



Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG



Daniel Geiger, Iris Seidemann, Lisa Harborth, Emmanuel Ntale, Alex Mugyisha

The Benefits of Acting Early in Disasters

Cost-Benefit Analysis on the
Effectiveness of Forecast-based-Finance
versus Emergency Response

November 2021

The Study

This cost-benefit analysis is part of the development and implementation of the forecast-based financing approach by the Ugandan Red Cross Society (URCS) and the International Federation of Red Cross and Red Crescent Societies (IFRC). It was conducted in a collaborative effort by the University of Hamburg (UHH), Germany, and the URCS.

Authors

Prof. Dr. Daniel Geiger (UHH)

Iris Seidemann (UHH)

Lisa Harborth (UHH)

Emmanuel Ntale (URCS)

Alex Mugyisha (URCS)

Funded by the project “Innovative Approaches to Response Preparedness Project (IARP)”, the Netherlands Red Cross (NLRC), the IKEA foundation, and research funds from the University of Hamburg (UHH)

This analysis presents the monetary and non-monetary implications of engaging in forecast-based financing, as well as principles and a roadmap for its implementation. The study was conducted in September 2021 in three districts in Uganda (i.e. Butaleja, Amuria, Obongi/Palorinya Refugee Settlement) and explored the implications of early actions on community, district (government), and humanitarian aid organizational level.

Contact and corresponding author

Prof. Dr. Daniel Geiger

University of Hamburg

Von-Melle-Park 9

20146 Hamburg, Germany

daniel.geiger@uni-hamburg.de

Introduction

“Anticipation instead of reaction: with Forecast-based Financing (FbF), the International Red Cross and Red Crescent Movement is reshaping the future of the humanitarian system.” (German Red Cross 2019: 1)

This study presents findings from a detailed cost-benefit analysis, comparing the effects of traditional emergency response (ER) with forecast-based financing (FbF) interventions. It identifies monetary and non-monetary costs and benefits of emergency response versus forecast-based financing actions. Moreover, the study develops key principles for a successful implementation of FbF, and presents a roadmap for putting FbF into practice. The study addresses key stakeholders in disaster management, i.e. NGOs, Government (national, district and community level), and disaster financing institutions. The empirical evidence comes from an extensive study of flood prone areas in Uganda that experienced first FbF interventions and have been subject to traditional emergency responses in the past.

Key Insights

- ▶ FbF **saves 64 % of total response costs.** Emergency response without FbF amounts to 1075,- CHF per household, emergency response preceded by FbF accounts for 385,- CHF per affected household.
- ▶ FbF **saves 100 % of costs for reconstructing houses after the second year** of investment in flood resistant housing.
- ▶ FbF **avoids a 30–40 % increase of market price of key commodities** (food, NFIs).
- ▶ FbF **empowers communities to become dignified autonomous actors** with capabilities to help themselves compared to non-autonomous actors that rely on external support alone.
- ▶ FbF **enables concerted collective action** and the protection of common goods in disasters compared to isolated individual actions that potentially harm the collective.
- ▶ FbF has the potential **to break the poverty spiral** in disaster prone areas and to lead to sustainable approaches.
- ▶ FbF addresses **refugee and host communities by initiating concerted, collective preparedness and response actions** that contribute towards community co-habitation.
- ▶ FbF allows for an **orchestrated, multi-sectoral approach** compared to duplication of efforts and frequent gaps.
- ▶ FbF significantly **closes the temporal gap between disaster and start of emergency response.**

FbF as an Innovative Approach to Response Preparedness

FbF presents an innovative approach to humanitarian aid which challenges traditional disaster response mechanisms. Instead of waiting for a disaster to strike to then provide aid that mitigates human suffering, FbF builds on a system of early warning triggering early action. In doing so, it combats many challenges of traditional approaches to humanitarian aid, such as the lack of planning and financing for early action, and the related inability to mitigate the impact of disasters (Rüth et al. 2017). FbF builds on the idea that many extreme events such as floods and droughts are predictable by reliable weather forecasting, and thus early preparedness actions allow to reduce or sometimes even avoid their impacts. FbF hence aims at acting during the gap between knowing that a disaster will occur and the time it actually happens. By establishing specific triggers to predict disasters, it allows organizations to engage in preparedness measures and other forms of early action (Hagen et al. 2020).

As an innovative approach to response preparedness, FbF consists of three key components: a trigger, a selected set of early actions, and a financing mechanism (forecast-based action). Jointly, these three components form the early action protocol (EAP) which is the foundation for implementing measures that follow the FbF approach.

Objectives of the Study

Given that FbF is a relatively new approach in humanitarian aid, there is lacking empirical evidence on the costs and benefits of such an approach compared to traditional disaster response. The primary aim of this study is to evaluate and compare the costs and benefits of FbF with emergency response. Stakeholders engaged in disaster response are in critical need for reliable empirical data to justify investments in preparedness and to drive a change in the logic of disaster response (Civil Society Budget Advocacy Group 2018). Specifically, the study has the following key objectives:

Determine cost-benefit of FbF vs. ER

The aim of the study is to assess, if and how early actions implemented through FbF are beneficial compared to traditional emergency response.

Monetary- and non-monetary implications of FbF vs. ER

The study analyzes monetary- and non-monetary implications of FbF versus emergency response efforts. It acknowledges that monetary cost-benefit ratios are important to justify investments and convince donors, however, for the affected communities and beneficiaries, particularly the non-monetary effects are key factors that influence livelihood and well-being.

Implications on psychological well-being of FbF vs. ER

The study targets at highlighting the specific implications of FbF versus emergency response on the psychological well-being and identity of communities on different dimension: livelihood, security and living conditions.

Institutional implications of FbF vs. ER

The study explores the institutional implications of FbF versus emergency response. It sets out to understand what operational capabilities are necessary for the involved partners compared to the existing emergency response capabilities. The study aims to better understand how FbF contributes to delivering sustainable response strategies on an institutional level.

Method of the Study

URCS was one of the first National Societies to adopt the FbF approach and to develop an early action protocol (Jjemba et al. 2018). The first pilot was implemented in 2014 in Teso sub-region, and the scale up started in 2018. The project is part of the Innovative Approaches to Response Preparedness Project (IARP), supported by the Netherlands Red Cross (NLRC) and funded by the IKEA foundation.

Given the objectives of the study, it follows a mixed-method approach building on historical data from previous disasters and extensive qualitative data collection in disaster prone areas (Creswell/Clark

2017). This approach allowed us to collect data from different stakeholders affected by disasters and to collect both quantitative and qualitative data, resulting in more comprehensive and robust insights.

Floods as Focus

The study uses the case of floods in Uganda as the exemplary focus. Floods are the most severe and frequent hazards in many disaster-affected countries. In Uganda floods represented 27 % of all recorded disasters between 2000-2020. Moreover, floods have the most severe magnitude of all disasters, being responsible for the destruction of 62 % of all houses and directly affecting 59 % of people who experienced hazards (UNDDR 2021).

Selection of Areas with High Exposure and Vulnerability

We focus on areas in Uganda that have a high exposure and vulnerability to floods, and which at the same time already experienced FbF interventions in the past. Following this sampling strategy, we focused on two districts: Butaleja (Himutu and Mazimasa sub-counties) and Amuria (Kapelebyong sub-county). Furthermore, to gain specific insights on the effects of FbF in a refugee context, we sampled Obongi district which hosts the Palorinya refugee settlement.

Data Collection

The study predominantly builds on two data sources: the historical accounts of previous flood-related emergency response efforts in the above-mentioned areas and data collected from extensive semi-structured interviews with stakeholders and community members in all of the three districts. Interviews were

conducted with key informants from the different levels of government (VHT, LC1, LC5, CAO), volunteers and branch managers of URCS operating in the affected areas, and members of the disaster affected communities (individuals, focus-groups, CBDRR groups). Table 1 provides an overview of the collected data.

		Interviews	Focus groups	# of focus groups	# of participants
Butaleja		28		11	78
participants	district government	7	female	5	41
	LC1	7	male	5	37
	VHT	5			
	NGOs (incl. URCS)	9			
Amuria		12		13	119
participants	district government	5	female	5	44
	VHT	3	male	5	20
	NGOs (incl. URCS)	4	mixed	5	55
Palorinya		13		12	100
participants	district government	4	female	4	31
	NGOs (incl. URCS)	9	male	4	5
			mixed	7	64
TOTAL		53		36	297
Duration	total (in minutes)	2345	2385		

Table 1: Overview over data collection

Cost-Benefit Analysis of FbF

The cost-benefit analysis presents both monetary and non-monetary implications of implementing the FbF approach versus only taking emergency response actions. The analysis builds on the assumption that despite the investment in FbF, a certain amount of emergency response costs will always be necessary since disasters such as floods may be mitigated but cannot be prevented entirely.

Monetary Implications

FbF reduces response costs by 64 %.

Taking actions early and prepare for disasters in advance significantly reduces the response costs in case a disaster strikes. As our analysis shows response costs without FbF amount to 1075,- CHF per affected household. In contrast, required disaster response after FbF activities have been implemented only accounts for 314,- CHF, since houses can be

saved from destruction and communities are less dependent on help from outside (i.e. food assistance). FbF costs 70,- CHF per household, particularly in the sectors of shelter (securing houses and building drainages), and WASH (provisioning of

aqua tabs, jerry cans), including cash transfer. Total response costs per household are therefore: 385,- CHF for emergency response including FbF activities compared to 1075,- CHF for emergency response only.

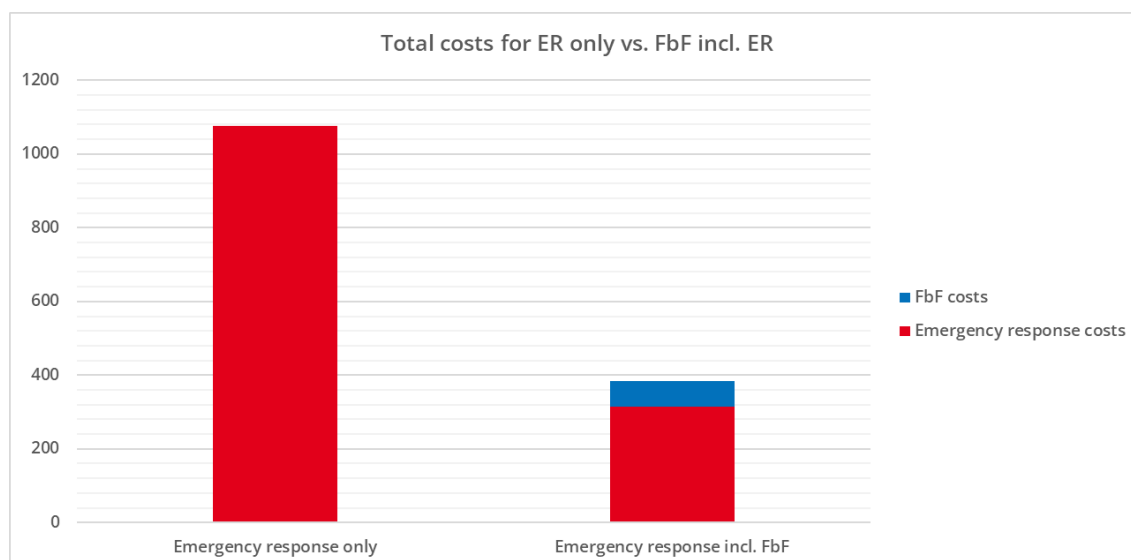


Figure 1: Total costs of ER vs. FbF per HH (in CHF)

Assumptions:

- ▶ All costs (in CHF) refer to costs per household (HH); 1 HH consists of 5 members.
- ▶ The CBA focusses on the household perspective (beneficiary reference for URCS). Costs referring to infrastructure (e.g., roads, schools, boreholes, health infrastructure, etc.) are not included since they go beyond the manageable scope of preparedness.

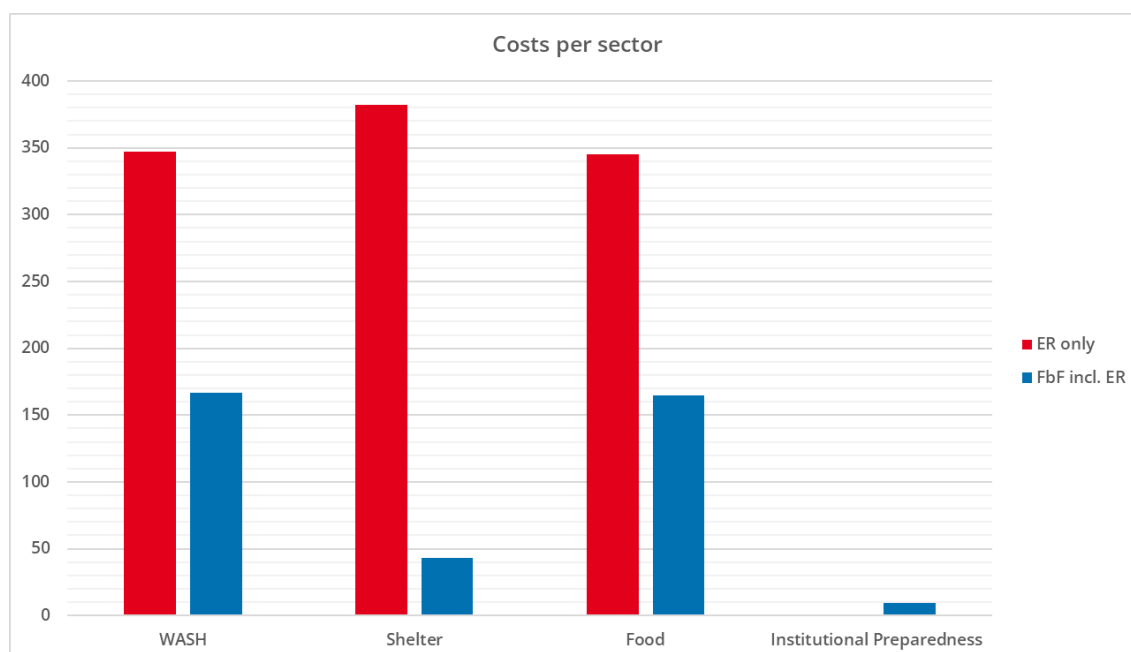


Figure 2: Costs of ER vs. FbF per sector per HH (in CHF)

FbF saves more than 60 % of costs of food assistance

A key impact of floods is the widespread destruction of gardens and crops which significantly threatens food security of affected communities. Investing in FbF significantly decreases the demand for food assistance and prevents price increases on local markets.

- ▶ Early harvesting of gardens and fields before the onset of the flood allows to save 66 % of gardens and crops. This allows communities to save large quantities of the harvest, and thus decreases food demand and ensures supply on local markets.
- ▶ Saving crops reduces the need for food assistance by 33 %. Food assistance is only required for one month (90,- CHF per HH), compared to 270,- CHF for three months in case of emergency response.

FbF reduces food price by 30-40 % and reduces market price volatility

Frequently, food assistance provided by NGOs and Government only arrives months after the flood, and hence coincides with the next harvesting period of local farmers.

- ▶ Free distribution of food as part of emergency response operations 2-3 months after floods increases supply and decreases market demand leading to a drop of local market prices of 30-40 %. Price drops negatively affect the income of local communities and present an unintended consequence of delayed emergency response.
- ▶ Pre-stocking and providing food assistance before the flood allows for buying at normal market prices which are 30-40 % lower than market prices after the flood.

After floods, food prices on local markets increase significantly. Table 2 provides sample prices of relevant food items before and after a flood.

- ▶ Due to the destruction of gardens and stocks, people lose the ability to be self-sufficient and need to buy food from markets which fuels the demand. The flooding of fields as well as difficulties with transport and infrastructure decrease food supply on local markets which leads to shortages and further price increases right after floods.

Sample Prices Food items (UGX)

Item	Quantity	Price before flood	Price after flood	Price increase (%)
Rice	Kg	2300	3000	+ 30.4 %
Sugar	Kg	3500	4500	+ 28.6 %
Beans	Kg	2000	3000	+ 50.0 %
Salt	Kg	1000	1200	+ 20.0 %
Posho	Kg	1500	2500	+ 66.7 %

Based on URCS: Rapid assessment for market report for Butaleja and Mbale Districts, 2019

Ø + 39,1 %

Table 2: Sample prices food items (in UGX)

FbF investment in flood resistant houses saves 100 % of costs after 2 years

The destruction of semi-permanent houses poses a key threat to affected communities. Floods destroy 5-10 % of semi-permanent houses in flood prone areas, thus causing the need for temporary shelter which severely affects living conditions. FbF measures have the potential to significantly reduce the destruction of houses so that investments in flood resistant houses is paid off after 2 years.

- ▶ (Re-)building houses is only possible during dry season which delays the reconstruction, resulting in high shelter costs.
- ▶ The destruction of household utensils such as mattresses and kitchenware creates needs for household kits and NFIs.
- ▶ The destruction and soaking of houses offer nurturing grounds for mosquitos in wet buildings, increasing communities' vulnerability to (water-borne) diseases (e.g. malaria, cholera).

A flood resistant house that sustains prolonged periods of flooding (see picture 1) avoids the costs for temporary shelter, protects household utensils from destruction, and prevents the outbreak of diseases.

- ▶ Costs for constructing flood resistant houses are 30 % more expensive compared to a standard, semi-permanent house. In flood prone areas, houses typically get destroyed once a year and need to be rebuild. Prices for building material also increase by 30 % after floods.

- ▶ Investment in flood resistant houses as part of FbF is amortized after only 2 years.
- ▶ Water resistant houses avoid prolonged periods of insufficient housing, protect household items from destruction, and mitigate the effects of water-borne diseases.

FbF reduces the price of NFIs by 30-50 % and allows for local procurement of good quality goods

Due to high demand and increased transportation costs, NFIs and building materials are subject to severe price increases and suffer from bad quality if procured after floods.

- ▶ High urgency and high demand increase costs of NFIs between 30-50 %.
- ▶ High demand encourages procurement and circulation of fake products and products of poor quality.
- ▶ NFIs are often no longer sourced from local markets but need to be shipped in from overseas. High urgency in emergency response leaves little options for procurement.
- ▶ International procurement increases the logistic costs by 20 %.

FbF reduces the need for the provision of NFIs and prevents price increases.

- ▶ FbF builds on pre-positioning, thus preventing price increases that stem from supply shortages and costly transportation. NFIs can be procured at normal market price and by competitive bidding which reduces costs by 30-40 %.



Picture 1: Flood resistant houses in Amuria

- ▶ The risk of poor quality or fake products is reduced to a minimum. FbF allows to invest in sustainable procurement partners and long-living products.

FbF reduces the destruction of crops and saves 39 % compared to seed voucher assistance after floods

Floods destroy up to 100 % of crops, and hence threaten the livelihood of affected communities. As part of emergency response, communities are given seed vouchers to enable a re-establishment of plantations. FbF provides communities with tools to build embankments and drainages to protect crops. Investing in tools for preparedness activities saves 39 % compared to seed voucher assistance.

- ▶ Seed vouchers are needed to start re-planting again.

FbF includes the building of embankments and drainages to protect crops.

- ▶ Investing in the provision of tools such as shovels, wheelbarrows, and sandbags for building embankments and drainages

plus additional seed voucher assistance of 30 % of the original costs saves 39 % compared to the provisioning of seed vouchers after floods.

FbF reduces the impact of floods on livestock by 75 %

Floods typically cause the loss of one third of livestock which has severe implications for the livelihood of communities. Livestock presents an important source of income and is an integral part of household consumption.

Taking FbF activities allows to safeguard livestock by moving cattle to high-lands, and hence secures community's livelihood.

- ▶ Gathering livestock increases the risk of diseases, such as foot-and-mouth disease and requires the protection of animals before floods. Costs for animal protection (e.g. vaccination, rehabilitation of paddocks, fodder preparation, deworming) make up 8 % of animal cost.
- ▶ Investing in animal protection allows to ensure the health of 100 % of the cattle,

and therefore saves 75 % of the emergency response costs.

gency response in the key areas of food, housing, NFIs, livelihood, and livestock.

Figure 3 summarizes the monetary benefits of FbF activities compared to emer-

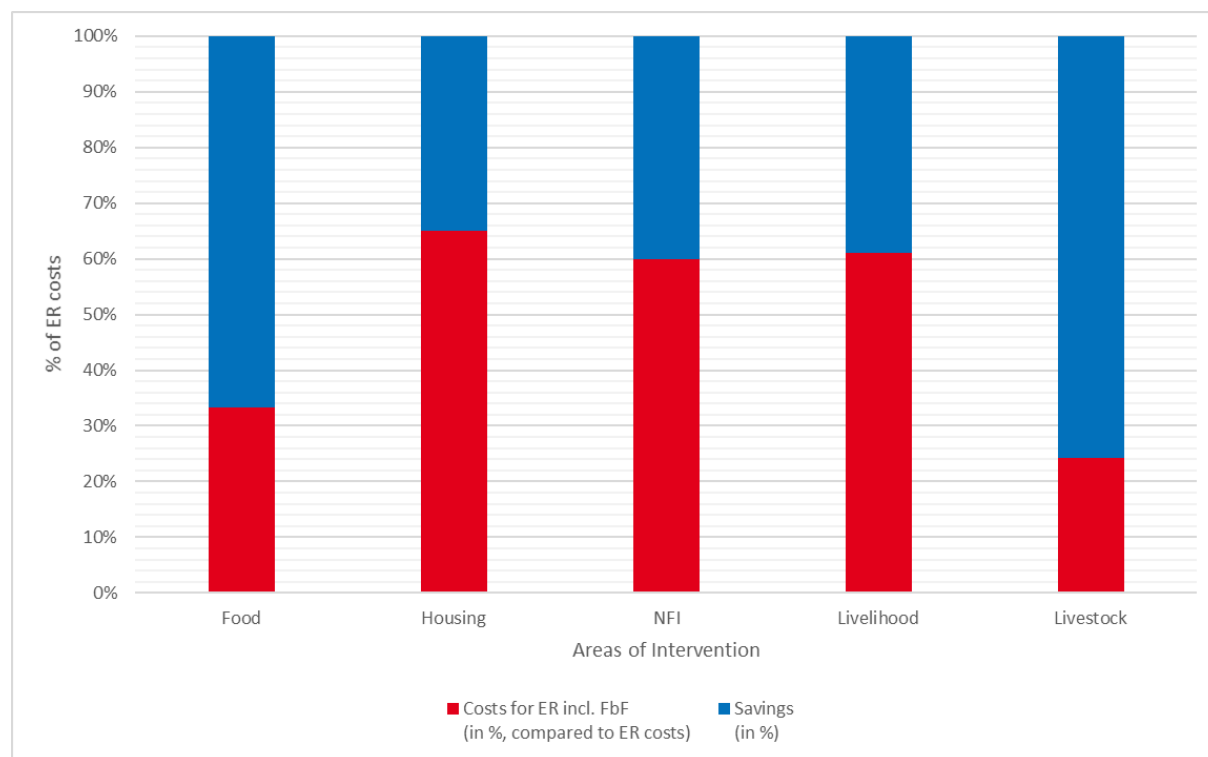


Figure 3: Monetary benefits of FbF compared to ER (in %)

Non-Monetary Cost-Benefits

Whilst our study points to significant monetary benefits of FbF compared to emergency response, it also reveals substantial non-monetary benefits of FbF. Here we cluster aspects that are difficult to monetarize, but which are nonetheless of major importance and potentially even outweigh the monetary aspects. In comparing the non-monetary costs and benefits of FbF versus emergency response, we differentiate between benefits on a community level and benefits for institutional stakeholders operating in disaster response.

Cost-Benefits for Disaster-affected Communities

FbF turns communities into autonomous actors

In emergency response, communities are oftentimes not able to help themselves. They are often left with lacking coping capabilities, strategies and tools, and hence rely to 100 % on external support.

Within the FbF approach, communities are empowered to be autonomous actors.

- FbF enables communities to, at least partially, help themselves.

- ▶ FbF provides communities with an opportunity to choose on early actions.
- ▶ FbF makes critical resources available before the incidents which enables communities to secure houses, crops, and live-stock.
- ▶ FbF provides communities with the capability to assess impacts of disasters without external support which allows for faster and more efficient response.

FbF supports the development of sustainable coping capabilities

Emergency response leaves beneficiaries few other options than to wait for external help which depreciates their capabilities to support themselves. Continuous deprivation of capabilities and knowledge how to support themselves leads to a lack of self-efficacy and acquired helplessness of communities. This results in feeling a lack of responsibility to act autonomously (“we cannot do anything”) and fatalistic behavior.

FbF nurtures the development of sustainable coping capabilities.

- ▶ FbF fosters the generation of knowledge and capabilities to help themselves continuously over time.
- ▶ FbF fosters the feeling of self-efficacy and self-awareness in disasters.
- ▶ FbF creates a feeling of responsibility and ownership for own and collective goods.

FbF supports orchestrated collective action

Emergency response most often leads to unplanned, fragmented, individual response efforts. Because of limited resources, individual actors only have limited capacity for impactful responses. A lack of orchestration results in unintended consequences for the community at large (e.g. drainages for own house threaten flooding of neighbor), and collective common goods like bridges, bore-holes or schools cannot be saved by individual responses alone.

FbF triggers a more orchestrated, collective response.

- ▶ FbF encourages sharing and pooling of resources on community level which enables the mobilization of impactful resources (manpower and tools).
- ▶ FbF triggers the orchestration of collective action which allows for protecting individual and collective property (drainages built to secure all houses).
- ▶ FbF releases sufficient collective capabilities and resources that are needed to secure, protect, and re-build common goods (bridges, churches, schools).

FbF supports the development of healthy communities

Emergency response that exposes communities to continuously reoccurring floods in which they cannot help themselves renders them vulnerable over time and leads to significant socio-psychological disintegration. Increasing divorce

rates due to floods lead to instable families. Gender-based violence increases due to stress caused by impoverished living conditions after floods, a lack of privacy, and safe-spaces. Prolonged periods of school closure due to inaccessibility of schools leads to early pregnancies, mal-education, and a lacking perspective for the youth.

FbF breaks this cycle by increasing the self-supporting potential of communities.

- ▶ FbF mitigates the effects of floods, thereby increases community well-being, leading to more stable families (e.g. reduction of divorce rates, early pregnancies).
- ▶ FbF increases the capabilities of communities to support vulnerable members themselves without external support.

FbF supports the development of resilient communities

Short-termism of the response logic leads to diminishing self-helping capabilities, and dependency on donations, causing a poverty spiral. Communities that are continuously affected by disasters develop a “hand-to-mouth” existence and mindset. The response logic of disasters creates urgencies that leave little scope for evaluating alternative causes of action. Actions taken are often “without alternatives”.

FbF has the potential to break this poverty spiral by fostering a more long-term mindset of prevention and taking own initiative.

- ▶ FbF encourages communities to take a more long-term perspective of prevention and may lead to a mindset shift.
- ▶ FbF triggers communities to think in anticipation and learn from past experiences (forward looking mindset).
- ▶ FbF provides opportunities to choose from and to evaluate alternatives since there is still time for alternative courses of action.

FbF supports individuals to be more resilient

Emergency response typically leaves individuals abandoned for prolonged periods of time until the response operation starts which leads to sustained psychological suffering. People lose their dignity because they experience themselves as mere recipients of external support.

FbF strengthens the self-helping capability of individuals and hence trains them to become more resilient over time.

- ▶ FbF strengthens the self-efficacy of affected individuals, thereby preserving the dignity due to the ability to cope oneself.
- ▶ FbF provides the ability to protect oneself and one’s family which increases the feeling of empowerment.



Picture 2: Crops affected by pests in Palorinya

Cost-Benefits for Institutional Actors in Disaster Response

There are not only benefits for communities but, as our data shows, FbF has also significant benefits for institutional actors in disaster response.

FbF reduces the temporal gap between incident and response, and enables timely response efforts

Response logics inevitably lead to a temporal gap between the incident and the response which arrives at a later point in time. This gap leaves beneficiaries unsupported for extended periods of time and the urgency of responses fosters standardized, non-targeted approaches. Standardized approaches often follow past requirements and not actual needs.

FbF has the potential to significantly close this temporal gap and allow for more targeted response efforts.

- ▶ Acting early before an incident avoids preparation time. The chaos phase in first response phase is avoided and assessments are timely.
- ▶ FbF minimizes the temporal gap between incident and response.
- ▶ FbF enables a more tailored approach since more lead time allows for more careful assessment of needs.
- ▶ FbF allows for more targeted response which saves resources since standardized approaches always include non-useable items.

FbF avoids the creation of new gaps and leads to a sustainable response capacity

Acting only after a disaster has taken place risks of creating new gaps during disaster response. Staff that is needed for support might need to be trained first. Response and capacity building needs often overlaps and staff is absent whilst the “house is on fire”.

FbF allows for building up sustainable response capabilities that improve over time.

- ▶ FbF ensures that capability building takes place in advance. Resources are available for response.
- ▶ FbF creates time for lessons-learned and post-mission evaluation.
- ▶ FbF creates sustainable body of knowledge and capabilities with response staff.

FbF avoids unclear roles and responsibilities amongst institutional actors and establishes an orchestrated multi-sectoral approach

The urgency of emergency response efforts leave little time for diverse actors to coordinate their efforts and follow a joint approach. Non-concerted action of multiple stakeholders in disaster response leads to the duplication of efforts: each agency goes through similar stages of assessment, report writing, and request for funding. This is a resource and time-consuming process and may lead to inflated budgets on the one hand or unmet gaps

or non-efficient use of critical resources on the other hand.

FbF allows for establishing an orchestrated, multi-sectoral approach in emergency response.

- ▶ FbF facilitates a joint assessment and co-ordination of relief efforts to avoid duplication of efforts as well as gaps in the response.
- ▶ FbF leaves sufficient time to identify critical resources and capabilities in advance. This enables the sharing of critical resources in response.
- ▶ FbF leaves scope for burden sharing of involved agencies and a shared identification of gaps prior to incident.
- ▶ FbF allows for a consolidated communication towards beneficiaries in advance: Who does what? This creates accountability and trust between agencies and beneficiaries.

FbF addresses power imbalance and allows establishing shared rules of engagement

The emergency response logic creates significant power imbalances between involved agencies. Those with biggest budgets dictate conditions and governments lack the power to refuse powerful agencies although their capability might not be necessary.

FbF fosters the establishment of shared rules of engagement prior to disasters.

- ▶ FbF enables better preparation and the formulation of shared criteria of engagement by government (the power to say no).
- ▶ FbF avoids that most potent donors are in the spotlight whilst government is seen as helpless; government can create and enforce rules of engagement and coordinate efforts.
- ▶ FbF opens multiple options for response: It leaves time for active decision-making and institutional actors are hence not running behind urgencies or are being dictated by big budgets.

FbF breaks the paradox of budgeting for the non-existent

The budgeting logic for disaster relief funding follows a response logic. Funds are only available after the disaster has occurred. Preparedness is hence difficult to finance, since nothing has happened yet. Only destroyed livelihood and infrastructure have priority which leads to unfavorable cost-benefit ratios: Costs for reconstruction are significantly higher compared to costs for protection (see above).

The FbF approach encourages to think in long-term cost-benefit relations and instigates longer-term investments.

- ▶ FbF encourages thinking in cost-benefit relations.
- ▶ FbF logic enables sustainable, long-term, investment in flood resistant infrastructure which saves money long-term.
- ▶ FbF triggers system change: other partners are encouraged to switch financing

and budgeting logic as well. This legitimizes contingency plans to be part of annual budgets.

Principles: FbF is More than F

To implement forecast-based financing successfully, it requires more than just forecasting disasters and financial support. The effective and sustainable implementation of FbF needs to follow five principles:

1. Mindset change: from response to preparedness

Forecast-based financing requires a substantial mindset change by the affected communities and the institutions involved in the early action protocol. Switching from response to preparedness is not only a question of the measures implemented, but it requires a change in mindsets.

- ▶ On a *community level* this includes creating awareness and empowering self-efficacy of communities. Without a preparedness mindset in the communities, FbF measures will remain short-term. Communities need to learn that investment in preparedness is necessary and pays-off.
- ▶ On an *institutional level* this requires understanding preparedness costs as an investment, not just as expenses. Over the long term, FbF is more cost effective than solely emergency response.

2. System change: from vicious to virtuous circles

Forecast-based financing cuts through the poverty spiral and the path-dependence of non-autonomous action: from beneficiaries to empowered, self-effacing actors. Taking a long-term perspective is more than cost effectiveness – it creates long-lasting self-sustainability.

- ▶ A *response logic* tends to create path-dependency and non-autonomous action, and thus triggers a vicious circle of learned helplessness.
- ▶ In contrast, FbF changes the self-reinforcing feedback loops, and thus initiates a virtuous circle: Empowered actors become more self-efficient over time and learn how to help themselves.

3. Resilience backbone: from short-term interventions to a sustainable approach

Forecast-based financing is more than early action. It requires the establishment and implementation of long-term interventions on community and institutional level (e.g. through bylaws, saving schemes, reforestation, and sustainable housing structures) to ensure a sustainable intervention.

4. Holistic and multi-sectoral approach: from isolated interventions to orchestrated multi-stakeholder initiatives

Forecast-based financing builds on shared and distributed responsibilities among stakeholders. This collaboration

allows to avoid the duplication of efforts and to create synergies to be more cost effective. Gaps and synergies can be identified jointly to ensure a capability specific deployment of resources and expertise.

5. Gender-sensitive approach: from extreme vulnerability to protection

Forecast-based financing allows for the early identification of specific vulnerabilities (e.g. pregnancies and timely response).

- ▶ Women typically have specific roles and responsibilities in disaster preparedness which requires tailored support.
- ▶ The protection from gender-based violence is an integral part of preparedness

Roadmap for Implementation

Implementing FbF requires an agenda for change on manifold levels. Our study identifies three pillars which are important for the successful implementation of FbF: information/knowledge, finance, and governance. These pillars address all involved stakeholders, from community to government and NGO level. FbF after all requires an orchestrated multi-stakeholder approach to become a sustainable strategy.

Information and Knowledge

Our study shows that the lack of information and knowledge represents one of

the biggest challenge in the implementation of FbF. An effective implementation of FbF needs to address:

Web-based information platform on disaster anticipation, mapping, and assessment

A web-based information platform is needed to accumulate all relevant information for the anticipation, the mapping, and the assessment of disasters. This information platform should be available to all relevant stakeholders and actors (i.e. government and humanitarian aid organizations). Information available should include:

- Early warning indicators;
- Population mapping of affected districts;
- Mapping of critical infrastructure (e.g. boreholes, roads, bridges, health centers);
- Save spaces (e.g. high lands, permanent houses);
- Spaces for relocation of communities;
- Resources available for preparedness (e.g. warehouses and stocking, logistics for distribution);
- Areas affected by outbreaks of diseases.

Knowledge sharing of best practices

Sharing best practices among key stakeholders to ensure a sustainable implementation and endurance of early actions. This is fostered through:

- ▶ Creating *cross-village communities of practices* to share knowledge and experience for disaster prevention by the communities themselves.
- ▶ Establishing *trans-district expert hubs* to share technical expertise across disaster affected districts to fertilize best-practice.
- ▶ Implementing *multi-stakeholder information networks* to share knowledge on how to prepare for, assess, and respond to disasters on an institutional level.
- ▶ Sharing of *gender-specific vulnerabilities* and best practices of how to prepare and respond (e.g. the use of mama kits, hygiene pads).

Invest in building a collective body of knowledge in communities on disaster preparedness

Investing in community-based knowledge of disaster preparedness allows for an autonomous and effective implementation of early actions by the communities themselves. This collective body of knowledge should be prepared through:

- ▶ Empowering of community-based disaster risk reduction groups.
- ▶ Continuous development and entrenchment of narrative knowledge on disaster preparedness.

- ▶ Initiating mindset change in communities towards autonomy and self-efficacy through community engagements.

Ensure tailored messaging for communities

Tailoring messages for disaster affected communities ensures that the relevant information is included and that the messages are well received. This is achieved through:

- ▶ Using the local language of the respective village.
- ▶ Using communication channels available to most of the community members (e.g. megaphones).
- ▶ Including target-group specific messages (e.g. gender-specific needs).

Finance and Budgeting

Financial structures play a central role in disaster preparedness and response. However, to ensure effective early action and the implementation of sustainable preparedness measures, the financial logic of the different stakeholders needs to be revised.

Revise the budgeting logic of institutions: from a response logic to an insurance logic

Implementing and securing budgets for early action are a cost-saving investment, even if disasters do not occur. Instead of thinking in opportunity costs, budgeting for FbF should be seen as an investment in the sustainable development of communities. Instead of following a response

logic, budgeting should switch to an insurance logic:

- ▶ FbF requires budgeting for the non-existent: The current logic requires plans and anticipation of incidents, in contrast, following a forecast-based financing logic allows saving for the unknown.
- ▶ FbF requires to move from zero-based budgeting to forecast-based budgeting: Money not spent within a specific timeframe is an investment in the future, not a loss.
- ▶ FbF requires moving from project-based budgeting to insurance-based budgeting: Project logic encourages short-termism, budgets are only available after disasters which avoids budgeting for long-term capabilities. An insurance logic allows saving today for incidents in the future and provides a long-term perspective.

Implementation and revisioning of community saving schemes

Community saving schemes are a reliable mechanism to ensure the financial independence of the communities. They are a good instrument for the distribution of cash to foster autonomous early action by the community members:

- ▶ Invest in *saving schemes for the entire community*. Our study shows that individual cash transfer leads to frequent distress in the communities (e.g. perceived inequalities, misuse, misapprehension of vulnerabilities, exploitation of gender-based weaknesses).

- ▶ Community based saving schemes need to encourage *investment in common goods* (e.g. construction of embankments and drainages) and *individual borrowing for preparedness* (e.g. construction of flood resistant houses).
- ▶ Design saving schemes to ensure disaster preparedness goals:
 - interest free borrowing for preparedness;
 - extended repayment periods for disaster;
 - investments in common goods enabled through saving scheme rules;
 - establish insurance funds for disasters.

Incentivize gender-specific savings schemes

Gender specific vulnerabilities can be better addressed through gender-specific saving schemes. Women share the main responsibility and burden of disaster preparedness and response, and thus should be incentivized to save for the preparedness of these vulnerabilities.

Governance Structure

As a multi-stakeholder approach, FbF fundamentally builds on efficient governance of disaster preparedness and response. Only by the close collaboration and cooperation of all actors involved, a successful implementation of the approach can be ensured.

Establishing, empowering, and staffing of disaster risk reduction committees

Disaster risk reduction committees on all level (i.e. communities, sub-county, district, and national) enable effective disaster preparedness and response, and thus also the successful implementation of the early action protocol. As these committees play an essential role in initiating early action, following is key:

- ▶ *Established*: Committees to convene upon triggered early warning signal with the highest priority (e.g. no overlapping/conflicting appointments).
- ▶ *Staffed*: Committees staffed based on sector-specific expertise (i.e. government, humanitarian aid organizations), cross sectoral representation (i.e. community, government, humanitarian aid organization), and gender equality.
- ▶ Committees need to be entitled to make critical decisions once the early warning signal has been triggered:
 - Jointly assessing the affected communities before and after the disaster to determine early actions and necessary response (see also Geiger et al. 2020).
 - Pooling and sharing of critical resources, assignment of roles and responsibilities; identification of gaps in early action and response.
 - Identification of gender-specific vulnerabilities and early actions (e.g. number of pregnancies) in case of a trigger.

- Committees have budget to conduct critical activities (e.g. for assessments, early actions, IT infrastructure, and overhead costs).
- Committees develop recommendations for the verification, evaluation, and transmission of early warning signals in the communities.

Community laws for preparedness

Community laws are a simple instrument to ensure the compliance of the communities with preparedness measures that build the foundation for early action. They should foster autonomy and self-efficacy of communities to ensure the successful implementation of the early action protocol.

Community laws thus should:

- ▶ include preparedness measures (e.g. construction of flood resistant houses, regulation of tree planting and cutting, protection of river embankments, hygiene protocols);
- ▶ foster implementation of gender-specific preparedness and protection measures;
- ▶ be approved and validated by the government (i.e. district);
- ▶ be monitored and evaluated by the communities to ensure compliance and the continuous revision and update of the laws.



Picture 3: Village in the flood prone Butaleja district

References

- Civil Society Budget Advocacy Group (2018). Financing Mechanisms for Disaster Preparedness, Mitigation and Prevention in Uganda. <https://www.csbag.org/download/financing-mechanisms-for-disaster-preparedness-mitigation-and-prevention-in-uganda/> [accessed 27.10.2021].
- Creswell, J.W., & Clark, V.L.P. (2017). Designing and conducting mixed methods research. Thousand Oaks: Sage publications.
- Geiger, D., Harborth, L., & Mugyisha, A. (2020). Managing enduring public health emergencies such as COVID-19: lessons from Uganda Red Cross Society's Ebola virus disease response operation. *BMJ Leader* 4:113-116. doi [10.1136/leader-2020-000243](https://doi.org/10.1136/leader-2020-000243)
- German Red Cross (2019). Forecast-based Financing. A new era for the humanitarian system. <https://www.forecast-based-financing.org/library/> [accessed 25.10.2021].
- Hagen, J.S., Cutler, A., Trambauer, P., Weerts, A., Suarez, P., & Solomatine, D. (2020). Development and evaluation of flood forecasting models for forecast-based financing using a novel model suitability matrix. *Progress in Disaster Science* 6: 1-16. doi.org/10.1016/j.pdisas.2020.100076
- Jjemba, E.W., Mwebaze, B.K., Arrighi, J., de Perez, E.C., & Bailey, M. (2018). Forecast-based financing and climate change adaptation: Uganda makes history using science to prepare for floods. *Resilience*: 237-242. doi.org/10.1016/B978-0-12-811891-7.00019-0
- Rüth, A., Fontaine, L., de Perez, E.C., Kampfer, K., Wyjad, K., Destrooper, M., Amuron, I., Chooularton, R., Bürer, M., & Miller, R. (2017). 'Forecast-based Financing, Early Warning, and Early Action: A Cutting-Edge Strategy for the International Humanitarian Community'. In: *The Routledge Companion To Media and Humanitarian Action*. Routledge: 135-149.
- UNDDR (2021). DesInventar Sendai. Multi-hazard country profile Uganda. www.desinventar.net/DesInventar/profiletab.jsp [accessed 26.10.21].
- URCS (2019). Rapid assessment for market report for Butaleja and Mbale Districts. Kampala 2019.

Imprint

University of Hamburg (UHH)

Faculty of Business
Economics and Social Sciences
Von-Melle-Park 9
20146 Hamburg
Germany

Uganda Red Cross Society (URCS)

Plot 551/555 Rubaga Road.
P.O. Box 494
Kampala
Uganda

Tel: +256 - 41-258701/2 | +256-31-260615/6/7
Fax: +256-41 – 258184
Email: sgurcs@redcrossug.org

Twitter: UgandaRedCross
Instagram: UgandaredCross
YouTube: Uganda Red Cross Society

www.redcrossug.org