

Pathology of a famine: The Malawi example

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Abstract

Food shortage may trigger a famine but there are contextual factors determining the ultimate impact on human societies in unpredictable ways.

Malawi's famine exemplifies how an extreme event can arise in non-extreme contexts. I use theoretical frameworks to examine the non-extreme circumstances in the background of Malawi's famine of 2002.

Agrarian societies may have evolved strategies to counter the sole shock of food shortage but Malawi's famine demonstrates the consequences of multiple intersecting shocks acting in concert with such shortage. The population was at maximum vulnerability when the famine struck and the interaction of the HIV/AIDS epidemic, poor political governance and entitlement failures precipitated patterns of vulnerability for which the nation was not prepared.

Governments, donors and communities may have learnt relevant lessons, but the potential for improvement has not been reached. Efforts must continue to evolve strategies of preparedness for new patterns of vulnerability in extreme events.

INTRODUCTION

"If we don't handle the food crisis well, it will be difficult to convince people to vote for us"

– Malawian Member of Parliament.

This statement by a Malawian politician at the height of the worst famine ever experienced by that country might have been seen as an insensitive concern at a time when deaths ostensibly linked to poor political governance were occurring. It however offers a clue to the diverse nature of actors in the grim theatre of a famine disaster.

Famines can be regarded as 'extreme' events. An extreme event is any manifestation in a geophysical system (lithosphere, hydrosphere, biosphere or atmosphere) which differs significantly from the mean (Alexander, 1993) and Malawi's famine of 2002, which claimed probably hundreds of lives, is considered extreme on this account.

Malawi is located at the southern end of Africa's Great Rift Valley. It has a season of rainfall between November and March and a dry season between April and October. Eighty percent of its 12 million people live in rural areas and 90% are involved in some form of crop cultivation, mainly maize.

Tobacco is the major cash crop, making up about 60% of Malawi's exports (World Vision, 2006).

Maize is the major Malawian diet and the harvest years between 1998 and 2000 saw good maize production in Malawi. However, severe drought in some places and flooding in others during the 2000/01 season resulted in maize shortfalls of about 237,000 metric tonnes (MT), which tripled by the 2001/02 season to 600,000 MT. This shortfall, coupled with inaccurate predictions that a 30% increase in roots and tubers for that year would offset the deficit, is thought to have triggered a famine (ActionAid, 2002). Adverse weather conditions like drought and flooding resulting in food shortages are, however, not new to Malawi, a country that has survived seasons of adverse weather and consequent food shortages. Food production data, shown in table 1, indicates that although food production in 2002/2003 (measured both in absolute terms and relative to previous years' average) was poor compared to previous years, it was better than the output in 2005/2006. Despite being more severe in 2005 than in 2002, food shortage in the former year did not result in a disaster of such scale as it did in the latter. While it is possible that lessons learned from the events surrounding the 2002 famine might have informed

subsequent practices, the potential for improvement cannot be said to have been reached.

Figure 1

Table 1: Food (grain) production data for Malawi from 1999 to 2006

Marketing year	Total grain production† (in thousand metric tonnes)	Production as % of previous 5 years' average
1998/1999	1861	109%
1999/2000	2633	193%
2000/2001	2616	130%
2001/2002	1854	86%
2002/2003	1661	78%
2003/2004	2110	100%
2004/2005	1812	84%
2005/2006	1342	67%

† Sum of wheat, rice in paddy terms and coarse grains.

Source – the Food and Agricultural Organisation (<http://www.fao.org>)

This paper explores 'non-extreme' circumstances that might have provided leverage for the adverse weather and food shortage of 2002 to precipitate a disaster of such severity. The contributory roles of these circumstances are critically examined with the instruments of established theoretical frameworks. Issues around the actual and normative roles of health professionals in the famine are then explored.

THE HAZARD RISK MODEL AND POPULATION ABSORPTIVE CAPACITY

Disasters may occur when human socio-economic and physiological systems lack the capacity to sufficiently reflect, absorb or buffer the impact of extreme events (Alexander, 1993). Absorptive capacity is partly a function of adaptation, which depends on available technology, economic viability of mitigating strategies as well as presence or otherwise of absorptive social processes like rich social capital. Hazards may be regarded as intrinsic and sometimes non-modifiable attributes of a geophysical system. Populations either work out a *modus vivendi* by which they coexist with the hazard or seek to modify the risk associated with it. This hazard risk model describes the total risk from any hazard as the product of the population exposed to the risk, the vulnerability of the population and the frequency of the hazard. It bears some similarity with engineering paradigm, which describes risk mathematically as a product of the frequency of a hazard (or frequency of exposure to a hazard) and the magnitude of human harm arising from each unit exposure to the hazard (Rasmussen, 1974). As shown in the figure below, population vulnerability determines the magnitude (impact) of a hazard, which in turn determines the ultimate risk of adverse outcome from exposure to the hazard.

Assuming the outcome of a hazard is death, the annual risk of death from the hazard can be expressed as:

- Risk (deaths/yr) = frequency of exposure to hazard (occurrence/yr) x magnitude of hazard (deaths/occurrence)
- Where magnitude of hazard in this conceptual framework = population exposed to hazard x vulnerability of the population.

Malawi is a nation acquainted with the familiar hazards of food shortages, droughts and flooding. While the population exposed and the frequency of the hazard were relative 'constants' in the model, the vulnerability of the population was markedly increased by a host of factors. Adaptive measures that had, in the past, ensured that the population had adequate absorptive capacity (agricultural starter packs containing maize seeds and fertilizers, maize subsidies, price controls and donor supplies) were lost before the famine struck, leaving the population in a state of 'maximum vulnerability'. As will be highlighted later, social processes that mitigated the effects of food shortages in the past were also lost as part of a wider denigration of social capital in Malawi communities.

The hazard risk model is similar to the conceptual framework used by the Famine Early Warning Systems Network to conduct a vulnerability analysis in Malawi in 1996 (FEWSNET special report, 2002). This framework included 'causes' (corresponding to hazards, e.g. drought and floods), 'responses' (corresponding to adaptive mechanisms, e.g. alternative sources of income, entitlement transfers) and 'outcomes'. The analysis underlined the important difference between the factors determining vulnerability to food insecurity (e.g. droughts and floods) and those determining the outcomes of that vulnerability (e.g. mitigating social processes). Vulnerability may be conceptualised as an aggregate measure of 'causes' and 'responses' and, although the patterns of vulnerability during the analysis tended to vary from one population cluster to another, the majority of the population was at maximum vulnerability to food insecurity and its outcomes from a combination of severe causal factors (drought and floods) and reduced ability to withstand these causal shocks (e.g. due to the HIV/AIDS epidemic and loss of social capital).

TRIGGERS AND VULNERABILITY FACTORS

Famines may also be understood to result from 'triggers'

acting on a background of 'vulnerability' factors. This concept of triggers and vulnerability factors was probably borrowed from Kenneth Waltz (1956), who used the terms 'efficient' causes and 'permissive' causes in the description of the causes of war. The efficient causes or triggers suggest immediate factors, while the permissive causes or vulnerability factors are those background factors that permit or allow the triggers to proceed and produce effects. The New Oxford Dictionary (1993) definition of famine as 'severe scarcity of food throughout a region' has intuitive appeal in its equation of famine to food shortage. In fact, following from Thomas Malthus' 1798 'Essay on the Principle of Population', Neo-Malthusians like William and Paul Paddock posited that population growth in developing countries out-pacing food production will consistently lead to famines (Ishikawa, 1999). In Malawi, it was observed that in the years before the famine, there was shortage of land from population pressure because many refugees from the Mozambican war did not return. Malawi is densely populated and it is possible that less arable land per person was one factor that led to reduced crop production and accentuated the effect of adverse weather conditions.

Although it is theorized that population pressure provides incentives for agrarian societies to innovate ways of increasing food output to match increased demand (Boserup, 1965), its effects are seemingly inconsistent across different populations and modified by a wide spectrum of determinants. In the absence of an enabling environment for scientific innovation and a meaningful agricultural technology transfer, population pressure may not translate into increased agricultural productivity. Thus the linear relationship between population pressure and famines is modified by the innovation or otherwise of human societies. There is no evidence to suggest that this modifying influence was in force before the famine.

Adding to the supply shock that triggered Malawi's famine was the fact that, in many parts of Malawi, the HIV/AIDS epidemic was decreasing household-level availability of labour and increasing household dependency ratios. Some African famines have been characterised by the remarkable ability of farming households to withstand food shortages but the tendency of the HIV/AIDS epidemic to render these high resilience strategies impossible (e.g. labouring and relying on social networks) or dangerous (e.g. reducing food consumption) is well recognised and embedded in the concept of 'new variant famines' (de Waal et al, 2003). While it may be argued that relative attribution of famines to

the HIV/AIDS epidemic is nearly impossible because the disease and its determinants are largely driven by social, economic and cultural systems and processes, a synergy of multiple intersecting shocks like poverty, adverse weather and the HIV/AIDS epidemic may reduce the threshold of 'extreme events' at which disasters are precipitated (Gillespie et al, 2005). The grave consequences of these concurrent shocks were displayed during the famine and demonstrate the disadvantage in attempting to address any one of those issues in isolation of the others.

ECOLOGICAL DEGRADATION

Some experts believe that the droughts that cause famines in Africa may partially result from ecological degradation (Ball, 1976). The pressure to export crops means that more and more land has to be planted in order to obtain sufficient income to ensure a family's subsistence. This, coupled with the inadequacy of labour, may lead to a reduction in fallowing and its attendant ecological side effects (Ball, 1976). The Malawi famine, as noted above, might have been linked with pressure on land, population growth and declining soil fertility, although the importance of declining soil fertility as a cause of the food shortage would be questionable in the face of flooding (fertile soil might be equally unproductive if inundated with flood waters).

The relationship between ecological degradation and famines is however not a direct one. A survey of Ethiopian households in 1994-1995 showed that individuals belonging to economically poorer households in ecologically vulnerable communities have a higher propensity to out-migrate for economic reasons, compared to those from economically wealthier households in the same communities (Ezra 2001). Thus, ecological degradation serving as a driver for out-migration in the context of poverty may result in depletion of household farm labour, contributing to the greater sensitivity of affected communities to declines in food availability. Although a depletion of household labour in Malawi communities at the time of the famine may be demonstrable, it is difficult to attribute this depletion to ecological degradation, considering the potentially significant role of the HIV/AIDS epidemic.

POLICY FAILURES

Malawi's famine could also be linked to a combination of socio-economic policy failure and market failure precipitated by speculation, hoarding and reduced effective demand for saleable commodities. The increasingly dominant structure of agriculture in Africa is oriented toward export crop

production and a mismatch between the production of food crops and export crops suggests that peasant production of food items for local consumption is sacrificed to the production of export crops (Lofchie, 1975).

Shortly before the famine, the Malawi government had removed agricultural subsidies to smallholding farmers, eliminated maize price controls and reduced access to agricultural input starter packs usually given to farmers. This was supposedly done in accordance with guidance from the International Monetary Fund under its Structural Adjustment Policies. The result of this was the undermining of smallholding farmers and the compromise of food crop production. This policy-level neglect of smallholder agriculture might have contributed to reductions in maize production. At the same time, the corresponding increase in the output of commercially farmed and exported tobacco did not yield increases in income due to the international anti-tobacco lobby and low international market prices.

In addition, poor political governance might have played a major role in the famine. Shortly, before the famine, the strategic grain reserves of the country had been sold off to local traders and neighbouring countries, again purportedly under International Monetary Fund pressure. These traders then hoarded maize in speculation of shortages and hiked the price beyond the reach of ordinary citizens (Devereux, 2002).

FOOD ENTITLEMENT DECLINE

Malawi's famine could have been as much an economic disaster as it was a result nature's disagreeable caprices. Sen describes the starvation set of individuals' endowment vectors as those commodity (food and non-food) vectors at which they are unable to meet their food requirements through exchange (Sen, 1981). He conceptualizes famines as entitlement failures and describes two components: direct entitlement failure, in which the maximum food entitlement of an individual or group falls because they cannot produce enough food for sale or for their own consumption (think smallholding farmers) and trade entitlement failure, in which an occupation group's food exchange rate (ratio of unit price of occupation product to unit price of food) falls, or the amount of the occupational product they can sell or consume falls. The food exchange rate is essentially the amount of food a unit of an occupation's product can buy through exchange. Food exchange rate can fall because of a rise in the unit price of food or a fall in the price of an occupational product relative to food, probably due to reduced demand.

The amount of saleable or consumable occupational product may fall because of autonomous production decline (e.g. by drought).

It is indeed possible for an individual or group to suffer both direct and trade entitlement losses if they partly consume and partly sell their product, as was the case during the famine. While details of the distribution of destitution during the famine are unavailable, it appeared that rural dwellers and smallholding farmers were mainly affected. They would have experienced endowment losses and direct entitlement failures from a combination of loss of arable land, restricted access to agricultural inputs, drought and flooding. Increase in the price of maize meant that non-maize farmers also experienced trade entitlement failures. Subsidies, which were the usual shock absorbing mechanism by which the government would have mitigated the effect of rises in price, had been removed. People in other non-farming occupations would also have experienced endowment losses, reflected by the deepening poverty which eradicated asset buffers that the poor could exchange for food to bridge food gaps (Devereux, 2002).

In using the entitlement approach to analyse famines, it is useful to recognise that it may not capture the entire reality associated with the complex environment of a famine disaster as people may consume below their entitlement for reasons such as fixed food habits. In fact, during the famine, donor agencies took the position that Malawians had an inflexible preference for maize and that they could have fed normally on cassava and sweet potatoes if maize was scarce (Devereux, 2002). However, the observation that people fed on pumpkin leaves and that children were dying of food poisoning after eating poisonous roots obtained from scavenging may not lend moral credibility to that position.

THE EROSION OF SOCIAL CAPITAL

Social capital consists of the stock of active connections among people: the trust, mutual understanding, shared values and behaviours that bind the members of human networks and communities and make cooperative action possible. (Cohen and Prusak 2001). One interesting observation from the social capital perspective was that following Malawi's establishment of democracy in 1994, an excessively repressive 'rule of law' was replaced with an anarchic 'mob justice' (Devereux, 2002) displayed in some places in the maiming and amputations of people caught stealing maize. Acts of social kindness characteristically shown among community members were less frequent. The

severity of the food crisis, together with the freedom that accompanied democratisation might have contributed to a breakdown of community solidarity. The decline of non-entitlement transfers (i.e. charitable giving and receiving of food gifts from other members of the community) is one factor that accounted for population vulnerability in the Malawi famine.

THE FAMINE IN THE CONTEXT OF DEMOCRACY AND GOOD GOVERNANCE

Other authors have suggested that famines are more closely related to the nature of political and social systems than to food availability. Moore Lappe and Collins (1986) posit that the absence of democracy determines famines, while Sen (1995) highlights the fact that no famine had occurred in a nation governed by a democratically elected government. Sen's position was that democracy could provide a corrective to leader insensitivity through opposition, political criticism and media pressure.

Malawi is an established democratic society and the logical question is why it experienced such famine in spite of 'good governance'. One answer is that democracy does not equate good governance. Good governance, in this context, is the presence of capable and accountable social systems that are able to mobilize the energies of government to ensure adequate food supply to the people irrespective of reduced local food availability (Ishikawa, 1999). This quality was clearly not demonstrated the Malawi leadership, despite being democratically instituted. In spite of donor advice to sell only a part of the Strategic Grain Reserves by export, it is thought that the government did not only sell off all of the reserves but also sold substantially to local private traders in deals shrouded in secrecy and driven by greed, profiteering and cronyism. Donor exasperation and reluctance to get involved early enough was the conceivable consequence as donors reckoned that any maize shortage was illusory.

The political dimension of the famine was borne out in the troubled relationships of the Malawi government with donor bodies over corruption and governance issues. By 2001, the IMF had withheld balance of payments support, the Department for International Development (DfID), the European Union (EU) and United States Agency for International Development (USAID) had suspended development assistance, and Denmark had closed its development programmes and withdrawn from Malawi entirely (World Socialist Website, 2006).

THE ROLE OF HEALTH SYSTEM AND PROFESSIONALS

There were clearly issues around the capacity of Malawi's health professionals and system to handle the challenges thrown up by the famine, particularly the adult patterns of malnutrition and cholera (as shown in table 2). One feature of new variant famines is the quantitative and functional shortage in household-level labour due to HIV-related adult morbidity and mortality (de Waal, 2003), representing the pernicious interaction of HIV/AIDS, reduced food consumption, and malnutrition. Global malnutrition rates are defined on the basis of the rates of malnutrition in children, an approach that has the capacity to grossly undermine the general severity of malnutrition, especially in the context of new variant famines, where adult malnutrition may be significant. In such circumstances, protocols for managing adult malnutrition are as important as those for malnutrition in children but Malawi's health service might have lacked the preparedness and capacity to deal with the high morbidity in adults. Furthermore, there is no evidence to suggest that such protocols are in routine use presently, although an assessment system for identifying adult malnutrition in mothers of under-5 children was recommended for use in rural Malawi in the fallout of the disaster (Malawi VAC, 2003). Clearly, an assessment system is integral to a protocol for management and needs to be linked with it.

Figure 2
Table 2: Cholera cases and fatality in Malawi

	December 2001	March 2002
Cases	1,394	22,023
Deaths	28	609
Case fatality (%)	2.0	2.8

Source – World Health Organisation (http://www.who.int/csr/don/2002_03_26/en/index.html)

Economically-determined emigration of health professionals is a challenge to Malawi's health system (World Vision, 2006) and the impact of the HIV/AIDS pandemic on the workforce cuts across vocational divides, contributing to the depletion of medically trained staff. The nation's capacity to respond to disasters like famine is clearly undermined by this shortage of health staff. The Joint Learning Initiative's report on human resources for health rightly draws attention to the direct impact of the HIV/AIDS pandemic on health workers and the migration of Africa's health workers to richer countries, emphasizing in its recommendations the role of national political commitment augmented by international reinforcement in strengthening the health workforce (Global Health Trust, 2005).

Part of the functions of any health system and its health professionals is the surveillance of health events (including mortality) in acute and non-acute states. If the transition from 'extreme event' to a disaster holds true in relation to famines, then mortality as the extreme event emerges could be an important, albeit late, indicator of a population's loss of capacity to reflect, absorb or buffer the impact. The surveillance and prompt reporting of mortalities is therefore imperative if the disaster must be correctly perceived in terms of its seriousness and need for intervention. There was late acknowledgement of rising mortality figures by the Malawi ministry of health and other health bodies during the famine. Two nutritional surveys had offered some indication of the progress of the impending disaster. In the first exercise in December 2001 average global malnutrition rate (defined as percentage of children with weight to height ratio under -2 Z-Scores and/or oedema) for two districts was about 10%, rising to 16% in March 2002 (global malnutrition rates of 15% are generally regarded as signifying emergencies). It was at this point that the looming disaster appeared to gain attention with relevant authorities (Save the Children UK, 2002).

As noted earlier, some surveillance had already been on ground in Malawi before the famine. However, the vulnerability analysis conducted by FEWSNET, while offering an understanding of the sources of vulnerability, did not translate into an effective aversion of disaster when the famine struck. A closer look at the conceptual framework upon which the analysis was based immediately reveals its narrow focus on food security to the detriment of health and health system indices. Baseline health is intrinsic to any definition of vulnerability but the vulnerability outcomes used in the component analysis clearly failed to include any health system process or outcome indicators despite the acknowledgement of the deadly interaction of food insecurity with poor health from HIV/AIDS, for example. This exclusion of important health indices might have been related to insufficient countrywide data and in this respect, there was some failure by the health system and its professionals. Some authors have consequently highlighted the need for multilateral analytical frameworks, in acute and non-acute states, that include multidisciplinary (including health) teams to ensure that all aspects of public health are dealt with in future emergencies (Griekspoor A, 2004).

Finally, although the IMF and World Bank's Poverty Reduction Strategy includes a poverty and social impact assessment, its failure in Malawi's case clearly reveals the

need to make this process more robust and country context-specific. In addition, Malawi's (and other) health professionals need to maintain a keen awareness of how to influence policy making especially in sectors that partly or wholly influence population health.

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