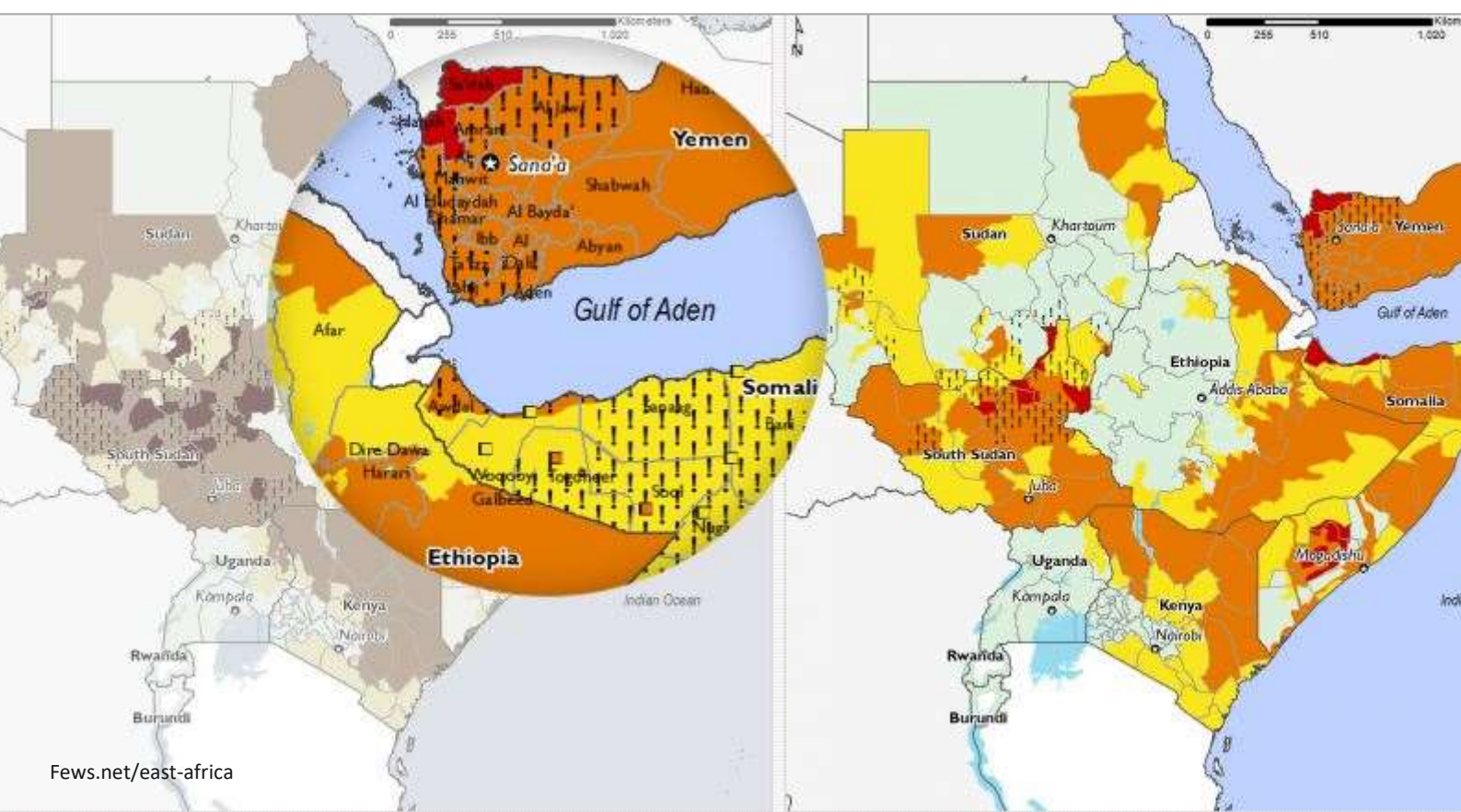Conflict Research Programme

Famine Early Warning and Information Systems in Conflict Settings: Challenges for Humanitarian Metrics and Response

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About the Conflict Research Programme

The Conflict Research Programme (CRP) is a three-year programme designed to address the drivers and dynamics of violent conflict in the Middle East and Africa, and to inform the measures being used to tackle armed conflict and its impacts. The programme focuses on Iraq, Syria, DRC, Somalia and South Sudan, as well as the wider Horn of Africa/Red Sea and Middle East regions.

The Feinstein International Center is a research and teaching center based at the Friedman School of Nutrition Science and Policy at Tufts University. The center's mission is to promote the use of evidence and learning in operational and policy responses to protect and strengthen the lives, livelihoods, and dignity of people affected by or at risk of humanitarian crises.

The World Peace Foundation, an operating foundation affiliated with the Fletcher School at Tufts University, aims to provide intellectual leadership on issues of peace, justice and security. The foundation believes that innovative research and teaching are critical to the challenges of making peace around the world and should go hand-in-hand with advocacy and practical engagement with the toughest issues. To respond to organized violence today, we not only need new instruments and tools—we need a new vision of peace. Our challenge is to reinvent peace.

KEY MESSAGES

- Food insecurity early warning systems are not very good at conflict analysis. Conflict data are available and could be used more effectively. Existing conflict data sets do not predict further conflict—the important challenge is to predict future food insecurity resulting from *already observed* conflict.

- Incorporating conflict into a consensus-based method for analyzing food insecurity is difficult when that analysis is led by a government that is a party to the conflict causing the food insecurity, but in the absence of conflict analysis, early warning is inadequate. This may require analyzing the impact of violent conflict on extreme food insecurity separately.

- None of these systems capture the element of intentionality inherent in the concept of starvation crimes that would be liable for prosecution under international criminal law.

- A major constraint on analysis is access to conflict-affected areas or populations. Access to affected areas lies with controlling authorities, so trade-offs must inevitably be made between the completeness of the analysis on the one hand and access for at least limited assessment on the other.

- Predictive modeling might be able to address the issue of conflict and access. Remote sensing or crowd-sourcing information may also be helpful. Artificial Intelligence is increasingly capable of accessing and digesting multiple and disparate sources of conflict information.

- Ultimately, however, simply establishing *whethe*r famine or extreme food insecurity has occurred is useful information, even if the causal links to human intentionality can only be weakly inferred. The characteristics of famine by IPC criteria are clear. The criteria for starvation deaths are less clear and need to be better defined.

- Proceeding too far down this road of pushing for more conflict analysis or analysis of intentionality could be counter-productive. It is unlikely that existing systems can capture this, and attempting to do so might further complicate the analysis that is currently done.

- The discussion among technical famine experts about "accountability" needs to be merged with the legal discussion about prosecution for starvation crimes. The possibility of prosecution offers one solution to the dilemma of accountability, and improving conflict analysis is one critical step along this path.

INTRODUCTION

Famine early warning systems began with support from international donors in the aftermath of the Sahelian famine of the 1970s—though in some ways trace their origins back as far as the Indian Famine Codes of the nineteenth century. Attention to the growing number of people caught in crises characterized by extreme and often protracted levels of food insecurity, malnutrition, and mortality is increasing. The information systems that track these conditions and inform humanitarian decision-making have expanded substantially in the past two decades and in many cases have reached a degree of unprecedented sophistication. Advances in remote sensing technology, cell phone utilization, and even artificial intelligence have all been incorporated into what used to be limited to tracking a handful of production, market, and rainfall indicators supplemented by methodologically diverse rapid assessments.

These systems—and the analytical outputs they produce—are intended to warn national authorities, donors, and humanitarian agencies about impending food security crises and also to enable the impartial allocation of humanitarian response resources in crises. Systems currently are split between (1) those that focus on providing timely information to decision-makers about the coming three to six months to enable timely mitigation and response measures (the actual *early warning* function) and (2) those that provide information about the severity of the crisis as it is occurring (the *resource allocation* function). Thus while only one function of these systems is really about "early warning" per se, they are often referred to generically as "early warning systems" (EWS).

These information systems are therefore important for producing empirical evidence that a famine is occurring, or has occurred, which will be important for any attempt to hold any parties to account for the existence of famine in the first place—which is critical to the question of "starvation crimes" as defined by de Waal.[1] However, while these systems can be predictive, and are the means of classifying the severity of crises, they are weak with regard to linking specific causes to the occurrence of famine or crises of lesser severity.[2] They are especially weak with regard to conflict analysis, or linking specific conflict acts to specific famine or crisis-related outcomes. And the analysis of the intent of conflict actors—which presumably would be critical to the prosecution of starvation crimes—is unheard of in either the analytical protocols or outputs of these systems. Causal analysis in EWS is slowly being improved but distinct risks are involved in taking on questions about intent.

These systems have become increasingly sophisticated in the past decade, but they still tend to be based on several assumptions that are important to understand. This paper briefly describes existing famine or food security early warning systems and outlines some of the assumptions on which they are based—both in theory and in practice. Then it gives four brief case studies of recent famine or "famine-like" events and pieces together the formal analysis process with an attempt to reconstruct events on the ground from a conflict analysis perspective—highlighting the extent to which the formal famine analysis did or did not deal with conflict analyses and the political kryptonite around the discussion of "intent." It closes with a summary of gaps in the current system and an assessment of the risks of trying to address those gaps through famine EWS or alternative means.

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[1] de Waal (2019).
[2] In fact, despite the fact that the word garners so much attention, the term "famine" may be counter-productive in a discussion about "starvation crimes" because famine, as it is currently defined, may be too restrictive a term. So the term needs to be understood broadly in this context, not just in the narrow technical definition. To put it bluntly, "starvation crimes" can occur even if there is no "famine" per se (by current definitions).

Early Warning and Information Systems

Several global initiatives constitute the bulk of the early warning and analysis capacity related to famine and starvation. These can be grouped as famine early warning systems, and fragility/ atrocity early warning systems.

Famine early warning/information systems

Integrated Food Security Phase Classification (IPC). IPC was invented in Somalia in the early 2000s to provide a graphic representation of current-status information related to the severity of food insecurity—and therefore the allocation of international aid. Somalia was a context of warlord-governed territories, each of which were vying for humanitarian aid from the international community and in which there was effectively no central state. IPC developed the now ubiquitous maps that depict the severity of current status from "normal" (Phase 1), to "stressed" (Phase 2), "crisis" (Phase 3), "emergency" (Phase 4), and "famine" (Phase 5).[3] IPC wasn't necessarily invented as a famine tool as such, but given that "famine" was the most severe of the classification phases, its definition for that phase has become the *de facto* definition for famine globally, though other definitions have been floated by other analytical teams. IPC is not an early warning system per se, but its projections are used for EW purposes.

In brief, IPC's definition of famine requires the simultaneous breaching of three thresholds for the severity of current status: food insecurity (at least 20 percent of the population with no access to food), malnutrition (at least 30 percent of children under five years of age moderately or severely wasted—low weight for height), and mortality (at least 2 people per ten thousand dying per day from famine related causes).[4] IPC analysis is now undertaken at least annually, or, more frequently, semi-annually, in some 35 chronically food-insecure countries, and a nearly identical protocol known as "Cadre Harmonisé" is conducted in an additional 17 West African countries.

As such IPC is by far the biggest provider of current-status information about food security and related crises globally. It is officially made up of an autonomous group of donors, humanitarian agencies, and research institutes. It is funded and managed by the UN Food and Agriculture Organization with a small Global Support Unit in Rome and teams in various countries attached to FAO field offices.

FEWS NET. The Famine Early Warning System Network (FEWS NET) is a global project that provides early warning information about food security to its funder, USAID, but whose information is broadly available through a public website and a "data warehouse" containing valuable historic records of past famines and food security crises. It covers thirty-eight chronically food-insecure countries, either by actually having staffed field offices in-country, or through remote monitoring from a regional office. FEWS NET has adopted IPC classification for both its current-status updates and the projections it makes for early warning analysis, but it has a different and more detailed approach to the early warning function. As a result, FEWS NET is probably the biggest single provider of food security early warning information globally. Though FEWS NET is part of the IPC consortium, and works very closely with IPC analysis teams in the field, they maintain an independent analysis, which doesn't always agree with IPC analyses.

WFP/Vulnerability Assessment and Mapping Unit. The World Food Programme is the world's largest humanitarian agency, responsible for—among other things—front-line response to food security crises. Although it has a variety of operational modes depending on the country, WFP is by far the major humanitarian response actor in most crises. As such, it has enormous internal

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[3] IPC Partners (2018).
[4] Ibid. There is considerable controversy as to what is considered "famine related causes"—an important

consideration in this discussion. This point will be brought up later.

information requirements that may not be met by FEWS NET or IPC (even though WFP, like FEWS NET, is a member of the IPC consortium). The Vulnerability Assessment and Mapping Unit both conducts current-status assessments and serves some early warning functions—indeed WFP-led assessments are a major source of information for both IPC and FEWS NET analyses.

Global Food Security Cluster and Global Nutrition Cluster. Since the humanitarian response mechanism was reorganized into sectoral "clusters" in the mid-2000s, both the food security and nutrition clusters have been major sources of famine-related information. National nutrition clusters—led by UNICEF—typically organize the annual schedule of SMART surveys that enumerate information on child and maternal nutrition, health, and mortality (and sometimes a range of other outcomes). The actual surveys are usually carried out by NGOs, sometimes by local government.

Other existing systems. Other national early warning and information systems exist—usually, but not always, led by national governments. Additionally many non-governmental humanitarian organizations operating regional or local EWS—sometimes intentionally community-based systems. The extent to which these inform national systems varies, and even where they exist, their coverage is localized and patchy. Other global mechanisms that track hunger—such as the Global Hunger Index— exist, but these tend to amalgamate data from disparate sources to make a combined index. They don't track crises in real time and certainly do not do forecasting or early warning.

Recent developments: Computational modeling and artificial intelligence systems. In the past two or three years, several novel

attempts have been launched to completely change famine EWS from empirical, field-assessment-based analyses to either computational or econometric modeling, artificial intelligence, or some combination of the these. The MERIAM project, led by Action Against Hunger, combines econometric and computational modeling to issue forecasts of the prevalence of malnutrition three to six months out.[5] A similar initiative is underway at the London School of Hygiene and Tropical Medicine—forecasting both malnutrition and mortality rates.[6] Lentz and colleagues developed a forecasting model for food security indicators.[7] The World Bank FAM initiative (Famine Early Action Mechanism) attempts to harness both econometric modeling and artificial intelligence to forecast IPC phase classifications and population numbers within phases.[8] What all these have in common is that they use publicly available data in real time to model a forecast that is effectively independent of both access problems and political interference. To date, all of these are prototypes, still being fine-tuned using one or two specific countries' data. None of these are up and running in terms of providing real-time forecasts, and some of them face the inevitable challenge of being very "data hungry" modeling approaches in very "data scarce" contexts. But several of them do incorporate conflict data, and while the need for on-the-ground data collection is unlikely to disappear in the near future, these methods offer a distinctly different approach to forecasting famine, food insecurity, malnutrition, and mortality.

Fragility and atrocity early warning indices

Fragile and failing states. Of several indices of fragility, the two best known include the Fund for Peace *Fragile States Index*[9] and the OECD *States of Fragility Report*.[10] They compile data on a range of indicators

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[5] Modeling Early Risk Indicators to Anticipate Malnutrition. https://knowledgeagainsthunger.org/research/preventio n/meriam-modelling-early-risk-indicators-to-anticipate-malnutrition/

[6] F. Checchi, personal communication.

[7] Lentz et al. (2019).

[8] Z. Carmichael, personal communication.

[9] https://fundforpeace.org/2019/04/10/fragile-states-index-2019/

[10] http://www.oecd.org/dac/conflict-fragility-resilience/statesoffragilityframework2018.htm

(economic, political, demographic, social) to provide an assessment of risk of crisis in the coming year. Using the data from the FFP/FP Fragile States Index (which is the most comprehensive), Hannes Mueller found that it measures past or ongoing state failure and does not have any independent predictive value[11] (in other words, it reports current status but does not function as an EW system).

Atrocity early warning and risk assessment lists. In the field of atrocity prevention and response several institutionalized efforts are being made to monitor countries at a global level[12] for the likelihood that atrocities would occur.[13] These include qualitative analysis frameworks, for example, as deployed by the UN Office on the Prevention of Genocide[14] (which is very unwieldy at present, containing 143 underlying and proximate factors to assess the risk of genocide, crimes against humanity, and war crimes); quantitative analysis, like the CIA-managed Political Instability Task Force (PITF, which employs political scientists in universities and which also maintains a separate dataset focused on atrocity risk assessment) and the Atrocity Forecasting Project (Australian National University);[15] and mixed methodology lists, like The Sentinel Project[16] and the Early Warning Project (U.S. Holocaust Memorial Museum).[17]

Discussion of EWS

In the context of today's famine-risk countries, the existing systems described usually work well to highlight food security crises, both predictively and in real time. But they do not aim to predict conflict, and they are mostly not very good at predicting and rationally analyzing the consequences of conflict. Other systems aren't very good at this either: the genocide early warning systems generate a vast proportion of false positives and the fragile states index has been shown to have no predictive power at all. The tasks that food security early warning/information systems are expected to perform include assessing current-status conditions as well as forecasting food security status over the coming three to six months (which needs some analysis of causal factors). Several concerns arise with regard to these tasks in the context of conflict-driven crises: their organization and independence, their data and methods, their assumptions, issues of politics and access, issues surrounding atrocity and fragility EW, and the alignment of atrocity/fragility EW with food security EW.

Organization and independence. FEWS NET is an independent project but is funded by USAID, so critics suggest it is influenced by US interests. WFP/VAM is deliberately built to serve the information needs of WFP. IPC is a consortium, but the practice is that in-country it is a government-led analysis and organizationally it is almost always housed within an FAO office, so it is often seen as linked to the political interests of government and the organizational interests of FAO. In many cases, all of the above works fine, but where the government is party to the conflict driving food insecurity, these systems have difficulty functioning independently from political influences.

Data and methods. Conflict data are not collected by these systems. There are some publicly available data sets on conflict, but

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[11] Mueller (2018).
[12] There are also a number of regional and national endeavors to undertake this work, by coordinating across several countries and focusing on monitoring and coordination within countries (across government and with civil society actors). This summary focuses on global systems.
[13] Harff. (2015). The list from 2015 includes the note, "The hazards, or relative risks, in all countries will not change significantly in the near future unless any of their driving variables change. So these assessments can be

expected to be valid through, say 2020, and quite possibly beyond."
[14] The UN Office on the Prevention of Genocide. "Framework of Analysis for Atrocity Crimes."
[15] https://politicsir.cass.anu.edu.au/research/projects/atrocity-forecasting This is a forecasting list; it attempts to predict where atrocities will occur.
[16] https://thesentinelproject.org/what-we-do/early-warning-system/
[17] https://earlywarningproject.ushmm.org/

these have limited predictive ability. These data can (and should) be used to predict the food security consequences of violent conflict. But even with publicly available data, analysts face serious constraints in utilizing these in government-led analysis processes.

Assumptions. The timing of information collection and analysis is driven by assumptions about the causes of food insecurity. Almost without exception, the timing of analysis is driven by the assumption that hunger is seasonal and is driven primarily by environmental and economic factors—or, in a "dumbed-down" version of analysis, by rainfall and prices. In some cases, there may be a seasonal connection to conflict—dry season offensives, etc. But in many cases where conflict is a significant causal factor in food insecurity, it may be delinked from seasonal considerations—such that seasonally-based analysis may actually miss the greatest spikes in food insecurity. Conflict analysis is at best weak and generic—and sometimes basically excluded; analysis of starvation crimes is unheard of in these analyses.

Politics and access. Even given efforts to maintain an independent analysis, information is often missing—making for, at best, an incomplete analysis. When information is missing because of access constraints on assessment teams in the field, ascertaining the difference between security constraints and political constraints might be difficult. Nowhere is this a bigger problem than in conflict-induced food security crises or famines.

Atrocity and fragility EW. Most of the fragility and atrocity EW systems are risk assessments: drawing on statistical models, that rely on annually produced national-level data. They attempt to calculate the probability of atrocities (defined variably across datasets) occurring. Several verge on "early warning" by incorporating information about more fast-moving factors and potential

triggers for new episodes of mass violence—like elections, coups, or assassinations—or trying to incorporate expert opinion. However, focused on providing a global view of risk, these systems remain of limited policy-making value. For instance, at present, the US Holocaust Memorial Museum early warning project notes that it "considers countries ranked in the top 30 to be at high risk."[18] This number of countries at risk suggests that the rankings have some distance to go to be valuable for identifying when and how policy attention should be focused.

Alignment of atrocity/fragility EW and food security EW. It is perhaps worth noting that the country case studies offered here (Somalia, South Sudan, Syria, and Yemen) are the four countries at the absolute highest level of fragility on the current Fund for Peace *Fragile States Index*, and three of them (Somalia, South Sudan, and Yemen) are in the top four on the OECD *States of Fragility Report* for 2018. However, while this underlines the convergence of conflict, fragility, and food insecurity, it doesn't necessarily mean much in terms of early warning—only an overlap in terms of outcomes.

In May of 2018, at least in response to the "four famines" scenario experienced in 2017, the UN Security Council unanimously adopted Resolution 2417 that highlights the link between armed conflict and the threat of famine. Much of the resolution was about respecting international humanitarian law (IHL) and refraining from attacking the infrastructure that supports civilian access to adequate food and water, but it also calls for unimpeded humanitarian access to conflict-affected populations and urges prompt investigation into violations of IHL that may have resulted in human starvation. One would hope that this would give new impetus to improved conflict analysis and prediction in food security information and early warning systems. The resolution is mostly silent about the issue of information, except for requiring

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[18] https://earlywarningproject.ushmm.org/ranking-of-all-countries

the Secretary General to report annually to the Security Council on the implementation of the resolution. Article 11 however, does request the Secretary General to "provide information on the risk of famine and food insecurity in countries with armed conflict…"[19]

Case Studies

The information that the Secretary General is obliged to provide will have to come from the systems described above. However, despite internationally agreed priorities about the links between armed conflict and extreme hunger, the question of deliberately inflicted hunger is rarely if ever addressed head on by these systems. This is partly for reasons noted above—because they are either government-owned systems (and governments are, without contemporary exception, parties to the conflicts that cause famines or extreme food security crises) or they are managed by UN agencies that have to negotiate presence and access to affected populations and that are therefore reluctant to anger parties to the conflict (be they government or non-state actors).

This section reviews several recent cases of famine or near-famine crises to demonstrate that—despite international consensus statements like UNSCR 2417—even attempting to track and analyze conflict can be difficult; tracking or analyzing the use of hunger as a weapon of war is even more difficult. Several additional cases could have been added, but the point of each would have been broadly the same. The cases examined present the broadest summary of the constraints. These include Somalia 2011, in which a well-documented famine clearly occurred, but in which both prevention/mitigation and response were constrained by non-state actors and the counter-terrorism measures of donor governments; a case in South Sudan in 2017 in which famine was not declared (though deemed likely) but in which government leadership of the process made analysis of

the causes virtually impossible; and a case from Syria which probably did not amount to a famine by contemporary definitions, but where this kind of analysis is not even undertaken by the major famine or food security information systems.

Somalia (2011)

Brief description. In July 2011, a famine was declared in areas of South Central Somalia. At the time, the crisis affected over three million people; over half a million children were malnourished, and though no absolute number was given at the time, tens of thousands of people were assumed to have already died as a result of malnutrition and the killer diseases that are often the biggest killers in a famine. Hundreds of thousands of additional people were displaced—both internally and outside the country. Although declared in real time, numerous critics at the time and since have noted that ample warnings of the impending disaster were given, but the attempts to mitigate the crisis, or even to respond to the acute suffering in real time, were under-funded and for the most part woefully inadequate—and in some ways deliberately restricted—up until the time of the declaration.[20]

The famine declaration galvanized the international community to respond to the out-of-control crisis. Overnight, donor funding for Somalia doubled and within months tripled. New and innovative forms of response—including most notably the response to a food security emergency relying on cash transfers rather than in-kind food aid—were launched. Agencies scaled up, negotiations over access were stepped up, and a large-scale response throughout the second half of 2011 helped to bring the crisis under control.[21]

The crisis was caused by a combination of factors. A drought of significant proportion swept through the whole of the Horn of Africa, including Kenya and Ethiopia in particular. This badly affected agricultural production in

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[19] UN Security Council Resolution 2417, May 24, 2018, article 11.

[20] Maxwell and Majid (2016).
[21] Ibid.

the grain growing areas of Somalia and caused significant loss of livestock in pastoral areas. But equally importantly, the drought was so serious that low river levels brought irrigated farming to a halt and dramatically reduced the demand for rural labor at a time when people typically took refuge in these areas in search of wage labor. At the same time, the price of basic food grains spiked globally. Somalia imports most of its basic food grains, even in "good" years. So the combination of high prices for food, the loss of livestock, and the collapse of the rural labor market led to a dramatic decline in purchasing power for the hardest hit groups.[22]

Somalia effectively had no central state apparatus at the time of the famine. The nominal Transitional Federal Government controlled only a tiny section of Mogadishu—the rest of the country was ruled by armed groups. The famine-affected area was mostly controlled by *Al-Shabaab*, an Islamist group with ties to *Al-Qaeda*. The US and other Western countries had labeled *Al-Shabaab* as a terrorist group in 2008. The Africa Union, with strong support from Western countries, had troops in Somalia fighting *Al-Shabaab*, along with the very nascent armed forces of the Transitional Federal Government. The fighting displaced people, along with the drought and the collapse of livelihood options. *Al-Shabaab* did little to prevent the onset of the famine, and in fact its repressive policies had done much to exacerbate the problem, including severe limitations on access. *Al-Shabaab* had made numerous threats against, and in some cases killed the staff of, humanitarian agencies (including the World Food Programme) that could have mitigated the crisis but that had in fact pulled out of southern Somalia.[23]

But equally important, for much of the period leading up to the declaration of famine, Western donors put severe restrictions on funding for anything in South Central Somalia for fear that such resources might end up in

the hands of *Al-Shabaab*. The period leading up to the famine coincided with a strong crackdown on humanitarian aid being diverted and ending up in the hands of terrorist groups. Aid diversion was rampant in Somalia at the time: a UN report in 2010 suggested that up to half of all food aid in Somalia, for example, was ending up in the wrong hands (not necessarily *Al-Shabaab*—sometimes it was corrupt businessmen or other warlords not labeled "terrorists").[24] The counter-terrorism measures put in place by Western donors and agencies, combined with the general policies of *Al-Shabaab* with regard to aid led to extreme constraints on humanitarian action as the crisis spiraled out of control—indeed were significant causes of it spiraling out of control. Throughout the period leading up to the declaration, inadequate funding available for humanitarian work in South Central Somalia, the risk of criminal liability for diverted aid, and the reputational damage of being accused of "aiding terrorists" combined to preclude the kind of early intervention needed to avert the crisis. While the situation was clearly dramatically worsening on the ground, not enough was done to mitigate the crisis until it was far too late.

This was not by any means the first time that the international humanitarian community had seen a crisis coming and failed to act in time, but it was probably the most tragic instance of this kind of "early warning/late response" failure.[25] Eventually the death toll (politely referred to in the language of humanitarian analysis as "excess mortality") from the famine would be estimated at nearly 260,000 people—disproportionately young children.[26]

Information and analysis challenges. This crisis was well predicted. The drought was caused by the well-known progression of the La Niña-related drought in the Horn of Africa and indeed, there were warnings about the drought from the time that an El Niño event was detected in the Pacific Ocean in 2010. The collapse in purchasing power was also

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[22] Ibid.
[23] Ibid.
[24] UN Monitoring Group on Somalia and Eritrea (2010).

[25] Bailey (2013).
[26] Checchi and Robinson (2013).

noted as early as late 2010, and of course the conflict with *Al-Shabaab* was on-going—and had gradually been leading to tighter and tighter restrictions to access on the ground. The absence of the World Food Programme and other agencies that are usually the front-line vehicles for responding to a major food security crisis was noted by both donors and the UN leadership in Somalia in 2010 as a major risk factor—even before the situation began to deteriorate. But few contingency plans were put in place.[27]

Between mid-2010 and the declaration of famine in July 2011, the combined efforts of FEWS NET and FSNAU produced sixteen special bulletins or early warning flash alerts beyond their regular quarterly reporting. These alerts became more specific and more alarming over time.[28] Additional briefings were given to donors and humanitarian agencies. In the real-time evaluation of the crisis undertaken in late 2011/early 2012, early warning information was noted as having been "accurate and timely" across the region.[29]

However, what was not predicted—because it has never been part of any humanitarian information system—was the way in which *Al-Shabaab* restrictions on access would combine with donor sanctions on aid diversion, to complicate and delay any action to mitigate or respond to the crisis. But this became abundantly clear as the crisis deepened in the first half of 2011. US contributions to the humanitarian effort declined steeply in 2010–11 (until the famine was declared). The Office of Foreign Asset Control within the Department of Commerce took a very hard line on Somalia, which made US agencies reluctant to engage there. While some agencies had the contacts and the capacity to work in in the famine-affected area, some refrained out of fear of the possible legal consequences—effectively basing their decisions on legal and reputational considerations, not humanitarian need. To be sure, some agencies were on the

ground but not enough, and some individuals and agencies were working hard behind the scenes to develop an effective workaround for Somalia, but it was a very long process to work out.

This all changed immediately after the famine was declared—giving the appearance that it was only the declaration of famine that finally woke the world up to what was happening in Somalia. This wasn't entirely true, but the standoff over counter-terrorism policy was a major factor preventing the scale up that might have mitigated the worsening crisis. Seal and Bailey, writing in 2013, noted, "Inadequate funding was a direct and inevitable consequence of donor anti-terror legislation. So was the failure to provide an enabling legal environment for humanitarian agencies to operate without the threat of prosecution. This strategy also had serious consequences for the presence, operational capacity and access of agencies on the ground."[30]

Implications. No early warning or information system has ever been set up to predict these kinds of complicating factors in a famine. And yet it was without doubt these complicating factors (*Al-Shabaab's* restrictions on access, the donors' restrictions and the associated legal and reputational risks, and the absence of WFP) that tipped an otherwise very bad year in Somalia over into an actual famine. It should be noted that a crisis of relatively similar magnitude in 2016–17 was met with earlier and more decisive intervention. But it is not clear whether this meant that the "system" has taken the lessons of 2011 on board or simply that a handful of committed individuals saw to it that earlier actions were taken in 2017. In any case, the threat of legal and reputational retribution against intervening agencies was much lower in 2017.

What is clear is that it was politics—more than drought, prices, or *even armed conflict*—that effectively prevented early action in Somalia in 2011. While the actions of both *Al-Shabaab*

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27 Darcy et al. (2012).
28 Hillbruner and Moloney (2012).

29 Darcy et al. (2012).
30 Seal and Bailey (2013), p. 3.

and Western donors were not directly intended to cause a famine, in retrospect they clearly contributed significantly. And it was clear to many people at the time. The course of the conflict was not specifically tracked, but even if it had been, it would not have changed anything about either the early warning or the blockages to early action.

Since 2011, most of the solutions to the constraints on early intervention in famine have been technical in nature, including developing "crisis modifiers" (money in budgets that can be called down immediately in the event of a worsening crisis); embedding "trigger indicators" in early warning (thresholds which, once breached would initiate a response "automatically) linking them to decision-making process to ensure early action and to reduce human dithering; and developing "no regrets" responses (early action ensured to be a good investment even if no major crisis subsequently develops). A current World Bank initiative is putting significant effort into integrating early warning, innovative financing arrangements, and better contingency plans into an integrated famine prevention and early action mechanism (called FAM).

So the international community—now working together with the Federal Government of Somalia—has made progress on technical constraints. But the biggest constraints in 2011 were political. The security and counter-terrorism imperative clearly took precedence over the humanitarian imperative in Somalia in 2011, and while the exact circumstances are perhaps unlikely to recur, politics and security concerns, together with restrictions on access by conflict actors, can reliably be counted on to trump humanitarian concerns again under different circumstances. So who was accountable for famine in Somalia? Unfortunately the blame can be spread to many parties—but no one has ever faced any sanction. A 2013 report by the UN Office for the Coordination of Humanitarian Affairs and the Norwegian Refugee Council concludes, "In Somalia, the restrictions placed upon

humanitarian actions through sanctions and counter-terrorism measures are considered by many in the humanitarian community to have compounded the already difficult operating environment in the Al-Shabaab controlled areas … While it is impossible to determine the extent to which the abrupt decrease in aid [observed in the 18 months running up to the declaration] contributed to the famine that followed in mid-2011, some relationship cannot be discounted. Certainly the severity of the food crisis and the publicity around it prompted a reversal of donor policy."[31]

South Sudan (Greater Baggari, 2016-18)

Brief description. Between 2015 and the end of 2017, a series of military offensives in Western Bahr al Ghazal, South Sudan, led to a large-scale displacement of civilians who were subsequently trapped behind a front line and mostly unable to access food, markets, or means of livelihood and were mostly inaccessible to humanitarian actors. This gave rise to serious concerns about the possibility of localized famine. The civilians so trapped were mostly of Fertit origin. The history of animosity between the Dinka, who occupy much of Northern Bahr al Ghazal, and the Fertit, who occupy much of Western Bahr al Ghazal, goes back at least to the Sudan civil war when several Fertit militias, fearing that they would be completely dominated by the Dinka in an independent South Sudan, aligned with Khartoum. Those animosities continued after the Comprehensive Peace Agreement, and escalated after the outbreak of civil war in South Sudan in December 2013. Several Fertit militias formally joined the SPLM-IO in 2014. In 2016, a military offensive in Wau town led to the displacement of more than 20,000 people, mostly of Fertit origin, at the hands of the (mostly Dinka) SPLA. The SPLA-IO counter-attacked in June. Up to this point, Western Bahr al Ghazal had mostly been spared the violence that flared in Greater Upper Nile following the clashes in Juba that re-ignited the conflict in South Sudan. The IO attack prompted another SPLA offensive, this

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[31] Mackintosh and Duplat (2013), pp.102–3.

one seemingly aimed at Fertit neighborhoods, driving an estimated 80,000 to 150,000 people out of the city and nearby rural areas. Some people fled to an UNMISS-controlled Protection of Civilians Adjacent Area (POCAA) site, but most fled the town and surrounding areas altogether to an area nominally under IO control to the south and west of Wau town known as "Greater Baggari"—named after one of the settlements in the area. For much of the remainder of 2016, people remained displaced, with government-IO clashes driving people farther into the bush. Attempts at local peace talks eventually broke down.[32]

In early 2017, however, the fighting between the SPLA and IO broke out again, resulting in siege-like conditions in much of Greater Baggari. Accusations were made against the SPLA of not only cordoning off the area but also of burning crops and granaries, uprooting crops, chopping down fruit trees, and burning villages. Somewhere between 20,000 and 40,000 displaced people, as well as the surviving local residents, were affected by this siege. The UN accused the SPLA of blocking humanitarian access to this population up to August, when some limited aid convoys were allowed into the area. The government countered that aid was freely available in (SPLA-controlled) Wau town and people could go there for assistance. But this was possible only at extreme risk to anyone who tried.[33]

Deng et al. note that, "with reference to the Greater Baggari episode of 2017, the UN Panel of Experts found that the Government of South Sudan had 'deliberately prevented food assistance from reaching some citizens. Such actions amount to using food as a weapon of war, with the intent to inflict suffering on civilians from the Government views as opponents to its agenda.'"[34] Speaking in an interview in 2018, one UNMISS expert noted that although he was usually hesitant to use the term, the conflict in Wau was the clearest example of ethnic cleansing he had seen in 20 years in that kind of work.[35] Estimates of the

displacement ran as high as 100,000; numbers of people actually trapped in Greater Baggari vary.

Information and analysis challenges. The Greater Baggari case came to the attention of famine analysts in South Sudan, but not until August 2017, after eight months of denied access. The famine in central Unity State consumed much of the attention during the first half of the year, when most of the actual offensives and forced displacement—and indeed the siege-like conditions and blocked access—were occurring in Wau County. After an assessment field team was finally granted access in August and September 2017, evidence began to emerge of the severity of the situation among the population trapped in Greater Baggari. An estimated 10 percent of the population of Greater Baggari was assessed to be in Phase 5 conditions— meaning that a large proportion of the population was already experiencing famine conditions. This didn't amount to a sufficiently large proportion of the population to actually declare a famine (which requires a minimum of 20 percent of the population in Phase 5), but the projections suggested by both the field team and the IPC technical working group (TWG) were that 20 percent would be in phase 5 by October to December—given the likelihood of further fighting—and the vast majority of the population were projected to be in Phase 4 and 5 by January. This group estimated the population Greater Baggari at 20,000—other estimates were nearly twice that high. So clearly not all the IDPs from Wau fled to this area, but the population was big enough to justify a clear statement of the risk of famine based on the IDP influx and the severely restricted access. The food security indicators were certainly bad enough, and the prevalence of acute malnutrition was 38 percent in one area and 34 percent in another—well above famine thresholds. Current-status estimates of mortality did not (quite) breach the famine threshold. [36]

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[32] Deng et al. (2019).
[33] Vuylsteke (2018).
[34] Deng et al. (2019).

[35] Key Informant Interview, Juba, South Sudan, 2018.
[36] This brief summary of the analysis is reconstructed from Integrated Phase Classification (IPC) reports,

Displacement patterns were analyzed—to explain how so many people ended up in an isolated (and now besieged) location. Conflict events were superimposed on a seasonality time-frame, so that both conflict and production cycles could be viewed at once. The lack of access to basic services, markets, and even water was described and mapped. But, while this included more conflict analysis than is often the case with IPC analyses, it was blended with an analysis of agricultural production and prices, rainfall, and other more standard food security early warning information. Given both the "population in Phase 5" and the projections for the immediate future, this situation suggested "elevated risk of famine."[37] While the inability to access markets clearly stood out in the justification for the "risk of famine" classification, it was not made clear that ethnic cleansing was the reason for the displacement in the first place or that the blocked access was a deliberate military strategy rather than an unfortunate by-product of conflict.

The results of the IPC analysis for the whole country were forwarded to the Famine Review Committee. However, while clear explanations were given for populations in Phase 5 in Ayod, Kapoeta, and Nyirol Counties (elsewhere in South Sudan), no analysis was done on Wau County (within which the Greater Baggari area was located). When quizzed about this, the TWG in South Sudan noted the constraints on access and attempts to limit the bias of the assessment by only considering areas for which there were updated sampling frames from the National Bureau of Statistics—clearly impossible in a situation of mass displacement. The exclusion of known affected areas clearly biased the sample *more* than the lack of a statistically valid sampling frame for a survey would have. Long story made short, there were lots of technical reasons why a perfect analysis was difficult in this context, but no mention that a field team

had in fact done a pretty good job of assessing current-status conditions.

But discussion about whether the technical indicator thresholds had been breached in any of these four locations continued for nearly a month before an analysis was publicly issued. It said, in part, "of great concern is Greater Baggari, a sub-area of former Wau County, with an estimated population of 25,000, where 10 percent of the population is in Humanitarian Catastrophe (IPC Phase 5) in September 2017 as a result of sustained insecurity, sporadic humanitarian access since 2016, lack of freedom of movement and extreme depletion of livelihoods. Should these very limited access conditions persist, the food security situation is expected to deteriorate and widen further." The analysis continues to advocate for "unhindered provision of humanitarian assistance and close monitoring."[38]

Implications. Clearly, such a statement is not blatantly inaccurate, but it revealed very little about what was actually going on. It highlights the current status of the affected population, which was close to famine, but the evidence to make a complete determination wasn't available given constraints on access. And the causal analysis about "sustained insecurity" and "sporadic access" betrayed little notion of ethnic cleansing, tactical operations that amounted to a siege, and the deliberate blockage of humanitarian access that amounted to the use of food as a weapon. But clearly, if causal factors had been analyzed in greater detail, the advocacy call wouldn't have simply been about lifting restrictions on humanitarian access, it would also have been about applying pressure to all armed actors to respect the laws of war, cease the use of sieges and food as a weapon, and limit military action to military targets. So why the watered down and depoliticized language and recommendations in the analysis?

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narratives, reports from observers on the ground, and the notes of the Famine Review Committee.
[37] This was a means of signaling that while current-status indicators didn't all breach famine thresholds, the

analysis team was very worried about famine conditions in the near future
[38] "Key IPC Findings: September 2017-March 2018." Juba: South Sudan, IPC Technical Working Group, p. 1.

First, as well documented elsewhere, the analysis of famine is a highly politicized process in itself.[39] In a consensus-driven, government-led analysis such as this, even a discussion of populations in Phase 5 was a near-taboo topic. International agencies feared reprisals, denial of work permits, and program stoppage if the analysis became too "political."[40] Several government civil servants had been sacked from their jobs (and feared for their lives for a period of time) after the famine was declared in central Unity State earlier in 2017. There was a general sense that discussion of population in Phase 5 was about as far as anyone could go unless there was overwhelming evidence for discussing famine. And as long as access was extremely difficult, there was rarely such evidence—even the declaration in central Unity earlier in the year was based on limited evidence. Second, conflict analysis was relegated to, at best, a secondary role in the analysis (and this is not an isolated case—conflict analysis is simply not a part of IPC or any other food security analysis process). Given the lack of skills and the political influences, there was every reason to keep the language in the analysis and recommendation very generic.

Third, IPC analysis in South Sudan, as everywhere, is intended to be a national government-led process. Much effort by the IPC global team goes in to training government civil servants and enabling national information systems to be technically (and if possible, financially) independent of international donors. While that is good development policy, it is clearly fraught with possibilities for political manipulation of the information or analytical outputs in a context where conflict is the dominant factor driving food insecurity or famine, and the government leading the analysis is not only party to the conflict, but (in this case) the forces that were reportedly committing ethnic cleansing and blocking humanitarian access to the Fertit

population that was forced out of Wau town and surrounding areas.

Syria (2012-18)

Brief description. Prior to the Arab Spring in 2011, Syria was an extremely unlikely place to be talking about famine or starvation. It was a middle income country and, while having an arid climate, it was generally listed as a food exporting country, with a strong irrigated agriculture sector in its diverse economy. During the spring of 2011, the global price of basic food grains—and critically the cost of wheat—nearly tripled in a very short period of time, leading to hardship among lower-income people: wheat bread being the staple food of Syria and many other Middle Eastern countries.

Syria in 2011 was governed by a dynastic regime of mostly minority Alawite origins, led by Bashar al-Assad, which took non-violent protests against the cost of food and demands for democratic reforms as an existential threat and responded to them in a very heavy-handed way. Peaceful protests soon turned into an outright civil war. On the one hand, the government and its internal and external allies (eventually including Russia, Iran, and Hezbollah) sought to preserve the regime and its grip on power; on the other hand, a loose-knit group of mostly Sunni, anti-Assad forces came together under the banner of the Free Syrian Army (FSA). These initially formed the two main parties to the conflict, but it eventually involved various Salafist jihadist groups including the *al-Nusra* Front, the Kurdish Syrian Democratic Forces, and from about 2013 onwards, *Da'esh* or the Islamic State in Iraq and the Levant (ISIL). The conflict involves multiple and shifting alliances, both domestically and internationally. Western governments initially supported the FSA but their focus shifted with the emergence of *Al-Qaeda*-linked groups and ISIL. Initially it looked as though the Assad

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[39] Maxwell et al. (2018).
[40] One analyst who had the temerity to not only speak out about, but actually measure, mortality in a conflict zone in a different part of the country at the time was

attacked and badly beaten up. While no one was ever apprehended or prosecuted for that crime, the widespread suspicion was that government soldiers were responsible for the attack.

regime might be overthrown, but its chances of survival increased when more external—especially Russian—support became available.[41]

The Syrian war has been notable for the horrific tactics used—by the regime but by some of the non-state actors as well. More than 11 million people are estimated to have been displaced (more than half the population)—about equally split between refugees outside the country and internally displaced within. By 2019, the UN Humanitarian Response Plan (HRP) for Syria estimated that more than 6.5 million people within Syria were in need of food assistance, and more than 11 million in need of some form of humanitarian assistance to survive. These numbers are down slightly from the peak of the conflict in 2016–17, but still very high. The HRP is notable for its careful elucidation of needs, but very weak on analysis of why those needs persist.[42]

Chemical weapons have been used on several occasions. Of greater interest to this discussion however, is the use of siege warfare. Ruthlessly pursued by the regime and its allies, siege warfare quickly became the hallmark of the Syrian war. Homs was besieged from 2011 to 2014, a situation that ultimately ended only when opposition forces withdrew. Aleppo was similarly besieged beginning in 2013. The siege of Eastern Ghouta, also beginning in 2013, was probably the best known of the crisis—certainly one of the most brutal and protracted of the entire war.[43] Eastern Ghouta was subject to repeated air attacks and was one of the sites where chemical weapons were used. In both cases, government forces attacked food sources and sought to block both market and humanitarian access for as long as three months at a time. The price of bread was more than ten times higher than in nearby communities not under siege, creating huge economic opportunities

for merchants with the connections to cross the lines.[44] Altogether, at least 18 separate siege events have been noted during the conflict. By late 2018, OCHA noted that more than a million people were still in "hard to reach" areas (a polite way of saying besieged areas).[45]

Information and analysis challenges. Despite myriad reports referencing siege warfare with names like "Starvation By Siege," and "Encircle, starve, surrender, evacuate,"[46] there has never been any formal (IPC) analysis of famine or starvation in Syria. FEWS NET has no office in nor remote monitoring of Syria. Only one attempt has been made—for the 2018 HRP—to conduct an IPC-like analysis.[47] That report makes scattered references to impacts of sieges, but oddly does not mention them once as a risk factor for extreme food insecurity—rather using words like "interruption or restriction of humanitarian assistance." The various governorates of Syria were ranked according to "severity" in the report, but the categories did not conform to standard IPC analysis. Despite being mentioned in the methodology section of the report, no information on the prevalence of food insecurity was included in the report, and no information the prevalence of child under-nutrition, or the crude death rate. Areas are simply ranked in terms of "severity" of food insecurity. The words "famine" or "starvation" do not appear in the report. It proved impossible to collect data necessary for the analysis in 136 sub-districts (out of a total of 284).[48]

This is all, of course, partly due to the extremely limited access that humanitarian actors have in Syria, for either assessment or response—and partly due to a deep reluctance to endanger the little access they do have by crossing the regime (or some of the non-state conflict actors).[49] The result has been an attempt to depict the extreme acute food

41 Kanfash and al-Jasem (2019).
42 OCHA Syria (2019).
43 UN Human Rights Council (2018).
44 Kanfash and al-Jasem (2019).
45 OCHA Syria (2019).

46 Power (2016); Independent International Commission of Inquiry on the Syrian Arab Republic (2018).
47 Syria Food Security Cluster (2018).
48 Ibid.
49 Howe (2015).

insecurity as being caused by "instability and insecurity," or even "poorly functioning markets," "crop failure" other similarly bland terms.[50] The analyses of the impact of sieges (conducted by other analysts, not food security analysts) have not considered the standard measures of famine analysis—also because of lack of access. The upshot is that while estimates of total mortality from the Syrian civil war exist, as well as reports of death from starvation (or from killer diseases, the susceptibility to which is increased by extreme food insecurity and acute malnutrition), it is impossible to state with any certainty what the death toll has been from hunger and malnutrition as a result of the siege. Good evidence about starvation in detention appears not to exist.[51]

Implications. Under these circumstances, it isn't clear how famine analysis would apply. IPC analysis can apply to any population with a minimum size of ten thousand people. Certainly at least some of the besieged areas had populations many times that size.[52] IPC outcomes are based on the three indicators mentioned above (food insecurity, malnutrition, and mortality), but the lack of data and the inability to access the besieged areas has repeatedly meant that there is no good data on which to base any such judgement. And second, as also noted, IPC is typically a government-led consensus analysis involving state emergency management officials, UN agencies, and food/nutrition-oriented NGOs. It will quickly become apparent how problematic it would be to undertake an analysis of the impact of siege warfare in Syria if the process was government-led (in fact, the IPC-like analysis was undertaken by the UN-led Food Security Cluster, but as noted above, it had to be very careful about its language).

From an early warning perspective, there may be even less to say about sieges. Where sieges are taking place is not a secret, and the

consequences of being cut off from markets and humanitarian assistance aren't difficult to figure out. The lack of early warning per se in a place like Homs or Eastern Ghouta was hardly a significant constraint to preventing starvation. And clearly, if and when access is possible, the priority is rightly on providing assistance, not conducting assessments.

Perhaps more important to the prosecution of starvation crimes would be intensive assessment of, and interviews with, people escaping or being forced to leave besieged enclaves—an attempt to piece together what happened. This would involve activities such as attempting to reconstruct levels of food insecurity through methodologies like the "Area of Knowledge (AOK) approach of REACH, or rates of mortality through methods such as "capture-recapture" interviews with key informants, or rapid verbal autopsies of those who died with people who knew the deceased.[53]

The question arising from sieges and starvation crimes however, is whether standard measures of "famine" apply at all? Do famine thresholds matter—or are they even applicable to—a context like Homs or Eastern Ghouta? If the starvation is a deliberate tactic of warfare, does it matter how many people or what proportion of the population was affected? Do the accompanying prevalences of food insecurity and malnutrition make any difference? In one of the few documented instances of actually being able to assess child malnutrition in Eastern Ghouta in January 2017, the prevalence of global acute malnutrition was 11.4 percent.[54] That is not good, but doesn't surpass the WHO threshold for a humanitarian emergency (15 percent), let alone the IPC threshold for famine (30 percent). Most other SMART surveys showed prevalences lower than that (but most, obviously, were not undertaken in the besieged areas).

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50 Syria Food Security Cluster (2018).
51 Kanfash and al-Jasem (2019).
52 Independent International Commission of Inquiry on the Syrian Arab Republic (2018).

53 Roberts et al. (2010).
54 Kanfash and al-Jasem (2019).

Yemen (2015-19)

Brief Description. Modern-day Yemen is a relatively new country, established in 1990 when the south and north merged after years of conflict. Despite its semi-arid landscape, Yemen is fairly heavily populated with an estimated population of 28.7 million people (2018 figures)—mostly in the highlands area in the west and the north. Since 2014, Yemen has been in a civil war between Houthi rebels and the internationally recognized government. The political transition spawned by the "Arab Spring" forced longtime strongman Ali Abdullah Saleh out of power. Abdurabuh Mansur Hadi, Saleh's deputy, took over but was overwhelmed by the combination of the Houthi rebellion in the north, Al-Qaeda attacks in the south, and a variety of other threats including some military officers who continued to be loyal to Saleh, as well as high levels of food insecurity, unemployment, and corruption.

Ansar Allah (Partisans of God, known informally as "the Houthis") had begun as a peaceful protest movement but took up arms after government forces killed Hussein Badr al-Dine al-Houthi, the leader of the movement. In 2014, the Houthis called for greater political representation—calls that were rejected by the government. A civil war broke out in September 2014 that shortly saw the Houthis taking control of Yemen's capital, Sana'a, and other areas of the densely populated northern highlands. Hadi went into exile in Saudi Arabia, though remains the nominal president. The Houthis took control the capital of Sana'a and much of the north, but their regime is not recognized by the international community.

In 2015, a coalition led by Saudi Arabia and the United Arab Emirates (UAE)—but including a number of other Middle Eastern countries and with support from Western powers—began a sustained military campaign to return Hadi to power and oust the Houthis, whom the Saudis regard as an Iranian proxy. Iran is suspected of providing military support to the

Houthis[55] though whether in response to the Saudi offensive or as the pretext for it remains contentious. Since 2015, multiple UN peace processes have been attempted, but none have succeeded in ending the war—some local ceasefires have been negotiated.

A year after the Saudi-led coalition (SLC) started its military operations, humanitarian agencies began warning that food security conditions were sharply deteriorating, with some analysts predicting famine. These prognostications were based on economic indicators, read against a background of chronic humanitarian need.[56] In September 2016, the internationally recognized Hadi government, either at the prompting of its Gulf backers or with their support, transferred the Central Bank of Yemen (CBY) from its established headquarters in Sana'a to the former South Yemen capital of Aden. The CBY stopped paying salaries for government workers and pensions for retirees in the Houthi-controlled areas and restricted credit to traders importing essential goods into those areas. Shortly thereafter, informed observers sounded the warnings of a severe humanitarian crisis and even famine, again based on economic projections.[57] The significance of this is that a narrow economic analysis proved remarkably accurate in predicting the onset of a major humanitarian crisis, though not its geographical specificities.

Some of the worst humanitarian conditions were reported in and around the city of Ta'izz, on the frontline between the Houthi army and the forces of the Hadi government (which themselves often showed fractures). The siege of Ta'izz saw the widespread obstruction of commercial and humanitarian food transport and attacks on agricultural production and food industries. The siege was enforced primarily by the Houthis, but the fractious government militia also blocked food, sometimes to profit from the high prices associated with the war economy. This combination of blockades or obstruction of

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[55] Saul, Hafezi, and Georgy (2017).
[56] Al-Muslimi and Rageh (2015)

[57] IRIS (2017).

food supplies, attacks on objects and activities necessary for food production (farms, fishing boats, water supplies), and profiteering in the war economy was a feature of the Yemen crisis at every level. This raises the question of the use of starvation as a weapon of war, with some evidence that both the internationally recognized government and the SLC, as well as the Houthis, were potentially implicated in the employment of starvation of a weapon.

In 2018, the SLC began an offensive against the main port city in the Houthi-controlled north, Hodeida. Hodeida is the critical port for Sana'a and the highlands—both for commercial and humanitarian imports—and fears were that if the port was closed, or fell to the SLC, it could push parts of Yemen into famine.[58] However, despite a long battle, the SLC did not capture the port and at least some level of port operations were maintained. Mediated by the UN, a truce was signed in Sweden in December 2018 agreeing to a ceasefire in Hodeida. The peace deal survived into early 2019, but with deep disagreements over its implementation and oversight. In June, the UAE withdrew its troops from the battle for Hodeida, lifting some of the pressure on the port city.[59]

However, shortly thereafter, the situation worsened with a "civil war within the civil war" in the south when a secessionist group took control of the seat of the internationally recognized government in Aden.[60] And shortly after that, a missile attack hit major Saudi oil refineries, reducing Saudi oil production by some 50 percent at least temporarily. The Houthis claimed responsibility for the attack, though Western intelligence agencies doubted that the Houthis had the technical capability to launch such an attack, blaming Iran instead. None of this, however, helped the nascent peace processes.[61]

At the height of the crisis in 2018, UN Secretary General Antonio Guterres referred to

Yemen as "the world's worst man-made humanitarian crisis."[62] In late 2018, there was significant fear of widespread famine in Yemen: although the war in Yemen had been ongoing for four years, a variety of factors came together. All were related to the conduct of the conflict in one way or another—though not just to the actual fighting on the ground—and included widespread internal displacement of people and the rapid decline of purchasing power by average Yemeni citizens. GDP had fallen by nearly 50 percent since 2014 with more than half the rural workforce unemployed or underemployed because of the conflict.[63] Oil and natural gas production were operating at about 10 percent of pre-war capacity, severely curtailing foreign exchange reserves. The Yemeni riyal was plummeting in value against international currencies. Salaries of civil servants were suspended and mostly not being paid. SLC airstrikes targeted agricultural and fishing livelihood resources, and production in both sectors had declined significantly.[64] There was an extreme liquidity crisis in the banking sector, limiting the ability of private traders to import necessary commodities, including food (Yemen was a net importer of basic foodstuffs even prior to the civil war). And of course the attack on the port, as well as lengthy inspections of ships in international waters and bureaucratic constraints in moving commodities through the port, made importation of food difficult and time-consuming even if credit was available. All of these added up to a major threat of famine across the western two-thirds of the country, which had already been in IPC Phase 3 or 4 for much of the previous four years. At the end of 2018, the UN noted 22 million people—out of a population of 28.7 million—who needed of some form of humanitarian assistance.[65]

In response, the UN Humanitarian Country Team developed the so-called "roadmap" in late 2018. This was linked to the ceasefire in Hodeida, but also addressed the liquidity

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[58] UNOCHA (2018).
[59] International Crisis Group (2019).
[60] Ibid.
[61] Ibid.

[62] UNOCHA (2018).
[63] World Bank (2018)
[64] Mundy (2018).
[65] UNOCHA (2018).

crisis, advocated for means to stabilize the currency, and made possible the resumption of payment of at least some salaries. These actions were cited in helping to stave off the immediate threat of widespread famine, but the underlying causes all remain.[66]

Information and analysis challenges. Yemen had a relatively limited food security and nutrition information system prior to the war. IPC analysis was begun in 2011 but was not conducted regularly until the outbreak of the war. Even since 2014, while IPC analyses have taken place annually, they have been irregular with respect to time period so do not represent comparable findings over time. Similar to IPC processes elsewhere, IPC information in Yemen is mostly an analysis of current-status outcomes (acute malnutrition, food insecurity, and mortality). Information is also collected on contributing (or causal) factors but is not true early warning information. A complicating factor is that in Yemen (unlike any other country) IPC analyses occurs in two separate but connected processes—one in Aden and one in Sana'a. FEWS NET has a presence in Yemen, but only informally. Despite years of attempting, FEWS NET has never secured legal registration. So while some analysis is conducted from the regional bureau in Beirut, its presence in Yemen itself is limited and informal. As a result, there are special challenges relate to both capacity and bureaucratic constraints on the institutional side.[67]

Access poses even greater challenges. The IPC analysis in November/December 2018 found some proportion of the population of Yemen in Phase 5 (famine conditions). Those facing severe acute food insecurity and in need of immediate food assistance numbered 15.9 million (IPC 2018). But data collection teams were unable to assess conditions in the hardest hit areas because permission to visit was not granted. As a result, much of the analysis—particularly the acute malnutrition analysis—was based on very out-of-date information. However, unlike earlier IPC

analyses, the 2018 analysis was representative at the district level (previous analyses had only been representative at the governorate level). Ironically, this greater granularity actually made the situation appear to look better in late 2018 than in earlier periods, but in fact the numbers had never been higher. In the absence of humanitarian food assistance, IPIC estimated that 20.1 million or 67 percent of the population would face severe food insecurity in the same time frame. This included 238,000 people projected to be in IPC Phase 5 or "catastrophe."[68] However, the criteria for actually declaring famine were not met, and indeed some of the indicators (notably malnutrition and mortality) were well below famine thresholds. The report by the Feinstein International Center and Centre for Humanitarian Change in April of 2019 noted a major conundrum with the data available for analysis at the height of the crisis in 2018: The "indicators of food insecurity (and indeed IPC classifications generally) have looked very severe for a long time … but malnutrition figures have stayed fairly low, and mortality figures are very low—even zero in some cases. It is unclear whether the issue here is with the quality of the data, the way in which data are collected, the analytical model on which IPC analysis is based … or if either the data or the process is being influenced in ways that confound the analysis. It is likely a combination of all these."[69] The report went on to note serious problems with the data, the lack of transparency and international checking of data, constraints on access, and reliance on out-of-date information.

The IPC forecast for the ensuing period differed from that of the UN Country Team, who undertook the "roadmap" actions noted above. These interventions were enacted more or less in spite of—not because of—the formal famine analysis. The IPC Famine Review Committee (FRC) came to different conclusions than the in-country Technical Working Group regarding the projected analysis, and a rather substantial debate

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[66] Maxwell et al. (2019a).
[67] Ibid.

[68] IPC (2018).
[69] Maxwell et al. (2019), p. 26.

ensued within the IPC team. Given the urgency of releasing an analysis, a decision was made to go ahead with the release of existing analysis along with a plan to conduct a new round of analysis in March 2019.

However, the subsequent analysis was based on data collected only from 29 of the 45 hardest-hit districts, with access denied by the authorities (mostly the Houthis) in the remaining districts. The July 2019 update shows modest improvements in the areas assessed, but of course the big question remains the areas that could not be assessed. No population in the accessible areas in 2019 was in Phase 5. To date, there is no evidence that large-scale areas of famine developed, but certainly pockets of famine or near-famine conditions existed, and indeed much of the affected area remains inaccessible—and unassessed.[70]

The analysis of conflict has been limited throughout the Yemen civil war. IPC reports are limited to saying things like, "Yemen's conflict remains the main driver of food insecurity."[71] The conflict has been the most severe in the governorates of Sa'ada, Hajja, Amran, Ta'izz and the area around Sana'a,[72] which are the hardest hit areas in terms of food insecurity—but also the locations most difficult to assess. Groups completely outside the traditional early warning or food security information community have independently monitored the impact of the war—particularly the SLC airstrikes—on food production and livelihoods infrastructure: the bombing of fishing ports, attacks against agricultural processing facilities—and even attacks on fields of grain—and the destruction of water wells and irrigation ditches.[73] The impact of these has been devastating, but these report only the incidents of attack—they cannot convey the actual impact of these attacks on peoples' access to adequate food. The war has contributed to endemic corruption, including profiteering in food markets, as economic warfare has mutated into a war

economy. None of these conflict-related dynamics have been systematically incorporated into either reporting systems or the analytical frameworks used.

Implications. While the UN-led formal system for food security early warning has been very circumspect about the use of the term "famine," others seem to use the word frequently.[74] In the end, perhaps the use of the word isn't the important point. Clearly, all the major parties to the Yemen conflict have attempted to weaponize access to food, and whether or not this has led to famine in the strict, IPC definition of the word, may not be important. But several points are worth noting.

First, difficulties noted in other case studies are worth reiterating here. If humanitarian access to respond to the food and nutrition needs of conflict-affected people is contingent on the decisions of both state and non-state authorities, humanitarian agencies are going to be reluctant to put even that limited degree of access at risk by pushing too hard on the authorities—particularly regarding the link between violent conflict and famine or starvation. Thus, while an analysis of the conflict is very helpful to the overall understanding of need in a complex humanitarian emergency like Yemen, it might be best if the conflict analysis was conducted outside of Yemen, and by non-humanitarians.

Second, notwithstanding the fact that humanitarians are reluctant to push national authorities too far, there are international standards for access and information even in warfare, and donor governments—as well as humanitarians themselves—could have pushed harder for access, independence, and adherence to international standards regarding data transparency. This will require greater leadership at the highest levels of the humanitarian community—it cannot be left to the technical teams tasked with undertaking the analysis.

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70 IPC (2019).
71 IPC (2019), p. 1.
72 International Crisis Group (2019).

73 Mundy (2018).
74 GRC and WPF (2019).

Third, while it is relatively easy to blame authorities for blocking access or trying to control information, in this case some of the donors were also implicated. Saudi Arabia and the United Arab Emirates are two of the three largest donors to the UN Humanitarian Response Plan for Yemen in 2019—as they were in 2018.[75] These actors clearly also have an interest in controlling the narrative on the humanitarian impact of the war.

As in other cases, the most frequently missing piece of information in food security analysis in Yemen is mortality data. The published data on crude mortality rates, remarkably, show a *decline* in mortality (from all causes) since the beginning of the war. This data is almost certainly, in the words of one observer, "rubbish." But in the absence of information and data, it is difficult to make definitive statements about famine or even about starvation deaths. The available information is mostly about the causal factors—either the actual war itself[76] or the economic impacts of the attacks on the ports and the economic pressures brought to bear by outside actors.[77] These document very well the harsh conditions under which Yemenis have been forced to subsist, and leave little doubt as to the severity of the situation on the ground. But they do not, unfortunately, challenge the "official" data about malnutrition and mortality.

Other Cases

The other contemporary case that no doubt bears mentioning is starvation within Boko Haram-controlled territory in northeastern Nigeria (which came to the attention of the world particularly in 2016 and 2017, but which may be continuing to the time of writing). Nigeria has IPC analysis and a FEWS NET office (Nigeria is actually in the ECOWAS region, so relies on Cadre Harmonisé analysis, but the protocol is virtually identical to IPC).

In mid-2016, the Nigerian Federal Army overran parts of Boko Haram-controlled

territory in eastern Borno state and found the civilian population displaced into towns like Bama and Banki in very distressed conditions. The rapid assessment of the population found indications of conditions in breach of famine thresholds. By the time formal, Cadre Harmonisé-compliant assessments were launched however, the population had been served by food and nutrition programs for over a month, and conditions had improved. Cadre Harmonisé analysis accordingly found that no famine was occurring (some areas of Borno and neighboring states were classified in Phase 4); FEWS NET analysis focused on the earlier, but less IPC-compliant assessments, and found that the population had "very likely" been in famine at the time the Nigerian army captured the territory, and was likely still happening in inaccessible areas. This however was a controversial conclusion because the strategy of the Nigerian army was to surround *Boko Haram*-controlled territory and prevent movement in and out, particularly of food. Conditions inside the "inaccessible areas" therefore have never been assessed. In the meantime, the availability of food and other assistance in the army-controlled enclaves is widely thought to be functioning as a magnet, drawing people out of Boko-Haram controlled areas. But the conditions inside the inaccessible areas and the impact of aid in the garrison towns are both the subject of speculation, not assessment.[78]

Discussion

Several key points emerge from the case studies. First, food insecurity early warning systems are not very good at conflict analysis or incorporation of conflict data, but there is no need to collect additional conflict data to draw necessary conclusions. Such data are available from multiple global sources, such as the Armed Conflict Location and Event Data Project (ACLED), the Uppsala Conflict Data Program Georeferenced Event Dataset (UCDP-GED), and country-specific sources like the Joint Mission Analysis Centre (JMAC) data for South Sudan, the Yemen Data Project,

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[75] UNOCHA Yemen (2019).
[76] Mundy (2018).

[77] GRC and WPF (2019).
[78] IPC (2017).

and others. So the paucity of data isn't the reason for the absence of conflict analysis in famine EWS. Existing conflict data sets are not necessarily predictive of further conflict—and other forms of conflict and state crisis EWS haven't necessarily proven predictive either. However, the point with regard to famine EWS is only partially about predicting future conflict, but also about predicting future deterioration of food security outcomes as the result of *already observed* conflict or its immediate consequences (such as displacement or entrapment).

The second observation is that incorporating conflict analysis into a consensus-based analysis of food insecurity and famine is nearly impossible when that analysis is led by government in the context of a civil war in which the government is a party to the conflict. However, in the absence of conflict analysis, early warning is rather constrained. For example, in the South Sudan case, in the absence of conflict analysis, there was little in the way of early warning in 2015–16 to indicate that Greater Baggari was going to be in famine or near-famine conditions. In the words of one analyst, the analysis team "was caught completely by surprise."[79] In Yemen, analysts are reduced to merely mentioning "insecurity" as a potential driver of famine. This may require the analysis of the impact of violent conflict on extreme food insecurity or famine to be conducted elsewhere—or else a much stronger and more unified demand to host-country governments that conflict as a causal factor needs to be analyzed much more thoroughly in existing systems.

Third, none of these systems capture the element of intentionality inherent in the concept of starvation crimes that would be liable for prosecution in international criminal law. If government-led systems have a difficult time simply acknowledging famine and have a more difficult time incorporating conflict analysis, it is not hard to see that government-led systems would not be able to assess the question of intentionality with regard to famine or starvation-related deaths.

Any assessment of that question would clearly need to be undertaken independently and outside of the context of the analysis of the humanitarian situation.

The fourth observation is about ways to overcome the extreme constraints on access. The same restrictions on market access or humanitarian access to people cut off from food supplies in warfare also apply to access for analysis. So while it is relatively easy (and logical) to speculate on the conditions of people in besieged areas in Syria, or inside *Boko Haram*-controlled areas in Nigeria, it has mostly proven impossible to conduct even limited or rapid assessments of famine or starvation in those areas. So including and improving conflict analysis and the analysis of the consequences of conflict are clearly important to improving the analysis and forecasting of famine and starvation in circumstances where collecting information on the ground may be impossible.

This could be done by building conflict analysis capacity in analysis teams, but as noted above, the constraints are mostly not just technical capacity, but also about political constraints. They could incorporate armed conflict in more generic way, by drawing on existing quantitative datasets such as those mentioned above, and using that information to predict the consequences of conflict and extreme access limitations on food insecurity (a version of this is already being done by the MERIAM and FAM initiatives—the difference is that MERIAM and FAM are being tested in places with at least some accessibility). Such approaches could incorporate measures for predicting mass atrocities such as the genocide Early Warning Project, but these are speculative in nature, lack the granularity or specificity needed to be of use in predicting humanitarian outcomes with the precision required, and may not add much to generally already-known information on the ground.[80]

In some ways, innovative technology could be helpful to address this challenge: for instance, remote sensing to track human population

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[79] Personal communication (confidential)

[80] https://earlywarningproject.ushmm.org/

movement and displacement, or even to count graves in the case of mass mortality (both are not only possible—actual examples exist). The Ushahidi platform, used to great success in the Haiti earthquake search and rescue mission, actually had its roots in the post-election violence in Kenya in 2007–08, where it was useful in alerting the authorities to places where one local group was being threatened by another. Artificial Intelligence is increasingly capable of accessing and digesting multiple and disparate sources of conflict information and amalgamating it with other, more conventional forms of EW (again, FAM is exploring these possible applications).

In all the cases examined here (and virtually all others in which there is a demonstrable link between violent conflict and extreme food insecurity—Afghanistan, Central African Republic, Sudan, parts of Ethiopia, Democratic Republic of Congo, Myanmar, etc.), the ability to access affected areas lies with controlling authorities—both state and non-state—who have every reason to deny access for either assessment or the prevention of starvation if the latter is part of—or even just a by-product of—their war strategy.[81] So inevitable trade-offs must be made between the completeness of the analysis on the one hand and access for at least limited assessment on the other.

Ultimately, however, while incorporating more conflict analysis into more independent analytical process would be ideal, simply establishing *whethe*r a famine occurred is useful information, even if the causal links to human intentionality can only be weakly inferred. To prosecute starvation crimes, especially as a crime against humanity (which requires that the crime is systematic and large scale) demonstrating that some threshold of severity and magnitude have been surpassed would be necessary. The best such threshold is indisputably when an actual famine is

shown to have occurred. Simply establishing the fact of famine (i.e., the current-status analysis conducted by IPC) is in itself, important for establishing the level of gravity necessary to suggest that famine is a crime against humanity. The severity threshold for starvation crimes as violations of international humanitarian law is perhaps less high: starvation-related mortality at lesser levels of severity or magnitude than that implied by IPC thresholds for "famine" could still qualify as violations on the prohibition against using starvation as a method of war. This occurs frequently and rarely attracts much attention.[82]

A couple of other points are worth considering. For instance, proceeding too far down this road of pushing for more conflict analysis or analysis of intentionality could be counter-productive. The one thing that current analysis is still partially able to do is to establish the fact that famine (or crisis of a lesser severity, but still of devastating dimensions in humanitarian terms) is occurring, which of course is itself necessary if prosecution is the objective. To insert the element of needing to demonstrate intentionality is likely not possible and attempting to do so might further complicate the analysis that is currently done. On the other hand, as this discussion should make clear, prosecutable "starvation crimes" that fall well below the threshold (in terms of either severity or magnitude) of the IPC famine classification thresholds will likely happen. The famine declaration under IPC is nevertheless important insofar as it is testament to the severity of a crisis.

An additional constraint to both early warning and real-time analysis of famine or extreme food security emergencies is the requirement of existing systems on the rigor and reliability of data permitted into the analysis. While one

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[81] Indeed, one official let slip at an IPC analysis in South Sudan that one of the reasons he feared IPC analysis was that "it might be collecting information for the ICC" (confidential personal communication).
[82] For example, even though the mortality in the Somalia famine of 2011 received a lot of attention, 43 percent of the total mortality took place prior to reaching IPC Phase

5 (famine) levels or severity—or else in locations that never reached Phase 5 (F. Checchi, personal communication). If the crisis hadn't breached famine thresholds, it would have gone down as just "another bad year in the Horn of Africa," and doubtless, no one would have even thought to calculate the number of people killed.

would always hope for high quality data, one of the unintended consequences of a fairly high bar for admissible data is that while it tends to protect against false positives (finding a famine when there actually isn't one) it inevitably results in very limited protections against false negatives (failing to find a famine when there actually is one). In the case of looking for prosecutorial evidence—as well as in making the case for rapid response—this is a problem!

In the end, to be able to make any statement about "starvation deaths"—much less to be able to actually prosecute them—information would have to be available about at least four factors: the outcome (mortality), the causes (conflict or acts of war), the motives (intentions of the conflict actors), and some evidence that directly links cause and motivation to the outcome. That is a high bar to set for verifiable information in a conflict/complex humanitarian emergency.

Early warning can and should warn response agencies to get moving to respond to a crisis, but it is first and foremost about prevention and mitigation. Even if better conflict analysis was incorporated into early warning, would action to prevent and mitigate the impact of conflict be possible? Clearly having governments as one partner engaged in the analysis, much less leading it, is problematic in a context where conflict is the main driver of food insecurity and the government is party to the conflict. In such cases (South Sudan and Yemen are both clearly good examples) there needs to be a way for making early warning and analysis independent of—and yet still permitted to operate by—governments. That is a tall order in today's political environment.

Famine experts have long been discussing the issue of accountability for famine.[83] The discussion among technical famine experts needs to be merged with the legal discussion about prosecution for starvation crimes. That discussion needs to go beyond just "famine"

as defined by IPC. Levels of mortality can actually reach higher levels in crises of lower severity than famine, if they are greater in magnitude and duration.[84]

Simply making clear the political influences over famine and food security analysis highlights the problem—even if it does not suggest all the solutions. One clear possibility is that conflict analysis might need to take place in parallel with—rather than being incorporated into—the food security/nutrition analysis processes. While this might not enable changes in humanitarian access or response, it might help to address macro-economic or political drivers—as indeed seems to have been the case in Yemen in 2018.

So, much remains to be done. But clearly the possibility of prosecution offers one solution to the dilemma of accountability, and improving conflict analysis and incorporating it into (or alongside of) existing EW systems is one critical step along this path.

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[83] See Haan, Devereux and Maxwell (2012), for an example of how this has been attempted.

[84] Maxwell et al. (2019b).

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