Forecast-based Financing Case Study: Asia Pacific

Final Report

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This Final report has been prepared for the Netherlands Red Cross as part of the assignment "Forecast-based Financing Case Study: Asia-Pacific". This document complements previous deliverables including: Inception report, Results Symposium presentation, Transcript report and the Draft report. This Final Report presents the key results, deeper disaggregated analysis is presented in a separate Annex.

Team Leader: Imelda Phadtare, E Co. – imelda@ecoltdgroup.com

Prepared by: Imelda Phadtare and Sadie DeCoste

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Executive Summary

This Final report presents the key results from qualitative research commissioned by the Netherlands Red Cross on Forecast-based Financing and undertaken between July and September 2020. A separate Annex provides supporting disaggregated interview and literature lists, as well as summaries and analysis.

Forecast-based Financing (FbF) is currently being adopted in some 30 countries globally. This study focused on the Asia-Pacific region and looked at the FbF experiences and effort towards institutionalisation in eight countries: Indonesia, India, Myanmar, Nepal, Vietnam, Mongolia, the Philippines and Bangladesh.

The two overarching drivers for the work were to identify:

- **key determinants for adoption and emerging patterns**: based on enablers and barriers;
- **future directions**: presented as next steps to widen the FbF discourse.

A total of 36 key stakeholders were interviewed representing country and regional FbF interests.

Key determinants

Seven key determinants were identified as having a significant influence on progress towards institutionalising FbF across the region. In priority order, these include:

1. **Government buy-in and leadership:**
   - positive relationships with the central Government as well as all other levels of Government (provincial/state, district, township, local administration unit) and an understanding of their FbF capacity needs;
   - collaboration on FbF through support of pilots, simulations and early action protocols;
   - policy development and implementation shifting resource mobilisation from post-disaster response to decentralised anticipatory action.

2. **Strong Met agency engagement:**
   - positive relationships with the national and subnational Met agencies and an understanding of their FbF capacity needs;
   - collaboration on FbF (dialogues, simulations, post-impact studies feedback), and increased understanding of forecast user needs in support of anticipatory action;
   - co-development of forecast products that can be easily interpreted and that integrate hazard and exposure data to provide critical risk and lead-time information.

3. **Built and sustained capacity:**
   o Red Cross Red Crescent (RCRC) understanding of FbF concepts and where these differ from existing Disaster Risk Reduction (DRR) practices, FbF implementation, technical skills (understanding forecast products, developing triggers, Early Action Protocols (EAP), impact and return on investment studies), resources (technology, equipment);
   o RCRC exchange and capacity transfer at central and decentralised levels i.e. optimising feedback mechanisms and training of low capacity Chapters to build decentralised resilient frontline Anticipatory Action (AA) responders;
   o participation in pilots and simulations, use of multi-hazard triggers and early actions;
   o rebuilding of capacity for onboarding in RCRC and to address turnover with Government and Met agency staff.

4. **Forecasting and Early Warning Systems:**
   o effective monitoring systems in place – ideally for multi-hazards/ cascading effects and multi-country hazards;
   o ability to forecast for slow and rapid onset events;
   o provision of timely and reliable forecasting information at downscaled high resolutions;
   o use of Impact-based Forecasting (IbF) models that integrate scientifically evidenced historic, probabilistic and updated socio-economic vulnerabilities.

5. **Access to finance:**
   o provision of Government ex-ante financial mechanism supported by policy (clarifying triggers), that is easily accessed and decentralised;
   o 24/7 banking support systems to allow access to decentralised funds and cash transfers;
   o approved EAP and guarantee of allocation of funds – Forecast-based Action by the Disaster Relief Emergency Fund;
   o diversification of ex-ante funding possibilities e.g. Central Emergency Response Fund Rapid Response;
   o synergies with other financial mechanisms e.g. shock responsive social protection and insurance (e.g. World Bank Disaster Risk Financing and Insurance Program.

6. **Partner advocacy:**
   o elevation of FbF support and evidence through technical working group leadership and collaboration, RCRC partnerships, partnerships with other sectors, multi-partner pilots and multi-country pilots.

7. **Best practice and evidence:**
   o developed information products and knowledge management systems;

- o knowledge of and access to resources to build on/transfer existing practice.

Emerging patterns

The findings show that:

1. There is no single pathway that has been demonstrated to achieve FbF institutionalisation. The eight countries of the study show how differently FbF implementation has been applied across 35 indicators based on IFRC APRO's five-stage approach, see Table 4.
2. While it is evident that a pattern of gradual adoption of FbF occurs, from Stage 1 (setting the scene) to Stage 4 (scaled-up), it is challenging to see a clear pattern. The sample size is small and it displays a number of anomalies making direct comparison inconclusive. Some countries show more progress on some key indicators, while behind on other key indicators.
3. Fast-tracking of capacity is likely the top accelerator of FbF and where the most gains can be made. Where capacity needs have been understood and filled, FbF has gained further traction or transitioned to the next stage. Capacity gamechangers include: human resource, technical expertise, financial assistance, technology support and partnership coordination.
4. Partnerships and pilots at country and regional levels in general, create space for testing with cross disciplinary input that helps to accelerate FbF.
5. FbF synchronicity. Key stakeholders alignment leads to accelerated FbF. This is particularly evident where livelihoods are firmly integrated into EAs. Delays and stakeholder malalignment hinder FbF progress where pre-existing approaches/ different approaches operate.
6. Knowledge management and evidence generation is generally lacking across the region leaving a deficit in wider understanding of FbF implementation and performance. This deficit impacts FbF practice as insights are not gained by other FbF implementers, and may contribute to an overall lack of buy-in.

General patterns show that countries making the most progress to embed FbF, have: approved EAPs; multi-hazard approaches (such as in the Philippines and Bangladesh); Early Actions (EA) testing and simulations completed; national policy with ex-ante funding mechanism in place; strong government relationships; medium to strong Met agency relationships; strong technical working group relationships; and strong multi-stakeholder engagement.

Future directions

FbF has been introduced in the region to a large extent in the last three-years due to direct delivery from humanitarian, intergovernmental, research, government and private partnerships. Opportunities to further integrate FbF and to widen the discourse are shown below.

Country level FbF integration	Regional level FbF integration

Support **Government policy** on pre-disaster resource mobilisation and programming	**Focal Institute**: establish regional technical and coordination remit in support of AHA Centre
Support Met agency with **forecast improvements**	ASEAN reconfiguration: re-house **DRR under economic pillar**
Technical Working Group exchanges: Headquarter and Chapter levels	Climate Centre: accelerate technical **support for EAPs**
Develop collaborative **pilots**	Advocacy: **champions** for policy, pilots, funding
Test EAs and publish results	**Policy**: national roadmaps and dialogues
Develop **multi-hazard EAPs**	**Funding** mechanism: financiers roundtable
	Multi-hazard, multi-country early warning systems**:** tools , partners

Given increasing climate related events combined with other hazards e.g. conflict, COVID-19, it is more sustainable, from a loss and damage outlook, for Governments to adopt FbF and to synchronise with current climate change and DRM agendas. This requires a coordinated and collaborative investment identifying and managing risk. A shift from counting savings, to also counting avoided debt, across hazards and across countries.

RCRC next steps are outlined through 20 recommendations at the end of this report. These look to create systemic change and align with the key determinants, emerging patterns and the further opportunities above.

In general, a multi-pronged approach is suggested to move countries and the region toward FbF institutionalisation. However the best gains will come from building capacity through a combination of additional human resources i.e. FbF practitioners, continued and expanded technical assistance, and development of partnerships and pilots.

1.   Introduction

1.1. Scope of work

The Netherlands Red Cross (NLRC) hired E Co. to undertake qualitative research focussed on the experiences of stakeholders that are committed to institutionalise Forecast-based Financing (FbF) in their countries within the Asia Pacific region. The motivation for this research is to understand if and where patterns exist in the implementation of FbF, and how to support institutionalisation of FbF in the selected countries and region better.

Stakeholder organisations included:

- 8 x Red Cross/Red Crescent (RC) National Societies;
- 4 x UN agencies i.e. World Food Programme (WFP) and Food and Agriculture Organisation of the United Nations (FAO);
- 2 x regional agencies i.e. Association of Southeast Asian Nations Coordinating Centre for Humanitarian Assistance on Disaster Management (ASEAN AHA Centre), Climate Centre and the Technical Working Group (TWG) on Forecast-based Financing / Early Warning Early Action (FbF/EWEA) (WFP and United Nations Children's Fund UNICEF).

Two key research questions framed the study:

1. **What are the main determinants (enablers and barriers) for institutionalising FbF/EWEA in Asia-Pacific, based on a qualitative study of the lessons learnt by countries implementing FbF (this forms Section 1 of the report);**

2. **What strategies can be proposed for scaling up and next steps to widen the discourse for and application of the FbF/EWEA mechanism at the country and regional level (this forms Section 2 of the report).**

1.2. Background

This research was commissioned by NLRC and the Red Cross/Red Crescent Climate Center, (RCCC) in collaboration with the Asia-Pacific Regional Office of the International Federation of the Red Cross and Red Crescent Societies (IFRC APRO). NLRC and the RCCC are members of Partners for Resilience (PfR), an alliance that also includes CARE Netherlands, Cordaid, and Wetlands International.

FbF is a mechanism that enables access to humanitarian funding for early action with the goal to: anticipate disasters, prevent their impact, if possible, and reduce human suffering and losses. FbF is reliant upon the establishment of predetermined and

scientifically evidenced 'triggers', that allow for the release of financial resources for action in anticipation of a humanitarian emergency.

An FbF mechanism is an important tool that is mobilised to address disaster management through more effective and coordinated forecasting, Anticipatory Action (AA) and transfer of funds to the ground pre-event - to support Early Actions (EA). This reduces vulnerability and increases resilience for those most at risk. Meeting this gap averts disaster, saves lives, supports disaster risk reduction for future events and avoids loss and damage. Most significantly, those citizens and communities who often face the highest exposure to events and climate risk, avoid further compromises. In addition, gains achieved through the development agenda are not reversed.

PfR (RCCC, NLRC) have been engaging in FbF to support the dialogue and advocacy to create a conducive institutional environment for FbF. The genisis for this research came from the RCRC commitment outlined in the Asian Ministerial Conference on Disaster Risk Reduction (AMCDRR) 2018 under priority 3 "establish partnerships in ten countries to support the development of innovative local level risk financing mechanisms, including insurance, FbF and social protection schemes".

The RCRC have referred to internal use of an FbF institutionalisation timeline, shown in Table 1 below. There are five stages to this concept, with countries categorised according to the analytical priority lenses, or their stage of FbF institutionalisation. The RCRC have delineated these stages based on needs across the following areas: capacity, financing and administration systems, forecasting and science, evidence and data, and stakeholder engagement.

Table 1: RCRC's Five-staged FbF institutionalisation timeline

FbF institutionalisation timeline –		
Stages 1-5	Countries/region	Hazard focus
1. Setting the scene	1. India 2. Myanmar 3. Indonesia	N/A
2, Testing FbF	4. Vietnam 5. Nepal	Heatwaves Floods
3. Making the case	6. Philippines 7. Mongolia	Floods and typhoons Coldwaves
4, Scaling up	8. Philippines 9. Bangladesh	Floods and typhoons Floods and cyclones
5. Changing the system	TWG ASEAN - AHA Centre	N/A

This Final report presents the key results from the research undertaken between July and September 2020. A separate Annex provides comprehensive disaggregated results, summaries and analysis.

2. Methodology

2.1. Overview

The methodology for the research included the following activities:

1. Interview question development;
2. Kick-off meeting;
3. Literature review;
4. Key Informant Interviews (KIIs)
5. Post-interview survey;
6. KII data analysis process;
7. Results Symposium;
8. Analysis of enablers, barriers and future directions;

2.2. Approach

Interview Question Development

Based upon the ToR, interview questions were developed and refined following the kick-off meeting. The number of questions ranged between 13-17, inclusive of introductions and final comments.

A complete list of interview questions can be found in the Inception Report and the Interview Transcript Report (submitted 05 August and 30 September 2020).

Kick-off Meeting

A team kick-off meeting was held on 29 July 2020 and provided insights into the current baseline. Additional research questions were raised for each country and the region.

Literature Review

An extensive literature list was provided by RCRC and complemented by a desktop exercise. Literature used to support this study can be found in the Annex.

Literature was scanned for a relationship to the two driving research questions. Country summaries and a regional summary were developed as part of this exercise (see Annex).

Key Informant Interviews

Based upon the ToR, 13 interviews were suggested. However, 16 semi-structured KIIs with 36 stakeholders were undertaken as part of the study over a five-week period from early August to early September. A full list of KIIs is provided in the Annex and Figure 1 below provides a map of the case study target area.
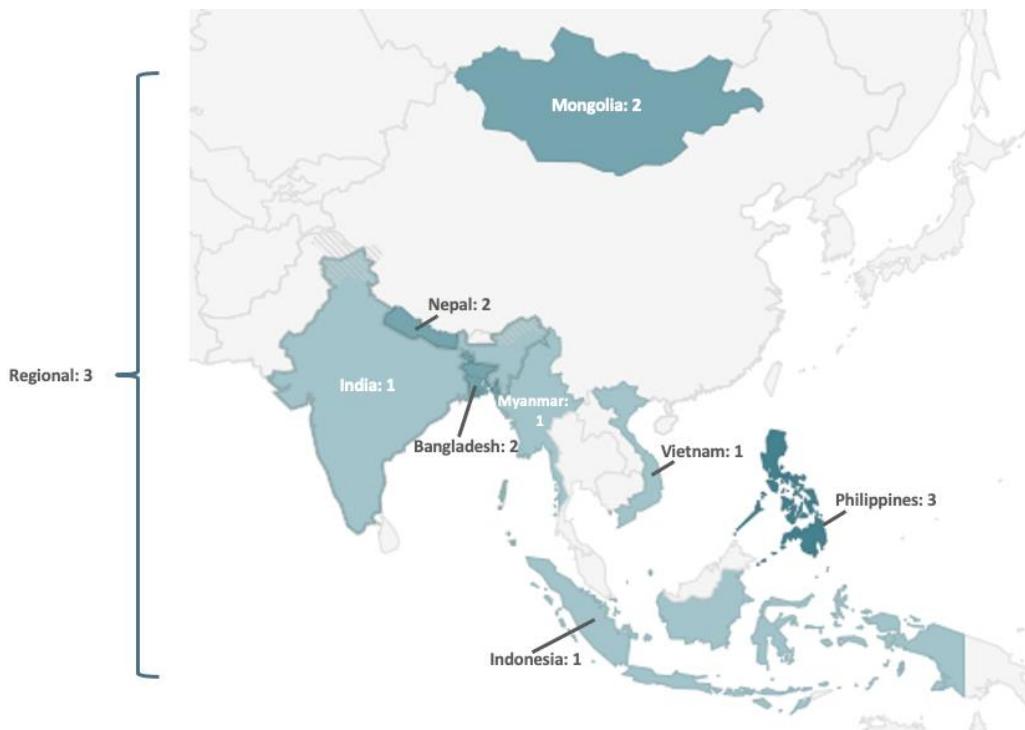
Figure 1 Map of case study countries and interviews

Key Informants were selected and initially approached by IFRC APRO to take part in the study. E Co. provided a brief memo to assist this process by outlining the purpose of the study. E Co. followed up with key informants and scheduled interviews using the tool 'Calendly'.

Interviews were generally 1-1.15 hours in length to cover on average, 14 to 15 questions and took place at the end of key informant's working day.

Post-interview survey

Following each survey, KIIs were sent a follow-up thank you email. The email also encouraged KII's to provide a generalised self-rating on a scale of 1 to 10 based on their advancement of FbF institutionalisation. This was a simple informal follow-up to understand the perception that KIIs held and how much capacity they felt they had built from current FbF activities.

KII data analysis process

A thematic analysis approach was implemented to analyse data collected from KIIs, by using software called Nvivo. Thematic analysis allows the researcher to identify emerging themes, to categorise them and explore sub-themes within each grouping. This provides an assessment of stakeholder experiences and opinions in relations to the two research questions. The five-step data analysis process that was adopted for the study is shown in Figure 2. Coding results and development of themes are presented in the Annex.

Following an initial review of each of the transcripts, codes were developed, reviewed and refined. "Queries" were then run through Nvivo to explore emerging patterns on

the enablers and barriers across the different stages, however, these quantifiable results proved inconclusive and are not included in this study. Instead a deeper analysis was undertaken manually with a more successful outcome.
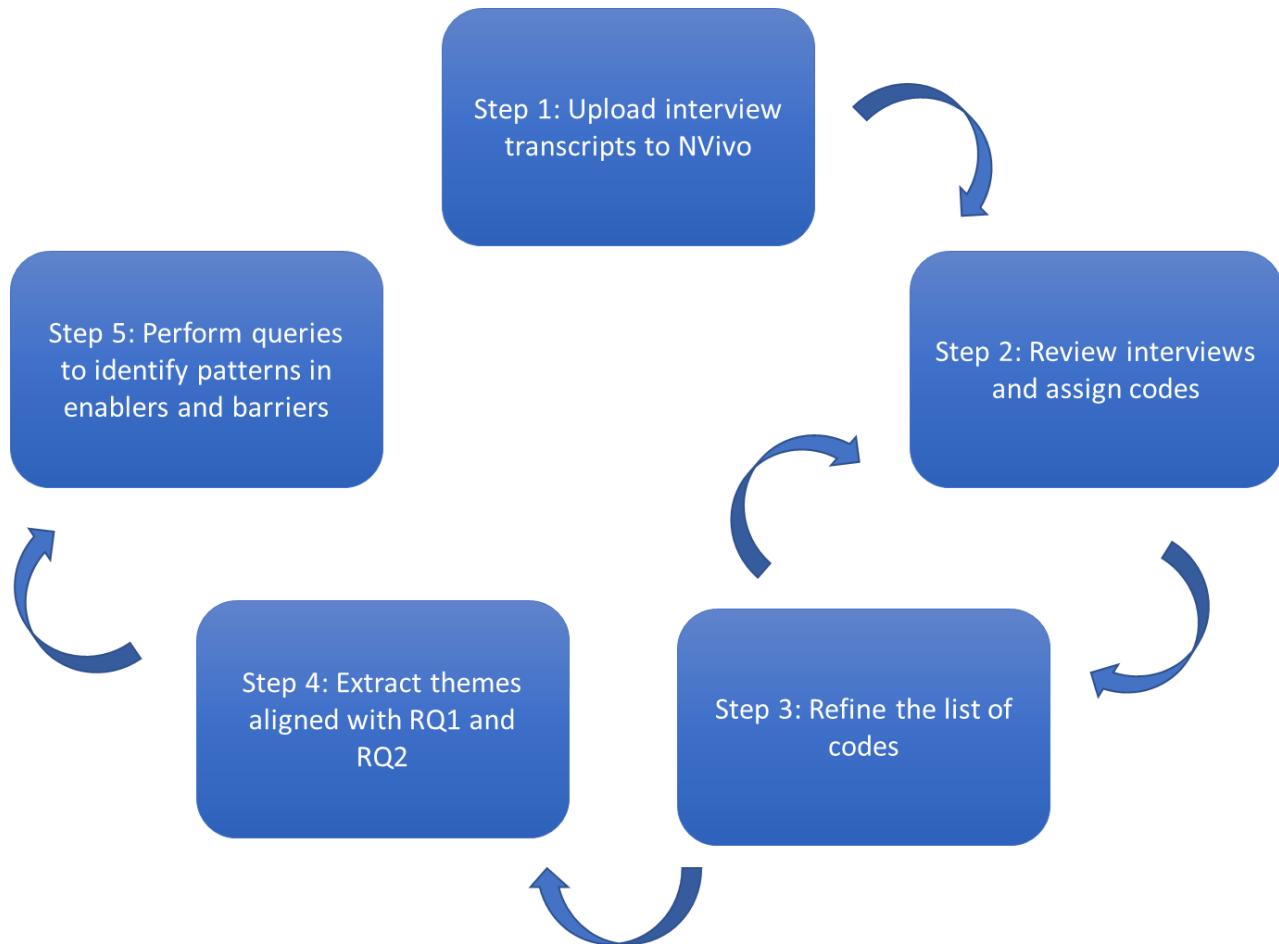
Figure 2 KII data analysis flowchart

Results Symposium

A Results Symposium was held on 30 September 2020 with 32 stakeholders, see Annex. The provided an overview of the research and results at a meta level, in addition to gaining useful feedback for integration into the final analysis period.

Analysis of enablers, barriers and future directions

Analysis was framed in alignment with the TOR and the kick-off meeting discussion, see Table 2. The process of analysis required review of disaggregated data and synthesis into aggregated key results.

Table 2: Section 1 and 2 framing of results

Section One: 5 Priority Analytical Lens	Section Two: 5 Focus Areas
Capacity	Strategies for scaling-up
Stakeholder engagement	Technical tools and strategies
Financing and administrative systems	Coordination mechanisms
Evidence and data	Increasing financing for FbF/EWEA
Forecasting and science	Documenting FbF/EWEA learnings

3. Section 1: Key Success Determinants

> *"What are the main determinants (or success factors) for institutionalising Forecast-based Financing?"*

Each country is unique in its approach to institutionalising FbF with a multitude of factors determining progress. However, the analysis shows that success is incumbent upon seven main key determinants framed by the enablers and barriers.

3.1. Seven regional key determinants

1. **Government buy-in and leadership**
   Without government endorsement of the FbF programme, it is challenging to implement and unlikely to be institutionalised. It's important to recognise that Government engagement may be strong at different levels which also impacts the effectiveness of the program. e.g. Myanmar has strong national and regional engagement, but weak district and township level engagement. Similarly, Nepal has strong national engagement through the secondment of an Information Officer for five-years, however the National Society (NS) has weak local Government engagement. Another point to stress with Government relations is that even when they are very positive with FbF program endorsement, this does not mean automatic translation into national FbF policy and financial mechanisms. e.g. Mongolia NS is endorsed as the lead for dzuds and has ROI studies, yet Government have not developed policy or pre-positioned financing. Although this fits into the stakeholder engagement lens, Government relations and policy effectively deserve their own priority lens given the significance.

2. **Strong National Hydro-Meteorological Service (NHMS) engagement**
   Positive collaboration with the national Met agency is the second significant key determinant to progressing FbF. A trusted relationship, shared data and an understanding of needs as the forecast provider versus needs of the forecast product user, seemed critical. While an MOU is not essential, NS with MOUs in place appear to have beneficial partnerships. e.g. India, Nepal (with WFP), Bangladesh. Noteworthy again is national and subnational level dynamics. e.g. Vietnam proved a highly effective relationship at the subnational level that is being leveraged now for national engagement on heatwaves. These relationships can also differ by hazard. e.g. Philippines has a productive relationship with

PAGASA at the subnational level on floods, but a challenging relationship at the central level on typhoons. In fact an MOU has been on-hold since June 2019.

3. **Built and sustained capacity**

   Capacities cover a few aspects. Human resources at the centralised and decentralised levels, knowledge of concepts, ability to apply FbF concepts; Resources (technology, equipment and shared FbF studies); and Technical skills (developing triggers, EAs, EAPs). In some cases, capacity has been built through recruitment and well-coordinated training. e.g. Mongolia. Though this seems to be the exception rather than the rule. Often capacity has been through existing disaster management programs and implementation of the imminent DREF. In these cases, foundational experiences with managing resources, people and relationships with partner agencies has built internal capacity. Some NS believe their greatest capacity asset has been in managing multi-hazards and developing an understanding of risk, EAs, triggers and EAPs for at least two hazards. e.g. Philippines and Bangladesh.

4. **Forecasting and EWS**

   Access to timely and reliable forecasting information and data, downscaled high resolution data is desirable but often lacking. Reliable monitoring systems, historic and probabilistic forecasting, impact-based forecasting models (socio economic and urban development aspects) as well as technical skills in forecast interpretation and communication, are key determinants. The difference between slow onset e.g. Mongolia, and fast onset events are also impacted by forecast products and communications. Lack of monitoring resources has limited the NHMS and the NS to address multi-hazards e.g. Myanmar has one drought monitoring station in the whole country, consequently the focus is entirely on floods even though drought is a growing slow onset disaster. Different NSs use different approaches. E.g. Nepal found GloFAS to be widely fluctuating and less helpful, compared to positive experiences by Indonesia's InaSAFE-FbA pilot and Bangladesh's use of GloFAS. Training in forecast interpretation proves to be a vital capacity build. E.g. Nepal, Myanmar. Similarly technical support to develop triggers enables success e.g. Mongolia (RCCC), Philippines (510). Finally investment in training of forecasters proved to greatly support Bangladesh's efforts to institutionalise FbF.

5. **Access to finance**

   Funding of human resources, technical assistance, triggers and EAPs has allowed FbF to gain traction that it would not have otherwise managed. E.g. Indonesia (GFDRR trigger development), Myanmar (Danish Innovation Fund for Early Action implementation). Access to pre-positioned funds have enabled Myanmar (Pre-disaster agreements with the Danish and German RC; and the LIFT Fund for shelter renovations), Nepal DRR policy amendment (5% allocation), Philippines (NDRRMC, DRRMO, LDRRMR memorandum 60 – not yet used but in place) and Bangladesh

(SOD, UN CERF). Access to funds through supportive financial and banking systems 24/7 is also critical – especially for decentralised cash transfers.

6. **Partner advocacy**

Support for FbF from a variety of partnerships maintained by the NS contributes to success. Active TWGs/HCTs where NS have elevated or Government endorsed roles have shown to progress FbF. E.g. Mongolia, Philippines (national and Chapter TWGs with bi-weekly meetings), Bangladesh (Chair). University support e.g. Vietnam and Mongolia. Private sector support e.g. Indonesia (Kartoza's InaSAFE), India (Google alerts and last mile connectivity) and Bangladesh (bKash). Start Network supports regional hubs e.g. Philippines and Bangladesh. Public-Private Partnerships drawing on largescale Green Climate Funds e.g. Nepal, Philippines. Development banks e.g. Philippines and World Bank's SEADRIF. ECHO initiative on FbF/EWEA and SRSP e.g. Nepal, Vietnam and Philippines. And of course support from RCCC and IFRC. Advocacy, like Government relations/policy, deserves its own priority lens given the impact on progressing FbF implementation.

7. **Best practice and evidence**

NS have looked at other countries experiencing success and have either copied, or are borrowing attributes of these models. The best example of this is India which manged to leapfrog its EAP process after closely watching and being inspired by neighbouring Bangladesh. With a flood EAP underway, India is now setting their sights on cyclones to more fully align with the successful Bangladesh model. When looking to replicate its EAP for multi-hazards, Vietnam looks towards the Philippines at their typhoon and flood FbF approach, as well as Bangladesh and Mozambique. Finally when looking at IbF, Mongolia looks at Sri Lanka and its successful use of WFP's PRISM for socioeconomic mapping. It is possible that if more FbF case studies, ROI and good/poor practice studies were available, the institutionalisation of FbF may have been even further progressed at this time in the Asia-Pacific region.

A curious observation from the KIIs, is the mention of a willingness to experiment and adapt through set-backs. A number of NS have entered into the realm of quasi experiments. Continual refining and perseverance are common characteristics of those countries that have advanced FbF e.g. Mongolia, Philippines and Bangladesh.

3.2. Enablers and barriers

The study found 15 enablers and 18 barriers identified as commonly experienced by stakeholders. Further analysis in Table 3 shows shaded enablers and barriers that were most mentioned in the 16 interviews. These are presented at a country and regional level in the Annex which includes 40 additional unique enablers and barriers.

Table 3: Aggregated KII results: enablers and barriers

Priority Lens	Enabler	Barrier
Capacity	**Sharing of FbF studies**	**Lack of technical capacity;** for developing EAPs
	Understanding of FbF	Lack of understanding of the FbF concept
	Training and support on developing EAPs	Geographical reach and logistics
	Dialogue platforms	Lack of access to dialogue platforms
	Decentralised volunteer network	Skilled volunteers in pre-disaster
		Delays due to COVID-19
Stakeholder engagement		**Institutional emphasis on post-disaster response**
	Established collaborations with government	Lack of collaboration with government
	Established collaborations with MET agency	Lack of collaboration with the MET agency
	Strong advocacy of FbF from RC, government, and other humanitarian partners	Lack of coordination between humanitarian actors (e.g. RC and UN Agencies)
	Coordination through technical working groups (TWGs)	Shifting political environment
	High-level political commitment translated into policy	Lack of leadership from government
	Collaboration with others e.g. researcher, private sector	Lack of suitable policy and regulatory environment
	Embedding FbF into policy	High rates of turnover among government staff
	Experimentation/innovation mindset	Reputational risk of failed implementation
Evidence and data	Running FbF studies: Feasibility, ROI, M&E	**Lack of available information on FbF practice**
	Effective Monitoring and Evaluation	Lack of Monitoring and Evaluation
Financing and administration		**Lack of access to finance;** barriers to timely disbursement
	Skilled human resources	Lack of human resources
Forecasting and science	**Functioning forecasts and early warning systems**	**Inaccuracy of forecasts and early warning systems**
	Developed understanding & communication of forecasts	Lack of skill for interpreting forecasts
	Training and support on trigger development	Lack of technical capacity for developing triggers
	Detailed data on vulnerable areas	Lack of available data sets
		Short lead times for hazards

3.3. Emerging patterns

Capacity fast-tracks FbF implementation

In general, FbF institutionalisation is greatly influenced by understanding and capacitating gaps. Capacity support is therefore critical and key to FbF institutionalisation across the region. All NSs benefitted from a shift in FbF programming to the next level, with the investment of additional capacity.

Patterns of capacity gamechangers include: human resource, technical expertise, financial assistance and technology support. Continued investment in capacity is

required to further embed FbF practices. Examples are provided in the following section.

Outside the indicators and stages, the following patterns have emerged:

1. **Capacity gamechangers** include: human resource, technical expertise, financial assistance, technology support and partnership coordination.
2. **Partnerships and pilots** at country and regional levels in general, create space for testing with cross disciplinary input that helps to accelerate FbF.
3. **FbF synchronicity**. Key stakeholders alignment leads to accelerated FbF. This is particularly evident where livelihoods are firmly integrated into EAs. Delays and stakeholder malalignment hinder FbF progress where pre-existing approaches/ different approaches operate.
4. **Knowledge management** and evidence generation is generally lacking across the region leaving a deficit in wider understanding of FbF implementation and performance. This deficit impacts FbF practice as insights are not gained by other FbF implementers, and may contribute to an overall lack of buy-in.

Also important are the impacts of COVID-19 and the need to integrate new approaches for epidemic and pandemic situations going forward.

Stage 1 to Stage 4 progression

From the case studies considered no single pathway to achieve FbF institutionalisation could be identified. The eight countries provide a demonstration of how differently FbF implementation is applied.

Table 4 was developed with 35 indicators and provides a comparative overview across IFRC APRO's five-stage approach. Clear and delineated patterns of institutionalisation of FbF across the eight countries as a whole, are challenging to identify as the indicators do not necessarily positively correlate within stages.

However, a pattern of progression between Stage 1 to Stage 4 is observed across a number of indicators including:

- approved EAPs;
- multi-hazard approaches (Philippines and Bangladesh);
- EA testing and simulations completed;
- national policy with ex-ante funding mechanism in place;
- strong government relationships;
- medium to strong Met agency relationships;
- strong technical working group relationships; and
- strong multi-stakeholder engagement.

Indicator observations

- Indicator 1 on FbF commencement: NS which have committed to the FbF process for 3 years (since 2017), or more, tend to be at the more advance end

of the FbF spectrum. This simply reflects the building of stakeholder relationships, capacities, tools and applications of refinement. Bangladesh have commented that they have added to their capacity year on year since 2015.

- Indicator 4 on pilot, scoping feasibility: **Setting the scene** is a mixed result when it comes to undertaking pilots, scoping studies and feasibility studies with no clear pattern. Certainly at Stage 4 both NS's have undertaken pilots, learned from these and then undertaken feasibility studies to assist with solidifying the EAPs.

- Indicators 10,11 and 12 on key stakeholder dynamic: TWG effectiveness is another key determinant where those with stronger TWGs (key stakeholders, regular meetings, information actively exchanged, action based agendas with troubleshooting, decentralised TWGs), are represented by Stage 3 and 4. While less effective TWGs tend to show less FbF institutionalisation. Add to this Government relations and NHMS relations.

- Indicators 13 and 15 on simulation and EAP development: **Testing** simulations and EAP activations is not demonstrated by Stage 1 NS, but becomes actioned in Stage 2. Stage 3 and 4 have undertaken some testing already, some even refining and applying results e.g. Mongolia.

- Indicators 16 to 20 on evidence generation: **Making the case** sees no emerging patterns as the majority of NS have not managed to produce published documentation on their EA practices and experiences to date, with the exception of Mongolia.

- Indicators 26 to 33 on integration of FbF: **Scaling-up** represent a mixed result for policy with Stage 2 and Stage 5 accomplishing change here. We see clear progression through the stages on links with SRSP with regional EU support, stronger multi-stakeholder engagement and some shifting towards changing the humanitarian assistance programming to Anticipatory Action.

Anomalies

It is challenging to see a pattern from a small sample size which displays a number of anomalies both within staging and between stages. This makes direct comparison inconclusive.

- Stage 1: Indian Red Cross Society in Stage 1 has an approved EAP and strong Government and NHMS relationships, yet no TWG engagement (at least none referred to in interview) and no testing of the eight EAs; Indonesia Red Cross Society is already in a testing stage with the InaSAFE-FbA project, how its EAP with the Government and NHMS is on hold due to COVID-19.

- Stage 2: Nepal Red Cross Society is planning its EAP but is delayed due to COVID-19. It does have an EA financial mechanism built into its existing DRR policy allowing for 5% allocation pre event, however, there are no clear guidelines on how to spend this pre-positioned funding; Vietnam is effectively ready to scale its heatwave EAP following simulations, however is awaiting approval from the Government.

- Stage 3: Mongolia Red Cross Society has already accessed the FbA by the DREF in January 2020. It had ROI studies to prove the case for FBF and AA, however the Government has not provided leadership by developing policy and a financing mechanism, which prevent Mongolia from scaling up; the Philippines Red Cross Society is awaiting the approval of a flood EAP before it can scale-up. The Philippines has not documented any case studies or evidence however.

- Stage 4: Philippines Red Cross Society has it's MoU with NHMS PEGASA on-hold since June 2019. It has not developed any case studies or evidence as part of making the case (Stage 3). Furthermore although Memorandum 60 allows for DRR funds to be allocated for AA if 15% of the LGU population is at risk, this mechanism has yet to be used to an element of complexity (explained in interviews); Bangladesh is the most progressed country and next focuses on increasing lead time for cyclones and floods, and integrating SRSP, followed by a focus on heatwaves.

Preliminary analysis suggests that beyond country context (i.e. the political, economic, social, technological, legal and environmental prevailing landscapes which shape attitudes, dialogues and abilities to progress), variability across the region is due to:

- the level of alignment with the key determinants – especially government relations and capacities (human resource and technical know-how);
- existing programmes, partnerships or entrenched approaches;
- delays due to COVID-19;
- support from different partners, including 9 RCRCs outside of Asia-Pacific RCRCs, research institutes, forecasting agencies, development banks and private sector 'big data' firms, to name a few.

Table 4: FbF institutionalisation – comparative indicators

	Indicator	STAGE 1			STAGE 2		STAGE 3		STAGE 4		STAGE 5
		Indonesia	India	Myanmar	Nepal	Vietnam	Mongolia	Philippines	Philippines	Bangladesh	Regional
1	FbF commencement	2018	2019	2019	2015	2017	2017	2017	2017	2015	2017
2	Concept name	FbA	FbF	FbF/EWEA	FbF	FbF	FbF - IbF model	FbF - IbF model	FbF	FbA/AA	FbA
3	RCRC support	British, Australian	N/A	Finnish, German	Danish, Norwegian	German	British, Australian	German	German	German America, Swiss	-
4	Pilot, Scoping, Feasibility	FS	No	S, FS	P, FS	P	P	P, FS	P, FS	P, FS	P
5	EAP hazard	Floods	Floods	Floods & cyclones	Flood	Heatwave	Dzud	Floods	Typhoon	Cyclone and floods	TA: floods
6	Hazard scale-up	Landslides	Cyclones	Drought	Not yet	Floods	Flash floods	Drought	Drought	Heatwaves	Drought
7	Other hazards	Volcanos	-	Heatwaves, conflict	Flash floods, landslides	Cyclones, coldwaves	Wildfires, animal infections	Heatwaves, epidemics	Heatwaves, epidemics	-	Super typhoons, drought
8	EA by hazard identified	Yes - not target areas	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	TA
9	Trigger support	GFDRR	IFRC APRO	NEOC - levels 1-4	DRC	RCCC	NAMEM, RCCC	510	510	RCCC	TA
10	TWG effectiveness	No mention	Weak	Weak	Medium	No mention	Strong	Strong	Strong	Strong	Weak
11	Government engagement	Strong	Strong	Strong national + region Weak district + township	Strong national, Weak local	Medium	Strong	Strong	Strong	Strong	Unclear- Member States
12	NHMS engagement	Medium	Strong	Medium - strong	Medium	Medium - strong	Strong	Strong	Medium	Strong	Medium
13	Simulation	No	No	No	Planned	Yes	Yes	Yes	Yes	Yes	TA

Indicator		STAGE 1			STAGE 2		STAGE 3		STAGE 4		STAGE 5
		Indonesia	India	Myanmar	Nepal	Vietnam	Mongolia	Philippines	Philippines	Bangladesh	Regional
14	EAP approved	Draft- COVID delays	Yes	Under development	Planned – COVID delays	Yes – pending approval	Yes	Draft	Yes	Yes	TA
15	EAP test / activations	No	No	No	No	No	Yes - 2017	Yes	Yes	Yes	TA
16	ROI studies	No	No	No	No	No	Yes	No	No	No	No
17	Impact pre-post	No	No	No	Yes, WFP	No	Yes	No	No	Yes	TA
18	Use of existing studies	No	Bangladesh	No	Yes	Bangladesh, Philippines, Mozambique	Sri Lanka	No	No	No mention	No mention
19	Lessons learned reports	Yes	No	No	Yes	Yes	Yes	No	No	Yes	No mention
20	Articles published	No	No	No	No	No	Yes	No	No	Yes	No mention
21	FbF Dialogue Platforms	Yes	No mention	No mention	Yes	Yes	No mention	Yes	Yes	Yes	Yes
22	Use of regional TWG	No mention	No mention	No mention	No mention	No mention	No mention	Yes	Yes	No mention	Unclear
23	MOU with Govt	Yes - COVID delays	No	No	No mention	No mention	No	No	No	No mention	Yes - MS
24	MOU with Met	Yes - COVID delays BMKG	Yes – IMD, , next CWC	No	Yes - WFP	No mention	No	No	On-hold - PAGASA	Yes	No
25	MOU with others	No	No	Pre-disaster agreements GRC, FinnRC	Research university - WFP	No mention	No	No	No	Post office + bKash	-
26	National policy	No	No	No	Yes	No	No	Yes	Yes	Yes - SOD	No
27	National trigger by Govt. & release of funds	No	No	No - DRFIP in the future	Yes - unclear	No	Unclear	Yes- unused	Yes - unused	Yes	-
28	Repository of EA	Unclear	8 x EA	4 x EAs	Unclear	3 x EAs	2 x EAs	Unclear	3 x EAs	Unclear	No
29	Links with SRSP	No	No	No	Yes - ECHO	Yes - ECHO	No	Yes - ECHO	Yes - ECHO	Planned	Yes - ECHO

Indicator		STAGE 1			STAGE 2		STAGE 3		STAGE 4		STAGE 5
		Indonesia	India	Myanmar	Nepal	Vietnam	Mongolia	Philippines	Philippines	Bangladesh	Regional
30	Advocacy - regional level	InaSAFE	Unknown	Unknown	ARC	Unknown	No	SEADRIF	SEADRIF	No	AADMER+
31	Multi-stakeholder engagement	Medium	Medium	Medium	Strong	Medium	Strong	Strong	Strong	Strong	Strong
32	Integrate FbF into wider approach	No	No	No - MUDRA?	Yes	Not yet	Not yet	Not yet	Unclear	Yes -SOD	AADMER, WB, ARC, NASA, WMO, GCF+
33	Move the humanitarian system to AA	No	No	Not yet	Planned	Planned	Starting	Starting	Starting	Yes -SOD	No
34	FbA by the DREF	No	No	No	Planned	Planned	Yes 2020	Planned	Planned	Yes 2020 Floods	-
35	CERF	No	No	No	No	No	No	No	No	Yes	-

Note: For accuracy, it is recommended that the contents of the table above be vetted.

Note: The RAG system applied to the chart is based on feedback from interviews and represents:

Red: *Priority 1 Critical action to leap towards FbF institutionalisation;*

Amber: *Priority 2 Necessary action to build on FbF level of institutionalisation;*

Green: *Priority 3 Maintain action for sustaining FbF level of institutionalisation.*

Table 5: Emerging patterns - Q&As by priority lens

Priority lens	Emerging patterns for FbF institutionalisation
	Emerging pattern? • Yes. A clear pattern exists where capacity support has greatly influenced the progression of FbF in countries at early, mid and late stages. Investment in capacity has led to deeper establishment of FbF, or transition to the next level. • Capacity needs and priorities vary country to country. A good understanding of capacity gaps at a macro level is useful for alignment with NS country programming and regional resourcing considerations. • Capacity investment gamechangers include investment in: human resource additions, technical support, financial support and technological support. • FbF implementation is also progressed through national and multi-country partnership initiatives that focus on systemic synergies and build internal capacity. • NS lacking capacity are unable to implement FbF to the next level, or to deepen the current traction gained. **General** Each stage does not necessarily share the exact same set of enablers or barriers for capacity, there are other influences.. The top key capacity enablers and key barriers for institutionalising FbF are provided below with examples
A Capacity **(All stages)**	**1. Key Capacity enablers** • Understanding of FbF: three+ years of practice with simulations/activations (Mongolia, Philippines, Bangladesh) • Sharing of FBF studies: Bangladesh as a model (India), joint approach with FAO (Mongolia), • Dialogue Platforms: Indonesia, Nepal, Philippines • Decentralised volunteer network: Indonesia, Myanmar, Philippines • Technical support human resource:, , heat mapping, thresholds and triggers (Vietnam supported by GRC and RCCC); hazard scenarios (Mongolia), support for EAP development (Philippines). • Human resource support: currently nine RCRCs support the eight case study countries; NS recruitment and expansion (Mongolia); secondments to Government Nepal funded by Danish RC; hiring of a hydrologist with IFCR APRO support (India). **2. Key Capacity barriers:** • Delays due to COVID: Draft EAP (Indonesia), impact assessment (Mongolia) • Understanding of the FbF concept: India, Myanmar, Mongolia (WFP), trainings for EAP delayed, consequently held online (Philippines) • Geographical reach and logistics: remote islands (Indonesia and Philippines), large land mass/population (India and Bangladesh) • Skilled volunteers in pre-disaster, EW and AA as opposed to DRR: general knowledge (Indonesia, India), different Chapters have different capacities (Philippines) • Technical capacity: to develop EAPs (Myanmar), to expand FbF testing and collect data from the ground (Nepal), to provide critical research /facilities(Viet Nam),

- FbF gaps at specific Government levels: Myanmar (local/village, township and district)

3. To what extent have FbF projects and programmes in the region invested in strengthening [national / systemic / institutional / RCRC national society / branches] capacity for institutionalizing and implementing FbF?

It is clear that FbF investment in the region through the NS case study countries has led to important changes in mindsets, capacities, equipment and in some cases policy and financial regulation. This can be scene immediately from Table 4 in terms of the RCRC branches contributing to change and the stakeholders supporting changes through the development of triggers, EAPs, MOUs etc.

- Dialogue Platforms are critical for exchange and exposure to FbF concepts and practice.
- Nepal has seconded an Information Officer to the Government for the past five-years. This bridges communications and refines FbF processes.
- Mongolia and Bangladesh NS have activated the FbA by the DREF successfully and are developing case study materials currently to share the tangible results pre and post impact. This includes avoided loss and damage statements, as well as the approach and multi-stakeholder partnerships and collection of best practices. Mongolia was supported originally by British Red Cross Society and is now the Government endorsed humanitarian agency to manage the Dzud (institutionalised leadership). MRC has partnered with FAO given the beneficiary population are herders, to focus on saving lives and livelihoods. Community resilience has been documented from the 2017 case studies, including a 7:1 financial return. Use of the risk map is now being taken up with other HCT members in Mongolia following influence of MRCS's success.
- Philippines Memorandum 60 LDRRMF in June 2019 was a combined effort of PRC and WFP in making the case for decentralised pre-positioned financing based on scientifically evidenced data combined with agreed risk impacting 15% of the populations. This change means that LGUs can make their own decision and mobilise with AA.
- Systemic change is clearly evident with Bangladesh with the introduction of the Standing Order on Disaster. This law means that EAs are embedded in the regulations at all levels of government and that pre-emptive financing for disasters is available. An institutionalised change based on strong partnerships with Government and the NHMS facilitated by the GRC, IFRC and others.
- Systemic changes are also represented by multi-country programmes looking for scale. These include EU ECHO's focus on SRSP (Nepal, Philippines, Bangladesh), ARC, InaSAFE (Indonesia) SEADRIF (Myanmar, Philippines) and ASEAN's AADMER work programme for 2021-2025 with a focus on FbF institutionalisation. These regional investments are strengthening country capacities to ultimately build resilient governments and communities and more effectively manage risk.

4. To what extent have FbF projects invested in strengthening the capacity of forecast producers (e.g. the National Meteorological Service/Agency) to ensure actionable trigger information is available for Early Action Protocols?

A number of investments have been made

- Indonesia with the help of RCCC is supporting the InaSAFE project with Kartoza and Government.
- Vietnam and GRC have worked highly collaboratively with IMHEN bringing in partners such as the RCCC and international experts on heatwaves to develop the heat index. This process has taken three years and has proved highly effective at the subnational level.
- Mongolia is gaining support from NASA in terms of developing smog free forecasts for higher resolution and accuracy by FbF implementers.
- Following India's development of an EAP for flooding based on Bangladesh's model, the IFRC APRO will support India with recruitment of a hydrologist in an effort to strengthen the approach and expertise within CWC.

	• Philippines works effectively with PAGASA at a subnational level on floods. The relationship at a central level is not as effective, part of this is due to the use of different trigger information (shelters as opposed to PAGASA's use of people). There is some inherent tension which PRC hopes to address through the cooperation and signing of an MOU. WFP has commented that the approach of FbF is somewhat experimental which is aligned with the expectation of government in terms of testing EA. • Bangladesh and GRC has contributed to the building of capacity of its forecasters. This has been formalised through an MOU and the collaboration sees the BDRCS inform the NHMS, as a user, what product is required for FbF implementation. • Other MOUs between the NS and the NHMS include: Nepal (with WFP), India with IMD and Indonesia with BMKG (this is in development).
B. Stakeholder engagement **(Stages 3,4,5)**	**Emerging pattern?** • No specific emerging pattern between stages 3 to 5. There is a great diversity of stakeholders in the region who are engaged in disaster management, and an increasing number transitioning to support AA. • More generally there is an emerging pattern where FbF is progressed by those NS that have strong relationships with the Government (beyond the central level) and the NHMS (and subnational HMS). Strong national TWGs and decentralised TWGs also play an important role for successful FbF. • Where FbF synchronicity is apparent, greater progress and less delays are made on FbF implementation. This is especially the case where active and strong TWGs exist and where livelihood indicators are integrated into the FbF approach / EAs. Where different FbF systems (triggers, IbF and direct action) are in place such as between WFP and NS in Nepal and Philippines, the rate of FbF institutionalisation may be delayed. • Alignment of EAPs with food security and livelihood initiatives and building of cross-sectoral partnerships and pilot projects all progress FbF. **General** Stakeholder engagement is critical because it goes beyond multi-stakeholder relationships and also includes aspects of advocacy, government relations and policy. It is usually both an enabler and a barrier for NS seeking to establish good relations and at the same recognising lack of leadership manifesting as a failure to integrate FbF into policy and financial mechanisms as well as inadequate forecasting products. Relationships can vary from the national level to the subnational level, and even across different hazards due to legacy issues e.g. Philippines.
	5. Which strategies have RCRC NS used to engage pivotal stakeholders in the process of institutionalizing FbF (e.g. government agencies, UN organizations, civil society, "donors")? A range of strategies have been adopted according the context, legacy issues and opportunities within the specific country. • Active TWGs bringing together governments, forecasters, and humanitarians to coordinate efforts: Mongolia, Philippines, Bangladesh • EA simulations in communities: Philippines have carried out four simulations to test their early actions with community members. • Secondments to fill capacity gaps and bridge communications: Nepal • Mobile collection of socio-economic data and support of Government MUDRA project: Mongolia

	• Open source mapping: Indonesia partnership with Kartoza, the Government and the NHMS • Co-development of triggers: Vietnam – strong partnership between forecasters, RC, and German RC to co-develop triggers • GCF project approvals with public financing and country ownership established: Nepal, Philippines. • Strengthened relationship with IMD and CWC through Google and India Early Warning Alert Project. IRS volunteers are now on the emailing list from the CWC and somewhat integrated into the organisation. **6. Which strategies have been particularly successful to get buy-in for FbF? Which strategies have been less successful? How do these strategies differ by country and by type of stakeholder? Have there been modes of institutionalization that have been more effective than others, depending on the context? (e.g. anchoring FbF in an existing government agency or coordination process; MoU; informal alliance between humanitarian actors; etc.)** • SEADRIF replica model – prearranged financing with shared trigger with Government and NS. • Bangladesh – sharing results from feasibility studies, post-impact studies, through many coordination meetings. • Vietnam – adopting an experimental mindset, within which it is acceptable to try things and fail. • Vietnam – developing the heat index data for 12 cities outside of the pilot area – such that the early action can be scaled up once they are ready **7. Do national governments that allocate funds for and/or implement anticipatory action coordinate with humanitarian partners (RCRC and UN)?** Yes, the NS are auxiliary partners to the Government in humanitarian response. Often this relationship can be challenging as the NS need to act within the law. Many governments still adopt a post-disaster assistance mindset, predominantly demonstrated through financial mechanisms and release of funds during and after an event, as opposed to pre-emptive financing. All government have DRR programming and emergency funds in place, though again the line between DRR preparedness and AA is not clear when it comes to the release of funds.
C. Evidence and data **(Stage 3)**	**Emerging pattern?** • Yes. There is recognition of a considerable gap in data, evidence generation and knowledge management. • Guidance to generate documentation has also emerged. • Stage 2 to 4 countries responded to the need for quality data – climate and socio-economic data. • Stage 2 to 4 responded to the benefits of experimenting as an entry point to data generation. **General** Evidence generation requires improvement as Table 4 shows. In order to make the case for AA and FbF, more evidence must be gathered on existing programmes. Evidence also needs to dovetail with wider national and international climate priorities to engage with the wider audience, including financial mechanisms e.g. GCF, Adaptation Fund, private investors etc. What is being measured and how this information is collected and presented could be agreed at a regional level or in TWGs. Most KIIs feedback that Government buy-in was a significant obstacle and that ROI is one way of breaking through this barrier.

Generally evidence is effective in further engagement with key stakeholders, however, there is an anomaly with Mongolia where Government buy-in in terms of policy changes are still required.

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8. To what extent have RCRC NS invested in generating evidence around their FbF programmes, for example, on the effectiveness of early actions, the efficiency of early action operations, or the contribution of FbF early actions to building long-term resilience? Was evidence a priority (and to what extent is evidence an internal vs. and externally driven priority)? How was evidence generated? How was it used?

- Mongolia is the most successful case in documenting ROI: USD 110 saved per household after an initial investment of USD 100. FAO's information suggests a 7:1 return.

- The Government of Mongolia has not yet institutionalised FbF and MRCS is gathering more evidence, however, this is a topic for regional advocacy also.

- Mongolia is following this up with a joint FAO study comparing four different beneficiary groups across 750 people.

- Bangladesh – quasi-experimental impact study on cash response to flooding. BDRCS mentioned evidence as a key factor to gain Government buy-in.

9. Which types of evidence and what kind of information, if any, have been instrumental for institutionalizing FbF? To what extent has evidence played a role in engaging stakeholders and getting buy-in from others for FbF?

- Results from pilots and feasibility studies are used as key advocacy tools to build buy-in from other stakeholders, especially governments: Myanmar, Nepal, Philippines.

10. To what extent has the generation of evidence around FbF been integrated into routine M&E systems of RCRC actors or other agencies? What are the main capacity-related enablers and barriers?

This is a process in development. Capacity gaps include human resources, applied knowledge in FbF. Enablers include support in the form of expertise.

- Myanmar is looking to refine the programme post feasibility study and build appropriate an EAP, which will ground EAs, roles, responsibilities and M&E.

11. Which types of tools, such as a 'repository of early action', have been developed at the national and/or regional level? To what extent have these tools been instrumental in generating more evidence/data across hazards and countries, and in advocacy efforts with stakeholders?

- Very little has been developed in terms of a formal repository as shown in Table 4. The FbF Manual was mentioned a handful of times as useful and certainly there are a handful of case studies which have inspired others e.g. India's efforts following Bangladesh's model. Overall a coordination and knowledge management system is required to assist gather and share the EAs in a more formalised way. This could be a regional role.

12. How can FbF/EWEA partners contribute to developing sector-specific (like agriculture and allied activities, health, water and sanitation) early actions and guidelines?

Sector specific EAs and guidance is required to develop appropriate AA for extreme weather events and cascading impacts which can cover a range of sectors. Secondly, saving livelihoods and ensuring food, water and energy security, reduces vulnerabilities in communities. Using wider indicators for AA will build resilience as direct needs are being met.

- FAO has a clear mandate related to food security and strictly follows the Livestock Emergency Guidelines and Standards (LEGS). In partnering with MRCS in Mongolia

E Co.	the two EAs are related to food security issues as these actions are most aligned with building resilience. MRCS is jointly working with FAO to better understand household and herder social-economic situations to build in appropriate risk and determine target communities for the next dzud.
	• UN cluster groups operate in all of the case study countries. Clusters also represent sector specific areas of food security, water sanitation and hygiene. These issues are also critical in maintaining community health especially with the potential for disease outbreaks e.g. malaria mentioned by India as a cascading effect of concern. Developing EAs with health specialists and epidemiologists (given the impact of COVID) would be of extreme benefit going forward.
	• Operation Listo Protocols (updated for animal infections) not mentioned by KIIs.
D. Financing and administration systems **(Stages 1,2)**	**Emerging pattern?**
	• No specific emerging pattern was presented.
	• Support with system resources and more knowledge of FbF to administer funds correctly.
	General
	A general need for human resource and financial management to implement on FbF while implementing other RCRC activities. The impacts of staff turnover also emerged here and are closely related to capacity issues.
	13. What are the main administrative and operational prerequisites for NS to engage in FbF? Which factors have proven to be stumbling blocks, and which have been the enablers?
	• Government handover systems are poor requiring NS staff to restart FbF conversations with often little traction: Myanmar
	• Greater financial awareness and link to FbF programming as opposed to DRR. Examples of donors provided funds to the MRCS and Township Disaster Management Committees and that funding not necessarily being allocated to training and early action: Myanmar
	• Cultural beliefs can deter active engagement in AA and FbF based on a belief that planning for an event may be tempting fate and ensure the disaster manifests: Myanmar
	• Training and support for managing finances: Mongolia RCS completed – Organisation Capacity Assessment And Certification 2014-2018. This may be beneficial for other NS.
	• Collaborating with financial intermediaries such as banks in a new way to overcome issues such as banks being closed on weekends impacting cash transfers: Philippines
	• Collaborating with financial intermediaries to streamlines cash transfers: Bangladesh bKash
	• RCCC providing support to address capacity gaps with forecast information, or to support financial gaps, develop triggers, engage with NHMS: RCCC assisted India, Nepal and Bangladesh with progress and setting up pilots.
	14. What are the main enablers and bottlenecks for NS to prepare EAPs?
	• Technical skills to identify and develop EAPs: Myanmar post Feasibility studies
	• Technical skills to identify and develop triggers: Philippines and 510
	• Technical skills to interpret forecasts: RCCC for Nepal

	• Financial support: Innovation Fund by DRC for Nepal for EAs • COVID delays as a bottleneck to EAP development: Nepal • Need for technical capacity-strengthening – building the capacity to understand forecasts and test early actions, amongst forecasters and humanitarians. **15. What are the main enablers and barriers for NS to access funding from the FbA by the DREF?** • In many countries, support from partner RCs (German, Danish) have been instrumental in developing EAPs. They provide training, capacity, and lessons learned to kick-start FbF where it has not been done before. • Requirement to have EAP agreements signed-off and in place • EAP process has been described as needing simplification: India • Country regulations around disaster financing present an obstacle
E. Forecasting and science **(Stage 1,2,4)**	**Emerging pattern?** • An emerging pattern of specific technical interventions assisted FbF progression for the majority of RCRCs. This is directly related to capacity needs. **General** Understanding roles and responsibilities as well as an openness to collaborate and extend stakeholder outreach beyond key partners. The understanding of the forecasters role and the user of the information product is key. Technical capacity and technology are two setbacks many NS are dealing with. Additional support, regional advocacy and coordination, and perhaps private sector interest will close this gap. **16. What are the key determinants for a successful collaboration, and what have been barriers, between RCRC (NS) and the science community (incl. Met agencies) to develop forecast products that are useful and usable for humanitarian actors?** • Indonesia – GFDRR grant for trigger; and Kartoza relationship for InaSAFE-FbA • India - Google funding for alert emails and last mile connectivity; Opensource • Mongolia: MUDRA and PRISM for critical socio-economic data; NASA; trigger support • Philippines: 510 to develop triggers for floods • Vietnam: Heatmap collaboration with IMHEN and research institutes The barriers centre around : • Old / poor quality data • Confusing and inaccurate forecasts (as a product) • Inability to interpret forecasts (lack of skill as a user) • Managing fluctuations e.g. Nepal's use of GloFAS • Single hazard approaches and poor lead times • Lack of monitoring equipment • Fast onset events and ability to deliver EAs • Reputational risk of getting triggers wrong: India, Bangladesh • Lack of technical skills to develop triggers • Scientifically perfect versus accurate enough for humanitarian use.

4. Section Two: Future Directions

Future directions refer to the capacities, policies, and methods required for future implementation and scale up of FbF. Future direction responses were shaped by the interview questions developed from the ToR. These questions were narrowed down to support a standard interview format. Research Question 2 asks:

> *"What is the future direction for the FbF mechanism across country-level and at regional level? "*

The future direction of the FbF mechanism at the country-level will see increased implementation with a growing understanding of the benefits of anticipatory action and impact-based forecasting. Each country faces a specific set of barriers holding it back from institutionalising FbF. These barriers have been identified in Section 1 and the Annex, along with steps to move forward. For scaling-up FbF, countries, with the support of regional organisations and key stakeholders, need to generally focus on the following:

1. **Support Government policy on pre-disaster resource mobilisation and programming:** Strengthen national and subnational Government relationships through regular dialogues, trainings, presentation of NS strategies and results,. Advocate required changes from a post-disaster mindset to anticipatory action through legislative changes linked to financial release of pre-positioned funds at all levels of government;
2. **Support NHMS with forecast improvements:** Understand the capacity level and needs of the NHMS, work with the region to identify opportunities to improve information and diagnostic systems to produce user-friendly forecast products and EWS for FbF implementers. Collaborate on and harmonise trigger development;
3. **TWG exchange:** active participation and consultation within the TWG at national and Chapter levels with two-way communications to ensure full collaboration, informed decisions and good practice. Key agenda items and lessons learned should feed into the regional level TWG;
4. **Develop collaborative pilots:** developing prioritised national and multi-country pilots, provide a good opportunity for learning by doing, experimentation and collaborations between the science, forecasting, humanitarian, financial and public and private sectors;
5. **Test EAs and publish results:** substantiating claims of an FbF approach requires evidence to prove increased resilience and decreased vulnerability of target

communities. This is how buy-in is ultimately created. EAs need to be tested or simulated, with results documented for comparison. ROI and pre-post impact results need to be well presented and published as soon as available. EAs need to be refined or diversified for multi-hazards/ different geographic contexts;

6. **Develop multi-hazard EAPs:** addressing priority multi-hazard needs through formalised EAPs approved by Government and the NHMS.

At the regional level, support to NS and ASEAN MS will need to be provided, especially for common barriers. In general, to scale up the regional adoption of FbF, the following strategies need to be in place:

1. **Focal Institute:** It is suggested that a focal organisation be in place as a 'go-to' coordination mechanism for the Asia Pacific region. This role is suggested for the RCCC (see Annex). If this is not plausible, AESEAN AHA Centre may be the best option. A focused role is required to accelerate the coordination, policy ad financing.

2. **ASEAN reconfiguration:** shift AADMER 2021-2026 and associated disaster management programming, from the socio cultural pillar to the economic pillar within ASEAN.

3. **RCCC:** Technical assistance and capacity building for the development, testing, refinement and M&E of EAs, EAPs and triggers. Capacity should be built in NHMS, Government and NS.

4. **Advocacy:** Working with National Government Ministries (Finance, Environment, Social) to activate buy-in on the FbF agenda as part of a wider framing linked to climate resilience (see Annex) and AADMER 2021-2026.

5. **Policy:** Development of an FbF policy roadmap and possibly a call to action to ASEAN MS. Focus is on accelerating a legal basis for anticipatory action and mobilisation of human and financial resources linked to the EWS agreed triggers for pre-positioned funds.

6. **Funding mechanism:** Host a roundtable of key stakeholders from the climate finance sector to explore opportunities to raise regional funds for FbF through PPPs. These may be project and country specific but provide regional benefit in terms of scaling up FbF. Identify opportunities to reallocate percentages from existing emergency funds, to regional anticipatory action funds e.g. The ASEAN Emergency Response Assessment Team, DRFI program.

7. **Multi-hazard, multi-country EWS:** Identification of suitable forecasting technology and information to provide accurate and reliable aggregated and disaggregated data for multi-hazards across the region.

> *"What could potential new commitments be for the RCRC in their engagement to operationalise evidence-based innovative approaches?"*

Potential new commitments for RCRC are outlined in the following pages, but generally include:

- Influencing ASEAN AHA Centre on finalisation of the AADMER. This could include recognising the RCCC as a FbF Focal Institute and otherwise embedding MS policy roadmaps and regional funding plans into the work cycle.
- Supporting ASEAN AHA Centre AADMER plan at the national level
- Executing educational training to NS and Chapters on the FbF concept and application, linkages with climate change adaptation, DRR and climate resilience, linkages with anticipatory action and SRSP.
- Advocacy with key Government and NHMS stakeholders for policy changes and resourcing of reliable EWS and an FbF approach, in addition to pre-positioned disaster funding at all levels of government aligned to AADMER.
- Working with the RCCC on the development of EAs, EAPs and triggers as well as evidencing changes from baselines and publishing results.
- Feeding results into the regional practice guide as case studies and lessons learned.

The table below presents aggregated results from the interviews on opportunities for FbF in the future.

Table 6: Aggregated KII results on future directions

Category	Future direction
Scaling up	Strengthening capacity for forecasting through investments in Met agencies and other related stakeholders
	Strengthening the capacity of humanitarian staff and volunteers to understand and implement FbF (through training, strategy, and funding)
	Building the capacity of governments to integrate FbF into policy and practice (through advocacy, training, and FbF champions)
	Simplifying the process for developing EAPs
	Integrating FbF with other concepts such as DRM and SRSP
	Advocacy for increased government ownership of FbF
	Standardising the approach to FbF implementation
	Improving capacity for multi-hazard response

Tools and strategies for multi-country and multi-hazard	Developing triggers for all relevant hazards
	Investing in capacity for impact-based Forecasting
	Improving data quality (hazard and vulnerability data)
Coordination mechanisms	Strengthening collaborations with government, humanitarian partners, forecasters, and other stakeholders
	Improving collaboration with Met agencies to enable useful forecasts
	Establishing TWGs at country and regional levels
Financing FbF/EWEA	Improving accessibility of FbF funding
	Building an enabling environment for effective disbursement of FbF
	Coordinating (and potentially pooling) funding sources
Documenting FbF/EWEA learnings	Conducting studies on needs and gaps in FbF
	Documenting and sharing best practices
	Sharing best practice within dialogue platforms
Regional role	Strengthening regional collaboration and knowledge-sharing
	Launching advocacy efforts on a regional level

5. Conclusion

The eight countries in this study have shown how differently FbF is implemented with no single definitive pathway to institutionalise FbF. Regionally there are significant opportunities to integrate and drive FbF coordination and collaboration by supporting the shift from a currently institutionalised post-disaster mindset to one of anticipatory action backed by policy and resources.

Key determinants

Although there is no linear pathway to mainstreaming FbF, there are certainly a set of **key determining factors** which accelerate the process as, shared in Section 1 and the Annex. Seven key determinants have emerged from analysing the disaggregated enablers (15 common and 40 unique) and barriers (18 common and 40 unique). Key determinants include:

1. government buy-in and leadership;
2. strong NHMS engagement;
3. built and sustained capacity;
4. forecasting and EWS;
5. access to finance;
6. partner advocacy;
7. best practice and evidence.

Emerging patterns

Outside of the stages and indicators, findings showed emerging patterns in:

1. Capacity gamechangers include: human resource, technical expertise, financial assistance, technology support and partnership coordination. FbF institutionalisation is greatly influenced by understanding and capacitating gaps. Both at the macro level of understanding climate-related risks and needs, and at the micro level in terms of RCRC support. Infusion of capacity in has led to the establishment of feasibility studies, triggers, EAPs, forecast interpretation etc that have allowed countries to transform to the next FbF level.

2. Partnerships and pilots at country and regional levels in general, create space for testing with cross disciplinary input that helps to accelerate FbF.

3. FbF synchronicity. Key stakeholders alignment leads to accelerated FbF. This is particularly evident where livelihoods are firmly integrated into EAs. Delays and stakeholder malalignment hinder FbF progress where pre-existing approaches/ different approaches operate.

4. Knowledge management and evidence generation is generally lacking across the region leaving a deficit in wider understanding of FbF implementation and performance. This deficit impacts FbF practice as insights are not gained by other FbF implementers, and may contribute to an overall lack of buy-in.

No clear patterns emerged from the eight sample countries in terms of direct comparative analysis on the indicators in Table 4. However, it is clear that NS in stages 3 and 4 more commonly feature these key determinants as opposed to NSs in the earlier stages. In particular, the following indicators are linked to deeper FbF implementation:

- approved EAPs;
- multi-hazard approaches (Philippines and Bangladesh);
- EA testing and simulations completed;
- national policy with ex-ante funding mechanism in place;
- strong government relationships;
- medium to strong Met agency relationships;
- strong technical working group relationships; and
- strong multi-stakeholder engagement.

Beyond this it was observed that NSs willing to experiment repeatedly, adapt and refine (e.g. Vietnam, Mongolia, Philippines and Bangladesh), particularly those working with multi-hazards (e.g. Philippines and Bangladesh), were more progressed.

Future direction

There are several ways to widen the discourse for institutionalisation of FbF in the Asia-Pacific region, as shared in Section 2 and the Annex. Primarily these include:

Table 7: FbF integration at a country and regional level

Country level FbF integration	Regional level FbF integration
Support **Government policy** on pre-disaster resource mobilisation and programming	**Focal Institute**: establish regional technical and coordination remit in support of AHA Centre
Support NHMS with **forecast improvements**	ASEAN reconfiguration: re-house **DRR under economic pillar**
TWG exchanges: Headquarter and Chapter levels	RCCC: accelerate technical **support for EAPs**
Develop collaborative **pilots**	Advocacy: **champions** for policy, pilots, funding
Test EAs and publish results	**Policy:** national roadmaps and dialogues
Develop **multi-hazard EAPs**	**Funding** mechanism: financiers roundtable
	Multi-hazard, multi-country **EWS:** tools , partners

The Recommendations outline 20 strategies and include the role of RCRC in each strategy along with suggested timing for implementation.

Study observations

Some interesting observations from the study include:

- FbF has influenced the region to a considerable extent in a short time (2 to 3 years). It is applied inconsistently – however this is not necessarily a criticism. Each country faces a very unique context based on the enabling situation around its political, economic, social, technological;, legal and environmental aspects.
- FbF as a concept is difficult for early stage NSs to delineate from DRR which has more traction. However even late stage NSs confirmed the concept was challenging for many of their stakeholders including volunteers, staff and local/township Governments. Bangladesh suggested that *"it takes time"* to embed this knowledge.
- Similarly KIIs from ASEAN AHA expressed the same knowledge gap and consistently referred to post disaster recovery and relief efforts interchangeably with FbF. Existing programs and plans appear to be focused on post-disaster support, with the future AADMER 2021-2026 requiring IFRC input to secure FbF actions.
- Terminology and a shared understanding is critical for practices to gain traction and eventually become institutionalised. The GRC FbF Manual is very comprehensive and it may be that refresher courses around this manual are required.
- In addition to this, FbF may be catalysed if embedded not following, but adjacent to the climate change continuum. See Annex. Linking FbF to national priorities including NDCs, NAPs, the Paris Agreement and Sendai Framework may provide entry level to policy and financial mechanism.
- Similarly, FbF institutionalisation may benefit from framing within anticipatory action for more direct links with food security and SRSP existing programming.
- Strengthening of country ownership is required for FbF institutionalisation, as opposed to on-going direct delivery by the humanitarian sector.
- Countries are impacted by multi-hazards and cascading effects on an on-going and increasing basis. National Governments may be more welcoming of the FbF approach if multi-hazard EAs and EAPs were developed as opposed to single hazards.
- Often countries have focused on a single hazard due to a lack of capacity and resources, and a need to prioritise hazards with greater exposure. As a consequence, there is very little monitoring and scientific understanding of other hazards that exist as well as emerging hazards that are new.
- Efficiencies and economies of scale may be attained at a regional level for policy, funding, forecasting tools and information. Multi-hazard, multi-country programming provides value-add.

- There is an extensive list of stakeholders mentioned as part of the FbF approach both from the KIIs and referred to in the literature. A much needed coordination mechanism, or Focal Institute, could likely leverage many more benefits from these stakeholders, towards research, policy development, tools, partnership initiatives and other resources.

IFRC current framing – comments on the analytical lens and stages

Analytical lens

Enablers, barriers and levels of FbF institutionalisation are more suited to **seven priority analytical** lens as opposed to the existing five. Adding 6) policy (or Government relations) and 7) advocacy, more comprehensively covers the FbF spectrum.

The possibility of identifying a set of targeted actions, expected results and support material for each lens at each stage, would provide a very useful generic guide for RCRC – in terms of what to focus on for a specific area at a specific stage.

Stage 1 to 5

The **five stages** in their current form provide the basis for a guide towards progression, and are generally fit-for-purpose, however they are not entirely representative of a linear step-wise approach for the eight countries studied, as 'Table 4: FbF institutionalisation – comparative indicators' demonstrates. This is because in reality, some countries are able to achieve steps towards FbF institutionalisation based on exercising key determinants. Others are held back due to specific barriers but then may advance on other indicators. As such, this five-stage clustering appears to be non-prescriptive, i.e. there is no checklist required to be met before moving to the next stage. Clear and definitive boundaries are not obvious from stage to stage. Within the stages themselves, countries did share some common attributes, however with such a small sample size there were a number of exceptions to the rule which resulted in direct comparability as inconclusive.

From a coordination perspective it is challenging to identify the exact type of support and pathway to FbF institutionalisation for a specific NS without a generic guide of staging and a deep understanding of country-specific barriers, and a forward plan including regional advocacy and engagement.

Effective monitoring and evaluation to build evidence, operates concurrently during Stage 2 and 3. These stages are perhaps even less linear as loops of testing, refinement and documentation occur.

There is a current information gap and a need to build more evidence, more quickly and to generally develop case studies. Generating evidence and knowledge products form a core part of FbF institutionalisation. It can be argued that this also needs to be implemented at every stage of the process. Evidencing the FbF journey provides

insight into commonalities, patterns and unique attributes of progression. More importantly it provides lessons learned enabling countries to fast-track or possibly leapfrog. Secondly knowledge products, i.e. case studies and impact based assessments, are critical for key partner engagement and FbF buy-in.

Based on the study, the next transitions may include: Mongolia to Stage 4 (with advocacy support for policy and ex-ante funding); and Vietnam to Stage 3 (with a need to build evidence on heatwave ROI and focus on multi-hazards).

6. Recommendations

A number of observations and suggestions were made in Section 1 and 2 with a view to support the NLRD, RCCC and IFRC APRO. Table 4 also prioritises actions at a country-level based on selected indicators. Suggested recommendations may help decide what actions are required for scaling up FbF across Asia-Pacific. These 20 recommendations look to create systemic change.

Table 8: FbF strategies and next steps

Recommendation	Fit[1]	Who	When
1. Address the barriers identified at the country-level in Section 1, through the NS Country Plan 2021-2025	All	NS supported by RCRC	Q4 2020
2. Use the Regional Dialogue Platform (if appropriate) to vet Table 4 (including adding fit-for-purpose indicators); in addition to sourcing concepts for collaborative pilots to progress FbF in the region	All	IFRC APRO	Q4 2020
3. Identify checklist of results required for each of the seven priority analytical lens within each stage of the innovation timeline to provide clear guidance for a FbF pathway	C	RCCC, IFRC APRO	Q4 2020
4. Develop FbF programming within AADMER 2021-2026: TWG mandates, policy road map, AA financial mechanism etc	SU	IFRC APRO	Q4 2020
5. Lobby for the shifting of the 'disaster management' area from the socio-cultural pillar to the economic pillar within ASEAN. Ensure AA is defined within the disaster management area	F	IFRC APRO	Q4 2020
6. Induct and onboard FbF country Champions from pool of high-level Government officials to accelerate FbF uptake in the country and region	SU	ASEAN AHA Centre	Q1 2021
7. Adopt the Focal Institute role and develop a mandate with ASEAN AHA Centre as key support[2]partner	C	IFRC, Anticipation Hub	Q1 2021
8. Fund and recruit additional roles within NS, Government and NHMS to build capacities, collaborate and harmonise FbF at different government levels. Options include roving specialists,	SU	IFRC APRO	Q1-Q4 2021

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[1] Fit: the categorisation of recommendations: SU – Scaling-Up; T – Tools, multi-hazard/multi-country; F – Financing FbF/EWEA; C-Coordination mechanism; D-Documentation

[2]Note: If IFRC APRO and/or the Anticipation Hub cannot take on the role of the Focal Institute, the ASEAN AHA Centre will require additional capacity to progress the institutionalisation of FbF

Recommendation	Fit[1]	Who	When
secondments, temporary and permanent staff in addition to twinning strategy exchanges. Focus on EAs, EAPs, triggers, testing and capturing lessons			
9. Partner with ASEAN AHA Centre to share content with MS through their Knowledge Management system to provide access to materials for NS and RCRC, including: FAQs, FbF Practice Guide (successful and unsuccessful case studies), advocacy curriculum (focused on Government and NHMS), MOU template and Repository of EAs	D	IFRC APRO and the Anticipation Hub supported by RCCC	Q1-Q3 2021
10. Develop a regional strategy for FbF harmonisation in consultation with key stakeholders e.g. regional and national TWG/HCT approaches and critical research areas (twinning countries), national and regional forecasters and WMO on harmonising forecast systems, WFP and FAO on addressing different triggers etc	C	RCCC supported by IFRC APRO	Q2 2021
11. Deliver train-the-trainer FbF concepts and application – online training for RCRC and NS to engage: staff, volunteers, Government and NHMS	SU	RCCC and the Anticipation Hub	Q2 2021
12. ASEAN Call For Action on integration of AA into MS National policy and support for a policy road map. Call launched with release of AADMER 2021-2026 workplan	SU	ASEAN AHA Centre	Q1 2021
13. FbF regional financiers roundtable: identify opportunities and terms for a regional FbF facility and reallocation of existing emergency funds to AA. Dialogue with existing and prospect donors/investors, e.g. UNFCCC, WMO, NASA, WB, IDF, OCHA ROAP, WFP, FAO, UNICEF, ADB, IDB, UNDRR, ASEAN Committee on Disaster Management, SAARC Disaster Management Centre, REAP, Adaptation Fund, GCF, GEF etc	F	ASEAN AHA Centre	Q3 2021
14. FbF national financiers roundtable: establish a FbF financial mechanism through agreed reallocation of current national and regional emergency funds. Establish pledges for annual replenishment. Dialogue with: Government (ministries Finance, Social, Environment – Climate Change Departments, DMA), NHMS	F	ASEAN AHA Centre	Q2 2021
15. Dialogue with each GCF Focal Point at the country level to explore national project ideas linked to NDCs and NAPs, and regional project ideas looking at multi hazards	F	NS supported by IFRC APRO	Q3 2021
16. Secure delayed MOUs, EAPs and partner agreements. Promote alignment with AADMER 2021-2026 results as part of agreements i.e. Indonesia, Philippines	C	NS supported by IFRC APRO	Q4 2020

Recommendation	Fit[1]	Who	When
17. Secure MS no regret policy roadmaps outlining milestones to introduce national policy and capacity building actions focused on AA mobilisation and a shift away from post-disaster humanitarian led events. Roadmaps to align or integrate with current DRR policies, decentralised pre-positioned funding models and include multi-hazards and SRSP links	SU	ASEAN AHA Centre supported by IFRC APRO and the Anticipation Hub	Q4 2021
18. Multi-media and multi-language promotion of case studies, beneficiary stories, ROI studies etc. aimed at evidencing the FbF case, positively engaging stakeholders and attracting funds e.g. podcasts, online, vlogs, conferences (APMCDRR, COP 26, Climate Red, ASEAN Summit, Dialogue Platforms etc)	D	IFRC APRO	Q1-Q4 2021
19. Innovation in forecasting webinar series – monthly demonstration and panel. Demonstrations based on innovative pilots. Topics: digitalisation, open source, IbF, aggregated and downscaled data improvements, transition and tools from single to multi-hazards, EWS and the last mile, forecast producers and users, monitoring systems etc. Collaboration with the regions, forecast providers, information suppliers, satellite imagery and modelers, epidemics/pandemics	T	RCCC & partners	Q3 2021-Q4 2022
20. Assist NHMS, DMOs and Government with investment plans for multi-hazard forecasting and monitoring of seasonal and sub seasonal forecasts in alignment with a regional approach	T	ASEAN AHA Centre	Q4 2021

Several research exercises will support many of the above recommendations:

- Stakeholder mapping exercise including relevant regional agencies, their roles and responsibilities
- Country twinning exploration with relevant stakeholders (Vietnam and Philippines, Philippines and Indonesia, India and Bangladesh, Nepal and Bangladesh)
- FbF/EWEA financial allocations mapping exercise
- Position statement – framing AA and FbF within the climate change continuum
- Urban development, extreme weather events and IbF
- Soft exit strategies for the humanitarian sector coupled with Country ownership FbF/EWEA
- Alternative programs: risk transfer models in Africa, Santiago Network and Expert group on Action and Support- UNFCCC Warsaw International Mechanism and Loss and Damage.

Acronyms

Acronym	Full Name
AA	Anticipatory Action
AADMER	ASEAN Agreement on Disaster Management and Emergency Response
ADB	Asian Development Bank
AHA	ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
AMCDRR	Asian Ministerial Conference on Disaster Risk Reduction
APRO	Asia-Pacific Regional Office
ASDMA	Assam Disaster Management Authority
ASEAN	Association of Southeast Asian Nations
BDRCS	Bangladesh Red Crescent Society
BMD	Bangladesh Meteorological Department
BMKG	Indonesian Hydro-Meteorological Department
BNPB	Indonesian National Agency for Disaster Management
CCA	Climate Change Adaptation
CCST	Country Cluster Support Team
CERF	Central Emergency Response Fund
CWC	Central Water Commission (India)
DFID	Department for International Development (UK)
DMA	Disaster Management Agency
DMH	Department of Meteorology and Hydrology
DREF	Disaster Relief Emergency Fund
DRF	Disaster Recovery Frameworks
DRFIP	World Bank Disaster Risk Financing and Insurance Program
DRR	Disaster Risk Reduction
EA	Early Action
EAP	Early Action Protocol
ECHO	European Civil Protection and Humanitarian Aid Operations
EMR	Ecosystem Management and Restoration
EOC	Emergency Operations Centre
EWEA	Early Warning Early Action
EWS	Early Warning System
FAO	Food and Agriculture Organization
FAQs	Frequently Asked Questions
FbA	Forecast-based Action
FbF	Forecast-based financing
FOREWARN	Forecast-based, Warning, Analysis, and Response Network
GAD	General Administration Department
GCF	Green Climate Fund

GDPR	General Data Protection Regulation
GEF	Global Environment Facility
GLOFAS	Global Flood Awareness System
GRC	German Red Cross
HCT	Humanitarian Coordination Team
IbF	Impact-based Forecasting
IDB	Islamic Development Bank
IDF	Insurance Development Forum
IFRC	International Federation of the Red Cross and Red Crescent Societies
IMD	Indian Meteorological Department
IMHEN	Institute of Meteorology, Hydrology and Environment of Vietnam
IRCS	Indian Red Cross Society
KII	Key Informant Interviews
L&D	Loss and Damage
LGU	Local Government Units
MoU	Memorandum of Understanding
MRCS	Mongolian Red Cross Society
MRCS	Myanmar Red Cross Society
MS	Member States (ASEAN)
MUDRA	Myanmar Unified Platform for Disaster Application
NAP	National Adaptation Plan
NCHMF	Vietnam National Centre for Hydro-Meteorological Forecasting
NDMC	National Disaster Management Committee
NDRRMC	National Disaster Risk Reduction and Management Council
NFI	Non-Food Items
NHMS	National Hydro Meteorological Services
NLRC	Netherlands Red Cross
NRCS	Nepal Red Cross Society
NS	National Society
OCD	Office of Civil Défense
PfR	Partners for Resilience
PMI	Palang Merah Indonesia (Indonesian Red Cross Society)
PNS	Partner National Societies
PRISM	Platform for Real-time Impact and Situation Monitoring
QRF	Quick Response Fund
RCCC	Red Cross Red Crescent Climate Centre
RCRC	Red Cross Red Crescent
REAP	Risk-informed Early Action Partnership
ROI	Return On Investment
SAARC	South Asian Association for Regional Cooperation
SEADRIF	South-East Asia Disaster Risk Insurance Facility
SMIC	Social Management Information System
SOD	Standing Order on Disasters

SOP	Standard Operating Procedures
SRSP	Shock Responsive Social Protection
ToR	Terms of Reference
TWG	Technical Working Groups
UN	United Nations
UNDRR	United Nations Office for Disaster Risk Reduction
UNFCCC	United Nation Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VA	Village Administrators
VDMA	Viet Nam Disaster Management Authority
VNRC	Vietnamese Red Cross
WB	World Bank
WFP	World Food Programme
WHO	World Health Organisation