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Linking Forecast-based Action to Social Safety Net Programmes in Bangladesh

Desk Review of Forecast-based Action Global Evidence and Lessons Learned

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Disclaimer
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About the Document

This desk review provides local and global evidence to build a case for more cash-based Forecast-based Action in Bangladesh, its institutionalization within government disaster risk management (DRM) and social protection systems. The review is the first step of a broader research piece incorporating an option paper for the integration of FbA within the country's social protection programme, and learning products based on a pilot planned to take place during the 2023 Monsoon season.

About SUFAL

The project "Scaling-up Flood Forecast-based Action and Learning in Bangladesh (SUFAL II) supports 38,340 people in community, sub-national and national level to take Forecast-Based Action (FbA) to protect lives, assets, and livelihoods from the impacts of monsoon flooding in northwest Bangladesh. Under the broader objective of strengthening capacity of government and communities to take early action, SUFAL-II continues to support GoB in developing a community-based approach on FbA; by highlighting risks and specific needs of most vulnerable households and communities and linking them to available institutional resources/services; and in turn, supporting institutions to better assist the most vulnerable communities ahead of anticipated floods.

The European Union Civil Protection and Humanitarian Aid Operations (ECHO) funded SUFAL II is a consortium project managed by CARE Deutschland e.V and implemented by CARE Bangladesh with Concern Worldwide (CWW) Bangladesh- and technical partners Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES). Part of the implementation is sub-contracted to two national non-government organization: SKS Foundation and Echo-Social Development Organization (ESDO).

The European Union and its Member States are the world's leading donor of humanitarian aid. Through its Civil Protection and Humanitarian Aid Operations department (ECHO), the European Union helps millions of victims of conflict and disasters every year. With headquarters in Brussels and a global network of field offices, the EU provides assistance to the most vulnerable people on the basis of humanitarian needs.

About Oxford Policy Management

Oxford Policy Management is committed to helping low- and middle-income countries achieve growth and reduce poverty and disadvantage through public policy reform. We seek to bring about lasting positive change using analytical and practical policy expertise. Through our global network of offices, we work in partnership with national decision makers to research, design, implement, and evaluate impactful public policy. We work in all areas of social and economic policy and governance, including health, finance, education, climate change, and public sector management. We draw on our local and international sector experts to provide the very best evidence-based support.

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List of abbreviations

AA	Anticipatory Action
ADB	Asian Development Bank
AML	Anti-Money Laundering
ARC	African Risk Capacity
ASP	Adaptive Social Protection
ATM	Automatic Teller Machines
BDRCS	Bangladesh Red Crescent Society
BISP	Benazir Income Support Programme
CCA	Climate Change Adaptation
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDI	Combined Drought Index
CERF	Central Emergency Response Fund
CFT	Combating the Financing of Terrorism
CIT	Cash-in-Transit
CWW	Concern Worldwide
DRF	Disaster Risk Financing
DRFI	Disaster Risk Financing and Insurance
DRM	Disaster Risk Management
EA	Early Action
EAP	Early Action Protocol
ECHO	European Commission Humanitarian Office
ECT	Emergency Cash Transfer
EGPP	Employment Generation Programmes for Poorest
EW	Early Warning
EWEA	Early Warning Early Action
FAO	Food and Agriculture Organization
FbA	Forecast-based Action

FbF	Forecast-based Financing
FCDO	Foreign, Commonwealth & Development Office
FFWC	Flood Forecasting and Warning Centre
FSNAU	Food Security and Nutrition Analysis Unit at FAO
GFFO	German Federal Foreign Office
GRM	Grievance Redress Mechanism
IbF	Impact-based Forecast
IFRC	International Federation of the Red Cross
KII	Key Informant Interview
LEAP	Livelihoods Early Assessment and Protection
M&E	Monitoring and Evaluation
MIS	Management of Information Systems
NADRA	National Database & Registration Authority of Pakistan
NGO	Non-Governmental Organization
NID	National Identification Documents
NSER	Pakistan's National Socio-Economic Registry
NSSS	National Social Security Strategy in Bangladesh
OCHA	Office of the Coordination of Humanitarian Affairs
OPM	Oxford Policy Management
PDM	Post-distribution monitoring
PSNP	Productive Safety Net Programme (Ethiopia)
PwD	Person with Disabilities
REAP	Risk-Informed Early Action Partnership
RFM	Risk Financing Mechanism
RIMES	Regional Integrated Multi-Hazard Early Warning System for Africa and Asia
SCTP	Social Cash Transfer Programme (Malawi)
SNHCP	Safety Net for Human Capital Programme (Somalia)
SOD	Standing Order of Disaster
SP	Social Protection
SRSP	Shock Responsive Social Protection

SSA	Social Security Allowance (Nepal)
SSNP	Social Safety Net Programme
SUFAL	Supporting Flood Forecast-based Action and Learning
TWG	Technical Working Group
UN	United Nations
UNDRR	United Nations for Disaster Risk Reduction
UNFPA	United Nations Populations Fund
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
US$	United States Dollar
WASH	Water, sanitation, and hygiene
WFP	World Food Programme
WHO	World Health Organization

Glossary

Disaster Preparedness - A set of measures undertaken in advance by governments, organisations, communities, or individuals to better respond and cope with the immediate aftermath of a disaster, be human-induced or caused by natural hazards. The objective is to reduce the loss of life and livelihoods.

Disaster Risk Financing (DRF) – A discipline that addresses the fiscal impacts and economic losses caused by natural hazards (e.g., cyclones, droughts, earthquakes, floods) and supports countries to increase their financial resilience to natural disasters.

Disaster Risk Management (DRM) – The application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

Forecast-based Action / Early Action / Anticipatory Action (FbA/EA/AA) – Action initiated before a natural or climate-related disaster hits, as soon as a forecast reaches a specified threshold value and activates a trigger. It aims to respond to a predicted disaster *ex-ante*, as opposed to just relying on *ex-post* humanitarian responses[1]. It aims at minimising the impacts of extreme weather events and save human lives or protecting livelihoods.

Forecast-based Financing (FbF) - A programme or mechanism that enables access to humanitarian funding for early action based on in-depth forecast information and risk analysis. The goal of FbF is to anticipate disasters, prevent their impact and reduce damage and losses, by making disaster risk management more effective.

Shock-responsive Social Protection (SRSP) – An aspect of social protection systems that focuses on shocks that affect a large proportion of the population simultaneously (covariate shocks). It encompasses the adaptation of routine social protection programmes and systems to cope with changes in context and demand following large scale shocks.

[1] Ex-ante and ex-post responses simply categorize them based on the time of intervention, falling either before or after a shock.

Executive Summary

This desk review of Forecast-based Actions (FbA) in Bangladesh and in different areas of the globe affected by recurrent and devastating weather-related shocks intends to contribute to the debate taking place in Bangladesh and in other countries regarding the emerging lessons and best practices in this area of work within the disaster risk management cycle.

Evidence shows that Forecast-based Action is an effective approach for risk mitigation in the event of a weather-related shock. It can be effective in reaching those most in need with cash and in-kind support that can prevent a disaster from hitting them harder. Where cash is used, it is predominantly unconditional, unless during a slow-developing crises or where there is a compelling case for health or livelihood-related outcomes to be promoted through soft-conditionalities.

The review also points to a variety of perspectives on what constitutes Forecast-based Action, depending on institutional positions regarding disaster risk management as a whole, cash versus other forms of assistance, and the expansion to livelihood-protection activities, just to mention a few examples. Also, different programming models and "entry points" – i.e., opportunities for promotion of this particular type of approach within a government policy environment - were recorded during the review, depending on the level of maturity of a country's DRM and social protection sectors, level of exposure to frequent disasters, international presence, and other parameters.

While social safety net programmes around the world can have a poverty-centred or more of a life-cycle approach, very few feature explicit climate-sensitivity in their targeting approach or operational framework. Also, it is not yet possible to find national budgets incorporating earmarked funding for forecast-based interventions and there is reluctance by governments around the world to activate emergency funding ahead of a shock, even if predicted in advance.

The key lessons learned through the review are listed below:

Forecast-based action can have different entry points at legislative or policy level, from parliamentary acts and standing orders, or through programmes and contingency plans at national or local level. All routes can be effective in successfully triggering a response. However, the institutionalization of the anticipatory approach within DRM or SP at legislative and policy level is instrumental for guaranteeing the release of financial resources able to back it up at the national and local level without relying on irregular, often sector-earmarked donor funding cycles.

The integration of DRM and Social protection practices, including FbA, requires adequate institutional dialogue for an optimal governance model, shared systems, and documentation. Shock-responsive social protection necessarily involves intense institutional dialogue for the integration of the two government functions through common operational frameworks and a governance model.

A decentralised DRM governance model helps designing effective solutions based on local triggers, contingency plans, and decision-making. As much as possible, governments need to allow locally managed funds, appropriately topped up with national funds and programmes as required, to be spent on disaster preparedness and on responses, including FbA.

Avoiding fragmentation of EW systems in one country is a critical condition for building government capacity and for providing clear instructions in times of shock.

The interplay between the national - or international in the case of disasters affecting more than one country- and the local-level analysis is a critical factor for accurate weather forecasting and management of early warning information and communication, as much as it is for the coordination of the response itself.

A more wholistic approach to resilience building and climate adaptation needs to be adopted to protect lives and livelihoods during weather or climate/related hazards. Shock-responsive social protection systems, permanently linking DRM to SP and Climate Change Adaptation can create the conditions for more and better integration of risk mitigation and disaster response initiatives like FbA, and for the release of adequate resources for it.

Livelihood protection is a critical aspect during the preparedness and response phase of a disaster management cycle.

Government targeting policies in low- and middle-income countries can at times be a barrier to the successful integration of FbA and SRSP, due to a trend to prioritize the most socio-economically vulnerable in society without capturing climate-vulnerability criteria as part of the protocols.

Social registries are not a pre-requisite for successful targeting within SRSP systems. Data can be collected through new assessments and registration processes to identify those in need of assistance and through on-demand registration as it was the case for COVID-19 assistance programmes in various countries. In fact, no registry will ever have perfect coverage, suffering from exclusion errors and outdated information, thus processes will always need to be in place to reach those excluded from them.

Electronic payments are increasingly regarded as the gold standard in the social protection sector, for their flexibility, security, and the digital traceability of all transactions. Since digital financial services can allow for real-time updates on the transaction status and minimize the need for manual operations during complex disaster preparation activities, the move towards e-money is unanimously advocated for.

End-to-end information management lays at the core of any forecast-based analysis, financing, and action and, on this account, it requires data accuracy, language interoperability and integrated systems to effectively trigger an FbA on time and within the correct parameters. National governments are increasingly shifting towards better structured, institutionalized digital information systems.

Case management in emergencies is a sensitive area of work which requires dedicated, trained, and impartial resources for administration, case resolution and communication, particularly in times of crises.

Several lessons and recommendations apply to the **Bangladesh context**.

The work currently led by a "Forecast-based Funding (FbF)/FbA" taskforce in the country offers opportunities to deepen the analysis of possible impacts of floods and other recurrent hazards, and to link a national EW framework with other ongoing large-scale preparedness and resilience initiatives to cover the entire DRM cycle, including asset and livelihoods protection.

The taskforce presents extraordinary opportunities to develop a national strategy and find its institutionalisation path at policy level, to establish, among other things, a strong legal backing and sustainability for FbF. The development of a Disaster Risk Financing (DRF) strategy, including funding for SRSP, is the way forward for prompting more government ownership of SRSP instruments and the institutionalization of the FbF approach.

Cash-based FbA should be hosted by government agencies possessing vast experience in SRSP and where information and operational systems are mature enough to scale-up effectively and be activated within short lead times. District contingency plans and funds need to integrate allocations that can cover FbA, support services – including case management, currently under resourced - to complement national level contributions based on a harmonized EW system.

A careful assessment of key SSNPs eligible for scale-up in the instance of floods is currently ongoing and needs to be completed ahead of the start of the 2023 rainy season. The identification of households bearing environmental vulnerabilities in areas particularly affected by regular floods should be prioritized along with the creation of a purposeful registry accessible by all major implementing partners in the country. A roadmap for the digitalization of social protection data management systems and the creation of an integrated data environment should also be made a priority to support the country's SRSP strategy.

Finally, a dialogue between social protection and national registration government institutions needs to be pursued for the registration and release of national identity documents to the most vulnerable individuals eligible – or enrolled – in SSNPs around the country. Such mass registration campaign could effectively speed up the digitalization of social assistance payments and provide a considerable boost to the government financial inclusion agenda.

1 Introduction and background of the review

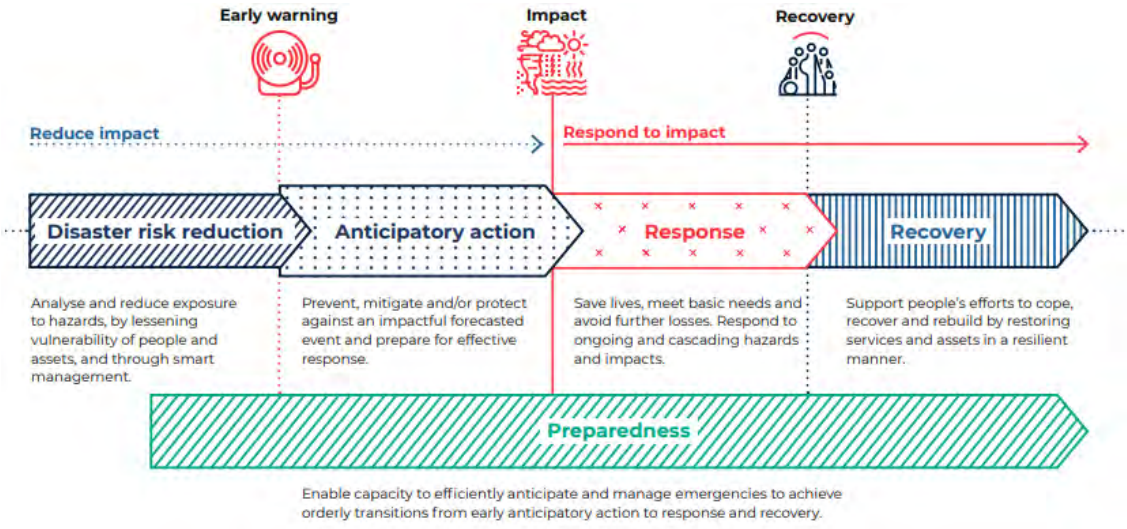
In presence of recurrent weather-related disasters and the harshening effects of climate change, DRM is under the spotlight as an area of government and international debate and work requiring more effective strategies and resources. Across national roundtables and global sector working groups, consensus is building around the need to shift from a responsive (ex-post) approach to shocks to a wholistic one looking at weather dynamics and long-term climate trends produced by global warming, while also addressing the root causes of socio-economic vulnerability, hydro-geological instability, and weak economic and urban planning.

Since the mid-2000s, increasing research and practice emerged to support more funding being allocated to forecast-based action to mitigate the risks associated with an ever-increasing number of climate-related disasters (Costella et al. 2017: 35). At the same time, cash was emerging as the one of the most flexible and impactful instruments in shock responses around the world, and more so for anticipatory actions which uphold individual decision-making and tailor-made solutions as an effective approach to protection against destruction. Since then, leading international agencies such as the International Federation Red Cross movement (IFRC), the Food and Agriculture Organization (FAO), the World Food Programme (WFP), the START Network, with funding from bilateral financing institutions such as the United Kingdom Foreign, Commonwealth & Development Office (FCDO), and the European Union through the Commission's European Community Humanitarian Office (ECHO), or multilateral funding through the United Nations Office of the Coordination of Humanitarian Affairs (OCHA) and the Central Emergency Response Fund (CERF) instruments have all been participating in more of less coordinated actions to show the cost-effectiveness of delivering assistance within the small window preceding a disaster.

Particular attention is currently reserved to contexts, such as Bangladesh, which are impacted by recurrent and predictable natural shocks, some linked to climate change-related dynamics, whose effects can be mitigated through a coordinated strategic action in the pre-disaster period. The diagram below, prepared by the Anticipation Hub[2], presents the distinct phases within a disaster risk management process, each with its objectives, activities, and key outputs.

[2] The Anticipation Hub is an online knowledge and exchange platform for practitioners, scientists, and policymakers to enhance their ability to anchor anticipatory action in the humanitarian sector.

Figure 1 - Disaster Risk Management Approach



Source: Anticipation Hub (IFRC, German Red Cross, Red Crescent Climate Centre)

Anticipatory action or forecast-based actions are defined as those activities implemented within the period in between the trigger of an alert by a government-authorized institution able to provide an analysis of the timeliness (lead time), possible effects and impact of an imminent weather or climate-related disaster, and the event itself. It is important to acknowledge the existence of different definitions of what constitutes FbA, depending on its application to rapid onset or slow-developing shocks (such as droughts), based on the time of activation and on its placement along the DRM continuum and, finally, depending on intervention's agency, whether it is government- or externally-led, and whether the social protection system is leveraged. For the sake of broadening the spectrum of experiences to learn from, this report incorporates a full range of programming options that bring relevant evidence in each of the operational areas of work under investigation (see next section for more information about the review methodology).

Forecast-based actions typically require a series of basic pre-conditions to be in place:

1. The existence of a national or local Early Warning (EW) system, endorsed by the government as well as the international donor and implementing partners community, able to trigger and inform preparedness activities in a specific geographic location by providing accessible information regarding lead times, possible localized effects, and the impact of a disaster in terms of loss and damage.

2. The existence of a Forecast-based Financing (FbF) system able to generate and distribute resources when these are needed to fund Forecast-based Action and a post-disaster response.

3. Structured, government-led, governance and operational systems able to host FbA, to guarantee its required resources and to integrate it within other shock response activities taking place before and after a disaster hits.

In order to satisfy this third requirement, cash-based FbA interventions have increasingly been associated to government shock-responsive social protection (SRSP) systems, which have already proved to enhance the scalability, timeliness, predictability, and adequacy of ex-post responses in most disaster-prone contexts (Costella, 2017: 31). Many are the examples of the way poverty-targeted Social Safety Nets Programmes (SSNPs) have been leveraged to reach the most vulnerable groups, offering them a top-up transfer value to mitigate the risks associated with large-scale shocks. In countries like Bangladesh, the predictability of hydrogeological damage caused by the recurrent floods in the riverine areas calls for systemic action using some of the existing national and local SSNPs. The institutionalization of FbA as part of regular cash assistance schemes can enhance its efficiency and effectiveness, while also linking it with programmes aiming to reduce the very same drivers of environmental vulnerability, that is poverty and lack of sustainable livelihood means. In so doing, effectively design social protection systems with adequate, regular, and predictable transfers act to strengthen the communities' resilience and social contract.

On this basis, sector researchers and practitioners have turned their attention to trying to integrate FbF and FbA as part of SRSP guidance and operational strategies. **This review intends to explore some of the most recent attempts in doing so FBA and to summarize the key operational lessons that can be used to stimulate even more integration in contexts most at risk of recurrent weather and climate-related disasters**[3]. The main audience of this review are agencies and government stakeholders involved in humanitarian and SRSP projects worldwide, with a **particular focus on the SUFAL II programme team and other contributors to the FbF and FbA strategies for flood disaster management in Bangladesh.**

[3] Not all weather-related disasters are climate change-related; however, examples of climate change-induced weather disasters are prolonged drought, more intense storms due to higher ocean water temperatures and landslides caused to the receding of glaciers.

2 Review objectives and approach

Linking forecast-based action and social protection is a nascent area of focus contributing to improving how disasters are managed. The advantages of act ahead of a shock in terms of operational agility, coordination (especially with national and local government agencies) and cost-effectiveness compared to ex-post programming have not yet been fully unveiled, and research is currently ongoing from different academic and implementing agencies. Furthermore, not enough operational evidence has so far been consolidated to be able to confidently replicate the most positive experiences further. In fact, the process of establishing an FbA model or programme can often be quite complex, involving elaborate data to convey clear messages in a timely manner to the programme teams, having already completed targeting and registration activities and fine-tuned delivery and case management services.

A wealth of information is readily available on SRSP programmes, much of which can be used to inform the evolution of SP systems to be more risk-informed and agile to respond to covariate shocks. In fact, ex ante and ex post interventions share the same urgency and need for systems (for financing, targeting, transfer, among others) to be efficient while adhering to key requirements within government-led services, such as sound financial compliance, standard documentation and operating systems, audit readiness. Therefore, the lessons learned from ex-post interventions can support learning in forecast-based action and be capitalised to produce valuable recommendations for the pre-disaster period.

Drawing from both ex-ante and ex-post experiences, this review can contribute to the growing learning base of what conditions, coordination structures, resources and technical work may be required to successfully integrate FbA and social protection in Bangladesh and other contexts.

The review's main objective is to convey operational evidence and concrete lessons generated by cash distributions within cash-based FBA pilots, simulation exercises and programmes to respond to fundamental questions such as:

1. What is the best operational set-up and delivery platforms for cash-based FbA programmes?
2. What are the entry points for integrating FbA within DRM and social protection strategies?
3. How does a risk-informed social protection programme looks like, in terms of design, delivery platform and administrative systems?
4. How can the Government of Bangladesh translate this learning into FbA/SRSP integration options and operational frameworks?

This review exercise primarily relied on existing programmatic documents - project documents, implementation reports, lessons learned reports, technical briefs, humanitarian and social protection technical briefs, feasibility and case study documents, academic literature and online resources such as the Anticipation Hub (https://www.anticipation-hub.org/) or the CERF page dedicated to anticipatory action (https://cerf.un.org/anticipatory-action). Operational evidence was gathered from several specific programmes, pilots, and simulations exercises involving cash, listed in Table 1. More information on the institutional experiences and position with regards to FbA was gathered through virtual Key Informant Interviews (KIIs) held between the 2nd of December 2022 and the 17th of January 2023 (see the contributors' list in Annex 1).

Table 1 - Reviewed SRSP and FbA initiatives (relevant country policies, strategies, programmes, pilots, simulations, feasibility studies etc.)

Country	Year	Lead organization	Programme Funding	Scope	FbA/SP integration components (in place or under consideration)	Ex-ante/Ex-post	Triggered activated if ex-ante (Y/N)
Bangladesh	2020	Bangladesh Red Crescent Society, German Red Cross	ECHO	FbF as an Early Warning Early Action (EWEA) mechanism for floods	None	Ex-ante	N
Bangladesh	2019-2023	CARE	ECHO	Supporting Flood Forecast-based Action and Learning in Bangladesh (phase I and II)	Yes	Ex-ante	Y
Bangladesh	2020-2021	UNICEF, WFP, UNFPA, FAO, Save the Children	OCHA/CERF	Bangladesh Monsoon Floods	Targeting, information management, payments, communication.	Ex-ante	N
Bangladesh, Ethiopia, Kenya, Pakistan, Sierra Leone, and Uganda.	2020-2021	National governments and various partners.	National governments and various partners	COVID-19 social protection responses	N/a	Ex-post	N/a
Colombia / Nicaragua / Dominican Republic	2022	FAO	FAO	Feasibility study for the activation of FbA using social protection systems	N/a	N/a	N/a
Caribbean Islands	Continuous	National governments and various partners.	National governments	Cash transfer schemes, social insurance, labour market policies, school feeding and food assistance.	N/a	Ex-post	N/a

Country	Year	Lead organization	Programme Funding	Scope	FbA/SP integration components (in place or under consideration)	Ex-ante/Ex-post	Triggered activated if ex-ante (Y/N)
			and various partners.				
Ethiopia	Continuous	Federal Government of Ethiopia	Federal Government of Ethiopia, World Bank	The Productive Safety Net Programme (PSNP) integrates ex-post humanitarian assistance within a risk financing strategy, aimed at protecting communities against climate-related shocks.	N/a	Ex-post	N/a
Madagascar	2020-2022	Government of the Republic of Madagascar, Welthungerhilfe; German Federal Foreign Office (GFFO); Start Network.	German Federal Foreign Office (GFFO); Start Network.	FbA for addressing drought-induced food insecurity in Madagascar	None	Ex-ante	Y
Malawi	Continuous	Government of the Republic of Malawi, WFP	WFP, World Bank, European Union, Irish Aid	Vertical expansion of the Social Cash transfer Programme (SCTP) to respond to the recurrent lean season food shortages with additional cash to the most vulnerable households.	N/a	Ex-post	N/a
Nepal	2021	ECHO, Danish Red Cross	ECHO	Forecast-based Action and Shock Responsive Social Protection in Nepal	N/a	Ex-post	N/a

Country	Year	Lead organization	Programme Funding	Scope	FbA/SP integration components (in place or under consideration)	Ex-ante/Ex-post	Triggered activated if ex-ante (Y/N)
Nepal	2021	UNFPA, UNICEF, UN Women, WFP and WHO – in partnership with the Nepal Red Cross Society	OCHA/CERF	Collective anticipatory humanitarian action to people at risk of predicted severe monsoon flooding in Nepal.	None	Ex-ante	Y
Pakistan	2011-2019	Government of Pakistan	World Bank / WFP	Vertical expansions of the Benazir Income Support Programme (BISP) in drought-affected areas.	N/a	Ex-post	N/a
Philippines	Continuous	Government of the Philippines	Government of the Philippines, Asian Development Bank (ADB), World Bank	Conditional social safety net programme targeting the poorest of the poor in the Philippines	N/a	Ex-post	N/a
Philippines / Vietnam	2020-2022	ECHO-FAO Pilot Programmatic Partnership	ECHO	Disaster Risk Reduction / Disaster Preparedness	Financing, governance, coordination, targeting, information management, linkages.	Ex-ante	N
Somalia	2019-ongoing	Federal Government of Somalia, WFP, World Bank,	World Bank, WFP, OCHA (CERF)	Forecast-based Action pilots using the government-led flagship programme the Shock-Responsive Safety Net for Human Capital Project (SNHCP), also known as Baxnaano.	All programme components for vertical and horizontal expansion.	Ex-ante / Ex-post	Y

3 Design considerations and intervention areas when integrating FbA and social protection systems

This section presents the key SRSP areas of work and the critical questions to be asked when designing cash-based FbAs, including any integration with government social safety net programmes. The same set of questions were used to review the identified experiences and to draw relevant learning.

In line with the main objective of this review, the collected evidence is organised along the standard SRSP key intervention areas for building and strengthening shock-responsive social protection systems widely used by sector practitioners (see Table 2), with the addition of "linkages with early warning systems" for readiness and activation of a FbA. Using this framework allows to combine relevant information from both ex-ante and ex-post responses, from programmes or feasibility studies, while leading the reader to acknowledge the positive (or negative) practices emerging from the most relevant experiences. The information is further elaborated to specifically point to FbA/SRSP integration practices that constitute a replicable element in different contexts or a particular lesson that practitioners in different contexts can adopt.

Among the key lessons to be learned from past FbA/SRSP experiences is the scale-up modalities best suited to different humanitarian, policy, and programmatic contexts in place. The objective of linking FbA with social protection programmes is precisely that of leveraging existing design features, systems, and capacities to scale-up the intervention and reach those most in need of urgent assistance. In SRSP this can be done through a **vertical expansion** of social assistance, a **horizontal expansion** of its beneficiary pool, the partial use of programme administrative systems to support a separate instrument (**piggybacking**) or an **alignment** between an FbA intervention and an existing SSNP (OPM, 2018). Finally, a programme can be **refocused**, to respond to new needs by shifting transfer schedules or prioritizing specific geographic areas.

The key questions used to guide this review are listed below:

Table 2 - Key questions for identifying FbA /SRSP operational lessons learned

Intervention areas[4]:	Key questions for identifying FbA/SRSP lessons and best practices
Legislation, policy, and governance	What are the essential legislation and policy lines, if any, that need to be in place for successfully linking an FbA strategy and the national SP system? What is the most appropriate governance structure for FbA in a social protection environment? What level of decentralization is best suited to FbA responses and its integration within SP systems? What strategic framework should be in place for facilitating inter-ministerial cooperation, harmonization of approaches, systems integration, and data sharing?
Linkage with early warning systems and coordination	Which established social protection programs are most suited to support FbA? What are the most appropriate scale-up mechanisms for accommodating FbA? What is the ideal coordination structure for the effective use of SP instruments for FbA and continuous learning about it? What are the key success factors for linking SP initiatives with an Early Warning system? What system features can make the linkage more effective?
Financing	What are the key features of a financing strategy that can ensure continuity of SP services while enabling them to scale-up in time for an effective FbA? What can be an effective risk-financing mechanism able to secure resources to respond to weather and climate-related hazards with FbA? How to best structure a government-led risk-financing mechanism?
Intervention types, objectives, and linkages	What are the criteria and tools to adopt to identify the correct transfer modality, value, frequency, and duration of a transfer in a situation of recurrent disasters requiring FbA? What are the objectives of integration of FbA with SP systems (life-saving, livelihoods and asset protection, food security…etc.)? Can any of the linkages activated during shocks be permanently integrated within social protection programmes? Can multi-package solutions increase the intervention's effectiveness in achieving its objectives or expand to produce additional outcomes (nutrition, health…)?

Targeting, enrolment and registration	What are the most appropriate targeting protocols to adopt in the case of FbA using social protection systems? Do any of the regular social protection programmes already target populations affected by disasters? How can social protection targeting protocols be adapted to better respond to the risks, shocks, and stressors that a country regularly faces? What strategies can be adopted to speed up enrolment and transfers in FbA interventions?
Payment systems	What are the most effective payment modalities in contexts of recurrent disasters? What administrative processes are required to activate payment services with third-party providers?
Information and communication systems	What is the best set-up for EW data to flow seamlessly for effective communication? What function of FbA are best automated and digitalised? What are the essential requirements for a data management environment to perform the targeting, verification, registration, payment, case management, Grievance Redress Mechanism (GRM), M&E functions in FbA? What kind of communication strategy can effectively support the use of FbA during a shock.
Grievance management and protection	What are the additional case management requirements generated by the integration of an FbA element within existing social protection programmes? How can case management capacity be scaled-up during a shock to face an increased demand? What additional services can be activated to protect recipients during emergencies?

[4] United Nations Children's Fund (UNICEF) (2019) Programme Guidance: Strengthening Shock responsive Social Protection Systems. New York: PD/GUIDANCE/2019/005

4 Evidence from FbA pilots and their linkages with social protection systems

This section summarizes the operational evidence consolidated from programmes, pilots, simulations, and feasibility studies, without however dwelling much on the perceived and real impact of those instruments that have so far been effectively triggered. The justification for this is the absence of common standards for FbA outcome and impact measurement and the lack of extensive impact research on the topic. Much of the knowledge on the benefits of FbA comes from two studies commissioned by FCDO and USAID in 2013 and 2018 covering a wide range of countries (e.g., **Bangladesh**, **Ethiopia**, **Kenya**, **Mozambique,** and **Niger**), which demonstrate that the combined effects of preparedness and FbA are more cost-effective than an alternative late humanitarian response (Cabot Venton, 2013). In Kenya, researchers estimate a saving of US$20 billion over a 20-year period (US$1 billion per year) from acting at the first signs of a drought with cash that can be spent on the local markets or animal protection activities (Cabot Venton, 2013). Subsequent studies in Ethiopia, Somalia and Kenya show much lower savings but still a positive outcome of FbA compared to regular humanitarian activities (Cabot Venton, 2018).

With regards to household outcome improvements, few studies exist. In Bangladesh, the Red Cross Red Crescent Climate Centre completed a case study in 2016 to assess the value of FbA cash transfers compared with ex-post cash and no cash at all. The results reveal that every US$1 invested in the FbA programme would lead to US$3 saved in household losses, if cash would amount to about 10 percent of incurred losses and that it would be spent immediately before or after the disaster before inflation hits (Red Cross Red Crescent Climate Centre, 2016). Anecdotal evidence from different part of the world point to the same conclusions regarding both operational cost-effectiveness and household level outcomes. More empirical research is needed to provide country specific evidence that can be used to advocate for more government led FbA efforts.

4.1 Legislation, policy, and governance

Governments endorsement of forecast-based financing and actions involving the use of cash requires considerable policy backing. Depending on the degree of maturity of both the DRM and social protection policies, and on the level of effective strategic and governance integration of the two, the collected evidence shows different possible scenarios.

Box 1 - Best Practice on the institutional backing of FbA

Best Practice – The 2019 Standing Orders of Disaster in Bangladesh

The Standing Orders on Disaster (SOD) instruments in Bangladesh is a way to inform all concerned about their roles and responsibilities at every stage of disaster risk management. As per the SOD, each ministry,

Best Practice – The 2019 Standing Orders of Disaster in Bangladesh

division, department, and agency prepare a detailed work plan to perform its responsibilities and functions efficiently and take necessary measures to implement it as per their own mandate and capacity.

In 2019, the Ministry of Disaster Management and Relief of the Government of Bangladesh released a SOD which plays a pivotal role in reforming the disaster risk management sector by introducing innovative, cross-ministerial approaches, including a permanent Taskforce on Forecast-based Financing/Action. A more comprehensive and inclusive model has been adopted which is nationally and internationally accepted, in place of the traditional disaster management model for disaster risk reduction, response preparedness, emergency response and recovery.

The FbF/A Taskforce is to meet once every three months during the normal period, and more than once as per need during a disaster period. Its functions and responsibilities are the provision of guidance on a) preparing FbF/A plans through analysis of the disaster level, trigger/threshold and impact, and maintaining coordination with stakeholders; b) determining and implementing forecast-based financing/action strategies; c) establishing the methods and procedures of releasing funds against forecast-based response activities; d) preparing protocols or guidelines describing roles and responsibilities along with implementation of monitoring for the government and non-governmental organizations involved in forecast-based action.

The taskforce is equally tasked with developing and using standardized triggers and thresholds, and with informing policy-level integration of FbF/A at the national level.

(Source: Government of the People's Republic of Bangladesh, 2019)

In contexts like Bangladesh or the Philippines, DRM and social protection policy integration and institutional arrangements are in place. The **Bangladesh** social protection system grew out of disaster response programmes and the two areas continue to be closely interlinked (IFRC, 2022), while article 15(d) of the constitution explicitly articulates the right to social security for a variety of demographic groups throughout the life cycle.

In the **Philippines**, the 2011 Disaster Risk Reduction Act is a *"comprehensive, all-hazard, multi-sectoral, inter-agency, and community-based approach to"* DRM (REAP, 2021c), providing an overarching legal basis for DRM and a move from post disaster response to preparedness and risk reduction. The government strategy for disaster risk reduction involves the use of the country's flagship social safety-net programme – the Pantawid Pamilyang Pilipino Program – which has recently been institutionalized.

In both countries the set-up is conducive to using the social protection administrative systems to run DRM activities as opposed to less mature systems where response depends on external aid and requires political dialogue between different arms of government every time the need for a response manifests. In more structured environments, the entry point for forecast-based action can be a national act, like in the case of the Philippines, or a parliamentary standing order, like the one issued by the Government of Bangladesh in 2019. In this last case, the SOD outlines roles, responsibilities and guiding principles for disaster management and humanitarian actors in the country and establishes the technical coordination bodies to develop an FbF strategy and Early Action Protocol (EAP)s for different disasters.

Pakistan has a very comprehensive DRM system, which has been under revision since 2005 to shift towards a more decentralised and proactive approach, including through the allocation of substantial resources for preparedness and simulations (FAO Pakistan KII). Several shock-

responsive social assistance schemes coexist in the country; however, the policy landscape is relatively new, with a fist social protection policy devised in 2014 and updated in 2019, the same year in which a comprehensive welfare strategy for poverty alleviation (Ehsaas Strategy) was also launched (FAO KII). One step below in policy integration is **Nepal**, where DRM is regulated through a national Risk Disaster Reduction Policy and a 12-year strategic action plan, both referencing FbA, but social assistance is fragmented, limited in reach and not governed by a single policy framework (REAP, 2021b). The country has a distinctively decentralized DRM governance, but FbA is not clearly articulated in national, district, or community plans and standard operating procedures, which are key guiding documents during a response.

The institutionalization of shock-responsive social protection does not just depend on the existence of a solid legal base. Several countries around the world have utilised national social protection systems to respond to disasters and economic shocks in a relatively *ad hoc* manner, often relying on shock-responsive strategies and programmes without strong legislative backing via harmonized policies, government decrees or acts of parliament (WFP, 2020a). Some countries currently involved in SRSP programming or pilots may have no national level DRM legislation or extremely outdated ones that do not reflect the paradigm shift from responsive to more comprehensive DRM approaches, like in the case of several countries in the Caribbean– **Turks and Caicos**, **Trinidad and Tobago**, **Grenada**, **Haiti**, **Guyana** (Ibid). Other countries may not bear sufficient policy and strategy backing for social assistance and no interaction between the DRM and social protection lead ministries and their strategies, like in the case of **Anguilla**, **Jamaica**, **Saint Lucia**, **Saint Kitts and Nevis**, and yet governments triggered emergency cash assistance programmes (ibid.).

With regards to SRSP governance, different models exist. In **Bangladesh**, a plethora of national and locally managed schemes, reporting to different government entities and just recently structured under the 2015 National Social Security Strategy (NSSS) has so far been an obstacle to the definition of a wholistic vision for SRSP, including FBA. In fact, several different initiatives (e.g., led by the German Red Cross / Bangladesh Red Crescent Society, ECHO/FAO, WFP, SUFAL programme) are each trying to bring evidence to push the agenda forward without however showing a single vision or marked by strong coordination. In the **Philippines** cash assistance falls under the remit of the Department of Social Welfare and Development, which also leads the Pantawid programme and its 3.4 million enrolled households (REAP, 2021c). Because of several disaster response pilots implemented over the years using the programme as a delivery platform, the social welfare department took the lead in developing coordination protocols to regulate targeting during emergencies using the programme's registry. Finally, the **Nepal** flagship programme, the Social Security Allowance (SSA) scheme[5], incorporating five cash transfer programs targeting different groups, is administered by the same government entity, the Ministry of Federal Affairs and General Administration, coordinating DRM activities, which provides an opportunity for synergies between these two policy areas.

[5] The programme is entirely funded by the government and includes six schemes: the Senior Citizen Allowance, the Single women Allowance, a Full Disability Allowance, a Partial Disability Allowance, an Endangered Ethnicity Allowance, and a nutrition-sensitive Child Protection Grant.

4.2 Linkage with early warning systems and coordination

Early warning information, in its more simplistic interpretation, can follow a mere deterministic approach (e.g., *a cyclone will hit northern Madagascar in one week*) or it can provide second-level probabilistic information with impact scenarios in terms of impact on human life, assets and means of production (e.g., *Mananjary and Manakara areas may be particularly hit and will generate displacement and lack of access to food and shelter for up to 30,000 persons. The waterlogs may affect agricultural production for 2 weeks after landfall*). The presence of state-of-the-art forecasting technology, timeliness and depth of the information and its successful dissemination to all interested parties are critical elements for any successful response. Examples of response triggers used in different contexts to activate action in response to several types of disaster can be found in Annex B.

There are countries which bear several competing EW systems serving different FBA initiatives. A programme-based approach is in place In **Bangladesh**, where the central agency for flood forecast – the Flood Forecasting and Warning Centre - elaborates and dispatches data feeding into at least three major EW frameworks:

1. An UN-led system developed in 2015 by WFP and OCHA which has been triggering standalone multi-sector assistance package initiatives coordinated across different UN agencies and implemented through a network of staff and volunteers separate from government structures.

2. An Early Warning Early Action (EWEA) mechanism for floods developed and used by IFRC to support its own FbA pilots in country, which partly piggyback on government targeting systems.

3. The EW system used by the SUFAL II consortium to act ahead of flood built on the existing government alert system managed by the Flood Forecasting and Warning Centre (FFWC), falling under the jurisdiction of the Bangladesh Water Development Board. In this last case, technical assistance was provided to introduce impact-based forecasting using vulnerable areas and inundation mapping, and to increase the lead time for the preparedness trigger (from five to almost 15 days for the deterministic alert with further extension to one-month outlook) as well as to extend information dissemination to the community level (WFP and CARE KIIs) The same, CARE Vietnam is trying to replicate in this country in South-East Asia.

In none of these three cases was the EW system used to scale-up a government programme.

In the Horn of Africa, examples of forecast-based scale-up of flagship social assistance schemes can be found on occurrence of both rapid onset and slow-developing disasters such as droughts, floods to locust infestations. This is the case of **Ethiopia**, where the Livelihoods Early Assessment and Protection (LEAP) Index, a computer software system that converts agro-meteorological data into crop or rangeland estimates, was developed in 2008 by the Government of Ethiopia in collaboration with WFP. The index has since then been used to scale-up the government flagship Productive Safety Net Programme after the declaration of a state of emergency during major droughts (REAP, 2022). Programme recipients' expansions are not automatically triggered but

require a taskforce within the DRM Technical Working Group (TWG) to meet and agree on the appropriate measures once the forecasts and data have been collected and documented. The PSNP programme implementation manual contains very precise information on how the information elaborated and, due to the already decentralized programme governance structure, districts are equipped with contingency budgets (albeit only 5 percent of the transfer value) and the power to trigger a response up to a certain budget level, following an internal technical analysis or a request coming from the ward administrative level (Ministry of Agriculture – Federal Government of Ethiopia (2014).

Only in one context assessed as part of this review – in **Somalia** – a single, government-approved early warning system has been used to activate an FbA using a national social safety net in 2021 and 2022. In both years, the EW system designed by the Food Security and Nutrition Analysis Unit (FSNAU) at FAO and endorsed by the Federal Government of Somalia, triggered food security alerts due to the combined effects of different hazards, which resulted in a vertical expansion of the SNHCP supporting more than 600,000 households ahead of the April agricultural lean season (WFP KII; WFP, 2020b). Information from DRM and meteorological agencies is disseminated to the leadership of a large-scale social safety net programme by the Ministry of Humanitarian Affairs and Disaster Management. Following various levels of verification and approval within the programme administration system, a programme scale-up is agreed and activated (Federal Government of Somalia, 2021).

In other contexts, harmonized national EW systems exist but lack effective channels to disseminate information to remote rural areas able to trigger an FbA. This is the case of several Latin American countries currently being assessed by FAO to establish their level of readiness for an FbA. Rural populations are excluded from schemes to protect livelihoods, like in the case of **Dominican Republic** and **Peru**, where EW systems first generate a forecast based on urban impacts, then elaborate more on rural environments in relation to the production of food (FAO KII). **Nicaragua** has a more decentralised level for disaster risk management structure and is in the process of developing components addressing livelihood protection. In all three contexts, no formal linkage with a government-led SRSP system currently exists (FAO KII).

In the **Philippines**, FAO and the department of social welfare are leading a technical working group to define trigger methodologies and thresholds of FbA intervention, using the typhoon impact-based forecast model adopted by OCHA/START network and other partner organizations (REAP, 2021c). Similarly, in **Haiti**, WFP is working towards developing a national EW system by supporting the government in upscaling its technical capacity and strengthening the chain of command including linking it with the nascent SRSP system (WFP Haiti KII). The absence of mature national EW and SRSP systems is offering the opportunity to build both frameworks in a fully integrated manner in terms of approach, process mapping and data harmonization and sharing protocols.

4.3 Financing

In most contexts the presence or absence of legislative backing has an impact on the availability of statutory funding instruments for SRSP and risk financing mechanisms. In the absence of adequate disaster management funds, governments apply ex-post risk retention strategies such

as budget reallocations from other programmes and ministries. This has been the case with the COVID-19 social protection responses worldwide, whose extent was such that no pre-allocated disaster funds was able to satisfy the demands, especially before external aid and loans could be generated and transferred (Maintains, 2020; Gentilini, 2022).

In **Bangladesh,** the government committed 10 percent and 19 percent more budget for the SSNP during the budget years 2019/2020 and 2020/2021 (Maintains, 2021), largely due to the COVID-19 crises, which injected considerable resources in all sectors affected or used to mitigate the impact of the crises, including social protection; at least part of these allocations were funded through government budget reallocations. Largely, the funds are retained at national level, with immaterial levels of funding reaching the districts (CARE KII). **Pakistan** also funded its response from domestic resources from both the federal and regional levels (Maintains, 2021). The Prime Minister's COVID-19 Relief Fund financed the support to unemployed labourers through a new emergency cash transfer programme comprised donor contributions matched by federal funding - four rupees for each rupee donated (Maintaints, 2021).

On the other end of the spectrum, in most countries in the **Caribbeans** (except Trinidad and Tobago's government-funded General Assistance Grant and the Disaster Relief Grant), the lack of legislative backing has resulted in no government risk-financing for SRSP despite a growing trend of incorporating DRM and climate change in social protection strategies (WFP, 2020a). This is the case in several other countries in Africa (**Malawi** and **Madagascar**, for instance) which tend to be entirely donor funded environments, most likely fragmented along bilateral and multilateral funding streams, where FbA pilots can only thrive if they are fully supported through dedicated external funding.

With regards to ex-ante solutions able to fund FbA, there are examples of both risk retention and transfer that have been tested around the world. An example is farmers' insurance schemes, which can provide compensations or trigger FbA and make local producers resilient to climate shocks. In **Ethiopia**, the Rural Resilience Initiative programme uses satellite estimates to trigger pay-outs as an early response to drought (REAP, 2021b) while in **Nepal** an index-based crop insurance targets vulnerable rice producers (Danish Red Cross KII).

In Africa, the Caribbeans and South-East Asia, sovereign disaster risk insurance solutions, guaranteed by its members and other bilateral and multilateral institutions, offer risk pooling and transfer services to improve governments' capacity to plan, prepare and respond to natural disasters triggered by extreme weather events. In 2022, **Malawi** received a US$14.2 million pay-out from the African Risk Capacity (ARC) having purchased a drought insurance policy supported by the African Development Bank in 2021. The funds were disbursed to WFP and earmarked to risk management activities including a scale up of the social cash transfer programme during the annual lean season response (African Development Bank, 2022). In 2019, the Government of **Madagascar** took out drought insurance for the Great South area given its high vulnerability to drought, and in July 2020 it received US$2.3 million to cover anticipated losses from crop failure which aimed to prevent 600,000 affected people in the South from engaging in negative coping mechanisms (REAP,2021a). Early actions included unconditional cash transfers, nutritional support, and cash for work programmes as per the supporting operations plan required by ARC (Ibid).

In the **Caribbean**, the 2020 Atlantic hurricane season has been the most active hurricane season on record and the Caribbean Catastrophe Risk Insurance Facility (CCRIF) has made six pay-outs within 14 days from the event totalling US$21.9 million. To date, the instrument was used to fund ex-post relief activities (62 percent), while risk-mitigation activities only received 6 percent of the total CCRIF funding (World Bank, 2022).

There are a few cases of more structured Disaster Risk Financing or Disaster Risk Financing and Insurance (DRFI) strategies identified, especially if linked to SRSP. In the **Philippines** a minimum of 5 percent of the annual budget is dedicated to disaster management activities, funded through a mix of dedicated disaster funds, contingent credit lines and risk transfer to the international reinsurance and capital markets. A national disaster risk reduction and management fund allocates 30 percent of the resources as a quick response fund or stand-by fund for emergency response and 70 per cent for disaster prevention, mitigation, and recovery (REAP, 2021c), which has the potential for supporting FbA in the future. A local disaster risk reduction fund replicates the national fund's guidelines with a total allocation equal to 5 per cent of the local revenues set aside for disaster response management and the same 30/70 split in the use of funds. However, the release of quick response funds from both national and local funds can only take place after the declaration of a state of calamity and is therefore attached to ex-post activities only (ibid.).

In **Ethiopia**, only 0.6 percent of the national budget is allocated to direct DRM activities, less than the average in the Horn of Africa (United Nations for Disaster Risk Reduction, 2022). The focus of Ethiopia's DRM-planned investments is more on managing disasters (49 percent) rather than disaster risks (Ibid.). In the absence of a contingency fund the government often ends up repurposing earmarked budget for prevention and preparedness for emergency response. However, the PSNP integrates a Risk Financing Mechanism (RFM) and a contingency budget that has proven complementary to traditional humanitarian funding in reaching to both PSNP and non-PSNP beneficiaries in approximately half the country. The contingency budget, designed to respond rapidly to low-level and unexpected transitory food insecurity, amounts to 20 percent of the PSNP's base program cost, fifteen percent held at the regional level and five percent at the district level (Id.). In case of large-scale emergencies, the RFM triggers emergency funding from donors, which is a much quicker way to mobilize resources than a regular humanitarian appeal (World Bank, 2013) and opens opportunities for FbA funding.

Despite the availability of a wide range of approaches to DRF, the appetite for a *"no-regret"* approach to funding remains weak everywhere. In none of the contexts under review are government owned FbF strategies and protocols are currently in place and being successfully implemented, even if institutional dialogue is in place and achieving satisfactory results in the Philippines, Vietnam, and Bangladesh.

4.4 Intervention objectives, types, and linkages

An unintended positive consequence of fragmented SRSP environments, is the variety of FbA programming approaches, that can bring valuable evidence regarding the options at hand to provide effective ex-ante assistance during disasters. Cash is not always the preferred modality, particularly in the case of hurricanes (e.g., Haiti) with very uncertain routes that can vary up to 48

hours from impact. However, for the sake of this review and the potential integration of FBA and SRSP, only cash-based interventions are considered.

Where no government SSNP could be used to scale up cash assistance during disasters, the international community has been operating standalone or aligned interventions using different approaches and at times combining ex-ante and ex-post responses. In **Bangladesh** and other humanitarian settings, the CERF mechanism allows the design of multi-package solutions which combine FbA with risk mitigation measures – some of which are delivered through government structures (e.g., personal hygiene and sanitation delivered through health structures) - making use of the expertise and operational capacity within the United Nations (UN) agencies and NGOs operating in country. In 2019, a multi-sector package was designed to deliver cash in support to other sector-specific interventions in child protection, displacement and shelter, education, food security and nutrition, health and water, sanitation, and hygiene (WASH) and gender-based violence (IFRC, 2022a). While the response was not triggered in Bangladesh, in **Somalia and Madagascar**, similar CERF multi-package Forecast-based Action mechanisms were successful in providing comprehensive support (including livelihood, health, food security, nutrition and water, sanitation and hygiene and protection) months before the national emergency was declared (SPARC, 2022; CERF, 2021) and, in the case of Somalia, even before the drought response plan 2022 was published in December 2021 (SPARC, 2022).

In **Nepal**, where the government has traditionally been discouraging the use of cash to mitigate the effects of shocks, the COVID-19 response provided a large-scale proof of concept able to generate evidence and confidence in its effectiveness among government circles. Since then, implementing agencies like the Danish Red Cross, supported by ECHO, have been able to piggyback on government structures and systems for targeting, communication, and payment for their flood responses through ex-ante in kind assistance combined with ex-post cash support (Danish red Cross KII).

In countries with large scale shock-responsive safety net programmes like **Somalia**, **Ethiopia**, **Malawi**, and the **Philippines** the responses result in ex-post vertical and horizontal expansions of the schemes and occasional refocusing (e.g., by lumping together transfers during the lean season response) with little integration with other DRM activities (REAP, 2021c; REAP, 2022). Also, large scale, government responses are more likely to be triggered after a formal declaration of emergency to provide an income supplement for recovering personal and productive assets and to face the inflationary spikes occurring after a disaster. Among all programmes however, only the Somalia SNHCP makes provision for early actions to respond to changing conditions or the probability and severity of an event, in line with the government endorsed FSNAU Early Action Framework, which sets out the roles and responsibilities of key actors in the humanitarian community in ensuring the mechanism tightens the links between early warnings and response (Oxfam, 2017).

The transfer modality, transfer value and frequency and other operational considerations can vary based on the specific protocols in place for each type of disaster, depending on its location and intensity, the available lead time, and any desired outcome in terms of food security, livelihoods, and recovery patterns. For instance, the **Ethiopian** PNSP is designed to allow the caseload to

increase through unconditional transfers to around another 1.5 million individuals and to extend both food and cash assistance to non-programme beneficiaries for about 3 months during periods when food insecure people are affected by unpredicted shocks (IFRC, 2014). In practice, however, during the 2011 response funds may have been released too late to have much protective impact on the drought-affected population (Ibid.).

In **Malawi**, the first vertical expansion of the flagship SCTP took place in 2018 aligning the transfer value to that of the parallel humanitarian response at approximately 65 percent of the food basket for four months (CARE, 2018). SCTP beneficiaries did not benefit from food assistance due to a rigid "no double dipping" policy enforced by government counterparts.

In most contexts cash is unconditional – except when using the Ethiopia PSNP - and linked to other response sectors through more or less structured referrals or, most of the times, targeted communication in areas of particular interest (e.g., COVID-19). It is particularly the mandate of FAO through a global partnership with ECHO to promote the use of Forecast-based Actions through cash not just as a life-saving and individual protection tool but also for livelihood protection and resilience building (FAO KII).

4.5 Targeting and registration

While social protection programs – more so in low- and middle-income countries - often target the poorest and the most vulnerable groups in society, such as children, the elderly, female-headed households, persons with disabilities (PwDs), other groups affected by a particular weather or climate hazard might not be those that are traditionally considered vulnerable within social protection targeting protocols and therefore enrolled in existing program registries. However, there is generalised consensus that the use of cash in emergencies and within FbA initiatives should largely be channelled to those who manifest the same socio-economic characteristics as the recipients of social assistance, since the two groups often overlap.

Like in the case of the CERF funded multi-package FbA programme in **Bangladesh**, and other ex-post humanitarian programmes, targeting looks at traditional socio-economic vulnerability categories like household structure, income, and livelihoods options, however including climate-specific vulnerabilities such as proximity to a river, housing situation in relation to windspeed etc. Additionally, each involved agency applies its own institutional profiling approach, looking at particularly vulnerable groups depending on age, gender, disability, particular conditions such as pregnancy or refugee status or distinct ethnicities with a higher vulnerability to climate-related shocks. A geographic targeting element was also applied by the SUFAL consortium in a 2020 pilot, using different indicators of vulnerability up to the ward administrative level to assign a vulnerability index to different areas and prioritize accordingly.

Overlaps with government-run programmes are expected and encouraged by the CERF programme to maximize the impact of both cash and in-kind supplements received in anticipation of a disaster. However, not always caseload alignment or vertical expansion of existing SSNPs are sought for. This is the case, for instance, of schemes bearing a comparatively high coverage and transfer value (like the Bangladesh Employment Generation Programmes for Poorest or EGPP) which are

considered to be sufficient to mitigate the effect of shocks at household level. In cases of limited funding, some organizations may decide to prioritize schemes targeting more vulnerable households, increasing their caseload and transfer value, and thus attaining greater impact overall (CARE KII).

Other standalone programmes aiming at aligning or piggybacking on existing government schemes, like several pilots Bangladesh (German Red Cross/Bangladesh Red Crescent Society and ECHO/CARE) or a recent pilot in the **Philippines** implemented by German Red Cross, Philippines Red Cross, and FAO, have started using government lists from social registries of enrolled SSNP households as a basis for FbA targeting. Due to irregular re-registration government protocols in many countries, the lists must first be verified through additional data collection or community verification, then further reduced and complemented using the additional vulnerabilities criteria described above (FAO KII).

In none of the contexts under review, has the international community working on FbA been able to develop harmonized recipients' registries. Despite the tireless work of many Cash Working Groups around the world, institutional bias and lack of data sharing agreements between governments and development partners and even among UN agencies prevent the definition of a common approach to targeting during humanitarian responses, which acts to reinforce gaps and duplications (ODI, 2022). Furthermore, FbA recipients' lists developed by humanitarian actors, providing rich information on those vulnerabilities typically excluded from government targeting protocols, are often reviewed and validated by national social protection agencies without being institutionalised for future use in preparedness, response or resilience-building initiatives. Nor examples exist of successful feedback loop mechanisms able to integrate within government SSNPs those newly identified households matching their targeting criteria, even if discussions are ongoing in some countries (e.g., **Malawi** through the Unified Beneficiary Registry).

Poverty or ultra-poverty targeting approaches linked to World Bank-funded social registries around the world (Kenya, Malawi, Zambia, among others) have to date had limited success with SSNPs' targeting effectiveness during rapid onset natural disasters, in part due to time consuming horizontal expansions relying on pre-registered household lists, mostly provided by international implementing partners. Even when covering a substantial portion of the national population, like in the **Philippines**, where the Listahanan registry supports targeting across a number of schemes and includes around 15.6 million households, equal to about 75 percent of the population (REAP, 2021c),or **Pakistan** with its Pakistan's National Socio-Economic Registry or NSER, social registries may not be able to scale-up assistance to households most at risk of climate-related hazards if they do not contain relevant geolocated information about environmental vulnerabilities (FAO Pakistan KII).

Box 2 - Best Practice in targeting

Best Practice – The 'Unified Beneficiary Identification System' in Dominican Republic

In late 2004, the Government launched a single central database for beneficiaries of social assistance, and a targeting mechanism that could be used across programs in education, health, nutrition, housing, and energy. The first Socio-Economic Study was collected in 2004 with over 1.2 million households surveyed in all areas identified as poor or extreme poor by the National Poverty Map (based on the 2002 Census, and

Best Practice – The 'Unified Beneficiary Identification System' in Dominican Republic

2003 Demographic and Health Survey). A proxy-means test was then applied to identify and rank households in need of social assistance.

Between 2014 and 2017, the Government of the Dominican Republic, with the technical assistance of the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UN Environment), developed an Index of Vulnerability to Climatic Shock linked to the Single Beneficiary System, which estimates the probability of a household being vulnerable to hurricanes, storms, and flooding, by combining data on housing, geographic location, and socioeconomic characteristics.

Due to this initiative, the registry is now a precious source of data for the government, due to the richness of the contained information and the availability of data sharing agreements with several government ministries. Furthermore, the registry, and the interest growing around it, is succeeding in making social protection a central pillar of DRM coordination mechanisms and response frameworks, while it had been previously excluded from them due to an outdated policy and governance structure.

(Sources : WFP KII ; UNDP/UN Environnent, 2018)

In fact, as in the case of the **Dominican Republic**, social registries that are duly institutionalized and adapted to cross poverty targeting and climate vulnerabilities can generate practices and evidence to change the collective understanding of the impacts of climate-related disasters (UNDP/UN Environment, 2018). Practically, they can facilitate the articulation of policy analysis and coordination between the institutions operating in the humanitarian and social protection sectors (Ibid.).

The existence of comprehensive government-led registries can substantially reduce the duration and cost of the targeting process, which can be an obstacle for a timely FbA response with no certainty regarding the occurrence and impact of a shock. In the case of **Bangladesh**, WFP and the SUFAL project conducted field targeting operations about two months ahead of the peak of the rainy reason, to produce long lists of vulnerable households and key personal information (including mobile phone numbers) – though different vulnerability criteria were used. The long lists could be further refined after the first trigger through household visits and surveys (CARE KII). In the same context, Bangladesh Red Crescent Society (BDRCS) and UNICEF decided to target later, using SSNPs' as well as other government lists of vulnerable households, verifying them against their institutional checklists for climate and socio-demographic vulnerabilities, respectively. Considerable process learning emerges from a 2021 simulation exercise in the **Philippines**, which looked at the intersection between the socio-economic vulnerabilities captured in the Listahanan social registry and vulnerability to floods in a few disaster-prone areas of the country. The simulation results show how other registries (from the Ministry of Agriculture), and additional data collection activities were completed to identify who would be the most affected in case of a typhoon induced flood (German red Cross, 2021). The exercise also demonstrates the importance of community-based validation processes to ensure transparency and to avoid miscommunication on the selection process (Ibid).

4.6 Payment systems

The choice of transfer modality to be employed for an FbA intervention is fundamentally dictated by the context in which an agency or government is operating, for households in need to access cash or in-kind assistance in the easiest and most convenient manner. For ex-post interventions,

ideally no new payment system should be introduced as testing and informing recipients on its use will delay response times.

Therefore, most agencies involved in this review have pre-positioned the use of transfer modalities already in place within other government led SSNPs or parallel schemes. Both digital and manual disbursements can be effective, the first modality being supported by all actors for its additional benefits in terms of traceability of operations and financial inclusion for the unbanked. Additionally, mobile money transactions bring the benefit of providing all beneficiaries with a phone number that can receive EW messaging ahead of disasters.

In contexts like **Nepal** and **Malawi**, a lack of full coverage for national identification documents (NIDs) in rural areas are a barrier to the successful transition to electronic payments[6]. In fact, due to strict global Anti-Money Laundering (AML) and Combating the Financing of Terrorism (CFT) procedures requiring the display of NIDs during registration with any financial service provider many social assistance recipients risk exclusion from payment services – if not through alternative recipients or proxy. In both cases, manual back-up systems through post office or mobile network services are in place to guarantee access in case of failure of the digital model.

Box 3 - Best Practice in support to payment systems

Best Practice – The Philippines Identification System

The Philippines provides a good example of a government addressing digital ecosystem gaps by strengthening the national identification system, digital data governance, and digital payments systems. One of the few countries without a foundational NID system beyond its civil registry, the Government of the Philippines started rolling out the Philippine Identification System in 2019.

Learning from the challenges of social assistance delivery without a NID system during the COVID-19 response, the government recognized digital social protection delivery as a priority area and has been prioritizing working with the department of social welfare to use the new identification system for digitizing payments across its major social assistance programs. Since registration was opened to the public in 2020, millions of Filipinos have completed the biometrics procedure, allowing them to obtain a digital identity before possessing a physical document. As of 2022, the new identification system has allowed the registration of thousands of social assistance recipients with financial service providers.

(Source : https://blogs.worldbank.org/eastasiapacific/digital-philippines-leveraging-id-digital-social-protection-delivery)

In the **Philippines**, the beneficiaries of the Pantawid programme can now access their conditional cash grants using a cash card allowing withdrawals through Automatic Teller Machines (ATMs), which are widely available across the country. Recent simulations (2021) revealed that the system could easily be applied to FbA responses too, should the programme systems be used to scale up during emergencies, by signing tripartite agreements between the financial service provides, the

[6] In Nepal, about 20 per cent of the population does not have a NID (REAP, 2021b), While in Malawi, a 2020 registration campaign for the lean season emergency response revealed various levels of NID coverage in different districts in spite of a mass registration campaign conducted by the National Registration Bureau in 2017 - from 36 per cent in Neno District to 46 in Balaka and 89 in Nsanje (Government of Malawi, 2020).

Government of the Philippines and any other development partners involved in the intervention (German red Cross, 2021).

Finally, there are countries where electronic payments are not yet possible due to severe shortcomings of the digital finance infrastructure or security concerns. In **Haiti** for instance, cash-in-transit (CIT) is still the preferred transfer modality due to the challenging and volatile environment. Digital cash may present additional security concerns that controlled manual payments can mitigate using civil protection agencies or armed guards during disbursements. In certain remote forest areas of **Peru** and **Colombia**, there are objective physical barriers that prevent telecommunication and financial services – and at times even the use of money – from being a viable social assistance solution.

4.7 Information and communication systems

Forecast-based Action interventions require particular care when it comes to data management and communication both to trigger a timely, informed alert and to deliver an appropriate response. As already mentioned in section 4.2, EW information on the possible impact of a disaster critically determines the scope of a response and requires, at the receiving end, a well-functioning mechanism of elaboration and decision making to trigger a cash or in-kind FbA intervention.

Data reliability is a first requisite for success and weather forecasting technology is continuously improving and extending the time needed to formulate an accurate prediction and plan. In **Bangladesh**, the 2020 SUFAL I EW work in three of the most flood prone districts of the country included the largely successful dissemination of voice messages and advisories directly to recipients' mobile phones, which resulted in 91 per cent of them taking action at least 5 days before the expected flood (SUFAL I, 2020). The success rate can be justified by the penetration of mobile phone technology and the translation of forecast information into simple and effective messages regarding the severity and duration of the threat. However, despite numerous FbA pilots activated in different parts of the country over the years, each attaining very high levels of messaging reach (98 per cent of the SUFAL I caseload in 2020), only about 30 percent of populations living in the flood-affected areas is said to receive early communication, and mostly from informal sources such as word-of-mouth (OCHA, 2021). This points to the need for stronger national coordination and the harmonization of all EW efforts, largely project-based and relying on international funding and technical assistance, to reduce the risk of false and missed activations.

Beyond EW data accuracy, the translation of data into clear messages for citizens as well as sector practitioners is also a critical step towards activating an effective FbA. In **Somalia**, a government assessment of EW systems makes recommendations regarding the need to improve data management, dissemination, and archiving, in spite of recent progress made by FAO and partners in creating web-based information sharing and decision support systems to help the humanitarian community to plan its interventions (Federal Government of Somalia, 2021). Recent FAO analysis into the feasibility of integrating FbA withing SRSP systems in Central and Latin America reveals that vulnerable populations within some of the most hard-to-reach districts in **Colombia** and **Dominican Republic** are not receiving EW information or not in the right language nor a form that would allow them to quickly translate the information into action (FAO RLC KII). In **Colombia**, on the

other hand, efforts are ongoing to teach agricultural producers how to interpret weather forecast information and take action to manage climate-related hazards (FAO RLC KII). The quality of messages in **Ethiopia** also appears to be problematic, with alerts not including the most important components and leading many not to respect the warning for lack of clarity and frequent false messages (Damtie & Asmare, 2020).

Linked to FbA targeting and payment operations is the quality management of programme information through systems that can enhance process efficiency, particularly during covariate shocks. In fact, data management is unanimously identified as an area of needed improvement in almost all FbA and SRSP contexts assessed as part of this review. When not, or not completely relying on government databases, there are different approaches to data management within the humanitarian community. In no context, has the author have found a harmonization of registries or Management of Information Systems (MIS) across humanitarian actors to allow for adequate coverage of needs without overlaps. In **Bangladesh** and in **Nepal**, the need for a common beneficiary database and improved coordination for better learning is identified as a major lesson from both 2021 FbA responses (OCHA, 2022; Danish Red Cross KII). In Bangladesh, the UN community is currently working on a database of around 100,000 pre-verified, poor, and vulnerable households from some 140 of the most flood-prone unions in the geographic target area of the last FBA pilot. This common database including emergency cash transfer beneficiaries, safety net recipients and vulnerable individual and households from local government databases will be prepared with the support of secondary lists from various sources, and with the necessary verifications (Ibid.).

Citizenship or social registries are often administered by the lead sector ministries for SP or DRM (**Malawi, Philippines**), except for **Nepal**, where it sits under the Department of National ID and Registration at the Ministry of Home Affairs, **Dominican Republic** where it refers to the Vice Presidency and in **Pakistan**, where it is hosted by the National Database & Registration Authority (NADRA), also responsible for issuing biometric national ID cards. Coincidentally, these are more comprehensive databases with large coverage (more than 85 percent of the population in Pakistan), and linkages with the national ID system and, potentially, with a range of other citizen and social services.

In SRSP contexts where governments use social registries to target during shock responses, similar considerations apply to the most diverse contexts. With the exception of the **Dominican Republic** mentioned in Paragraph 4.5, no other example of explicit integration of socio-economic and climate-related vulnerability criteria was identified (discussions are ongoing in **Haiti**), nor fully structured feedback loop mechanisms able to transfer data from DRM and humanitarian databases back to national social protection registries (reviews are undergoing in Zimbabwe and Rwanda).

In fact, while most beneficiary and social registries contain information about the gender, age, and disability of household members in addition to income and wealth information, they are rarely designed or adapted for supporting DRM actions. A key challenge is the quality and frequency of their updates (which are often every 3-10 years due to cost), and their focus on socio economic vulnerability, but not vulnerability to regular and reoccurring shocks. For example, in the case of **Belize**, approximately 50 percent of households were included into the social registry in 2014, 10

per cent in 2015, and the rest prior to that (WFP, 2020a). In **Malawi**, household re-registration is supposed to take place every four years, but in several districts, there has been only one registration since the last programme expansion between 2012 and 2018. In **Dominican Republic**, due to the lack of exit strategies and of re-targeting processes, data in the Public Assistance Programme beneficiary registry was very dated until 2020, when a verification process was completed (Ibid.).

Accessibility and interoperability of voluminous datasets must rely on digital management systems and many, but not all social insurance and flagship social assistance programmes around the world are equipped with electronic beneficiary registries and MIS. However, there are still some countries with programmes that use Excel or paper-based registries, such as the Public Assistance Programmes in **Dominica** and **Saint Lucia**. Most registries are electronic, for example in **Belize** (the Single Information System of Belize) and **Saint Kitts and Nevis** (the Single Household Registry) (WFP,2020). Also in **Ethiopia**, the digitalisation of social protection delivery is still in its early stages: the information management and data sharing systems for the flagship PSNP are limited to payroll and attendance databases, while the design of a national social registry containing information on all vulnerable households in the country is still in progress (REAP, 2022).

In the **Philippines**, where a pilot programme for triggering an FbA using the Listahanan database (national social registry) already took place, FAO and the department of social welfare ascertained the scalability of the registry, which can and should be linked to other critical databases that can provide information, for instance, on small-holder farmers and fishermen's activities from the Department of Agriculture and the Bureau of Fisheries and Aquatic Resources respectively. Several data sharing agreements between government and other implementing partners have been successfully signed in **Malawi** (between the Ministry of Gender, Community Development and Social Welfare and WFP), and the **Philippines** (Between the Department of Social Welfare and Development and FAO/German Red Cross).

Finally, there seems to be a gap in establishing standards for monitoring and evaluation of FbA. From OCHA to IFRC (2019, 2022), to REAP (through the MEAL Practitioners Group), the sector leading institutions are trying to define frameworks and guideline materials for FbA M&E. To date, sector implementing partners have been running on different institutional or programme-specific frameworks with no attempt to generate comparable learning for the sector to consider.

4.8 Grievance management and protection

Case management, including information, grievance management and recipients' protection mechanisms, is a key component of any social protection programmes and more so in responses to shocks, where the time pressure and heightened level of risk can negatively affect service delivery.

Humanitarian implementing partners often have internal case management systems with dedicated resources and reporting channels available to be scaled-up during a disaster. It is the case of WFP in **Bangladesh**, managing a call centre able to collect grievances from the recipients of cash assistance (WFP KII). In the same country, the German Red Cross combines early warning

communication and grievance management in the same system, run through community volunteers, spot calls and making use of post-distribution monitoring (PDM) as an additional layer of monitoring over the regular delivery of the cash assistance service (GRC KII). In other countries, similar mechanisms are in place.

Even in cases of vertical expansion, humanitarian agencies often decide to establish parallel case management systems that are better resourced than many government ones. In Bangladesh, in 2008 the government established a common grievance redress system in all line ministries to help reduce grievances and improve service delivery in public organisations (Maintains, 2021a). However, findings from a 2020 survey of 1,500 SSNP beneficiaries in North-West Bangladesh showed that 90 percent of them were not aware of the system (Ibid.) In **Malawi**, during the 2018 vertical expansion of the government SCTP, WFP put in place additional suggestion boxes, complaints committees, a hotline, and separate complaints focal points on top of the ordinary, and community structures handling grievances for the government programme which were considered to be subjective at times. In fact, PDM evidence revealed that even though communities were aware of complaints and feedback mechanisms, there was aversion to using them, citing fear of reprisals and the feeling that nothing will change even if they fed back information (CARE, 2018).

In the case of **Ethiopia**, during the COVID-19 PSNP vertical expansion all communication and outreach services were led by social workers and other staff from the municipal labour and social affair agencies. This structure represents a successful capacity surge compared to the way grievance management is handled under the PSNP, namely through community and district committees made of members of the community and civil servants (MoA, 2014). Evidence from a UNICEF PDM confirmed that all outreach activities were effective at least in disseminating clear information about the top-up along with other hygiene and health-related messages (Maintains, 2021).

Protection issues are notably more prominent during emergencies, and FbA can include the use of case management systems to identify the households most at risk and refer them to adequate support services. This is the case of **Jamaica**, where the case management mechanism implemented by the Ministry of Labour and Social Security enables social workers to provide psychosocial support, identify households at risk and refer them to the relevant services (WFP, 2020a). In separate emergency cash transfer programmes, dedicated protection services can coexist along with a cash intervention. This is the case, for instance, in the Bangladesh and Nepal OCHA multi-package programmes, where UNFPA, UNICEF or UNHCR are there to provide technical expertise and operational capacity for the appropriate referral and treatment of protection cases.

5 Conclusions and lessons learned

Forecast-based action is a relatively new approach to disaster management response that cannot be considered in isolation with other essential components of a DRM cycle – preparedness, risk mitigation, ex-post response, recovery – and a broader look at all sustainable development and resilience building strategies put in place by governments and international humanitarian and development agencies. In fact, FbA is a critical step within a response package that can exert good results in terms of lives saved, goods and assets protected or recovered, and savings for financing entities if compared with responses triggered after a shock. Often, Social protection systems have played a key role in reaching the poorest and most vulnerable households living in affected areas, and in institutionalizing FbA within regularly funded programmes. Conversely, the integration of FbA and social protection systems can expand the reach of social protection instruments to a larger pool of vulnerable households, potentially paving the way for more inclusive targeting approaches.

Little consensus has so far been achieved in determining what constitutes FbA, and what success looks like in comparison with traditional humanitarian responses, other than its clear benefits in terms of cost effectiveness of the humanitarian action and better outcomes for households and communities in presence of weather and climate-related shocks. No single definition of FBA exists other than a very generic one pointing to the time factor in relation to a forecasted weather of climate-related disaster. In fact, FBA can involve quite different actions in slow onset disasters such as droughts, if compared to rapid shocks such as storms. In fact, in slow onset emergencies, the triggered activities can blend in with longer-term resilience building or environmental protection initiatives, focusing more on protecting productive assets and diversifying livelihoods strategies. Overall, depending on its specific assistance package, FBA can shift more towards being an integral part of a response – just anticipated – or belonging to the risk-mitigation conceptual area.

The key informants' interviews demonstrate that there are still a variety of perspectives on the best way to articulate FBA, focusing on the policy, programme, or decentralised response level. Some practitioners emphasize the need to integrate the approach at policy level and to develop government response strategies - including SRSP instruments – that make provision for FBA resources and adequate support. A more nuanced approach advocates for the refinement, institutionalization, and decentralization of early warning systems to trigger the release of contingency resources able to support a locally adapted, and possibly multi-package response, coordinated with other relevant actors operating in the area (e.g., NGOs). Considerations regarding a country's government and administrative system and the type and scale of the risks faced come into play and suggest that less of a "blanket solution" and more context-specific approaches should be promoted.

The institutionalization of FbA within government DRM and social protection systems requires a careful, phased approach, which addresses several critical aspects that can arise along the way. First, the efforts put into winning full government endorsement of the model and financial contribution are often underestimated and should instead be given adequate time and resources. Also, FBA through SRSP requires the "nuts and bolts" of social protection systems to be adequately

strengthened to guarantee programme continuity beside its shocks responsiveness. Finally, the risks of politicization of the FbA instrument in areas of already unequal access to services – for instance in case of ethnic conflict, like in Colombia - must be observed and addressed while integrating the approach within a country's DRM system. Generally, large-scale pilots are the best approach for generating adequate learning before an instrument's institutionalization, with the understanding that pilots should also ensure integration into government systems to ensure long term success.

Several KII respondents confirmed the importance of looking at the disaster management cycle as a continuum marked by different yet strictly interconnected stages. As such, some agencies (e.g., FAO) have been advocating for the use of local disaster preparedness budgets to cover some FbAs, such as the distribution of shelter kits in the Philippines, leveraging the dual nature of FbA as both part of risk-mitigation and response mechanisms. Depending on the institutional context and type of shock recurring in an area – rapid onset or slow-occurring – different strategies and financing solutions can be designed, placing more emphasis on preparedness or on early response activities. On the other hand, several respondents emphasized the importance of framing FbA within specific government assistance packages and budget allocations to attract adequate, earmarked funding for its adoption at national and local level. In this sense, shock-responsive social protection systems create an extraordinary opportunity for the implementation of cash-based FbA, integrated within large scale household-level resilience building schemes.

Due to the documentation efforts by all actors involved in this areas of work, credible datasets for FbA and disaster risk preparedness exist, but not so much in conjunction with social protection. Evidence gaps still exist – the key ones listed in box 1 – and different leading actors in the field are investing resources to fill them quickly and to provide a solid knowledge base for governments to rely on. Currently, at least two ongoing studies, sponsored by REAP and FAO/ODI and both to be released in 2023, promise to contribute to the debate by providing an overview of the state of the sector, evidence gaps and suggested next steps, and a specific focus on *social protection and anticipatory action to protect agricultural livelihoods* respectively.

Box 4 - Evidence gaps regarding Forecast-based Action

Evidence gaps regarding FbA

More empirical research – as opposed to modelled scenarios – is required in this area of work in order to demonstrate the effects of FbA and attract more government interest and action. In particular, process evaluations and outcome analysis using the impact-based EW scenarios for comparison can contribute to the existing evidence on:

- Household outcomes.
- Livelihood protection outcomes.
- Performance of targeting, registration/enrolment, data management, governance and coordination, information, and case management.
- DRF models.
- FbA/SRSP integration models.
- Optimal institutional set-ups and policy frameworks for FbA.
- Efficient EW models and governance.

Evidence gaps regarding FbA
Scenario modelling should continue be used to generate more evidence on a) the cost-effectiveness of FbA compared to ex-post responses in different disaster scenarios (including multi-dimensional risks) and in different countries; and b) the cost-effectiveness of FbA implemented through SRSP as opposed to other programmatic solutions.

The main lessons from the review can be summarised as follows:

Legislation, policy, and governance -

- **Forecast-based action can have different entry points at legislative or policy level, from parliamentary acts and standing orders, or through programmes and contingency plans at national or local level.** All routes can be effective in successfully triggering a response. However, the institutionalization of the anticipatory approach within DRM or SP at legislative and policy level is instrumental for guaranteeing government endorsement of a no-regret approach and the release of financial resources able to back it up at the national and local level without relying on irregular, often sector-earmarked donor funding cycles. For this to happen, well-documented donor funded FbA programmes can provide a powerful proof of concept to integrate the research efforts put into building a compelling case for governments around the world to consider.

  In Bangladesh, the technical work in progress to develop a national FbF/FbA strategy must lead to the successful roll-out of the approach, as well as its institutionalisation at policy level, while FbF needs to find legal backing and sustainability.

- **The integration of DRM and Social protection practices, including FbA, requires adequate institutional dialogue for an optimal governance model, shared systems, and documentation.** Social protection government programmes are often led by central level entities and focus on poverty reduction and consumption smoothing with little integration of climate vulnerabilities within their targeting strategies. Hence, their participation to DRM necessarily involves intense institutional dialogue for the integration of the two government functions through common operational frameworks and a governance model. Cash-based FbA may be better placed within government departments possessing strong cash assistance technical knowledge and with links to the social registries required to scale-up SSNPs. The creation of a shared vision, a common strategy and the accurate documentation of all integrated processes is key to building capacity across the two arms of government. The administrative systems used to regulate regular cash distributions within large-scale government SSNPs may have to be adapted to enable forecast-based activations and enhanced process supervision and monitoring within reduced implementation periods.

  In Bangladesh, cash-based FbA needs to be hosted by government agencies possessing ample experience in SRSP and where information and operational systems are mature enough to scale-up effectively and be activated within short lead times.

- **Particularly in the case of localized, small-scale emergencies, a decentralised DRM governance model helps designing effective solutions based on local triggers, contingency**

plans, and decision-making. As much as possible, governments need to allow locally managed funds, appropriately topped up with national funds and programmes as required, to be spent on disaster preparedness and on responses, including FbA.

In Bangladesh, district contingency plans and funds need to integrate allocations that can cover FbA activities and support services, to complement national level contributions based on a harmonized EW system.

Linkage with EW system and coordination –

- **Avoiding fragmentation of EW systems in one country is a critical condition for building government capacity and for providing clear instructions in times of shock.** The entire development community needs to participate in a joint effort to develop one framework, based on hazard-based as well as impact-based information triggering life-saving and livelihood protection action in the most exposed areas of the country, like it has been the case in Somalia with the FAO-FNAU food security, livelihoods, and nutrition system.

  In Bangladesh, the FbF/FbA Taskforce is an opportunity to foster an inter-agency dialogue for the design of a national EW framework and protocols for flood disasters, based on learning from previous initiatives implemented by the SUFAL consortium, from CERF funded projects as well as GRC-BDRCS pilots and research.

- **The interplay between the national - or international in the case of disasters affecting more than one country- and the local-level analysis is a critical factor for accurate weather forecasting and management of early warning information and communication, as much as it is for the coordination of the response itself.** The interaction of national meteorological forecasting capacity, adequately equipped and supported by international agencies, with locally formulated vulnerability analysis must be able to generate clear scenario maps with automatic triggers and extended lead time able to cut-down long verification and decision-making protocols and provide the humanitarian community with the necessary confidence to expand its range of services.

  Decentralised decision-making is in line with approach promoted widely across the SRSP community – for instance by FAO in Latin America and Asia /South-East Asia: the existence of a national system, conveying deterministic as well as impact data on potential loss and damage, including means of livelihoods, from local government, administrative authorities and well-disseminated forecast stations with clear readiness or pre-activation and activation triggers and lead times. The information must be available to local government agencies which, regardless of the type and scale of the risk, must be empowered with enough resources to activate contingency funding to use available social protection instruments to provide ex-ante or ex-post assistance.

  In Bangladesh, The SUFAL initiative has been operating with and through the government meteorological department since 2019, to activate ex-ante and ex-post responses to floods (as it was the case in 2020) while improving the department's forecasting capacity, effectively increasing the lead time before a disaster.

In terms of FbA operations, while continuing to strengthen capacity at district and lower administrative levels - through the SUFAL II initiative and other projects, the development community needs to join forces for a coordinated advocacy action towards increasing decentralised contingency funding and decision making. Strengthening the legal framework and allowing more fiscal and administrative autonomy related to DRM can also make local SRSP initiatives more efficient and effective.

- **A more wholistic approach to resilience building and climate adaptation needs to be adopted to protect lives and livelihoods during weather or climate/related hazards.** In fact, while EW systems must broaden their outlook to include more livelihoods and environmental protection actions, this approach must also link-up to longer-term resilience building and development initiatives that can further minimize the risk of damage and loss during disasters. Shock-responsive social protection systems, permanently linking DRM to SP and Climate Change Adaptation can create the conditions for more and better integration of risk mitigation and disaster response initiatives like FbA, and for the release of adequate resources for it.

  In Bangladesh, the FbF/FbA TWG again offers opportunities to deepen the analysis of possible impacts of floods and other recurrent hazards, by relying on existing sector expertise within government and development partner organizations. The final output should link a national EW framework with other ongoing large-scale preparedness and resilience initiatives to cover the entire DRM cycle.

Financing -

- **Low interest in developing "no regret" forecast-based financing mechanisms remains among many disaster-prone countries around the world.** In Low-income and some middle-income countries managing regular annual government spending as well as debt and identifying the fiscal space for contingency funding may involve some difficult trade-offs. Furthermore, identifying budget for preparedness and risk mitigation on top of disaster response contingency funding may require consuming institutional dialogue. Furthermore, FbA falls at the intersection between preparedness and response, and may not always exert the expected outcomes if a disaster does not occur in the end. Therefore, FbA has so far largely remained a donor financed approach, except in contexts of slow onset disasters, in which governments have time to produce and validate early warning analysis supporting an alert. More evidence of the cost-effectiveness of FbA, particularly if activated by leveraging existing shock-responsive social protection schemes, is needed to demonstrate the benefits of acting before a disaster hits.

  Sovereign disaster insurance schemes, bilateral and multi-lateral funding sources are therefore critical to match government efforts, which normally focus on more structural interventions for public spaces protection, watershed management etc. Multi-year low-interest loans, zero to low-interest credits and grants are used to match government efforts in sustaining many flagship SSNPs in low- and middle-income countries. Building contingency funding instruments within those allocations, rather than topping-up with irregular and short-

lived humanitarian funding instruments is the most suitable option in absence of risk retention mechanisms.

To regulate all internal and external funding flows and to guarantee sustainable and coordinated DRM for SRSP, governments must equip themselves with disaster risk financing strategies, including forecast-based financing ones. A comprehensive DRF strategy is made of adequate legal and institutional frameworks, resources that can be made available at various stages of a response, that link with the social protection systems where possible, and financing instruments that are complementary, cost-effective, and tailored to the types of risks identified based on a risk-layering system (European Union, 2020). For FbA to be supported by such instruments, substantial evidence must be generated and translated into sound operational protocols, endorsed by the government ministries in charge of DRM and social protection.

In Bangladesh, the development of a DRF(I) strategy, including funding for SRSP, is the way forward for prompting more government ownership of SRSP instruments and the institutionalization of the FbF approach.

Intervention types, objectives, and linkages –

- **FbA is an effective approach for risk mitigation in the event of a weather-related shock.** Whether a vertical and horizontal expansion of a government social protection scheme, an aligned ECT or one piggybacking on existing administrative systems, FbA can be effective in reaching those most in need with cash and in-kind support that can prevent a disaster from hitting them harder. Cash is predominantly unconditional, unless during a slow-developing crises or where there is a compelling case for health or livelihood-related outcomes to be promoted through soft-conditionalities.

  In Bangladesh, a careful assessment of key SSNPs eligible for scale-up in the instance of floods is currently ongoing by the SUFAL initiative and other partners experienced with FbA projects in the country and needs to be completed ahead of the start of the 2023 rainy season. Vertical and horizontal expansions of existing schemes require adequate time for setting-up FbA targeting protocols, data management systems and operational platforms.

- **Livelihood protection is a critical aspect during the preparedness and response phase of a disaster management cycle.** Livelihood protection is a key component of many forecast-based action programmes implemented by FAO and other partners. It aims at complementing the traditional life-saving and household asset-protection focus of FbA initiatives, with packages that can support farmers and other critical economic actors preserve their productive capacity or protect critical assets during a shock. No consolidated data is yet available on the impact of such an approach on the remaining phases of DRM, nor and most importantly in terms of household food security and resilience in the post disaster period. However, increasingly accurate EW systems and expanding lead times can certainly widen the array of services that can be provided ahead of a shock.

In Bangladesh, the FbF/FbA TWG offers the opportunity to define strategies to reach households with life-saving and asset protection cash assistance, as well as to complement those with initiatives supporting producers ahead of a shock, to preserve their productive capacity and mitigate the risk of inflationary waves in the post-disaster recovery period.

Targeting and registration –

- **Government targeting policies in low- and middle-income countries can at times be a barrier to the successful integration of FbA and SRSP**, due to a trend to prioritize the most socio-economically vulnerable in society without capturing climate-vulnerability criteria as part of the protocols. However, as shown by the recent simulated use of the Listahanan registry for SRSP targeting, social registries that focus on economic poverty as well as a wider spectrum of age-related and social vulnerabilities can represent a good baseline to start from, if data is regularly updated to verify a household status (e.g., composition and economic activities) and geolocation. Development partners can complement government registries with additional geographical data on households affected by high environmental or climate-related vulnerability factors (e.g., proximity to a river, living in lowlands or on islands), and over time climate-related vulnerabilities should be added to government social registries as a standard vulnerability indicator to be captured through nationwide surveys. Furthermore, efforts should be made to dispel the myth of 'double dipping' (where one household receives more than one form of assistance) being inherently unfair, as the most economically vulnerable households already receiving social entitlements, due to their heavily compromised subsistence and resilience capacity may require additional support pre and post shock.

  In Bangladesh, the identification of households bearing environmental vulnerabilities in areas particularly affected by regular floods should be prioritized, drawing learning from the SUFAL vulnerability mapping approach. Also, the creation of a purposeful registry accessible by all major implementing partners in the country, particularly those leading SRSP initiatives, should be given priority.

- **Social registries are not a pre-requisite for successful targeting within SRSP systems.** Only one example of climate-sensitive social registries including information on household vulnerability to environmental risks was identified during the course of the review (in Dominican Republic). Although social registries offer opportunities for swift action, the model currently adopted in many countries is not the only prerequisite for FbA. Data can be collected through new assessments and registration processes to identify those in need of assistance and through on-demand registration as it was the case for COVID-19 assistance programmes in various countries. In fact, no registry will ever have perfect coverage, suffering from exclusion errors and outdated information, thus processes will always need to be in place to reach those excluded from them. While the development of social registries should consider how they can inform responses, it is not necessary to wait for a social registry to respond through social protection and capitalize on existing information systems. However, where social registries are being developed it is important to ensure that they reflect not only socio-economic vulnerability but include vulnerability related to predictable and reoccurring shocks which can act to undermine resilience and recovery.

In Bangladesh, given the extremely fragmented nature of the social protection environment and the varying level of digitalisation of SSNP registries, a separate government-owned registry for disaster responses – both ex-ante and ex-post – should be created without trying to integrate additional vulnerable groups in existing registries. Technical support and funding should be directed to maintaining the registry and to developing vertical and horizontal expansion protocols for key SSNPs operating in disaster-prone areas.

Payment systems –

- **Electronic payments are increasingly regarded as the gold standard in the social protection sector,** for their flexibility, security, and the digital traceability of all transactions. However, their registration protocols are often long and burdensome due to strict AML and CFT procedures enforced by financial service providers (including mobile network operators) around the world. Hence, in presence of a vertically expanded pool of beneficiaries during shock responses, this solution may be not turn out to be the more time-effective one and implementing partners may instead opt for manual payment modalities via CIT or post office services. However, since digital financial services can allow for real-time updates on the transaction status and minimize the need for manual operations during complex disaster preparation activities, the move towards e-money is unanimously advocated for. This can happen via the pre-registration of a wide pool of vulnerable households living in areas most at risk of weather and climate-related disasters, or by accessing existing social registry data where these are inclusive enough, include geolocation and phone numbers for easy transfer via the mobile money technology, where this is in place.

  In Bangladesh, a dialogue between social protection and national registration government institutions needs to be pursued for the registration and release of national identity documents to the most vulnerable individuals eligible – or enrolled – in SSNPs around the country. Such mass registration campaign could effectively speed up the digitalization of social assistance payments and provide a considerable boost to the government financial inclusion agenda.

Information management and communication –

- **End-to-end information management lays at the core of any forecast-based analysis, financing, and action** and, on this account, it requires data accuracy, language interoperability and integrated systems to effectively trigger an FbA on time and within the correct parameters. As such, EW, DRM and SRSP information systems, including outreach communication services, cannot be arranged in isolation from one another but must be looked at as handling a single flow of data. Whether marked by strong government ownership or fragmented across multiple implementing agencies, no context has shown progress in developing such an environment, largely due to lack of data harmonization, missing data sharing protocols and little investment in technologies able to support quality generation and management of life-saving information. With the critical support of international technical partners like the World Bank, FAO and WFP, national governments are increasingly shifting towards better structured, institutionalized digital information systems.

In Bangladesh, a roadmap for the digitalization of social protection data management systems and the creation of an integrated data environment should be made a priority to support the country's SRSP strategy, including the institutionalization of FbA.

- **Social protection household data, when properly handled and regularly updated, can be a formidable source of information to provide services all along the DRM cycle.** In some countries, the political class is coming to realize the power laying behind household data and has been establishing sophisticated systems for it. However, without reliable government MIS and data usage protocols in place, many institutions are reluctant to share data and end-up utilizing it for geographically or sector-limited short-lived interventions rather than to support the development of a data-fed national DRM systems including FbA initiatives. Learning efforts are equally fragmented and portray a partial picture of the benefits of FbA based on pilots and simulations, rather than being consolidated into analysis that can take the national and international conversation on FbA to the next level. Furthermore, without strong data protection protocols and mechanisms in place, data sharing remains a sensitive issue which few organizations are ready to commit to.

  In Bangladesh, the FbF/FbA strategy design process can work as a pivot for renewed efforts in data sharing across institutions working in humanitarian and SRSP initiatives and for the creation of common systems to manage it. OCHA has currently taken the initiative to lead such project on behalf of the sector. In fact, whether government-led or managed through standalone donor-funded initiatives, FbA requires accurate, up-to-date data which is mostly readily available in existing national and local-level registries owned and managed by different actors.

Grievance management and protection –

- **Case management in emergencies is a sensitive area of work which requires dedicated, trained, and impartial resources for administration, case resolution and communication, particularly in times of crises.** In many government-led social protection programmes, the reliance on community structures - at times those same ones supporting payment operations - for handling claims and complaints can be a barrier to reporting. In shock responses widespread threats can increase friction among community members and the risk of different kind of incidents, from embezzlement to gender-based violence. When governments are not able to make extra capacity available, implementing partners can provide that surge capacity as staff or volunteers. While on one side running the risk of removing community leadership away from case management, they should ultimately be accountable for, operations during shock responses require improved operational capacity, such as a lower grievance management agent / beneficiary ratio, more frequent visits even in hard-to-reach communities, and faster turnaround time in case resolution and communication. All budgets supporting cash-based forecast-based action, whether financed through statutory DRM funds or from donors, need to include surge case management capacity, adequate training, logistic, and administrative support.

  In Bangladesh, the government agencies leading social protection programmes must allocate more resources and technical assistance to decentralised government and administrative

implementing teams for conducting regular case management activities using based on global standards. In the interim, and particularly when in presence of shocks triggering a disaster response, other local or international implementing actors can step in to provide surge support, trying as much as possible to rely on existing structures rather than creating new ones.

6 References

African Development Bank (2022) Malawi received US$14.2 million drought recovery insurance pay-out, Press release 29/06/2022, Johannesburg.

Asia-Pacific Technical Working Group on Anticipatory Action and Asia-Pacific Regional Cash Working Group (2022) Anticipatory action and cash transfers for rapid-onset hazards: Practitioners' note for field testing, Bangkok

Cabot Venton, C. (2013) The economics or early response and resilience: summary of findings. London: UK Department for International Development (DFID)

Cabot Venton, C. (2018) Economics of resilience to drought in Somalia, Kenya, and Ethiopia. Washington DC: USAID

CARE (2018) Operational Trial of a Vertical Expansion – Malawi Social Cash Transfer Programme Case Study

CERF (2021) Madagascar Réponse Rapide Séchesse 2020, Antanarivo

Costella, C., et al. (2017) Scalable and Sustainable: How to Build Anticipatory Capacity into Social Protection Systems, Brighton: Institute of Development Studies, Bulletin Vol. 48 No. 4 July 2017: 'Courting Catastrophe? Humanitarian Policy and Practice in a Changing Climate'

Damtie, Y.A., Asmare, A.M. (2020) Evaluation of Ethiopian early warning system: the case of Dera and Jabithenana Zuria Districts, Safety in Extreme Environment 2, pp. 197–204, https://doi.org/10.1007/s42797-020-00022-w

Gentilini, U., et al. Social Protection and Jobs Responses to COVID-19: A Real-Time Review of Country Measures, "Living paper" version 16 (February 2, 2022), Washington: World Bank

German Red Cross (2021) Philippines Joint Simulation on Cash Early Actions & Shock-Responsive Social Protection for Flood, https://www.anticipation-hub.org/news/philippines-simulating-with-cash-early-actions-social-protection-for-flood

Government of the People's Republic of Bangladesh (2019) Standing orders of Disaster 2019, Dhaka

IFRC (2014) Early Warning Early Action Mechanisms for Rapid Decision Making - Drought preparedness and response in the arid and semi-arid lands of Ethiopia, Kenya, and Uganda, and in the East Africa Region, Geneva

IFRC (2022a) A Feasibility Study on the Potential Use of Cash-based Social Protection Systems for Floods, Dhaka

IFRC (2022b) FbF Practitioners Manual - A step-by-step approach for FbF implementation, Geneva

Ministry of Agriculture – Federal Government of Ethiopia (2014) Productive Safety Net Programme Phase IV - Programme Implementation Manual, Addis Ababa

OCHA (2021) Forecast-based Action Framework - Bangladesh Monsoon Floods, Dhaka

ODI (2022) Linking social protection and humanitarian assistance - A toolkit to support social cohesion in displacement settings, London

OPM (2018) Shock-Responsive Social Protection Systems Toolkit, Appraising the use of social protection in addressing large-scale shocks, Oxford

Oxfam (2017) From Early Warning to Early Action in Somalia, Oxford

REAP (2021a) Country Case Study: Madagascar, Geneva

REAP (2021b) Country Case Study: Nepal, Geneva

REAP (2021c) Country Case Study: Philippines, Geneva

REAP (2022) Country Case Study: Ethiopia, Geneva

Red Cross Red Crescent Climate Centre (2016) Case study Bangladesh. The Hague: Red Cross Red Crescent Climate Centre.

SPARC, Issue Brief – Obstacles to and Opportunities for Forecast-based Action in Somalia, London

SUFAL I (2020) Post Monsoon Assessment – Community response triggers and forecast based action, Dhaka: SUFAL I

WFP (2020a) Shock-Responsive Social Protection in the Caribbean - Synthesis Report, London: ODI

WFP (2020b) Somalia Annual Country Report 2020 - Country Strategic Plan 2019 – 2021, Nairobi

World Bank (2013) Ethiopia's Productive Safety Net Program (PSNP) Integrating Disaster and Climate Risk Management Case Study, Washington DC

World Bank (2022) *A digital Philippines: Leveraging ID for a digital social protection delivery* Blog, https://blogs.worldbank.org/eastasiapacific/digital-philippines-leveraging-id-digital-social-protection-delivery

World Bank (2022) *Risk insurance builds climate and disaster resilience in Central America and the Caribbean* result briefs, www.worldbank.org/en/results/2022/04/21/risk-insurance-builds-climate-and-disaster-resilience-in-central-america-and-the-caribbean [06.01.2023]

UNDP/UN Environment (2018) Climate Impact Vulnerability Index: Lessons learned and systematization of the IVACC design and application process in the Dominican Republic, Panama City

UNDRR (2022) UNDRR (2022), Policy Brief, Ethiopia: Risk-sensitive Budget Review, Public Investment, Geneva

Planning for Disaster Risk Reduction and Climate Change Adaptation.

Annex A List of contributors

The information contained in this document was partly drawn from interviews held with key technical informants from agencies implementing shock responses using Forecast-based Action as one of their approaches. A total of fifteen interviews were held between the 2nd of December 2022 and the 17th of January 2023.

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Annex B Examples of early warning triggers

A forecast-based response is activated based on readiness and activation triggers that depend on variables such as the type of hazard, the lead time available, the expected impact, and the specific objectives of the response system they are there to serve. The examples below present different combinations of such variables to define the most appropriate framework to guide a response to Typhoons in the Philippines (Box 5), floods in Bangladesh (Box 6 and 7) and drought in Somalia (Box 7).

Box 5 - The CERF EW model in the Philippines

The CERF model in the Philippines

In the Philippines, a triggering model established for a CERF pilot on FbA for typhoons involves:

1. Readiness trigger (pre-activation): 4–7 days prior to forecast landfall.

a) Tropical cyclone with potential to reach category level 3 or higher (greater than 178 kph, maximum 1-minute sustained wind speed or 158 kph, maximum 10-minute sustained wind speed).

b) Projected to directly impact areas in regions several regions.

2. Activation trigger: on or before 72 hours (3 days) to forecast landfall.

a) As soon as European Centre for Medium-Range Weather Forecasts alerts are available for a certain tropical cyclone, a Red Cross Initiative (510) calculates the predicted number of totally damaged buildings, produces an impact map, and updates this every 6-12 hours.

b) Threshold is reached, and CERF anticipatory action is activated if 72 hours before landfall (or sooner) the predicted number of houses to be damaged fall within the range of 50 percent probability that 80,000 houses will be totally damaged to 95 percent probability that at least 5,000 houses will be totally damaged.

(Source: Asia-Pacific Technical Working Group on Anticipatory Action, 2022)

Box 6 - The GRC/BDRCS/WFP EW model in Bangladesh

The WFP model in Bangladesh

In Bangladesh, WFP has developed a model for FbA in the case of floods in riverine areas. In involves:

1. Readiness trigger: A 10-day probabilistic model based on the Global Flood Awareness System. This combines weather forecasting with a hydrological model which has been specifically calibrated for the Jamuna River. Preparatory actions begin if the 10-day forecast indicates a greater than 50 percent probability of a flood lasting more than three days.

2. Activation trigger: A 5-day deterministic model based on the government national model. The Flood Forecasting and Warning Centre deterministic forecast model can forecast water levels in terms of mean sea level and understand danger levels along the river system in the country. Full project funding is released if the deterministic forecast confirms that floods are still imminent and that water levels will exceed the government-defined "danger Level" by at least 0.85 meters. The Red Cross through their 510 initiative defines this as flooding that will damage more than 25% of households' assets or affect forty percent of the population.

The WFP model in Bangladesh

(Source : https://reliefweb.int/sites/reliefweb.int/files/resources/210520-AA-Bangladesh-VF-nologo.pdf; https://www.anticipation-hub.org/experience/anticipatory-action-in-the-world/bangladesh/forecast-based-financing-in-bangladesh)

Box 7 - The SUFAL model in Bangladesh

The SUFAL model in Bangladesh

The 2020 FbA piloted by the SUFAL consortium used a two-staged **early action matrix**, comprising an institutional and a community level matrix, based on a probabilistic information as well as on an impact-based analysis. Medium range flood forecast (1-10 days probabilistic water level forecast) and long range (1-15 days stream flow forecast) help to capture the trigger points accurately.

Depending on the forecast trend as well as the level of danger, seven scenarios can be identified:

- More than one meter above the danger level
    1. Increasing
    2. decreasing
- At danger level and up to 1 meter above danger level
    3. Increasing
    4. decreasing
- Within one meter below danger level
    5. Decreasing
    6. >75 per cent probability of exceeding danger level
    7. <75 per cent probability of exceeding danger level

Beside threshold exceedance, early action t**riggers are activated through a mix of information regarding the impact, expected magnitude, expected duration,** and **timing of flood**.

Two levels of trigger exist:

1. Trigger 1 – readiness actions: it can be activated at 50-60 per cent probability of flood occurring to initiate actions which are mostly no regret actions.

2. Trigger 2 – "sensitive" actions: it can be activated at 75% probability of flood occurring and when at least 5 days flooding is expected to initiate multi-purpose cash grants and other resource intensive emergency activities.

(Source: SUFAL I (2020) Post Monsoon Assessment – Community response triggers and forecast based action, Dhaka: SUFAL I)

Box 8 - The FAO EW model in Somalia

The FAO model in Somalia

In Somalia, FAO/FNAU has developed an Early Warning-Early Action Dashboard of Indicators and Thresholds to guide the triggering of alert or alarm levels for several types of risks including famine as a result of droughts. Three out of six sets of triggers are monitored, and these include:

1. **Climate:** The combined drought index (CDI) monitoring tool explores the use of three climatic conditions that influence drought conditions. This includes rainfall, temperature and the Normalised Vegetation Drought Index which is a proxy of soil moisture. The index indicates the intensity of a drought by measuring the status of crop loss (extreme, severe, moderate, mild, and normal) as follows:

The FAO model in Somalia

- **Extreme:** Major loss of crops and pasture, extreme fire danger, total water shortages, drying of deep reservoirs and usage restrictions.
- **Severe:** Wider scale of loss of crops and pastures, imposed water rationing and livestock.
- **Moderate:** Damage to crops, pastures, drying of shallow reservoirs; voluntary water rationing.
- **Mild:** Going into drought, short-term dryness slowing planting, growth of crops. Also coming out of a drought – water deficits, partial loss of crops and pasture.
- **Normal:** No drought.

2. **Market: Maize/sorghum/rice/goat price** monitoring can trigger an alert in the case of an increase between 5-10 percent of stable food prices and a 5-10 percent decrease of goat prices. An alert is equally triggered by a 5-10 percent decrease in wage levels, terms to trade levels (wage to cereals/goats rate) and Minimum Expenditure Basket levels. Variances above 10 percent on each of the values triggers an alarm.
3. **Nutrition: Admissions to feeding and treatment centres** are monitored, and alert levels are increased when a 25-50 percent increase is observed. A >50 percent increase triggers an alarm.

All data is updated monthly. Being droughts slow-onset disasters bearing a much longer lead period and offering multiple opportunities for government and non-governmental initiatives to intervene, the triggers are not necessarily linked to specific actions, like in the case of Typhoons or floods.

(**Sources:** https://cdi.faoswalim.org/index/cdi; https://dashboard.fsnau.org/application/cache/images/EWEA_Dashboard_Indictor_Thresholds.pdf)

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