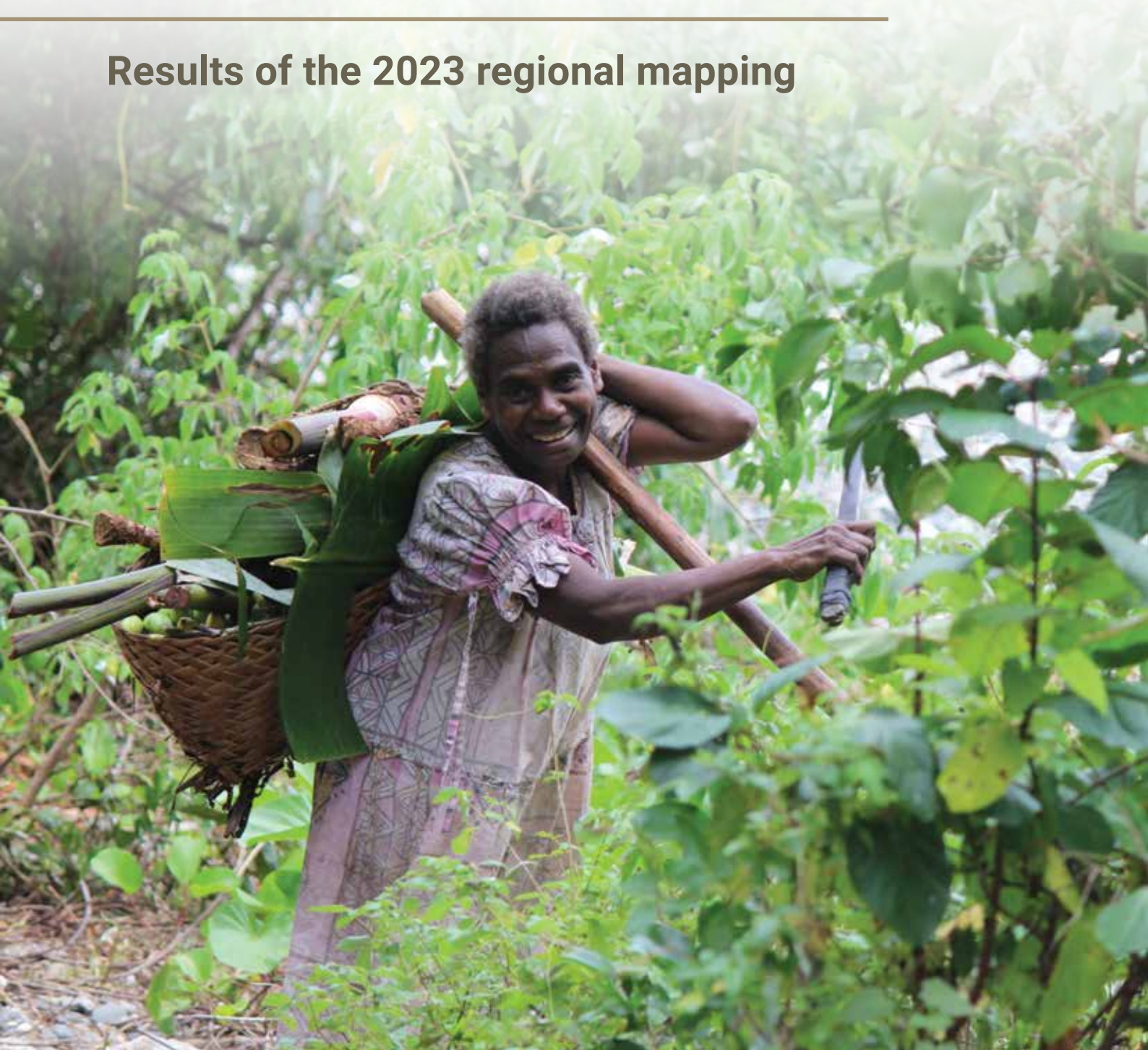




Anticipatory action in Asia and the Pacific

Results of the 2023 regional mapping



Anticipatory action in Asia and the Pacific

Results of the 2023 regional mapping

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For more details on the mapping and information from the survey, please contact TWGAA co-chairs

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ABBREVIATIONS AND ACRONYMS

ASEAN	Association of Southeast Asian Nations
BARC	Bangladesh Agricultural Research Council
CERF	Central Emergency Response Fund
DERF	Disaster Response Emergency Fund
DRM	disaster risk management
ECMWF	European Centre for Medium-Range Weather Forecasts
EW	early warning
EWS	early warning system
FAO	Food and Agriculture Organization of the United Nations
FCM	Feedback and Complaints Mechanisms
FFWC	Bangladesh Flood Forecasting and Warning Center
GloFAS	Global Flood Awareness Systems
IEC	information, education and communication
IFRC	International Federation of Red Cross and Red Crescent Societies
M&E	Monitoring and Evaluation
NAMEM	Mongolia National Agency for Meteorology and Environment Monitoring
NGO	Non-government Organisation
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
SFERA	Special Fund for Emergency and Rehabilitation Activities
SOP	standard operating procedure
SUYUK	Samaj Utthan Yuwa Kendra
TWGAA	Asia-Pacific Technical Working Group on Anticipatory Action
UNICEF	United Nations Children’s Fund
VSO	Voluntary Services Overseas
WASH	water, sanitation and hygiene
WFP	World Food Programme



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INTRODUCTION

In early 2023, the Asia-Pacific Technical Working Group on Anticipatory Action (TWGAA) initiated a regional mapping exercise of anticipatory action in Asia and the Pacific.¹ The exercise aimed to gain a better understanding of the current state of anticipatory action in the region and inform potential priority areas that could benefit from more support from the regional community of practice to advance anticipatory action in the short to medium term.

This report presents the findings from the mapping exercise. Following an emerging common regional conception, the report uses the same definition of anticipatory action as the Association of Southeast Asian Nations (ASEAN) Framework on Anticipatory Action in Disaster Management,² which has also been adopted in the TWGAA's Technical Standards for Anticipatory Action in Asia and the Pacific:³

The results of the mapping exercise and analysis presented in this report were used to shape the TWGAA's Regional Roadmap 2023–2027. These results provide a foundation for a participatory roadmap development process that included in-person and online consultations with TWGAA members and partners in Kathmandu, Nepal in June–July 2023. The structure of this report therefore follows the roadmap's action areas with chapters on coverage, triggers, actions, finance, evidence and learning, and policy and institutionalization.

Anticipatory action is a set of interventions that are carried out when a hazard poses imminent danger based on a forecast, early warning or pre-disaster risk analysis. Anticipatory action is taken by an individual or organization before an anticipated disaster to mitigate its impact on people, assets and infrastructure that are likely to be affected.

1 Asia and the Pacific, in this document, span Afghanistan to Samoa. However, if some TWGAA member agencies include other countries in this grouping, the TWGAA encourages the inclusion of these countries in future mapping exercises. In such cases, the TWGAA co-leads can be contacted about their inclusion.

2 ASEAN. 2022. *ASEAN Framework on Anticipatory Action in Disaster Management*. Jakarta: ASEAN Secretariat.

3 Asia-Pacific Technical Working Group on Anticipatory Action. 2023. *Technical Standards on Anticipatory Action in Asia and the Pacific*. Bangkok: TWGAA.



METHODOLOGY

This mapping of anticipatory action in Asia and the Pacific is based on an online survey developed and rolled out by the TWGAA between April and June 2023. The survey targeted countries in Asia and the Pacific where anticipatory action initiatives were underway, according to the TWGAA's knowledge. With support from the TWGAA, a country focal person was identified for each country and a regional focal person, in the case of the Pacific. Focal persons shared the survey with organizations developing or implementing anticipatory action initiatives in their respective countries and region. This process yielded 92 responses from 13 countries (Afghanistan, Bangladesh, Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Timor-Leste and Viet Nam) and the Pacific region.

Data from the survey was checked for quality, resulting in follow-ups with several organizations to validate and complete the information provided. In some cases, multiple respondents reported on the same mechanism from within the same or affiliated organization. In those instances, the responses were combined for the organization so that none of the mechanisms are double counted. While this quality control and consolidation process led to improvements in the dataset, some information was not possible to obtain through follow-ups and was treated as missing information in the dataset. Further analysis was then conducted based on the regional dataset along different dimensions of anticipatory action. These dimensions are aligned with the building blocks of anticipatory action as outlined in the regional technical standard for anticipatory action.⁴ They also follow the outline for the TWGAA's regional roadmap.

It should be noted that the dataset used in this report is not fully comprehensive because data collection was dependent on voluntary contributions from those implementing anticipatory action in the region. As the survey was primarily distributed among non-government and international organizations, the mapping could be missing government-led anticipatory action initiatives in the region.

While the results presented in the following chapter are regional, [Annex A](#) provides a high-level summary – in the form of country fact sheets – for countries where three or more organizations are developing or implementing anticipatory action mechanisms as of June 2023. These include Bangladesh, Cambodia, Indonesia, Nepal, Pakistan, the Philippines and Viet Nam. More detailed information on anticipatory action interventions at the national and subnational levels may be available from national mapping exercises, such as the one conducted in August 2023 by the national anticipatory action working group under the Humanitarian Country Team in the Philippines.⁵

4 Asia-Pacific Technical Working Group on Anticipatory Action. 2023. *Technical Standards on Anticipatory Action in Asia and the Pacific*. Bangkok: TWGAA.

5 OCHA. 2023. *Philippines: Anticipatory Action Interventions*.

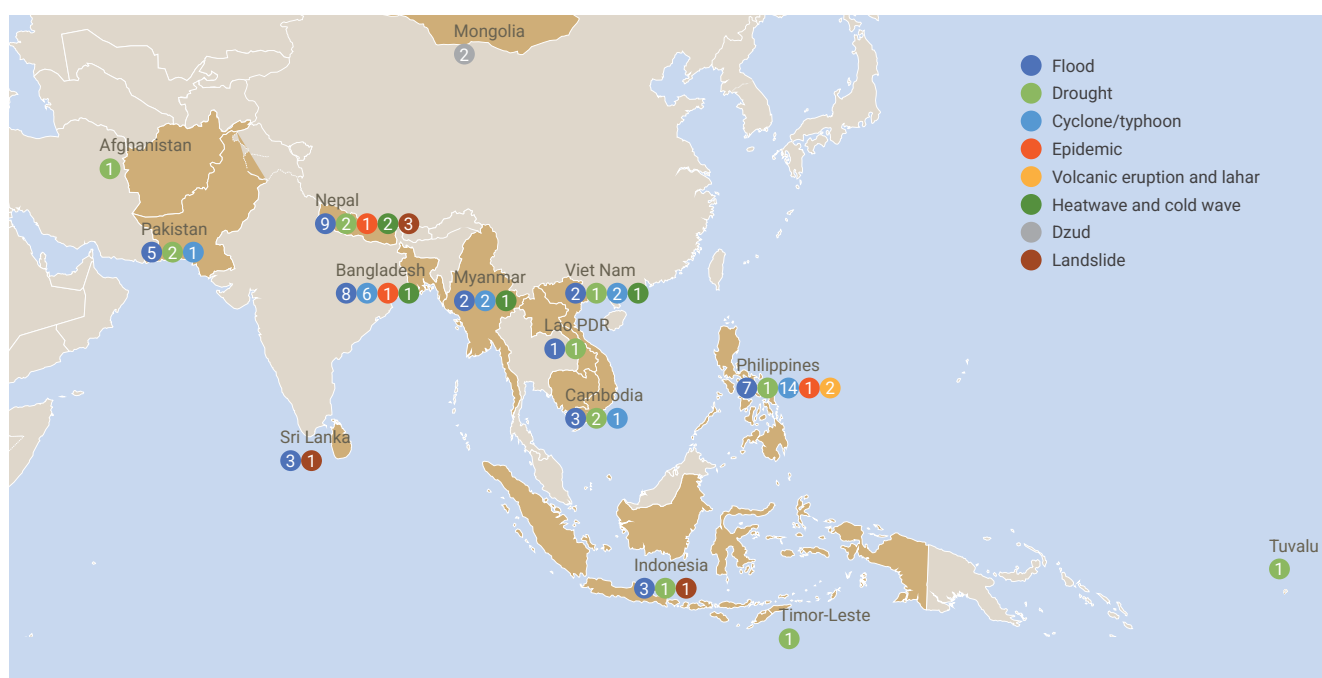


STATE OF ANTICIPATORY ACTION IN ASIA AND THE PACIFIC 2023

Coverage

The regional mapping identified anticipatory mechanisms that are under development or already operational for droughts, floods, tropical cyclones, epidemics, heatwaves, dzud, landslides, and volcanic eruptions across 13 countries across Asia and the Pacific.⁶ There were 101 mechanisms identified, with the majority concentrated in three countries: Bangladesh, Nepal and the Philippines. These are also the three countries in the region where an anticipatory action framework has been established under the United Nations Office for the Coordination of Humanitarian Affairs (OCHA) Central Emergency Response Fund (CERF).⁷ Five other countries had at least five mechanisms active or under development: Cambodia, Indonesia, Mongolia, Pakistan and Viet Nam. The remaining countries – Lao PDR, Sri Lanka and Timor-Leste – had more recent or limited experience with anticipatory action (Figure 1). The only anticipatory action initiative in the Pacific Islands that was identified through the mapping was for a drought hazard in the northern islands of Tuvalu.

Figure 1. Number of anticipatory action mechanisms developed or under development in Asia and the Pacific



⁶ In this mapping report, the term “anticipatory action mechanism” refers to instances where respondents said yes to the question: “Has your organization developed anticipatory action for [hazard]?” In many cases, this describes the systematic combination of forecasting and risk modelling with action planning, operation and delivery, and pre-arranged finance to trigger and implement anticipatory action (see discussion on building blocks of anticipatory action in the TWGAA 2023 Technical Standards document). However, some positive responses to this question appear to be more ad hoc implementation of anticipatory action that was undertaken by an organization when a forecast pointed to an imminent shock, even though there may not have been triggers developed, pre-arranged finance established, or anticipatory action protocols in place previously. The term “initiative” is used more broadly here to describe projects and activities related to anticipatory action, e.g. a feasibility study or support to national policy development.

⁷ See <https://anticipatory-action-toolkit.unocha.org/framework/>

While having several anticipatory action mechanisms in a country can hint at the overall level of experience and number of stakeholders engaged, this is not necessarily an indicator of better or more established anticipatory action. For instance, even though the mapping captured only two active anticipatory action mechanisms in Mongolia – both for dzud – these have been implemented for several years. They are well integrated and complementary with government early warning and emergency response systems. The Government of Mongolia’s dzud risk map – issued by the Mongolia National Agency for Meteorology and Environment Monitoring (NAMEM) – is used by both the Food and Agriculture Organization of the United Nations (FAO) and the Mongolian Red Cross Society under its Dzud Early Action Protocol as the basis for triggering coordinated anticipatory action.⁸ More mechanisms for anticipatory action in a country may help increase coverage, but it can also increase the need for coordination to avoid duplication and fragmentation.

Most anticipatory action mechanisms that are active or under development in Asia and the Pacific focus on floods and typhoons. There are at least 23 anticipatory action mechanisms for floods that have already been tested in a simulation exercise or activated ahead of a real flood event, with another 21 mechanisms under development. For typhoons, 15 mechanisms are reported to be operational while 11 additional mechanisms are under development (Figure 2).⁹ The flood anticipatory action category includes mechanisms to address both riverine flooding and typhoon-induced flooding, although the distinction between the two was not clear in all cases, e.g. where respondents did not provide more detailed trigger information.

Figure 2. Use of anticipatory action for different hazards in Asia and the Pacific

Hazards where anticipatory action has been used or is under development¹⁰



8 Mongolian Red Cross Society. n.d. *Mongolia: Dzud. Early Action Protocol Fact Sheet*; FAO. 2018. *Mongolia: Impact of Early Warning Early Action. Protecting the livelihoods of herders from a dzud winter*. Rome: FAO.

9 This figure is a slight update from Figure 3 presented in the TWGAA’s 2023 *Technical Standards* document. The update reflects responses about anticipatory action being operational or under development for landslides and human disease outbreaks, which had not been captured in the development of the Technical Standards.

10 The numbers refer to the mechanisms developed and tested in a simulation exercise or activated (active) and the mechanisms under development but not yet tested or activated (not (yet) active).

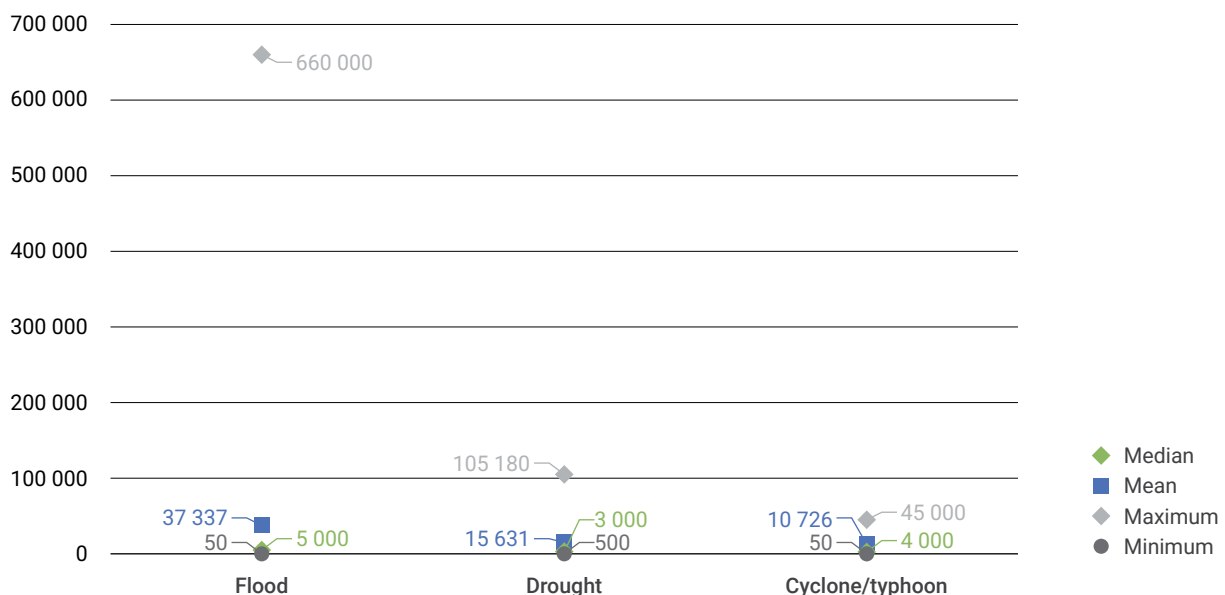
Figure 2. (continued)

Hazards where potential for anticipatory action is still being explored



The anticipatory action mechanisms identified across hazards and countries in Asia and the Pacific vary greatly in size, in terms of the number of beneficiaries that can be reached through a single activation triggered with the allocated funding. This is especially true for floods, where the range is from 50 to 660 000 beneficiaries (Figure 3).¹¹ It should be noted, however, that the maximum coverage for floods is under a mechanism that focuses on the dissemination of early warning information, whereas those mechanisms that also provide other forms of assistance – cash, disaster risk management services such as evacuations, or non-food items – tend to reach fewer beneficiaries. The median number of beneficiaries that can be reached with the allocated funding for a single anticipatory action activation is 5 000 in the case of floods, 4 000 for cyclones/typhoons, and 3 000 for droughts. The average coverage, also shown in Figure 4, appears to be driven upwards by a few larger mechanisms for floods, droughts and typhoons. Most flood anticipatory action mechanisms, for example, have below-average coverage, with 87 percent (27 mechanisms) of those who answered this question reaching fewer than the average number of beneficiaries, and only four mechanisms reaching more than average. In the case of drought, nearly 90 percent (8 of 9 mechanisms) reach fewer than the average 15 631 beneficiaries. For typhoons, 75 percent (12 mechanisms) reach up to the average 10 726 beneficiaries with funding allocation for a single activation while the remaining quarter (4 mechanisms) reach more.

Figure 3. Number of beneficiaries that can be covered by one anticipatory action activation with allocated funding



¹¹ Epidemics and other hazards are not included in **Error! Reference source not found.** because of the small number of responses available about the number of beneficiaries that can be covered. This resulted in the means being heavily skewed by outliers with specifically large coverage, as in the case of epidemics where only three responses were available.

These figures are small compared with the number of people affected by individual flood, typhoon or drought events in the region. In 2021, for instance, the average flood event recorded in the EM-DAT disaster impacts database affected over 400,000 people, the average drought event over 4.5 million people, and the average single storm over 170,000 people in Asia.¹² The potential impacts of individual events can be even higher. It is estimated that in Bangladesh, about 94.4 million people (about 58% of the population) are exposed to high flood risk. In Indonesia, 75.7 million (27% of the population) are exposed; in Pakistan, 71.8 million (31%); and in Viet Nam, 45.5 million (46%).¹³ After the 2022 floods in Pakistan, a post-disaster needs assessment led by the Ministry of Planning, Development and Special Initiatives estimated that 33 million people were affected¹⁴ and 20.6 million people were estimated to be in need of humanitarian assistance.¹⁵

Even if not all people who end up being affected by severe flooding, drought or typhoon could be effectively targeted by anticipatory action mechanisms – and not all will require anticipatory assistance to protect themselves and their assets – the coverage of existing mechanisms remains well behind the number of people at risk from such events. In some countries with multiple anticipatory action mechanisms, this gap is starting to close. Collectively, the four anticipatory action mechanisms active or under development for flood in Pakistan – which provided data on the number of beneficiaries they covered through a single activation with funds allocated – would reach over 290,000 beneficiaries. In the Philippines, nine typhoon anticipatory action mechanisms could jointly cover close to 95,000 beneficiaries (Table 1).¹⁶

Table 1. Collective anticipatory action coverage of beneficiaries by hazard and country

Country	Total coverage			Number of mechanisms with available coverage data		
	Flood	Drought	Typhoon	Flood	Drought	Typhoon
Afghanistan	n/a	7 500	n/a	0	1	0
Bangladesh	70 050	n/a	44 950	6	0	4
Cambodia	685 000 ¹⁷	2 500	25 000	2	1	1
Indonesia	12 000	n/a	n/a	2	0	0
Lao PDR	4 000	4 000	n/a	1	1	0
Mongolia	n/a	n/a	n/a	0	0	0
Myanmar	5 000	n/a	5 000	1	0	1
Nepal	55 550	1 000	n/a	8	2	0
Pakistan	290 043	123 180	n/a	4	2	0
Philippines	8 500	n/a	94 159	6	0	9
Sri Lanka	26 000	n/a	n/a	2	0	0
Timor-Leste	n/a	n/a	n/a	0	0	0
Tuvalu	n/a	n/a	n/a	0	0	0
Viet Nam	2 000	2 500	2 500	1	1	1

12 These are the author's calculations, based on the World Meteorological Organization (WMO) report, *State of the Climate in Asia 2021*. The WMO report cites calculations done by the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) based on EM-DAT data, which was originally accessed on 30 April 2022.

13 These four countries are among the six countries with the highest absolute number of people exposed to high flood risk worldwide. Rentschler, J., Salhab, M. and Jafino, B. A. 2022. *Flood exposure and poverty in 188 countries*. *Nature communications*, 13(1), 3527.

14 World Bank. 2022. *Pakistan: Flood Damages and Economic Losses Over USD 30 billion and Reconstruction Needs Over USD 16 billion – New Assessment*. Press Release, 28 October.

15 OCHA. 2022. *Pakistan 2022 Floods Response Plan Interim Report: Sep – Nov 2022*.

16 In practice, how many people would be reached is likely to differ because organizations could be using different triggers that may not activate at the same time or for the same events. Approaches to targeting vary, and actions implemented are not necessarily the same.

17 For Cambodia, a single outlier mechanism covering 660,000 beneficiaries through early warning dissemination is driving this relatively high figure.

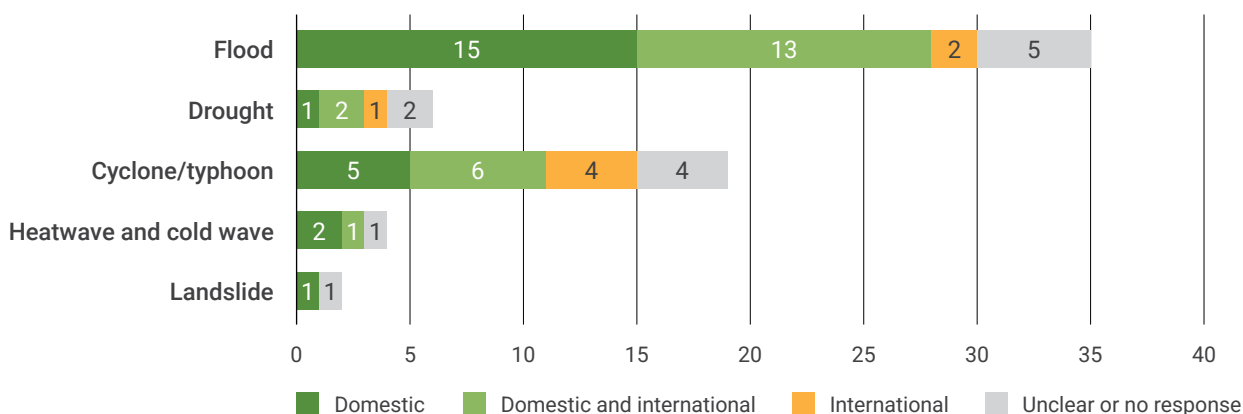
Triggers

Out of the 101 anticipatory action mechanisms active or under development in Asia and the Pacific, 74 had operational triggers in place as of June 2023. Most experience in the region is in the development of triggers for flood and typhoon anticipatory action (Table 2). Experience with flood triggers is concentrated in Bangladesh (8 triggers), Nepal (6 triggers), the Philippines (6 triggers) and Pakistan (5 triggers), while typhoon trigger experience is most significant in the Philippines (11 triggers), followed by Bangladesh (5 triggers). In all other countries listed in Table 2, trigger experience is limited to only one or two examples per hazard.

Table 2. Number of anticipatory action triggers already developed by hazard

Hazard	Number of triggers already developed	Countries in which these triggers have been developed
Flood	34	Bangladesh, Cambodia, Indonesia, Myanmar, Nepal, Pakistan, Philippines, Sri Lanka, Viet Nam
Drought	8	Cambodia, Lao PDR, Nepal, Pakistan, Philippines, Viet Nam
Cyclone/typhoon	20	Bangladesh, Myanmar, Pakistan, Philippines, Viet Nam
Epidemic	2	Nepal, Philippines
Volcanic eruption and lahar	2	Philippines
Dzud	1	Mongolia
Heatwave and cold wave	5	Bangladesh, Myanmar, Nepal, Viet Nam
Landslide	2	Nepal, Sri Lanka

Figure 4. Sources of forecasts and observations to activate anticipatory action plans



Most anticipatory action mechanisms rely on domestic forecasts and observations or a combination of domestic and international forecasts and observations to activate their anticipatory action plans (Figure 4). Domestic sources include national meteorological and hydrological departments; data from local water level and rain gauges; and specialized forecasting and early warning institutions such as the Flood Forecasting and Warning Centre (FFWC) in Bangladesh.¹⁸ In one case – Action Against Hunger’s flood anticipatory action mechanism in the Philippines – local community-based early warning systems are used with other sources.

¹⁸ See <http://www.ffwc.gov.bd/>

International forecasts and observations that anticipatory action mechanisms rely on include the European Centre for Medium-Range Weather Forecasts (ECMWF),¹⁹ the Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES),²⁰ or the Global Flood Awareness System (GloFAS).²¹ In one instance, an organization reported using forecasts or observations from an agency in other countries in the region. This is the case for flood anticipatory action in Nepal, where Nepal Red Cross Society's flood anticipatory action relies on information from India's National Centre for Medium Range Weather Forecasting (NCMRWF), among other domestic and international sources.²²

Figure 5. Number and share of trigger methodologies for anticipatory action that have been tested by hazard

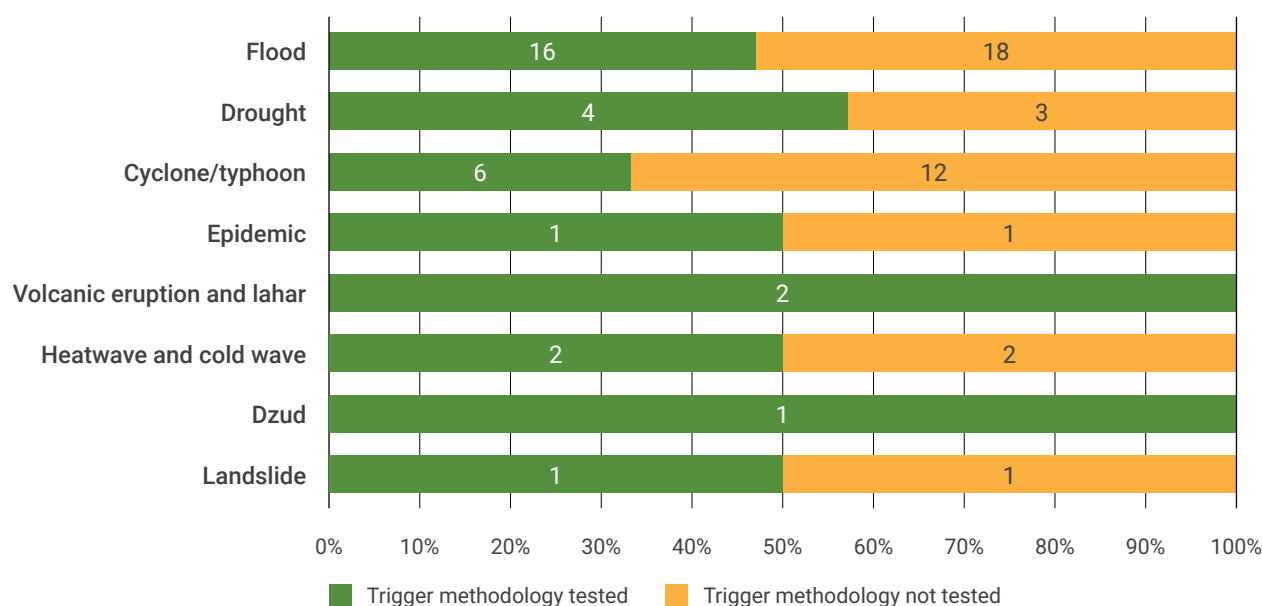


Table 3. Anticipatory action readiness and action triggers

Hazard	Readiness trigger	Action trigger
Flood	7, 14, 15 and 30 days	Most (64%) 2 to 5 days; some 6, 7, 10 or 15 days
Drought	n/a	30 or 60 days
Cyclone/typhoon	4 or 5 days	Most (67%) 3 days; some 1, 2 or 5 days
Epidemic	n/a	no data
Heatwave and cold wave	n/a	2, 6 or 7 days
Landslide	n/a	1 day

Out of the anticipatory action mechanisms with operational triggers, 46 percent had tested their trigger methodology by the time the mapping was conducted (see Figure 5 for an overview of trigger methodology testing by hazard). Of these, 39 percent evaluated their trigger methodology as highly accurate, 58 percent as somewhat accurate, and only 3 percent as inaccurate.

It is important to note that the mapping questionnaire did not provide guidance on describing the accuracy level of a trigger methodology (e.g. whether an accuracy of 70 percent or 80 percent or

19 See <https://www.ecmwf.int/>

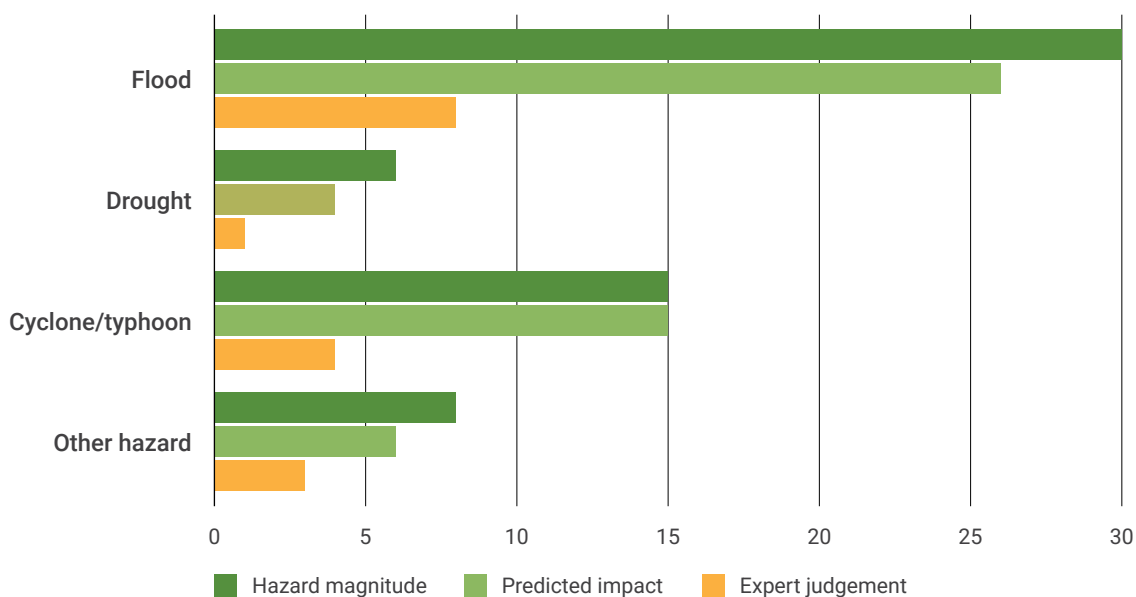
20 See <https://www.rimes.int/>

21 See <https://www.globalfloods.eu/>

22 In Figure 5, this case is included under international forecasts and observations.

90 percent would be categorized as highly accurate or somewhat accurate or inaccurate). The statements about the accuracy of trigger methodology presented in this mapping report are thus not objective measures of the accuracy level.

Figure 6. Trigger methodology approach by hazard (number of mentions)



Flood and typhoon forecasts with sufficient certainty to trigger anticipatory action only become available a few hours or days ahead of an event. This means there is a limited window of time to take preventive and protective action, especially for rapid-onset events. The window becomes even tighter if organizations are not ready to implement. To address this challenge, some anticipatory action mechanisms for cyclones/typhoons and floods use a two-stage trigger: a readiness trigger and an action trigger.²³ The mapping identified six flood anticipatory action mechanisms and five typhoon anticipatory action mechanisms with a two-stage trigger. None of the anticipatory action mechanisms for droughts, epidemics or other hazards reported having readiness triggers.²⁴

Action trigger lead times were shortest for landslides and typhoons, followed by floods, heatwaves and cold waves. Table summarizes common lead times for identified readiness and action triggers. For epidemics, only two organizations reported having triggers in place, and for both, no further detail was provided about lead times.

In designing their anticipatory action triggers, most organizations that responded to the survey reported using a combination of trigger information types, mainly hazard magnitude and predicted level of impact (Figure 6). This is why the sum from the three modalities in Figure 7 is larger than the total number of operational triggers for each hazard. For epidemics, no information was provided on the methodology, and the trigger information used was unclear. Therefore, epidemics could not be included in Figure 6. Judging from the relatively less prevalent use of expert judgement in the trigger methodology, it seems that “soft” triggers²⁵ are less commonly used than “hard” triggers²⁶ for anticipatory action in Asia and the Pacific.

23 For further discussion of the purpose of these different triggers, see the *Technical Standards on Anticipatory Action in Asia and the Pacific*.

24 Unless otherwise specified, other hazards here and in the remainder of this report include volcanic eruption, lahar, heatwave, cold wave, dzud and landslide. Where possible and relevant, the category of other hazards is split in the data presentation and analysis. However, this is not always possible due to the small number of mechanisms in operation or under development for some of these hazards.

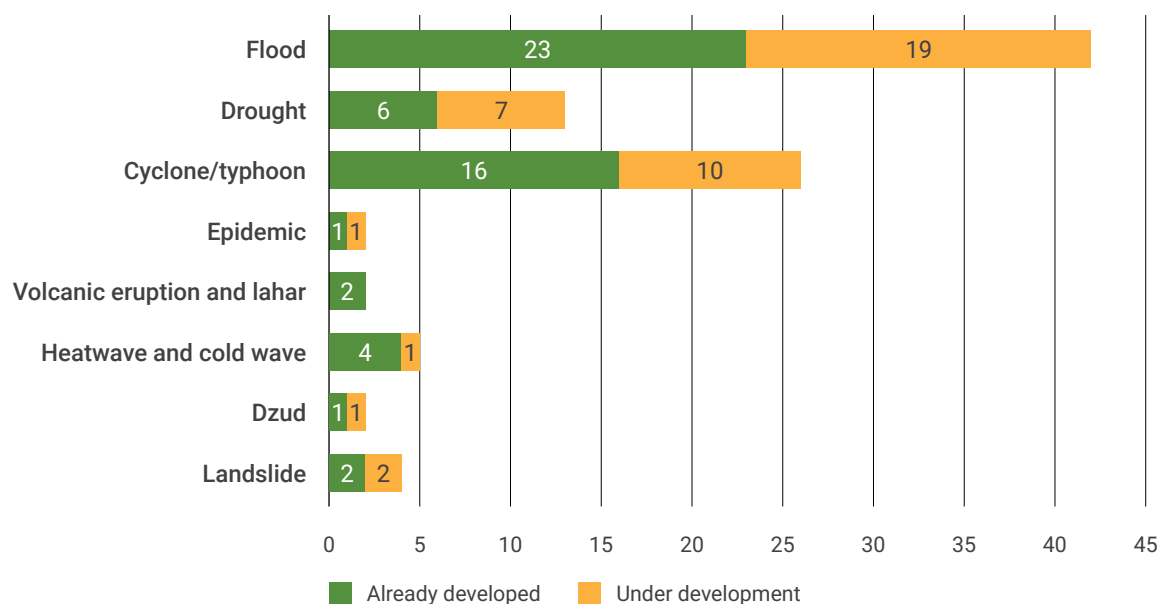
25 The *Technical Standards on Anticipatory Action in Asia and the Pacific* defines soft triggers as those that use a combination of objective data and expert judgement or decision-making processes to activate anticipatory action, e.g. a committee decision or a government evacuation order for hazard-risk areas.

26 The *Technical Standards on Anticipatory Action in Asia and the Pacific* defines hard triggers as those that use “objective, quantitative forecast data and risk information that automatically activate a response once thresholds are reached.” These are also described as deterministic triggers, e.g. an amount of rainfall expected within a set period, or probabilistic forecasts such as 75 percent chance of a certain amount of rainfall.

Anticipatory actions

Not all the anticipatory action mechanisms developed or under development have anticipatory/early action protocols, standard operating procedures, or other types of plans in place yet. Mirroring the progress on trigger development, most plans support anticipatory action for flood and typhoon across the region (Figure 7).

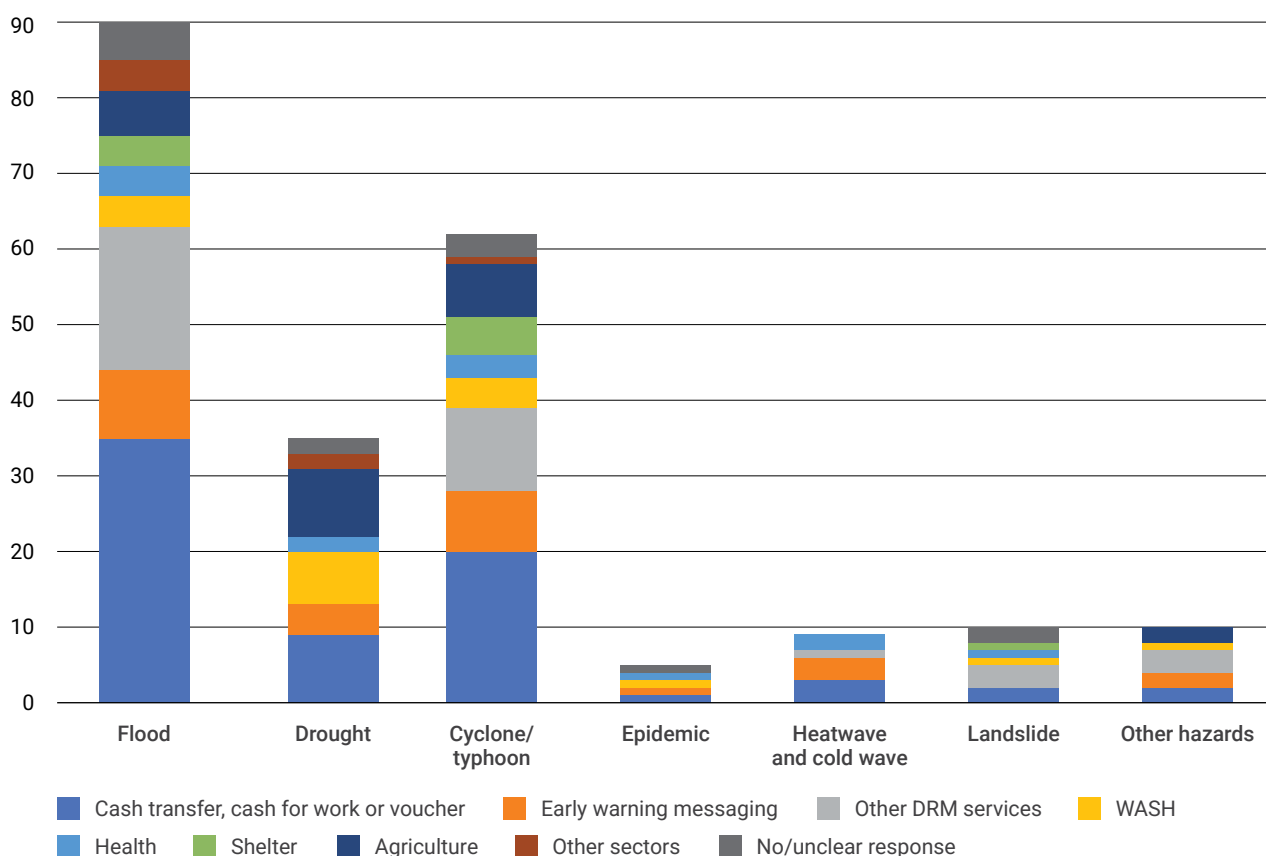
Figure 7. Anticipatory Action protocol, standard operating procedure or other type of plan



From available anticipatory action plans, respondents described a large variety of actions to be implemented when a trigger threshold is reached. In some cases, this covers readiness and anticipatory action initiatives, depending on the defined triggers. Almost all mechanisms plan to implement several types of actions – often spanning multiple sectors – when activated (Figure 8 and Annex B: Anticipatory action examples and sector coverage). For floods, cyclones and other hazards, the most common actions are multi-purpose cash transfers, cash for work, and/or voucher interventions, along with the provision of early warning messages and other DRM services like evacuations. For droughts, water, sanitation and hygiene (WASH) and agriculture sector interventions are usually prepared and implemented (Figure 8). Examples of the types of anticipatory action initiatives outlined by organizations in their plans include:

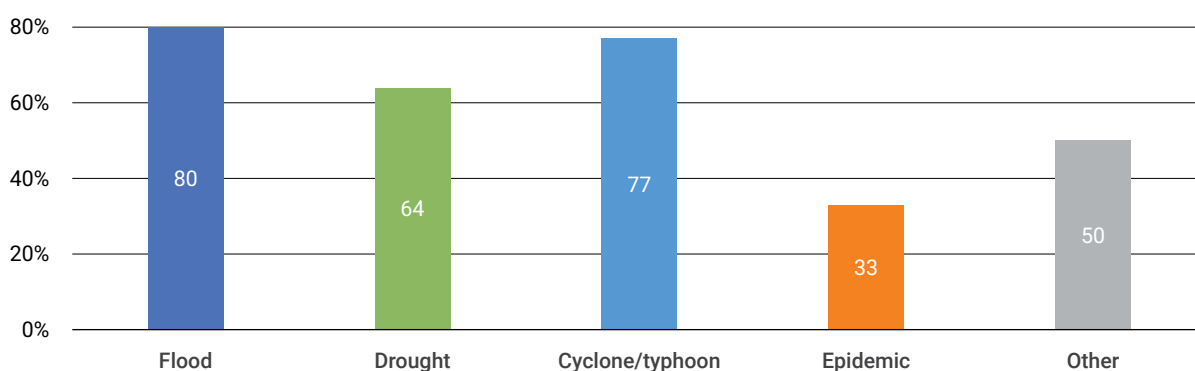
- **DRM and emergency services:** safe evacuation; provision of food and non-food items; distribution of watertight containers and plastic sheets to protect household assets; provision of sandbags; relocation; and securing of assets
- **WASH:** provision of water purification tablets, prepositioning and distribution of hygiene kits and sanitation supplies, cash for work to increase water storage
- **Health:** distribution of medicines, medical supplies and packages such as dengue kits; training of health volunteers; setting up of first aid posts with shade and water stands; heat awareness visits; psychosocial counselling
- **Shelter:** shelter provision, readiness and strengthening
- **Agriculture:** early harvesting, livestock evacuation and tagging, distribution of seeds/seedlings, provision of animal fodder and hay, safe storage of fishing assets, animal care kit provision
- **Other sectors, e.g. social services or banking and financial services:** activating community savings groups, child protection

Figure 8. Types of anticipatory actions by hazard (number of mentions)



Note: As almost all mechanisms plan to implement several types of actions – often spanning multiple sectors – when activated, the total number of actions in this figure exceeds the total number of mechanisms per hazard.

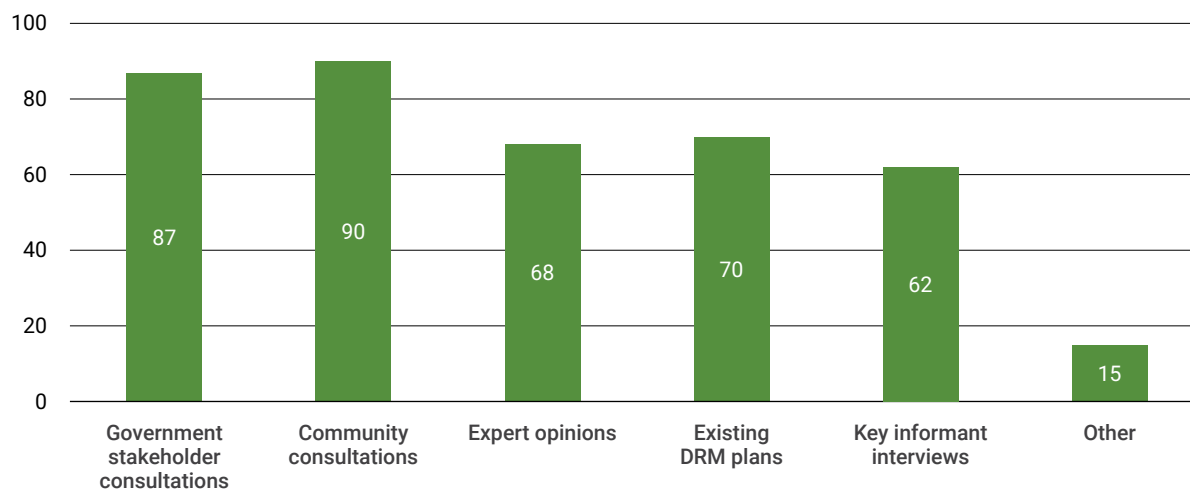
Figure 9. Share of mechanisms with cash and voucher assistance among the planned actions



Note: This chart includes cases where it was possible to clearly identify cash or vouchers as part of anticipatory action measures. In some cases, respondents did not provide enough information about which actions they were implementing to confirm whether cash was among them. As a result, the figures are likely an underestimation, and cash is probably considered in an even higher share of mechanisms than shown here. Because the questionnaire included specific questions about cash (and not about other types of actions), the information about cash in anticipatory action is probably more comprehensive than it is for the other types of actions.

Overall, cash and voucher assistance – including multipurpose cash transfers, cash for work and vouchers – is the most common type of action planned for and implemented across all hazards, usually in combination with other initiatives (see Annex B). However, the prevalence of cash and voucher assistance varies by hazard and is most common in flood and cyclone/typhoon anticipatory action mechanisms. For floods, 80 percent of the anticipatory action mechanisms included cash and voucher assistance. For epidemics, only 33 percent of mechanisms included cash and voucher assistance as an anticipatory action (Figure 9).

Figure 10. Number of anticipatory action mechanisms using information sources to identify and prioritize actions

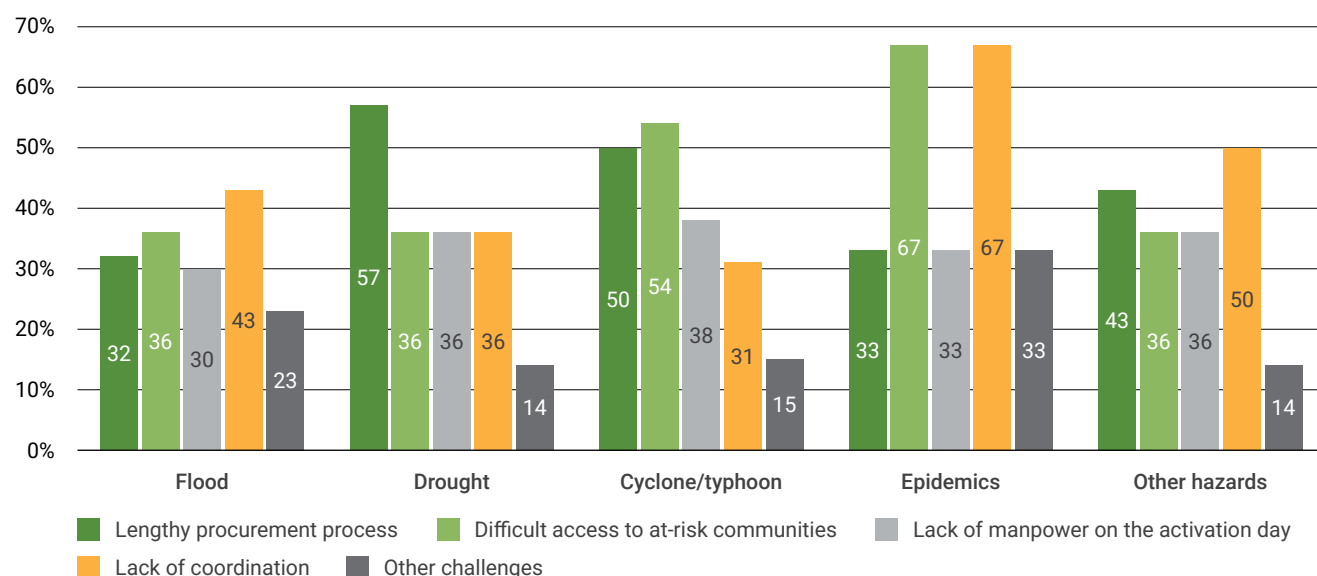


Note: Multiple mentions were possible, so the sum of responses is larger than the sum of anticipatory action mechanisms.

In identifying and prioritizing anticipatory action activities, organizations regularly consult a wide range of stakeholders and information sources. Input from governments and local communities are used by almost all anticipatory action mechanisms. These consultations are often combined with information from expert opinions, focus group discussions and studies – feasibility studies, needs assessments, and rapid impact evaluations of past activations – or past experiences of the organizations’ field staff working in areas targeted by anticipatory action under existing projects. (Figure 10).

Nearly all the anticipatory action mechanisms conducting community consultations to identify and prioritize their anticipatory action efforts are also calling on specific groups – defined by social factors such as age, gender or disability – within these communities. Across all hazards, this concerns 85 percent of all the anticipatory action mechanisms developed or under development in Asia and the Pacific. The share of organizations consulting specific community groups is large for anticipatory action for floods (95%) and lowest for droughts (64%) and epidemics (67%). This may reflect that drought and epidemic anticipatory action mechanisms are still in the earlier stages of development compared with flood and typhoon anticipatory action (see Figure 2).

Figure 11. Percentage of mechanisms with identified challenges





Organizations are facing various operational challenges in implementing anticipatory actions. Lack of coordination can be particularly problematic: it is either the first or second biggest challenge for all hazards except typhoons, where challenging access to communities at risk, lengthy procurement, and lack of manpower on the activation day are greater challenges. These results highlight the need for more effective coordination. This is pressing because the number of anticipatory action mechanisms, as well as the stakeholders involved in their implementation and governance, has been growing and may continue to grow in the coming years.

Interestingly, there is no clear differentiation between the main operational challenges for rapid-onset events (typhoons and floods) and slow-onset events (droughts and epidemics). For instance, a tedious procurement process is the biggest challenge for drought anticipatory action; it is also among the major challenges for typhoon anticipatory action, but it is less of an issue for epidemics and floods. For droughts, many of the anticipatory action initiatives being implemented by organizations include agriculture sector interventions. So, even though the lead times for drought triggers are much longer than the lead times for rapid-onset hazards (Table 3), procurement for the specific suite of actions needed before a drought – such as the acquisition of seeds and irrigation equipment that must meet certain standards – is more challenging. The drought anticipatory action implemented in the region includes the provision of drought-resilient seeds and other farming inputs; promotion of smart agriculture practices; training; water storage improvement, maintenance and use; improvement of access to drinking water; enhancement and maintenance of irrigation systems; provision of animal fodder; feed supplements; and animal vaccinations.

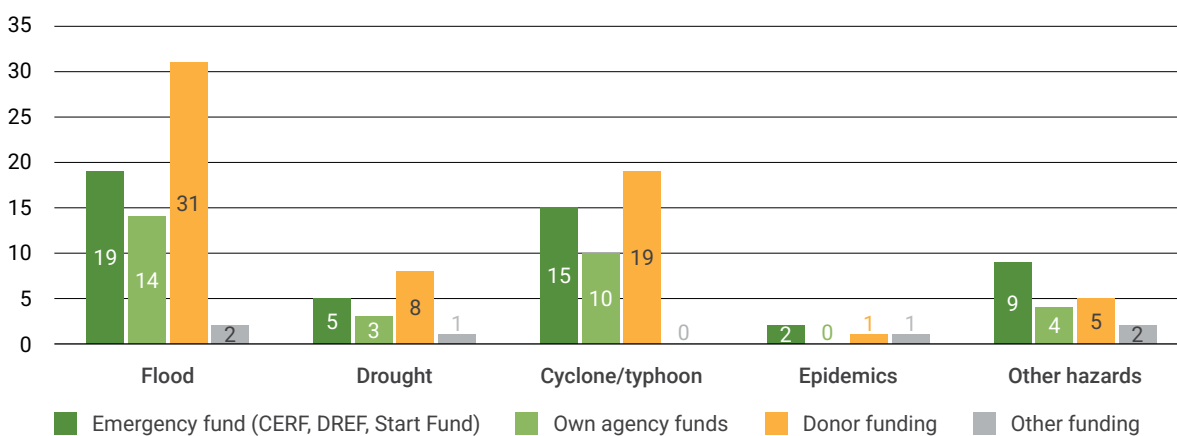
Finance

Many organizations reported having multiple funding sources linked to their anticipatory action mechanisms (Figure 12). Most of them rely on a combination of donor funding and emergency funds. The mobilization of own agency funds – including allocations from project budgets and the activation of internal funds – is common, especially for floods and typhoons. There are three major sources of internal funds: the anticipatory action window of [FAO's Special Fund for Emergency and Rehabilitation Activities \(SFERA\)](#); the anticipatory action trust fund of the World Food Programme (WFP); and the corporate Immediate Response Account of WFP. Beyond these, other sources mostly refer to government mechanisms, often at the municipal or village level. For example, some agencies highlighted the following:

- available funding from government
- existing government funding mechanisms
- municipalities in some districts
- the possibility of engaging with government fund

Emergency funds such as the [Disaster Response Emergency Fund \(DREF\)](#) of the International Federation of Red Cross and Red Crescent Societies (IFRC); the Central Emergency Response Fund (CERF) of OCHA; and the [Start Fund](#) – as well as an organization's own emergency funds, as in the case of FAO and WFP – can release resources for the implementation of anticipatory action once a hazard event is imminent. Donor funding, in turn, supports the development of anticipatory action mechanisms, e.g. the conduct of feasibility studies; design of triggers and action plans; and training of organization staff.

Figure 12. Number of funding sources linked to anticipatory action by hazard

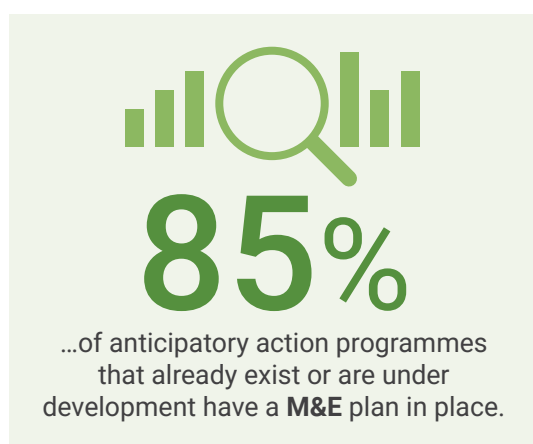


From the survey data, it was not possible to analyse the specific gaps in finance for anticipatory action in Asia and the Pacific, but anecdotal feedback from workshops with stakeholders indicates a disconnect. This is seen in the funding that is available for establishing anticipatory action mechanisms; the strengthening and maintenance of the broader system; and the funding that can be pre-arranged and released for readiness and anticipatory action efforts once the mechanism is activated. For example, non-government organizations (NGOs) may easily access donor funding for the development of anticipatory action plans but struggle to access contingent funding when a hazard event is imminent or to pre-arrange such funding. OCHA's CERF provides resources for implementation when the anticipatory action framework is triggered but does not cover development and preparation work, such as the pre-selection of beneficiaries, pre-positioning, etc.

A few governments in Asia and the Pacific have started linking their own funds to forecast-based triggers to support anticipatory action or related activities. About 17 percent of survey respondents said they were aware of public financial mechanisms being used to fund anticipatory action in Bangladesh, Indonesia, Mongolia, Nepal, the Philippines, Sri Lanka and Viet Nam, but 83 percent a huge majority – are not aware of any such mechanisms.

Evidence and learning

Monitoring and Evaluation (M&E) is consistently built into anticipatory action mechanisms in the region even where these are still in the early stages of development. For instance, 85 percent of mechanisms that are active or under development already have an M&E plan incorporated. Similarly, Feedback and Complaints (FCMs) are in place for nearly all (92%) anticipatory action mechanisms. FCMs tend to use a combination of channels: mostly phone-based (phone calls or text messages); email, suggestion or feedback boxes, and social media. In a few cases, these are complemented by in-person discussions or door-to-door visits.



While much has been published about the operations and impact of anticipatory action in Asia and the Pacific, the survey also revealed many instances where such information has not yet been made public and is only available upon request from programme teams. This may reflect nascent anticipatory action mechanisms where evidence is still limited, especially when such mechanisms have not yet been fully developed, tested or activated. It also points to a potential need for greater coordination, curation and harmonization to strengthen knowledge sharing on M&E tools and results for a collective evidence base.

About a third of the organizations that participated in the survey have considered involving or have already involved a university or external actor to evaluate their anticipatory action interventions, either for individual studies or longer collaborations.

Organizations in the region are also developing training materials for anticipatory action, with 36 percent of respondents stated having already made such training resources. The available training materials revolve around these three broad areas:

1. General awareness and anticipatory action concepts

For example: introduction materials to anticipatory action, sensitization workshop materials

2. Technical aspects of anticipatory action

For example: cyclone forecast, dissemination mechanism, understanding of forecast interpretation, vulnerability assessment, prioritization of impacted areas and communities, list of anticipatory actions, threshold for triggering anticipatory action

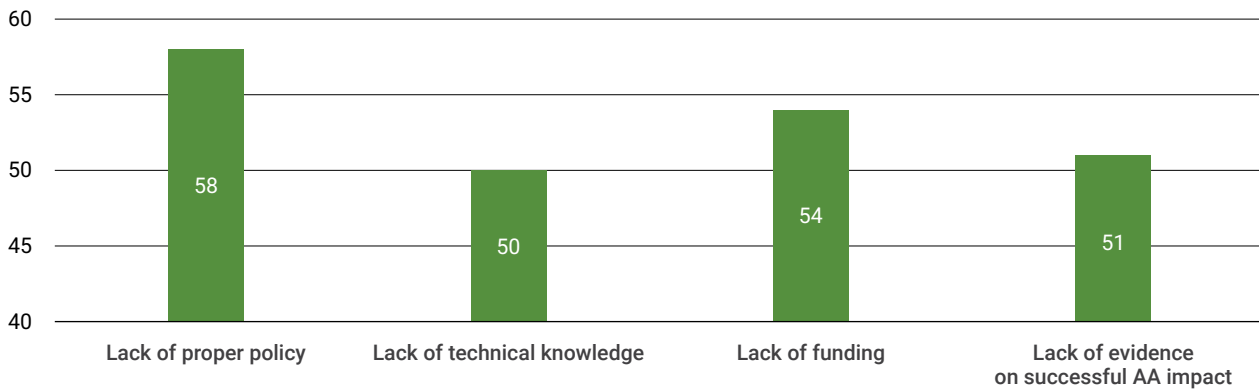
3. Training related to specific funding mechanisms

For example: training related to anticipatory action protocols/early action plans, standard operating procedure (SOP) development for access to DREF or CERF

Policy and institutionalization

Institutionalizing anticipatory action within wider systems for disaster risk management and financing and incorporating it into national and subnational policies are areas of focus for stakeholders in the region. This is vital in countries where anticipatory action is becoming more established and coordination with governments is advancing.

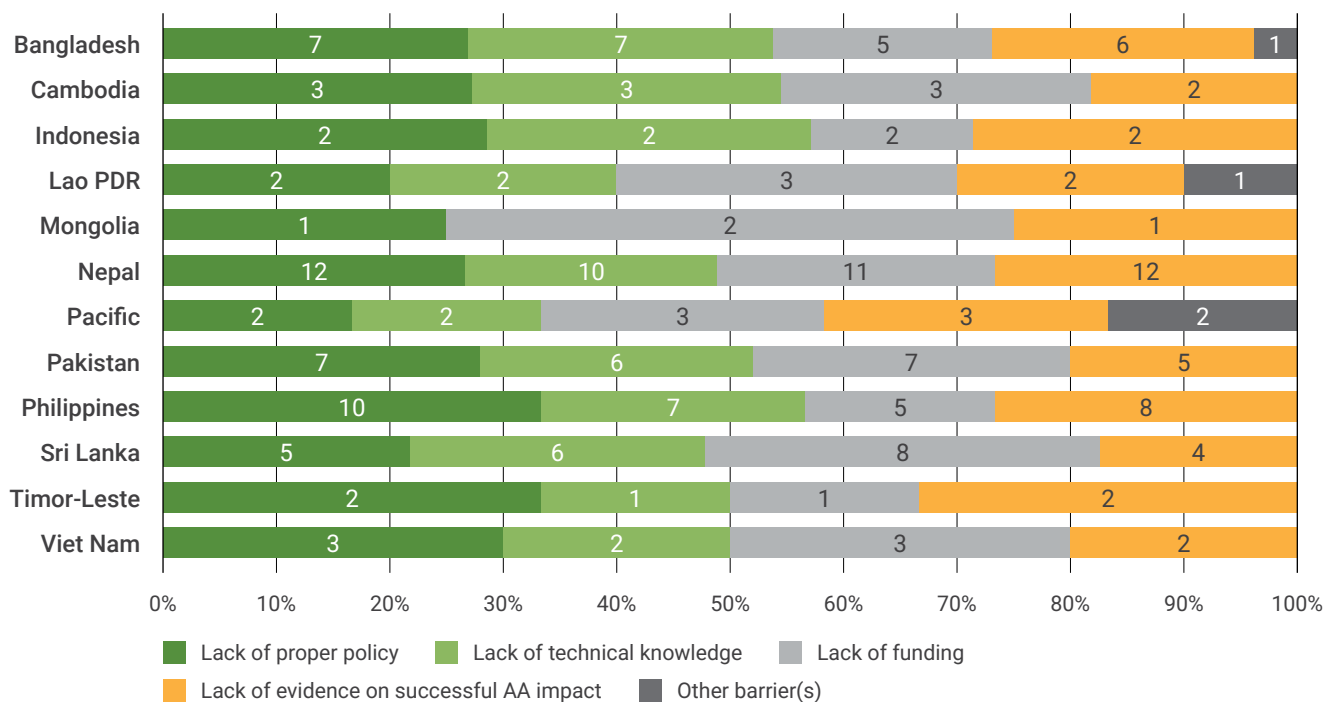
Figure 13. Main challenges for government to implement anticipatory action (number of mentions)



Regionally, the lack of proper policy was the main challenge for governments to implement anticipatory action, according to survey respondents (Figure 13). It should be noted that government representatives did not take part in the survey, so they may face additional or other challenges than those listed here. Figure 13 presents the views of people working for organizations engaged in anticipatory action but not those of the respective governments or their representatives.

Countries differ in what were considered major challenges for governments to implement anticipatory action, depending on the government and context. For example, in the Philippines, lack of funding was considered the smallest challenge, whereas regionally, it is the second most important. In Lao PDR, Mongolia and Sri Lanka, lack of funding was the most important challenge while in Cambodia, Pakistan, Timor-Leste, Viet Nam and the Pacific region, it was among the most important. Difficulties arising from conflict or political instability were only mentioned by survey respondents under “other barriers” in a few countries. However, the survey also did not prompt for them. This could be an area for further investigation in any future iterations of the mapping.

Figure 14. Main challenges for government to implement anticipatory action by country (number of mentions)



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TOWARDS A REGIONAL ROADMAP: OVERARCHING TAKEAWAYS FROM THE MAPPING



Levels of progress and engagement across countries are varied, and regional support towards advancing anticipatory action must reflect this diversity. Because the challenges of implementing and institutionalizing anticipatory action differ as well, addressing them would require a context-specific approach. Considering the breadth, depth and evolution of anticipatory action across Asia and the Pacific, three groups of countries were identified based on the mapping results and stakeholder consultations (see Table 4). These country groupings are not static, and as anticipatory action evolves in the region, they are likely to change. However, they can be useful in identifying and prioritizing what countries need for anticipatory action support. For example, actors in countries with less experience may require more assistance in building a common understanding of anticipatory action between government agencies and partners while those in countries with established programmes may be more interested in learning from their peers about mainstreaming anticipatory action within disaster risk management or in public financial regulation reforms that may be required for the release of national emergency funds based on forecast-based triggers.

Table 4. Level of experience with and institutionalization of anticipatory action

Organizations working within the country have established protocols for the implementation of anticipatory action and have had successful activations of these protocols and implementation of anticipatory action at small, medium or large scale. They have generated evidence on the effectiveness of anticipatory action and can see increasing government interest and ownership of the approach.

While some anticipatory action protocols exist, coordination mechanisms are not yet well established. Temperature checks with governments on their interest and on complementarity with their existing disaster risk management systems are still being formalized. Some evidence also exists for scaling up or supporting mainstreaming efforts.

Organizations are starting to work on the concept and exploring ways to develop their own anticipatory action protocols by seeking technical support and learning from other contexts.

Current pathways to scale up in Asia and the Pacific include sizing individual anticipatory action mechanisms and increasing their number. In some countries, more anticipatory action mechanisms are increasing coverage in terms of the number of people that can be reached through a single activation with allocated funding. This is true for floods and typhoons in Bangladesh, floods in Nepal and Pakistan, and typhoons in the Philippines. In these cases, enhancing coordination will be critical. Countries embarking on a similar trajectory in the coming years may want to learn from these experiences, e.g. how to effectively coordinate a growing number of stakeholders involved in implementing and governing anticipatory action.

There is scope for enhancing documentation, facilitating knowledge exchange and collective learning about anticipatory action protocols/early action plans, and drawing from lessons learned in their implementation and impact. Not all information is available in the public domain, and newcomers trying to find details of action plans may not know exactly what to look for and where. Training materials are also available but some are customized to specific contexts. The regional community could help facilitate access to information, training and peer learning across the region by leveraging existing knowledge sharing platforms such as the Anticipation Hub. However, with training opportunities, it is unclear whether the available training materials can only be used within the different implementing organizations – some might cover processes or mechanisms specific to certain organizations – or if the materials can be shared externally. This would need to be explored if the regional community of practice were to support a training repository.

ANNEX A: Country fact sheets



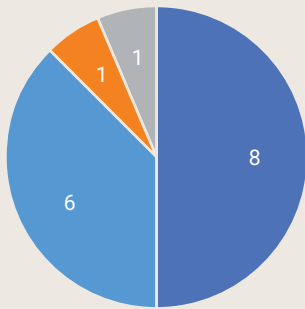
BANGLADESH

The regional mapping identified 11 organizations that responded on anticipatory action mechanisms that are already operational or under development in Bangladesh: Action Against Hunger, BRAC, CARE Bangladesh, Concern Worldwide, Cordaid, FAO, IFRC delegation in Bangladesh, Islamic Relief Bangladesh, OCHA, United Purpose and World Vision Bangladesh.

Anticipatory action geographic coverage

	Flood	Cyclone/typhoon	Epidemic	Heatwave and cold wave
Location	Jamuna River Basin; Bogura River Basin (Jamalpur District); Brahmaputra River Basin; Haor region; Jamalpur District, Jamuna River Basin; Padma	14 costal districts; two subdistricts of Bagerhat District; Satkhira District; Bagerhat District, Khulna Division; Kalapara Upazila in Patuakhali District of coastal region in cyclone-prone areas	Coastal region	Dhaka City

Anticipatory action hazard coverage (number of mechanisms)



■ Flood ■ Cyclone/typhoon
■ Epidemic ■ Heatwave and cold wave

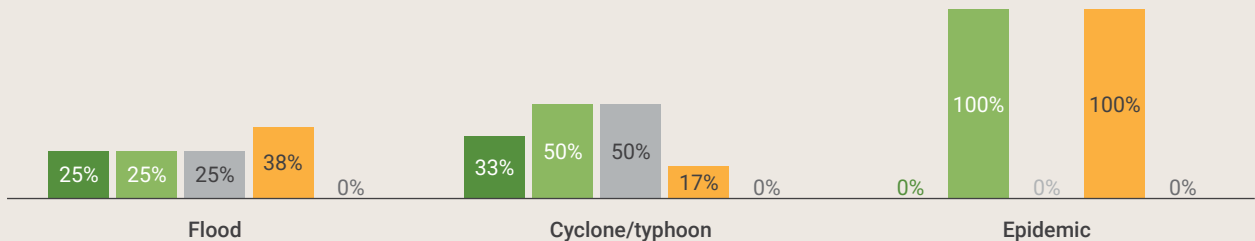
Operational triggers and action protocols developed or under development



	Flood	Cyclone/typhoon	Epidemic	Heatwave and cold wave
Number of triggers	8	5	0	1
Number of anticipatory action protocols	8	6	0	1

Operational challenges for anticipatory action

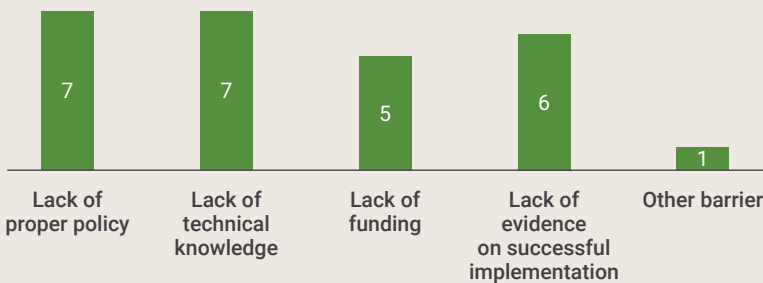
(share of mechanisms for which the challenge has been identified)



■ Lengthy procurement process ■ Difficult access to at-risk communities ■ Lack of manpower on the activation day
■ Lack of coordination ■ Other challenges

Main barriers for the government to implement anticipatory action

(number of mentions)



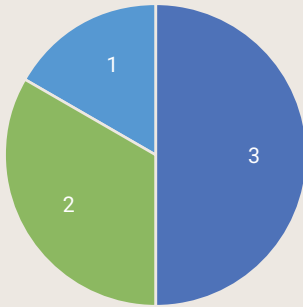
CAMBODIA

The regional mapping identified four organizations that responded on anticipatory action mechanisms that are already operational or under development in Cambodia: FAO, People in Need, WFP and World Vision Cambodia.

Anticipatory action geographic coverage

	Flood	Drought	Cyclone/typhoon
Location	Battambang, Banteay Meanchey, Kampong Thom, Preah Vihear, Kampong Chhnang, Siem Reap (in the operational areas of World Vision Cambodia); all provinces; flood-prone areas	Banteay Meanchey, Battambang, Pursat and Prey Veng; all provinces	Battambang, Banteay Meanchey, Kampong Thom, Preah Vihear, Kampong Chhnang, Siem Reap (in the operational areas of World Vision Cambodia)

Anticipatory action hazard coverage (number of mechanisms)



■ Flood ■ Drought ■ Cyclone/typhoon

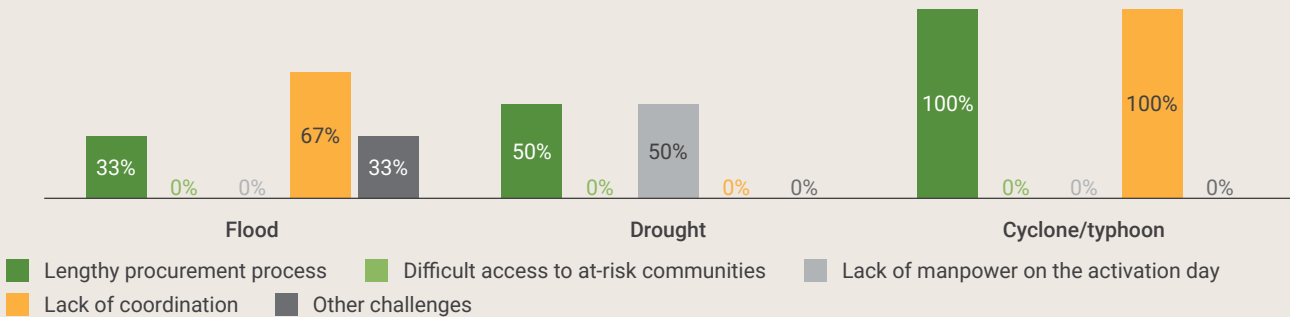
Operational triggers and action protocols developed or under development



	Flood	Drought	Cyclone/typhoon
Number of triggers	2	1	0
Number of anticipatory action protocols	3	2	1

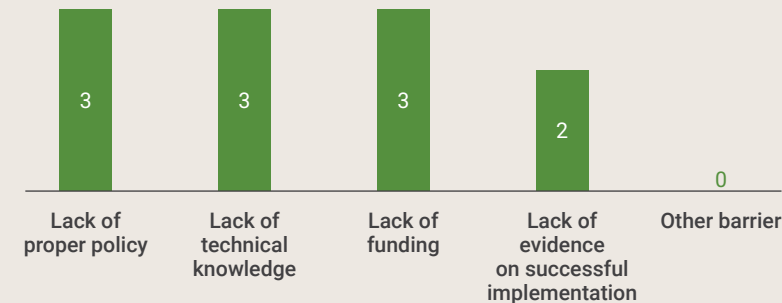
Operational challenges for anticipatory action

(share of mechanisms for which the challenge has been identified)



Other challenges include, for **flood**: the lack of impact-based forecasting and trigger.

Main barriers for the government to implement anticipatory action (number of mentions)



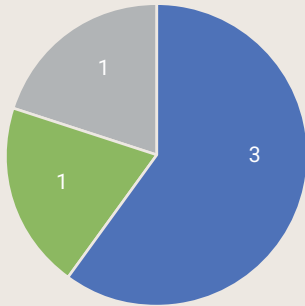
INDONESIA

The regional mapping identified three organizations that responded on anticipatory action mechanisms that are already operational or under development in Indonesia: Indonesian Red Cross Society, Save the Children Indonesia and WFP.

Anticipatory action geographic coverage

	Flood	Drought	Landslide
Location	West Kalimantan and Yogyakarta provinces; national, with the pilot area in South Kalimantan; Banjar District and Tanah Laut District for Barito River Basin; Nanggung Subdistrict in Bogor District, West Java Province	West Kalimantan	Yogyakarta

Anticipatory action hazard coverage (number of mechanisms)



■ Flood ■ Drought ■ Landslide

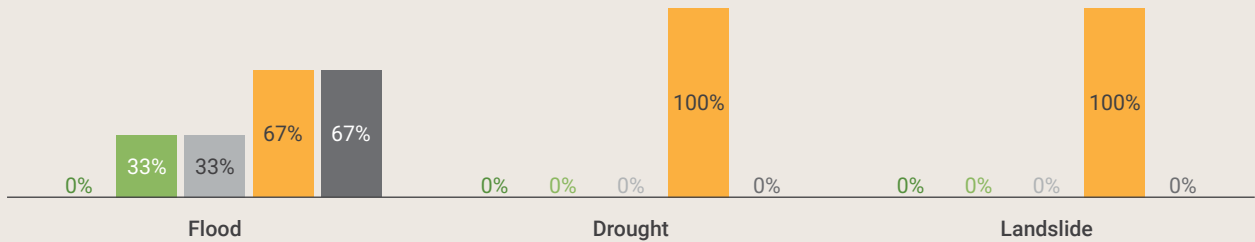
Operational triggers and action protocols developed or under development



	Flood	Drought	Landslide
Number of triggers	2	0	0
Number of anticipatory action protocols	3	1	1

Operational challenges for anticipatory action

(share of mechanisms for which the challenge has been identified)

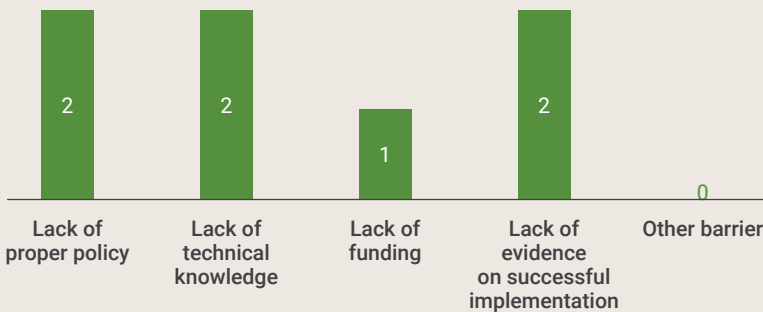


■ Lengthy procurement process ■ Difficult access to at-risk communities ■ Lack of manpower on the activation day
 ■ Lack of coordination ■ Other challenges

Other challenges include, for **flood**: a policy gap that hinders pre-impact funding and the provision of timely support.

Main barriers for the government to implement anticipatory action

(number of mentions)



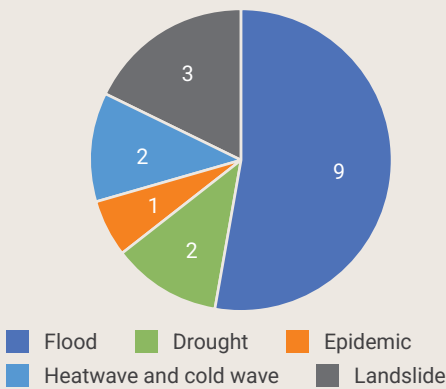
NEPAL

The regional mapping identified 14 organizations that responded on anticipatory action mechanisms that are already operational or under development in Nepal: CARE Nepal, DanChurchAid, Danish Red Cross, Finnish Red Cross, Human Development and Community Service, Mercy Corps Nepal, Nepal Red Cross Society, OCHA, Oxfam, People in Need, Plan International Nepal, Samaj Utthan Yuwa Kendra (SUYUK), Save the Children Nepal, United Nations Children’s Fund (UNICEF), United Nations Resident Coordinator Office and Voluntary Service Overseas (VSO) Nepal.

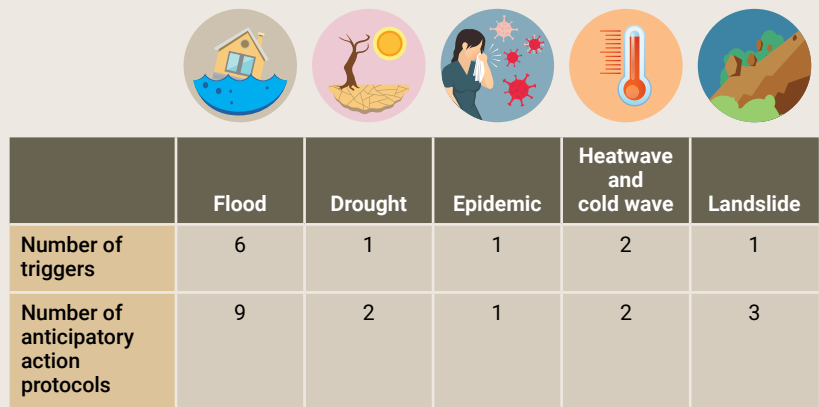
Anticipatory action geographic coverage

	Flood	Drought	Epidemic	Landslide	
Location	Gandaki Province, Marshyangdi River Basin; Surdurpaschim Province, Daoda/Macheli river basin and Laljhadi Palika; Sudur Pashim and Lumbini Province, Karnali and Babai Basin; Karnali, Babai, Doda and Mohana, lohandra; Madhesh Province, Koshi River Basin; Karnali, Koshi; Koshi, Lumbini and Sakaurauchi Province, Koshi and Karnali basin; Kanchanpur district, Mahakali River basin		Karnali Province, Karnali River Basin; Madhesh Province and Karnali Province	Madhesh Province	Karnali Province, Kalikot District; Marshyangdi River Basin, Gandaki Province; Bagmati Province

Anticipatory action hazard coverage (number of mechanisms)

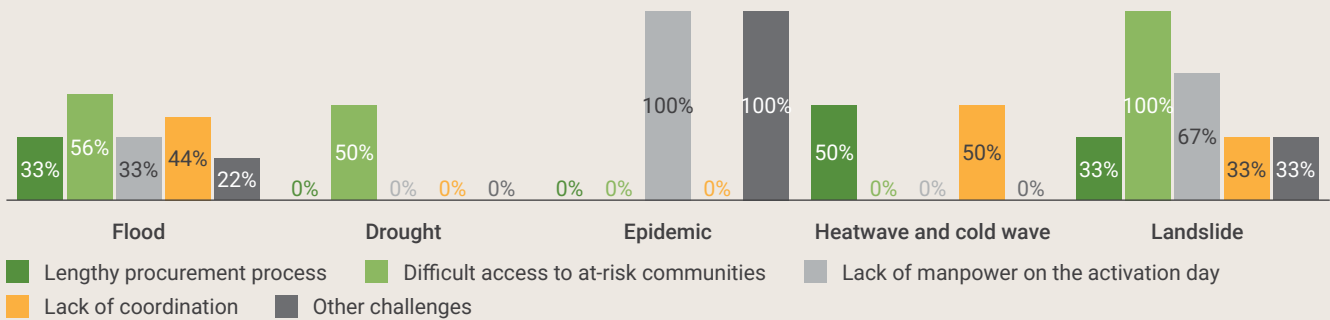


Operational triggers and action protocols developed or under development



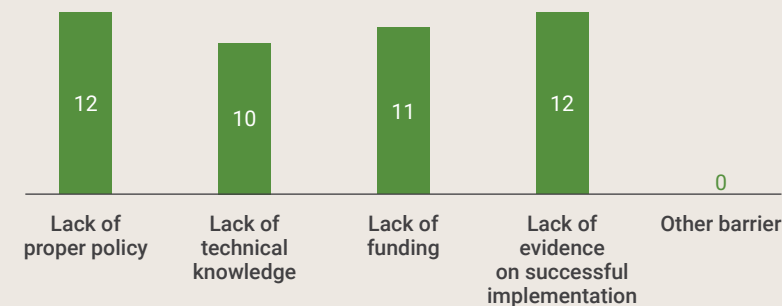
Operational challenges for anticipatory action

(share of mechanisms for which the challenge has been identified)



Other challenges include, for **flood**: weekend or public holidays, banking system for cash transfers, coordination between municipality and bank; and for **landslide**: financing.

Main barriers for the government to implement anticipatory action (number of mentions)



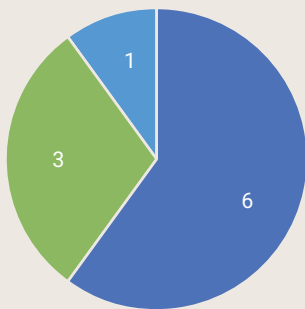
PAKISTAN

The regional mapping identified seven organizations that responded on anticipatory action mechanisms that are already operational or under development in Pakistan: Action Against Hunger, Cesvi Pakistan, Concern Worldwide, FAO, German Red Cross, UNICEF and Welthungerhilfe.

Anticipatory action geographic coverage

	Flood	Drought	Cyclone/typhoon
Location	Thatta District and Mirpurkhas District, Sindh Province; Entire country (Balochistan, Khyber Pakhtunkhwa, Punjab, Sindh) Indus River (focusing on riverine floods); Mirpurkhas District, Sindh Province; Kabul River Basin in Khyber Pakhtunkhwa Province; Sindh and Balochistan provinces; Indus River model for Sindh, Punjab, Khyber Pakhtunkhwa and Balochistan.	Sindh Province (districts of Tharparkar, Umerkot and Dadu); Balochistan, Sindh and Punjab Province	Thatta District in Sindh Province

Anticipatory action hazard coverage (number of mechanisms)



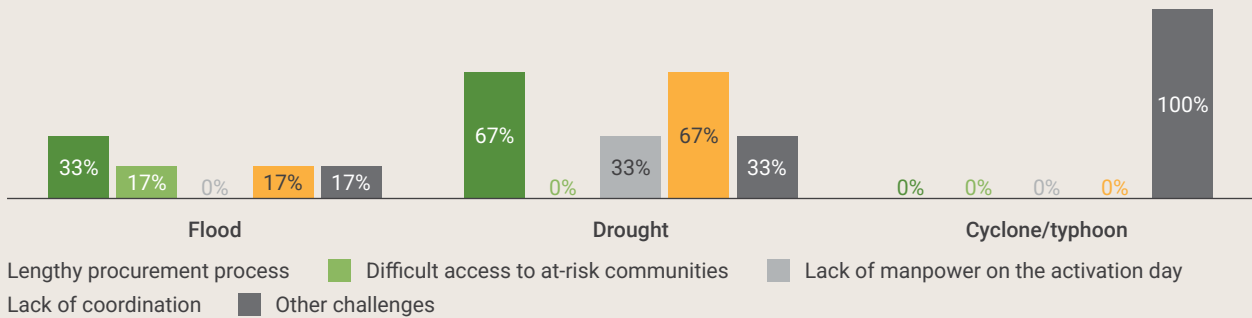
■ Flood ■ Drought ■ Cyclone/typhoon

Operational triggers and action protocols developed or under development



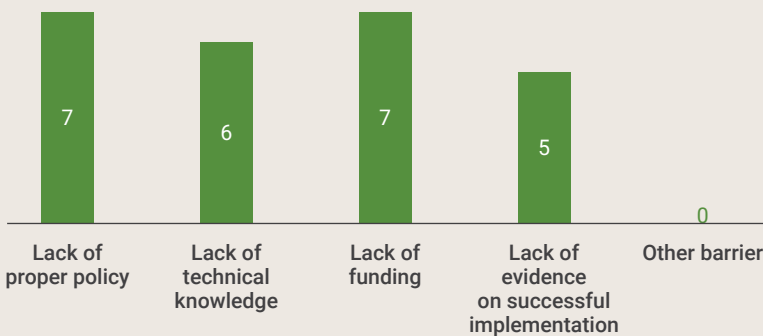
	Flood	Drought	Cyclone/typhoon
Number of triggers	5	2	1
Number of anticipatory action protocols	6	3	1

Operational challenges for anticipatory action (share of mechanisms for which the challenge has been identified)



Other challenges include, for **flood**: funding to cover more of the at-risk population; and for **cyclone/typhoon**: funding.

Main barriers for the government to implement anticipatory action (number of mentions)



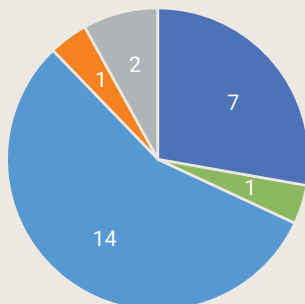
PHILIPPINES

The regional mapping identified 14 organizations that responded on anticipatory action mechanisms that are already operational or under development in the Philippines: Action Against Hunger, Agri-Aqua Development Coalition–Mindanao, CARE Philippines, FAO, Humanity and Inclusion, OCHA, Oxfam Philippines, Médecins du Monde, Philippine Red Cross, Plan International, Save the Children Philippines, Tearfund, UNICEF and WFP. More detailed information on [anticipatory action interventions in the Philippines is available from a national mapping exercise conducted in August 2023 by the national Anticipatory Action Working Group under the Humanitarian Country Team.](#)

Anticipatory action geographic coverage

	Flood	Drought	Cyclone/typhoon	Epidemic	Volcanic eruption	Lahar risk
Location	Cagayan de Oro; Tagoloan River Basin; Mindanao River Basin; Midsayap and Pigcawayan municipalities in North Cotabato; Maguindanao; Lanao del Sur; Cotabato City in the Bangsamoro Autonomous Region in Muslim Mindanao (BARMM); Kidapawan City; Cagayan; Bicol; Agusan; Panay River Basin; Iligan; Marawi; Eastern Visayas; Cagayan de Oro City; Misamis Oriental	Mindanao: specific locations to be revised in coming months	Cagayan Valley Region, Cagayan Province; Bicol Region, Albay Province; Eastern Samar; Surigao del Norte; Caraga region, Surigao del Norte Province; Maguindanao; Lanao del Sur; North Cotabato; Salcedo; Quinapondan; Balangiga; Dolores; Lawaan in Eastern Samar; Virac in Catanduanes; Iligan, Marawi, Eastern Visayas; Tagana-an and Sison; Northern Samar; Catanduanes; Western Visayas: Negros Occidental; Central Visayas: Bohol, Talibon and Kabankalan City; Region 8, Eastern Samar; and BARMM; Region 6	Kabankalan City, Negros Occidental Province, Western Visayas Region Talibon Municipality, Bohol Province, Central Visayas Region	Batangas Province	Albay Province

Anticipatory action hazard coverage (number of mechanisms)



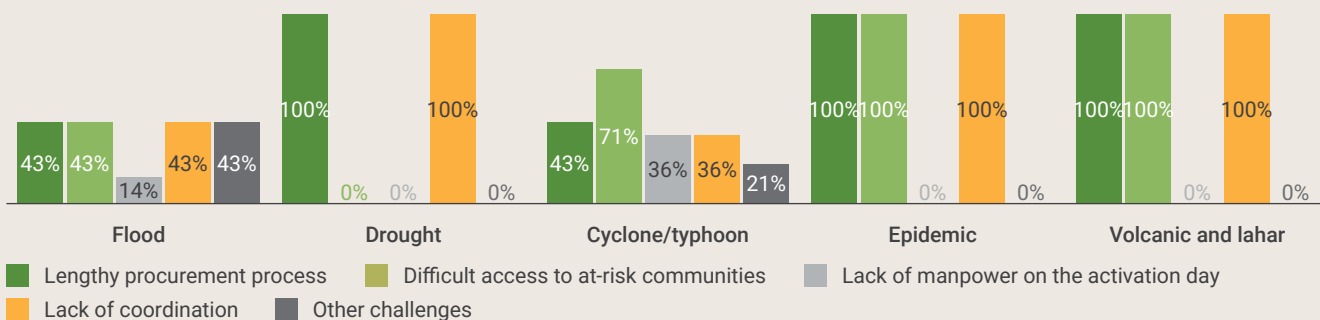
■ Flood
 ■ Drought
 ■ Cyclone/typhoon
 ■ Epidemic
 ■ Volcanic eruption and lahar

Operational triggers and action protocols developed or under development



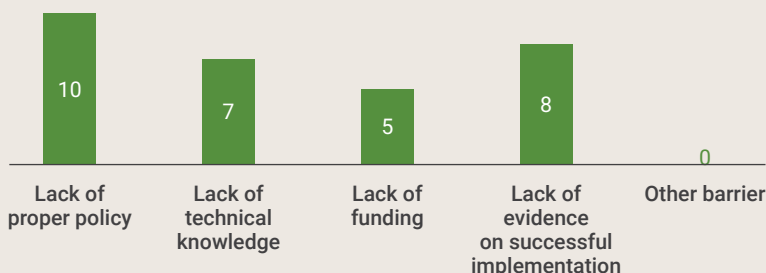
	Flood	Drought	Cyclone/typhoon	Epidemic	Volcanic and lahar
Number of triggers	7	1	11	1	2
Number of anticipatory action protocols	7	1	14	1	2

Operational challenges for anticipatory action (share of mechanisms for which the challenge has been identified)



Other challenges include, for **flood**: staffing, change in political leadership, difficulty in communicating risk and signal; for **cyclone/typhoon**: rapid intensification, difficulty in communication.

Main barriers for the government to implement anticipatory action (number of mentions)



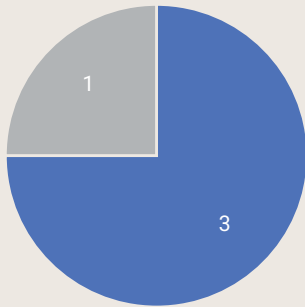
SRI LANKA

The regional mapping identified three organizations that responded on anticipatory action mechanisms that are already operational or under development in Sri Lanka: ACTED Sri Lanka, Handicap International (now Humanity and Inclusion) and World Vision Sri Lanka.

Anticipatory action geographic coverage

	Flood	Landslide
Location	Central, Western, Northern and Southern Provinces	Central Province

Anticipatory action hazard coverage (number of mechanisms)



■ Flood ■ Landslides

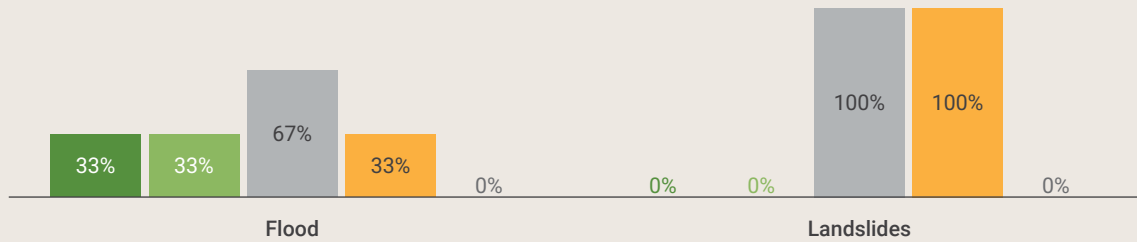
Operational triggers and action protocols developed or under development



	Flood	Cyclone/typhoon
Number of triggers	1	1
Number of anticipatory action protocols	1	1

Operational challenges for anticipatory action

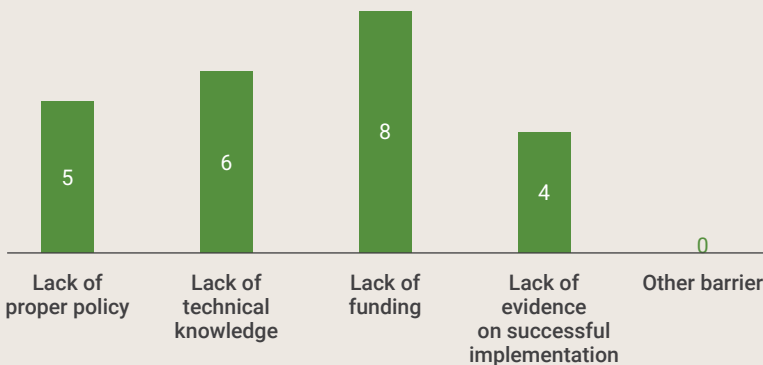
(share of mechanisms for which the challenge has been identified)



■ Lengthy procurement process ■ Difficult access to at-risk communities ■ Lack of manpower on the activation day
 ■ Lack of coordination ■ Other challenges

Main barriers for the government to implement anticipatory action

(number of mentions)



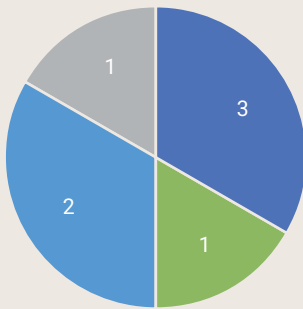
VIET NAM

The regional mapping identified three organizations that responded on anticipatory action mechanisms that are already operational or under development in Viet Nam: CARE International, FAO and Viet Nam Red Cross Society.

Anticipatory action geographic coverage

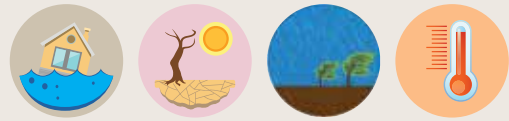
	Flood	Drought	Cyclone/typhoon	Heatwave and cold wave
Location	Ha Noi, Hai Phong, Da Nang, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa	Central Highland and Mekong Delta Region; Provinces: Gia Lai, Kien Giang, Ca Mau, Bac Lieu, Soc Trang, Ben Tre	Ha Noi, Hai Phong, Da Nang, Thanh Hoa, Nghe An, Ha Tinh, Quang Binh, Quang Tri, Thua Thien Hue, Quang Nam, Quang Ngai, Binh Dinh, Phu Yen, Khanh Hoa Central Region; Provinces: Quang Binh, Quang Tri, Thua Thien Hue, Quang Ngai, and Phu Yen	Hanoi, Haiphong and Da Nang

Anticipatory action hazard coverage (number of mechanisms)



■ Flood
 ■ Drought
 ■ Cyclone/typhoon
 ■ Heatwave and cold wave

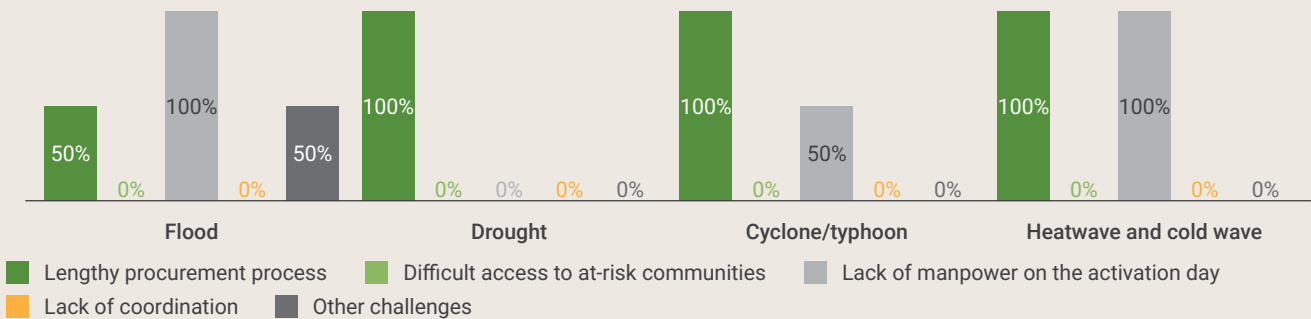
Operational triggers and action protocols developed or under development



	Flood	Drought	Cyclone/typhoon	Heatwave and cold wave
Number of triggers	2	1	2	1
Number of anticipatory action protocols	2	1	2	1

Operational challenges for anticipatory action

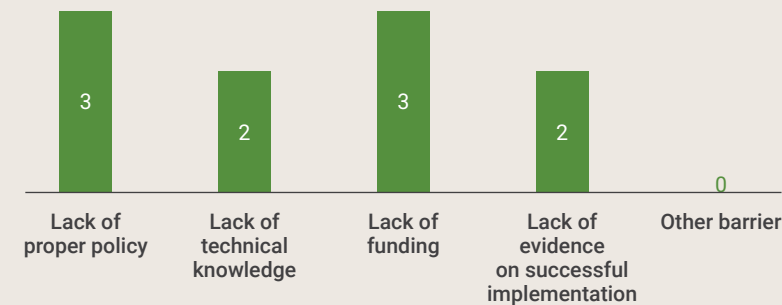
(share of mechanisms for which the challenge has been identified)



Other challenges include, for **flood**: lead time of trigger activation.

Main barriers for the government to implement anticipatory action

(number of mentions)



ANNEX B:

Anticipatory action examples and sector coverage

Table B1. Examples of anticipatory action initiatives by hazard, country and organization

Hazard	Country	Anticipatory action initiatives
Cyclone/ typhoon	Bangladesh	Meet with the trigger activation committee and relay trigger activation information to local Disaster Management Committees (DMCs) and Shelter Management Committees (SMCs), Community-Based Organizations (CBOs) and the community(ies). After this, start predefined tasks for reducing cyclone impact. Actions include evacuation, early harvesting, and the provision of sandbags, water purification tablets, etc.
		Coordinate and communicate with local disaster management institutions, Cyclone Preparedness Programme (CPP), CBOs and different sectors of government, i.e. Department of Agricultural Extension (DAE), Department of Fisheries (DoF) and Department of Livestock Services (DLS); Ready the cyclone shelter by SMC ensuring community engagement for social inclusion; Implement household-level action by the respective CBOs as readiness activity, i.e. reconstruct house, preserve economic goods and valuable documents, identify safe livestock shelter, prepare to leave the house for the cyclone shelter. Act based on forecast, i.e. fish harvesting and selling, crop harvesting, seed storage, etc.
		Safe evacuation and protection of livestock, fisheries and crops, etc.
		Multi-purpose cash assistance, readiness of cyclone shelter, evacuation support, etc.
	Cambodia	Multi-purpose cash assistance (and possibly other actions but no further information was provided)
	Myanmar	Evacuations, early warning (EW) dissemination, cash distribution, non-food items distribution
		EW dissemination to communities, distribution of hygiene kits and multi-purpose cash assistance
	Pakistan	Provision of EW information, sensitization and coordination with relevant stakeholders (government, provincial disaster management authorities, etc).
	Philippines	Multi-purpose cash assistance, WASH, child protection and nutrition activities
		Multi-purpose cash and voucher assistance, asset/livestock evacuation and tagging, distribution of seedlings and distribution of medicines
		Accurate early warning information dissemination; movement of the vulnerable to the nearby school/evacuation centre set up by the local government unit and Tearfund; food packs from the local government unit (stock pre-positioned); focus on care for the women, pregnant and ill; shifting of livestock
		Safe storage of fishing assets, multi-purpose cash assistance
		Multi-purpose cash assistance; support community safe storage of boats and other livelihood stocks; support pre-emptive evacuation by local government unit
		Multi-purpose cash assistance, camp coordination and camp management, shelter strengthening, protection streamlining
		For Cagayan only: multi-purpose cash transfer activities for anticipatory action and training; awareness raising, information, education and communication (IEC) development for readiness activities
		EW information, multi-purpose cash assistance
		Harvesting, shelter provision and livestock evacuation
Distribution of medicines and medical supplies, distribution of dignity kits		
Viet Nam	Multi-purpose cash assistance, water-tight drums to protect food and assets, livestock evacuation tent	
Drought	Afghanistan	Livestock protection packages, cash for work, multi-purpose cash assistance, crop assistance packages
	Cambodia	EW Messaging, training, distribution of inputs and seeds, water pumps, animal fodder and cash transfer
	Lao PDR	Phase 1: dissemination of EW messages; technical training delivery to farmers; drought-resistant rice seeds distribution; field assessment; Phase 2: dissemination of EW updates; drought-resistant bean seeds distribution; field assessment; technical training delivery to farmers with irrigated farms; Phase 3: Multi-purpose cash assistance
	Nepal	Promotion of agroecology, multiple use of water sources, etc.
		Value voucher

Table B1. (continued)

Hazard	Country	Anticipatory action initiatives
Drought (continued)	Pacific	The imminent Disaster Relief Emergency Fund included early warnings, awareness and drought messages – e.g. health and hygiene, particularly alternatives to handwashing with water during COVID-19 – and training communities on rainwater sounding
	Pakistan	Multi-purpose cash assistance, distribution of drought-resilient seeds, smart agriculture, awareness programmes, water reservoirs, food storage, livestock care/vaccinations, diversification of labour force, distribution of supplements for infants, fodder, borehole water pump, water filtration on the water channel, rainwater harvesting, local migration
		Multi-purpose cash assistance, distribution of animal feed supplement, vaccination of animals and capacity building
	Philippines	Enhanced access to drinking water and livestock protection
	Timor-Leste	EW messages, multi-purpose cash assistance, cash for work, water management support and drought-resistant seeds
	Viet Nam	Voucher distribution (for drought-tolerant seeds and fertilizers); cash for work to increase water storage (repair of water points, ponds, wells) and enhance irrigation system (pumps, canal repair); distribution of fodder and health supply to livestock; multi-purpose cash assistance
Epidemic	Philippines	Provision of medicines, distribution of dengue testing kits, IEC distribution, training of health volunteers, distribution of hygiene water kits, distribution of sanitation supplies/community clean-up kits, training on disease surveillance, solid waste management and water quality monitoring
Flood	Bangladesh	Dissemination of EW messages; distribution of watertight containers; distribution of feed for livestock in safe evacuation zones; multi-purpose cash assistance
		Multi-purpose cash assistance, readiness of flood shelter, evacuation support, distribution of dry foods, etc.
		Repair tasks, shelter management and readiness to evacuate; evacuation, temporary shelter preparation, shelter cleaning, multipurpose cash grant, bamboo bridges, etc.
	Cambodia	Initiate WASH interventions, food assistance and multi-purpose cash assistance
		Technical support to national and provincial disaster management authorities to maintain and improve EWS by enhancing its efficiency, outreach and inclusiveness. Actions include disseminating alerts, e.g. piloting SMS broadcasting.
	Indonesia	Evacuation and multi-purpose cash assistance to fulfil basic needs; mental health and psychosocial support; child protection
		Multi-purpose cash assistance (and possibly other actions, but no further detailed information was provided)
	Myanmar	Evacuation and multi-purpose cash assistance
		Upgrade of EWS, pre-positioning of hygiene kits, community mitigation plan, multi-purpose cash assistance
	Nepal	Multi-purpose cash assistance, WASH and child protection interventions, risk communication
		Early warning messaging, evacuation and multi-purpose cash assistance
		Activation of EW messaging; messages informing beneficiaries about multi-purpose cash transfers; multi-purpose cash assistance
	Pakistan	Provide food items, bottled water and emergency medicines; provide temporary shelter and tents; provide kits and adequate, gender-segregated toilets and bathing facilities; and provide sustenance and hygiene items; promote hygiene and health and raise awareness; provide mental health psychosocial support and raise gender-based violence awareness; construct water filtration plants and field hospitals in the affected communities; provide veterinary centres and sheds; set up mental health rehabilitation and recreational centres; provide winter clothing and bedding to the affected communities; construct field schools; provide prefabricated shelters/houses; provide crop seeds, fertilizers and irrigation equipment; implement cash-based interventions such as multi-purpose cash assistance
		Livestock support, multi-purpose cash assistance, health-related interventions, etc.
		Dissemination of EW messages and multi-purpose cash assistance
		Community-level awareness raising; distribution of community disaster-ready tool kits, non-food items distribution
	Philippines	Multi-purpose cash and voucher assistance, asset/livestock evacuation and tagging, seedling distribution, distribution of medicines, community savings groups activation
		Electronic multi-purpose cash assistance; livestock evacuation; local government pre-emptive evacuation
		Cash+ interventions such as floating platforms and tight-lid containers
		Multi-purpose cash assistance
		Early harvesting, relocation and securing of assets
Evacuation, camp coordination and camp management, multi-purpose cash assistance		

Table B1. (continued)

Hazard	Country	Anticipatory action initiatives
Flood (continued)	Sri Lanka	Multi-purpose cash assistance and materials for early warning
		Cash-for-work interventions for community resilience; preparation of safety centres for evacuation in the event of flood
	Viet Nam	Trigger activation message to all stakeholders; kick off multi-purpose cash assistance for the beneficiaries
		Distribution of large plastic sheets that can be used to protect main assets in the house from water (like motor bikes)
Landslide	Nepal	Temporary shelter
		Evacuation
	Sri Lanka	Multi-purpose cash assistance, safety centre enhancement, etc.
Heatwave and cold wave	Nepal	Messaging and non-food items support
		Multi-purpose cash assistance (and possibly other actions but no further information was provided)
	Bangladesh	Multi-purpose cash assistance (and possibly other actions but no further information was provided)
	Myanmar	Multi-purpose cash assistance; setup of first aid posts with shade spaces and water stands; heat awareness visits; dissemination of warnings and forecasts
	Viet Nam	Operating of community cooling centres for outdoor workers and people living in informal settlements (tents and buses); awareness messages
Volcanic eruption and lahar	Philippines	Early warning messages, evacuation and distribution of early warning kits; distribution of WASH kits; advocacy on anticipatory action; IEC provision and awareness raising
Dzud	Mongolia	Food assistance, fodder and hay, electronic multi-purpose cash transfer, destocking of animals for cash
		Multi-purpose cash assistance, animal feed and care kit

Note: Anticipatory action mechanisms where no specific anticipatory action measures were identifiable from the survey responses, where plans were still under development at the time of data collection, or where data was missing are not included in this table. It was not possible as part of this mapping exercise to review anticipatory action plans in detail. Therefore, the information presented in this table relies solely on responses from the participating organizations. In the few cases where respondents referred to secondary documents rather than entering data directly in the survey, such information could not be included here.

Table B2. Number of times respondents mentioned actions in the respective sector being planned to be implemented when their anticipatory action mechanism is activated

	Flood	Drought	Cyclone/ typhoon	Epidemic	Heatwave and cold wave	Landslide	Other hazards
Cash transfer, cash for work or voucher	35	9	20	1	3	2	2
Early warning messaging	9	4	8	1	3	0	2
Other disaster risk management services	19	0	11	0	1	3	3
Water, sanitation and hygiene	4	7	4	1	0	1	1
Health	4	2	3	1	2	1	0
Shelter	4	0	5	0	0	1	0
Agriculture	6	9	7	0	0	0	2
Other sectors	4	2	1	0	0	0	0
No or unclear response	5	2	3	1	0	2	0

Note: This data was used to generate Figure 9. As almost all mechanisms are planning to implement several types of actions when activated, often spanning multiple sectors, the total number of actions shown here exceeds the total number of mechanisms per hazard.





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