The end of famine? Prospects for the elimination of mass starvation by political action

Alex de Waal [1]

World Peace Foundation, 169 Holland St., Suite 209, Somerville, MA 02145, USA

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ABSTRACT

After a long-term decline in the frequency and lethality of famines, 2017 has witnessed resurgent international concern over the issue. This paper examines the trends in famine over the last 150 years, with particular attention to the fusion of famine with forcible mass starvation. It identifies four main historic periods of famines, namely: the zenith of European colonialism; the extended World War; post-colonial totalitarianism; and post-Cold War humanitarian emergencies; and asks whether we may be entering a fifth period in which famines return in new guises. The paper explores structural causes of famine vulnerability, the overlapping but distinct causes of food crises and excess mortality in those crises, and the proximate triggers of famine. While noting that almost all famines have multiple causes, with no individual factor either necessary or sufficient, the paper focuses on the growing significance of political decision and military tactics in creating famine.

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1. Introduction

Famine returned to the news headlines in 2017. It was a disagreeable re-entry after twenty years in which mass starvation had been fading as a matter of concern to all but historians. On 10 March, Stephen O'Brien, head of the United Nations Office for the Coordination of Humanitarian Affairs, told the UN Security Council that, 'We stand at a critical point in history. Already at the beginning of the year we are facing the largest humanitarian crisis since the creation of the United Nations.' (O'Brien, 2017) O'Brien's claim was at once hyperbolic and carefully scripted. As this paper demonstrates, the 2017 crises are by no means the worst for seventy years, and by all sensible metrics we are at a historic low in terms of the scale and lethality of famines. But O'Brien was sending a well-crafted political message, at a time when humanitarian principles and budgets were under threat. He was correct that 2017 potentially represents a critical point in contemporary history, at which a long-term historic decline in mass starvation, which can be dated to the end of World War Two, has stalled and may be in the process of being reversed.

O'Brien's statement came in the wake of a declaration by the UN of 'famine' in South Sudan, probable famine in northern Nigeria, and imminent famines in Yemen and Somalia. The famine declaration was based on an assessment of the data on nutrition, child mortality and food security collected by the Integrated Food Security Phase Classification system (IPC) by UN agencies and their partners (FEWSNET, 2017). Without doubt, there are gaps and shortcomings in the information on which the assessment was based, but the data are the best we have, and certainly better than those available at any time in history.

O'Brien made three calls to action, each of them appropriate to the real causes of the famines. First, he called for quick action 'to tackle the precipitating factors of famine. Preserving and restoring normal access to food and ensuring all parties' compliance with international humanitarian law.' Second, he called for the belligerent parties in each country to facilitate access by humanitarian actors. Third, he emphasized that famine would end, or be prevented, by stopping the fighting.

The broader significance of O'Brien's statement and the UN famine declarations is that one of the great unacknowledged successes of the last century, the near-definitive conquest of famine, is on the point of unraveling before our eyes. The facts that famines are man-made and that they may be becoming common after a generation in which they were almost entirely absent, are linked.

Are we seeing a return of famine? In 2015, I was commissioned to write a chapter on war and famine for the *Global Hunger Index*, published by a consortium of organizations including the

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E-mail address: alex.dewaal@tufts.edu.
[1] World Peace Foundation, Fletcher School of Law and Diplomacy, Tufts University, 169 Holland St, Somerville MA.

International Food Policy Research Institute, Concern Worldwide and Welthungerhilfe (GHI 2015). At that time I was able to write with some confidence that we were on track to eliminate famine. In 2016, when I was asked to propose a topic for a plenary presentation to the American Association of Geographers, I submitted an abstract in which I suggested that progress had stalled. Today I must admit that progress has been reversed.

Over the last two decades, political scientists and historians have come to appreciate much more profoundly than before, the deep connections between the politics of persecution, dictatorship, conquest and genocide, and the occurrence of mass starvation. Indeed, starvation is transitive: it is something that people do to one another (de Waal, 1997).

1.1. Explaining famines

Every famine has multiple causes, both structural factors that determine vulnerability and the proximate triggers of the crisis. Moreover, famines are shape-shifters, taking on different guises for each generation. A rigorous definition of famine, consistent across all places and historical periods, would be remarkably difficult to generate and apply. One reason is that today's levels of mortality and nutrition are so much higher than those prevailing in previous centuries. Cormac Ó Gráda makes the point that nutritional and mortality levels that were commonplace in Europe two centuries ago—for example consumption of under 2100 calories per day for one fifth of the population and child mortality rates of two per 10,000 per day—meet the current Integrated IPC threshold for a humanitarian emergency (Ó Gráda 2015, pp. 174—5). Another is that the politics of food and livelihoods have changed dramatically, so that different kinds of actions perpetrate or protect against famines. With these circumstantial changes, intellectual frameworks have shifted too. Amartya Sen observes that most definitions of famine are 'more interesting in providing a pithy description of what happens in situations clearly diagnosed as one of famine than in helping us to do the diagnosis' (Sen, 1981, p. 40 footnote). Nonetheless, we can identify the key elements of a working definition of famine: a crisis of mass hunger that causes elevated mortality over a specific period of time.

Paul Howe and Stephen Devereux provide us with important intellectual scaffolding for refining this (Howe & Devereux, 2004). They distinguish between the *magnitude* of famine and its *severity*. Magnitude is best defined as the numbers who die. Howe and Devereux created a simple logarithmic scale for the scale of famines, and in this paper I use their categories of 'great' and 'calamitous' famines—that kill 100,000 people or more and one million people or more respectively—as my main point of reference. The IPC scale uses severity, in large part because it is simpler to measure in real time, and also because an overall assessment of famine deaths is of little use when a famine is impending. All of these measures presuppose a 'normal' level of nutrition, mortality and livelihoods, against which deviations can be measured. The IPC scale functions as a heuristic and diagnostic tool, rather than a universally valid metric.

Insofar as its definition requires excess mortality, famine is defined by its outcome. Could there be a famine in which no-one died—for example because of an expeditious and effective relief effort? It's an interesting thought experiment. Compare the definition of an epidemic, which requires a certain level of disease transmission, but applies regardless of human fatalities—it needs illness but not deaths. Compare the definition of genocide, which is a crime defined by the intent of the perpetrators, regardless of whether or not they manage to kill large numbers of people. The commonsense definition of 'famine' bears the imprint of the foundational texts of demographic theory, and in particular Thomas

Malthus's *Essay on the Principle of Population*, which saw famine as the product of natural laws of population growth and (of special concern) population collapse (Malthus, 1926). An alternative and apparently commonsense definition of famine as food shortage is both empirically incorrect (Sen, 1981) and also carries a Malthusian intellectual lineage—what I have called 'alimentary economics', the simplistic notion that the dominant factor in human ecology is food production and consumption (de Waal, 2017).

A mortality-based definition implicitly includes instances of forced mass starvation, such as the starving to death of over 2 million prisoners of war by the German army during World War Two, but such cases are rarely included in catalogues of historic famines. This is an oversight that I seek to remedy: famines have much in common with mass atrocities, and these shared elements are brought more clearly into focus if we include starvation crimes (de Waal, 1997; 2017). For the purposes of this paper, I will hold to a definition of famine that is based upon excess deaths associated with hunger, but with a cautionary note that this may be a historically-specific definition that may no longer be appropriate in a twenty-first century political economy.

In distinguishing between structural and proximate causes of famine, and placing these in a historic context, let me call upon the image used by the historian Richard Tawney to describe the plight of the peasant in history, as a man standing up to his neck in water, so that even a ripple threatens to drown him (Tawney, 1964). The height of the water represents the structural factor, the nature of the ripple is the proximate one.

One part of the story of famine over history is the rise and receding of the water level. In particular, the last seventy years has seen the most sustained drop in the water in recorded history. Vast populations that were chronically at the point of starvation, have achieved far greater food security than at any time before. When the water was high the most important questions to ask concerned why this was the case.

The second part of the story is the height of the waves. As the waters recede, our peasant may still be drowned, but it will take a bigger rush of water for this to occur. We need therefore to ask, how large are the waves, and what causes them. As the structural causes have changed and become less salient, the proximate causes of exceptional events have taken on greater significance.

The metaphor of the man standing in water is useful but can also mislead. First, some of the causes of the high water level are also the same factors that cause lethal waves—for example colonial conquest and exploitation are short term shocks and long-term structural violence. Second, it doesn't capture inequality: individuals within a population can face very different levels of risk. And third, the 'drowning' metaphor fails to capture the different outcomes of a catastrophic collapse in people's ability to obtain sufficient food. Notably, with improved public health, the killer epidemics that historically accompanied famines, have lessened. There are life-saving technologies for the drowning man.

1.2. Examining famines in the modern era

To examine famines in the modern era, the World Peace Foundation established a dataset of all famines in the world since 1870 that killed 100,000 or more people, according to the lowest credible estimate (World Peace Foundation, 2017). We began in 1870 because the data for earlier famines are very problematic. We excluded episodes that killed fewer than 100,000 people, chiefly because of insuperable evidentiary problems, especially in the earlier time period. We included episodes of forced mass starvation, such as the mass killing of Soviet prisoners of war by the German army in 1941—42. There are a total of 61 episodes on the list. Fig. 1 represents the numbers of episodes of famine and forced mass
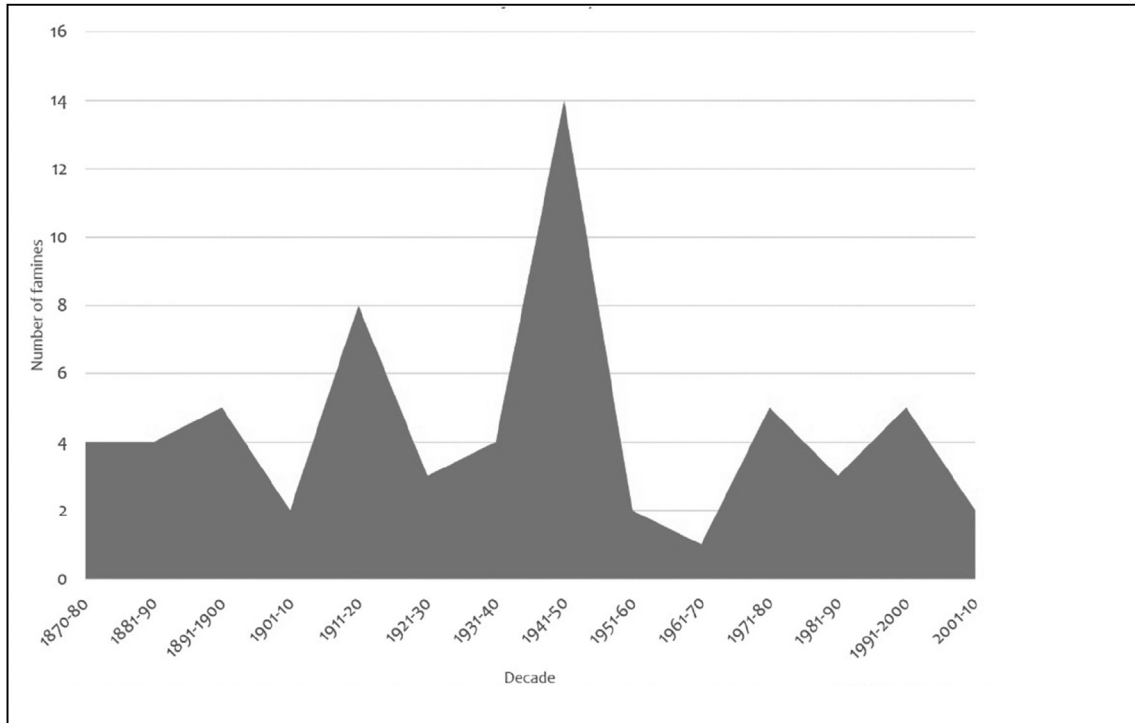
Fig. 1. Incidents of famine by decade, 1870–2010.

starvation per decade (see Figs. 2–5).

The most striking element in this story is the peaks of famines that occurred with each of the two World Wars—and the second peak would still be the highest even if the four Eastern Front episodes of mass starvation of 1941–45 were to be consolidated as a single episode. However, we must be careful with the data points for our earlier period, for two reasons. First, all the famines in the record in China and South-east Asia for the pre-1945 period have death tolls of 1 million or more. It is likely that famines that killed

100,000 people are missing from the record, a supposition supported by intermittent references to famines in countries such as Burma and Vietnam, without any indication of numbers. Second, a number of the entries (for example starvation deaths in Congo) refer to a long period, and it is likely that with better information they would be broken out into distinct episodes.

A second and clearer indicator of the trajectory of famines is provided by the following chart which shows famine mortality by decade:
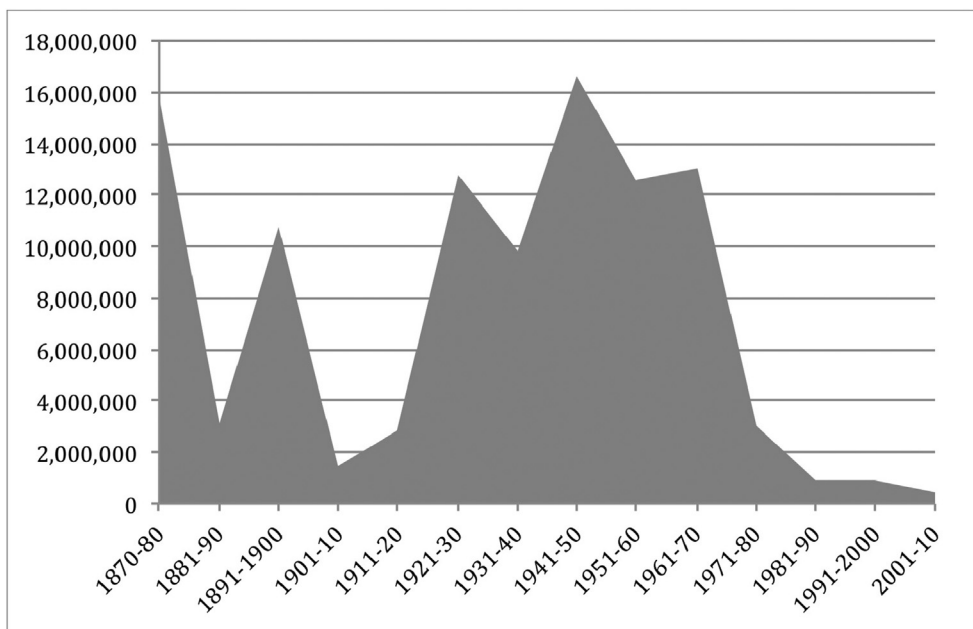

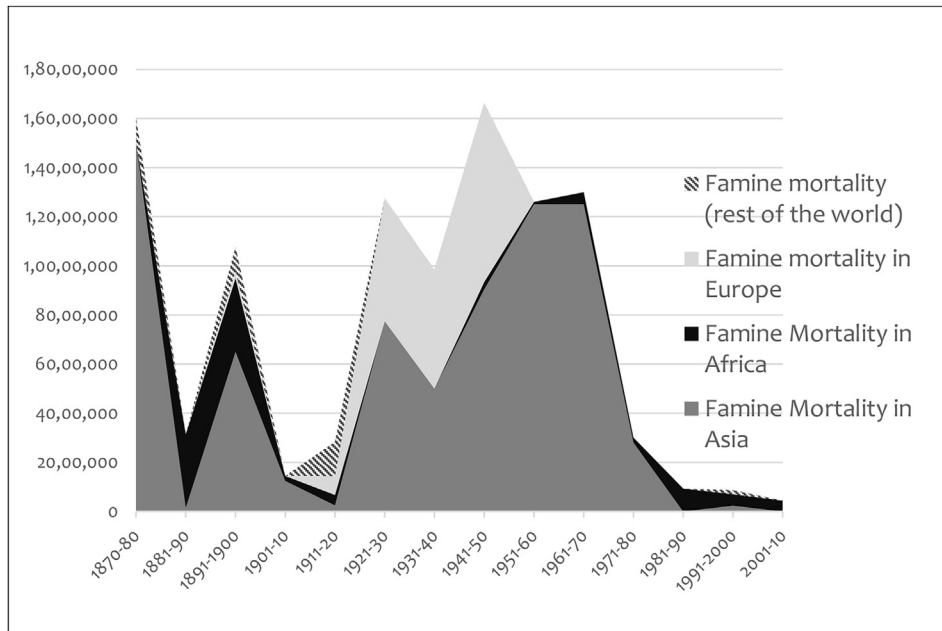**Fig. 2.** Famine mortality by decade, 1870–2010.

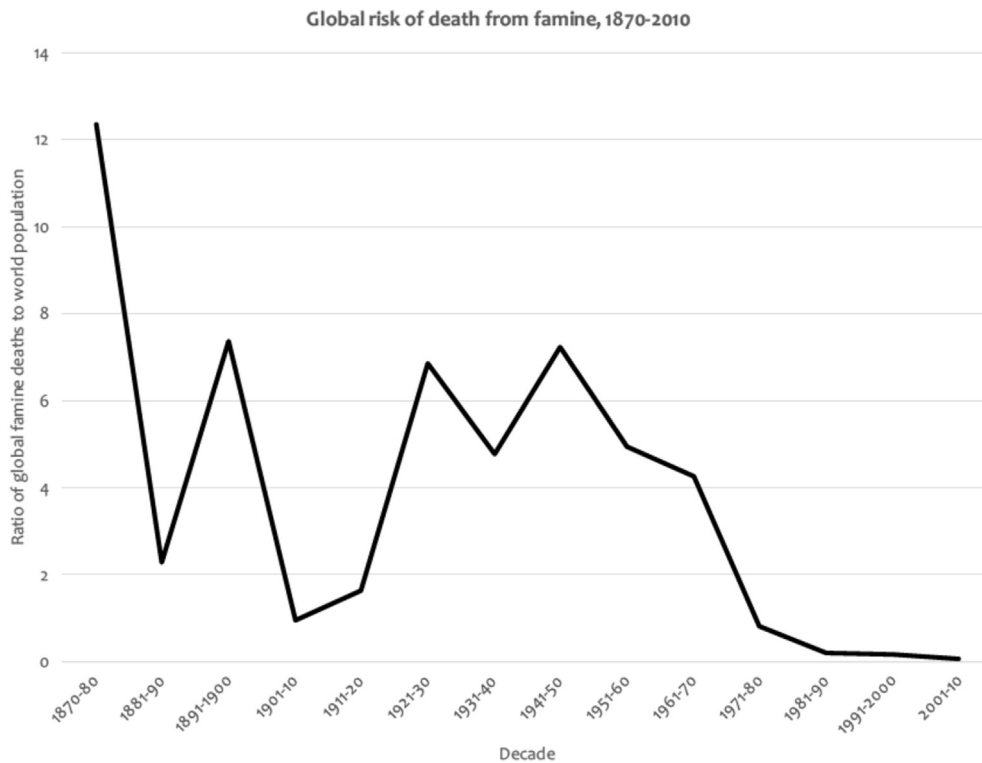**Fig. 3.** Famine mortality by region and decade.

Fig. 4. Global risk of dying in famine indexed to population.

Note that the deaths in the 1958–62 famine in China are split evenly between the two decades of the 1950s and 1960s.

These data need to be treated with extreme caution. No complex statistical analyses are possible. However, because there is a limited number of cases in the catalogue, we can draw some conclusions about trends and patterns. A story can be told for each incident, and the compilation of these stories allows us to tell a bigger narrative about how famines have changed over the course of the last 150 years.

The 61 great and calamitous famines in the list killed just over 100 million people. Almost half of these deaths were in China. Fully one quarter were in Europe and the Soviet Union, almost all of them during the period from World War One until the late 1940s. About ten percent of the deaths were in Africa, most during the colonial era, but also more recently. Contrary to the images that are reproduced to represent the contemporary archetypal famine, famine is
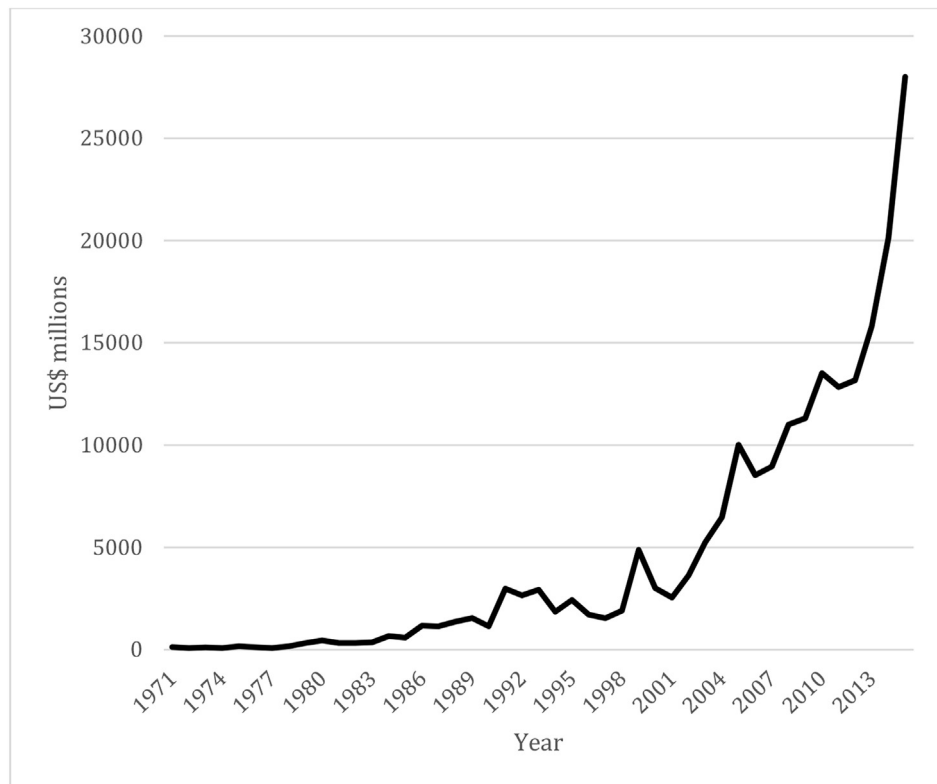
Fig. 5. Global humanitarian assistance budgets 1970–2015.
Source: OECD, 2016.

not an African phenomenon. Latin America is largely absent from the story. Mass starvation in the Middle East occurred during World War One and has returned recently. The following figure breaks down famine mortality by geographical region and by decade.

2. A short history of modern famines in four acts

Since 1870, the story of famines around the world can be told in four acts: the colonial period up to World War One; the extended World War; post-colonial totalitarian famines from 1950 to approximately 1985; and the recent phase of smaller famines since the mid-1980s. We may be entering a fifth act today, a topic to which I will return later. In each case, the story of the famines is also a story of the politics of the era, and in particular, a story of mass atrocity.

2.1. 'Late Victorian Holocausts'

Our first time period includes the height of the imperial conquest and subjugation and the making of the 'third world', up to the early 1900s. Mike Davis aptly called this the era of 'late Victorian Holocausts' (Davis, 2002). The gilded age in Europe was the age of privation and starvation in China, India, Brazil, Congo and elsewhere. Settler colonial genocides, such as in Namibia in 1904—which killed 40,000—preferentially used starvation as a weapon.

The prelude to and cause of this catastrophe was colonialism itself. In America and Australasia, the expansion of the colonial frontier involved the displacement, subjugation and often the eradication of native peoples, with famine as one of the favored instruments. In South Asia, the wrenching of the some of the most prosperous areas of the world into the European imperial-

commercial economy was accompanied by devastating famines. For example, the famine of 1770 in Bengal is plausibly estimated to have killed as many as 10 million people. A subsequent British chronicler observed: 'Bengal was regarded by the British public in the light of a vast warehouse, in which a number of adventurous Englishmen carried on business with great profit and on an enormous scale. That a numerous native population existed, they were aware; but this they considered an accidental circumstance.' (Hunter, 1897, pp. 35–6) The English East India Company presided over several such famines, alongside the greatest de-industrialization in history, and the reduction in India's share of global gross domestic product from about 25 percent to no more than 6 percent over a hundred years. China followed a similar crisis and collapse in the second half of the nineteenth century, and then Africa did so too.

The fact that famine followed in the footsteps of the conquistadors was perhaps so obvious that it was recognized by everyone except the 'adventurous Englishmen' themselves. The dominant theory of famine during this era was that of Thomas Malthus, which possessed the two attractive qualities of scientific abstraction and of blaming famine on its victims, because of their propensity for increasing their numbers without heed to the capacity of the land to provide for them. Malthus's thesis about the self-destructive potential of a growing population, articulated in his 1798 *Essay* (Malthus, 1926) has displayed a remarkable capacity to rebound after empirical and logical refutation, and has returned, zombie-like, to haunt generations of political economists and policy-makers. Malthus himself quickly revised his early views and in subsequent editions of his *Essay*—which were, as he recognized, essentially new books entirely—argued for a much more complicated and humane position on the dynamics of population and the nature of famine (Mayhew, 2014). Nonetheless, Malthus's simple

original idea lived on that, following unchecked population growth, 'gigantic inevitable Famine stalks in the rear, and with one mighty blow levels the population with the food of the world' (Malthus, 1926, pp. 139–40).

There were no prohibitions against famine as an instrument or war or policy at this time. Restrictions on the conduct of war, such as the American Lieber Code, did not extend to prohibiting starvation, and to the contrary expressly permitted the use of blockade of foodstuffs to expedite the surrender of besieged garrisons. At the 1909 London Conference concerning the Laws of Naval Law, the maritime powers of the day, led by Great Britain, proposed only the most modest restrictions on the authority of the blockading power to permit food to pass.

The end of this period—the first fourteen years of the twentieth century—saw remarkably few famines. Was this because once imperialism had consolidated its hold on the third world, the devastation of conquest was replaced by relatively benign rule? Because the economic growth of the globalized gilded age began to benefit colonial territories? Or was it simply good luck, in that the climatic adversities that had so often contributed to triggering famines in previous years were milder than before?

2.2. The extended World War

The second act in the modern drama of famine is the age of total war from approximately 1915 to 1950. During this period the epicenter of famine switched from the colonial world to Europe, specifically to Eastern Europe and the Soviet Union, with a second epicenter in East Asia. These famines were a product of war, and in particular campaigns conducted to exterminate or subjugate the populace. In the categorization of famines into different levels of crime, with category one famine crimes representing the use of starvation as a tool of genocide (Marcus, 2003), these three decades contains all the examples of genocidal great famines in the record. (Earlier era colonial mass starvations rarely reached the 100,000 threshold.)

World War One saw major famines in the Middle East, and the blockade of Germany caused severe hunger and excess deaths during the winter of 1917–18, contributing not only to the German surrender but to the conviction by a generation of German leaders that securing food supplies was a precondition for fighting and winning the next war. Terrible famines followed in Russia, during the civil war and with the punitive use of starvation by Stalin against the Ukrainians (Graziosi, 2009; Snyder, 2012). The Holodomor began as a famine induced by a ruthless process of agricultural collectivization, but when Stalin realized the impact of these policies, he intensified them and targeted Ukraine in a punitive and genocidal manner. The Chinese civil wars from the 1920s to the 1940s saw severe famines, which rivaled or exceeded those in Europe in terms of fatalities. The Second World War caused mass starvation in Europe and Asia, from the Nazi Hunger Plan—the program to reduce the population of the eastern Soviet Union by 30 million people through starvation—to the blockade of Greece, the 1943 Bengal famine, starvation in China, Vietnam and Indonesia, the deaths of a million Japanese soldiers from starvation, and imminent famine in the Japanese homeland averted only by the Emperor's surrender. According to one estimate, 19 million people died from starvation during World War Two, as many fatalities as in combat (Collingham, 2012).

Several of these famines struck in the world's breadbaskets, as ideologically-driven regimes sought to impose transformative political projects, ruthlessly exploiting or destroying the people who lived and farmed in these areas. War was waged on the peasantry of Ukraine, Russia, China and south-east Asia. It was not that the waters had risen to the level where a ripple would drown these peasants, rather that oppressive rulers were forcing these peasantries to their knees, where they would perish. Or, to be consistent to the metaphor, the waves were much higher than before, and entirely man-made. The trajectory of famines closely followed that of mass atrocity: wars of conquest and annihilation, and genocide.

The theorization of famine and atrocity was intimately linked, albeit very briefly, but soon after the intellectual link was sundered by the victors' agenda which did not involve the criminalization of mass starvation. The Polish lawyer Raphael Lemkin investigated the nature of Axis rule and its treatment of the people of occupied territories, famously coining the term 'genocide' and campaigning for it to be specified as a crime and prohibited. Lemkin's efforts are today primarily associated with his exposure and condemnation of the Holocaust. However, in his writings he dedicates more detail and space to the Nazi restriction on food supplies to conquered and subjugated populations, and the use of starvation as an instrument of extermination, persecution and inhumanity, than to mass killing through the gas chambers and death squads (Lemkin, 1944). In other articles and lectures, Lemkin also identified the Holodomor as a paradigmatic case of genocide, writing that starvation not only killed millions of Ukrainian peasants, but was intended to break the soul and mind of the Ukrainian nation (Lemkin, 2009). Lemkin succeeded in having the UN adopt the Genocide Convention but his agenda on starvation was not taken up. The Nuremberg and Tokyo Tribunals that followed the war's end indicted the leaders of Germany and Japan for numerous crimes against humanity and war crimes, and evidenced famines as instances of these, but did not prosecute any individuals on charges directly framed by the infliction of mass starvation.

One reason for this was the evidentiary challenges of proving the cause of a death in famine: the causal chain from act to outcome is longer, more complicated, and much more beset by challenges of demonstrating proof beyond doubt, than in the case of (for example) violent killing. Defense counsel could argue that a malnourished individual died on account of an infection not directly associated with forced deprivation, or because of that person's failure to obtain alternative sources of food.

A second reason why famine was not clearly criminalized was that the laws of war were at best ambivalent on outlawing starvation, and the Allies were not in a hurry to solidify the prohibition. Notoriously, the German commander responsible for the siege of Leningrad, in which a million people died, was not found guilty of war crimes associated with enforcing the siege, on the grounds that although his conduct was morally reprehensible, the laws of war did not prohibit such action (UN War Crimes Commission 1949, p. 84) The Allies themselves were responsible for blockading the German and Japanese homelands, and the occupied territories (including famine-stricken Greece). The British government followed policies that turned a food crisis in Bengal into a famine in Bengal rather than take any steps that might have prevented the disaster, but at the cost of rethinking the priorities of the war strategy. The U.S. airforce named its mining of Japanese harbors 'Operation Starvation'.

2.3. Post-colonial totalitarianism

The greatest decline in the number and lethality of famines occurred in the immediate aftermath of World War Two. In fact, had it not been for the greatest famine in the historical record—the 'Great Leap Forward' famine in Mao Zedong's China during 1958–62, which cost upwards of 25 million lives—the sharpest decline in famine mortality would have occurred at the century's midpoint.

The third act in the story of modern famine is the era of post-colonial totalitarianism. As well as the singular catastrophic

famine in China, there were famines in Cambodia, Ethiopia and North Korea. All of these were all strong state famines—mass starvation inflicted by policy—in the name of titanic social engineering. The Chinese famine was by far the largest, with excess deaths exceeding 30 million by most estimates (Dikötter, 2010). The mass starvation under the Khmer Rouge in Cambodia was the most severe: the best estimate is that 1.21 million Cambodians starved out of the total death toll of 1.75 million (Kiernan, 2003). The Ethiopian famine of 1984–85 was caused by multiple factors, but ruthless counterinsurgency and titanic social engineering were major contributors (de Waal, 1997). The 1990s famine in North Korea is something of a historic anomaly, rather like that country itself. There was also recurrent famine in feudal Ethiopia (1958, 1966 and 1973), in the besieged Nigerian separatist enclave of Biafra, and in newly-independent Bangladesh as that country was engulfed in post-conflict turmoil, and subjected to a punitive cut-off in American aid that had been important in sustaining its public food distribution system.

Only some of these famines gripped the public imagination. In the wake of World War Two, the dominant narrative at the UN was the way in which hunger had been an outcome of the failed economic policies of the depression era, and could be so again. The UN Food and Agriculture Organization (FAO) was set up and the biggest-ever relief program was mounted, from surplus-producing America to Europe and East Asia. A quarter of a century later, a sudden spike in world food prices coincided with a reappearance of the Malthusian zombie concept of overpopulation, to spark new fears of global famine. A series of famines in 1973/74 seemed to confirm this—Bangladesh, Ethiopia, the Indian state of Maharashtra and the west African Sahel. The focus of research and policy was on Green Revolution technologies and other measures to increase agricultural production and reduce child malnutrition. In the early 1980s, Amartya Sen criticized the 'food availability decline' theory of famine causation, arguing instead that a collapse in people's ability to convert their labor and assets into food—a 'failure of exchange entitlements'—was a better explanation for famine (Sen, 1981). But Sen, like those he was criticizing, was concerned only with peacetime famine, and not with forced starvation as a criminal act.

One of the most remarkable elements of this period is that theorizing about famine was almost entirely oblivious not only to the Great Leap Forward famine in China—which remained a state secret for more than twenty years—but also to other episodes of political forced starvation, such as the Holodomor and the Hunger Plan (Grasiozi, 2009). Part of the reason for this was the secrecy of the totalitarian regimes. Another part was the dominance of the technocratic discourse of the Green Revolution. A third element was the growth of organized humanitarianism, which was active only in those parts of the world accessible to western relief workers and journalists, whose capacity for writing the script exceeded their actual material impact on mitigating famine.

2.4. Post-cold war humanitarian emergencies

From approximately 1986 to 2010—beginning with the thawing of the Cold War and extending into the era of globalization—there was a generation without a calamitous famine: the humanitarian crises in sub-Saharan Africa and the Middle East were considerably smaller in the scale of fatalities. But famines did not end. If we expand our concern to include smaller famines (for which we now have much better and more systematic evidence), they showed diverse faces (Devereux, 2007). Some of these famines occurred in peacetime, associated with production failures and economic crises—for example in Malawi and Niger. Some were apparent anachronisms, redolent of the previous era of totalitarianism—for

example North Korea. The heightened level of child deaths in sanctioned Iraq has been described as a 'post-modern famine' (Gazdar, 2007), with best estimates for mortality ranging from 166,000 to 300,000 (Garfield, 1999; Ali & Shah, 2000). Most of these famines, however, were caused by violent conflict, and in particular counter-insurgency strategies and state collapse. The Horn of Africa saw more than its fair share of these disasters, with recurrent episodes. There was famine in southern Sudan in 1988 and 1998; large swathes of northern Sudan in 1990; Darfur in 2003–05; and a return of war famine to South Sudan in 2014. There was famine in Somalia in 1992 and 2011. Ethiopia suffered famine in 1999–2000 and severe food crises in 2002 and 2015, though in the latter two cases prompt government action prevented significant mortality. The protracted war in northern Uganda in the early 2000s caused a humanitarian crisis with more than 100,000 deaths associated with hunger, disease, abduction and displacement—mortality of a type and scale that qualifies as 'famine' even though the term is not normally used to refer to the episode (Mazurana, Marshak, Hilton Opio, Gordon, & Atim, 2014). The collapse of health services and social order in the Democratic Republic of the Congo after 1997 saw sharp increases in child mortality, with exceptionally high and highly controversial estimates for total numbers of dead. This was also not normally described as 'famine' though there were undoubtedly pockets of extreme hunger and malnutrition.

During this period, the narrative around 'famine' shifted chiefly to the study of historical famines, including a new focus on some of the biggest famine crimes of the twentieth century, hitherto obscured in the historical record. Analysis of current events was primarily framed by the terminologies of 'complex emergencies' and 'humanitarian crises', terms that blurred the distinctions between the classic agrarian famines and crises of distress migration and severe societal disruption (Keen, 2008). These concepts are instrumentally defined, focused on what relief professionals and institutions can do to prevent or alleviate human suffering, and parallel debates were concerned with technologies of response and the ethics of how humanitarian professionals can operate with integrity. Thus, even while famine mortality was at its lowest level in history, humanitarian and media attention to these disasters continued to feed a popular misconception that we were living through an era of unprecedented human distress. In turn, this meant that the achievement of the near-conquest of famine remained under-acknowledged and under-appreciated.

3. Changing structural causes of vulnerability

Returning to Tawney's metaphor of the peasant standing in water, there is no question that the structural causes of famine have changed, and the risks have declined. Recalling that almost half of the famine deaths of the period 1870–2010 occurred in China, once the 'land of famine' (Mallory, 1926), the elimination of famine from China counts as the single largest contributor to the conquest of famine. This section briefly examines several reasons why global vulnerability to famine has declined.

3.1. Population

As world population has increased from approximately 2 billion in the mid-nineteenth century to 7.5 billion today, the risk of dying from famine has reduced. This is represented in the following figure, which indexes total famine deaths to a population baseline, giving us the risk of dying from famine over time.

It is clear that, contra Malthus's first *Essay* and his disciples who continue to argue that famines are associated with overpopulation, that an increase in world population has been

associated with the decline in famine deaths. There are several plausible reasons why more people means lower risk of dying in famine. Among them is the economic development that has accompanied population growth in modern times. Another element, associated with population dynamics themselves, is the demographic transition.

Historically, most famine-prone societies have been high-fertility populations with a large proportion of children under five. Usually, between one half and two thirds of all excess deaths in famine are among this age group. (The exceptions are cases such as forced starvation of prisoners or besieged garrisons.) As populations go through the demographic transition and the associated reduction in fertility, the numbers of children in this vulnerable category decreases, and automatically famine mortality declines. The demographic transition is usually also accompanied by lower child mortality rates, increased incomes and better women's education, all of which lower risks of malnutrition in normal times and famine in times of stress. But the simple arithmetic of the changing proportion of different age cohorts and their relative risks of death, means that the risks of famine mortality change and reduce.

This points us to the way in which definition and impact are entangled. The same food crisis striking two populations, one pre- and one post-demographic transition, would have very different mortality profiles, perhaps with the first qualifying as a 'great famine' and the second passing with very limited excess deaths.

Despite the negative correlation between famine deaths and growing population, the most popular explanation for famine remains the overpopulation argument. Like a zombie, this concept resists being killed by evidence and logic, and repeatedly returns to plague the living.

3.2. Food production

The 'Green Revolution' and increased in agricultural productivity are another favored set of explanations for the reduction in hunger (Conway, 1997; Patel, 2013). The introduction of improved seed varieties in South Asia contributed to a growth in crop yields and the lifting of millions out of poverty. The question of whether the Green Revolution helped prevent famine is less straightforward. One of the critiques of the agricultural technologies was that they were selectively adopted by better-off farmers, and that the poorest and most famine-vulnerable people (two overlapping but non-identical categories) benefitted less and in some cases ended up disadvantaged. An assessment of the impact on structural causes of famine requires us to balance the overall increase in prosperity and food security, and a shift in patterns of vulnerability among the poorest.

The counterpart story to the Green Revolution is the threatened potentially disastrous impacts of climate change on food security. The fears are warranted but must be nuanced.

The 2016 annual report of the FAO on climate change and its impacts (FAO, 2016) provides a synthesis of climate change and food security. The FAO structures its analysis using the four pillars of food security: food availability, food access, food utilization, and the stability of food systems. Concerning food supply, global warming causes both pressures on food supply and new agricultural opportunities, associated with the opening up of new areas (such as in northern climes and the possible increased rainfall in the West African Sahara-Sahel zone) and the increased productivity of plants due to CO_2 fertilization. The FAO forecasts that the positive and negative effects of climate change will balance each other out for the coming few decades but as global warming progresses, the negatives outweigh the positives. Of particular concern, droughts are likely to become more severe and protracted (Trenberth et al., 2014). Concerning food access, climate change is an obstacle to

reducing poverty. The FAO report summarizes: 'With climate change … The population living in poverty could increase by between 35 and 122 million by 2030 relative to a future without climate change.' (FAO, 2016 pp. xi-xii) However, we should note that this is not an *absolute* increase, but rather a slower rate of poverty reduction. Given that poverty is at historic lows, and vulnerability to famine has never been lower, this indicates that hunger should continue to reduce further—just less so than would have otherwise been the case. Concerning food utilization (an often neglected component of food security), it is likely that the social disruptions consequent on climate change, including migration, urbanization and the disruption of ecosystems, mean that access to clean water and hygienic food will become more difficult for many.

The final and most important causal chain links climate change to instability in food systems. One of the best-demonstrated impacts of global warming is the increasing number of extreme weather events, including droughts, storms and extremes of temperature. Instability in the weather is a problem for all farming systems that rely on predictable weather patterns. The principal risks of famine arise with the combination of the increased economic volatility and the increased likelihood of extreme climatic events along with increased political instability.

3.3. Reduction in poverty

A similar balance needs to be struck in evaluating how increasing global income levels translates into changing patterns of vulnerability. The decline in famines is strongly associated with increases in income levels: as the world has become richer, poverty and famines have declined. A simple rule of thumb is that those who spend 70 percent or more of their income on food, are at risk of going hungry. Scale that up to a community or a nation, and we see how the risks of famine have subsided as nations have become less poor. The most important case by far is China, but the entire Asian continent—location of two thirds of the global famine death toll since the mid-nineteenth century—has now been lifted out of the famine-vulnerable zone.

One caveat to this triumph is inequality. We need to be very concerned about growing economic inequality, and the growing numbers of the very poor who are vulnerable to hunger. Inequality has become the focus of academic and policy attention recently (e.g. Milanovic, 2016) but with less of a concern for those at the very lowest end of the distribution spectrum, which is the group most at risk of famine. Moreover, insofar as the pattern of inequality is shifting from being among nations and geographical communities to among individuals within the same location, we would expect the geography of hunger to alter commensurately. This implies that future famine may not resemble historic instances in which whole regions or countries were afflicted with generalized starvation, but instead pockets of very localized hunger, narrowed down even to the level of the household, and largely invisible to national or regional level aggregate indicators. Mass starvation can come with a different societal face.

A second caveat is volatility. Increasing global prosperity has come alongside exposure to global shocks. Such shocks could be disruptions to employment markets, for example the collapse of much of the African textile manufacturing sector after the entry of China into the World Trade Organization, which allowed China to displace African exports to western countries and also opened up African markets to Chinese textiles, forcing draconian retrenchment and the loss of an estimated 250,000 jobs (Xiaoyang, 2014). A smaller example is the collapse of employment in sesame production in Ethiopia following the price collapse after 2012. Such global economic shifts—many of them intrinsically unpredictable—could herald sudden increased vulnerability to famines.

3.4. Food markets

Historic famines were associated with poorly integrated food markets, either because of inaccessibility (for example, Ethiopia in 1973 (Devereux, 1988)) or because market segmentation meant that localized price-fixing or speculative spirals could generate famine prices (for example, Bangladesh 1974 (Ravallion, 1987)). There is no doubt that better integrated food markets have lowered vulnerability to famine, and the recent success of those two countries in preventing food shocks translating into famines are cases in point. Growth in rural incomes, better physical infrastructure and improved management and regulation of food markets has meant that the kinds of anomalous price disruptions that were characteristic of many famines, have become much less.

There is a distinct downward trend in global food prices. Cereal prices peaked in the immediate aftermath of World War Two and have declined, albeit in an uneven manner, since then, with brief spikes in 1973, 2008 and 2011. International cereal prices now average less than one quarter of the levels prevailing in the late 1940s and early 1950s (Sumner, 2009).

While famines associated with the dysfunction of peripheral markets have faded, threats of food crisis brought about by the globally-integrated food market have risen. For example, in a few months in late 2007 and 2008, there was a sudden doubling in the price of basic food on international markets. Only one of the reasons was production shortfalls in poor countries. The other reasons were the expansion in biofuel production, the oil price hike (and consequent increase in transport costs), and a shift by Wall Street investors into speculating in commodities including food. The kind of volatility we are accustomed to seeing in some commodity markets was transferred to the global food market. The 'global food crisis' caused much hardship as its effects rippled around the world, but did not cause famine. There was a second spike in 2011 (Headey & Fan, 2010; Wiggins & Keats, 2013). Only in one place (Somalia) did this price shock contribute to famine, but that should be sufficient warning that it could happen elsewhere.

4. Vulnerability to famine mortality

Since 1945, the overriding factor in the decrease in famine deaths has been that famines have become less lethal, rather than less common. To adapt our metaphor of the peasant in water, he remains at risk of being submerged by waves, but there is a life support system that prevents him from drowning. In this section I briefly examine two elements of this: public health and the international humanitarian system.

4.1. Public health

In the past, the largest numbers of people who died in famines succumbed to infectious diseases including smallpox, measles, malaria, typhus and waterborne infections (Dyson and Ó Gráda 2002). These epidemics were worsened by under-nutrition as well as by the disruptions to the health environment caused by mass migration in search of food and livelihoods. Rare were those famines in which outright starvation, absent communicable disease outbreaks, was the major cause of death. The Great Leap Forward famine in China appears to be one such instance (Ó Gráda 2015). The increase in public health provision—water and sanitation services, the elimination of smallpox, vaccination against childhood diseases—has probably been the single most important element in reducing famine mortality. Along with the demographic transition and the decrease in the size of the most at-risk population cohort of children under five, this means that the mortality risks of food

crises are substantially reduced.

The HIV/AIDS epidemic in southern Africa in the early 2000s led to fears that the socio-economic deprivation caused by the disease, combined with shocks to food production such as drought, would create a 'new variant famine' with a novel pattern of hunger and mortality (de Waal, 2007). The worst fears did not materialize. However, this pointed to two possible scenarios. One was the emergence of patterns of vulnerability based on the infection patterns of chronic debilitating diseases, and the other was the possibility of outbreaks of communicable disease rendered more widespread or more virulent by food crisis and undernutrition.

4.2. Humanitarian action

Humanitarian action is a version of emergency public health, providing nutrition, medical, primary health and sanitation services to disaster-stricken populations. Over the last thirty years, the professionalism and scale of international emergency response has massively increased, and it is reasonable to claim that it has contributed to the reduction in famine mortality.

The strongest critique of the international humanitarian system is that it responds to the symptoms of famine and does not deal with its causes (de Waal, 1997). Indeed, insofar as the causes of famine are primarily political, the humanitarians' misleading portrayal of famine as a natural calamity needing a charitable response, rather than a political crime demanding accountability, may even entrench the political dynamics that cause such disasters. The strongest defense of the humanitarian system is that it is not mandated to deal with underlying causes, but rather to ameliorate immediate human suffering wherever and whenever it occurs (Rieff, 2002).

The argument can be parsed in the light of the distinction between numbers of famines and their lethal impact. Before the 1970s, large-scale humanitarian action was invariably mounted in response to a disaster that was already unfolding—the Middle Eastern famines of World War One, the Russian famine of the immediate post-revolutionary period, or the mass hunger in Europe and East Asia following World War Two. Such efforts clearly could not tackle the causes of those crises. Since the development of a permanent 'humanitarian international', forty years ago, the number of incidents of famine has remained roughly constant, but their lethality has hugely diminished.

A subsidiary argument is that humanitarian responses are driven by the politics of the supply of aid rather than by the actual needs of people in crisis (Carbonnier, 2016). There is strong evidence that this is correct at the level of response to particular humanitarian crises—for example, the response to the refugee movements in Former Yugoslavia in the 1990s was much more generous compared to the meager assistance to African distress migrants at the same time. However, if we take a step back and look at the level of relief response compared to need, it immediately becomes clear that even the best-funded emergency aid programs do not meet their targets for assistance levels. It follows that the increase in humanitarian aid budgets represents steps—albeit uneven ones—towards meeting real needs, rather than a sufficient supply that is inequitably allocated. At this higher level of generalization, it is also clear that even if humanitarian responses do not address the specific political dimensions of particular famines, they are more broadly part of the democratization of the global public sphere. The mass media, public clamor for the relief of suffering, and the widespread adoption of international norms that reject starvation, are simultaneously components of the humane, liberal sensibility that protects people from famine, and also drives humanitarianism. Sen's observation that the growth of a free press

and representative, accountable political systems is the true driver of the reduction of famines (Sen, 2000) resonates globally.

5. Changing proximate causes

Almost every famine in the historical record has multiple causes, the sole exceptions being the forced starvation of prisoners and besieged cities. Famines are exceptional events (and increasingly so). Outside those rare cases of genocidal forced mass starvation, famines require a combination of political, production and market shocks, with mortality determined principally by the public health environment. A single cause is rarely sufficient and no single factor is a necessary element. Over the last 150 years, proximate causes have become more important while structural causes have become less significant. Among political factors, there is changing balance between political sins of omission and sins of commission: in the nineteenth century, relatively modest proximate causes including minor political errors and lack of administrative capacity could create famine in poor regions of the world; but in the twenty-first century, more significant triggers are needed including a particular role for political and military decision. Bearing in mind the cautionary note that no single causal element is present everywhere, in today's famines we see a combination of economic crisis, protracted armed conflict, and counter-humanitarian actions and principles at work.

Looking into the future, we need to be alert to the risks of compound shocks. If the risks of shocks on several of the following four dimensions—climatic, economic, infectious disease and political—are independently increased, it follows that the risk of famine and famine mortality will increase. The previous section has shown how extreme economic and climatic events are less unlikely on account of globalization and global warming. We can now turn to extreme political events.

5.1. War and atrocities

One of the clearest lessons to be derived from examining the catalogue of famines and episodes of forced mass starvation is that famines are a form of political crime: committed by governments and other political authorities that regard human lives as without value, or to be subordinated to other ends. Famine is characteristically perpetrated in pursuit of a goal such as imperial conquest, genocide, totalitarian social transformation, or counterinsurgency.

Forced mass starvation is the archetypal case. But curiously it has been ignored by both scholars and lawyers. Scholars of genocide and atrocity focus on violent killing, and push hunger into the background. It is almost as if they consider someone who died of starvation or disease as a second-class victim, not as fully worthy of commemoration as those killed by bullets, poison gas, torture or machete. Lawyers have struggled also. Famine is not a crime against humanity, famine crimes have not been prosecuted in war crimes tribunals, and the element of mass starvation in genocide has been neglected. Meanwhile, scholars of food security have almost always avoided the politically contentious area of criminal responsibility for famine.

In my book *Mass Starvation* (de Waal, 2017) I categorize historic famines according to the four-fold classification provided by David Marcus (2003). Category one famine crimes are inflicted with deliberate intent to exterminate a group of people, as with the 1904 genocide in Namibia, the genocide of the Armenians, the Ukrainian Holodomor, and the Nazi Hunger Plan. Much more common are second degree famine crimes, where famine is inflicted in pursuit of another political or military agenda, and where, despite good information that starvation is the foreseeable or actually occurring

outcome of these policies or strategies, those actions are pursued nonetheless. By far the greater number of famines have been of this kind. Approximately two thirds of the famines and famine deaths since 1870 are attributable to category one and two famine crimes.

Category three famine crimes are those in which public authorities are indifferent: their policies may not be the principal cause of famine, but they do little or nothing to alleviate hunger. These were common before the nineteenth century but have been decreasing in number. Category four famines have no element of culpability: they occur when governments simply lack the capacity. These have become vanishingly rare over the last century.

5.2. Counter-humanitarianism

There is a long history of disregard for humanity in armed conflict. Since World War Two, humane values have more steadily encroached into the domain of warfare, so that actions that would have been unremarkable in an earlier generation are widely condemned. An interesting example of this is the sanctions on Saddam Hussein's Iraq, which by 1996 were reportedly responsible for the deaths of 600,000 children in that country. Later research suggested this number was in fact inflated, but that is not relevant to the charge that the policies that caused the deaths were inhumane and excessive. Confronted with this claim, U.S. Secretary of State Madeleine Albright said, 'I think this is a very hard choice, but the price, we think the price is worth it.' (CBS News 1996). She was reviled at once and quickly regretted her statement—defending a position that would have been the norm just twenty years beforehand, when the U.S. cutback in aid contributed to famine in Bangladesh and the British government refused to condemn the faminogenic siege of Biafra by the Nigerian army. In the late 1990s, as famine unfolded in North Korea, there was a vigorous debate in U.S. newspaper columns over the ethics and political calculus of sending aid to that country. The view that it was the right thing to do, morally and politically, prevailed. In 2000, campaigning in New Hampshire, presidential candidate George W. Bush vowed that he would not use food as a weapon in U.S. foreign policy. The following year the incoming director of USAID instructed his staff to adopt a principle of 'no famine on our watch.' The humanitarian imperative was becoming the norm, not the exception.

In the context of this legacy, to act contrary to humanitarian principle requires deliberate decision. Nonetheless, there has been a recent retreat from humanitarian principles—the growth of what we might call 'counter-humanitarianism'—which is associated with some recent famines. One manifestation of counter-humanitarianism is the way in which certain armed groups reject aid and aid agencies. This is a particular kind of inhumane and criminal behavior, which is targeted at aid-givers. Those responsible may be militant Islamist groups such as Al-Shabaab in Somalia or ISIS in Syria, or chauvinistic warlords such as in South Sudan. They may also be governments, who refuse to let their calculus of military necessity or their concerns over national sovereignty be compromised by international humanitarian aid. Cases in point are Syria and Yemen. They may also be western powers, whose anti-terrorist legislation seriously hampers humanitarian agencies from operating in locations where they might, deliberately or inadvertently, provide material or moral support to a group designated as a terrorist (Gill, 2016). Thus in Somalia in 2011, aid agencies were deterred from becoming operational in areas controlled by Al-Shabaab for fear of being subject to prosecution under the PATRIOT Act. That contributed to a famine in which 250,000 people died (Maxwell and Nisar 2016).

Yemen is the world's biggest humanitarian crisis in 2017 and may yet become the one that defines the new humanitarian order.

At the time of writing, famine has not been declared in Yemen, but the UN and the committee of food security and humanitarian emergency specialists who assess the evidence and decide whether to call famine or not, have determined that it counts as a severe humanitarian emergency. It is quite possible that it is solely because of lack of sufficiently good data—in turn a product of limited access for humanitarian agencies—that there has been no declaration of famine. It is also likely that the absence of such a declaration was due to political pressures. The economic embargo enforced by Saudi Arabia and the United Arab Emirates, supported by American and British warships, along with the destruction of infrastructure including markets, roads and ports by bombing, and the central bank's non-payment of salaries in Houthi-controlled areas, is the reason why Yemen stands at the brink of famine. But the principal measures taken, which amount to economic warfare, were approved by the UN Security Council.

6. Conclusion

In February 2017, the UN declared famine in South Sudan and imminent famine in northern Nigeria, Somalia and Yemen. The only reason why famine was not declared in the besieged enclaves in Syria was that the system for collecting and analyzing information on famine is Afro-centric and extends to poor agrarian countries elsewhere—it includes Afghanistan, Haiti and Yemen but not more developed countries such as Syria and Iraq.

The famine declaration and warnings are a shocking reversal. But even if all four countries do become famine-stricken, it is still very unlikely that levels of mortality will approach those in the calamitous famines of the mid-twentieth century. Nonetheless, one of the great unacknowledged triumphs of our lifetime may be unraveling. That is the bad news. In that gloom there is also the good news: there is nothing inevitable about these calamities. What politicians have created, politicians—under pressure from their publics—can remedy. The second half of the twentieth century demonstrated that with the required political demands and calculations, calamitous famines could be entirely eliminated, and the threat of mass starvation reduced to a shadow of its former self. This under-acknowledged triumph was consolidated by a global humanitarian norm and associated infrastructure. That progress can be resumed. Famine can indeed be ended.

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Conflict of interest

None reported

References

Ali, M. M., & Shah, I. H. (2000). Sanctions and childhood mortality in Iraq. *The Lancet, 355*, 1851–1857.

Carbonnier, G. (2015). *Humanitarian Economics: War, disaster and the global aid market*. New York: Oxford University Press.

CBS News. (1996). Punishing Saddam. *Sixty Minutes*, 12 May https://www.youtube.com/watch?v=R0WDCYcUJ4o.

Collingham, L. (2012). *The taste of War: World war II and the battle for food*. New York: Penguin.

Conway, G. (1997). *The doubly Green Revolution: Food for all in the twenty-first century*. London and New York: Penguin Books.

Davis, M. (2002). *Late victorian Holocausts: El niño famines and the making of the third world*. London: Verso.

Devereux, S. (1988). Entitlements, availability and famine: A revisionist view of wollo, 1972-74. *Food Policy, 3*, 270–282.

Devereux, S. (2007). Introduction: From "old famines" to "new famines". In

S. Devereux (Ed.), *The New Famines: Why famines persist in an era of globalization*. London: Routledge.

Dikötter, F. (2010). *Mao's great Famine: The history of China's most devastating catastrophe, 1958–1962*. New York: Walker & Company.

Dyson, T., & Ó Gráda, C. (Eds.). (2002). *Famine Demography: Perspectives from the past and present*. Oxford: Oxford University Press.

FAO. (2016). *The state of food and Agriculture: Climate change, agriculture and food security*. Rome: FAO. http://www.fao.org/3/a-i6030e.pdf.

FEWSNET. (2017). *Alert: Emergency food assistance needs unprecedented as Famine threatens four countries*, 25 January http://www.fews.net/global/alert/january-25-2017.

Garfield, R. (1999). *Morbidity and mortality among Iraqi children from 1990 to 1998: Assessing the impact of economic sanctions*. Goshen, Indiana: Institute for International Peace Studies, Univ. of Notre Dame, and the Fourth Freedom Forum.

Gazdar, H. (2007). Pre-modern, modern and post-modern famine in Iraq, 1990–2003. In S. Devereux (Ed.), *The New Famines: Why famines persist in an era of globalization*. London: Routledge.

GHI (Global Hunger Index). (2015). *GHI 2015: Armed conflict and the challenge of hunger*. Washington DC: IFPRI, Dublin: Concern Worldwide, and Bonn: Welthungerhilfe.

Gill, P. (2016). *Today we drop bombs, tomorrow we build Bridges: How foreign aid became a casualty of war*. London: Hurst.

Graziosi, A. (2009). *Stalinism, collectivization and the great famine*. Cambridge MA: Ukrainian Studies Fund.

Headey, D., & Fan, S. (2010). *Reflections on the global food Crisis: How did it Happen? How has it Hurt? And how can we prevent the next one?* Washington DC: International Food Policy Research Institute, Research Monograph 165.

Howe, P., & Devereux, S. (2004). Famine intensity and magnitude scales: A proposal for an instrumental definition of famine. *Disasters, 28*(1), 353–372.

Hunter, S. W. W. (1897). *Annals of rural bengal* (7th ed.). London: Smith, Elder and Co.

Keen, D. (2008). *Complex emergencies*. Cambridge: Polity.

Kiernan, B. (2003). The demography of genocide in southeast Asia: The death tolls in Cambodia, 1975-79, and East timor, 1975-80. *Critical Asian Studies, 35*(4), 585–597.

Lemkin, R. (1944). *Axis rule in occupied Europe*. Washington, DC: Carnegie Endowment for International Peace.

Lemkin, R. (2009). Soviet genocide in Ukraine,' in Roman Serbyn, 'Lemkin on the Ukrainian genocide. *Journal of International Criminal Justice, 7*, 123–130.

Mallory, W. H. (1926). *China: Land of famine*. Special Publication No.6. New York: American Geographical Society.

Malthus, T. R. (1926). *First essay on the principle of population*. London: Macmillan (originally published 1798).

Marcus, D. (2003). Famine crimes in international law. *The American Journal of International Law, 97*(2), 245–328.

Maxwell, D., & Nisar, M. (2016). *Famine in Somalia: Competing imperatives, collective failures, 2011-12*. London: Hurst.

Mayhew, R. J. (2014). *Malthus*. Cambridge MA: Harvard University Press.

Mazurana, D., Marshak, A., Hilton Opio, J., Gordon, R., & Atim, T. (2014). *The impact of serious crimes during the war on households today in northern Uganda*. Briefing Paper 5. London: Overseas Development Institute, Secure Livelihoods Research Consortium.

Milanovic, B. (2016). *Global inequality: A new approach for the age of globalization*. Cambridge MA: Harvard University Press.

Ó Gráda, C. (2015). *Eating people is wrong and other essays on famine, its past, present and future*. Princeton: Princeton University Press.

OECD. (2016). *Query wizard for international development statistics (QWIDS)*. http://stats.oecd.org/qwids.

O'Brien, S. (2017). *Statement to the security council on missions to Yemen, south Sudan, Somalia and Kenya and an update on the oslo conference on Nigeria and the lake Chad region*. United Nations Security Council, 10 March https://docs.unocha.org/sites/dms/Documents/ERC_USG_Stephen_OBrien_Statement_to_the_SecCo_on_Missions_to_Yemen_South_Sudan_Somalia_and_Kenya_and_update_on_Oslo.pdf.

Patel, R. (2013). The long green revolution. *The Journal of Peasant Studies, 40*(1), 1–63.

Ravallion, M. (1987). *Markets and famines*. Oxford: Clarendon Press.

Rieff, D. (2002). *A bed for the Night: Humanitarianism in crisis*. New York: Simon and Schuster.

Sen, A. (1981). *Poverty and Famines: An essay on entitlement and deprivation*. Oxford: Clarendon Press.

Sen, A. (2000). *Development as freedom*. Oxford: Clarendon Press.

Snyder, T. (2012). *Bloodlands: Europe between Hitler and Stalin*. New York: Basic Books.

Sumner, D. (2009). Recent commodity price movements in historical perspective. *American Journal of Agricultural Economics, 91.5*, 1250–1256.

Tawney, R. H. (1964). *Land and labour in China*. New York: Octagon Books.

Trenberth, K., Dai, A., Schrier, G. van der, Jones, P., Barichivich, J., Briffa, K., et al. (2014). Global warming and changes in drought. *Global Climate Change, 4*, 17–22.

United Nations War Crimes Commission. (1949). *Law reports of trials of war criminals. Volume XII: The German high command trial*. London: HMSO.

de Waal, A. (1997). *Famine Crimes: Politics and the disaster relief industry in Africa*. London: James Currey.

de Waal, A. (2007). AIDS, hunger and destitution: Theory and evidence for the "new variant famines" hypothesis in Africa. In S. Devereux (Ed.), *The New Famines: Why famines persist in an era of globalization*. London: Routledge.

de Waal, A. (2017). *Mass Starvation: The history and future of famine*. Cambridge: Polity.

Wiggins, S., & Keats, S. (2013). *Looking back and peering Forward: Food prices and the food price spike of 2007/08*. London: Overseas Development Institute, 28 March.

World Peace Foundation. (2017). *Famine trends*. http://fletcher.tufts.edu/World-Peace-Foundation/Program/Research/Mass-Atrocities-Research-Program/Mass-Famine.

Xiaoyang, T. (2014). *The impact of Asian investment on Africa's textile industries*. Tsinghua, Carnegie-Tsinghua Center for Global Policy, August.

Further reading

DeFalco, R. (2014). Justice and starvation in Cambodia: The khmer Rouge famine. *Cambodia Law and Policy Journal, 2*, 45–84.