

# Forecast-based financing: climate science and timely funding of early actions in an anticipatory humanitarian system

*German Action Plan for Humanitarian Adaptation to Climate Change<sup>1</sup>*

**T**he international humanitarian system is facing enormous challenges in meeting the needs of vulnerable people worldwide. Besides the increasing number of affected people due to conflicts, the natural disasters occurring on an annual basis have increased from around 200 to 400 over the last 20 years. Wherever people depend on protection and support in disasters, humanitarian assistance can guarantee their survival in dignity and security, and alleviate the suffering of those unable to overcome their hardship by themselves.

Nonetheless funding gaps are evident. Although 2015 saw the highest level of funding contributed to United Nations appeals in many years, it also witnessed the biggest shortfall between needs and resources. United Nations figures show that in the last decade humanitarian appeals have increased six-fold. Climate change and climate risks can be major causes of humanitarian emergencies and can severely impact people

already suffering from conflicts and socioeconomic circumstances. To address the new challenges linked to climate change, in 2011 the German Federal Foreign Office launched the Preparedness Initiative, aiming at shifting the paradigm of humanitarian assistance from reactive crisis management to more active risk management.

Current and future risks of climate change in combination with often unplanned urbanization, limited food supplies, poorly managed natural resources, population growth and extreme poverty represent major challenges, particularly for people in developing countries. The already visible negative impacts of climate change on people's living conditions will increase, and most likely result in more humanitarian disasters of catastrophic proportions and more small- to medium-sized disasters caused by climate conditions in regions currently considered to be safe. Thus, despite increasing humanitarian funds, the gap between needs and available resources will likely continue to grow.

At the same time weather-dependent risks can be predicted with increasing accuracy. Climate researchers and weather experts are able to determine the probability of extreme weather events for specific regions based on forecasts up to six months in advance. Thus, many climate-related hazards can be predicted; but humanitarians do not always have real-time information about when and where extreme-weather events like storms, floods and droughts are expected, or they do not get the funds to act upon this information. At present, humanitarian finance is mostly available for either long-term preparedness measures or once a disaster strikes. Waiting for disaster to happen, however, means accepting avoidable human suffering and spending enormous amounts of resources after the event, when a fraction of these invested beforehand would have a much stronger impact. Yet there is a window of opportunity between a forecast and a disaster when preparedness actions can be taken, for instance storing drinking water for the elderly before a heatwave.

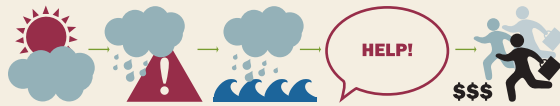
Since 2014, the German Government and Red Cross Red Crescent have been working on a new concept — Forecast-based financing (Fbf), a system to fill the gaps in the humanitarian system by using improved forecasts to anticipate possible impacts in risk-prone areas and make resources for certain humanitarian actions automatically available before an event.



Image: Red Cross Red Crescent, Climate Centre, 2015

Early actions in Uganda were implemented based on weather forecasts

**The availability of most humanitarian funding occurs after disasters, with the consequence of low efficiency and high disaster impacts**



Source: Red Cross Red Crescent Climate Centre, 2015

**Actions implemented before a disaster strikes can help to reduce the impacts of disasters and the costs of relief afterwards**



Source: Red Cross Red Crescent Climate Centre, 2015

To put it into practice and further develop this concept, in 2014 the German Federal Foreign Office launched its Action Plan for Humanitarian Adaptation to Climate Change. This action plan, coordinated by the German Red Cross, embraces different levels of actors: the humanitarian community, scientists, local actors and the policy level. The main partners are the National Red Cross and Red Crescent Societies in the respective pilot countries, the International Federation of Red Cross and Red Crescent Societies (IFRC), the Red Cross/Red Crescent Climate Centre, the World Food Programme (WFP), the United Nations Office for the Coordination of Humanitarian Affairs, Welthungerhilfe and the Nansen Initiative. In a multi-stakeholder event taking place twice a year in Geneva, the Dialogue Platform, additional partners such as Oxford University and the University of Reading, as well as other scientists and humanitarian actors, meet to exchange results and lessons learned and to work on the Fbf methodology. The main pillar of the action plan is the development and testing of Fbf in high-risk pilot countries, under the guidance of the German Red Cross and WFP.

Fbf is stimulating a proactive change in traditional humanitarian response. To enable Fbf, a humanitarian agency and stakeholders like meteorological services and communities at risk agree on selected actions that are worth carrying out once a forecast reaches a certain threshold; each action is allocated a budget to be activated when such a forecast is received. The actions are written into standard operating procedures (SOPs) that establish who will do what when a particular forecast arrives. Part of the SOPs is the scientific threshold based on one or more forecast models and deciding on when the different actors want to act. But because SOPs are just that — standard — disaster managers will not face any blame if the disaster does not materialize. The final result will be an institutional mechanism that improves the effectiveness of humanitarian response.

No forecast is 100 per cent secure. Sometimes early actions will be taken but the expected extreme weather event will not occur — so the action will be ‘in vain’. The system will be designed so that more resource-intensive, elaborate or disruptive actions — ‘high regret’ actions like evacuations — will only be taken when the probability of the extreme event is high. In case of lower probability, only less elaborate or intensive ‘low regret’ actions, such as refresher trainings, are taken. Some actions, like hand-washing campaigns before a flood, will have lasting effects that are beneficial to the community even if the extreme event does not materialize. Humanitarian assistance after disaster strikes is far more costly than investing in

medium- to short-term anticipatory actions reducing impact and losses caused by disasters. Different data and studies of insurance companies prove that US\$1 invested in preparedness actions before disaster strikes saves US\$4-7 for relief actions after the disaster. Hence over time, the negative consequences of not taking early action would be significantly greater than occasionally acting although the extreme event does not occur. A key element of Fbf is that the allocation of resources is agreed in advance, so actors can weigh the risk of occasionally acting ‘in vain’ against consistently failing to take early action.

Gathering evidence about the viability of Fbf is at the core of the ongoing pilot projects funded by the German Foreign Federal Office and implemented by the Red Cross Red Crescent and WFP. Countries and regions have different approaches to prepare for disasters, and all can learn from each other. As more experiences from the pilot countries are gathered and scientists make progress in the identification and development of forecast thresholds, Fbf is becoming a reality.

In a ground-breaking exercise in November 2015, the Uganda Red Cross, with the support of the German Red Cross and the Red Cross Red Crescent Climate Centre, activated a humanitarian action triggered by a scientific forecast of flood risk. Nearly 400 families were given 5,000 non-food items, including jerry cans and water-purification tablets. The project region in Uganda did indeed face flooding; rescue operations and emergency appeals were launched after the event. There was no need, however, to include the communities reached by Red Cross Fbf actions in the national emergency appeal that sought aid for the rest of the region, because the communities were able to prepare for the flooding. Jerry cans, soap and a month’s supply of water purification tablets had already been distributed before the disaster and helped prevent the spread of possible waterborne diseases. Results of the impact measurement will be published soon. As often happens, the needs established in the national post-emergency appeal were quite high and the appeal was not fully funded.

The Uganda forecast was based on the data of the European Commission’s Global Flood Awareness System and verified by the Uganda National Meteorological Agency, the Uganda Hydrological Department and the European Centre for Medium Range Weather Forecasts. “By using forecasts in this innovative project, we are now intervening even earlier, before receiving reports of disasters,” said Secretary General of the Uganda Red Cross Robert Kwesiga. “With such timely disbursement, we hope to avoid catastrophe before it even happens, supporting people to continue working and going to school.”



Image: Peruvian Red Cross, 2016

Reinforcement of houses as an early action of the medium-probability threshold for extreme rainfall due to El-Niño in Peru

In another example, the Red Cross in Peru has implemented Fbf actions in the context of the El Niño phenomenon of 2015/16 that has seriously threatened the lives and well-being of many people around the world. The project in Peru was a good scenario to demonstrate the potential of Fbf to avoid the same suffering that thousands of Peruvians faced during the El Niño event of 1997/98.

The Red Cross, community members, government agencies and other humanitarian actors jointly identified actions that would help reduce the negative effects of El Niño based on the regions' experience with flooding and heavy rain during past El Niño events. The Peruvian Red Cross then mapped out a comprehensive programme of Fbf interventions that included early warnings, first aid, health, water and sanitation, and shelter in flood-prone communities. As seasonal and short-term forecasts reached the identified thresholds in early 2016, this triggered the disbursement of funds for different humanitarian preparedness actions. For example, given that many houses were damaged or destroyed by strong rains or flash floods in past El Niño events, 200 houses were stabilized; to reduce the likelihood of an increase in vector-borne and other diseases that had been witnessed in the past, fumigation against mosquitos was carried out and hygiene kits were distributed; measures were also taken to ensure drinking water supply during flooding. Less cost-intensive measures like training of volunteers and community organizations and household awareness-raising measures had already been triggered by relatively low-probability seasonal forecasts in November 2015. In February 2016, when heavy rain and flash floods, some attributed to El Niño, swept across many regions, the Fbf communities were prepared. Local press

reports said that in some areas the rains were comparable to the 1997/98 peak.

In Mozambique, Fbf has been developed through an extensive dialogue process among the communities at risk, the Mozambique Red Cross, government and non-governmental organizations. The consultative process has enabled a good understanding of the danger levels and the actions that could be triggered based on a cyclone forecast. Determining the level of risk is the first major challenge of the Fbf mechanism, as it requires participatory approaches at all levels. In Mozambique, forecast triggers are scientifically elaborated with the Climate Centre, the National Institute for Meteorology and the National Water Directory. Then selected thresholds are agreed upon with the implementing actors.

In Bangladesh, in-depth risk assessments and dialogue with stakeholders have suggested cash transfer programmes based on a forecast would be ideal for Fbf. Cash is more typically used in social protection programmes and in disaster response, recovery and rehabilitation. More is needed to understand the implications of cash transfers arriving just before a disaster. The window of opportunity offered by linking pre-existing social protection and safety nets with Fbf actions to protect development gains could ensure that resilience is achieved even in the face of extreme weather events.

WFP, meanwhile, in its own version of Fbf, has also released funds in Guatemala and Zimbabwe through the Food Security Climate Resilience Facility in areas where drought risk was forecast to be great due to El Niño in 2015/16.

Biannual dialogue platforms on Fbf have been held at the Geneva offices of the IFRC to promote understanding and expansion of the concept. Fbf has also been on the agenda in high-level discussions on humanitarian affairs at the (European) Council Working Party on Humanitarian Aid and Food Aid in Brussels. There is also the potential to integrate Fbf with existing humanitarian mechanisms and intensify cooperation with scientists.

Fbf allows humanitarian agencies, governments and communities to scale up preparedness when science indicates the risk is elevated, and implement early actions months, weeks and days before a potential disaster. The crucial difference and the advantage of Fbf, compared to conventional disaster preparedness, is that its funding is ensured, based on advance agreement between donors and humanitarian actors that if a certain threshold is reached, funding for predefined actions is released. Fbf also builds on existing disaster risk reduction strategies. Analysis of governmental, institutional and local contingency plans is the first step. Actions are decided by local practitioners based on existing risk management knowledge and experience combined with information provided by climate scientists.

By building on current humanitarian financial mechanisms, Fbf can allow more efficient use of aid and timely action to reduce suffering. The German government, in partnership with the Red Cross and Red Crescent Societies and WFP, now hopes for the greatest humanitarian impact by consolidating the best knowledge on climate science, disaster risk reduction and preparedness.