ALTERNATIVES HUMANITAIRES
HUMANITARIAN ALTERNATIVES

17th Issue – July 2021
p.41-51

Incorporating the sciences into humanitarian interventions: the case of anticipatory action

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The anticipation of natural risks, especially due to climate change, has received increasing attention over the past few years. The author explains which forms this "anticipatory action" can take as well as the support and the reservations it attracts. Most importantly, she calls for an alliance of some sort between the "hard" and the social sciences in terms of their concepts, establishment and implementation.

For a long time, humanitarian action was essentially a more or less rapid response, provided following a disaster. Then critics spoke out by saying that the aid often arrived too late[1]. Indeed, for many years, emergency humanitarian action was based on indicators measuring the impacts and losses. Now, crises are affecting ever growing numbers of people each year: on the one hand due to an increase in natural hazards as a result of climate change[2] and, on the other hand, due to increased exposure and vulnerability often caused by poorly controlled urbanisation.

So humanitarian actors started to assert a preference for scientific data (evidence-based action) – a trend that has continued to grow – with the aim of improving their efficiency and their relevance but also establishing their legitimacy[3]. Science most often provided them with help with technical decision-making during interventions. Recently, the narrative has gradually broadened to incorporate both long-term risks and disasters and the climate emergency. Although the use of this scientific data has now extended to the entire humanitarian sector, we will focus here on the sciences – essentially the natural sciences – which are used to anticipate natural disasters, thereby enabling action before they occur.

What is anticipatory action?

Anticipatory action is a recent concept, defined within the last twenty years and implemented by pilot programmes for the past decade. As an activity, its ambition is to act before crises even occur. The various names (anticipatory action, early action) and the multitude of pilot projects illustrate the scale of this activity within the global field of aid.

Anticipatory action is action taken using information provided by science, especially helped along since meteorological and climate sciences have improved. Early warnings can be based either on predictions or on surveillance systems set up to anticipate hazards. Early Warning Systems, developed since the

[1] Oxfam, *A Dangerous Delay: The cost of late response to early warnings in the 2011 drought in the Horn of Africa*, Joint briefing with Save the Children, 2013, https://oxfamilibrary.openrepository.com/bitstream/handle/10546/203389/bp-dangerous-delay-horn-africa-drought-180112-en.pdf

[2] Since the 1990s, the number of climate-related disasters has doubled. See the Food and Agricultural Organization, International Fund for Agricultural Development, United Nations Children's Emergency Fund, World Food Programme and World Health Organization, *The State of Food Security and Nutrition in the World 2018. Building climate resilience for food security and nutrition,* FAO, 2018.

[3] Lena Weingärtner, Tobias Pforr and Emily Wilkinson, *The Evidence Base on Anticipatory Action*, London, Overseas Development Institute and World Food Programme, 2020.

1980s, enable us to be aware of, prevent, and, in theory, prepare for a range of hazards[4]. Nevertheless, until recently, they remained inefficient, if not non-existent[5], and underserved by humanitarian actors.

Early warnings create a window for action where several kinds of action ("early" or "anticipatory") can be taken. Implementing anticipatory actions therefore involves identifying which hazards to keep track of, the sources of the data, the different indicators and possible scenarios (according to the impacts of previous disasters) and data linked to vulnerability. This information is often obtained thanks to partnerships with researchers and national universities. On this basis, triggers and early actions are predetermined. For example, cash transfers were offered to over a million households in Bangladesh following the forecast of a flood in 2017 to enable them to prepare[6]. In 2018, first aid kits and livestock nutrients were handed out to farmers in Mongolia before the advent of the *dzud*, the local name for their particularly lethal winter[7].

One of the key elements of anticipatory action is the allocation of financial resources agreed upon in advance for these pre-defined activities. These humanitarian funds are automatically released when a certain threshold is reached, which enables quick and efficient measures to be taken before disaster strikes. These funds can be earmarked for activities – such as the Kenyan Hunger Safety Net Programme that targets vulnerable households in situations of food insecurity – or come from a specific fund, like the Early Action Fund mobilised by the Food and Agriculture Organization of the United Nations (FAO) as part of its response to the Mongolian *dzud*.

Implementation uncertainty and financial obstacles: the challenges of anticipatory action

According to various reports published by international and non-governmental organisations (NGOs), these very recent anticipatory actions are considered to be efficient and effective[8]. They therefore provide fresh hope. For the 2017 flooding in Bangladesh, for example, forecast-based aid reached households up to seven days before the disaster occurred[9]. Unconditional cash transfer actions thereby enabled access to food without increasing the households' debts and contributed to reducing post-flooding stress.

The implementation of these activities based on scientific predictions nevertheless presents a certain number of difficulties. These can depend on the quality of the data – whose reliability varies considerably between countries – or to the necessarily arbitrary dimension of the indicators to be taken into account and of the warning thresholds to be defined (see box).

[4] Joy C.-Y. Muller, "Adapting to climate change and addressing drought – learning from the Red Cross Red Crescent experiences in the Horn of Africa", *Weather and Climate Extremes*, vol. 3, 2014, p.31-36.
[5] David Didier, Pascal Bernatchez et Dany Dumont, « Systèmes d'alerte précoce pour les aléas naturels et environnementaux : virage ou mirage technologique ? », *Revue des sciences de l'eau*, vol. 30, n° 2, 2017, p. 115–146.
[6] Clemens Gros *et al.*, "Household-level effects of providing forecast-based cash in anticipation of extreme weather events: Quasi-experimental evidence from humanitarian interventions in the 2017 floods in Bangladesh", *International Journal of Disaster Risk Reduction*, 41, 2019.
[7] Food and Agriculture Organization, *Mongolia. Impact of Early Warning Early Action. Protecting the livelihoods of herders from a dzud winter*, 2018.
[8] See for example Cabot Venton Courtenay *et al.*, *The Economics of Early Response and Disaster Resilience: Lessons from Kenya and Ethiopia*, London, DFID, 2013 ; ou Clemens Gros *et al.*, "Household-level…", art. cit.
[9] Clemens Gros *et al.*, "Household-level…", art. cit.

Potential obstacles to anticipatory action

A good overview of the potential failures and obstacles of anticipatory action can be found on the *Forecast-based Financing* website, launched by the International Federation of Red Cross and Red Crescent Societies and the German Red Cross*. For example, they list:
- the risk of taking futile action on the basis of a false alarm or, on the contrary, failing to predict the disaster;
- the risk that the action taken is poorly defined and ends up being useless or insufficient;
- the risk that the project fails to target the worst affected areas or the most vulnerable, marginalised people;
- possible conflicts of interest, a bad definition of the real priorities and so on.

When these risks do occur, anticipatory action can actually exacerbate inequalities and even harm certain groups, creating dissatisfaction and distrust of the project and those implementing it.

* IFRC and German Red Cross, *What can go wrong with a Forecast-based Financing project?* Available on the Forecast-based Financing website: **https://www.forecast-based-financing.org**

Nevertheless, one of the main obstacles remains the fact that, despite increasingly reliable predictions, the humanitarian sector and the sponsors[10] still do not take them sufficiently into account. Given the state of the humanitarian system, it is difficult for aid organisations to implement preventive actions based on mere predictions: the current funding mechanisms are essentially only available during and after an extreme event. This creates a vicious circle. Yet given the increase in the number of disasters linked to the climate, it is ethically problematic to wait for funds to be released after a disaster: a different funding strategy on behalf of the sponsors seems necessary.

One of the arguments used to justify these reservations is the risk of creating a "false alarm" if interventions are triggered and the disaster does not, in fact, occur. Indeed, the sluggish uptake of early action activities based on forecasts and the lack of funding can be attributed to the sponsors' discomfort about investing in a situation that will probably, but not certainly, happen and about the heavy (financial) consequences of "acting in vain"[11]. Anticipatory action is different from the conventional appeals for humanitarian aid, since the appeal to the sponsor is not linked to the media coverage of an ongoing disaster but to the scope of the potential damage. This makes fundraising difficult, since it is difficult to apprehend the disaster or its media impact – to say nothing of the human and material damage – which, as we well know, are often the triggers for huge amounts of aid.

Implementation problems at the State level

Projects implementing early actions are almost exclusively led by sponsors and NGOs. This is the case, for example, of the early actions implemented in Mongolia by the Mongolian Red Cross and the FAO. Indeed, there is often an insufficient capacity at the state level to emit early warnings, as a result of inadequate services for providing hydrological, climatic and meteorological measurements. States are also often incapable of transforming these early warnings into early actions[12]. Few governments have the means to implement this kind of system and so questions are often raised regarding the adoption of pilot projects, and consequently their sustainability and viability.

Yet there are some examples at the national level that are held up as "good practices" by the promoters of anticipatory action. Several countries, and especially those most affected by natural disasters, have good early warning systems. This is the case in Bangladesh, where the national EWSs, which monitor flooding, were set up by the government as early as 1965. Governments can also be involved in the diffusion networks of these early warnings. Systems of social protection can be used to

[10] Erin Coughlan de Perez *et al.*, "Forecast-based financing: an approach for catalyzing humanitarian action based on extreme weather and climate forecasts", *Natural Hazards and Earth System Sciences*, vol. 15, 2015, p.1-10.
[11] Erin Coughlan de Perez *et al.*, "Forecast-based financing…", art. cit.
[12] World Meteorological Organization, *2020 State of Climate Services. Risk Information and Early Warning Systems,* WMO and Global Framework for Climate Services, 2020.

target the most vulnerable beneficiaries, broadcast warnings and provide cash transfers. In Kenya, planning is already well advanced and the Kenyan government has incorporated the Hunger Safety Net Programme (HSNP) into its social protection programme, enabling emergency cash transfers to be made in the event of drought in four counties[13]. This system, which is highly automated, enables them to act quickly in the event of a drought warning and to limit the socio-economic impacts of disasters.

The significance of the development of anticipatory action

Shedding light on the use of scientific knowledge offers an illustration of the recent developments in emergency aid. This change of paradigm is foremost endogenous, driven by the sector's need to learn from past mistakes, and especially from the failure of EWSs to better prepare for hazards and their devastating effects. But it is also exogenous, imposed by the demands for efficiency attached to the mobilised funds.

The 2011 famine in the Horn of Africa and its tens of thousands of victims made a lasting impression on the international community (the UN agencies, NGOs, the EWS that mainly and regularly raised the alarm, the FEWSNET[14]). The EWS had seen the signs eleven months earlier and yet the "emergency" aid arrived very (too) late. This tragedy nevertheless informed the ongoing reflection on the limits of humanitarian aid and the presumed lack of reactivity on behalf of certain actors, both national and international, in response to early warnings. The sector unquestionably became aware that these warnings needed to be followed by actions adapted to the situation and capable of preparing the populations and limiting future damage. Priorities and ways of acting changed radically in relation to the classic humanitarian system, which had long functioned on an almost purely reactive basis.

Returning to the financial question, although humanitarian funding is always increasing, it remains largely insufficient to cover its needs. A report from early 2016 estimated that although humanitarian aid has grown exponentially (multiplied by twelve in fifteen years!) to reach around twenty-five billion dollars per year, we would need forty billion to provide aid for the 125 million needy people in the world[15]. The consequence of cost reductions was therefore brought up at the World Humanitarian Summit held in May of the same year in Istanbul, where the Grand Bargain highlighted this constraint of efficiency and effectiveness that would henceforth be imposed on humanitarian actors[16]. Anticipatory action therefore appears to be one possible mean of achieving it.

The perspective of the social sciences: evidence and corroboration?

Although these systems are essentially based on the so-called hard sciences, it is vital they are also underpinned by the social sciences[17]. The human and social sciences can be mobilised to guarantee the objective evaluation of these systems. In fact, they are already used to evaluate and promote these fledgling systems. Yet there have been very few articles published in reviews: most of the documents about anticipatory action are reports published by NGOs and sponsors that implement these projects themselves or by research organisations commissioned to steer their implementation and suggest recommendations. A large part of the research published on this subject has different objectives: a didactic objective, to show how the systems work; an operational objective, to try and improve the programming and take-up of the projects, and also an advocacy objective, establishing proof that

[13] Lena Weingartner *et al.*, *Reducing flood impacts through forecast-based action. Entry points for social protection systems in Kenya*, ODI, 2019.
[14] Famine Early Warning Systems Network, https://fews.net
[15] High-Level Panel on Humanitarian Financing Report to the Secretary General, *Too important to fail – addressing the humanitarian financing gap*, United Nations, 2016.
[16] Anne Le Naëlou, Elisabeth Hofmann et Larissa Kojoué, « Distorsions et dilemmes du système performatif de l'aide internationale au développement », *Revue internationale des études du développement*, vol. 241, n° 1, 2020, p. 7-37.
[17] For an analysis of the need for the human and social sciences in the context of Covid-19, see Yannick Jaffré, "How the Covid-19 pandemic is increasing the need for an operational approach in health anthropology", *Humanitarian Alternatives*, issue 16, 2021, p.10-31, https://alternatives-humanitaires.org/en/2021/03/23/how-the-covid-19-pandemic-is-increasing-the-need-for-an-operational-approach-in-health-anthropology

anticipatory action works and deserves the interest and investment of sponsors and governments. A certain number of studies aim to measure the impacts of these early action projects, often from a financial angle (return on investment, quality/cost ratio) in order to convince the sponsors[18].
Beyond the search for evidence to reassure partners, the social sciences ought also to be better factored into the creation and establishment of these projects. Firstly in the analysis of the information linked to risks and vulnerabilities: a catastrophe is not simply a hazard that it is enough to "detect"; its advent and impacts are further compounded by vulnerabilities and "capabilities". Every disaster is also, and perhaps foremost, a social phenomenon. The social sciences, and particularly sociology, anthropology and economics, could also support the definitions of the actions to be implemented once the early warning thresholds are reached. Beyond the classic activities of humanitarian aid (namely the now well-developed cash transfers), anticipatory action should, for example, be adjusted to the seasonal calendar. The social sciences can also help to define the way in which people receive the warnings and improve their understanding of them, the adaptation actions and mechanisms to adopt and the potential obstacles to these actions. The need to include the human and social sciences was raised in the context of the Ebola epidemics and their contribution enabled the adaptation of broadcast messages, an analysis of the political and socio-economic vulnerabilities and the evaluation of the impacts of the health crisis at the social level[19].

The fact remains that the social sciences are not yet sufficiently integrated into anticipatory action projects. This is an observation shared by many researchers in the humanitarian field to this day. Incidentally, this observation is the subject of a platform, the Social Science in Humanitarian Action Platform, which promotes and distributes human and social science research which enables a better understanding of the sector and of crises. Anticipatory action remains a recent activity, little-studied, offering as-yet-unknown research possibilities. Although the hard sciences are the most called-upon (meteorology, hydrology, seismology, biology and so forth), the human sciences have a vital role – beyond validation – to play.

Translated from the French by Juliet Powys

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A recent graduate of the Master's in Risk Management in the Global South at Sciences Po Bordeaux and of the Master's in Agricultural Development and Economic Policy at the Institut des Études du Développement (Paris 1 Panthéon-Sorbonne). Her research focuses on questions linked to humanitarian aid, conflicts and food security. Camille was a research assistant at the Overseas Development Institute (London), the French Red Cross and *Action Contre la Faim*.

Camille Balcou, "Incorporating the sciences into humanitarian interventions: the case of anticipatory action", *Humanitarian Alternatives*, no. 17, July 2021, p.41-51,
https://alternatives-humanitaires.org/en/2021/07/20/incorporating-the-sciences-into-humanitarian-interventions-the-case-of-anticipatory-action/
ISBN of the article (PDF): 978-2-37704-824-3

[18] Lena Weingärtner, Tobias Pforr and Emily Wilkinson, *The Evidence Base…, op. cit.*
[19] Bertrand Taverne for the Coordination Committee of the West Africa Ebola Social and Human Sciences Network, "Preparing for Ebola outbreaks: not without the social sciences!", *Global Health Promotion*, vol. 22(2), p.5-6.