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Famine in Somalia: Evidence for a declaration

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ABSTRACT

Objective: On 20 July 2011, for the first time since 1991–1992, the United Nations declared famine in parts of Somalia. Here, we report the methods, data and analysis that underpinned this declaration along with the review of trends in mortality and malnutrition.
Methods: During July 2011, 16 population-based nutrition and mortality surveys were conducted in southern Somalia. Data on food access, collected through seasonal assessments and monthly monitoring, were analyzed using Household Economy methods.
Results: In 11 of 16 survey locations, the prevalence of Global Acute Malnutrition exceeded the Integrated Food Security Phase Classification threshold for Phase 5 (Famine) of 30%. In five areas, Crude Death Rates exceeded the Integrated Food Security Phase Classification Phase 5 (Famine) threshold of 2/10,000/day. In agro-pastoral zones of the south, where access was most limited, more than 20% of households faced extreme food shortages.
Comment: Survey findings and analysis confirm that a famine occurred in parts of southern Somalia during 2011 and raise the question of why strong early warning analysis did not trigger an earlier, better funded and more effective, response.

1. Introduction

Somalia, along with several other countries in the Horn of Africa face recurrent food insecurity as a result of drought, climactic variations and conflict (UNICEF, 2011). In addition, since the outbreak of conflict in 1991, no government has been able to exert control over the majority of Somalia's territory. As of early 2011, the internationally recognized Transitional Federal Government (TFG) controlled only a small part of the country, while the Islamist *Al-Shabaab* group controlled much of the south of the country. The conflict has compounded vulnerabilities, undermining both traditional coping strategies as well as the informal economy that have sustained the population in the past (Anderson, 2009). Indeed, Somalia has some of the worst development indicators in the world (UNICEF, 2011) and has been described as 'the most failed state' (Anderson, 2009). Somalia is also the most dangerous place in the world for aid workers; two-thirds of all aid workers deaths recorded worldwide in 2008 were in Somalia (Bradbury, 2010).

Somalia has suffered famine previously, the most severe occurring in 1991–1992. That crisis prompted the US-led military intervention, Operation Restore Hope, and an accompanying humanitarian response that had mixed success; around 70% of the approximately 200,000 deaths that occurred were deemed preventable (Hansch et al., 1994). In order to learn lessons from that famine and other food security crises in the Horn of Africa, as well as develop reliable early warning and surveillance systems, two important projects focused on Somalia were initiated in 1995. These were the Food Security and Nutrition Analysis Unit (FSNAU), a multi-donor project now managed by the Food and Agricultural Organization (FAO) Somalia and the USAID-funded Famine Early Warning Systems Network (FEWS NET). Together

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these initiatives aim to provide reliable early warning information on nutrition, food security and livelihoods, and to inform planning and response for Somalia.

Since early 2010, much of southern Somalia has been inaccessible to most non-Somali humanitarian actors. The World Food Programme (WFP), in particular, closed down much of its operation in January of 2010. For a period after late 2009, the US Government ceased providing assistance because of fears that aid could be diverted to *Al-Shabaab*, a proscribed group under the US Patriot Act, and later imposed conditionality on any assistance (Ibrahim, 2010). In August 2010, FEWS NET released the first warning that drought was likely (FEWS NET, 2010). The subsequent failure of the October–December *Deyr* (short) rains resulted in extremely poor January harvests, an extended dry season and substantial pressure on local cereal prices. In March 2011, FEWS NET, FSNAU/FAO and WFP first raised the possibility of famine occurring in marginal cropping areas of southern Somalia (FEWS NET, 2011). The onset of the 2011 *Gu* rains, usually occurring from April to June, was then delayed by 3–4 weeks, resulting in a poor primary cropping season, reduced labor demand, excess livestock mortality, further increases in prices of local staple foods, and deterioration in food security, nutrition and mortality indicators. During the period, January–June 2011, refugee flows from Somalia to Kenya and Ethiopia increased substantially (UNHCR, 2011).

On 20 July 2011, based on joint FEWS NET and FSNAU/FAO analysis, the UN declared a famine in parts of Somalia (FSNAU and FEWS NET, 2011a); the declaration was extended to three additional areas on 3 August 2011 and to Bay Region on 5 September 2011 (FSNAU and FEWS NET, 2011b). Here we present the data collection methods, the nutrition, mortality and other data that led to the July and August declarations, compare the data with available baseline information and against established famine benchmarks, and assess whether the evidence supported a famine declaration.

2. Methods

During July 2011, FSNAU conducted 18 population-based, nutrition and mortality surveys in seven regions of southern Somalia (Bay, Bakool, Gedo, Hiran, Juba, Middle and Lower Shabelle) and in IDP settlements in Afgooye and Mogadishu that represent approximately 4.5 million people residing in the south of the country. The FSNAU has defined 5 main livelihood systems in Somalia; pastoral, agro-pastoral, riverine, coastal fishing and urban. These systems are further sub-divided into 33 livelihood zones (LHZ) based on agro-climactic characteristics, and the dominant production and marketing systems (FSNAU, 2012). A livelihood zone is defined as an area where households share broadly similar strategies for accessing food, income and markets. Each survey was representative of a livelihood zone within a region. For example, as Juba region consists of three LHZ (agro-pastoral, pastoral and riverine), 3 separate surveys were conducted in the region, one in each LHZ.

Survey teams carried out two-stage 30 cluster household surveys in all areas. Assuming a design effect of 1.5 for GAM and an average household size of 6, including 20% being children less than 5 years old, sample sizes ranging from 440 to 831 households were required to achieve a precision of at least $\pm 4\%$ around malnutrition prevalence levels similar to those found in previous surveys in the same location. The probability of selecting a given settlement as a cluster was proportionate to the estimated size of the settlement. The 2005 United Nations Development Program population estimates were used as a basis for the sampling frame and were adjusted at the district and settlement level using World Health Organization (WHO) estimates collected during National Immunization Days. Each survey was conducted by 6–8 teams, each consisting of 4 members. Because security limited the ability of UN staff to directly supervise the teams, members were recruited from the pool of staff of local non-governmental organizations (NGOs) and the Somalia Red Crescent Society, which had previously been trained by FSNAU in Standardized Monitoring of Relief and Transitions (SMART) survey methods (Golden et al., 2006). All teams received 3 days of pre-survey refresher training that covered household selection procedures, interviewing and measuring techniques, questionnaire content, and included development and adaptation of local events calendar as well as field testing of the questionnaire.

FSNAU teams recorded sex, age, height or length, weight, mid-upper arm circumference (MUAC) and presence or absence of bilateral pitting edema for all children aged between 6 and 59 months residing in randomly selected households. Weight and height were measured following standard procedures (Shorr, 1986). Weight was measured with digital Seca scales, accurate to 0.1 kg, and height (or recumbent length for children under 2 years of age) was measured with a Shorr Infant-Child Height Board accurate to 1 mm. Age was ascertained using the local events calendar. Due to security concerns and limited time available for field work, crude death rates (CDR) were measured using the current household census method with an abbreviated household mortality form, which only included information on the current size of the household and the number of deaths that occurred during a period defined by a memorable event occurring approximately 90 days before the survey. Security constraints did not permit age specific death rates (including deaths among children under 5) to be reliably collected.

z-Scores based on WHO, 2006 Growth Standards (WHO, 2006) were generated using the Epi Info/Emergency Nutrition Assessment (ENA) software. Acute malnutrition was categorized as global acute malnutrition (GAM, *z*-score < -2 and/or edema) and severe acute malnutrition (SAM, $z < -3$ and/or edema). Extreme outliers, defined as ± 3 *z*-scores from the observed mean weight-for-height of the survey sample, were excluded from the analysis. Anthropometric data were analyzed using Epi Info/Emergency Nutrition Assessment software and mortality data using SAS version 9.2 (SAS Institute). 95% confidence intervals were generated around estimated mortality rates and prevalence of malnutrition taking into account cluster sampling design. These results were then compared with results of surveys conducted between 2007 and 2010, using similar SMART methods, in the same regions and livelihood zones. The data were subjected to rigorous quality checks using the ENA plausibility check module and to independent review by the Centers for Disease Control and Prevention (Moloney et al., 2011) and the SMART Technical Advisory Group. All survey data passed these quality checks, with the exception of two surveys conducted in Bakool. Therefore, the results of these two surveys were omitted from the analysis.

The proportion of households facing extreme food shortages was estimated using Household Economy methods (Boudreau et al., 2008) to assess the impact of crop and animal losses, increased food prices, reduced wages, and decreased livestock prices on household food access. For each livelihood zone in Somalia, baseline data were collected between 2003 and 2011 on food and income sources, expenditure patterns, asset holdings, seasonality, market access, and coping strategies. Focus group discussions with local residents were used to define poor, middle, and better-off wealth groups in terms of income and asset holdings. Taken together, these three information sources were used to create livelihood profiles for each zone. Next, data on crop harvests, livestock holdings, migration, household and market food supplies, and current coping strategies were collected