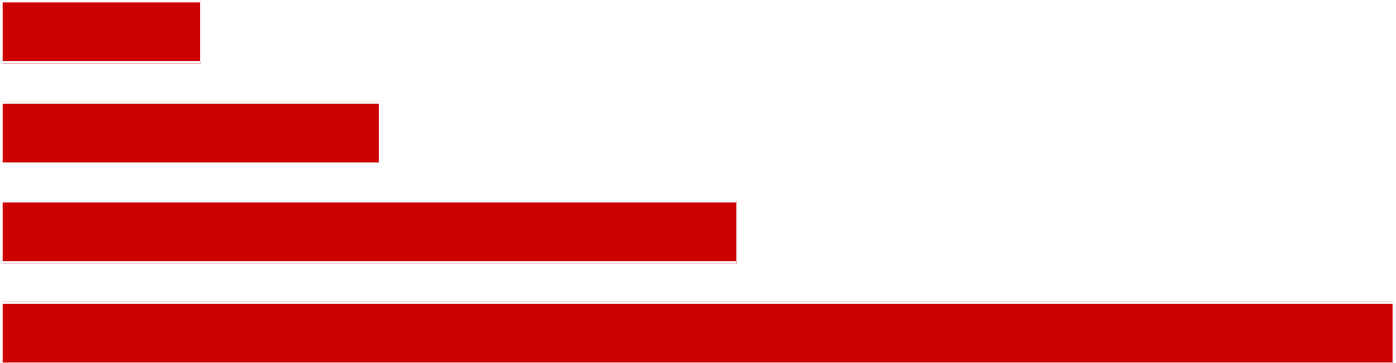




Monitoring and Evaluation (M&E) of Forecast-based Financing (FbF)

A practical reference for
country-level implementation



Updated: 26 Aug 2019

With additional links to resources and tools

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Abbreviations and Acronyms

CiET	Cash in Emergencies Toolkit
EAP	Early Action Protocol
EWEA	Early Warning Early Action
FbF	Forecast-based Financing
ff.	Following, referring to subsequent (page) numbers
IFRC	International Federation of Red Cross and Red Crescent Societies
Logframe	Logical framework
M&E	Monitoring and evaluation
MoU	Memorandum of understanding
SOP	Standard Operating Procedure, name formerly used instead of Early Action Protocol
TOC / ToC	Theory of change
TOR	Terms of reference
RCT	Randomized controlled trial
RBM	Results-based management
UNDG	United Nations Development Group

1. Introduction: What is in this guide and who is it for?

The purpose of this document is to promote a common understanding and shared practices of monitoring and evaluation (M&E) for forecast-based financing (FbF) programmes and projects. While FbF is a relatively recent addition to humanitarian programming approaches, implementers will not need to develop fundamentally new methods and tools to monitor the progress of FbF interventions or to evaluate whether they are improving humanitarian outcomes. The suggested approaches are well known from good results-based management and social science research; they are based on experiences from FbF interventions and other relevant programmes.

This guide is intended for people and organizations implementing FbF programmes/projects, whether they are programme managers, M&E focal points, or funding institutions accompanying a FbF initiative.

The document is structured according to the phases of a typical FbF programme/project and provides recommendations for important M&E tasks, questions to ask and methods & tools for each phase.

Why and when is M&E essential for FbF programmes/projects? Good programme/project management is dependent on M&E practices that provide timely and reliable information on (a) progress against plans and (b) achievement of desired results. FbF interventions aim to improve disaster preparedness and response, prevent suffering and contribute to community resilience. M&E can provide evidence on whether these goals are being reached. It is a prerequisite for programme/project learning (“Where and how can we do better?”) and accountability for results (“Being able to show the communities we work for and the organizations who fund us how we are making a difference”).

This document cannot and does not aim to replace specialised M&E and research methodology expertise or textbooks. FbF teams should draw on the wealth of practical and detailed M&E and research guidance that is readily available from various organisations and sources. In addition, FbF implementers will typically need to bring on board the dedicated M&E and research capacity that will enable them to put their M&E/research ideas into practice.

This guide serves as a FbF-specific reference with pointers to relevant resources and recommended M&E practices for each phase of the FbF programme/project process. It gives FbF teams an overview of the options they have, points for consideration, and information to make informed decisions about approaches and methods. Therefore, the guide only complements what is already available with practical tips and templates.

The FbF M&E guide aligns closely with the IFRC guidance on programme/project monitoring and evaluation and makes frequent references to its recommendations and tools throughout the document. Both aim to achieve quality results-based management, allowing FbF teams to better implement their programmes and projects, promote organizational learning and knowledge sharing, and uphold accountability and compliance - not only to donors and partners but to the people we serve. As the [IFRC M&E Guide](#) explicitly mentions, project/programme areas such as FbF may develop their M&E guidance specific to their technicality; in such cases, the IFRC guidance and this FbF M&E guide are meant to complement each other.

1.1 Overview of FbF programme/project phases and the role of M&E

Fig.1: Typical FbF programme / project¹ process and the role of monitoring and evaluation (M&E)

FbF programme step-by-step		M&E tasks	M&E tools & templates
A. Inception phase			
	Programme planning - Define purpose and scope of the FbF initiative - Identify overall timelines, budgets and reporting requirements - Typically done through signed agreements between participating partners	- Review the programme's operational design, as captured in the programme document or logframe - Identify information needs and M&E requirements - Develop a M&E plan based on information needs - In case M&E plan requires baseline data collection or hiring of external expertise, initiate relevant processes	FbF programme logframe example & logframe template FbF M&E plan example & M&E plan template Section C on planning for monitoring and impact assessment - TOR templates for project statistician and survey firm/academic partner
B. FbF system design and setup			
1		Understand risk scenarios Scenarios are designed to analyze the risk, incl. historical impact data & level of vulnerability	
2		Identify danger levels - Define the threshold for a specific hazard - Identify the critical characteristics, analyzing vulnerability & historical impacts by geographic area - Consider institutional capacity to act	
3		Identify available forecasts - Use national & international forecasts - Taking into consideration the probability, intensity & lead time to the occurrence of an event	
4		Formulate early actions - Suitability of actions depends on the analysis of anticipated impacts - Selection of actions must be based on evidence - Examples: Distribution of water purification kits in a flood-affected area where access to clean drinking water is constrained	- Formulate a theory of change (TOC) for each selected action to test its logic and assumptions Section B.4.1 on problem analysis Section B.4.2 on theory of change (TOC) TOC template
5		Create Early Action Protocol (EAP, formerly SOP) - Decide which forecast will trigger which action - Where to act, based on forecast & trigger - Define action responsibilities - What funds to be made available	- Ensure that the M&E plan includes indicators for EAP monitoring - In the event that EAP are triggered, this will allow you to track progress against what was planned, to collect evidence whether early actions were taken, and what can be learned from the process FbF M&E plan example & M&E plan template EAP monitoring template
6		Validate EAP with key actors - Meteorological services - Local governments - National systems to manage disaster risk	- Record validation results and feed learning back into EAP design - If applicable, record & analyze EAP simulation results and use findings to refine EAP if necessary

¹ FbF initiatives can take different forms, for example as a specific **project** with short- to medium-term time horizons and predetermined objectives, or as a broader **programme** comprising a group of related projects whose goals are aligned and which are managed in a coordinated way. For brevity's sake, this document will refer to FbF programmes and projects interchangeably.

		• Run a simulation of the EAP	
C. Implementation phase: EAP triggered when danger level exceeded			
1		EAP implementation • Release funding • Implement pre-identified early actions • According to validated EAP	• EAP implementation monitoring • Track whether <u>early</u> actions were taken <u>as planned</u> • EAP monitoring template
2		Assess community level impacts	• Investigate whether FbF has contributed to improved humanitarian outcomes? • Section C.2: Impact / effectiveness evaluation guidance (quantitative and qualitative) • TOR template for project statistician • TOR template for survey firm/academic partner • Post-disaster survey questionnaire (example) • Key informant interview (KII) guide (example) • Focus group discussion (FGD) guide (example)
3		Review and evaluate triggers	• Assess whether we learned something new about the physical world? • Did our models turn out to be accurate? • Are the probabilities and risk levels of our original triggers still appropriate? • Trigger evaluation workshop guidance & agenda; trigger evaluation interview guide (examples)
4		Review what we learned and what we can improve	• What have we learned from implementation - from the monitoring & impact data and from our trigger review? • What has worked well, and what are areas for improvement? • Lessons learned exercise guidance and agenda

1.2 Enabling environment: Prerequisites for good FbF M&E and for making the most out of this guide

It is assumed that the reader is familiar with the basic concepts of the programme/project cycle, what is monitoring and what is evaluation. For a succinct summary, please refer to the IFRC M&E Guide, part 1 on [M&E concepts and considerations](#) (p. 9 ff.).

It may also be useful to review the basic concepts and definitions of a typical results chain - inputs, activities, outputs, outcomes and impacts (see [UNDG RBM Handbook, pp. 13-14](#)).

1.3 Main reference documents

Readers with experience in monitoring and evaluation will likely be familiar with most recommended concepts and approaches in this guide. Even veteran M&E practitioners may find it useful to consult the resources listed below.

This document makes frequent reference to these existing guidance documents, manuals and tools that have been published elsewhere:

- **FbF Manual** hosted by the German Red Cross: Contains all the relevant guidance on how to design an FbF programme/project that are not covered in this guide. <http://fbf.drk.de/>
- **IFRC [project/programme monitoring and evaluation guide](#)** (IFRC M&E Guide): Comprehensive reference on M&E for programmes and projects from start to finish, also available in a shorter version as the [PMER Pocket Guide](#). The IFRC M&E Guide contains many practical templates and resources that are also accessible on a separate web page:
<http://www.ifrc.org/en/who-we-are/performance-and-accountability/monitoring-and-evaluation/>
- **International RCRC Movement [Cash in Emergencies Toolkit](#)** (CiET): Module 5 of the toolkit covers monitoring and evaluation; while the toolkit is tailored to cash-based interventions, most of its M&E guidance is applicable to other types of programmes/projects and contains many practical examples:
http://rcmcash.org/toolkit/#o_module-5-m-e
- **[BetterEvaluation.org](#)**: A rich resource site providing a structured overview of M&E approaches as well as practical, hands-on guidance and templates on methods and tools.

1.4 Providing feedback

This document is updated periodically to incorporate new learnings and recommendations from FbF programmes / projects and other relevant initiatives.

Suggestions for improvement are welcome and can be submitted through this online feedback form:
<https://goo.gl/hnswYS>.

All comments are immediately sent to the Climate Centre M&E team who will respond to direct queries as soon as possible.

2. M&E in the FbF programme/project process

A. Inception phase: planning for monitoring and evaluation



The overarching goal of an FbF programme/project is to **reduce the effects of climate-related disasters on vulnerable communities**, by improving preparedness and response, preventing suffering and contributing to community resilience.

Different FbF programmes focus on different programme components. Some initiatives may need to develop an FbF system from the ground up, including everything from setting up a funding mechanism, convincing key stakeholders that FbF is a good idea, getting access to reliable forecast data, building capacity for analysis and action, defining EAP, and being ready to trigger actions when danger levels are exceeded. Other FbF endeavours can build on existing structures and will therefore concentrate their efforts on specific aspects of the FbF system.

The purpose of M&E is to satisfy the information needs of the FbF programme/project as defined by its key stakeholders, typically the communities whose vulnerability is to be reduced, the implementers, and funders of the FbF initiative. The components of the FbF M&E system will therefore vary from country to country and context and context.

However, while there will be variations, every FbF programme/project will need suitable mechanisms to obtain reliable and timely data for assessing its efficiency, effectiveness and impact. It is inconceivable to have an FbF programme/project that is unable to tell whether its implementation is going according to plan, whether it is overspending its budget, and whether it is having a positive impact on humanitarian outcomes or not.

M&E TASKS & TOOLS:

- Ensure the FbF programme/project has a **logframe** that clearly defines the objectives of this FbF programme/project.
 - Tool: [FbF programme logframe example](#) & [logframe template](#)
 - Tool: [IFRC logframe template](#) (MS Word) with two examples: WASH project; disaster management project
 - Tool: [CiET logframe template](#) (MS Word)
 - Resource: [Recap on the importance and role of a logframe](#) (IFRC M&E Guide, [p. 27](#))
- Based on the programme logframe, develop an **M&E plan** that details the indicators to measure progress, how and when to collect the required data, and who will collect it.
 - Tool: [FbF M&E plan example](#) & [M&E plan template](#)
 - Tool: [IFRC M&E plan template](#) (MS Word) with examples
 - Tool: [CiET M&E plan template](#) (MS Excel); [CiET M&E plan template for cash](#) (MS Excel)
 - Tool: [CiET M&E work plan template](#) (MS Excel)
 - Resource: [Recap on what is an M&E plan and why you should have one](#) (IFRC M&E Guide, [p. 32](#))
- Based on your M&E plan, develop the **data collection tools** (monitoring forms, questionnaires, checklists, etc.) and **set up the processes for data collection**.
 - Most of the data collection tools and processes can only be developed during the FbF system design and setup phase.
 - However, it is important to start assessing your own organization's capacity for collecting and analyzing M&E data at the beginning. If there is need to engage external M&E expertise, it is a good idea to start identifying potential partners as soon as possible.
 - Resource: templates for terms of reference to hire M&E consultants and research organizations are included in the following sections.

Fig. 2: [Example of an FbF programme logframe](#)

LOGFRAME: [Country Name] [FbF Programme/Project Name] [Start date - end date]			
RESULTS CHAIN	INDICATORS Measure whether results have been achieved. Detailed indicator definitions are captured in the M&E plan .	MEANS OF VERIFICATION The source of data to determine the status of the indicator.	ASSUMPTIONS & RISKS Assumptions are conditions that need to be met for results to be achieved. Risks are any factors that are partially or fully beyond the control of the programme that may (negatively) affect the achievement of results
IMPACT (GOAL): Reduce the negative impacts of extreme flooding on the health, nutrition and livelihoods of vulnerable communities in flood-prone areas	I.1: % (percentage) reduction in the after-disaster-onset incidence of diarrheal diseases among the target population (compared to comparison population without FbF assistance; or compared to previous similar disasters) Target: 20%	Post-disaster household sample survey Community health center records	Assumption (A): Absence or control of other vectors for diarrheal disease that are independent from drinking water (e.g. rotavirus) Risk (R): Households don't have containers suitable for safe drinking water storage and use
	I.2: % reduction in target population households who experienced livestock losses due to disaster impact (compared to comparison population without FbF assistance; or compared to previous similar disasters) Target: 50%	Post-disaster household sample survey Department of Agriculture, Livestock Division assessment data	A: Duration of disaster does not exceed the quantity of distributed supplies (water purification; animal feed) R: Magnitude of the disaster may be too large for FbF intervention to make a difference in impact indicators
Outcome 1 (FbF system): A functional, country-wide FbF system is in place with clear financial protocols and roles and responsibilities to enable early warning early action; the management of the FbF system is adaptive and incorporates learning from the M&E system into decision making	1.1: Endorsement of the FbF system by all relevant stakeholders: agency A, organization B, meteorological agency C, ...	Signed MoU with signatures from all relevant stakeholders	A: Stakeholders understand the benefits of FbF; general (political) good will
	1.2: FbF EAPs integrated into National Society's (or other implementing agency's) disaster risk management strategy / contingency plans	Revised DRM strategy / contingency planning document	A: Existing DRM strategy / contingency plans of sufficient quality so that FbF EAP can be integrated A: Capacity of National Society / implementing agency for contingency planning

B. FbF system design and setup: prioritizing forecast-based actions; getting ready for data collection

Once the general scope and direction of the FbF programme are clear, the first step is usually to conduct a **feasibility study**. Its purpose is to understand climate risk scenarios. The feasibility study identifies hazards that people are vulnerable and exposed to, and explores whether and what type of forecasts are available for these hazards (steps B.1 through B.3 in figure 1 above).

B.1-3 Feasibility study

The **feasibility study** will provide information on the probability, intensity and lead time to the occurrence of the event. It will answer questions such as: How likely is it that the hazard will hit the exposed population? How strong will the impact be? How long in advance will we know, i.e. how much time do we have to act early? The study also assesses whether the organizations or institutions tasked with implementing the forecast-based actions have the capacity to act early. All this information taken together will show whether it is feasible to implement forecast-based financing and actions in the given context.

- Tool: [Feasibility study guidance](#) & [template](#) in the FbF Manual



Example from Examplandia: The feasibility study in Examplandia shows that a particular region of the country is likely to experience severe flooding during sustained periods of heavy rain, and previously this has led to cholera outbreaks. Historical data show that such severe floods with cholera outbreaks have occurred every six to eight years in the past.

Reliable forecast methodologies are available that can predict the occurrence of a heavy rainfall period, which will lead to flooding and a likely cholera outbreak, with 85% probability and a lead time of 6 days before the onset of the flood.

Therefore, the FbF programme goal may be to provide timely assistance when forecasts indicate that a severe flood is imminent, to prevent another cholera outbreak in the affected regions.

Building on the feasibility study results, the programme team will proceed to identify forecast-based actions that are automatically funded and triggered when the forecast indicates that the pre-defined danger levels are exceeded.

B.4 Identifying and prioritizing early actions: problem tree analysis & theory of change



The choice of forecast-based actions depends on the analysis of the anticipated impacts. The guiding question is: What are the likely effects to be experienced by the vulnerable population, and which actions can be taken to prevent or mitigate these impacts, given the probability, intensity and lead time of the event?



Example: In Exemplandia, based on the information from the feasibility study, the FbF programme would want to prevent future outbreaks of cholera in case of severe flooding.

It is essential to choose forecast-based actions following careful analysis and available evidence, not just intuition. The most suitable action can only be chosen if the cause of the problem is understood, even though at times it may seem natural to select certain actions to remedy a negative impact; maybe previous experience has taught us that a particular action usually works well, or the organisation has a lot of expertise in it (like distributing water containers). Nevertheless, decision should be made based on the analysis of evidence.

The identification of forecast-based actions therefore starts with an analysis of what causes the problem.

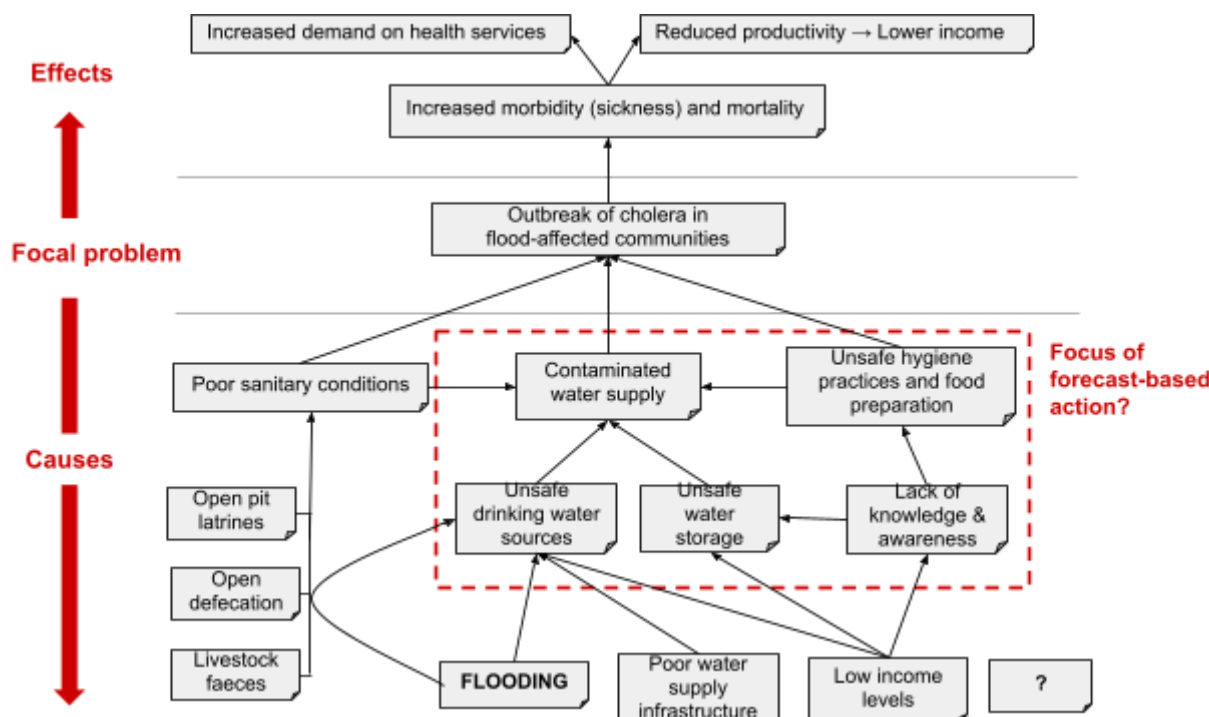


Example: Since we want to prevent future cholera outbreaks in Exemplandia when there is severe flooding, we need to understand what causes the cholera outbreak. We can review information from past cholera outbreaks and do a causal analysis of the problem, for example, by creating a “problem tree”.

Figure 3 below shows what a problem tree can look like. Note that some causes lend themselves more readily to being addressed with forecast-based actions that typically have a relatively short lead time and limited funding volume. Other causes are structural and cannot be resolved in the short term, such as water supply infrastructure and household sanitation structures.

B.4.1 Problem tree analysis

Fig. 3: Example of a problem tree analysis; area in red box indicates potential entry point for forecast-based actions.



- **Analyze the direct and underlying causes of the disaster impacts that you hope to prevent/mitigate with forecast-based actions**
 - Tool: [Problem tree analysis toolkit](#) by ODI, with links to further resources.
 - Resource: [The Five Whys Technique](#), 3-page write-up of the simple root cause analysis processes by the Asian Development Bank, with links to further reading

Once the direct and underlying causes of the likely disaster impacts have been identified, the next step is to brainstorm possible forecast-based actions. The team will do this following the [FbF manual guidance on prioritization of forecast-based actions](#). The role of M&E is to ensure that this process is evidence-based and only actions are chosen that can reasonably be expected to achieve the desired results.

B.4.2 Theory of change

The logic behind choosing certain forecast-based actions over others and how they are expected to achieve results should be tested using a theory of change (ToC). Creating a theory of change means describing step-by-step how and why the desired outcome will be attained by taking the selected forecast-based actions. A ToC is often created as a series of “if... then...” statements and then put into a visual representation, like a flowchart (see example below).



It helps to think of a ToC as a map on which you mark the spot where you want to go (the desired result or problem solution). Then you draw a route on the map that you think is best to take to get from A to B (the description of the expected chain of results, from action to solution). You will realise that you make assumptions, for example, that a particular bridge is passable or that you can cover a certain distance per day. You also note down landmarks you expect to see on your way (intermediate results or milestones).



It is very important to use all available evidence when building a theory of change, so that every “if... then...” relationship is built on information and fact rather than conjecture.

At least four steps are involved in developing a theory of change:

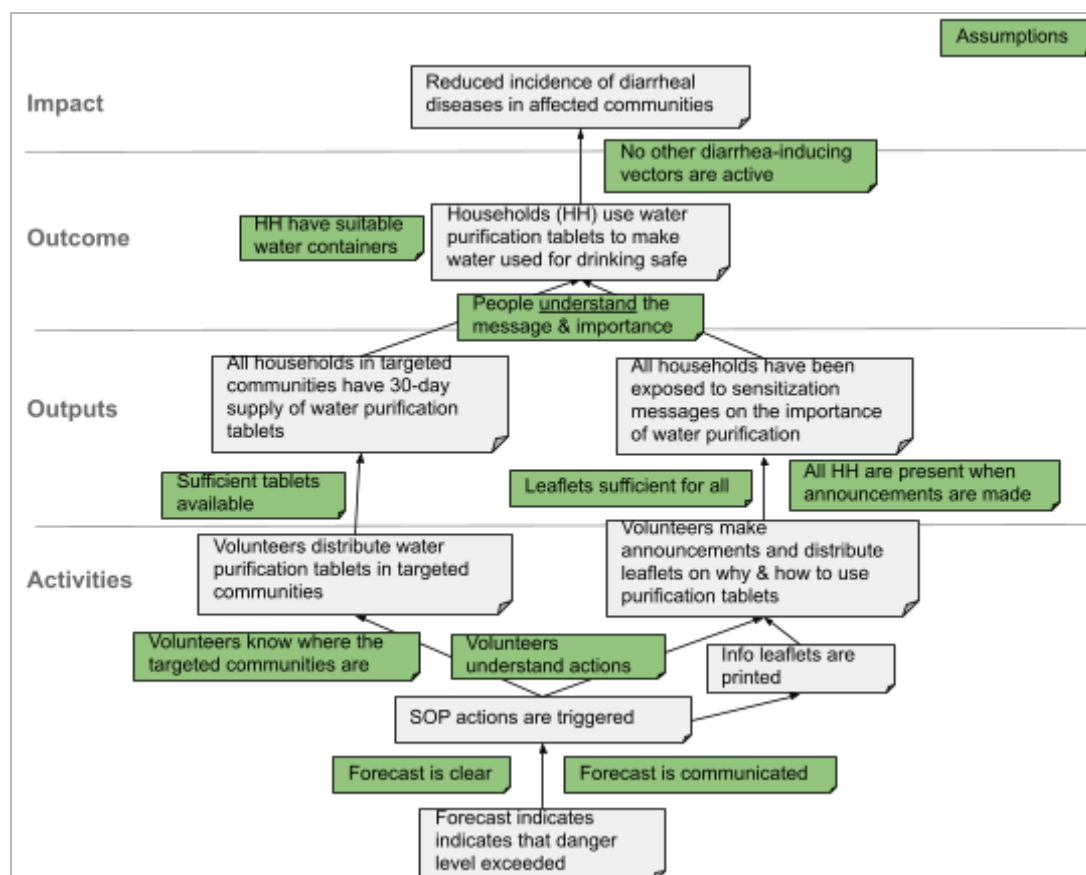
1. **Start from a specific goal**, meaning the positive change the programme or project seeks to induce in order to address a problem that has been identified.



Example: “Reduce the incidence of diarrheal diseases in vulnerable communities when there is flooding in Exemplandia”.

2. **Map out the process of change**, working backwards from the specific goal. Ask: “What is required to bring about this change?” It is useful to do this as a team and consulting relevant and knowledgeable stakeholders. Tip: Note down process steps on post-it notes and put them on a flip chart (see example below). Visualizing a ToC helps team members to understand it more easily and question its logic.

Fig. 4: Example of a visual representation of a theory of change for *Exemplandia*.



3. **Write a narrative summary expressed as a sequence of logically linked events (“if... then...” statements) and support them with available evidence.**



Example: “If all households in flood-affected communities have 30 days worth of water purification tablets and received information how to use them, then they will purify their drinking water. If they purify all their drinking water, the incidence of diarrheal diseases will decrease.”

4. **Make implicit assumptions explicit** about how changes happen and reference supporting evidence. Tip: Note assumptions on post-it notes in a different colour and add them in between the process steps.

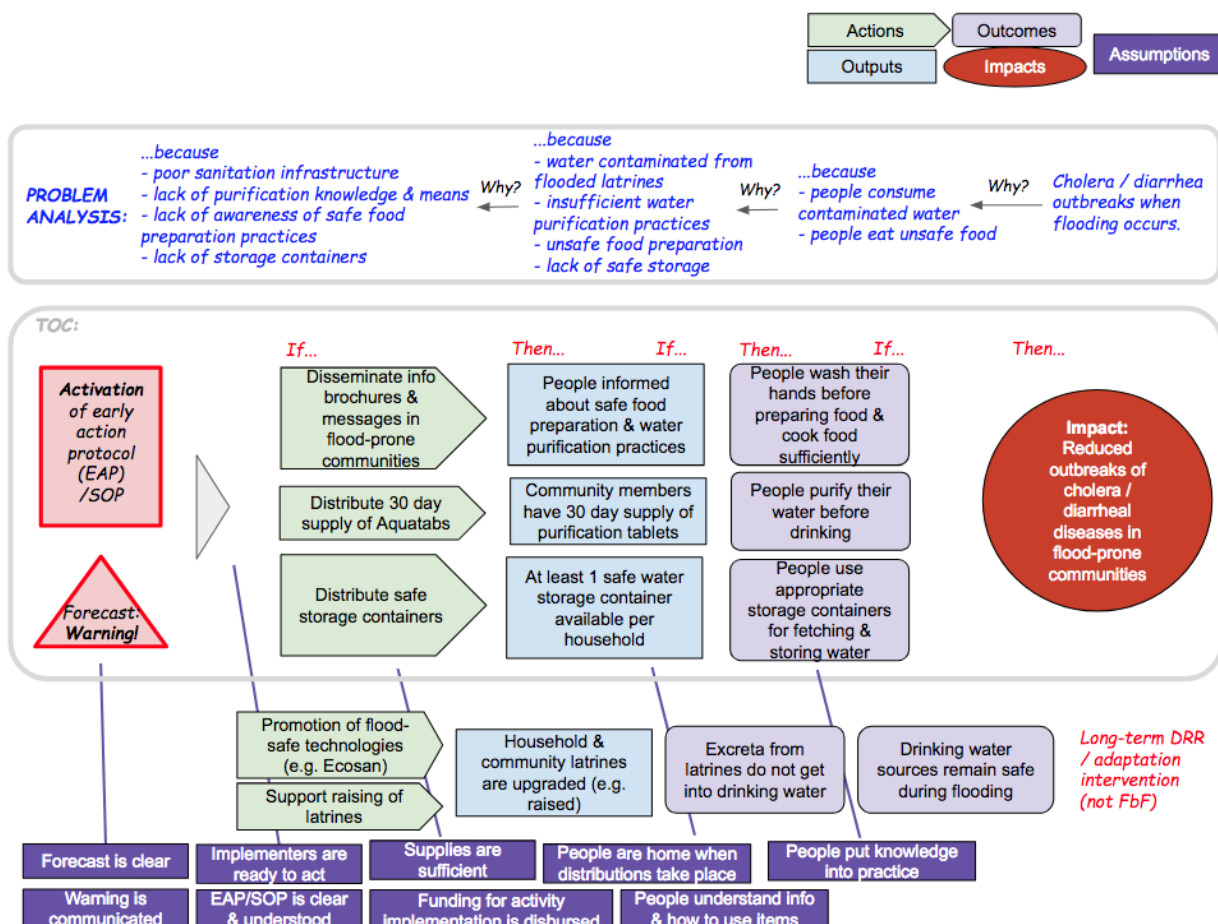


In the previous example, many assumptions are made that would need to be confirmed by evidence. For example, it is assumed that households understand and appreciate the information they have received about the importance of water purification, or they already have the knowledge and awareness to use purification tablets. But what if pre-existing knowledge about water purification is low?

What if written information materials are given to a household whose members cannot read? What if there are community members who speak a different language? What if there are reservations against using blue pills or tablets, based on previous bad experiences or rumours? What if households purify their drinking water but they don't purify the water used for washing food items? What if safe hygiene practices are relatively unknown and household members don't wash their hands with soap and water before preparing food and before eating?

All assumptions, as trivial as they may seem, should be made explicit and checked against evidence to see whether they are “safe” or they need to be addressed as part of the early action protocol.

Fig. 5: Alternative visualization of a theory of change for forecast-based actions (see [editable version here](#)).



M&E TASKS & TOOLS:

- Support the FbF team in selecting and prioritizing forecast-based actions by developing a theory of change for each action, together with the team
 - Tool: [Editable example of FbF action theory of change](#).
 - Resource: [Hivos guidance on how to develop a ToC in 8 steps](#); "Theory of Change Thinking in Practice"
 - Resource: [Tools4Dev](#), overview - including visualizations - of 'theory of change' vs. 'logic models'
 - Resource: Learning for Sustainability, [comprehensive list and direct links to guidance notes](#), how-to documents and practical examples of working with theories of change
 - Resource: [DFID review of the use of 'theory of change'](#) in international development; comprehensive overview and further references
 - Resource: BetterEvaluation.org [list of available Theory of Change Software](#), some are for free

Once the most suitable forecast-based actions have been identified, the FbF team will put everything together in an Early Action Protocol (EAP).

B.5 How to monitor and track the implementation of forecast-based actions

 **The Early Action Protocol (EAP)** describes which forecast will trigger which action, where to act, based on the forecast and trigger (danger level) information, and assigns action responsibilities, i.e. who will implement which action. Of course it also outlines what funds need to be made available, and how they will be accessed.

Based on the fully developed EAP, the FbF team or M&E focal point needs to **adapt the logframe and M&E plan** so that the implementation of the EAP can be monitored. Indicators, data sources and data collection mechanisms should be established so the team can track:

- Whether early actions were taken as planned (preparatory activities should be reflected in the logframe);
- Whether the expected outputs were produced, for example, sufficient water purification tablets distributed to all exposed households (output indicators are included in the logframe and detailed in the M&E plan);
- Whether the desired results were achieved, for example, a reduction in the number of people suffering from diarrhea (outcome indicators are included in the logframe and detailed in the M&E plan).

An EAP monitoring form should be developed once the logframe and M&E plan have been adapted to incorporate the EAP. The EAP monitoring form will serve as the main tool to track implementation once the actions are triggered by a forecast.

M&E TASKS & TOOLS:

- **Update logframe and M&E plan according to finalized EAP**
 - Tool: [Logframe example](#), see impact and outcomes 2 and 3 and their outputs and activities for an EAP-specific logframe.
 - Tool: [M&E plan example](#), see impact and everything under outcomes 2 and 3 for EAP-specific M&E planning
- **Create an EAP monitoring form to be ready for implementation monitoring**
 - Tool: [EAP monitoring form](#) template with examples.
 - Copy and paste all actions and responsibilities from the EAP into the EAP monitoring form.
 - Reminder: The purpose of the EAP monitoring form is to (a) track whether we managed to act as early as planned, (b) check whether all actions were implemented as planned, and (c) identify learnings and experiences that can help us improve early action and response.

C. Implementation phase: EAP monitoring and FbF impact assessment

As soon as the impact-based forecast indicates that a danger level will be reached, the relevant EAP will be triggered. This sets in motion the implementation of the forecast-based actions, according to the responsibilities, timelines and locations defined in the EAP. The role of M&E is to ensure the FbF team learns whether it was successful in acting early and as planned, and whether its actions had the desired effects.

C.1 Monitoring the implementation of EAP actions



The purpose of the EAP monitoring form is to (a) track whether we managed to act as early as planned, (b) check whether all actions were implemented as planned, and (c) identify learnings and experiences that can help us improve early action and response.

In the face of an approaching climate-related disaster, the implementation of early actions can be extremely challenging. Therefore, good M&E is important to track whether the planned actions are being implemented in time. Timely M&E data can help to inform course-corrections during implementation, in case things are not going as planned.

Monitoring the implementation of the EAP is based on the the logframe and M&E plan that have been prepared during the inception phase (see section B.5 above).

The main tool for monitoring the EAP implementation is the [EAP monitoring form](#).

M&E TASKS & TOOLS:

- **Revisit the logframe and M&E plan to double-check they correspond to the EAP that has been triggered**
 - Tool: [Logframe example](#), see impact and outcomes 2 and 3 and their outputs and activities for an

- EAP-specific logframe.
- Tool: [M&E plan example](#), see impact and everything under outcomes 2 and 3 for EAP-specific M&E planning
- **Use the EAP monitoring form for the triggered EAP to monitor implementation**
 - Tool: [EAP monitoring form](#) template with examples (including an online reporting form & analysis tool): [empty template](#) | [prepopulated example](#)
 - Tip: Print out the EAP monitoring form on a large sheet of paper (A3 or bigger), or copy it on a flipchart, and continuously populate it as new information comes in. This has several benefits:
 - Everyone can see what information is being tracked and where the team stands vis-a-vis the EAP plan
 - It increases the likelihood that the team captures all relevant pieces of information
 - If anyone has a new observation, data point or feedback on an action point or learning, they can write it on the flipchart
 - If the monitoring form is continuously updated, empty fields will quickly (and visually) indicate potential focus areas where increased effort is needed.
- **Review additional examples of programme monitoring approaches, tools and templates**
 - Resource & tools: CiET toolkit, [module 5-2](#) on programme monitoring, with many useful templates

C.2 Assessing beneficiary impacts of FbF: “Does it make a difference?”

NOTE: *Impact assessment is a complex issue in its own right. It is worth reiterating that this document cannot and does not aim to replace relevant expertise or textbooks on M&E and research methodology. FbF teams should draw on the wealth of practical and detailed M&E and research guidance that is readily available from various organisations and sources. FbF implementers will typically need to bring on board the dedicated M&E and research capacity that will enable them to put their M&E/research ideas into practice. This FbF M&E guide aims to give the FbF teams an overview of the options they have to make informed decisions about approaches and methods and to point them to useful resource and tools to implement them.*



The ultimate goal of an FbF programme or project is to reduce the effects of climate-related disasters on vulnerable communities. Therefore, the experience and well-being of communities, households and individuals that are exposed to a hazard are among the most important success measures for FbF

interventions. Essential questions to ask could be: “Did households who were assisted through forecast-based actions experience fewer disaster impacts than households who did not receive this type of early help?” (see discussion on the counterfactual below), or: “Did FbF-assisted communities suffer fewer damages to their houses and livestock compared to previous, similar hazard events?”

IMPORTANT: Start early with planning your impact assessment; the project inception phase is a good time.

- Planning an impact assessment starts when a programme is being designed or a proposal is written because sufficient funding must be allocated.
- It costs money and time to collect good data and hire a skilled researcher to analyze it using robust, transparent methods. A lack of planning and funds is a common reason why projects do poorly on M&E and have little hard evidence to show for the good work they did.
- Many teams only start thinking about assessing their impact at the end of a project or intervention. This is too late because it is likely that many opportunities to collect relevant data will have been missed.

C.2.1 Considerations for choosing assessment methods

Based on the FbF programme/project theory of change, logframe and M&E plan, several factors influence the choice of assessment type, and thereby data sources and analysis methods, to evaluate the effectiveness and impact of FbF on vulnerable populations:

- **Measures of success (result indicators):** The logframe and M&E plan (see above, sections A. and B.4) define impact and outcome indicators for the FbF programme or project, in line with the FbF programme/project theory of change. The assessment methods and data sources must be suitable to yield accurate information on these result indicators, at the level of disaggregation specified in the M&E plan.



Example: The FbF project in *Exemplandia* aims to achieve, and wants to measure, a reduction in cyclone-related damages to household's housing structures. The FbF team looks for existing data sources that can be used to assess the effects of FbF actions, i.e. whether FbF-assisted households experienced less damages to their houses.

The Ministry of Infrastructure, Lands and Housing publishes a statistics bulletin that is updated quarterly and incorporates recent disaster damages. However, this statistics bulletin presents data aggregated at the regional level which cannot be disaggregated down to the district or municipal level, and only contains data on publicly owned estates such as social or pro-poor housing projects. Therefore, it is not suitable to provide information on the household housing structures indicator required for the FbF project.

- **Attribution and contribution:** 'Attribution' concerns the question whether changes are caused by, or "due to", the FbF intervention; 'contribution' acknowledges the role that FbF actions played along with many other factors potentially contributing to a change. It is advisable for FbF project teams and funders to clarify at the outset, when brainstorming the theory of change, which results are expected to be attributable to FbF and where FbF plays a contributing role. Quantitative and qualitative methods can both be suitable to establish causality and answer questions of attribution and contribution.
- **Quantitative and qualitative approaches:** A combination of both is advised to understand the breadth and depth of the experiences of people who are vulnerable and exposed to climate hazards. The logframe indicators, or the expertise of the FbF team, may suggest more emphasis on quantitative or qualitative methods. For example, a sample survey of households may be the preferred means for data collection and the basis for analysis. In this case, qualitative data from focus group discussions and key information interviews can yield rich contextual information to support the FbF impact analysis.
- **Size of the FbF intervention:**
 - Limited-scale forecast-based actions (household/community level): Often, the available funding for forecast-based actions only allows the implementers to reach a subset of affected households or communities. In these cases, it is unlikely that the effects of the FbF intervention can be detected at a higher level, say, at the district or regional level, because the forecast-based actions did not reach the majority of the population in this area. Therefore, it will be necessary to assess **community or household level data** to understand whether FbF actions reduced the effects of the climate-related disaster on the vulnerable. Since there are rarely existing data sources with the required level of detail and frequency, it may be necessary for the FbF programme/project to plan and budget to collect this data in a separate effort. However, it may be possible to reconstruct baselines from historical averages based on secondary data such as health center statistics or past post-disaster damage assessments.
 - Large-scale forecast-based actions (district/regional level): When funding is sufficient for the forecast-based actions to cover affected populations across an entire geographic unit, say, a district or region, it becomes more likely that the effect of the FbF intervention can be detected in district/regional trends. Therefore, there is a better chance to be able to save on data collection efforts and rely on **existing data from government or similar sources**, like health centres, hospitals, agriculture extension offices, etc. However, it is essential to check whether this data is available at appropriate intervals before and after the disaster and FbF intervention, and whether the level of (dis)aggregation suits the information needs of the FbF programme/project.
- **Donor/funder requirements:** The project/programme funding may come with conditions how to assess the impact of FbF. The FbF team should be aware of these requirements and address them in the assessment approach.

The choice of assessment method is up to the implementing organization to make, taking into consideration its reporting and other requirements.

M&E TASKS:

- Review the programme/project theory of change, logframe and M&E plan.
- Review any donor/funder evaluation and reporting requirements.
- **Start planning your FbF impact assessment early, at the start of the project/programme**, and ensure the approach and methods are aligned with your information needs and the decision factors listed above.
- Ensure that you have sufficient technical capacity on the team (or external support) to develop a detailed assessment plan and implement it.

C.2.2 Measures of success (or failure)

The indicators to measure whether FbF has made a difference have been defined in the [logframe](#) and [M&E plan](#) during the inception phase as described above. The choice of indicators depends on the type of hazard, the impacts to be prevented or mitigated and the forecast-based actions to be taken.

Indicators to measure the impact of forecast-based actions are often taken from the following categories:

- **Health & well-being**
 - Mortality (*“Did less/no people die because of the disaster, as a consequence of FbF assistance?”*)
 - Morbidity (*“Did less people fall ill during/after the disaster, thanks to FbF assistance?”*)
 - Stress / anxiety (*“Did people feel less stressed and better able to cope with the impacts of the disaster, thanks to FbF assistance?”*)
- **Shelter & housing**
 - Household housing structures (for example: *“Did less people experience severe damages to the roofs and walls of their houses, as a result of received early assistance through FbF?”*)
 - Communal shelters (*“Did communal cyclone shelters withstand the disaster impacts and protect community members as planned?”*)
- **Assets**
 - Personal assets (for example: *“Did less people experience severe damages to their valuable possessions, as a result of received early assistance through FbF?”*)
 - Productive assets (livestock, orchards, sheds, etc., for example: *“Did people experience fewer livestock deaths and injuries because they received forecast-based early assistance?”*)
- **Factors impacting health, well-being, livelihoods, and others**
 - Food / water supply (*“Did people who received FbF cash assistance before the disaster suffer from less food insecurity during the disaster?”*)
 - Labour constraints (*“Did forecast-based actions help to reduce the time that people were unable to work due to the disaster impacts?”*)
 - Public infrastructure (roads, clinics, schools, etc., for example: *“Were community health centres better able to provide medical care to affected vulnerable people, thanks to FbF assistance?”*)
 - There are many other possible measures, depending on the programme/project theory of change, logframe and M&E plan.



In the case of *Exemplandia*, the logframe (see previous [example](#)) defines several critical FbF success indicators in the event of severe flooding; among them: The percentage reduction in the incidence of diarrheal diseases among the target population. Another important indicator is the proportion of vulnerable households in the target communities who had sufficient quantities of water purification tablets or liquids in their house to purify all of their drinking water for the duration of the flood. Ideally, all of them had sufficient supplies of AquaTabs, so that the target would be 100%.

In the event of a cyclone, the logframe defines a different success indicator: The percentage reduction in target population households who experienced livestock losses due to the disaster impacts. Another

suggested indicator is the proportion of vulnerable households in the target communities with sufficient supplies of emergency feed for their livestock. Since all vulnerable and exposed households should benefit, the target would be all (100%) of vulnerable households to have sufficient feed supplies.

C.2.3 The counterfactual: Options and alternatives

How can we say with certainty that it was FbF assistance that led to the achievement of positive results, such as reduced suffering and fewer disaster impacts, rather than other interventions or external factors?

The use of counterfactuals has become an accepted and widely-used approach to causal inference in social science research. In the context of FbF, a counterfactual is employed to answer a question such as: “What would have happened if the community hadn’t received assistance through forecast-based actions?”. The impact of FbF is estimated by comparing counterfactual outcomes (what would have happened without FbF) to those observed under the intervention (what happened with FbF assistance).

The challenge is that the counterfactual cannot be observed directly and must be approximated with reference to a comparison group that resembles the conditions of the counterfactual as closely as possible.

In practice, FbF teams will usually aim to use one of two types of comparisons (or both) to estimate the counterfactual:

- (a) **Historical impact data** from the same or comparable communities/areas that have been affected by a comparable disaster in the past.

+ Opportunities: Historical data can be cheaper to obtain because they have been collected by someone else in the past. Since people have lived through the past disaster, historical data also provides a common reference point that may yield additional credibility to the analysis.

- Challenges: The comparability of historical data is often problematic on several levels: the past disaster must be comparable to the disaster that triggered FbF actions in magnitude and timing; its impacts on the vulnerable and exposed population must have been similar. The data about the disaster and its impacts must be available for the same units of analysis, and the same level of disaggregation, which are used to assess the current (FbF-triggering) disaster and its impacts, and to analyse the effects of FbF.



Example: If one of the primary indicators to measure the success of forecast-based actions is the reduction in the proportion of people suffering from diarrheal diseases during/after a disaster, the historical data must contain information on the incidence of diarrhea among the vulnerable and affected population group during/after the past disaster event. It will not suffice to have data only on the disaster itself or the damages to infrastructure and houses. The historical data must be available for the same geographical area in which the EAP implementation took place.

- (b) **Impact data from comparison communities or households** who have been affected by the same disaster (which triggered forecast-based actions) and who are comparable in every other aspect, except that they did not receive assistance through forecast-based actions before the disaster.

+ Opportunities: It is more likely to achieve data comparability when a random sample is drawn from the population of affected and vulnerable communities. Given the limited amount of funding and therefore coverage of most FbF interventions, it is likely to find comparison communities that were affected by a disaster but were not reached by assistance through forecast-based actions.

- Challenges: The sampling frame needs to be designed and implemented carefully to avoid introducing bias into the data. Primary data collection is typically more expensive than working with historical, secondary data sets.

Using a counterfactual is not necessary but strongly recommended given the current stage and funding of FbF projects. While there are many tried and tested non-experimental impact assessment approaches (i.e. not involving a comparison group that does not get the intervention), the challenge lies in having to rule out, or acknowledge the relative influence of, any likely alternative explanations for the outcomes to be achieved by FbF. Otherwise, the analysis cannot show a causal relationship between the intervention and outcomes convincingly.

Unlikely in the case of FbF, there are situations where non-experimental approaches (without a comparison group) are the only feasible research design. For example, when a programme/project is implemented universally and every exposed and vulnerable person is being reached, there are no more isolated comparison groups. Unfortunately, FbF programmes - with their limited amount of funding - are far from this scenario. Therefore, the use of experimental or quasi-experimental assessment designs with comparison groups is strongly recommended.

It is a common misconception that it is cheaper and easier to use non-experimental approaches (without comparison groups) and that it requires less expertise than experimental approaches with comparison groups. It requires specialised skill, time and budget to develop a robust non-experimental research design, collect good quality data and analyse it using rigorous methods. As stated above, the researcher will need to rule out likely alternative explanations, or acknowledge their relative contribution, and to show a causal relationship between the forecast-based actions and observed results. It is unlikely that this can be accomplished with an ad-hoc research approach based on a few interviews or focus group discussions.

Therefore, the use of a counterfactual is the recommended approach to assessing the impact of FbF programmes/projects.

M&E TASKS & TOOLS:

- **Review the availability of reliable secondary data sources**
 - Resource: [IFRC M&E Guide](#) on assessing the availability of secondary data ([section 2.2.2, p. 33](#))
- **Identify a comparison group**
 - Resource: [2-page summary guidance](#) on identifying comparison groups for FbF projects.
 - Resource: [BetterEvaluation.org](#) overview of randomized controlled trial (RCT) methodology, including case study examples how to select comparison (or “control”) groups

C.2.4 Baseline data: Challenges and possibilities to deal with them

Baseline data (shorter: a “baseline”) contains information about the initial conditions before the start of a project/programme, against which progress can be measured, and comparisons can be made. Collecting baseline data, whether quantitative or qualitative, costs time and effort.

What are the main uses of baseline data?

- (a) Baseline data can be analysed to check the similarities and differences between the FbF-assisted communities and the comparison communities. Ideally, the two groups should be virtually identical, except that the comparison group will not receive forecast-based assistance. (Note that under perfect random sampling, the differences are expected to be minimal. Without random sampling, there may be unaccounted differences that can affect the outcomes to be measured.)
- (b) A baseline assesses the “starting point” for the FbF group and the comparison group, allowing the researcher to compare how both develop over time when another measurement is taken at a later date (“endline” or follow-up data collection).

The newest generation of FbF programmes/projects (2017 onwards) is meant to be geographically flexible to act wherever forecasts and vulnerability and exposure analyses show that a disaster impact is likely. Forecast-based actions can be triggered in any disaster-affected region and community.

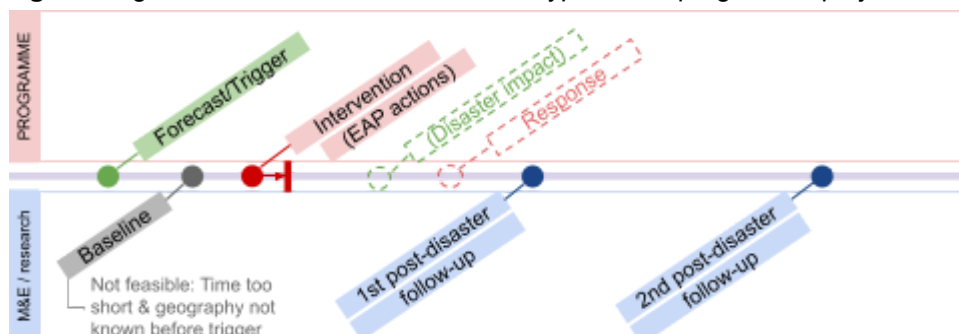
Therefore, it is difficult to identify areas where baseline data can be collected before the FbF forecast is issued, making baseline data collection not practically feasible in most cases. It will not be cost-efficient to do preemptive data collection across a large area, region or country if only smaller subsections are eventually affected for which data is needed.



Example: If the FbF team decides to collect baseline data in area A (FbF intervention) and area B (comparison, without FbF), and the disaster only affects areas C and D, the baseline data from areas A and B would be almost entirely useless.

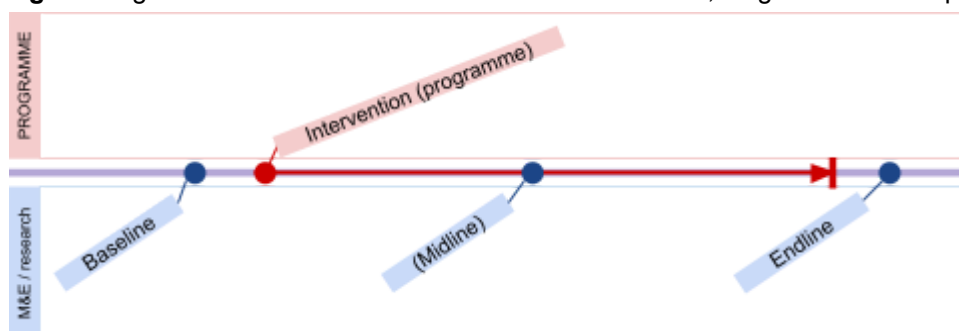
It is not practically feasible to collect community-level baseline data for FbF when intervention area is not known before the trigger and there are (usually) only a few days between the trigger and the implementation of the EAP actions.

Fig. 6: Programme and M&E milestones in a typical FbF programme/project



In contrast to development interventions, an FbF programme/project is designed with a primarily short-term view: its actions must yield benefits immediately, or the imminent disaster impacts cannot be prevented or reduced. For example, water purification tablets are distributed to be used immediately to avoid the outbreak of cholera during a flood. (It is desirable to choose forecast-based actions that have the potential to contribute to improved development outcomes in the longer term: fewer cholera cases means healthier and more productive people, which can translate into better development outcomes.)

Fig. 7: Programme and M&E milestones in a “conventional”, longer-term development programme



The lack of baseline data presents a challenge to FbF projects, mainly because the comparability of the FbF-assisted and comparison groups cannot be confirmed before the EAP actions are implemented.

There are **three possible strategies to compensate for the missing baseline data and ensure the comparability of the intervention and comparison group**. Ideally, all of the strategies are used together.

1. **Randomize the selection of intervention and comparison areas (to the extent possible):** Randomization minimizes the selection bias and increases the probability that the sample (of selected individuals or groups) accurately represents the vulnerable population.

The FbF EAP defines the general area in which forecast-based actions will be implemented and who will be assisted. Since resources are unlikely to be sufficient to reach the entire vulnerable population with forecast-based actions, intervention areas and groups will need to be prioritized, usually according to where is the greatest need. Randomization can help the FbF team to make decisions who to assist with forecast-based actions.

It is not feasible or logistically efficient to assign FbF assistance randomly to individuals or households across a disaster-affected area and have an unassisted comparison group in the same place. Instead, the FbF team can randomly select clusters of communities or geographical areas for the FbF intervention and for comparison.



Example: In Exemlandia, a forecast triggers the EAP and indicates that a flood is highly likely to inundate six districts along the Grand River in the next week. Each district is organized into 10 administrative subdistricts, so in total there are 60 subdistricts along the river likely to be affected. In 20 out of the 60 subdistricts, the population is known to be extremely vulnerable because poverty levels are higher than elsewhere and they were badly hit by the last flood five years ago. Therefore, these 20 subdistricts are the primary target of the forecast-based actions. Unfortunately, resources are limited and only ten subdistricts can be assisted. Therefore, a choice will have to be made and there will be ten subdistricts who will not receive FbF assistance. They constitute a natural comparison area.

The FbF team reviews the available socio-economic data for the area and confirms that the population in the 20 subdistricts is relatively homogenous. The predominant livelihood strategy is small-scale river fishing; poverty levels are high. It would take about the same level of effort to reach any of the 20 subdistricts by road. To facilitate the difficult decision of which ten subdistricts will receive FbF assistance and which districts will not, the choice is randomized: The team writes the names of all 20 subdistricts on small pieces of paper, one name per paper, and puts them into a box. Ten pieces of paper are then blindly drawn from the box; these subdistricts will receive FbF assistance. The remaining ten subdistricts will not benefit from forecast-based actions and can, therefore, be considered to be the comparison area.

2. **Use random sampling for data collection:** The unbiased random selection of respondents from the population of interest is essential so that the sample accurately represents the population. Randomization helps to reduce bias and error. Most FbF programmes/projects will find multistage cluster sampling to be most applicable to their purposes. While it increases the sampling error, it is logistically more efficient and feasible to implement for FbF teams.



Example: The flood has inundated the 60 subdistricts along the Grand river, as indicated by the forecast, including the ten subdistricts where EAP actions have been implemented and the ten subdistricts that have been identified as comparison areas. Soon after the FbF team completed the implementation of EAP actions, the flood waters rose rapidly and remained high for 10 days before receding quickly. Now, the FbF team is hopeful that its actions have had a positive impact because the assistance was delivered timely before the flood. Since the flood waters have receded, the project team would like to find out whether their assistance has made a positive difference.

A statistician has calculated the optimal sampling frame, including sample size and locations, to collect post-disaster impact data. 15 communities are randomly drawn from across the ten subdistricts who received FbF assistance, and 15 communities from the ten subdistricts that make up the comparison area. Four weeks after the flood, a survey is carried out in the 30 sample communities.

3. **Use recall questions in the post-disaster survey to estimate the baseline conditions:** Respondents can be asked to recall conditions prevailing before the disaster. For example: “During the two weeks immediately preceding the beginning of the flood, did you or a family member suffer from diarrhea?”. All variables that are relevant to assess the similarity of FbF-assisted and comparison groups must be included in the first follow-up data collection that should take place as soon as possible after the disaster.



Example: As part of the EAP actions, water purification tablets were distributed as planned by the FbF project to prevent a cholera outbreak and the spread of other diarrheal diseases. To find out whether FbF-assisted communities were less likely to suffer from diarrhea than comparison communities, and to attribute this to EAP actions, it is important to establish what the incidence of diarrheal diseases was in both groups *before* the flood. If there are systematic differences between the FbF and comparison group, for example, because the FbF-assisted group generally has access to cleaner water sources, their levels of diarrhea may always be lower than in the comparison group, independent of whether there is a flood or whether they receive FbF assistance.

The longer the time between the disaster and the data collection, the less likely are people to recall information accurately, for example, whether and for how long they suffered from diarrhea. Therefore, post-disaster data collection should take place as soon as possible.

It is important to take into account the baseline differences between the FbF-assisted and comparison groups, otherwise the size of the “FbF effect” cannot be estimated correctly. Figures 8 and 9 illustrate how the FbF effect could be misestimated if the intervention and comparison groups are different at baseline.

Fig. 8: Baseline and post-disaster survey data from FbF-assisted and comparison communities, no difference at baseline (hypothetical example)

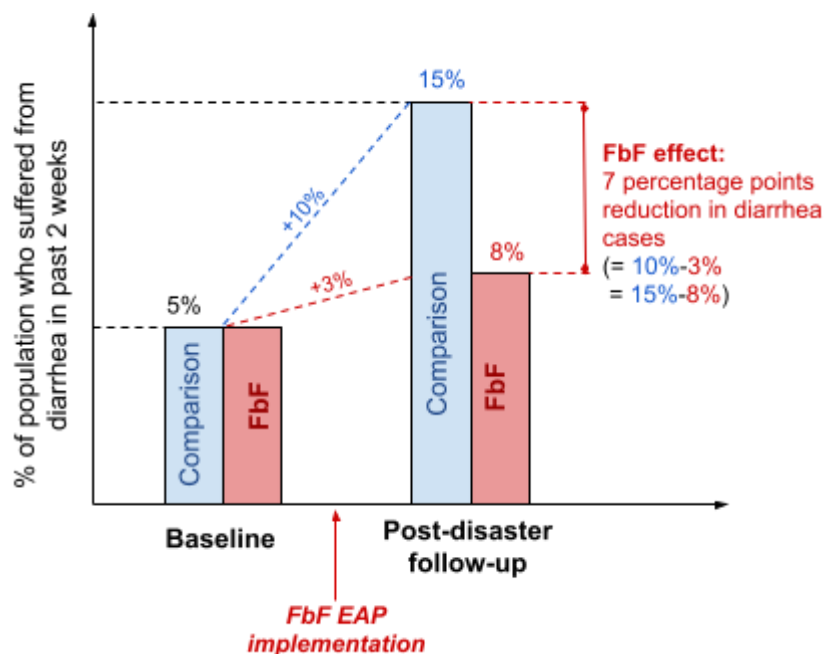
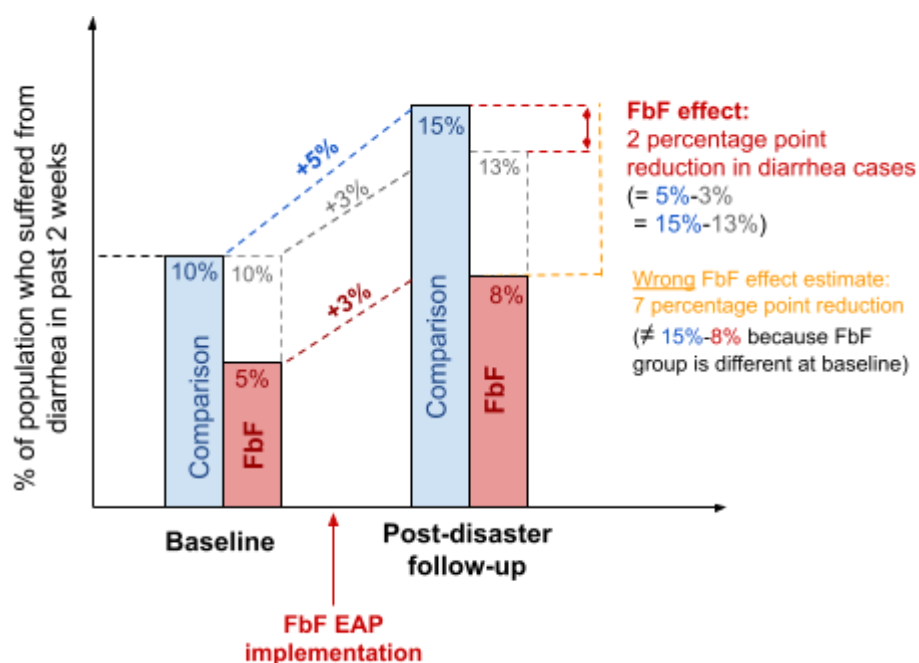


Fig. 9: Baseline and post-disaster survey data from FbF-assisted and comparison communities, different at baseline (hypothetical example)



M&E TASKS & TOOLS:

- Review the FbF programme/project logframe and M&E plan to check data needs, and review available guidance and considerations for survey planning, sampling, and minimizing bias
 - Resource: [IFRC M&E Guide](#) on minimizing bias and error ([section 1.9, p. 22](#))
 - Resource: [IFRC M&E Guide](#) on determining sampling requirements ([section 2.2.6, p. 36 ff.](#))
 - Resource: [IFRC M&E Guide](#) on preparing for surveys ([section 2.2.6, p. 38 ff.](#))
- Consider hiring a statistician or survey/research expert to help you determine your data collection and sampling requirements
 - Tool: [Terms of Reference \(TOR\) template](#) for an FbF programme/project statistician or survey/research expert.

- Consider contracting a research institution or survey firm to collect the data for the FbF programme/project
 - Tool: [Terms of Reference \(TOR\) template](#) for an FbF programme/project survey contractor.

C.2.5 When to collect post-disaster impact data

The disaster response to help people in need is always the first priority. The earliest possible time to collect follow-up/endline data is after the hazard has ceased, when it is safe to enter the area, when potential respondents are safe and data collection does not cause them stress and does not distract them from important tasks, and when response operations are not hindered.

“Impact” in the context of FbF assistance and post-disaster assessments refers to (a) the effect of the climate-related disaster on vulnerable and exposed populations of interest, and **(b)** the effect of forecast-based assistance on the experience of the populations of interest, for example, regarding the extent to which they suffered from disaster-related injuries, losses or stresses, and whether these could be avoided.

Figure 6 (above) illustrates opportune times to collect short-term and longer-term follow-up data.

Immediate post-disaster follow-up data collection is critical to reconstructing missing baseline data, as discussed above, and to capturing information about the respondents’ experiences while they are still recent. Therefore, it is recommended to conduct the first round of post-disaster data collection as soon as the situation permits it, usually four to six weeks after the conditions have normalized.

Longer-term follow-up data collection, six to twelve months after the disaster, can be extremely helpful in identifying intended or unintended consequences of FbF assistance that may only become recognizable after some time. Data can be collected once or periodically, for example, every six months for the next three years.



For example, the distribution of water purification tablets may have helped households to avoid diarrheal diseases and allowed them to be productive again sooner after the disaster than households who did not receive FbF assistance. The latter may have suffered from diarrhea, forced to stay out of work for longer and may have had to take out high-interest loans to cover the expenses of their families. This difference in productivity and debt burden may translate into higher incomes and increased resilience for FbF-assisted households in the longer term.

C.2.6 Qualitative and quantitative data

Conclusions that are based on quantitative data and that are representative of the group of interest are often considered more objective and less biased than qualitative data, especially with donors and decision makers. It is difficult to draw generalizations or comparisons from qualitative data, depending on the credibility of the observations and judgements being made.

It is recommended to use a combination of qualitative and quantitative data and research methods, based on the experience from FbF programmes in different countries and the wider social science research literature.

A mixed-methods approach can utilize the advantages of both approaches, measuring what happened with quantitative data and examining how and why it happened with qualitative data.

C.2.7 Practical considerations for planning data collection and analysis

How to plan for data collection, and who should guide the process?

It is strongly recommended that FbF teams use the services of a trained statistician or research expert to guide the planning and implementation of the data collection process. The expert can be hired as a part of the team or engaged as a temporary external consultant. Sample terms of reference (TOR) are included in the toolbox below.

The tasks of an FbF statistician or research expert include:

- Review the programme/project logframe and M&E plan to determine the data needs
- Develop a sampling frame that meets the information needs and the requirements for statistical significance and representativeness
- Develop an analysis plan, questionnaires and other data collection tools for quantitative and qualitative data collection (see list of sample questionnaires in the toolbox below)
- Training enumerators and plan fieldwork logistics
- Establish quality assurance processes and supervise data collection fieldwork
- Analyze the data, calculate error margins and confidence levels
- Report and present findings in a format that is suitable for the target audience

Who should collect the data?

Conducting interviews that yield high-quality data, whether quantitative or qualitative, requires specialized skills and experience that are acquired through training and practice. Therefore, data should be collected by trained enumerators with proven fieldwork experience. The quality of the data also depends on the impartiality and independence of the data collectors.

The most practical option for FbF teams is to partner with an academic institution or research firm who typically have a pool of good data collectors. Less time and resources will need to be invested in training fieldworkers. Moreover, using external enumerators ensures a level of independence and impartiality that is required to assess the FbF programme/project objectively. Sample terms of reference (TOR) are included in the tool box below.

It is important to start planning for data collection early to be able to deploy enumerators soon after a disaster has occurred. Data collection tools and sampling procedures can be developed in advance, and the agreement with the academic institution or research firm can be signed already during the inception phase of the FbF project. To save costs, the agreement or contract can specify that it will only be activated in the event of a disaster.

It is not recommended for FbF project teams to use their staff to carry out the fieldwork and conduct interviews with beneficiaries. While this saves costs and may be especially viable for Red Cross Red Crescent National Societies with extensive networks of staff and volunteers, it introduces multiple biases that are difficult to control. Understandably, FbF team members want to see their project succeed and may have a (possibly subconscious) tendency to steer interviews in a particular direction or interpret responses in an overly confident way when entering the data. More importantly, beneficiaries may feel inhibited to voice their honest views about the project because they do not want to offend the people who tried to deliver assistance and from whom they hope to receive more benefits in the future.

Sample size and cost of data collection

A sample size calculator can give the team a first idea of how many individuals or households need to be interviewed (see references in the toolbox below). The population of interest typically comprises the group who received assistance through forecast-based actions and the comparison group who did not receive help through FbF (see section C.2.3 on counterfactuals).

The FbF project team should expect to need a sample size of at least 400 to 600 respondents, depending on the size of the population of interest.

The cost of carrying out a survey depends on the country context and whether professional enumerators or internal staff/volunteers are used for data collection. The total cost per interview, including fieldwork logistics and personnel cost, can be as low as US\$ 5-10 per interview if the FbF team uses its organization's staff and resources (such as vehicles and printers), and up to US\$ 30-50 or more per interview if an external service provider is used (including fieldwork and analysis).

Using digital/mobile technology to facilitate data entry and analysis

Filling out paper questionnaires is expensive (printing costs), prone to errors - there are no automatic validity checks - and slow: someone needs to collect all the questionnaires and enter the data into a computer for analysis. Luckily, this is not necessary anymore. FbF teams have access to a wide range of free digital tools to make their data collection process digital (see references in the toolbox below).

Many FbF teams have used platforms like ODK, Kobo or Magpi to allow their enumerators to enter survey data on their smartphones or tablet computers and submit the data to a central server via mobile data or Wifi. There are many advantages to this process: automatic validity checks can be set up on all digital data platforms so enumerators cannot accidentally skip a question or indicate the age of the respondent to be "243". The data can be transferred securely to the statistician or researcher who can analyze the data immediately; if the expert identifies unusual patterns, s/he can alert the fieldwork team so they can correct their behaviour or ask clarifying questions while they are still in the field.

M&E TASKS & TOOLS:

- **Consider hiring a statistician or survey/research expert to plan and guide the data collection process**
 - Tool: [Terms of Reference \(TOR\) template](#) for an FbF programme/project statistician or survey/research expert.
- **Consider contracting a research institution or survey firm to collect the data for the FbF programme/project**
 - Tool: [Terms of Reference \(TOR\) template](#) for an FbF programme/project survey contractor.
- **Develop questionnaires and data collection tools, in collaboration with the statistician or research institution**
 - Tool: [Questionnaire for post-disaster impact survey](#), quantitative (example from Bangladesh); see also [online version of this questionnaire for mobile data collection \(on KoBo Toolbox\)](#) (you need a free account to to copy & adapt this form)
 - Tool: [Questionnaire for post-disaster impact survey](#), quantitative (in French, example from Togo)
 - Tool: [Focus group discussion \(FGD\) guide](#), qualitative, including useful tips for FGD facilitators (example from Bangladesh) and [FGD tracking sheet](#) (master list)
 - Tool: [Key informant interview \(KII\) guide](#), qualitative (example from Bangladesh) and [KII tracking sheet](#) (master list)
- **Set up the questionnaire on a digital platform to allow enumerators to enter the data on their smartphones or tablets and save time on data entry and cleaning**
 - **Recommended** as the most beginner-friendly solution: KoBo Toolbox (free for humanitarian organisations): <https://kobo.humanitarianresponse.info>. Example: [impact survey mobile data collection form \(on KoBo Toolbox\)](#) (you need a free account to to copy & adapt this form)
 - Open Data Kit (a bit more complex to set up but very powerful, and for free): <https://opendatakit.org/>
 - Magpi (costs money to use the more advanced features): <http://home.magpi.com/>
- **Work with your contracted experts and make your own sample size calculations, also using online tools and templates**
 - Tool: [Online sample size calculator](#), National Statistical Service of Australia, including [examples for stratified sampling](#)
 - Tool: [Online sample size calculator](#), Raosoft, with short explanations of the sample size calculation formula
 - Resource: [IFRC M&E Guide](#) on determining sampling requirements ([section 2.2.6, p. 36 ff.](#))
 - Tool: [IFRC sample size calculation Excel sheet](#)
 - Tool: [CiET survey sample calculator template](#) (Excel)

C.3 Reviewing and evaluating triggers



A trigger is a forecast that is issued and which exceeds both the danger level and the probability threshold. This leads to the activation of the corresponding EAP, i.e. the initiation of predefined actions.

It is advisable to review and evaluate triggers after an EAP has been activated, or periodically at regular intervals, for example, yearly. The review should be done by the technical teams who were involved in defining the trigger, usually involving staff from hydro-meteorological agencies, climatologists and research institutions. Given the nature of the design of a menu of triggers, which involved not only analysis of hydro-meteorological factors but a sound understanding of risks, it is essential to collaborate closely with risk analysis and early warning systems experts.

M&E can support the review of triggers with data from the M&E processes described above, and by contributing insights from the field. Given the complexity and importance of the trigger review, it is suggested to take between one to three days and do this as part of a lessons learned workshop on the EAP activation or the country FbF system.

Monitoring and review of EAP triggers typically follows three main questions:

a) Did we learn something new about the physical world?

- Is it different from what it was when triggers were initially defined?
- Has anything changed about the datasets we use that requires a review of triggers?



Example: A trigger to activate the EAP when river flood risk reaches a critical level may have been defined based on the level of river sedimentation prevalent at the time. The level of sedimentation may have increased substantially over the past 12 months and could affect water erosion, water level and flow speed so that previously non-critical amounts of rain could now result in earlier, more severe flooding. The level of sedimentation would need to be taken into account when defining or updating triggers.

b) Do we know more about the accuracy of our models?

- Are the models we have the best approximation we can develop to reflect the physical world?



Example: A cyclone trigger was defined to activate the EAP in at-risk areas when wind speeds were forecast to exceed 110 km/h, with 70% probability. 48 hours before the cyclone was expected to make landfall, the trigger was declared and the EAP was activated in area A where the cyclone was expected. However, the cyclone turned out to make landfall in area B, 70 km further west, and wind speeds in area A only reached 40 km/h.

c) Do we agree with the probabilities and risk levels of our original triggers?



Example: Following the previous example, probabilities and risk levels may need to be corrected to ensure that FbF early actions are only taken when impact is likely.

These questions may best be answered in a lessons learned workshop that brings together the science team involved in defining the triggers. The lessons learned workshop is also a good opportunity to review all available data and evidence, including from the EAP implementation monitoring (above) and the measurement of the beneficiary impact (previous section).

- Resource: [Trigger evaluation workshop guidance & agenda](#) (example from Mozambique)
- Resource: [Trigger evaluation interview guide](#) (example from Mozambique)
- Resource: [FbF manual section on Menu of Triggers](#) with step-by-step instructions

Annex: List of all available FbF M&E tools and templates

This list contains all tools and templates mentioned in this guide that were developed **specifically for FbF programmes/projects**. They can be found in this [online folder](#).

For non-FbF-specific resources and tools, please follow the links and references that are placed throughout the document.

Inception and planning phase

Theory of change

- [TOC template](#)
- [Example](#)

Logframe

- [Template](#)
- [Example](#)

M&E plan

- [Template](#)
- [Example](#)

Hiring M&E expertise:

- [TOR for an FbF project statistician or research/survey expert](#)
- [TOR for an academic partner institution or survey firm](#)

Action implementation monitoring

EAP implementation monitoring

- [EAP monitoring form](#)
- Example of an [online/mobile data version of the EAP data collection form](#) (you need a -free- account on [KoBo Toolbox](#) to access, copy & adapt this form)

FbF impact assessment

Survey planning

- [Guidance how to select a comparison group](#)
- [TOR for an FbF project statistician or research/survey expert](#) (same as above)
- [TOR for an academic partner institution or survey firm](#) (same as above)

Quantitative data collection

- [Post-disaster survey questionnaire, English](#) (example from Bangladesh)
- [Online/mobile impact survey questionnaire](#) (you need a -free- account on [KoBo Toolbox](#) to access, copy & adapt this form)
- [Post-disaster survey questionnaire, French](#) (example from Togo)
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Qualitative data collection

- [Focus group discussion \(FGD\) guide](#)
- [FGD planning and tracking sheet](#)
- [Key informant interview \(KII\) guide](#)
- [KII planning and tracking sheet](#)

FbF trigger evaluation

- [Trigger evaluation workshop guidance & agenda](#) (example from Mozambique)

- [Trigger evaluation interview guide](#) (example form Mozambique)

Putting it all together: Lessons learned workshop

- [Lessons learned workshop guidance and agenda](#)