FORECAST-BASED HUMANITARIAN ACTION AND CONFLICT:
Promises and pitfalls of planning for anticipatory humanitarian response to armed conflict

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This thesis is submitted for obtaining the Master’s Degree in International Humanitarian Action. By submitting the thesis, the author certifies that the text is from his/her hand, does not include the work of someone else unless clearly indicated, and that the thesis has been produced in accordance with proper academic practices.
Abstract

Practitioners of Forecast-based Action (FbA) argue that a humanitarian response able to utilize forecasts to accurately predict disaster, secure funding, and take action before the onset of a crisis will benefit donors and beneficiaries alike. In search of effective and efficient early-action regimes, a number of major humanitarian actors are developing FbA projects of various designs, predominantly in response to natural disaster and famine. While numerous organizations and institutions have expressed interest in developing FbA mechanisms, the tool has only been applied in a limited capacity to the humanitarian needs generated by armed conflict. This research seeks to understand whether a scalable FbA approach can be developed to stage principled, anticipatory humanitarian action in response to situations in which rigorous evaluations predict the likelihood of imminent armed conflict. The hypothesis is that the application of FbA to armed conflict is possible, but due to the complex political nature of conflict, implementing organizations should try to focus on creating mechanisms managed by humanitarian actors and, in so far as possible, be insulated from outside influence. This research is the first academic work to specifically investigate the application of FbA to armed conflict.

Following an extensive review of current FbA mechanisms and conflict early warning practices, this research concludes that a conflict-centered FbA system akin to the automated FbA systems in use today to respond to natural disaster and famine is possible, but that the endeavor presents many practical and conceptual barriers to implementation. In particular, diffuse models such as the Start Fund offer a hopeful glimpse at a type of horizontal, member-driven FbA mechanism that is both highly context-sensitive and relatively insulated from outside influence. Such a design, however, features notable and inherent limitations in its ability to reliably and accurately predict the outbreak of conflict and respond in a manner that minimizes regretful actions.
Acknowledgements

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Finally, I would like to thank Mr. Gonzalo de Palacios Elosegui who graciously allowed me to participate in an internship with Oxfam Intermón while writing this thesis, an experience that helped me advance my thinking on this research in a number of areas.
# List of Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AU</td>
<td>African Union</td>
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<td>AU/CEWS</td>
<td>African Union Continental Early Warning System</td>
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<td>CAR</td>
<td>Central African Republic</td>
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<tr>
<td>CAW</td>
<td>Crisis Anticipation Window</td>
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<td>CERF</td>
<td>Central Emergency Response Fund</td>
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<tr>
<td>CEW</td>
<td>Conflict early warning</td>
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<td>CEWARN</td>
<td>Conflict Early Warning and Response Mechanism</td>
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<td>CEWS</td>
<td>Conflict early warning system</td>
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<tr>
<td>CRS</td>
<td>Catholic Relief Services</td>
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<td>DRC</td>
<td>Democratic Republic of the Congo</td>
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<tr>
<td>DREF</td>
<td>Disaster Relief Emergency Fund</td>
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<td>EAP</td>
<td>Early Action Protocol</td>
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<td>ECHO</td>
<td>European Civil Protection and Humanitarian Aid Operations</td>
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<td>EDACS</td>
<td>Event Data on Armed Conflict and Security Project</td>
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<tr>
<td>ERC</td>
<td>Emergency Relief Coordinator</td>
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<tr>
<td>EU</td>
<td>European Union</td>
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<td>EWS</td>
<td>Early warning system</td>
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<tr>
<td>EWEA</td>
<td>Early Warning Early Action</td>
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<td>FAO</td>
<td>Food and Agriculture Organization of the United Nations</td>
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<td>FAR</td>
<td>False alarm ratio</td>
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<tr>
<td>FbA</td>
<td>Forecast-based Action</td>
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<td>FbF</td>
<td>Forecast-based Financing</td>
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<tr>
<td>FoodSECuRE</td>
<td>Food Security Climate Resilience Facility</td>
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<td>FOREWARN</td>
<td>Forecast-based Warning, Analysis and Response Network</td>
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<td>GRC</td>
<td>German Red Cross</td>
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<td>IASC</td>
<td>Inter-Agency Standing Committee</td>
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<td>IC</td>
<td>Invisible Children</td>
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<td>ICG</td>
<td>International Crisis Group</td>
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<td>IFRC</td>
<td>International Federation of Red Cross and Red Crescent Societies</td>
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<td>IGAD</td>
<td>Intergovernmental Authority on Development</td>
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<tr>
<td>INGO</td>
<td>International non-governmental organization</td>
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<tr>
<td>LRA</td>
<td>Lord’s Resistance Army</td>
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<td>LRRD</td>
<td>Linking Relief to Rehabilitation to Development</td>
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<td>MYHF</td>
<td>Multi-year humanitarian financing</td>
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<tr>
<td>NGO</td>
<td>Non-governmental organization</td>
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<td>ODI</td>
<td>Overseas Development Institute</td>
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<tr>
<td>OECD</td>
<td>Organization for Economic Co-operation and Development</td>
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<td>PITF</td>
<td>Political Instability Task Force</td>
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<td>RCCC</td>
<td>Red Cross Red Crescent Climate Centre</td>
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<tr>
<td>SFERA</td>
<td>Special Fund for Emergency and Rehabilitation</td>
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<tr>
<td>UCDP</td>
<td>Uppsala Conflict Data Program</td>
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<td>UN</td>
<td>United Nations</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>UNISDR</td>
<td>United Nations Office for Disaster Risk Reduction</td>
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<td>UN OCHA</td>
<td>United Nations Office for the Coordination of Humanitarian Affairs</td>
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<tr>
<td>US</td>
<td>United States of America</td>
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<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>VNRC</td>
<td>Vietnamese Red Cross Society</td>
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<tr>
<td>Acronym</td>
<td>Full Form</td>
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<td>WEIS</td>
<td>World Event/Interaction Survey</td>
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<td>WFP</td>
<td>World Food Programme</td>
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<td>WVI</td>
<td>World Vision International</td>
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1. Introduction

The 20th century marked a period of remarkable expansion of humanitarian norms and standards, as well as the parallel growth of the global human rights agenda and the emergence of doctrines such as the responsibility to protect, developments that further broadened the scope of interventions classified as “humanitarian.”

Simultaneously, the 20th century also saw a number of catastrophic failures on the part of the humanitarian community to provide principled, efficient and coordinated responses to natural and man-made disasters. During the Nigerian Civil War, international non-governmental organizations (INGOs) like Oxfam and Concern cut their teeth on large-scale operations (Foley, 2007). Against a backdrop of mass starvation, the separatist Biafran government used international sympathy to tax aid organizations and smuggle arms in aid shipments, bypassing the Nigerian government’s blockade of the would-be state (Pérouse de Montclos, 2009, p. 72, 79). The aid sector did little to push back against such practices and acknowledge its role in supporting the Biafran military, and, thus, prolonged the conflict and the civilian suffering that accompanied it (Pérouse de Montclos, 2009, p. 70). Decades later, in 1994, a form of collective disbelief and calculated group denial at the international level led to a delay in intervention – political, military and humanitarian – that enabled Rwanda’s rapid descent into genocide. The aid sector, when finally mobilized, provided far too little help and far too late. The genocidaires exacted brutal killings on a mass scale until Rwandan militias descended from Uganda to seek reprisal. The already dire initial humanitarian consequences multiplied and spilled over the country’s borders, displacing one million Rwandans into neighboring Democratic Republic of the Congo (DRC) and generating a humanitarian crisis whose negative effects are still felt today (Waterman, 2004, p. 5).

Both cases, one of indelicate action and the other of hand-wringing inaction, demonstrate the difficult position of humanitarian actors responding to situations of armed conflict. Action and inaction in such contexts can both be political statements, and in-depth contextual analysis and understanding is a necessary pre-requisite for responsible intervention.

The aid sector also learned painful lessons in response to natural disaster. In the massive response to the 2010 earthquake in Haiti, for example, the international aid machine kicked into full gear, arriving on the disaster-struck island with billions of dollars in funding but delivering programming with little to no consultation with local
communities or civil society (Fatal Assistance, 2014). Haiti, again the victim of natural disaster in 2016, remains to this day the site of a large-scale international humanitarian response (Haiti: Humanitarian Snapshot, 2018).

Ultimately, it is easy to point out what was done wrong or what might have been done better. What is most important, and indeed much more difficult, is to see that the lessons learned are incorporated into current institutional practices and standards such that needless repetition of mistakes is avoided. This spirit guided the development of the international aid sector in the late 20th and early 21st century, as it leaves behind what might be termed its ‘adolescence.’ These humanitarian failures gave rise to numerous institutional efforts to improve coordination, through the establishment of the United Nations (UN) Office for the Coordination of Humanitarian Affairs (OCHA) in 1991 and the implementation of the cluster approach in 2005, for example, to lower response times, and to emphasize local ownership of aid (General Assembly Resolution 46/182, 1991; What is the Cluster Approach?, n.d.). Still, the dominant paradigm of the aid sector remains one of reaction rather than prevention or pre-emptive action.

Such hard lessons learned also led to the reconceptualization of key theoretical beliefs underpinning the aid industry. Realizing the inability of classical, externally-driven and reactive aid to respond in a manner that would improve an affected population’s resilience in the face of future crises, the doctrine of “linking relief to rehabilitation to development” (LRRD) came into vogue in the 1990s (Hilhorst, 2018, p. 1). LRRD intended to draw greater attention to the position of humanitarian assistance as a single stage in a longer step-by-step process of reconstruction and capacity building that should ultimately be ‘owned’ by local authorities and populations. LRRD has since evolved into a less sequentially-bound concept referred to as the ‘humanitarian development nexus.’ LRRD’s modern reinterpretation envisions a humanitarianism engaged actively with development actors at every stage of disaster, creating a smooth transition from emergency relief to long-term development. LRRD’s challenge of the more myopic classical aid paradigm also sowed fertile ground for the rise of other competing doctrines, especially that of ‘resilience.’ Resilience programming promises to build the capacities of disaster-affected communities to withstand the shocks of crisis and thus preserve lives and livelihoods. This focus carries within it an important shift in attention from simple disaster response and toward the pre-disaster conditions of the affected community. As Hilhorst outlines, today’s “resilience humanitarianism” stands in contrast to “classical humanitarianism” for its emphasis on local capacities and ownership
of aid as opposed to a historical reliance on foreign aid organizations (Hilhorst, 2018, p. 1).

Today, the humanitarian sector appears to be taking a step further in the direction of “resilience humanitarianism” in exploring a new anticipatory approach to emergency response. Appreciating the potential of natural and man-made disasters to erase hard-won development gains in disaster-prone countries, and in the face of increasingly frequent natural disasters due in part to the acceleration of climate change, there is a growing interest among humanitarian leaders in early action, or humanitarian activities staged before disaster strikes.

Such was the conclusion of many in the humanitarian community after the 2016 World Humanitarian Summit, when more than 30 humanitarian organizations and donors gathered to sign the Grand Bargain, a series of commitments between aid providers and donors including promises to shift more resources to local organizations, improve transparency and accountability, and to increase the proportion of unearmarked and multi-year funding, among others (Grand Bargain, 2016). Importantly, these commitments included an agreement to improve collaboration between humanitarian and development actors, a central pillar of which is to “significantly increase prevention, mitigation and preparedness for early action to anticipate and secure resources for recovery” (Grand Bargain, 2016). In a 2018 speech, United Nations Under-Secretary-General for Humanitarian Affairs and Emergency Relief Coordinator (ERC) Mark Lowcock elaborated on this theme:

What we need to do is to move from today’s approach, where we watch disaster and tragedy build, gradually decide to respond and then mobilize money and organizations to help; to an anticipatory approach where we plan in advance for the next crises, putting the response plans and the money for them in place before they arrive, and releasing the money and mobilizing the response agencies as soon as they are needed. (Lowcock, 2018)

In line with this vision, practitioners of Forecast-based Action (FbA) – an umbrella term used to describe anticipatory humanitarian action using forecasting or early warning systems to trigger funding disbursals and early actions – make the case that an approach that can predict disaster and secure funding before the onset of a crisis will benefit donors and beneficiaries alike (Forecast-based action, 2018). The logic of FbA contends that donors’ investments in anticipatory action will be less costly than post-disaster funding appeals, and beneficiaries will suffer less and recover faster. In search of effective and efficient early-action regimes, a number of major humanitarian actors are developing and
deploying FbA projects of various designs, predominantly in response to natural disaster and famine.

The International Federation of Red Cross and Red Crescent Societies (IFRC) have pioneered Forecast-based Financing (FbF), an FbA mechanism using meteorological forecasts to estimate the probability and likely impact of specific natural disasters, develop corresponding early actions ‘triggered’ at specific thresholds of forecast probability, and automatically release funds for pre-disaster activities (Forecast-based Financing: A New Era of Disaster Relief, 2018). The Start Network, a coalition of INGOs, designed the Start Fund and Start Fund Crisis Anticipation Window to disburse anticipatory funding to member non-governmental organizations (NGOs) on a case-by-case basis (Start Fund, n.d). Within the UN system, the World Food Programme (WFP) (FoodSECuRE, n.d.), Food and Agriculture Organization (FAO) (Early Warning Early Action, n.d.), and World Bank (Famine Action Mechanism (FAM), 2018) have stepped into the FbA space with a particular focus on famine, food and agriculture security. Notably, the United Nations’ Central Emergency Response Fund (CERF) is also researching the potential of an early action mechanism, a sure sign that FbA is becoming an increasingly mainstream doctrine (CERF for the future, 2018, p. 1).

While many FbA projects are still in their infancy, early results have so far validated the potential of anticipatory humanitarian action to save lives and reduce suffering in disaster-prone countries in a cost-effective manner (Wilkinson et al., 2018, p. 25). Even as the pool of FbA practitioners grows, a significant gap remains in the application of anticipatory humanitarian response to armed conflict. Thus far, only one organization in the FbA space has deployed their mechanism in direct response to conflict-driven needs, and then only in a narrow capacity.

1.1 Research Problem

While numerous implementing organizations and donors have expressed their interest in developing FbA models, FbA has, to date, so far been applied primarily to the domain of response to natural disaster, and not to armed conflict. This is due in part to the more developed capacities of meteorologists and other scientists to forecast extreme weather events such as floods, heat waves, and hurricanes. Conflict forecasting, frequently referred to as conflict early warning (CEW), has for decades generated significant interest and investment internationally among civil society, national government, and inter-governmental organizations. Even so, it is predominantly used by political
decisionmakers and peacebuilding actors, and less so in the humanitarian space. Little has been written about a potential marriage between FbA and CEW systems (CEWS) to produce a model, or models, for anticipatory humanitarian action to armed conflict. This research is the first academic work to focus solely on the application of FbA to armed conflict.

1.2 Aims and Research Objective

This research proposes to explore the question of whether a conflict-oriented FbA mechanism is feasible, and to describe the theoretical and practical difficulties that must be addressed by an organization seeking to develop such a tool. Following a literature review and the presentation of a brief theoretical framework, this research will offer the reader an understanding of the current state of FbA as it is implemented by aid organizations and the complexities of building and funding anticipatory humanitarian actions. There follows a review of common indicators used by CEWS and several contemporary mechanisms and a discussion of the major theoretical and practical issues surrounding FbA in armed conflict. From this ‘landscape,’ the paper will attempt to offer constructive suggestions toward realizing a conflict-sensitive FbA mechanism.

1.3 Research Question

The dominant model of humanitarian response to armed conflict is reactive, that is, to await the outbreak of a crisis – active fighting, forced displacement, etc. – and only then to issue a formal funding appeal after the conflict has generated quantifiable negative impacts. Thus, the central question of this research is:

Can an FbA approach be developed, as it has been for natural disasters and famine, to stage principled, pre-planned anticipatory humanitarian actions in response to armed conflict?

1.4 Sub-questions and Hypothesis

From this research question, several lines of inquiry arise, which may lead to a better understanding of the viability of anticipatory humanitarian action in conflict. Three among these are:

1) What are the key challenges facing the development and deployment of FbA mechanisms by humanitarian actors?

2) What specific challenges exist in conflict early warning and humanitarian response to armed conflict that might affect the development of a conflict-sensitive FbA mechanism?

3) What are the key components necessary for an FbA mechanism responding to conflict driven needs that also respects the humanitarian principles?
The primary and ensuing questions presented will guide the direction of this research and be used to examine the following hypothesis:

The application of FbA to armed conflict is possible, but due to the political nature of conflict, implementing organizations should focus on developing insulated FbA mechanisms developed, deployed, and monitored by humanitarian organizations themselves.

1.5 Justification for Research: Relevance for Academia and Humanitarian Field

This research will supplement the growing body of research around the FbA approach and seeks to fill the gap in the current research by addressing FbA and armed conflict. This gap is significant for three reasons:

First, modern humanitarian action has its roots in the responses to armed conflict. After Henry Dunant, popularly regarded as the father of modern humanitarianism, witnessed the “destructive torrent” of the Battle of Solferino in 1859 he famously founded the Red Cross Movement, which is today an early adopter of FbA, to treat the war wounded (Dunant, 1939, p. 18). Today, armed conflict remains a central theater in which humanitarian needs are generated and intervention necessary. Look no further than ongoing conflicts in Syria, Yemen, and the Central African Republic (CAR), for example, and the massive humanitarian operations operating in their wake.

Second, the study of conflict and availability of data surrounding the outbreak of violent conflict has greatly improved in the 20th and 21st centuries. More and better data is available on conflict and its drivers than ever before through the work of projects such as the Uppsala University’s Conflict Data Program (UCDP) and the German Event Data on Armed Conflict and Security Project (EDACS). However, even with the proliferation of conflict analysis and forecast-related projects, the accuracy of CEW is still a far cry from that of weather forecasting (also an imperfect practice) and the indicators and the variables that influence the occurrence of conflict remain contentious.

Technological advances in data collection, availability, and communications have led to an expansion in conflict monitoring and early warning projects used by a range of governmental and non-governmental organizations. Numerous early warning systems (EWS) have been developed by INGOs working in civilian protection and peacebuilding (Rohwerder, 2015). Governmental and inter-governmental actors have undertaken similar CEWS and forecasting projects, such as the U.S. government’s Political Instability Task Force (PITF), which sought to predict the outbreak of revolutionary war, ethnic war, regime change, and genocide and politicide (Political Instability Task Force, 2019; Marshall et al.,
At the regional level, mechanisms such as the African Union’s (AU) Continental Early Warning System (abbreviated for clarity as AU/CEWS) was launched in 2007 to monitor the likelihood and outbreak of conflict on the African continent (The Continental Early Warning System, 2018).

And third, the profile of modern conflicts is shifting from the state-driven conflicts of the 19th and 20th centuries to internal and cross-border conflicts involving non-state armed groups such as Al Shabaab in Somalia or the Islamic State in Syria and Iraq. Pettersson and Eck’s study on global violence and conflict fatalities using UCDP data found that conflict fatalities have generally declined since 2014, a decrease driven largely by a fall in state-based conflict, which accounts for the majority conflict fatalities (Pettersson and Eck, 2018, p. 535). Flying in the face of this trend, however, is the uptick of deaths in non-state armed conflicts, which has slowly risen from the mid-2000s, with notable increases in 2014 and 2017 (Pettersson and Eck, 2018, p. 536). In particular, the Middle East has experienced a spike in conflict fatalities since 2013 (Pettersson and Eck, 2018, p. 538). Non-state armed conflicts are frequently intra-state instead of international. The front lines of combat are blurred or non-existent and waged by a mix of civilians-turned-combatants, non-state armed groups, and states. Hoffman offers a description of the psychology of the participants of these modern conflicts:

(Emerging combatant groups) are not motivated by the same factors as traditional state-sponsored combatants or insurgents. They do not aspire to take a place in a global, state-based political system...They may thrive on invisibility, and often do thrive on the proceeds of low profile criminal activity. (Hoffman, 2000, p. 104)

Simply put, the actors involved in modern war are distinct in their incentives, constraints, and behaviors from those of the 20th century. And so, conflict forecasting, already an imperfect and still-developing field, must adapt in real time to a shifting battlefield. The activities of these armed groups and the tactics employed by those combatting them, frequently encroach on and threaten the humanitarian space and humanitarian practitioners (McGrane, 2017). Thus, for humanitarian actors, understanding the diffuse armed groups and other actors occupying conflict zones as well as their behaviors relating to the humanitarian space and the civilians in areas under their control is more important than ever, for the protection of aid workers and the wellbeing of affected communities alike.

This combination of a humanitarian mandate to respond to loss of life and human suffering, ever-improving understanding of conflict, and the evolution of an increasingly chaotic and unrestrained style of warfare, present a compelling argument for the necessity of aid organizations and their donors to find innovative solutions to respond to conflict in a
more responsive, efficient and effective manner that minimizes the humanitarian impact of war. If FbA can be a tool toward that end, further research on its applicability and limits in conflict is surely needed.

1.6 Methodology

This paper will employ an extensive review of secondary sources pertaining to the application of forecasting to humanitarian action and CEWS, drawing on academic literature as well as on a large and growing body of “grey” literature – that is, literature published by humanitarian organizations, governments, and inter-governmental organizations. As the field of FbA is still in its infancy, this paper will approach the issue from a theoretical angle. Large pools of empirical data on the results and benefits of FbA either do not exist or are not readily available. Broadly speaking, the academic literature on FbA is largely limited to works published by the IFRC and its associated Red Cross Red Crescent Climate Centre (RCCC). The grey literature on the subject is similarly limited, but expanding, and includes several important publications by organizations such as the Overseas Development Institute (ODI). A much larger body of literature on the subject of CEWS and its myriad applications exists, although the research applicable to humanitarian actors and early response activities is more limited. The literature on FbA and CEWS, and its limits will be detailed extensively in Section 2 (“Literature Review”).

This research will employ three primary methods of analysis. First, a comparative analytical approach will be used to examine various existing FbA mechanisms, describing their relative functions and intended aims. This analysis will subsequently be used as the basis for a discussion of common difficulties in building forecast-based humanitarian programs. Subsequently, a mixed critical and comparative review of CEWS capacities will describe indicators commonly used by CEWS, presenting and comparing the designs of several modern CEWS, and providing a critical look at the limitations of common CEWS indicators and the current use of CEWS by peacebuilding and humanitarian actors. Finally, these components will be brought together in a constructive analysis of the major questions surrounding the design of a conflict-sensitive FbA mechanism, to provide recommendations for organizations considering such a project. Empirical cases of FbA mechanisms, CEWS and forecasting tools will be cited throughout the paper in order to support these comparative, critical and constructive analyses.
1.7 Limitations

There are a number of limitations to the available literature on FbA that constrain this research to a theoretical and conceptual exercise. First, as mentioned previously, FbA is relatively new methodology with few practitioners. The base of evidence supporting the logic of FbA – that it is a cost-effective manner to reduce the impact of disaster on beneficiaries – is limited, although early ventures in the FbA space, such as the World Food Programme’s Food Security Climate Resilience (FoodSECURe) Facility, have yielded positive results (Food Security Climate Resilience Facility, n.d.). Second, even among organizations practicing FbA, there is relatively little in-depth information publicly available on the design and early results of existing mechanisms, with two notable exceptions. The IFRC, German Red Cross (GRC) and RCCC have published the most widely about their FbF model and have launched a centralized website hosting a repository of documents on their projects and offering detailed information on the FbF mechanism. The Start Network has also sought to raise the profile of their FbA mechanism, publishing a great deal on their methodology and building an online database of their alerts. This database includes information on the type of alerts, their location, date, the amount of funding allocated after the alert was reviewed, and the Start Network partners involved in the subsequent response. Unfortunately, more detailed information about each case is usually only accessible to Start Network members and partners. By comparison, little detailed information is available on the early action mechanisms of UN agencies apart from press releases and other basic external communications materials.

Acknowledging the general lack of academic study of a prospective conflict-focused FbA mechanism, and the relatively limited discussion of the subject within grey literature produced by humanitarian agencies and other practitioner-oriented sources of research, this thesis hopes to provide a modest point of departure for future research on the subject.

1.8 Ethical Considerations

As this thesis is limited to review and comparison of already-published secondary sources, there are no specific ethical considerations constraining this research.
2. Literature Review

This literature review will offer a brief overview of terms deployed throughout the paper in order to establish a common lexicon with which to understand the concepts discussed, followed by an exploration of key literature on FbA and CEWS.

2.1 Key Terms

Terms that will be used must be defined carefully.

**Armed conflict.** This paper will use the definition of armed conflict presented by the UCDP. Under this widely-used definition, armed conflict is “a contested incompatibility that concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths” (Themnér, 2013). For the sake of brevity, the term ‘conflict’ will be used as a shorthand for ‘armed conflict’ unless otherwise qualified.

**Humanitarian emergency.** The phrase ‘humanitarian emergency’ will be used to refer to the effects of man-made and natural disasters alike. While no single definition of ‘humanitarian emergency’ is used by humanitarian actors, the most commonly utilized definitions of the phrase are relatively similar, with small variations. World Vision International (WVI), a leading and globally-active INGO, offers this definition: “A humanitarian disaster occurs when the human, physical, economic or environmental damage from an event, or series of events, overwhelms a community’s capacity to cope” (What is a humanitarian disaster?, n.d.). WVI’s definition draws a useful distinction between disaster situations in which humanitarian intervention is required depending on the ability of the community to cope with the event’s impact. The phrase ‘humanitarian crisis’ will be used interchangeably with ‘humanitarian emergency’ in this research.

**Disaster.** As this paper will include discussions of natural and man-made disasters, it is important to offer a clear definition of the term ‘disaster’ as well. The United Nations Office for Disaster Risk Reduction (UNISDR) defines a disaster as a “serious disruption of the functioning of a community or a society at any scale due to hazardous events interacting with conditions of exposure, vulnerability and capacity, leading to one or more of the following: human, material, economic and environmental losses and impacts” (Report of the open-ended intergovernmental expert working group, 2016, p.13). This definition is open-ended and leaves space for an important distinction between a ‘disaster’ and ‘humanitarian emergency.’ Using this definition, a disaster refers only to an event or series of events in which there is a negative impact or loss and does not speak to the effect of the
event on local capacities or possible threats to public welfare. Thus, a disaster can occur without being classified as a humanitarian emergency. A disaster may cause a humanitarian emergency, but it is only when it is of a magnitude and intensity that local capacities are “overwhelmed” that a disaster ‘transitions’ into a humanitarian emergency. Most often, this is articulated by domestic authorities.

**Capacity.** UNISDR’s plain-language definition of capacity is “the combination of all the strengths, attributes and resources available within an organization, community or society to manage and reduce disaster risks and strengthen resilience” (Report of the open-ended intergovernmental expert working group, 2016, p. 12).

**Hazard.** A hazard, as defined by the UNISDR, is “a process, phenomenon or human activity that may cause loss of life, injury or other health impacts, property damage, social and economic disruption or environmental degradation. Hazards may be natural, anthropogenic or socionatural in origin” (Report of the open-ended intergovernmental expert working group, 2016, p. 18). Put simply, a hazard refers to the possibility of a damaging event, while ‘disaster’ refers to the damaging event itself.

**Disaster types.** While the concept of disaster is easily described, it is further necessary to define distinctions between various disaster profiles. There are three widely accepted types of disasters: Natural, man-made, and complex.

The IFRC defines a *natural disaster* as the result of “naturally occurring physical phenomena caused either by rapid or slow onset events which can be geophysical (earthquakes, landslides, tsunamis and volcanic activity), hydrological (avalanches and floods), climatological (extreme temperatures, drought and wildfires), meteorological (cyclones and storms/wave surges) or biological (disease epidemics and insect/animal plagues)” (Types of disasters, n.d.).

A *man-made disaster* is a damaging event caused by human activity or near human settlements (Types of disasters, n.d.). Man-made disasters can include events that damage the environment close to a human settlement, armed conflict, famine caused by human activities, and forced displacement.

Finally, the Inter-Agency Standing Committee (IASC) defines a *complex disaster* as “A humanitarian crisis in a country, region or society where there is total or considerable breakdown of authority resulting from internal or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency and/or the ongoing UN country program” (Coordination in Complex Emergencies, 2001).
**Early warning system.** Once again using definitions of the UNISDR, an EWS is “an integrated system of hazard monitoring, forecasting and prediction, disaster risk assessment, communication and preparedness activities systems and processes that enables individuals, communities, governments, businesses and others to take timely action to reduce disaster risks in advance of hazardous events” (Report of the open-ended intergovernmental expert working group, 2016, p. 17). Importantly for this discussion of forecast-based humanitarian action, an EWS refers to a monitoring system producing information and not necessarily to actions taken using the system-generated information.

The UNISDR definition is useful in describing the function of an EWS, but a second definition by the Organisation for Economic Co-operation and Development (OECD) offers a more focused definition of CEWS: “Early warning is a process that (a) alerts decision makers to the potential outbreak, escalation and resurgence of violent conflict; and (b) promotes and understanding among decision makers of the nature and impacts of violent conflict” (Preventing Violence, 2009, p. 22).

**Forecast.** In their 2010 paper on linking climate science with forecast-based humanitarian action, Suarez and Tall present a description of science-based forecasts. Their definition is based on four factors: Location, magnitude, lead time, and probability (Suarez and Tall, 2010, p. 2). Each of these elements answer a separate question necessary to stage early action to respond to natural disaster. As described by the authors:

- **Location:** Where is the event likely to happen?
- **Magnitude:** How big (is the event)?
- **Lead time:** How far into the future (is the event)?
- **Probability:** What are the chances of (the event) happening? (Suarez and Tall, 2010, p. 2)

This framework is particularly useful for this research as it is designed explicitly with FbA in mind. Suarez and Tall propose that each of the four factors be linked with humanitarian concepts to guide the actions of the actor utilizing the forecasts to stage anticipatory intervention (Suarez and Tall, 2010, p. 2). According to Suarez and Tall, location may be linked to the vulnerability of potentially affected populations, magnitude of the “expected loss” generated by the disaster event, lead time for the determination of “plausible actions” that may be staged before the disaster strikes, and probability of the “decision of whether or not to act” in the wake of a predicted disaster (Suarez and Tall, 2010, p. 7). When the humanitarian actor puts a forecast to use, four outcomes are possible: “Worthy action,” “worthy inaction,” “failure to prevent losses,” and “false alarm” (Suarez and Tall, 2010, p. 7).
Using Suarez and Tall’s framework, a forecast will be understood as an evidence-based tool whose intent is to predict the location of a future event, the event’s magnitude, and the probability of the event’s occurrence with lead time. The evidence base used to develop a forecast is broad and could include satellite mapping and sea-level tracking in the case of forecasts of weather events, or displacement and conflict death monitoring in the case of CEWS.

Forecast-based Action. FbA refers to a mechanism that uses forecasts as evidence to justify and guide the disbursal of funding and corresponding humanitarian activities in anticipation of an event with likely humanitarian consequences. In a report produced by the ODI, FbA is compared to EWS, as “both are set up to minimize and prevent the impacts of imminent threats by providing information and support to at-risk communities” (Wilkinson et al., 2018, p. 7). However, ODI’s report draws a clear distinction by pointing to FbA’s “considerable emphasis on decision-making protocols, so actors know what to do on the basis of a forecast; on ex ante financing of early action; and by using cost–benefit analysis more rigorously to help promote ex ante investment in disaster risk reduction” (Wilkinson et al., 2018, p. 7). In this way, FbA necessitates two components: Forecasts and actions. The latter distinguishes it from traditional EWS, which must only produce a forecast, or alert about an impending event. The EWS “enables” action, as indicated by the UNISDR definition, but its design does not necessitate the inclusion of funding disbursal or determined early actions.

2.2 Literature on Forecast-based Action (FbA)

The current literature on FbA can be divided into two broad categories: academic and grey literature. The body of academic literature on FbA is dominated by research produced by or affiliated with the RCCC specifically addressing the FbF mechanism. As such, the subsequent section provides a chronological examination of the current literature published by or involving the RCCC. This review of academic literature surrounding FbA is deliberately limited to academic works addressing the use of forecasts by humanitarian actors to stage anticipatory actions. A separate body of literature exists concerned with the application of CEWS and forecasts of political instability to humanitarian crises generally. However, these works are typically addressed to state policymakers and deploy the term “humanitarian” loosely, usually referring to some form of political action, intervention or negotiation to avert the outbreak or continuation of conflict. By contrast, this section is concerned specifically with academic research on FbA that deals with use of early warning
information by classical humanitarian actors, not political actors engaged in militarized “humanitarian intervention,” diplomacy, or similar activities.

2.2.1 Academic literature on FbA

In “Using Seasonal Climate Forecasts to Guide Disaster Management: The Red Cross Experience during the 2008 West Africa Floods,” Tall et al. present an analysis of an early case of Red Cross-led FbA. In anticipation of a high probability forecast of above-average seasonal rainfall, the IFRC’s West and Central Africa Zone Office issued an appeal to fund early actions to improve the capacity of national Red Cross societies and communities to prepare for likely flooding. The results were clear: “This forecast-based preparedness resulted in a decrease in the number of lives, property, and livelihoods lost to floods, compared to just one year prior in 2007 when similar floods claimed above 300 lives in the region” (Tall et al., 2012, p. 1). The 2008 response to the West Africa floods was the first instance in which forecast-based funding was issued by IFRC (Tall et al., 2012, p. 7). Importantly, a post-response assessment IFRC’s response in 2008 validated the two central arguments of FbA supporters: improved service to beneficiaries and decreased expenditure by donors (30 percent lower cost per beneficiary) (Tall et al., 2012, p. 8). The authors argue that the high confidence and timeliness of the available forecasts allowed for an effective response. Further, they expressed support for “no regret” early action strategies, or “actions and interventions that did not involve the commitment of resources to emergency relief goods or services that could go to waste if no floods materialized” (Tall et al., 2012, p. 8). The consideration of regret and “no regret” allocations is an important feature of FbA and will be discussed at greater length in relation to the Red Cross Movement’s FbF tool.

In the 2015 article, “Forecast-based financing: an approach for catalyzing humanitarian action based on extreme weather and climate forecasts,” Erin Coughlan de Perez et al. present the rationale behind the FbF mechanism, provide an in-depth examination of the mechanism’s internal algorithms for calculating forecast lead times, probabilities forecast-appropriate activities, and funding levels. The article begins with a succinct and useful description of the FbF mechanism’s function: “The system matches threshold forecast probabilities with appropriate actions, disburses required funding when threshold forecasts are issued, and develops standard operating procedures that contain the mandate to act when these threshold forecasts are issued” (Coughlan de Perez et al., 2015, p. 895). Despite the promise of FbA mechanisms like FbF, the authors note that even in the case of forecasting weather events, “forecasting capability will be a major constraint in maximizing the potential of such early warning systems,” especially in regions where
weather stations are few and historical meteorological data is nonexistent (Coughlan de Perez et al., 2015, p. 902). The wide application of FbF and other FbA models is constrained by a number of practical factors including geographic location, strength of local and national governments, available weather forecasting infrastructure, and access to data. Another problem foreseen by the authors, and one frequently repeated in the grey literature on the subject, is the difficulty in accurately predicting the costs of a missed forecast or regretful action (Coughlan de Perez et al., 2015, p. 902). If a selected forecast predicts an event that fails to materialize or causes less-than-expected damage and resources are mobilized in vain, the implementing organization could suffer a financial and reputational cost. Similarly, if the forecast fails to predict a disaster and resources are not mobilized, the FbA mechanism could suffer a similar drop in confidence. Ultimately, any loss of confidence in the mechanism’s accuracy could make an implementing organization risk averse and compromise the utility of an FbA tool (Coughlan de Perez et al., 2015, p. 902).

Coughlan de Perez et al.’s article, “Action-based flood forecasting for triggering humanitarian action,” presents a further examination of the FbF mechanism with special attention to flood forecasting. In this article, the authors attend to two central issues: How to produce meaningful predictions and judge ‘trigger’ levels for flooding when constrained by limited current and historical data (Coughlan de Perez et al., 2016, p. 3550). Taking the case of a pilot FbF project in northeastern Uganda, the authors examine forecasts predicting river floods during the region’s biannual rainy seasons (Coughlan de Perez et al., 2016, p. 3550-51). The paper further breaks down an action-based forecast into two components: The determination of evidence-based danger levels that cause “avoidable losses” and a calculation of the false alarm ratio (FAR), or the ratio of actions taken in vain divided by the total number of actions, for each identified danger level (Coughlan de Perez et al., 2016, p. 3556). This distillation of FbA is useful for its attention regarding the conditions under which humanitarian action will be needed and the willingness to act when the occurrence of a disaster is not ensured (Coughlan de Perez et al., 2016, p. 3557). Unfortunately, in 2019 it may still be too early to attempt a meaningful analysis that averages predictive ‘wins’ and ‘losses’ over time.

The final work considered in this overview of Red Cross Red Crescent-related academic publications is the 2018 article, “Bridging forecast verification and humanitarian decisions: A valuation approach for setting up action-oriented early warnings.” The article similarly adds to the existing body of work supporting the utility of the FbF mechanism, and, as the title suggests, takes a closer look at the question of which forecasts should be
selected for use in early action mechanisms (Lopez et al., 2018, p. 1). The authors describe a “valuation approach” identifying key information that a forecast must include if it is to be useful in guiding humanitarian action. Instead of focusing solely on the forecast’s potency, this approach also accounts for the avoidable losses caused by extreme weather and weighs a forecast’s utility “in terms of (its) potential to reduce expected losses.” (Lopez et al., 2018, p. 2). According to the authors, the goals of FbA actors are twofold: To maximize the number of damaging extreme weather events they respond to with early actions and to minimize the costs incurred by the disaster both for the organization and the communities they assist (Lopez et al., 2018, p. 3). The article concludes that a forecast’s value for FbA is linked to “an understanding of extreme events that cause impact (danger level) and the associated early actions that can help avoid losses” (Lopez et al., 2018, p. 7). Given this balancing act between maximizing response and minimizing cost, the source of funding for an FbA mechanism must be carefully considered, given that different donors might have different aims and acceptable levels of risk for the mechanism (Lopez et al., 2018, p. 7). This economic consideration in the design of an FbA mechanism highlights the inherent risk adopted by organizations when including automatic funding disbursals in their project design.

The growing body of academic work relating to FbA largely supports the cost-saving logic of such scientifically-grounded anticipatory action. More than this, it lays bare the many complexities in selecting forecasts, identifying triggers for early actions, and selecting disaster-appropriate activities and donors with acceptable risk thresholds, among other issues. Even in a domain with advanced and widely agreed upon forecasting methods such as meteorology, operationalizing forecasts in service of humanitarian action is a difficult undertaking. Putting forecasts of armed conflict to use in humanitarian response poses an even more significant challenge, given that those methods are diverse and, in many instances, much less accurate and scalable.

2.2.2 Grey literature on FbA

As FbA is a practitioner’s tool, there is a growing pool of grey literature on the subject. For the purposes of this literature review, a handful of key sources were selected that offer broad overviews of the current state of FbA and offer perspectives on the likely future direction of the methodology.

Suarez and Tall made an early contribution to the FbA grey literature with their 2010 paper, “Towards forecast-based humanitarian decisions: Climate science to get from early
warning to early action.” The authors, both affiliated with the RCCC, address key distinctions between the forecast preferences of scientists and humanitarian actors:

Scientists produce complex probabilistic forecasts and their outputs can be conceived as a signal that reaches decision makers. Regrettably, scientific outputs do not always become inputs into people’s choices. Part of the problem is that the optimal output signal of an impending threat, from the perspective of scientists, is a set of complex and precise data about objective physical variables…whereas the optimal input signal from the humanitarian perspective is binary (i.e. ‘act’ versus ‘do nothing’). (Suarez and Tall, 2010, p. 6)

Humanitarians already face the ever-present challenge of incorporating disaster-affected or aid-recipient communities into their decision making and project design (Suarez and Tall, 2010, p. 6). FbA compounds this complexity with the introduction of the scientific community, whose work must be distilled and communicated to non-expert humanitarian organizations and communities and tailored to fit context-specific needs. Should FbA be applied at scale to situations of armed conflict, similar efforts will have to be made to open two-way communication between the experts producing complex, multivariate analyses of conflicts, humanitarian agencies preparing to engage in potentially costly interventions, and communities whose understanding of conflict and its impacts might be wholly distinct from those of the forecaster.

Published in 2014, the IFRC undertook a study with Oxfam, Save the Children, the FAO and WFP to clearly describe the obstacles to establishing “common triggers and protocols to escalate early warning to decision makers at national, regional and global level to mobilize early action” in the aftermath of the 2011 famine declaration in Somalia (Mountfield, 2014, p. 1). Much of the report goes into technical detail describing the inputs, design, and outputs of effective early warning mechanisms and case studies of previous early action regimes relating to food security and famine prevention. The study is important as an acknowledgement by a number of important humanitarian actors for the need for coordinated and consistent early action, and improvement of national weather forecasts and disaster EWS.

Finally, a broader and comprehensive overview of the state of FbA was published in 2018 by the ODI in a report titled, “Forecasting hazards, averting disasters: Implementing forecast-based early action at scale” (Wilkinson et al., 2018, p. 1). The report provides a useful break down of the components of an FbA mechanism, which must have access to hazard-related data, reliable sources of forecast information, useful forecasts, actionable lead time, and strategies to mitigate regretful actions (Wilkinson et al., 2018, p. 10-11). The report covers the methods used to measure the impact of forecasted hazards, the triggers
used to initiate early actions, and the financial tools used to support FbA mechanisms. Importantly, the authors acknowledge the limitations of validating the outcomes of current FbA mechanisms: “Since empirical evidence around the impact of earlier responses is scarce, most studies have relied on modelling and estimations to assess the impact of alternative approaches” (Wilkinson et al., 2018, p. 23). Even so, the authors conclude that early reports are positive, but warn that “the confluence of climate and conflict dominates the majority of crises, and therefore it is critical to understand the relative costs and benefits of early action” (Wilkinson et al., 2018, p. 23-25).

A growing and detailed grey literature exists surrounding FbA, including reviews of existing mechanisms, discussions of lessons learned, and analyses of the cost-effectiveness of the approach (Rohwerder, 2017; Cabot Venton, 2016; Cabot Venton, 2018). The three presented here review the generally hopeful perspective held by FbA practitioners and echo many of the same concerns outlined in the academic literature on FbA relating to information needs; high variability in hazard profiles, distinct vulnerability profiles of affected populations, and organizational and donor risk acceptance, among others. These factors contribute to the difficulty of developing a replicable tool that is flexible enough to account for variability in contexts, hazards and forecasts while remaining universal enough to be deployed swiftly and effectively. When considering the potential of conflict-centered FbA, all the challenges currently faced by FbA practitioners responding to natural disaster will be compounded by the greater uncertainties surrounding CEWS and prediction of political instability.

2.3 Literature on Conflict Early Warning (CEW)

A much larger body of academic research exists on conflict forecasting and CEW than on FbA. The following section will touch on the history of CEW and the intersection of this field with the humanitarian sector. Several publications with particular relevance to FbA will also be reviewed.

2.3.1 Academic Research on Conflict Early Warning

The field of CEW emerged in the late 1960s and 1970s, when several important projects developed sets of conflict indicators that would inform the design of later CEWS. These projects include Singer and Small’s Correlates of War Project (1963), which gathered historical data on conflict and negotiation and explored factors which could explain the outbreak and scope of conflict. Also noteworthy is McClelland’s landmark World Event/Interaction Survey (WEIS) Project, which coded and tracked events reported in the
news media and sought to chart patterns and predict behaviors of international actors (The Correlates of War Project, n.d.; McClelland, 1978, p. 1). Around the time the WEIS Project concluded, Singer and Wallace published *To Augur Well: Early Warning Indicators in World Politics*, presenting a set of papers arguing for the feasibility of using quantitative methods to understand and even predict outcomes in the international political system (Feste, 1981, 280). Following in the footsteps of the Correlates of War and WEIS Projects, the International Crisis Behavior Project was launched in 1975 with the aim of developing greater systematic knowledge about conflict and security in the international system by analyzing data beginning in 1918 (ICB Project, n.d.). Many other studies and projects would follow these early designs, deploying different data collection methodologies and continuously refining and reinventing the understanding of conflict and its drivers. An exploration of the implications of early warning in the humanitarian space was undertaken by Gordenker in 1986, who tackled the question of whether EWS could be employed when anticipating forced displacement of civilians (Gordenker, 1986). Gordenker’s work was followed shortly thereafter by Clark, who advocated for the use of early warning in order to address the causes of refugee outflows and to better provide aid to the displaced (Clark, 1989, p. 2).

CEW continued to garner interest in the 1990s, with new projects and methodologies piloted at American universities, including the Kansas Events Data System at the University of Kansas, the Integrated Data for Events Analysis typology, and the State Failure Project (Schrodt, 1998; Bond et al., 2003; Harff and Gurr, 1998, p. 552), among others. At the same time, tools such as the Organization for African Unity’s Mechanism for Conflict Prevention, Management, and Resolution, established in 1992, were put in place to make use of the advances in the field of early warning, efforts redoubled following international inaction in the wake of the Rwandan genocide (Nyheim, 2008, p. 14).

Early writing on CEWS and humanitarian action was later refined by humanitarian organizations themselves, with special focus on displacement. As Nyheim writes, “the initial drivers of early warning at an international level were humanitarian agencies (UNHCR, UNDHA and others) spurred by the need for accurate and timely predictions of refugee flows to enable effective contingency planning” (Nyheim, 2008, p. 14). This special attention is reflected in the well-developed literature on displacement and early warning, including, for example, the valuable contributions by Schmeidl and Jenkins (1996, 1998) and Martineau (2010).
On the broader subject of early warning of humanitarian crisis, the body of research is also expanding. Notable contributions include Clarke’s proposed “policy-relevant early warning template,” Harff and Gurr’s study of crisis “accelerators” and “decelerators” to predict violent repression of minority groups, Schmeidl and Jenkins’ discussion of the political challenges impeding early warning of humanitarian crises, and Whitall’s realist critique of the political manipulation of and disinterest in humanitarian early warning (Clarke, 2005; Harff and Gurr, 1998; Schmeidl and Jenkins, 1998; Whitall, 2010).

While the full breadth of the canon surrounding CEWS lies outside the scope of this research, three complementary frameworks help provide an outline of the current designs and capacities of modern CEWS: Nyheim’s chronological division of CEWS into three generations, Bocks’ four generations of CEWS, and Wulf and Debiel’s five models of CEWS.

Nyheim provides a useful framework with which to understand the evolution of CEWS across three “generations” (Nyheim, 2015, p.3). “First generation” EWS designed in the mid to late-1990s are “centralized in structure and focused on prediction and providing analysis to inform decision-making” (Nyheim, 2015, p. 3). Second generation systems, designed from 1999 to 2003, integrate more local information such as field monitors but also emphasize prediction and response more heavily (Nyheim, 2015, p. 3). And, finally, the modern generation of EWS are “localized in structure” and fully link information gathering, response and prevention of conflict (Nyheim, 2015, p. 3).

Throughout the relatively recent development of the field of CEWS, a rich debate continues over the validity and reliability of various indicators of armed conflict and the political motivation to maintain CEWS (Chadefaux, 2017; Davies and Gurr, 1998).

While Nyheim divides CEWS into three generations of increasingly decentralized and field-based information gathering, Bock provides a useful timeline of CEWS. For Bock, first generation systems relied heavily on qualitative data and focused on the behavior of decision makers (Bock, 2015, p. 105). Second generation systems integrated event data, as seen in the design of the WEIS Project, and eventually evolved into third generation systems in the early 2000s, when these systems began to focus on internal as well as external conflicts (Bock, 2015, p. 105). Third generation systems, Bock argues, are characterized by close collaboration with local organizations and capacity building at the local level, and analysis by inside and outside groups. This vision of the third-generation system is very much in line with Nyheim’s understanding. Bock, however, goes one step further in describing fourth-generation systems, which he argues adopt the
use of mobile technology and social media to crowd-source large data sets for use in early warning (Bock, 2015, p. 107). It does, however, present its own challenges. For example, even if data is more easily generated in the age of mobile technology, is the data useable and reliable? Recent trends in the manipulation of social media and dissemination of “fake news,” to use the vernacular, in sensitive political contexts would make it appear that this leap in technological capacity is accompanied by significant problems limiting its reliability (Freedom on the Net, 2017, p. 1-7).

Wulf and Debiel present five models of ‘conflict early warning and response’ systems (Wulf and Debiel, 2009, p. 1, 6). The first are causal models, which seek to identify variables that can be clearly linked to the outbreak of political conflict (Wulf and Debiel, 2009, p. 7). Causal models struggle, however, with the difficulty of distinguishing causal indicators from strong correlations (Wulf and Debiel, 2009, p. 7). The second type, predictive models, seek to find causal variables that explain conflict and use them to forecast future instability, for example the previously mentioned U.S.-funded PITF (Wulf and Debiel, 2009, p. 7-8). The third type, risk and capacity assessments, employ a combination of indicators to compile large data sets that can be parsed to produce comparative ratings of countries or areas likely prone to conflict (Wulf and Debiel, 2009, p. 8-9). Fourth are risk and capacity assessments that include early response mechanisms mobilizing the results of qualitative and quantitative risk and capacity assessments and translating them into early actions aimed at minimizing the impact of conflict (Wulf and Debiel, 2009, p. 9-10). Finally, Wulf and Debiel include investigative and intelligence-focused models whose field-level information gathering has been traditionally focused on providing information to guide the decisions of organizations or leaders, instead of more broadly useable early warning (Wulf and Debiel, 2009, p. 10-11).

2.3.2 Grey Literature on Conflict Early Warning

Much has been written by non-governmental organizations, inter-governmental organizations, and think tanks on CEWS and their potential to avert and resolve conflict (Preventing Violence, 2009; Seizing the Moment, 2016; Nyheim, 2015).

Nyheim provided valuable contributions to the grey literature on CEWS with his 2008 paper “Can Violence, War and State Collapse Be Prevented?” and 2015 report “Early warning and response to violent conflict.” In both works, Nyheim provides overviews of the history of CEWS, contemporary debates around the utility and “warning-response” link within EWS, the various models in operation today, and the potential future use of early warning tools. Nyheim is particularly concerned with the application of EWS by non-
governmental peacebuilding actors, who operate in a similar and sometimes overlapping space as humanitarian actors. Ultimately, Nyheim remains a skeptic that EWS can overcome the militarized incentives of states and general political inaction:

Conflict early warning faces the same challenges as it did 15 years ago. Early response remains elusive, and with it our ability to protect and preserve life in the face of war remains weak.

The conflict early warning field is trying to find a balance between staying relevant to its funders and doing what it is supposed to do. However, it is tilting significantly towards the former, in part because of changes in the geo-strategic environment and Northern perceptions of threats. The notion of an open source, pro-people and pro-peace conflict early warning system is giving way to one with a far more pronounced intelligence dimension. (Nyheim, 2008, p. 57)

In both works, Nyheim argues that while EWS have made large strides in their design and function, they are limited by the changing nature of armed conflict, political interests of donors, persistent difficulties in linking early warnings to appropriate early response, and methodological weaknesses in producing reliable predictions (Nyheim, 2015, p. 22-25; Nyheim, 2008, 56-60).

Much of the grey literature on CEWS is addressed to policy makers and intended for political actors. In a 2016 report, the International Crisis Group (ICG) drew on half a decade of the think tank’s research to describe the current state of conflict analysis and the feasibility of using EWS for conflict prevention (Seizing the Moment, 2016, p. i). The report provides an investigation of the manner in which CEW can be incorporated into political processes and decision making, broad sets of reliable indicators of conflict, and a review of political incentives and disincentives that might obstruct the use of early warning to inform decision making (Seizing the Moment, 2016, p. 1-18). While many of the report’s case studies and descriptions of current conflict dynamics are certainly relevant to the challenges a conflict-oriented FbA mechanism would face, the heavy focus on political actors as the primary beneficiaries of CEWS reflects the political nature of conflict, and, by extension, the subordinate role of humanitarian actors in situations of armed conflict.

Although political actors are the primary users of CEWS, a number of EWS have been used by non-governmental actors in situations of active or impending conflict. In a brief 2015 report, Rohwerder provides a useful review of a number of existing programs using EWS to preempt the outbreak of armed conflict, including a number of case studies involving national and international NGOs. Importantly, the majority of civil society and NGOs cited in Rohwerder’s case studies use EWS for information verification and sharing, social cohesion programming, and mediation and peacebuilding efforts (Rohwerder, 2015,
These programs do not extend into the FbA space as they do not feature anticipatory funding arrangements or aim to stage pre-emptive humanitarian actions. Furthermore, the current set of actions linked to early warning information mostly fall outside the purview of organizations engaged in more classical humanitarian action such as provision of medical care, distribution of food and non-food items, and so on. As mentioned in the work of Nyheim and evidenced by Rohwerder’s case studies, CEWS and early response mechanisms largely fall in the domain of peacebuilding organizations. While humanitarian and peacebuilding organizations operate in similar settings, their mandates and activities are distinct. From a classical humanitarian perspective, peacebuilding is commonly viewed as a form of advocacy that can compromise a humanitarian organization’s neutrality and impartiality (Piccinini, 2010, p. 1). For the purposes of this research this distinction between humanitarian and peacebuilding actors is upheld, and peacebuilding is considered a domain apart from humanitarian action.

The work of Nyheim, Rowhwerder and the ICG underscore the current and historic focus of CEWS as a tool mostly applied by political and peacebuilding actors. Much less consideration has been given to the prospective use of CEWS by classical Dunantist aid organizations.
3. Theoretical Framework

This research rests upon a theory of liberal international relations that emphasizes cooperation among states, the importance of an organized international order, and the mutually agreed upon importance of humanitarian action to restore individual rights to populations of people affected by natural disaster or armed conflict. FbA is an extension of this mandate to protect and fulfil the rights of the individual.

3.1 Liberal Theory of International Relations

In keeping with the philosophical underpinnings of modern humanitarianism, this work adopts a liberal approach to international relations and the political processes that mandate humanitarian action in conflict. The liberal theory of international relations is rooted in the work of a number of thinkers, chief among them John Locke, Voltaire, and David Hume. Liberal philosophy holds individual rights as the cornerstones of a free and just society. According to Jeremy Bentham, in order produce such an arrangement, citizens must be bound by a mutual obligation to respect and uphold these principles (Laval, 2016, p. 34). This rights-based philosophy rose to pre-eminence in the post-World War II era, in the form of what is popularly referred to as the ‘liberal world order,’ or a set of sovereign states organized by international economic and political institutions, treaties, and standards, who form an orderly system bound by a common interest in cooperation (Duncombe and Dunne, 2018, p. 31-32). This trend accelerated at the conclusion of the Cold War with increasing economic integration, the expansion of international institutions and peacekeeping, and a boom in the humanitarian sector (Duncombe and Dunne, 2018, p. 25-26, 32, 39).

Modern humanitarianism, as discussed previously, came to prominence amid growing hegemony of the liberal world order and in line with the expansion of the global human rights agenda. As such, Duncombe and Dunne contend that the state of the humanitarian sector can be seen as a barometer for the condition of the liberal world order (Duncombe and Dunne, 2018, p. 26):

Humanitarianism carries within it a duty of care to protect, and relieve the suffering of, distant others. A key point is the understanding of what constitutes a basic right—not the enjoyment of the idea of a right, but the demand for the fulfillment of that right that transcends any imposed boundaries of territory, nationality, ethnicity, religion or gender. At a fundamental level, humans have a basic right to subsistence and security from arbitrary and lethal violence. (Duncombe and Dunne, 2018, p. 35)

However, the state of the modern liberal order and the multilateralism and international cooperation that characterize it are widely seen as in retreat (Donini, 2016). Take, as an
example, the Syrian Civil War, where, in the face of more than half a decade of open warfare marked by the indiscriminate targeting of civilians and aid workers, political resolution has remained blocked at the U.N. Security Council (Duncombe and Dunne, 2018, p. 36). The erosion of the liberal order can similarly be seen, for example, in the collapse of Libya following international intervention in 2011 where irregular combatants and non-state armed groups continue to operate with impunity (Libya: Civilians Under Threat, 2019). The trend is hardly isolated to historically fragile states. In 2016, the European Union (EU) struck the EU-Turkey deal, offering financial aid to Turkey in exchange for a return of irregular migrants who had not filed formal applications for asylum in Turkey to Ankara, among other conditions (Gogou, 2017). As a result, thousands of irregular migrants have been contained on the Greek islands and thousands more trapped in Turkey, openly flaunting the EU’s obligations to resettle asylum seekers to a “safe third country” and abide by the principle of non-refoulement established in international law (Poon, 2016, p. 1195; Convention and Protocol, 2010). The same illiberal instincts can be seen in the political fight surrounding the securitization of the United States’ (US) southern border under the tenure of U.S. President Donald Trump.

Successful FbA, a tool at the cutting edge of the humanitarian field, embodies the liberal ethos even more fully than traditional humanitarian action, as it seeks to preserve the individual’s rights to basic services and goods at the moment they are threatened – before they are compromised or taken away. A crisis in the liberal world order, and by extension the international humanitarian architecture, would threaten the willingness of donors to fund international aid efforts, a trend already witnessed in President Trump’s push to slash the U.S. government’s aid budget, for example (Wroughton and Zengerle, 2018). This would have clear negative implications for donor willingness to fund activities such as FbA that require predictable and close cooperation, multi-year funding, and a long-term commitment by states to defend primacy of life regardless of the aid beneficiary’s geography, political affiliation or economic status.

The state of the liberal world order and the agenda of global humanity and commitment to defending human rights that form its moral core may indeed be experiencing a precarious moment. Whether this uncertainty is an indicator of defeat remains unclear. Ikenberry argues that the rise of new economic and political powers may not mean a break from the liberal order, but its ultimate triumph of liberalism, as emerging powers in the global south use the tools of the liberal international order to pursue their economic and political interests (Ikenberry, 2011, p. 57-58). Despite this trend, the
economic troubles of the 2000s, and in-fighting among the powers of the previous century, Ikenberry argues that “the liberal international order has no competitors” (Ikenberry, 2011, p. 58). This paper adopts Ikenberry’s more hopeful stance about the state of liberalism and contends that issues like humanitarian aid should be among the areas of agreement that, as they have in the past, might offer an opportunity for consensus in an uneasy climate. Humanitarianism should be among the ties that bind, and the commitment of states to a globalized duty of care should not be treated as a lost cause.

Furthermore, the development of tools like FbA, which seek to anticipate and manage chaos before its onset, should be greeted as mechanisms on which there is clear mutual interest for cooperation among donors and all the organizations that comprise the international humanitarian architecture and, by extension, the international liberal order.

3.2 Forecast-based Action as a Testable Concept
The concept of FbA and its underlying logic is contentious. FbA’s utility and its value as a concept – that anticipatory action leads to responses that minimize the human impact of disaster and cost – must be tested by appropriate monitoring and evaluation efforts and comparison of the cost of FbA responses against traditional responses to similar disasters. More data is needed to validate or reject FbA’s validity, and it is not within the scope of this paper to reach a conclusion on this matter. This research does not uncritically accept FbA’s value but regards it as a promising concept and tool whose potential must be weighed against the results of case studies from the field.

3.3 Conclusion
Premised on a liberal interpretation of the international system and the place of the humanitarian community within it, FbA embodies the mandate of humanitarian actors to act in defense of human lives and dignity. If the FbA approach is eventually validated by the success of early projects and their expansion into mainstream humanitarian practice, it will, beyond the obvious benefits to those in the targeted communities, serve to underscore the commitment of the international system to protect the lives and livelihoods of the most vulnerable populations globally.
4. Existing Forecast-based Action Models and Capacities

Before discussing the possible applicability of FbA to conflict, it is important to examine the current state of FbA and its existing application in situations of natural disaster, famine, and political crisis. Currently, three institutions have developed or are in the process of developing FbA mechanisms: The Red Cross and Red Crescent Movement, the Start Network, and the United Nations, within which there are four different FbA models in development or operation. Beginning with the best documented FbA tools, the following section will describe each model and their associated funding mechanism.

4.1 Red Cross and Red Crescent Movement: Forecast-based Financing (FbF)

The largest and most prominent actor within the FbA space is the Red Cross/Red Crescent Movement. The FbF mechanism seeks to connect humanitarian practitioners with scientists and meteorological agencies to adopt joint early action protocols (EAPs) based on defined danger thresholds to automatically disburse funding and stage early actions before disaster strikes. Successfully implemented FbF mechanisms – put in place at the level of national Red Cross societies – pull funding from the Disaster Relief Emergency Fund (DREF) housed at the headquarters of the IFRC in Geneva Switzerland (Forecast-based Action by the DREF, 2018). To understand the mechanism, it is useful to examine its seven-step design (Figure 1).

Figure 1: The seven steps of an FbF mechanism’s development. (Forecast-based Financing: A New Era of Disaster Relief, 2018, p. 2).

In the initial step of an FbF mechanism’s design, a specific extreme weather event and at-risk geographic area are selected. In the past, events such as floods, typhoons, cyclones and heat waves have been among the subjects of FbF mechanisms (Our Projects,
n.d.). Once the potential disaster is selected, the implementing National Society (often in partnership with Partner National Societies) carries out an extensive context analysis to identify the vulnerability and exposure of local populations to the selected disaster, relevant features of the environment, and local stakeholders and potential partners (Forecast-based Financing: A New Era of Disaster Relief, 2018). Subsequently, and in collaboration with meteorological agencies and scientists, the capacity of local forecasts is reviewed, gaps are identified, lead times are estimated, and information is collected on what forecasts are most useful for the project’s aims. Once the forecasts are agreed upon, danger levels corresponding with the severity of the forecasts and their expected damage are set as “trigger” points at which early actions should be undertaken. Next, all involved groups determine what early actions are appropriate at each “trigger” point, examining their feasibility and humanitarian impact. The combination of assessments, forecasts, impact levels and early actions are then compiled into the EAP, which must be approved by all partners (National Society, local and national government, meteorological agencies) and IFRC headquarters. Once the EAP is approved, the FbF mechanism is considered to be in effect, forecasts are monitored and if a danger level or “trigger” is reached, funding is disbursed automatically from the DREF and early actions are staged. The FbF tool has been adopted by other organizations as well, including the World Food Programme, which is implementing FbF in ten countries as part of a larger shift in focus to early action programming (Forecast-based Financing: Moving from crisis response, 2018).

4.2 Start Network: Start Fund Crisis Anticipation Window (CAW)
The Start Network is a consortium of more than 40 non-governmental organizations, including major ‘brand name’ organizations such as Save the Children, Mercy Corps, CARE International and Oxfam, among others. At the core of the Network’s vision is a “system in which funding will be dependable and predictable, based on humanitarian need” (Start Evolves, n.d.). Toward this end, the network designed the Start Fund, a pooled fund supported by various European governments and...
the European Commission, to serve as a fast-action mechanism responding to small or medium scale crises lacking sufficient funding, sudden deteriorations in chronic emergencies, and to stage early actions (Start Fund: Filling a gap, 2015).

The Start Fund has a wider scope than FbF and includes more traditional post-disaster response actions. Housed within the Start Fund is the Crisis Anticipation Window (CAW), the Fund’s FbA mechanism. To date, the CAW is used to respond to six types of disaster: Drought, floods, heat waves, hurricanes and typhoons, disease outbreaks, and displacement caused by conflict (Start Fund: Guidance, n.d.). To activate the CAW, a member NGO must issue an alert of an impending humanitarian crisis to the Start Network (Start Fund Anticipation Window, 2016). A group of experts organized by the Start Network reviews the alert using a combination of third-party analysis and input from member organizations (Start Fund Anticipation Window, 2016). A decision to activate the fund is issued within one day, at which point Start Network members can submit project proposals to address the crisis (Start Fund Practical Guide, n.d.). Organizations present in the disaster-affected country review the proposals, which are scored using preset criteria, and select which projects to fund (Start Fund Anticipation Window, 2016). The fund aims to disburse funding within 72 hours of an alert (Start Fund Practical Guide, n.d.).

The design of the Start Network’s CAW is quite different from the FbF model. Two distinctions deserve particular mention. First, the CAW does not include a “trigger” mechanism. Disbursal of funding is contingent on a time-bound review at institutional and country levels. While this more flexible model allows for consideration of a wider range of factors and situations meriting humanitarian response but might sacrifice some of the speed offered by an automatic and pre-agreed trigger. Second, the design of the CAW allows for the network to respond to humanitarian emergencies other than extreme weather events. Because the fund isn’t tied solely to meteorological forecasts, the early warning or forecasting aspect of the CAW must rely on a mixed methods approach more akin to current CEW. However, the Start Network is currently exploring the potential adaptation of the FbF model for its member network with a pilot project in Madagascar in collaboration with the German NGO Welthungerhilfe, the RCCC, and a collection of local organizations (Start Fund Crisis Anticipation Window, 2017, p. 12).

The Start Fund is also expanding and investing in improvements to its forecast methodology, notably launching its Forecast-based Warning, Analysis and Response Network (FOREWARN), in 2016 as a supplement to the CAW (FOREWARN, n.d.). FOREWARN is made up of a panel of scientists and humanitarians who produce a range
of context and risk analyses, forecasts, alerts, and similar products to support the Network’s early action activities (FOREWARN, n.d.). As the Fund’s website indicates, “FOREWARN has grown into a community that not only advises the Start Fund’s Crisis Anticipation Window, but also monitors risks globally, provides technical advice on specific hazards and the mitigation of predictable disasters, and promotes policies that favour pre-emptive humanitarian action” (FOREWARN, n.d.). This combination of expertise from implementing member organizations and experts provides a powerful set of information inputs to steer the activation of the CAW. As will be discussed at greater length later in this research, a tool like FOREWARN could prove of particular utility in conflict-sensitive FbA.

4.3 World Food Programme: FoodSECuRE

Three FbA mechanisms exist within the United Nations at the agency level: one within the WFP, another designed by the FAO, and a third recently begun by the World Bank.

Launched in 2015, FoodSECuRE is an FbA mechanism tailored to the WFP’s mandate to fight hunger created with the specific intent to bolster the agency’s ability to respond to more frequent and increasingly costly climate disasters (FoodSECuRE: Innovative Approach, 2015). As the WFP describes it, FoodSECuRE is “a multilateral, multi-year, replenishable fund” that brings together forecasting and flexible funding to mitigate the effects of droughts, floods and storms and their associated after-effects including crop failure and livelihood disruptions (FoodSECuRE: Innovative Approach, 2015; Food Security Climate Resilience, n.d.). The mechanism seeks to make funding available before the onset of disaster and throughout its potentially long-term aftermath, providing multi-year funding and expertise to improve community resilience to climatic shocks and livelihood disruptions (FoodSECuRE, n.d.).

FoodSECuRE, like FbF, relies on long-term and short-term forecasts to “trigger” the disbursal of funding to stage new programs or scale up existing programs, sometimes with a months-long lead time to the onset of the disaster. The FoodSECuRE mechanism is divided into three phases, or “windows” to encompass the full disaster cycle, from pre-disaster to post-disaster phases. Window I utilizes climate forecasts tied to specific “triggers” to stage resilience-building activities at the community level (Food Security Climate Resilience Facility, n.d.). Window II is activated in the immediate aftermath of a climate disaster, acting in chorus with government responses (Food Security Climate Resilience Facility, n.d.). Finally, Window III aims to improve resilience in the aftermath
of disaster with predictable, long-term funding of activities focused on food and nutrition (Food Security Climate Resilience Facility, n.d.).

Although it uses a similar “trigger” mechanism to automatically disburse funds, FoodSECuRE is distinct from FbF in its ability to address slow-onset disasters with months of lead time and its focus on multi-year funding and resilience. While this is surely within the reach of the FbF mechanism, current FbF pilot projects address disasters with shorter lead times such as floods and heat waves. FoodSECuRE benefits from the slow-onset nature of events like drought, the availability of numerous indicators that can predict crop failure and deterioration in food security, as well as the large pre-existing presence of the WFP in many drought and famine-prone regions of the world.

4.4 Food and Agriculture Organization: Early Warning Early Action (EWEA)

The FAO’s Early Warning Early Action (EWEA) mechanism, focused on agricultural productivity and food security at global and national levels, uses internal and external analyses and forecasts to stage anticipatory actions (FAO’s Early Warning – Early Action system, 2016). The EWEA is primarily concerned with food security and, in collaboration with “national government and humanitarian, development and scientific partners” monitors natural disasters, plant and animal diseases, drastic changes in food prices, and conflict trends for their impact on food security (FAO’s Early Warning – Early Action system, 2016; Early Warning Early Action, 2019). Like FbF, the EWEA uses a system of agreed upon “triggers” to rapidly release funding and take anticipatory actions from a dedicated Early Action Fund within the organization’s larger and well established Special Fund for Emergency and Rehabilitation (SFERA). Unlike FbF, which uses localized forecasts FAO’s FbA approach “(harnesses) information systems at global, regional and local levels to forecast potential disasters and safeguard critical agriculture and food security assets” (Early Warning Early Action, 2019, p.1). EWEA’s attention to such a diverse set of indicators and information sources – economic, meteorological, epidemiological, etc. – sets it apart from its fellow FbA mechanisms and speaks to the larger institutional capacity and steadier multi-year funding available to the FAO in comparison to other organizations.

The FAO has also established partnerships with other actors in the early action sector, notably the IFRC, RCCC, and GRC and the WFP to investigate the translation of early warning information into effective response (Early Warning Early Action, n.d.; FAO Early Warning, 2017, p. 5).
4.5 World Bank: Famine Action Mechanism (FAM)

The World Bank announced the launch of its Famine Action Mechanism (FAM) in September 2018. Similar to FbF, FAM links early warnings to a pre-arranged funding pool which releases funds upon the issuance of an alert (Famine Action Mechanism (FAM), 2018; Famine Action Mechanism (FAM): A Global Initiative, 2018). The FAM is distinct from FbF, however, in its target crisis – famine – as well as its stewardship. The FAM initiative brings together a wide range of stakeholders, from private sector companies such as Amazon Web Services and Google, INGOs, the International Committee of the Red Cross, national governments, the scientific community, and the United Nations (UN Secretary-General, 2018).

Few details on the mechanisms of the FAM are available. Much of the press surrounding the launch of the mechanism repeats the same cost-saving logic used to promote the UN’s other FbA mechanisms and highlights the participation of major technology firms in the tool’s development (Famine Action Mechanism: Predictive Data, 2018). Given its global ambitions and broad-based buy-in, should the FAM realize its aim and successfully bring together humanitarian, development, government and private sector actors in a coordinated anticipatory response to famine, the FAM would mark a significant advancement in the realization of the World Humanitarian Summit’s goal of a more “anticipatory approach” to humanitarian aid (Initial Scoping Paper, 2016).

4.6 United Nations Central Emergency Response Fund (CERF)

CERF is one of the largest pools of humanitarian funding globally, made up of contributions from member and observer states, regional organizations, private sector organizations, as well as individual donations (Who We Are, n.d.). Created in 2005, CERF acts a flexible funding mechanism through which significant funds can be disbursed to implementing UN agencies and their humanitarian partners responding to “rapidly deteriorating” humanitarian emergencies and supporting ongoing activities in “underfunded emergencies” (Who We Are, n.d.; Underfunded Emergencies, n.d.).

In 2016, $439 million USD was allocated through CERF in response to disasters in 47 countries across multiple program sectors, predominantly food, health, shelter and non-food items, and water and sanitation (CERF Results, 2017, p. 3). CERF is managed by the Emergency Relief Coordinator on behalf of the Secretary General, and maintains its own secretariat (Organizational structure, n.d.). While the current focus of CERF remains on rapid response and underfunded emergencies, the fund’s stewards are actively exploring
the viability of an anticipatory funding mechanism within the fund (Underfunded Emergencies, n.d.; CERF for the Future, 2018, p. 1).

CERF has some experience in early action. For example, in 2013 the fund disbursed a $5 million USD before the onset of monsoon season in Myanmar in anticipation of flooding in more than a dozen camps for the internally displaced (CERF for the Future, 2018, p. 2). The funding disbursal was deemed a success for its compliance with the fund’s “early action objectives” (CERF for the Future, 2018, p. 2). More recently, CERF staff collaborated with UN country missions across the Sahel region to disburse $30 million in funding for animal health and cash-based programming to protect the livelihoods of communities at risk of food insecurity and drought (CERF for the Future, 2018, p. 2). These are notable successes but were conducted on a case-by-case basis, not through a formal FbA or FbA-like mechanism.

In a paper released in October 2018 summarizing the results of a May meeting discussing the future of the fund and possible avenues for innovation, special attention was given to anticipatory humanitarian action. Citing ERC Lowcock’s call for “an anticipatory approach where we plan in advance for the next crises,” the paper described ongoing research efforts with the Overseas Development Institute to understand “what an anticipatory approach for CERF would look like in practice” (CERF for the Future, 2018, p. 1-3). The results of this study are expected to be published in February 2019 (CERF for the Future, 2018, p. 3). As CERF’s October 2018 report notes:

The only dedicated anticipatory financing mechanisms with wide geographic reach and coverage of various disaster types are the DREF and the Start Fund. With these being limited to Red Cross/Red Crescent societies and NGOs respectively, the third pillar of the international humanitarian assistance architecture – the UN system – remains missing. CERF with its global reach, funding volume, and established processes, partnerships and capabilities is well positioned to fill this gap and promote coherence within the humanitarian system. (CERF for the Future, 2018, p. 5)

Although the passage fails to mention the WFP, FAO, or World Bank’s forays into the FbA space – perhaps for their narrower focus and disparate geographic reaches – the optimistic tone of CERF’s report speaks to the likely continued mainstreaming of FbA in coming years.

4.7 Conclusion

Existing FbA mechanisms are diverse in design and scale. There is also significant crossover between different models and actors, with tools like FbF being used by multiple organizations to act early in areas threatened by natural disaster. Despite their differences,
all FbA mechanisms and practitioners are bound by a mutually-held interest in staging anticipatory action. This interest presents a number of significant challenges that bear outlining. The subsequent section will explore these common difficulties.
5. Obstacles to Forecast-based Humanitarian Action

While there are a variety of FbA mechanisms under development by humanitarian actors globally, a number of obstacles are common to them all. They fall into three broad categories: forecast confidence and utility, institutional capacity, and donor confidence and control. These challenges are inherent to the nature of FbA and will be present no matter the focus of the mechanism – natural disaster, famine, or armed conflict.

5.1 Forecast Confidence and Utility

Patt and Gwata identify six constraints on the utility of forecasts for decisionmakers navigating the gap between early warning and action: (1) the credibility, or historical reliability of a forecast, (2) the legitimacy or impartiality of forecast information, (3) the forecast’s scale and whether the forecast is locally relevant, (4) the forecast’s ability to be understood and interpreted, (5) the compatibility of the forecast to the structures and institutions that make use of the information, and, finally, (6) the ability of the forecast to offer information of sufficient detail and depth to inform the actions of decisionmakers (Patt and Gwata, 2002, p. 186-189).

Patt and Gwata’s six-point framework covers a wide range of potential issues that may occur within every component of an FbA mechanism, from the forecast’s design, deployment, and interpretation, to the setting of relevant trigger points and types of early action. If an FbA mechanism is imagined as a chain of events, a single ‘kink’ in the otherwise smooth delivery of information up the chain from forecast design and monitoring to implementation of early action may lead to a negative outcome, whether acting in vain, failure to act, or engaging in actions mismatched to the profile of the disaster. The same is true in the development of the FbA mechanism. Take, for example, the design of the FbF mechanism depicted earlier in Fig. 1. Should the initial risk assessments and identification of forecasts make imprecise estimations about the risk presented by the hazard, or identify unreliable, politicized, or otherwise compromised forecasts using Patt and Gwata’s six constraints, every subsequent step of the mechanism’s design will be flawed, from the definition of trigger points, to the selection of early actions and conception of an FbF-style EAP.

Of course, the utility of a forecast might also be compromised by the forecast’s author themselves. Using lessons from behavioral economics, Suarez and Patt argue that there is a tendency for forecasters to err on the side of caution, especially when linking forecasts to action (Suarez and Patt, 2004). The combination of heuristics (“associating
events with perceived similar events, searching memory for the most visible examples, and attaching a great deal of confidence in these estimates,” (Suarez and Patt, 2004, p. 4), loss aversion, omission bias, and status quo bias, all contribute to the tendency for forecasters to believe that “errors of commission are much more dreaded than errors of omission, leading to a bias towards inaction” (Suarez and Patt, 2004, p. 4-8). This aversion to “errors of commission,” not only introduces biases to the work produced by forecasters but can also lead humanitarian actors to exercise undue caution in using or disseminating forecast information for fear of negative consequences (Suarez and Patt, 2004, p. 8). Put another way, the actor sharing the forecast information will not be punished by withholding information, only for sharing false information. In the transfer of knowledge from forecaster to humanitarian, there therefore exists great potential for the information to be misinterpreted, leading to misguided understandings of risk or a misunderstood profile of the forecasted hazard and, by extension, faulty decisions by the humanitarian actor (Suarez and Patt, 2004, p. 8-9). It is apparent, then, that not only is developing and selecting a useful forecast a serious challenge, but the system of incentives acting on actors that translate forecasts into meaningful action encourages a cautious approach with potentially negative consequences.

5.2 Institutional Capacity

A second challenge to successful FbA is the capacity of the implementing organization to collect, synthesize, and utilize forecast information for anticipatory actions. Institutional capacity can include the availability of and access to individuals able to gather and make use of forecast information, access to reliable partner organizations with sufficient expertise to produce useful forecasts, financial resources to retain a pool of funding to be tapped should a forecast appear requiring early action, and the financial capacity to absorb a loss should the forecast be inaccurate.

As FbA is relatively new, even the leaders in the field, notably the IFRC and GRC, launch their projects as collaborations between multiple national societies, bringing together the local knowledge and resources of the local National Society and the technical expertise of outside National Societies with more FbF experience. For example, the ongoing FbF project in Hanoi, Viet Nam addressing the public health impacts of heat waves, is a collaboration between the Viet Nam Red Cross Society (VNRC) and GRC, which provides technical support and expertise to their Vietnamese partner (Forecast-based Financing: A New Era, 2018, p. 1). The Red Cross Movement also benefits from the size
and security of the DREF, a fast-acting and well-established fund accessible to all member Red Cross Red Crescent National Societies (Forecast-based action in the humanitarian sector, 2018, p. 4).

The Start Network similarly benefits from a large membership, including major humanitarian agencies. The more diffuse structure of the Start Fund FbA mechanism also allows for a degree of flexibility allowing for small and large NGOs to participate. More specifically, after an early warning alert is issued, Start Fund members submit proposals for their suggested early actions. This allows for each NGO to propose participation scaled to their specific capacities. The FbF mechanism, by contrast, relies on a pre-agreed EAP that defines the roles of all partners supporting the mechanism, the forecast trigger points, and the pre-set early actions to be taken at different levels of forecasted risk. What FbF gains in lead time due to its pre-determined components it might lose in flexibility.

In short, institutional capacity can limit the participation in FbA by smaller organizations or the utility of FbA by current practitioners whose budgets might fluctuate or who might have difficulty recruiting and retaining staff with the required competencies to responsibly monitor a complex FbA regime. Institutional capacity can be improved through collective arrangements such as the Start Fund but remains an evident and important challenge.

5.3 Donor Confidence and Control

Finally, FbA requires significant investment by donors who must concede a measure of control over their funds if they are to be disbursed when qualifying forecasts dictate their use. As the Overseas Development Institute notes this issue in its report on FbA:

Governments and donors are, understandably, not keen on spending budgets on early action based on a forecast when levels of uncertainty are high; even when uncertainty is low it is difficult to commit resources up-front. As one key informant pointed out, the challenge remains that, even in high income countries like the US and UK, there is insufficient political buy-in or confidence to automatically take decisions based on a trigger: decision-making power remains with technical or political institutions. In other instances, there may be a political desire to retain control over the parameters used to declare an emergency, limiting or blocking FbA initiatives from the outset. (Wilkinson et al., 2018, p. 28)

As Wilkinson and his co-authors so accurately describe, all funding, even for humanitarian assistance, is beholden to a donors’ specific interests. Funding does not necessarily align with needs, which FbA seeks to correct by using objective probabilities of disaster to make corresponding investments. The declaration of an emergency typically falls within the domain of national governments, who may or may not issue a declaration – even if their
capacities are overwhelmed – for reputational and political reasons. To effectively remove this decision from their hands would mark major shift in power from national governments to humanitarian actors. The intensity, nature and scope of conflict are all subject to contention throughout the life of the event and even for decades after its conclusion. It is difficult to imagine a government willing to de facto cede the power of determining the visibility of a conflict to humanitarian actors who might reach trigger levels demanding action before a conflict is widely or publicly acknowledged.

The humanitarian system still operates largely on year-to-year funding, a limiting tendency that the sector is increasingly trying to counter with agreements such as the Grand Bargain (Living up to the Promise, 2017, p. 4). Tools like FbA require multi-year humanitarian financing (MYHF), a scheme similarly fraught with uncertainties and challenges and with a comparably small base of evidence to support its cost-saving assumptions (Living up to the Promise, 2017, p. 4-7). Despite MYHF’s suggestion that long-term financial planning for humanitarian response produces cost savings for donors and implementing agencies, encourages coordination and collaboration, and increases response flexibility, the humanitarian sector’s structure and the management of its agencies and programs are still aligned toward short-term, post-disaster responses (Living up to the Promise, 2017, p. 4-6, 5).

In requiring the loosening of control and influence over funding, FbA is a difficult tool to market to large state donors. Introducing FbA to armed conflict – a product of political disagreement and failure – will likely be even more challenging to sell to donors, and therefore must be carefully designed in order to avoid impinging on donors’ political interests or risking any compromise to the humanitarian character of the implementing organization.

5.4. Conclusion

The challenges outlined – forecast utility, institutional capacity, and donor confidence – are the lynchpins for effective FbA. To overcome these challenges and produce reliable, scalable FbA would entail a fundamental rearranging of humanitarian response, but the severity of these challenges can not be underestimated. The last two challenges, especially are issues that continue to plague humanitarian action globally, as INGOs and UN agencies struggle to secure adequate funding to provide even basic levels of support to disaster and conflict-affected populations, and donors’ appetites and aims for humanitarian funding are constantly shifting. Outlining, however broadly, the current
state of FbA sets the stage for a discussion of the topic of what elements must be present for a potentially successful marriage of FbA and CEWS.
6. Design and Capacities of Conflict Early Warning Systems

This section will discuss indicators commonly used to predict armed conflict, several modern CEWS, current uses of CEWS in the domain of humanitarian action, and early FbA activities incorporating CEW. These topics will inform the subsequent section’s discussion of the design of a conflict-sensitive FbA mechanism.

6.1 Common Indicators and Coding Violence

Common indicators used to predict the outbreak of violent conflict is a topic of continuous contention, with researchers analyzing political events and the behavior of political leaders, economic trends, news media reports and a whole host of other factors to anticipate violence (Seizing the Moment, 2016, p. 9; Kimbrough et al., 2017; McClelland, 1978, p. 1).

Generally, indicators are split into two types: automatically coded and human coded. Quantitative data such as mortality rates or mentions of key words and locations in news media reports is often coded, or sorted, automatically, whereas qualitative data such as the behavior of elites and deterioration of political rhetoric are coded by analysts, i.e. humans.

As Harff and Gurr write, “political upheavals and internal wars…provide the context and pretext for the victimization of communal and political victims that are at the heart of humanitarian emergencies” (Harff and Gurr, 1998, p. 556). The most valuable indicators, then, are likely those linked to the incidence of political instability and internal conflict. The ICG identifies four areas they believe have “recurrent” value as warning signs of indicators preceding the outbreak of violence: elite behaviors, behavior of security forces, violence in “peripheral regions,” and external politics (Seizing the Moment, 2016, 9-14). Harff and Gurr add to this list regime change, internal revolutionary movements, past political repression, presence of repressive policies aimed at specific ethnic or cultural groups, and economic imbalances between groups, among others (Harff and Gurr, 1998, p. 556-562). As with any aspect of early warning, the utility and power of these indicators is entirely context-dependent upon the social and economic composition of the society, the strength of its governance, and its particular political history.
6.2 Modern Conflict Early Warning Systems

CEWS exist at the level of inter-governmental organizations and states, as well as within non-governmental organizations operating in politically unstable contexts. Their functions and intent differ, making their outputs of varying use for early action.

The EU Conflict Early Warning System, for example, monitors quantitative indicators “according to their strong correlation with highly violent conflict” that produce risk assessments at the country level (EU Conflict Early Warning System, 2016, p. 4). These results are combined with a qualitative analysis of secondary sources and prior EWS reports and provide the EU Commission and its intelligence and conflict prevention bodies with early warning information twice a year (EU Conflict Early Warning System, 2016, p. 4-5). These assessments are used to prioritize the actions of the EU, including the activities of its dedicated humanitarian arm, the European Civil Protection and Humanitarian Aid Operations department (ECHO). This type of CEWS, which informs decision making at a high level, is not designed to be immediately responsive to developments in conflicts as they happen but rather to provide policymakers with a longer view.

Another prominent inter-governmental CEWS is the aforementioned AU/CEWS. The AU/CEWS combines automatic and human coding to collect data, combining data from online news reports and resources and data processed by AU analysts to provide risk assessments (Conflict Prevention, 2018, p. 7-8). Like the EU’s CEWS, the AU/CEWS is intended to feed relevant and timely information to institutional decisionmakers, and not necessarily to link forecasts with early actions, although the information surely informs and guides decision making processes. Also present on the African continent is the Intergovernmental Authority on Development’s (IGAD) Conflict Early Warning and Response Mechanism (CEWARN). CEWARN explicitly links early warning and early response in its mandate, a goal it seeks to accomplish through conflict monitoring at regional, state, and sub-country levels and rapid funding mechanisms (Protocol of the Establishment, 2002, p. 7-8; Wulf and Debiel, 2009, p. 18).

Also worth mention are two examples of sub-regional and sub-national early warning conflict projects implemented by non-governmental actors. While there are many examples of non-governmental CEWS, only two will be described here that provide a general idea of their typical design and intent. In Timor-Leste, local NGO Belun collaborated with Columbia University researchers to implement a field-level CEWS responding to “conflicts between families, ethnic groups, and communities” with
particular attention to inter-communal dynamics and conditions that could generate future violence. (Rohwerder, 2015, p. 6). The CEWS worked at national and community level, focusing on recruiting members of local government and security services, civil society organizations, and ordinary citizens as monitors and peace promoters (Rohwerder, 2015, p. 7). Importantly, when translating early warning information into useful actions, the system relied on local actors as the mediators as they possessed the greatest contextual knowledge and acceptance (Rohwerder, 2015, p. 7). This example shows that a heavily qualitative and human-coded network can be built and run effectively when monitoring hyper-local conflicts, as Belun’s CEWS intended.

In the aftermath of Kenya’s 2008 elections, the Uwiano peacebuilding platform, made up of national and international humanitarian, development, security and civil society actors, launched an EWS using human monitors and an SMS system with which to gather citizen reports of relevant incidents (Rohwerder, 2015, p. 8). Reports from monitors and the SMS system could be used to shape peace messaging by radio, direct mediation, or “security measures” (Rohwerder, 2015, p. 8). The system was adopted widely, receiving 5,000 messages every day at the height of its operations (Rohwerder, 2015, p. 8). The success of Uwiano’s project was reportedly due to the close collaboration by Uwiano’s member organizations, a focus on ownership of the program by participating members and communities, and its ability to gather and act on local knowledge (Rohwerder, 2015, p. 8).

The form and function of CEWS are clearly quite diverse, ranging from the strategic-level, heavily automatically coded reporting of the EU CEWS, to the hyper local work of systems such as that operated by Uwiano. Best practice is thus dependent entirely on the system’s geographical and topical focus, desired outcomes, and the stakeholders who it intends to benefit.

6.3 Use of Conflict Early Warning Systems by Humanitarian Actors

There is crossover between peacebuilding and humanitarian actors, especially in the thematic area of protection. The prior examples of CEWS from Timor-Leste and Kenya would fall more readily into the domain of peacebuilding than humanitarian action. Those few humanitarian actors deploying EWS in conflict do so predominantly in the protection sector. Typically, these programs use early warnings to reduce the exposure of civilians to armed groups and to take actions to improve social cohesion when a community or area is faced with a likely or impending conflict. For a sense of the types of conflict-
sensitive EWS deployed by humanitarian actors, two examples of projects by American INGO Catholic Relief Services (CRS) will be described.

To monitor the activities of the Lord’s Resistance Army (LRA) militia and its criminal activities in the DRC, CAR, and South Sudan, two American INGOs, Invisible Children (IC) and CRS, built parallel and somewhat overlapping community-based EWS. Both systems intended to reduce community-level vulnerability to the LRA through information sharing and better community-level security organization (Secure, n.d.; Current Programs, n.d.). To do so, CRS and IC installed dozens of high-frequency radios in LRA-affected communities and trained and organized community members to report any sightings or observed activities of the target groups (Secure, n.d.; Community Resilience Committees, n.d.). Supplementing IC and CRS’s EWS programs were projects offering psychosocial support, and advocating greater social cohesion, for example (Hostetter, n.d.; Trauma Healing, n.d.).

The regions in which both INGOs operate have long been plagued by weak governance and the presence of non-state armed groups like the LRA, making them sites of protracted crisis (Central African Republic Crisis, 2014, p. 15, 21). Both programs allow communities to enhance their resilience against armed groups, but also to stake out a counter-LRA position. While the LRA are now reduced to a diffuse collection of armed criminals with many forced underage recruits within their ranks (Cakaj and Titeca, 2017), they remain politically relevant in the region. It can be argued that such programs depart from strict humanitarian impartiality, especially on the part of IC, which has openly lobbied for US policy combatting the LRA (Demmers and Gould, 2018, p. 371). At the very least, these efforts tread a line between protection programming and peacebuilding. Additionally, both NGO’s EWS (IC’s is still in operation) were funded by the United States Agency for International Development (USAID), an agency of a country that deployed military elements to southeast CAR to support regional efforts to defeat the LRA from 2011 until 2017 (Demmers and Gould, 2018, p. 374).
In 2010, CRS launched an EWS in partnership with the United Nations Children’s Fund (UNICEF) and Caritas, a Catholic INGO, to connect humanitarian, government, and private sector groups with affected communities to improve humanitarian response in central DRC. The system was built to offer communities, many of which have close connections with Catholic institutions, a tool with which to report the “physical human and political impact of disasters on their community” (Moumane et al., 2012, p. 18). The structure of the EWS can be seen in Figure 3. Warning and response are clearly linked, but the mechanism does not include any triggers to automatically stage early actions, nor does it seek to pre-empt the onset of humanitarian need. By 2011, a year after the initiation of the project, the EWS had successfully been used to “notify humanitarian agencies of fires, community conflicts, floods and rainstorms, the expulsion of Congolese from Angola, epidemics and shipwrecks,” and to serve as an evidence base to start seven disaster preparedness programs (Moumane et al., 2012, p. 18-19).

Such EWS programs in areas with weak infrastructure rely heavily on human coding. Further, they do not necessarily generate forecasts of future events, but of ongoing and unfolding situations, which might be extrapolated to predict future deteriorations or context changes. These EWS are not tied to automatic disbursements of funds or formalized preset early actions linked to institutional emergency response protocols. Still, such INGO programs are notable as examples of humanitarian applications of EWS that operate with high sensitivity to local contextual factors, effectively working side-by-side with conflict-affected communities, generating useable information and reducing the harmful impacts of war on civilians. Even so, an EWS model similar to those used by IC

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Figure 3: Process map for Catholic Relief Services’ EWS in central DRC. (Moumane et al., 2012, p. 12)
and CRS relies heavily on human information gathering and coding, which is time consuming to analyze, and vulnerable to manipulation, inaccuracy, and rumor.

6.4 Start Fund’s Response to Conflict-generated Humanitarian Needs

If third generation EWS must include local-level monitoring and information gathering, as Nyheim argues and the work of CRS exhibits, the translation of a locally-grounded EWS into an FbA mechanism requires the gathering of information that must offer clear indicators of conflict and action thresholds (triggers). These would enable a decision to act or not to act and offer information that can also reliably predict the humanitarian need associated with the conflict event. The Start Fund’s response to conflict-generated needs offers a promising model addressing both requirements.

The Start Fund has released alerts and staged corresponding humanitarian actions relating to violent events and their consequences including electoral violence, displacement, and civil unrest for half a decade (Alerts Dashboard, 2019). From April 2014 to May 2019, Start Fund members issued alerts related to conflict 98 times, 70 of which were funded (Alerts Dashboard, 2019). The Start Fund divides their alerts into several types, including rapid onset, slow onset, and anticipatory, allowing for a wide range of lead times and flexibility in the design of each response (Alerts Dashboard, 2019). Of the 98 conflict-related alerts generated by members, only seven sought to stage anticipatory conflict-related action, five of which were funded (Alerts Dashboard, 2019).

<table>
<thead>
<tr>
<th>Country</th>
<th>Date</th>
<th>Type</th>
<th>Status</th>
<th>Event</th>
<th>Funding Recipients</th>
<th>Activities</th>
<th>Individuals reached</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uganda</td>
<td>07/2016</td>
<td>Rapid onset/Anticipatory</td>
<td>Completed</td>
<td>“Anticipation of Refugees”</td>
<td>Action Against Hunger, Norwegian Refugee Council, Oxfam, Save the Children</td>
<td>NFI provision (core relief items, hygiene kits), psychosocial support, WASH infrastructure, community organization, capacity building of health sector.</td>
<td>30,337</td>
</tr>
<tr>
<td>Iraq</td>
<td>08/2016</td>
<td>Rapid onset/Anticipatory</td>
<td>Not allocated</td>
<td>“Anticipation of Displacement”</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Kenya</td>
<td>07/2017</td>
<td>Anticipatory</td>
<td>Reporting</td>
<td>“Anticipation of election-based violence, conflict and displacement”</td>
<td>ActionAid</td>
<td>Trainings, peace promotion campaign, food and NFI provision.</td>
<td>31,350</td>
</tr>
<tr>
<td>Pakistan</td>
<td>01/2018</td>
<td>Anticipatory</td>
<td>Completed</td>
<td>“Anticipation of forced refugee returns”</td>
<td>International Rescue Committee, Norwegian Refugee Council</td>
<td>N/A</td>
<td>39,207</td>
</tr>
<tr>
<td>Madagascar</td>
<td>06/2018</td>
<td>Anticipatory</td>
<td>Not allocated</td>
<td>“Anticipation of violence”</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>09/2018</td>
<td>Anticipatory</td>
<td>Completed</td>
<td>“Anticipation of Conflict and Displacement”</td>
<td>Norwegian Refugee Council, Oxfam</td>
<td>Cash assistance, emergency preparedness.</td>
<td>4,900</td>
</tr>
<tr>
<td>Nigeria</td>
<td>02/2019</td>
<td>Anticipatory</td>
<td>Project Selection</td>
<td>“Anticipation of Electoral Violence”</td>
<td>Norwegian Refugee Council, Tearfund</td>
<td>Project ongoing</td>
<td></td>
</tr>
</tbody>
</table>

(Alerts Dashboard, 2019; 906 Uganda, 2016; 110 Iraq, 2016; 175 Kenya, 2017; 205 Pakistan and Afghanistan, 2018; 242 Madagascar, 2018; 263 Afghanistan, 2018; 300 Nigeria, 2019)
As Table 1 shows, the conflict-related anticipatory actions funded by the Start Fund were staged in vastly different contexts, across numerous sectors, and of highly variable scales, highlighting the admirable flexibility of the Start Fund mechanism across all three variables: geography, type of assistance, and size of operation.

There are several notable features of the Start Fund’s practice of conflict-centered FbA. First, the lead time of each event varies depending on the particular profile of the conflict event, presence of indicators, and the INGO’s capacity to monitor the conflict (proximity to the affected population, local networks and partners, information gathering practices, etc.). Second, the forecasting capacities and practices of member organizations are not standardized. Member organizations’ mandates are to respond to humanitarian needs, not to predict instability and conflict. Thus, forecast capability will vary widely across time and geography. While it is in the interest of the organizations to predict events in order to secure funding and to provide humanitarian assistance, this incentive is not sufficient to prioritize forecasting capacities (nor should it). Third, the Start Network’s forecasting and funding is self-contained, and all the actors within it presumably adhere to humanitarian principles. This is an elegant solution – especially in the domain of conflict-sensitive FbA – that circumvents the problem of identifying partners who can bear the institutional burden of producing forecasts while remaining verifiably and publicly neutral.

6.5 Conclusion

With an appreciation of the wide variety of CEW models currently in use by inter-governmental organizations, local NGOs and civil society, and humanitarian actors, it is evident that a gap remains in the application of CEWS in staging effective anticipatory actions. While the Start Fund has been used rarely to stage conflict-related FbA, its forays are promising and present a valuable starting point to outline specific considerations, constraints and opportunities when constructing a conflict-sensitive FbA mechanism.
7. Anticipatory Humanitarian Action in Armed Conflict

In exploring the feasibility of a conflict-sensitive FbA mechanism, it is important to address the likely reasons why FbA has not yet been applied in this domain. These are both manifold and self-reinforcing and are built upon the difficulties outlined in Section 5 (“Obstacles to Forecast-based Humanitarian Action”). To address this gap and describe the potential development of such a tool, this section will present the elements required for the implementation of a feasible FbA model addressing conflict. This framework will be followed by a series of questions regarding the likely pitfalls inherent in any attempt to stage FbA in conflict.

7.1 Proposed Framework for FbA in Armed Conflict

Given the current capacities of EWS and the unique limitations of humanitarian action in armed conflict, the most feasible framework with which to build a conflict-sensitive FbA mechanism would be to develop a horizontal, organization-driven early action mechanism similar to the Start Network’s Start Fund. Such a platform would be characterized by four features: a horizontal structure, flexible early actions, rigorous guidelines aimed at insulating against political influence, and a mixed methods approach to information gathering that covers a wide geographic and thematic scope.

7.1.1 A Horizontal Network

The political nature of conflict can produce vastly different outcomes in terms of need, depending on the drivers and behaviors of parties to the conflict. An FbA tool that engages a collection of international and local humanitarian organizations in a horizontal structure akin to the Start Network’s Start Fund would likely be best suited to provide a more all-encompassing, agile, and coordinated early response. This is especially true in light of the growing threats to the humanitarian space in modern conflicts, a harsh reality that has led many large INGOs to rely on local partners to carry out program activities (Donini and Maxwell, 2013, p. 384). Further, such a structure would help mitigate the financial risks adopted by FbA implementers as the danger of regretful allocations increases an FbA practitioner’s risk of financial loss and implementation of incoherent and potentially ill-advised programming. A large and diverse network of organizations will decrease the financial risk for any single member and, if a central fund is utilized, can buffer organizational reputations. A horizontal FbA mechanism that unites, insofar as possible, organizations of all sizes, sectoral specialties and nationalities will be better positioned to negotiate
access to and meet the needs of the conflict-affected populations than one that exists within a single large INGO.

7.1.2 Flexible Indicators and Anticipatory Actions

The Start Fund model succeeds admirably in its implicit recognition that every conflict is shaped by context-dependent drivers. Predictions of weather events, especially seasonal events, are more easily pegged to a consistent set of variables than conflict. When forecasting floods, for example, numerous variables can be consistently monitored and be expected to carry great weight in the forecast. There will be some variability depending on the topography and meteorological profile of the area in question, for example, but some indicators will remain relatively fixed in their values. This allows for the use of more hierarchical, rigid mechanisms like FbF. The same is not true of conflict, especially in situations involving state and non-state groups whose incentives, constraints, and behaviors are not bound in a predictable manner and may change dramatically over time, both quickly and slowly.

To be sure, FbF mechanisms are also context designed to meet the demonstrated needs of disaster-affected population. But by avoiding the more rigid structure of an FbF-style EAP setting threat levels to trigger a pre-arranged set of actions, the Start Fund allows its members to judge each situation’s development from a more field-oriented perspective and, in effect, use a more fluid set of indicators. Close field-level monitoring is critical to ensure conflict dynamics are captured accurately over time and that the analysis of the events is interpreted correctly. Such flexibility in conflict monitoring within a horizontal structure also translates to flexibility in selecting the early actions undertaken by responding organizations. The Start Network’s structure, for example, allows members to capitalize on their thematic specialties and to fashion proposals to meet the unique mandates of the organizations and needs of the conflict-affected population at particular moment. This second component is especially significant, as each population will have different need profiles that must be accounted for by humanitarian groups seeking to stage evidence-based (needs-based) interventions.

7.1.2 Insulation Against Political Influence

An FbA mechanism relying on large state donors could face the potential of manipulation or poor or simply misguided incentives. As touched upon previously, FbA requires donors to relinquish a great deal of control by allowing organizations to act preemptively – a level of control perhaps more easily relinquished when dealing with a more ‘neutral’ natural
disaster where domestic actors lead the response, and more difficult accede to in the case of a highly dynamic, political event such as conflict. That said, a conflict-sensitive FbA mechanism must also recognize the biases within the humanitarian sector, specifically the bias towards action. While the humanitarian imperative emphasizes lifesaving action, such a forward-leaning attitude might run counter to a donor’s preferences, especially in the case of a state donor seeking to avoid inserting themselves in the affairs of other nations.

Again, we turn to the Start Network, whose design allows for the insulation of their early warning activities from outside actors with overt or covert agendas and biases. The Start Fund is supported by a collection of European states and the European Commission, but the fund itself is managed by the members of the network (Start Fund: Filling a gap, 2015). Further, as all members are humanitarian organizations, there can be said to exist a common purpose and shared underlying principles among them. Thus, in crafting a conflict-responsive FbA mechanism care would need be taken to construct a clear firewall between the donor, the management of the funds, and the design of the mechanism, all measures that would require a high degree of donor confidence in the implementing organizations.

7.1.3 Maximizing Lead Time Through a Mixed-Methods Approach

Perhaps the greatest limitation of a diffuse approach such as that of the Start Fund is lead time. As of early May 2019, of the Start Fund’s 330 alerts, 98 were conflict-related (Alerts Dashboard, 2019). Of the nearly 100 conflict-related alerts, 83 addressed “rapid onset” needs, but only seven were classified as “anticipatory” (Alerts Dashboard, 2019). While the high proportion of alerts responding to “rapid onset” humanitarian needs demonstrates that the Fund’s design is indeed agile, it clearly remains difficult to make the leap from post-conflict to pre-conflict response. Not only must member organizations predict conflict-related events or likely ongoing changes in conflict situations, they must be able to connect such changes to the probability of their generating humanitarian need. The first component is challenging enough, but the second is perhaps even more difficult considering the challenges aid agencies already face in quantifying humanitarian need after the onset of a humanitarian crisis. Further, the Start Fund’s design, which actively solicits project proposals and offers approvals within a 72-hour window, is less agile than its automated counterparts such as FbF. While the approval process helps minimize regretful actions, the drafting and vetting of individual proposals eats up precious lead time before a projected need-generating event. However, given the Start Network’s
diffuse membership and the reality that CEW is not the central mandate of the organizations in the Start Network, the approval process still acts remarkably fast.

One potential manner to extend the lead time in such a system would be the introduction of a phased, or tiered alert system utilizing both automatic and human coding (Figure 4). The first phase could track quantitative indicators such as mortality rates, displacement figures, or significant triggering events (politically motivated attacks, policy changes, electoral violence), and offer members birds-eye indications of a context’s deterioration over a longer timeline. Setting up the systems to monitor such variables would require the significant challenge of establishing regular information gathering procedures with institutions such as national health systems and government ministries, and UN organizations such as the UNHCR. Under such a system, if the indicators for a first phase alert reach certain pre-set levels, the country could be automatically flagged as one in which member organizations should redouble their efforts at context analysis and generating plans for anticipatory actions. Going a step further, at certain risk levels, less visible preparatory actions would need to be taken, such as pre-positioning existing stock, seeking and securing procurement bids, and recruiting staff to deal with an anticipated scaling-up of their programs. These are all relatively regret-minimizing actions that could improve the response posture of an organization acting with less-than-ideal lead time. The details of how such a system would function would depend on available data and the capacities of member organizations in a given country, but within a horizontal FbA mechanism it is clear that creative measures could be taken to increase lead time and response time as much as possible. The Start Fund’s FOREWARN risk analysis network serves a somewhat similar function to this prospective first phase alert in that it provides high-level analysis of disaster risks and advises humanitarian actors translating the alerts into early action.

The second phase of a tiered alert system would be more localized and based on human coding and the presence of member NGOs in affected areas. This would be akin to the Start Fund’s current model wherein member organizations raise alerts to likely outbreaks of conflict and accompanying humanitarian needs, alerts are vetted and approved, proposals are submitted, and funding is disbursed.
The questions of balancing human and automatic coding and high- and field-level context monitoring goes to the core of the limitations of modern CEWS and the limitations of a horizontal structure: i.e., relying heavily on member institutions to monitor and raise alerts and using human coding instead of strictly scientific forecasts. And while forays such as the Start Fund’s introduction of FOREWARN acknowledge these limitations and make promising steps toward a more scientific and less subjective approach to CEW, there remain evident limitations to the structure.

For example, a horizontal model like the Start Fund’s allows for a broad geographical and thematic reach, yet its decentralized system cannot respond to every conflict every time. While it does indeed take a scalable approach (as seen in Table 1), it does not offer a systematized response at consistent conflict thresholds in all contexts. If some of this uncertainty is owed to the ever-shifting nature of conflict, it remains unlikely that a member-driven FbA will consistently respond to all need-generating conflict events, even if they meet certain criteria. Simply, early warning capacities of INGOS and NGOs in different countries will vary, as will their context analyses and program abilities.

In this sense, tools like FbF have an advantage: each FbF project is designed to track the onset of a specific event in a specific location with sufficient lead time and trigger automatic actions depending on its duration and intensity. If designed properly, or at least fittingly, the FbF tool should in theory be able to predict every occurrence of the event and trigger corresponding actions every time. But this is simply not within the ability of modern CEWS which relies on a variable combination of human and automatic coding and produces, operates in a foggy political milieu, and deals with uncertain lead times. In short, an FbA tool in armed conflict simply cannot offer consistently adequate coverage for all conflict events generating humanitarian need.
7.2 Open Questions Regarding the Application of FbA in Armed Conflict
This section will raise a number of key questions that stem from the proposed framework for FbA in conflict and offer suggestions, wherever possible, on how an organization implementing FbA might address them.

7.2.1 Who Monitors? The Problem of Neutrality and Independence. Tools like FbF benefit from well-established global networks of meteorological agencies. Despite the variance in their forecast capacities, meteorological agencies are generally understood to be neutral in their appraisal of weather events. More difficult is the question of who is a sufficiently neutral party to bear the responsibility of producing forecasts of political instability and the probability of conflict? Should humanitarian actors bear this burden while humanitarian responses globally already struggle to meet the basic needs of affected populations? Which external monitors with sufficient funding and institutional capacity could be considered independent enough to be credible?

The status of states and inter-governmental institutions as moral guideposts guided by a sense of common humanity instead of self-interest has eroded with the uncertainty about the current state of the liberal world order. As the ICG notes, “the tense international politics that surround many of today’s conflicts…fundamentally complicates efforts to analyse and respond to existing and looming crises” (Seizing the Moment, 2016, Page 15).

Perhaps then, FbA would be easier to justify in contexts of failed states, or at least states experiencing peripheral conflicts that are perceived to be of less geostrategic importance to global powers who tend to be the major donors to aid budgets. The CAR, for example, is often referred to as a ‘forgotten crisis,’ and has long been host to a humanitarian response. Even so, the French government has long acted as a king-maker in the country, the U.S. has deployed troops to the country to assist in regional efforts to combat non-state armed groups and, increasingly, Russia has been building economic and military ties in the country. All this apart from the interests and involvements of local and regional actors such as Chad, whose government has long meddled in its neighbor’s politics and security. The example of the CAR illustrates the danger of relying on a state-based or state-supported conflict monitor when staging humanitarian action. Just because a conflict monitor apparently involves only the interests of weak or minor states, does not make it politically irrelevant to well-resourced states and institutions who might invest in CEWS. Moreover, it does not excuse an FbA practitioner from taking great care to insulate their forecasts from overt or tacit political influence.
One evident way to side-step this question is to employ a horizontal network that empowers humanitarian actors to act as monitors and implementers abiding by common standards, bound within the same network, and held separately from donors and political bodies. As implemented by the Start Network, these actors can use their extensive field presence and on-the-ground operations to monitor and report on situations as they develop in real time. Capacity building is key to the success of such a model in terms of developing shared and mutually agreed upon understandings of what social, economic, and political dynamics might be precursors to conflict (in other words, what signs to look for), sharing resources among organizations, and training staff to be aware of, understand, document, and report on early signs of conflict or conflict-related needs. A Start Fund-like model avoids investment in a costly and hard-to-maintain centralized forecasting mechanism. While this absence of a robust forecast-focused infrastructure may save costs, it can also produce gaps in coverage and variability in forecast accuracy. This possible shortcoming may be addressed through the creation of bodies such as FOREWARN.

7.2.2 What to Look for? The Problem of Indicators.
Neither conflict nor natural disaster are unitary events. It can, however, reasonably be argued that conflict is less unitary than natural disaster. For example, while numerous context-specific factors might contribute to a flood forecast, central factors such as rainfall and soil conditions will always be heavily factored and reliable. The context-specific elements driving conflict are, generally speaking, more difficult to weigh against one another as they involve human groups at all levels with competing incentives, disincentives, alliances and political, social and economic drivers. The ICG writes, “all early action involves engaging in fluid political environments.” (Seizing the Moment, 2016, p. 18). That is, while pre-existing conditions to conflict can often be judged and measured, how they will play out once the ‘fog of war’ descends is much more difficult.

This complexity only increases when seeking to bridge the gap between forecasting and response, as conflict dynamics can shift in short periods of time and the response itself can influence conflict dynamics by introducing foreign elements that are manipulated or judged to be biased (Seizing the Moment, 2016, p. 18). While humanitarians would likely prefer to deal with simple binaries – to act or not to act, for example – this equation is constantly shifting as different groups exert influence (limitations to access, politically motivated funding, etc.) on the work of humanitarian organizations.

Further, it is commonly noted in the literature on early warning and response that successful early warning and early response relies upon long-term engagement and
proximity to involved actors (Seizing the Moment, 2016, p. i-iii; Rohwerder, 2015, p. 2). Humanitarian actors do not always have pre-existing relationships with local actors and communities. Some, like CRS in the DRC, can point to decades of continuous presence in the country and access to religious institutions with strong local networks, but others may not. To build an FbA system, a great deal of local knowledge must be collected and absorbed in order to select the most reliable and effective indicators, a great challenge if an implementing organization is newly arrived in a particular country or province. With these considerations, and the need for flexible early actions and a mixed methods approach to information gathering discussed earlier (Section 7.1 “Proposed Framework for FbA in Armed Conflict”), successful FbA in conflict must be context-tailored. This means a conflict-sensitive FbA tool must develop unique sets of indicators for different conflict profiles and regions, indicators that must be reviewed and possibly changed to ensure the mechanism captures all relevant indicators over time. In the CAR’s civil war, for example, which began with a coup d’état in 2013 by the Séléka rebel militia from the country’s north, the number of armed groups has since exploded. Today, 18 distinct armed groups with shifting alliances operate in the country exerting de facto control over much of its territory (Dukhan, 2018, p. 1). Surely, had an FbA mechanism been developed in 2013 – with fewer actors with different interests – to track the outbreak of violence in the CAR, it would today struggle to accurately capture the conflict’s current drivers.

Two final complexities in selecting appropriate indicators should also be considered: the potential for manipulation of indicators by groups involved in conflict, and ability of indicators to be translated into a clear mandate for action. To address the first point, indicators for predicting and monitoring the escalation of conflict are not the only source of potential difficulty; there is also the issue of deciding the levels at which agreed-upon indicators should lead to early actions. Establishing baselines for conflicts of varying characters and intensities would be a difficult task, especially when data collection might be complicated by weak institutions, political interference, or other manipulation. Just as Biafran separatists took advantage of the aid machine during the Nigerian Civil War, it is also possible that a party to the conflict with knowledge of an FbA mechanism and its design could act in a manner – through disinformation or direct action – to trigger the use of the mechanism for their own gain, ensuring that certain populations receive aid and others are excluded.

Second, the utility of indicators used by a conflict-sensitive FbA mechanism are directly linked to their comprehensibility and the lead time they offer. As Suarez and Tall
write, a complex forecast output with numerous variables and sets of data might be useful for scientists, but for humanitarian groups the output is most useful in the form of a command to act or desist (Suarez and Tall, 2010, p. 6). As difficult as it is to translate and distill probabilistic forecasts of extreme weather events into such binary diktats, is it even possible with conflict forecasts? Wulf and Debiel’s five models of CEWS give a glimpse of the limitations of the field, specifically that while conflict forecasters can observe conditions that are ripe for conflict, record deteriorations in social contexts, and describe the capacity of local actors to prevent or mitigate conflict, the ability to reliably observe causal relationships and produce actionable forecasts is, to date, somewhat dubious (Wulf and Debiel, 2009, p. 1, 7-11). In the absence of a clear forecast providing an evidence-based mandate for action, the lead time within which the FbA implementer can or should act is impossible to gauge.

To use a real-world example, before the Start Fund disbursed funds to respond to refugee-related needs in northern Uganda in July 2016, there was a recordable accumulation of South Sudanese refugees at the border with Uganda throughout the month (Uganda: Anticipation of refugees, 2016). Following an ease of restrictions on July 19, as many as 20,000 South Sudanese refugees were able to cross the border (Uganda: Anticipation of refugees, 2016). This is an example of a clear causal relationship: conflict drove South Sudanese civilians toward Uganda, a large displaced population was trapped at the border, and when state policy eased and borders opened, the displaced populations crossed the border (Uganda: Anticipation of refugees, 2016). With the build-up of displaced persons on the South Sudanese border, an artificial lead time was created wherein humanitarian actors could observe the deterioration in conditions, reasonably assess the situation and needs, and act appropriately before the influx occurred. But such a situation is not the rule, especially in areas with highly porous borders. At an unregulated border, the same flow of refugees might trickle through over a period of days or a period of weeks, obscuring the true size of the movement. Humanitarian agencies might have scaled up their activities in response and sought emergency funding but would not necessarily have been able to act in an anticipatory manner as the fluidity of the situation would likely compromise the availability of any lead time and good assessments of the needs.

7.2.3 Where to Look? The Problem of Scale, Context Adaptation, and Localization. Perhaps the best, most accurate predictions of conflict trends are possible when sought at a larger scale. At the national level, more information on key events such as economic conditions and behaviors of elites are more widely reported on and accessible. By
restricting the scope of analysis, that is by looking at conflict dynamics at sub-national and local levels, data availability becomes more challenging, especially in peripheral conflicts. Take, once again, the example of the CAR. At the seat of governmental power in the country’s capital of Bangui, there are a plurality of well-connected actors: UN agencies, national government offices, civil society organizations, news media organizations, and so on. While the conflict has its roots in a 2012 coup d’état, the conflict is today diffuse and fought between shifting alliances of non-state armed groups in some of the most hard-to-reach areas of the African continent where the central government has no reach and where little capacity exists at the local level for conflict monitoring, reporting, and analysis. Under these circumstances, should an FbA mechanism seek to focus on macro-level changes in context – large scale military operations, significant increases in human rights abuses, etc. – or pay attention to the more localized criminal activities of armed groups? Is it at all reasonable to expect a conflict-sensitive FbA mechanism to have complete coverage of a region or country just as an FbF tool would capture all the meteorological data related to its chosen hazard in a given area?

In reality, this balance will shift constantly depending on the context, the nature of the conflict, pre-existing capacities of local populations, and the relationships to and access of humanitarian actors to populations and political actors. Nonetheless, it remains a critical point to consider, not least for the sake of making a compelling case to donors that an FbA tool will be or can be cost effective in relation to its ability to trigger meaningful actions consistently and reliably.

It also bears noting that the same problem plagues FbA mechanisms responding to natural disaster in areas without robust meteorological institutions and systems. As Coughlan de Perez et al. note in their 2016 study of flood forecasting in Uganda, “barriers to early action are particularly apparent in data-scarce areas of the developing world” (Coughlan de Perez et al., 2016, p. 3550). In the case of Uganda, for example, researchers faced limited access to local forecasts and historical data and relied instead on a global flood forecasting service (Coughlan de Perez et al., 2016, p. 3552). Strategies to overcome these questions of scale as they relate to conflict-sensitive FbA bear further in-depth investigation that, unfortunately, are beyond the scope of the present research.

7.2.4 When to Sound the Alarm? The Problem of Regret and No-regret Allocations. Intimately linked with the discussion of an FbA mechanism’s ability to cover all need-generating events in a given region, is the question of whether the mechanism can reliably avoid making regretful or wasteful allocations. As Martineau writes in his research on early
warning and refugee outflows, it is difficult to judge the success of an EWS regime tied to humanitarian action, even when using weather forecasts:

Even EWS for natural disasters, which are considered to be somewhat of a model for proponents of humanitarian EWS, do not predict certainties. The weather report predicts that there will be 60% chance of rain, not that it will rain. Furthermore, if such a system were implemented, its success would be hard to gauge. If it is truly successful, actors in a position to affect the outcome may stop the outflow, thereby making it appear as if the initial prediction was mistaken. (Martineau, 2010, 136).

The same problem would confront a conflict-sensitive FbA mechanism. CEWS can judge ripening or ripe conditions likely to produce conflict, but not that conflict will happen per se, when exactly it will happen, nor the precise form it might assume. In judging the success of an FbA response to conflict versus natural disaster, Martineau’s prediction that a humanitarian actor’s success could “(make) it appear as if the initial prediction was mistaken” is less clear (Martineau, 2010, 136). Humanitarian FbA practitioners in armed conflict, unless also operating in the peace-building space and engaging in some sort of ground-level conflict mediation role, would not be able to impact the generation of humanitarian needs, only attempt to execute a timely and sufficiently robust response. The initial prediction of a certain level of displacement would not necessarily be lessened by humanitarian actors’ actions; instead, the conditions by which the needs of displaced are met would be the true measure of the intervention.

Even so, Martineau raises an important question: how can a humanitarian actor calculate what Coughlan et al. term the false alarm ratio, or FAR? In other words, how can the humanitarian actor minimize regretful or in-vain actions? For example, if all indicators point to a probable displacement of 10,000 civilians from City A to City B due to an acceleration in fighting in City A, but only half the predicted population materializes, how could an FbA mechanism justify their mobilization of financial and material resources for a crisis that struck at a lower intensity?

One partial solution might be for larger NGOs to ensure the participation of local implementing partners already close to the area of expected impact within the FbA mechanism. With proper support, these organizations might be able to deal with the early stages of a crisis as it unfolds and avoid sinking large investments in the deployment of international staff, scaling up of logistics, administrative facilities and capacities in the area before the need is more certain. This would allow organizations with stronger connections to local civil society, government and affected populations to verify that the predictions of the CEWS are, indeed, valid in real time.
A second possible approach to reduce this risk would be to mobilize non-perishable resources and to avoid shipping too many relief supplies to an area before the specific needs materialize more concretely. If the aid organization possesses relief supplies in an in-country warehouse, an initial shipment of goods could be sent to the affected area, and logistics teams tasked to ensure their capacity to rapidly procure additional quantities locally or regionally and to contract transportation arrangements on a stand-by basis. This would improve the response capacity of the organization without fully committing its resources to a fluid situation.

This second solution, while hardly comprehensive, emphasizes the potential for FbA to enhance humanitarian supply chains preparedness. As Turkeš et al. write, “aid distribution can be formulated as an optimization problem…with the goal of minimizing, for example, transportation cost or response time” (Turkeš et al., 2017, p. 2). A successful FbA prediction of conflict and anticipatory funding disbursement would allow aid workers precious additional time to prepare for distribution. Wassenhove estimates that humanitarian logistics and supply chain can consume up to a stunning 80 percent of the cost of humanitarian response (Van Wassenhove, 2006, p. 475). Humanitarian organizations might therefore utilize the lead time offered by the FbA mechanism to enhance their preparedness and the agility of the supply chain system without committing their resources fully to a response whose size and nature remains uncertain. However, this would mean re-evaluating what actions the ‘trigger’ points of the FbA mechanism should be tied to: funding disbursements, logistics preparedness measures, concrete mobilization of resources on the ground, or a combination of the three?

7.2.5 Why Admit to the Inevitability of Conflict? The Ethics of FbA in Conflict
On a more philosophical note, how might conflict-sensitive FbA impact humanitarian principles of neutrality, independence, and humanity? It could be argued that the deployment of FbA in armed conflict itself presumes political failure and the inevitability of conflict. Whitall argues that early warning practitioners often place too great a stake in the value of early warning, ignoring the powerful incentives that perpetuate or at least fail to stop conflict:

Based on the premise that humanitarian crises only exist because ‘good people do nothing’, the early warning mindset neglects to consider the Realpolitik that has resulted in the continual failure to bridge the gap from early warning to early response. The politics of national sovereignty…the economic burden of preventive action, and strategic interests…of the major donors all contribute to an unduly high expectation of the role of early warning systems that is fundamentally flawed. (Whitall, 2010, p. 1237-8)
It has long been a point of debate within the sector whether aid actors in conflict zones are simply second responders who are perpetually cleaning up the humanitarian disasters promulgated by much more powerful actors and providing ‘band-aids’ when a political resolution is needed to ameliorate the situation. Following this line of thought, could early action in conflict amount to ‘normalization’ of conflict by humanitarian groups – a tacit nod that they will forever be sweeping up a trail of human suffering sown by nation states and armed groups? How does one reconcile this admission with the guiding principles of humanitarian action?

If humanitarian actors engage in forecasting changes in the political landscape, could political groups exploit this in order to, for example, secure aid for their constituents or to block aid for other groups? Lastly, humanitarian action often takes place alongside advocacy and diplomacy geared at preventing and ending of conflict, sometimes through the use of early warning tools and intelligence gathering. Hence, is a mechanism which increases this proximity desirable or palatable and is it possible to reconcile this rapprochement of sorts with the principles of neutrality and independence?

7.3 Conclusion

The questions and considerations raised when deliberating the creation of a conflict-sensitive FbA mechanism are multiple, overlapping, and complex. This thesis has attempted to grapple with some of the most evident issues related to this topic, and also to note the numerous good practices being used by current practitioners, as well as to make a few modest suggestions toward the improvement of a Start Fund-style model. Despite these challenges, this writer contends that donors and humanitarian organizations must continue to explore this domain, that conflict-sensitive is not only worthy of examination, but that it will, over time, only become more invaluable as more implementation attempts are made on the ground, thus providing much-needed hard data as to what ‘works’ and what does not.
8. Conclusion

What is the ultimate worth of conflict-sensitive FbA? As the presence of humanitarians in conflict zones is the by-product of political failure and their exit from a space of active conflict typically accompanies a political resolution to the conflict, humanitarians are by definition reactionary actors. Even when they are present, aid organizations operate with extreme care and exert significant effort to present a visibly neutral and impartial standing among all parties to the conflict. In cases of natural disaster, even if humanitarian actors must maintain and exhibit the same adherence to the humanitarian principles, the risk of politicization is generally not as high. These two contrasting postures may, in part, explain the gap in the development of FbA mechanisms in response to in conflict and those for disaster relief.

Ultimately, a conflict-centered FbA system akin to the FbA systems in use today to respond to natural disaster and famine, presents a formidable challenge with many practical and conceptual barriers to its implementation including, but not limited to, the chaotic human dimensions of conflict, the imprecision of conflict prediction, structural challenges in the global humanitarian aid system, the operational limitations of humanitarian actors, and the very real and potentially paralyzing fear that any action taken, even with the best of intent, might be misconstrued by one party or the other in a situation of imminent conflict. However, the Start Fund’s work offers a ray of hope that a horizontal FbA model might reasonably be applied in conflict, albeit with some notable and inherent limitations. In short, while it is unlikely that a single organization might develop and deploy a feasible and conflict-sensitive FbA tool reliably, it may be that such could be within reach of a network or consortium. Key to success in such an endeavor is the ability of the implementing body to make a compelling case to donors that the higher level of risk and greater potential for “false alarm” allocations that accompanies conflict forecasting is more than worth the cost. As the Start Fund further develops its CAW and FOREWARN capacities it may generate sufficient data to provide verifiably positive results proving that FbA can provide better care for conflict-affected populations and cost-savings for donors. To use a common aphorism, humanitarian actors interested in this enterprise must convince donors not to let the search for a perfect, entirely reliable system, become the enemy of the ‘good enough’. Of course, the question of at what point an FbA mechanism is ‘good enough’ can prove to be a moving goalpost, depending on the design of the mechanism and the appetite of the donor.
To rely only on the post-event mobilization of resources to respond to the humanitarian impact of conflict would be truly lamentable as very great strides are made in early action to natural disasters. For states interested in signaling their commitment to international cooperation, human rights, and humanitarianism, funding the successful development of a conflict-sensitive FbA tool would serve as an unmistakable and firm gesture underlining these values. One can hope, perhaps in vain, that these factors are motivation enough for many to dedicate serious attention to and investment in this domain, regardless of the risks it entails.

8.1 Constraints of Methodology

Research surrounding FbA and CEW is based on the collection and analysis of secondary source material. Due to the novelty of FbA, this research was unable to explore large sets of empirical quantitative data about the success of the FbA approach in saving lives and livelihoods and reducing the financial cost of humanitarian operations. As the practice becomes more common and additional pilot projects by FbA practitioners are attempted, and the structural nature of FbA projects mature, it is likely that implementing organizations will publish reports detailing in greater depth the successes and failures of the various approaches. Only then will scholars and practitioners be able to provide more empirically-grounded recommendations on best practices and areas of possible innovation.

This research sought to describe the considerations that must be taken into account when exploring conflict-centered FbA and to make note of the positive practices of current practitioners as well as areas for continued development. As the first academic work to tackle this subject directly, this research intended to provide a useful starting point for future researchers and practitioners.

8.2 Lessons and Recommendations for Future Research

Given the relatively recent development of the FbA approach, the perspectives provided were largely grounded in lessons learned by current natural disaster-focused FbA practitioners and the work of political scientists and other researchers on CEW. Nonetheless, here follow a number of areas of research that might prove fruitful for future researchers:

1. Future researchers would do well to collaborate with the Start Fund in order to review its FbA activities as they relate to anticipatory action to armed conflict.

2. There is considerable space within the body of research for future researchers to propose possible FbA frameworks and institutional arrangements tailored to specific conflicts. This will likely become easier as the FbA approach becomes
more widespread and more data is available.

3. Little has been written on the willingness of donors to engage with FbA, and their commitments, or lack thereof, to early action in conflict. FbA will only grow if donor support allows for current projects to continue and new ones to be launched. Understanding the incentives and perspectives of donors as they relate to the topic is critical.

4. The question of anticipatory action in armed conflict raises a set of compelling ethical questions only touched upon briefly in this research. Modern humanitarian action has been criticized for ‘laundering’ the actions of bad actors and ‘sanitizing’ the terrible human cost of war. Were humanitarian actors able to act even more efficiently in conflicts and demonstrably mitigate its impacts, would such actions effectively insulate political actors from the negative public consequences of the violence they sponsor?
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10. Appendix
Figures 4 and 5: Two visualizations of the proposed framework for FbA in armed conflict based on the current model of the Start Fund’s FbA mechanism.

10.1 Figure 4
10.2 Figure 5
An additional depiction of the proposed framework for FbA in conflict, modelled on the horizontal, member-driven model of the Start Fund.