

FORECAST-BASED FINANCING (FbF)

Monitoring, Evaluation, Accountability & Learning (MEAL) Guide

Version 2.0

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0. Introduction: Why do we need “MEAL” for FbF?

Forecast-based Financing (FbF) is a relatively new concept with potential to reduce disaster impacts through increased use of available science to inform preparedness decision making. Since FbF is in its early stages of implementation, monitoring, evaluation and learning are crucial to measure the effectiveness and success of the approach.

Every FbF project should be built on a comprehensive strategy for Monitoring, Evaluation, Accountability and Learning (MEAL) to inform the project design and implementation with the knowledge and evidence it generates. Therefore, it is recommended to review this document early in the project design phase.

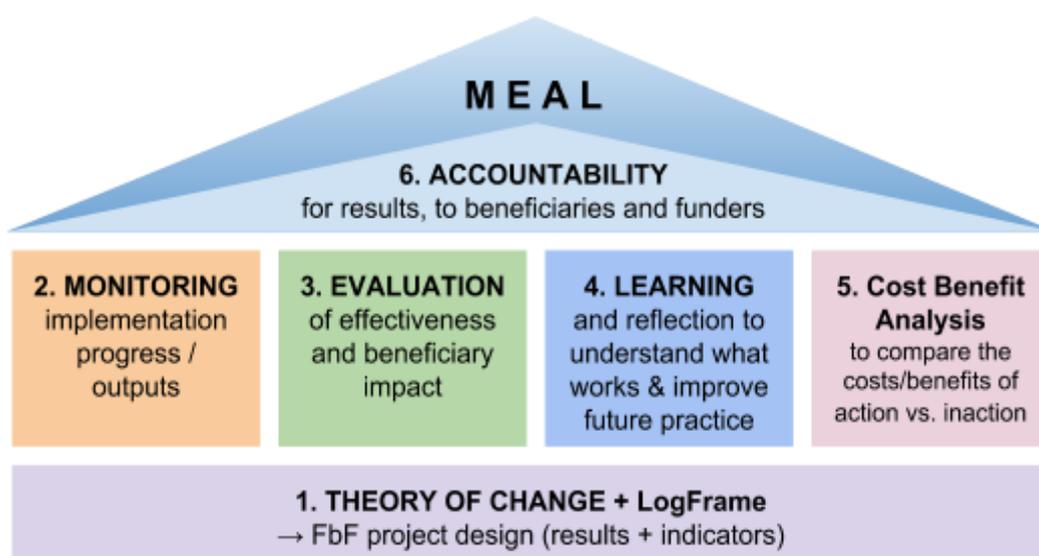
The target audience of this guide are FbF implementers, irrespective of whether they are Red Cross Red Crescent National Societies, government institutions, civil society organizations, individual implementing agencies, or funding providers.

0.1 Purpose of this guide

The purpose of this short document is to provide a holistic perspective on the different elements that make up the FbF MEAL framework, and to help FbF implementers to think through and answer the following questions, by providing concrete guidance and references to further resources:

1. What does “success” mean for an FbF intervention, and how can it be planned for strategically? How can this be captured in a theory of change?
2. How can we track progress towards achieving operational goals?
3. How can we measure the effectiveness and beneficiary impact of FbF implementation?
4. What is the cost-benefit relationship of a specific FbF action?

Figure 1: The elements of a comprehensive FbF MEAL strategy, and the structure of this guide.



0.2 Relationship to other M&E resources and requirements

This MEAL guide recommends a set of minimum components that should be part of any FbF project. None of these components are new in themselves and not necessarily different from good results-based management (RBM) practice; its components are in line with the [IFRC M&E Guide](#). However, a distinguishing feature of FbF interventions is that they are all about acting early; therefore monitoring and evaluation in the context of FbF aims to build an evidence base on the potential benefits of acting early and how these benefits can be assessed.

FbF projects are also based on *forecasts* and usually implemented in the context of severe weather events; they naturally entail a level of complexity and uncertainty that needs to be dealt with pragmatically when managing a project and measuring results.

This guidance document seeks to provide a holistic framework for FbF MEAL, showing how the different pieces of “M.E.A.L.” fit together (see figure 1 below). It gives concrete suggestions for tools and practices that are suitable for FbF project implementers and the uncertainty challenges they face. The MEAL guide thus complements existing M&E processes rather than replacing the standard monitoring and reporting requirements that are expected in return for receiving FbF project funding.

For further support or guidance please send an email to MandE@climatecentre.org. We are happy to help.

0.3 Overview checklist for minimum MEAL components of an FbF project

#	QUESTIONS TO BE ANSWERED	HOW TO / TOOLS	
1.	What are the goals of an FbF intervention? How are they going to be achieved?	Theory of Change (structural/policy level and for each FbF action)	✓
2.	Is the implementation of the project progressing as planned?	Project activity implementation monitoring process and format(s) (usually according to standard organizational/donor requirements)	✓
3.	Are forecast-based actions clearly defined and prioritized in the project framework? Are they appropriate to reduce the identified climate risks and potential impacts?	List of prioritized actions (based on an evidence-based decision process) Theory of Change for each FbF action , clearly showing how and why (referencing the supporting evidence) the action leads to reduced impacts.	
4.	Is the project contributing to reduced impacts of climate-related disasters on vulnerable communities and help them prepare effectively to respond to disasters?	a) Post-disaster survey questionnaires and qualitative focus group discussion (FGD) / key informant interview (KII) guides drafted; data collection & analysis preparatory arrangements in place. <u>In case of a disaster:</u> b) Immediate post-disaster survey in FbF-assisted and comparison communities c) Qualitative (FGD & KII) follow-up data collection d) Medium / long-term follow up survey	✓ ✓ ✓
5.	What are we learning from <u>project implementation</u> and the changes we	a) Continuous learning through regular reflections (e.g. at team meetings)	✓

<p>observe? What can we improve?</p> <p>What are we learning from <u>Early Action Protocol (EAP) / Standard Operating Procedures (SOP)</u>¹ activation (action triggering based on danger levels being reached)?</p>	<p>b) Periodic lessons-learned workshops</p>	<p>✓</p>
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1. Theory of Change: identifying FbF project goals, how to track and measure them

Typically the overarching goal of an FbF project is to reduce the effects of climate-related disasters on vulnerable communities. More specific goals can be deduced from the problem areas identified in the initial FbF scoping study and risk assessment that is conducted during the design phase of an FbF project.

For example, the analysis may show that a particular region of the country is likely to experience severe flooding during sustained periods of heavy rain, and in the past this has often led to cholera outbreaks. Therefore, the project goal for this area may be to provide timely assistance when forecasts indicate that a severe flood is imminent, to prevent another cholera outbreak.

1.1 What is a ToC, when and why should it be used?

Using the previous example, it is evident that further analysis is required to identify the underlying cause of the problem (cholera outbreaks after heavy rains) and to determine what type of assistance should be provided ahead of the next flood.



TOOL TIP: Problem tree analysis is a popular tool for project planning and widely used in the development sphere. It is a process to map out the structure of cause and effect relationships around an issue. See this [ODI Toolkit](#) or search the web.

Data from previous floods may show that the communities' main drinking water sources get contaminated with matter from flooded pit latrines when the flooding reaches a certain level. This may be caused by poor sanitation infrastructure. However, other direct plausible causes of diarrheal diseases are insufficient water purification practices, lack of safe water storage containers at the household level, and/or unsafe handling and preparation of food.

Once it is clear which problem(s) the project aims to solve, developing a theory of change (ToC) helps to think through and express how to address the causes of the problem and achieve specific goals. This is often done through a series of "if... then..." statements or a visual representation, like a flowchart (see examples below). It helps to think of a ToC as a map on which you mark the spot where you want to go, then draw the route that you think is best to take. You will realize 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.

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

¹ The terms 'Early Action Protocol' (EAP) and 'Standard Operating Procedures' (SOP) are used interchangeably throughout this document.

For example, a survey conducted after the last heavy rains may show that the latrines in the FbF-assisted community were not flooded and could not have contaminated the drinking water which this community takes only from its well. However, another community upstream on the same river was severely flood-affected and fecal matter from their latrines got into the river. The majority of households surveyed in the downstream community indicated that they use the river to wash their food, cloths, and their children. It becomes clear that in this case a campaign to distribute and promote drinking water purification tablets would have been ineffective. Instead a sensitization campaign about the potentially contaminated river water, hygiene and food preparation practices would have been more promising actions.

Developing a theory of change provides the project team with a unique opportunity to think through the entire project design logically and critically. It also provides space to question the underlying assumptions (“Is it really the case that, if we do X and Y, then Z will certainly happen?”).

NOTE: FbF projects typically pursue two work streams: (1) to immediately establish a working FbF mechanism, defining triggers and establishing an early action protocol / standard operating procedure that outlines the prioritized actions, with the agreement of the relevant authorities; and (2) to institutionalize FbF in the country context, by engaging in advocacy and building capacity that eventually leads to a national endorsement and adoption of FbF in existing EWEA structures and processes.

Therefore, **two types of ToC** are typically required for an FbF initiative:

1. A ToC for FbF actions for the most likely climate risks, to ensure the right actions are chosen that will have the strongest positive impact. Specific [guidance is available on prioritizing FbF actions](#).
2. A policy-level ToC to institutionalize FbF in national disaster risk management and EWEA structures, securing the endorsement and support from key stakeholders, based on a sustainable funding source.

[Examples for both types of theory of change](#) are available for review and can be adapted to the respective country context.

1.2 How to develop a theory of change

As explained above, setting up a FbF project implies developing at least two theories of change: one structural, policy-level TOC for the project as a whole; and one TOC for each forecast-based action that is being prioritized in the early action protocol (EAP) / standard operating procedures (SOP) - to explain why and how it is the best action to prevent or mitigate disaster impacts in the specific context.

For each theory of change, there are at least four steps involved to develop it:

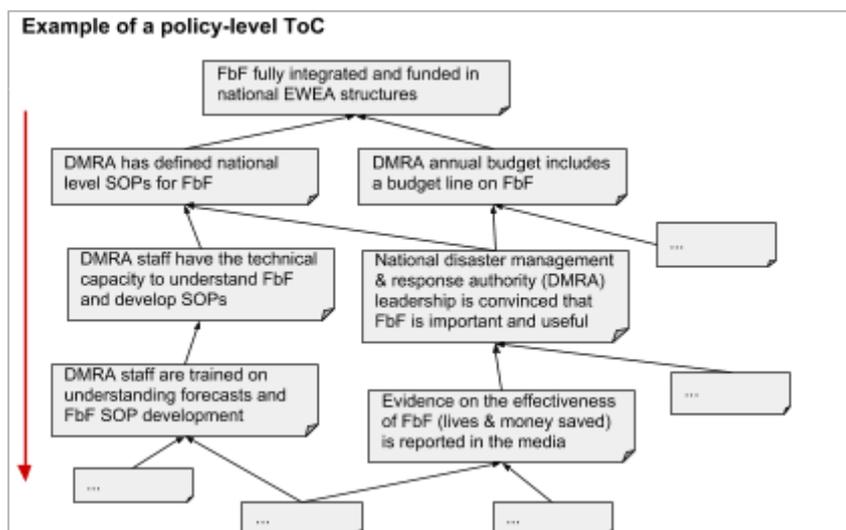
1. **Define a specific goal**, typically long-term change, the program seeks to support in order to address a problem that has been identified.

Example 1 (FbF action-level): “Reduce the incidence of diarrheal diseases in vulnerable communities when there is flooding.”

Example 2 (policy-level): “By 2020, the government has fully integrated FbF into the country’s national early warning early action structures and allocates a minimum amount of funding annually, based on need.” (policy goal)

2. **Map out the process of change**, working backwards from the specific goal. Ask yourself: “What is required to bring about this change?” It is useful to do this as a team; you can note down process steps on post-it notes and put them on a flip chart (see example below).

Levels of results: It is helpful to consider the different “levels” of results, from outputs to outcomes to impacts. The [UNDG RBM Handbook](#) (pp.12-15) contains useful guidance on this.



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

Example 1: “If all households in flood-affected communities have 30 days worth of water purification tablets and received information how to use them, then the incidence of diarrheal diseases when there is flooding will be reduced.” While this statement may be true, many assumptions are being made that would need to be confirmed by evidence. For example, it is assumed that household members wash their hands with soap and water before preparing food and before eating, that children are not bathing in contaminated river water, ...

Example 2:

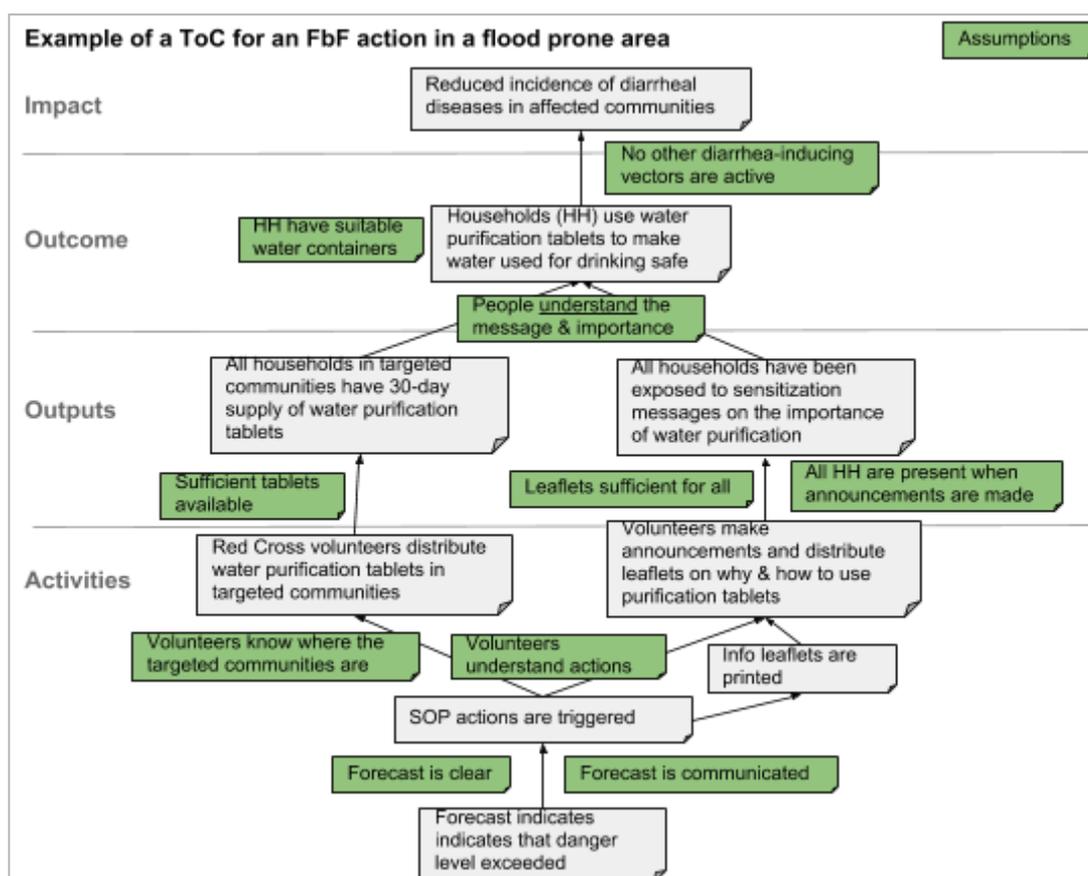
“If the effectiveness of FbF is reported in the media, then agency leaders will be convinced of its usefulness”. This is unlikely to be true. What else is needed to convince leaders? What are the underlying assumptions?

4. **Make implicit assumptions explicit** about how changes happen and reference supporting evidence; you can note assumptions down on post-it notes in a different colour and add them in between the process steps.

Example: “If we distribute mosquito nets, community members will use them”. Assumptions: “Community members know how to use mosquito nets and understand their benefits”.



TOOL TIP: The result of the ToC development process can be captured in a flow chart. [Google Drawings](#) is a useful tool to do this collaboratively. [Templates](#) are available.



As a next step, it is recommended to put the structure of results and activities into a **logical framework (LogFrame)** format, along with the definition of indicators to measure progress. A wealth of [guidance on LogFrames](#), result levels and indicator definitions already exists. The simplified example below follows the format of the [IFRC logframe template](#).

Example of a LogFrame:

	Results statements	Indicators	Baseline value (date)	Target value (date)	Means of verification / data source	Risks / assumptions
Impact						
Outcomes						
Outputs						
Activities	Activity 1.1... Activity 1.2 ...					

1.3 Resources, how-to documents, and further reading

- <https://docs.google.com/presentation/d/17noYm-rc-RFUE0LTZykZ3vJCJpQceTZyuNnz6ut-7z0/edit>: FbF Theory of Change examples and templates

- <http://learningforsustainability.net/theory-of-change/>: Comprehensive list and direct links to guidance notes, how-to documents and practical examples of working with theories of change.
- http://www.theoryofchange.nl/sites/default/files/resource/hivos_toc_guidelines_final_nov_2015.pdf Hivos ToC guidelines; “Theory of Change Thinking in Practice” with step-by-step guidance.
- https://www.nesta.org.uk/sites/default/files/theory_of_change_guidance_for_applicants_.pdf 6-page compact guidance how to develop a theory of change. Also addresses the issue of different levels of results.
- <https://undg.org/wp-content/uploads/2016/10/UNDG-RBM-Handbook-2012.pdf> UNDG handbook on results-based management; pages 12-16 provide a brief overview of different levels of results and working with the results chain.
- <http://www.tools4dev.org/resources/theory-of-change-vs-logical-framework-whats-the-difference-in-practice/> Useful overview - including visualizations - of ‘theory of change’ vs. ‘logic models’
- http://www.betterevaluation.org/en/resources/guide/dfid_review_toc DFID review of the use of ‘theory of change’ in international development; comprehensive overview and further references.
- <http://www.ifrc.org/en/who-we-are/performance-and-accountability/monitoring-and-evaluation/> : IFRC planning, monitoring and evaluation comprehensive guidance materials.

2. Monitoring FbF project implementation

The monitoring of a forecast-based financing project can be organized into three phases: The first phase covers the basic implementation monitoring during the design and setup of an FbF intervention according to the project logical framework (logframe). The second phase begins once the forecast reaches the pre-identified danger level and the [standard operating procedure \(SOP\)](#) is [triggered](#); monitoring then tracks whether the SOP is implemented according to plan. The third phase is the review and evaluation of the triggers to ascertain whether the hazard, risks and danger levels were appropriately assessed and defined.

2.1 Operational implementation monitoring

For the monitoring of **operational FbF project implementation** - meaning the execution of activities according to plan and the achievement of agreed outputs, it is recommended to follow standard M&E practices of the implementing agency and the requirements of the funding provider (if any). It is assumed that the FbF project uses a logical framework (logframe, see section 1.2 above); monitoring should be carried out using the indicators, data sources and reporting frequencies as stipulated therein.

2.2 Monitoring SOP implementation

[Standard Operating Procedure \(SOP\)](#) in the framework of Forecast-based Financing is an early action protocol which is triggered by a forecast. SOP provide step-by-step procedures for an action to be implemented in a particular fashion and order, at the time it is activated but also for the preparation phase.

Once the SOP is triggered, the project team should monitor its implementation, to identify any shortcomings, constraints or bottlenecks that need to be removed and to identify design problems that must be addressed before the next triggering.

For example, a common challenge for interventions that distribute items or cash to beneficiaries, as done by FbF, is beneficiaries having to wait in line for a long time before receiving their cash assistance. Long wait times can be a security concern and raise the stress levels for everyone involved; they also mean less time for beneficiaries to prepare for an imminent disaster. Wait times are influenced by a range of factors, such as the processing efficiency of the disbursement agents, waiting area preparation and - if insufficient - a resulting lack of crowd control, or the number of beneficiaries being routed to a single payout point in relation to the number of disbursement agents. Therefore, the cash disbursements process - as well as any other SOP element - has to be planned for and monitored carefully.

A template for [SOP implementation monitoring](#) is available.

2.3 Review and evaluation of the triggers

Monitoring and review of **SOP 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 SOP 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 SOP 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 SOP 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 SOP implementation monitoring (above) and the measurement of the beneficiary impact (next section below).

The measurement of FbF project **effectiveness and beneficiary impacts** is covered in the next section.

3. Evaluation of effectiveness and beneficiary impact

Given that the ultimate goal of a FbF project is to reduce the effects of climate-related disasters on vulnerable communities, their situation constitutes an important success measure - in terms of their experiences during the disaster and their physical and socio-economic well-being. Therefore, a community-level impact assessment determines whether FbF activities have made a difference in people's lives.

Suitable variables to measure effectiveness and impact could be:

- Direct health & well-being impacts
 - Mortality
 - Morbidity (disease, for example incidence of diarrhea)
 - Stress / anxiety
- Direct physical impacts
 - Personal assets (e.g. housing)
 - Productive assets (livestock, orchards, sheds, etc)
- Secondary impacts
 - Food / water supply
 - Labour constraints
 - Public infrastructure (roads, clinics, schools, etc)

With a view to conducting a cost benefit analysis ([CBA](#), see [section 5](#) below), the monetary dimension of these impact variables can be captured in the assessment, to the extent possible. For example, survey respondents can be asked for an estimate of the cost of repairing damages to their house, or health expenses in the aftermath of a disaster.

3.1 Minimum standards

The following minimum standards are recommended for all FbF projects to ensure impacts can be objectively assessed:

- 1) A theory of change is thoroughly developed at the beginning of the project (discussed in section 1 above) and key effectiveness and impact variables are identified in the TOC (for example: % reduction in the amount of cholera cases in the event of severe flooding).
- 2) A counterfactual (comparison) is established and used to assess project impact.
- 3) Representative population samples, randomized to the extent possible, are surveyed and constitute the data base to assess project impact.
- 4) Collect qualitative data from beneficiary focus groups and key informant interviews, to gain a deeper understanding of cause-and-effect relationships and to contextualize quantitative survey data.
- 5) A trained statistician guides to process of drawing samples, training enumerators, establishing quality assurance processes and supervising data collection field work, data analysis, calculation of error margins and confidence levels, and reporting of findings.
- 6) A facilitated process of critical reflection using the (preliminary) impact assessment results where we consider fully the attribution of impacts to our actions, the monetary value of the impacts, what we can learn for future years and other field sites etc.

Resources and time permitting, the following elements are ideally included in the FbF project MEAL setup:

- 7) An independent research institution or firm is hired to carry out the sample survey (not using Red Cross / Red Crescent volunteers as data collectors).
- 8) Self-reported data on physical damages to housing infrastructure and physical assets is triangulated by enumerator observation (e.g. following existing RCRC damage assessment protocols).
- 9) Preliminary survey results are presented back to beneficiaries and their feedback is collected and taken into account in the impact assessment.

3.2 Quantitative survey fundamentals: what, when, who

In the event of a disaster, and depending on the project goals as defined in the theory of change, the evaluation aims to answer questions such as: “Do people in FbF-assisted communities experience less adverse impacts on their lives, health or property than people who were not assisted through FbF?” Therefore, impacts will be measured on key indicators related to health, well-being, physical assets and productive capacity.

In line with the suggested minimum standards and to establish a counterfactual, data will be collected in FbF-assisted communities and “comparison communities” that were affected by the disaster but were not reached by FbF actions. Guidance is available on [how to select comparison areas](#).

The methodology proposed in the MEAL guide will need to be adapted to the respective country context, FbF actions and type of hazard.

What about a baseline survey?

FbF phase II projects are meant to be flexible to act wherever forecasts and vulnerability/exposure analyses show that impact is likely. This means that SOP actions can be triggered in any disaster-affected region and community, making it difficult to identify areas where baseline data can be collected. If baseline data were to be collected in areas A (FbF intervention) and B (comparison communities), and the disaster only affects areas C and D, the baseline data would not be usable. Therefore, unless disasters are likely to affect only geographically clearly and narrowly delimited areas, it is recommended that a two-stage survey design is used to make up for the lack of a baseline.

Historical data about previous disasters and their impacts can also be used, provided that they are comparable in scope, methodology, and sufficiently detailed.

When to conduct the surveys?

There should be two rounds of data collection: (1) Immediately after a disaster has occurred, i.e. between 2-4 weeks after impact, and (2) a medium-term follow-up, approx. 4-6 months after impact. The purpose of this timing is to be able to compare short-term and medium-term impacts in FbF-assisted vs. non-assisted communities.

The two-stage timing will also account for the fact that some positive effects of FbF actions may only be visible in the longer or shorter term, and some disaster impacts can only be fully assessed after more time has passed (for example, the amount of time that people were unable to work on their farms).

Who should collect the data?

It is suggested that external data collectors are used. This will allow Red Cross / Red Crescent volunteers to focus on disaster response and relief, and it strengthens the independence and impartiality of the assessment.

- To be able to deploy data collectors soon after a disaster has occurred, it is important to develop data collection tools and sampling procedures in advance, and to set up an agreement with a data collection or research organization already during the planning phase.
- The agreement or contract should specify that it will only be activated in the event of a disaster. University departments or consultancy companies may be suitable for this purpose.

3.3 Quantitative survey process

The following steps should be taken as soon as the Standard Operating Procedures (SOP) have been developed and FbF triggers and actions are clearly defined. The following steps are meant to provide guidance that should be tailored further to the country and hazard context and the resources available.

1. **Contracting:** Establish a contract/agreement with an external organization (university or research company) to provide data collection & analysis services. Sample Terms of Reference can be provided by the Climate Centre. The agreement should specify (to the extent possible; details of sampling procedures and questionnaires may have to be decided once a disaster has occurred):
 - when to activate;
 - outline the sampling frame and data collection field work requirements;
 - data analysis needs for each of the two data collection rounds;
 - synthesis of both rounds to analyse total impact, with quality assurance support from the Climate Centre.
2. **Sampling frame:** For each round of data collection (immediate post disaster and medium-term follow-up), at least 600 disaster-affected households should be interviewed: 300 households from FbF-assisted communities (= “intervention group”) and 300 households from communities that did not receive FbF assistance (= “comparison group”). Guidance on [how to select comparison communities](#) is included in the FbF Manual.
3. **Randomization:** The sample of households should be drawn using cluster random sampling. For example, the affected area assisted by FbF actions is divided into 100 clusters (could be communities or groups of communities). 20 clusters are randomly drawn, and from each selected cluster 15 households are randomly drawn to be interviewed. The same process is repeated for affected areas that were not assisted by FbF actions.
4. **Electronic data collection:** [Sample questionnaires](#) are included in the FbF Manual and more can be obtained from the Climate Centre for further customization; in case a [cost benefit analysis](#) will be conducted, the questionnaires should include questions on the monetary aspects of physical impacts and costs incurred as a result of the disaster (for example, lost assets, repairs of damaged housing, or health service expenses). Questionnaires should be set up on a free electronic data collection platform that can be run on tablets or smartphones (such as ODK or KoBoToolbox, see resource links below). This makes data collection and analysis faster, cheaper and easier.
5. **Analysis** of data should be done by the external contractor immediately after each data collection round to ensure organizational learning, with quality assurance support from the Climate Centre. A synthesis analysis of both data collection rounds should be done to compare effects in intervention and comparison communities over time.

3.4 Resources, how-to documents, and further reading

- **FbF Manual materials:** <http://fbf.drk.de/manual.html#c32>
 - Survey development good practices
http://fbf.drk.de/fileadmin/Content/Manual_FbF/07_Monitoring_Evaluation_Accountability_Learning/07_05_04_Best_practice_in_survey_development.pdf
 - Example surveys: Bangladesh, Peru, Uganda
http://fbf.drk.de/fileadmin/Content/Manual_FbF/07_Monitoring_Evaluation_Accountability_Learning/07_06_03_Example_Baseline_Survey.pdf
 - How to select comparison areas:
http://fbf.drk.de/fileadmin/Content/Manual_FbF/07_Monitoring_Evaluation_Accountability_Learning/07_06_05_How_to_select_comparison_areas.pdf
- **Sample size calculator:** <http://www.raosoft.com/samplesize.html>
- **Randomization of sample selection:**
 - Random number calculator: <https://www.randomizer.org/tutorial/>
 - Information on sample clustering:
<http://stattrek.com/survey-research/cluster-sampling.aspx?Tutorial=Stat>
- **Data collection - electronic platforms:**
 - Open Data Kit: <https://opendatakit.org/>
 - KoBo Toolbox: <http://www.kobotoolbox.org/>
 - Magpi: <http://home.magpi.com/>
- **Evaluation and survey guidance:**
 - ALNAP evaluation of humanitarian action guide: <http://www.alnap.org/resource/23592>
 - BetterEvaluation resource library: <http://www.betterevaluation.org/>

For further support or guidance please send us an email at MandE@climatecentre.org. We are happy to help.

4. Learning

Learning should be an ongoing process as project implementation progresses, and a priority for periodic moments of reflection where available data is reviewed and lessons learned are drawn.

4.1 Continuous learning

A 'learning' agenda item can be incorporated into bi-weekly or monthly team meetings, guided by the following questions:

- 1) Have we learned anything new (over the past week or month) that we didn't know before? Do we have information that leads us to question the assumptions made in the theory of change? These assumptions should be reviewed periodically to ensure the theory of change is realistic.
- 2) Has new evidence become available? Are we observing changes in the physical world? Are we observing changes in the behaviour of the beneficiaries group? How does this affect our FbF project, SOPs and triggers?
- 3) Are we doing anything differently and why have we changed in this way?

- 4) Have we encountered any challenges in implementing the FbF project; how have they manifested themselves? What has caused these challenges, and how have we or our partners experienced them?
- 5) What works well in project implementation, and what does not work well? Why? Can we try to do anything differently?

The answers to these questions can be recorded in a running “learning log” or in short, thematic issue notes that capture the main lessons. Independent of the format in which learnings are captured, they should be made available and easily accessible to all project team members and key partners.

4.2 Periodic moments of reflection and lessons learned workshops

Once SOPs have been triggered and quantitative surveys have been implemented and analysed, there are many opportunities to learn more about the adequacy of the FbF project design, including triggers and SOPs, and about its effectiveness and beneficiary impacts.

In addition to the continuous learning questions listed above, the following are useful guiding questions:

- 1) What are the key results we see in the available data (e.g. quantitative survey results)?
- 2) Are there any discrepancies to what we expected to see, or to observations we have made in the field? How do discrepancies manifest themselves? What causes these discrepancies?
- 3) Do analytical results confirm or question the assumptions made in the project theory of change?
- 4) What do the available data say about the effectiveness and impact of the FbF SOP activation?
- 5) Are there any changes we can make to the project design and the SOP that would increase effectiveness and desired impacts?
- 6) What can we do differently in our M&E processes to improve the quality and accuracy of the data we use?

These questions may best be answered by bringing all key stakeholders together in a one-day reflection meeting or as part of a comprehensive lessons learned workshop.

5. Cost benefit analysis

Cost-Benefit Analysis (CBA) is a tool to compare the benefits and costs of a project, program or action. It can be useful to determine the economic benefits obtained for each dollar invested. In the context of FbF, CBA helps us to consider what happens if a disaster occurs with vs. without FbF interventions in place. Depending on whether FbF actions were taken (the cost of action), we expect to see a different economic impact of the disaster (the benefit of having taken action, or the cost of inaction).

A CBA of FbF may be useful for different purposes:

- a) To compare the costs of acting early versus acting late (after the disaster has already happened)
- b) To show the effectiveness of the FbF action after the event happens
- c) To compare the costs/benefits of taking action in the event of a disaster vs. the cost of acting in vain to determine at what forecast probability we are willing to act
- d) To build evidence about the effectiveness of the Forecast-based Financing mechanism

When to conduct a CBA?

Different types of CBA can be conducted at any time, although it may be most useful as an advocacy tool. For example, a CBA may find that every dollar invested in FbF interventions would save 3 dollars in beneficiary losses. This is a powerful message to convince potential donors or to convince policy makers to integrate FbF into national EWEA frameworks.

5.1 How to conduct a CBA

This proposed step by step process is a general guide of possible ways of conducting a CBA. It is important to take into account that a CBA will be conducted in different ways according to the context and the expertise of the team.

1. **Understand the current situation of the target communities:** Context and background information such as type of hazard and disaster risks, scale of the disaster impact and kinds of actions that would make sense to implement. This can come from the detailed risk assessment or FbF feasibility study that is conducted in the initial setup phase of the project.
2. **Identification of costs and benefits:**
 - **Costs** are associated with the necessary investments to conduct the early actions or post-disaster interventions. They are usually under the management of the government/organization, but can be also endured by the community or other actors. Examples of relevant data to obtain include:
 - Evacuation transport costs
 - Emergency loans or cash transfers
 - Cost of purchasing of essential items, e.g. to fortify houses
 - Cost of health services
 - **Benefits** are considered mainly in terms of the prevention/reduction of economic losses (i.e. losses experienced by the community during past disasters such as loss of crops, infrastructures, lives) or the avoidance of otherwise necessary humanitarian assistance. Examples of data on (avoided) losses include:
 - Value of lost assets
 - Damage to houses or infrastructure
 - Assets sold or high-interest emergency loans taken
 - Disease burden / labour impacts (inability to work for a period of time)
3. **Develop scenarios:**
 - **Costs:** a comparison between the costs incurred to implement an action before an event vs. executing this same action after the disaster.
 - **Benefits:** identification of the potential losses for at-risk households under three different scenarios: (i) receiving the prevention/mitigation/preparedness (action) before the event, (ii) receiving relief after the disaster and (iii) no relief.
4. **Monetization of costs and benefits:** Two kinds of data can be used to assign monetary values to the costs and benefits: (a) Primary data collected directly from the population of study. This is ideal because it gives the most accurate reflection of the situation of the community of interest. Questions to collect data on costs and losses should be included in the quantitative survey that is part of the beneficiary impact assessment (see [section 3](#) above). (b) Secondary data can be used if no data from the communities of interest is available, for example from civil society organizations, local/national government, NGOs, UN agencies, private sector, research institutions, etc.
5. **Calculation of Benefit/Cost (B/C) ratio:** With all the information collected, it is possible to compute the B/C ratio of performing an action before an event. The benefits are computed as the

potential avoided losses between the scenarios: after vs. before [(ii)-(i)], or no relief vs. before [(iii)-(i)]. The costs will correspond to the scenario of implementing the action before an event.

6. **Sensitivity analysis:** The objective is to perturb assumptions and factors considered during data collection, moving them up and down by a certain percentage to see how these changes would affect the results (costs, benefits, B/C ratio). In particular, this analysis can help identify the most critical assumptions and a general range for the B/C ratio found in step 5.
7. **Applying the analysis:** After having quantified the B/C ratio and range, it is possible to make comparisons between different preparedness actions and understand which ones bring more benefits to the communities.

Note: Most of the costs and benefits can be quantitatively monetized, and the following steps focus on this type of information. However, there may also be other intangible costs and benefits that cannot be easily converted to money that need to be taken into account by FbF programs.

A more detailed explanation of the seven steps, including examples, can be found in the [FbF Manual](#).

5.2 Resources, how-to documents, and further reading

- **FbF Manual:** <http://fbf.drk.de/manual.html#c32>
 - Summary of process and methodology:
http://fbf.drk.de/fileadmin/Content/Manual_FbF/07_Monitoring_Evaluation_Accountability_Learning/07_03_CBA_MEAL.pdf
 - Overview presentation:
http://fbf.drk.de/fileadmin/Content/Manual_FbF/07_Monitoring_Evaluation_Accountability_Learning/07_01_CBA_for_FbF_Methodology.pdf
 - Bangladesh case study:
http://fbf.drk.de/fileadmin/Content/Manual_FbF/07_Monitoring_Evaluation_Accountability_Learning/07_02_CBA_Case_Study_Bangladesh_cash.pdf
- **Templates and guidance:**
 - Excel template for CBA:
<https://www.smartsheet.com/free-cost-benefit-analysis-templates>
 - Example for CBA calculation sheet:
<http://www.upenn.edu/computing/isc/pmap/Definition/Cost-benefit%20analyses%20spreadsheet.pdf>
- **Case studies:**
 - Detailed Oxfam example on using CBA for community based climate and disaster risk management:
<http://www.alnap.org/pool/files/rr-cost-benefit-analysis-tearfund-010313-en.pdf>
 - Mercy Corps CBA for community-based DRR in Nepal:
https://www.mercycorps.org/sites/default/files/mc-cba_report-final-2010-2.pdf

6. Accountability

Depending on the setup of the individual FbF project, there will be at least three main accountability relationships of the project and its partners: the relationship with and among the main FbF stakeholders (including the government), with beneficiaries, and with the funding agency.

The accountability relationship with and among the **main FbF stakeholders** is best served by creating a participatory project design from the outset, ensuring active engagement of all main actors and sharing relevant data and information proactively among the partners.

The ultimate purpose of an FbF project is to serve the beneficiaries. A meaningful accountability relationship with **beneficiaries** may be nurtured by (a) sharing data and information that is collected from and for the beneficiary population, for example key learnings from post-trigger impact surveys; and (b) creating a clearly articulated and readily available complaint mechanism so that beneficiaries can communicate project-related grievances to the implementers. Further guidance on how to set up a complaint mechanism is available upon request.

The accountability relationship with the **project donor(s)** follows the communication and reporting requirements as agreed between the donor(s) and the FbF implementers / partners.