destitute sale of valuable assets was not sustainably prevented through the intervention (Gros et al., forthcoming).

In Uganda, the Red Cross Red Crescent FbF system is designed to reduce flood impacts and in 2015 it was the first FbF mechanism to be activated. In an initial delivery, 370 households received water treatment tablets, jerry cans, soap, shovels for digging drainage trenches, and bags to store their harvest. Even though beneficiary

communities used purification tablets at a much higher rate than non-beneficiary communities with similar characteristics, the diarrhoea rate between both communities was almost the same. This implies that other factors might have been the major cause of diarrhoea and underscores the need to well understand risks and potential impacts in identifying suitable anticipatory actions. The following year, the system was activated again with similar items delivered to 2,000 households; but flooding did not materialise. While households appreciated the distribution, local Red Cross staff emphasised the importance of delivering so called 'no regrets actions' that are beneficial irrespective of a particular shock, to maintain the reputation of the Red Cross in situations of false alarms (Jjemba et al., 2018).

Figure 4: Value for money of FbA: three dimensions from cash transfers in Bangladesh



Source: Tanner et al. (2019); Gros et al. (forthcoming)

More recently, the Start Fund Anticipation Window was triggered to prevent the further spread of a cholera outbreak in Malawi in 2018. Actions taken included water point analysis, mass chlorination of household water sources, community sensitisation and training for health facilities. Costs and benefits of the intervention were assessed in comparison to two scenarios—one moderate and one severe scenario—representing a later response. The analysis found that the cholera prevention actions resulted in time and resource savings, including reduced costs of GBP 16,400–52,367 from the intervention

compared to the later response scenarios. While water chlorination was highlighted as the most effective among the actions implemented to prevent the further spread of cholera, findings on the impacts from activities aimed at enticing behavioural change were mixed. The study highlights that behavioural change takes much more time than the duration of anticipatory action interventions, and is hard to achieve when it is established for practical reasons as part of existing livelihood practices (Start Network, 2018).

● CONCLUSIONS AND NEXT STEPS

The types of anticipatory actions and contexts in which they are implemented are diverse and care should be taken not to draw conclusions and generalise findings until it is appropriate to do so (from a larger number of studies). But analysing, drawing together and synthesising the evidence as it becomes available is critical to building knowledge and learning across cases and contexts and between organisations. This evidence review concludes that the evidence base is still relatively weak but evolving. It also suggests there are diverse benefits for households and/or implementing agencies associated with different anticipatory actions, depending on how the interventions are designed and implemented, and outcomes measured.

The monetary value of these benefits is difficult to calculate and probably misses the point. Further analysis

is needed to compare findings and uncover associated costs, as well as other potential non-economic benefits, and this will require:

- new methodologies that can support rigorous assessments in crisis contexts are needed to improve the evidence base on different types of impacts from anticipatory action
- guidelines for return on investment, value for money, and cost-benefit studies in the specific case of anticipatory action, to help ensure that the evidence produced is more robust. Discussions around guidelines for developing counterfactual scenarios could also be considered. The Start Network is already working on some of these aspects for NGOs.

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Cover image: People take refuge on the roofs of buildings following flooding caused by Cyclone Idai in Mozambique, March 2019. Image: World Vision

