

## *Will you eat rice tomorrow?* Food security and globalization

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*Have you eaten rice today?* This was a traditional greeting in East Asian countries where rice was the staple food. Literally, it reflected a common concern that the recipient was not going hungry which, in societies where a shortage of food was all too familiar, was not an idle enquiry. Over time, the point of the question became more generalized, meaning little more than *how are you?* And from one generation to another the expression will hardly be heard at all now. But – it is argued in this paper – it is surely too soon to consign the reasons behind it to history. Far from it, for the updated enquiry is one that has become central to the global concerns of the present century. *Will you eat rice tomorrow?* is a question we should all be asking. The Covid-19 pandemic adds a new sense of urgency to finding answers.

Localized and nationwide famines have been a constant part of history, in some areas of the world more than others, but food shortages and nutritional deprivation have now acquired a new dimension. Throughout the present century, it is confidently predicted that there will be more mouths to feed and less land to grow crops and rear livestock. Does this mean that there will not be enough food for everyone? Many analysts argue against this possibility, contending that the world will still be able to produce sufficient food and that the main problem will be one of assuring access to supply. Others, however, are not so sure. Either way, ‘food security’ has emerged as a major item on the global agenda, taking its place alongside other critical issues. People rightly ask whether there will be enough food to sustain the world’s growing population or whether shortages will lead to a reversal of human progress.

In exploring the emergent issues, the purpose of this paper is to locate the threat of a world food shortage in a global context, showing that it is not separate from but intertwined with other matters of contemporary importance, like climate change and human rights. It will also give an indication of the main competing views on the subject. A subsequent paper will consider what all of this means for small island states, which are caught up in the general maelstrom but which also face their own, distinctive challenges. Seychelles, an archipelago in the western Indian Ocean, will provide a specific example of problems faced and what needs to be done.

## 1. Will there be enough food?

Whether or not there will be sufficient food for a fast-growing world population is the critical question. Most of the experts, and politicians who take their lead from various think-tanks and lobbyists, are remarkably sanguine about the future, but the arguments that all will be well are by no means convincing. Meanwhile, issues of hunger, if not widespread famine, refuse to go away.

### *1.1 Why should the world be concerned?*

There is a simple, common-sense proposition – that the more people there are in the world, the harder it will be to ensure that everyone gets a fair share of food. Before one is accused of Malthusian doom and gloom (about which more later), a few facts are in order.

At the start of the nineteenth century the total population on earth stood at around 1 billion. By 1927 this figure had doubled and by the middle of the twentieth century it had reached 2.5 billion. From that point, the rate of increase accelerated, so much so that by the turn of the millennium the world total had passed the 6 billion mark. In the present year (2020), the figure is 6.8 billion and rising.<sup>1</sup> Under the banner of ‘the defining challenge of the 21<sup>st</sup> century’, a NATO report (concerned that food shortages will lead to new fissures of insecurity) predicted that by 2050 this total will increase to 9 billion, and on to 9.5 billion by 2075.<sup>2</sup> Although the rate of growth is expected to slow after that, absolute numbers will continue to rise, possibly peaking at somewhere between 10 and 11 billion.

But that is only part of the story. In the more developed countries of the world (as present trends already indicate) the growth rate will slow and in certain countries may even decline. Asia’s population will continue to increase until the second half of the century until that, too, starts to level off. In contrast, the most dramatic increase will be in Africa, where the present number of people will double to 2.4 billion by mid-century (equivalent to an increase of 42 million per year).<sup>3</sup> Against earlier expectations, the rate of fertility in that continent has shown no signs of reducing; women in Niger, for instance, a country in a harsh environment on the edge of the Sahara, with GDP per capita below \$US 1 per day, currently have more than seven children in their lifetime. Nigeria, a much larger country but with enormous problems of its own, is expected to exceed the population of the US within the next three decades.

Against the background of these figures, the supply of land available to grow crops and rear livestock is being steadily reduced, given over to new housing and associated urban uses. Year on year, large tracts of farmland are displaced by the relentless spread of burgeoning cities.<sup>4</sup> And this is quite apart from additional losses of good farmland as a result of soil

erosion through bad farming practices; according to one report, over the past forty years this avoidable loss is equivalent to a third of the world's arable land.<sup>5</sup> Climate change is also playing its part, as a result, for instance, of rising sea levels leading to the encroachment of coastal land and, in other parts of the world, desertification. One way and another, the area available to produce food is, quite dramatically, diminishing.

Nor is it just a question of more people to be sustained and less land to achieve this. In common with other social trends, people across the world will no longer be satisfied with a subsistence diet but will increasingly demand the kind of food seen on Western tables. Of course, some might say that Western households will have to cut back on their own consumption but that kind of transfer is highly unlikely to be willingly conceded. In this respect, competition for food should be regarded as comparable to competition for other scarce resources – and with similar outcomes. For instance, if one part of the world is favoured with productive land and a neighbouring region is not, there will be a persistent threat that the latter will seek access to the former. Even if it does not become a question of outright conflict, people may choose to migrate from one to the other, giving rise to problems of displacement and resentment by the people already living there.

But the world should be worried at this present time for a further reason too. As well as the essential fact of more people on the planet, and the demand for food increasing exponentially, there is another factor to consider. One might have thought, for example, that with 'real time' communications and rapid transportation, the occurrence of food shortages in different parts of the world would now be a thing of the past. Surely it should be possible to replenish local stocks in good time to save lives. But this is not the case. In spite of the enormous progress made in science and technology over past centuries, humans retain a perverse streak of self-destruction. Spurning rationality and the goals of a common good, individual nations and their leaders have sometimes doubled back along a regressive path, sacrificing millions of their own countrymen and women in the process.<sup>6</sup>

In spite of dramatic reversals, however, it is salutary to note that, for a brief moment towards the end of the past century, analysts of what is normally a gloomy science found reason for hope. Indeed, the belief that famine had become a thing of the past was greeted, with a degree of certainty, as little short of a miracle:

*... [in the twentieth century] vulnerability to famine appears to have been virtually eradicated from all regions outside Africa. The last famine in Europe occurred in the Soviet Union immediately after World War II, the last famine in China was a by-product of the Great Leap Forward of 1958-1962, and the last famine in South Asia occurred in Bangladesh in 1974. Occasionally, famines due to exceptional circumstances afflict Southeast and Northeast Asia (Cambodia in the 1970s and North Korea in the 1990s), but famine as an endemic problem in*

*Asia and Europe seems to have been consigned to history. The grim label 'land of famine' has left China, Russia, India and Bangladesh, and since the 1970s has resided only in Somalia and Sudan.*<sup>7</sup>

Such optimism, however, proved premature and, if there were improvements in some parts of the world, the net result during the past century proved to be one of momentous setbacks. Just when it might have seemed that famines could at last be prevented – forecasts had become more accurate, communications improved and international aid was forthcoming – the actual number of deaths resulting from food deprivation rose to its highest-ever level. Some 70 million mortalities were recorded during the twentieth century as a result of starvation or related diseases, and the early years of the present century have given no more cause for hope.<sup>8</sup> Far from being eradicated, the endemic problem has simply been relocated (mainly to Africa) and the causes have changed, with war becoming even more critical than in the past. Nor was it simply the obvious effects of war (including the spread of resultant communicable diseases) that account for most deaths, but in a growing number of cases starvation has been used as a weapon in itself to force an enemy to succumb, or for a repressive government to impose its will on its own people. The incidence of famine has taken a new form but has certainly not gone away; the much-feared spectre of starvation still lurks in different parts of the world, ready to strike again when opportunities arise. The 'all clear' was sounded too soon.

Indeed, while it is true that the incidence of large-scale famines has declined, in many parts of the world the situation remains dire. Currently, official estimates indicate that more than 800 million people are in a state of 'chronic under-nourishment', representing more than 10% of the world's population.<sup>9</sup> In a report issued in 2019, it was concluded that 'after a decade of progress, the number of people who suffer from hunger has slowly increased ...'<sup>10</sup> There is, understandably, a close correspondence with countries at a low level of development, and the proportion of suffering is highest in sub-Saharan Africa, where an estimated one in four of the population is under-nourished.<sup>11</sup> Countries such as the Central African Republic, Chad and Burundi present a bleak picture, while in other parts of the world this is matched by the likes of Yemen, Haiti and Timor-Leste. The figures are stark but it is as if, for the rest of the world, they are hardly noticed.

The essential lesson of all this is that if we cannot successfully manage the situation now, how can we hope to do better with a greatly increased population in the future? Experts have their theories about the causes of mass hunger and what to do about it, but are these sufficiently convincing to give confidence that sustainable solutions are possible?

## 1.2 What the experts say

There is no shortage of ideas about the situation and what should be done to avert a future crisis. The problem is that the ideas are all different so one is left with the dilemma of deciding which, if any, one should trust.

At one extreme, there are those who believe that it is perfectly possible to match increasing numbers of people with a growing supply of food. Progress, they argue, can be made through a series of small steps, concentrating very largely on increasing productivity in the small farms which provide most food in poorer countries. This approach is favoured by certain aid agencies, working directly in the regions most affected, where they can see firsthand, practical opportunities for improvement. One example is the German-based charity, *Hilfe zur Selbsthilfe* (internationally known as 'Help'), with its banner confidently proclaiming *Food Security: There is enough for everyone*. Concentrating most of its work in Africa, the agency argues that the way to achieve its goals is through increasing local capacity. Comparisons are made with developed countries, where productivity is many times higher, and, to close the gap, the kind of change that is advocated is fairly straightforward:

*Firstly the necessary conditions must be created: irrigation options, seeds and fertiliser must be made available. Training on farming methods and economic fundamentals must be provided.*<sup>12</sup>

Other major charities tend to adopt a similar approach, believing in their own capacity to make a difference. Although with a worldwide remit, the International Federation of Red Cross and Red Crescent Societies adapts its solutions to meet local needs. Its Malawi branch, for instance, discovered that a traditional emphasis in the region on increasing maize production was not as beneficial as expected. It led to diets that were over-dependent on one crop, on lower selling prices because the market for maize was saturated, and limited opportunities to trade different products. In order to overcome these difficulties, an integrated food security programme was devised, which includes crop diversification, a variety of income-generation projects, animal husbandry, and the promotion of small-scale irrigation. All of these can lead not only to greater yields but also a choice of foods and a more balanced diet.<sup>13</sup>

Another body which directs its efforts to practical improvements, with an underlying belief that the gap between demand and supply can be closed, is a campaigning group, 'Foodtank'. Presenting itself as 'the think tank for food' it stresses the importance of an environmental approach called 'agroecology', with the claim that:

*... there are many organizations fighting hunger through regenerative agriculture, an approach to food and agriculture that regenerates topsoil and increases biodiversity, and agroecology, an approach that applies the principles of ecology to the design and management of food systems.*<sup>14</sup>

A second type of argument also reflects confidence that more food can be produced but in this case with the proviso that certain political preconditions are met. The international charity, Oxfam, for instance, asserts that nothing will change without first changing the system in which food is produced. It makes the bold claim that 'hunger is not inevitable... it is a question of justice', with gender equality emerging as an important aspect of this. Its proclamation goes on to say that more food is produced now than ever before, but it omits to add that there are also more people to consume it.

War on Want is another charity with a political mission, framing their argument in strident terms and dismissing 'food security' (seen as a system of food handouts) in favour of 'food sovereignty'. The latter sees the real enemy as corporate capitalism and wants to shift control away from international conglomerates and towards small-scale producers:

*Food sovereignty requires agrarian reform in favour of small producers and the landless; the reorganisation of global food trade to prioritise local markets and self-sufficiency; much greater controls over corporations in the global food chain; and the democratisation of international financial institutions. It is a vision of a world in which the decisions on how food is cultivated, processed and traded are reclaimed from capital and handed back to the people.<sup>15</sup>*

From a more theoretical perspective, the Indian economist, Amartya Sen, is less concerned with the overall supply of food than with ensuring that people have access to it. Having grown up in Calcutta he witnessed as a young boy the famine and suffering that spread across Bengal in 1943. But the problem, he observed, was not one of insufficient food, as those who could afford to buy it continued to be well fed throughout that episode. Poverty was the real issue and, with prices rising, many were unable to purchase enough food for their own survival. Many years later, as a respected scholar, he saw a comparable situation in famines in Ethiopia (1973) and Bangladesh (1974), where a shortage of food was not the main reason for country-wide deaths. It was little surprise that when, in 1981, Sen wrote a book on the subject he introduced it with the following words:

*Starvation is the characteristic of some people not having enough food to eat. It is not the characteristic of there being not enough food to eat.<sup>16</sup>*

Measures needed to be put in place to assist those who were most deprived and Sen believed this would be most likely to happen in democratic countries, where everyone's view counted. Although this was an idealistic view of democracy, it is fair to agree that there would be a greater chance of success than in systems dominated by political leaders with little or no accountability.

At the far end of the spectrum of ideas is an altogether less hopeful scenario, where demand will normally exceed supply. So long as there is sufficient supply, the population will be free to grow. The only way in which a balance will be restored is through the impact of corrective famines, which have the effect of reducing the level of population so that it matches the available supply of food. This 'natural' process is, of course, attributed to the views of the erstwhile clergyman (who later became the first professor of political economy), Thomas Malthus, at the end of the eighteenth century.<sup>17</sup> Malthus accepted that the food supply could be increased through farming improvements but never as fast as population growth, leading to periodic episodes of starvation of the sort he described.

There can be few theorists more seriously maligned than this English clergyman, and even serious academics seem unable to contain their vitriol at the very mention of his name. The guru of famine history, Alex de Waal, for instance, chooses to dismiss Malthus's beliefs as a 'zombie concept', for the reason that 'it is so comprehensively refuted, yet continues to haunt us.'<sup>18</sup> In their collective endeavour to discredit Malthus, perhaps his numerous critics miss the point that he was not advocating inhumanity by encouraging famine but was merely observing that population levels could not be ignored. He acknowledged that more food could be produced but, in his defence, he was surely right to question whether supply is as elastic as optimists would believe. There was a lot of sense in his basic thesis but his timing was wrong, with the advent of a revolution in food supply and distribution in the second half of the nineteenth century changing everything. Scientific advances in growing methods and, significantly, refrigeration and more reliable shipping to bring imports from the rest of the world, generated sufficient food for the millions of industrial workers who had left the land. It is prudent to question whether a new revolution can be relied on to adequately solve the world's perennial problem again.

In summary, the range of approaches extends from a body of opinion which argues that the world can always feed itself, to a middle view that it can do so provided there are political changes along the way, and at the far end a Malthusian view which questions whether more food can always be supplied. But are any of these theories sufficient to solve the problems of the present century?

## 2. The world on a tightrope

There is no surefire set of solutions. This is hardly surprising when there is so much disagreement amongst the 'experts'. As a result, none of the approaches offers a sufficiently firm foothold to assure the world's future. If there is hope of making progress, a number of challenging issues still need to be addressed: one is the impact of further wars and political manipulation; a second is the prospect of far-reaching social and cultural change that will

affect perceptions and, therefore, the demand for food; and the third is the very precariousness of the situation, offering little scope for errors of judgement.

### *2.1 War and peace*

To take the first of these issues, famine is commonly imagined as a result of natural disasters, such as drought or pestilence. While this a popular portrayal, it is acknowledged that war and political manipulation have always been key factors too. Indeed, with some of the natural threats now at least partially controlled, conflict in one form or another has become the leading cause. Starvation might be a consequence of warfare, with land becoming a battleground and supplies of fresh food cut off. Or, in many instances, it has been a weapon in itself, used as a deliberate source of suppression. Nor is this a feature of the distant past, with some of the worst events occurring in the past century. To take two, examples, the USSR in the 1930s and China in the 1950s demonstrate the dangers of political hubris and unquestioned control.

In the first instance, the Soviet leader, Joseph Stalin, was determined at all costs to replace peasant agriculture with collectivization. The former, he believed, being based on individual ownership, was antipathetic to the new Soviet ideal and resistance to change could not be tolerated. In 1929 he initiated his new policy, targeting for a start the highly productive wheat-lands of Ukraine. Long-established peasant families (the 'kulaks') were ousted from their holdings and forced to join collective enterprises. The policy had disastrous consequences: the peasants fought in vain to retain their way of life and, ominously, the new system yielded only a fraction of previous production figures. Within a few years, wheat was in short supply and, to add to the dilemma, Stalin redirected much of what was left to other parts of the Soviet Union. The result was that the Ukrainian peasantry was left to starve, with an estimated 3.9 million deaths.<sup>19</sup>

Another twentieth-century example, of even greater consequence, comes from China towards the end of the 1950s, again the result of a hardline ideology and political obstinacy. In this case, Mao Tse Tung's 'Great Leap Forward' led, over a period of four years, to the astonishing total of up to 30 million deaths. Not unlike the purpose of Stalin's collectivization in the neighbouring Soviet Union, Mao sought to transform China overnight from a backwards agrarian society into a modern, productive state guided in all respects by the Communist Party. Peasants, who formed the traditional nucleus of Chinese society, were forced to join communes, but it was soon evident that there was not the infrastructure to support such radical and immediate change. Even in the face of an obvious failure of policy, Mao persisted with his goals while at the same time blocking all media outlets, not only to the outside world but within China itself. Few people beyond the party leadership realized at the time the extent of the tragedy.<sup>20</sup>

Nor was that the end of it. Even within the past few years, the world has witnessed induced starvation in Syria, civil war in South Sudan, and (continuing) the proxy war in Yemen. Hunger is a perennial problem in Somalia but, because of ongoing conflicts, many aid agencies are reluctant to deploy their personnel in the country. Most recently, the coronavirus pandemic has fractured established supply lines across the world, leading to a sudden loss of income for farmers as well as serious shortages of food in various countries. As this latest event shows, future crises across the world are not simply unpredictable but, more to the point in threatening food security, largely uncontrollable.

### ***2.2 Seeing things differently***

A second issue that has to be taken into account is that there will be far-reaching social and cultural change in the years ahead, some of which will have a negative impact on the achievement of food security. It has already been suggested that the poorest people in the world will aspire to better diets, calling for more food and a greater variety of products, over and above what is required simply to sustain a growing population. Perhaps even more fundamental will be a continuing exodus from the land, as small farmers and their families give up their traditional lifestyle in favour of jobs in cities. This will not happen overnight but it is probable that a growing number of sons and daughters will not want to fill the gaps left by their parents. How many young people now say they would want to farm a smallholding in preference to what they see as more amenable jobs in areas like IT and marketing? In fact, the demise of small-scale farming and its probable replacement by large farms funded through corporate investment, may not appeal to bodies like War on Want (opposed to corporate farming), even though it is likely to lead to an increase in output from the land.

### ***2.3 Why spend one's life on a tightrope?***

A third concern is that living on the very margins of what the planet can provide is neither an easy nor sensible position to sustain. While it might *just* be possible to get everything to work, there would be little or no room for error. There are too many 'what if' scenarios to offer confidence that, say, ten billion people can be adequately fed.

What if, for instance, the predicted explosion of demand results in price rises that take the purchase of food beyond the reach of an increasing number of people? What if climate change, say, through increasing desertification and further rises in sea level, removes even more productive land from agricultural use? What if localized conflicts prevent the transport of food to regions where farmers are unable to produce enough themselves? What if natural catastrophes affect large swathes of farmland in areas most at risk?<sup>21</sup> What if public opinion in richer countries turns against the work of aid agencies and other forms of public subsidy for countries where the population continues to rise? What if the likes of the much-maligned

Thomas Malthus prove to be closer to the truth than liberal intellectuals such as Amartya Sen?

The point of these scenarios is to impress that there's very little room to manoeuvre. Given that more than ten per cent of the world's population of some seven billion goes hungry now, what will change to enable an additional fifty per cent to receive sufficient food by the end of the century? Is it little more than wishful thinking to suggest that it will somehow all work out? Of all the seventeen UN Sustainable Development Goals, it is the one which seeks to eradicate hunger by 2030 which seems the least likely to be reached. 'End hunger, achieve food security and improved nutrition, and promote sustainable agriculture' are the laudable goals set for the world.<sup>22</sup> But, at the same time, the UN does not underestimate just how much needs to be done:

*A profound change of the global food and agriculture system is needed if we are to nourish the 821 million people who are hungry today and the additional 2 billion people expected to be undernourished by 2050. Investments in agriculture are crucial to increasing the capacity for agricultural productivity and sustainable food production systems are necessary to help alleviate the perils of hunger.*<sup>23</sup>

Particularly in relation to the prospects of sub-Saharan Africa, it is hard to be overly optimistic about the outcomes.

### 3. So, will you eat rice tomorrow?

In spite of all the difficulties to be overcome, at a global level the answer to the question – *will you eat rice tomorrow?* – can surely be no more than 'possibly'. There can be no certainty that a nutritious diet will be available to everyone and that divisions will not widen between those who continue to have a choice and those who do not. Population growth will be a factor that cannot be ignored, and Africa will experience the greatest challenge if it is to adequately feed its population. The full effects of climate change have yet to be felt. These all represent immense obstacles in the way of a more confident response.

At the same time, all is not lost. The fact remains that there is sufficient scope for global improvements in food production and distribution to meet the needs of most people, albeit with commensurate costs. Undoubtedly, one factor is that more food can be produced – at sea as well as on land – with the application of new and improved technologies. This will be achieved, not through a multiplicity of small units but through large-scale, corporate investment. Fewer people will be engaged in its production but the process will be more efficient. The techniques of aquaculture will be improved so that most fish will be farmed

rather than caught in the open sea. Such changes will certainly not be to everyone's liking but may have to be accepted as a necessary price to pay if rising numbers of people are to be fed.

A second factor is that, although arable land will continue to be lost to urbanization, additional tracts will be brought into production. From an environmental standpoint, there is a real danger that large swathes of the Amazon forest will be given over to farming, just as the African savannah will come under the plough. The costs to the world's ecosystems of this kind of transfer are enormous (many will say, unacceptably so) but feeding the world's burgeoning population will hardly be cost-free. In what is still a small way, we are already seeing a major power like Brazil trading off rainforests for pastoral land.

Distribution methods will be re-designed to remove present blockages and delays in getting food to where it is most needed. Responsibility will be taken from myriad aid agencies and given to a limited number of dedicated global organizations. The richer countries will pay a levy to underwrite the new system. Of course, there will be political protests in the donor countries but, again, this will be one of the costs of feeding more than 10 billion people.

A more speculative but also more radical change would be a result of thinking very differently about food. Progressively, in the modern world food has become something of an art form as well as a science to provide the right quantity of calories. People (in richer countries at least) are also keen to consume only food that has been organically grown and not subjected to harmful chemicals. But what if all of this were to change, with food taking the form of, say, tablets or liquid substitutes containing a high level of nutritional value and calories to meet one's daily demands? From a contemporary perspective, this might seem a step too far but perhaps not so outlandish if measured against the goal of human survival. If that becomes the price for food security to enable, say, 10 billion people to live on this planet, it might yet emerge (for those who stand to gain most) as a price worth paying.

In other words, even with the example of these few solutions, it is probable that the world will be able to eat rice tomorrow. Whether it will agree to pay the various costs (cultural and ethical as well as economic), however, is more questionable. Lessons that can be taken from the current pandemic hardly provide answers but certainly increase the urgency of the questions. Globalization has shown itself to be more vulnerable than previously thought. Food security in the future may have to depend on a more nuanced approach, with local production playing a bigger role. This option will be pursued in a subsequent paper in this journal, related more specifically to the response of small island states.

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## Notes

<sup>1</sup> 'World population by year', Worldometers. <https://www.worldometers.info/world-population/world-population-by-year/>

<sup>2</sup> Tim Fox, 'Population growth: the defining challenge of the 21<sup>st</sup> century', *NATO Review*, February 2011. <https://www.nato.int/docu/review/articles/2011/02/14/population-growth-the-defining-challenge-of-the-21st-century/index.html>

<sup>3</sup> Joseph J. Bish, 'Population growth in Africa: grasping the scale of the challenge', *The Guardian*, 11 January 2016. <https://www.theguardian.com/global-development-professionals-network/2016/jan/11/population-growth-in-africa-grasping-the-scale-of-the-challenge>

<sup>4</sup> Shagun Kapil, 'Urbanisation to cause the loss of prime farmland: UNCCD', *Down To Earth*, 5 September 2019. <https://www.downtoearth.org.in/news/agriculture/urbanisation-to-cause-huge-loss-of-prime-farmland-uncd-66562>

<sup>5</sup> Oliver Millman, 'Earth has lost a third of arable land in past 40 years, scientists say', *The Guardian*, 2 December 2015. Article based on a report produced by the Grantham Centre for Sustainable Futures, University of Sheffield. <https://www.theguardian.com/environment/2015/dec/02/arable-land-soil-food-security-shortage>

<sup>6</sup> Examples follow (later in the paper) of human-induced famines in the former Soviet Union and China in the past century.

<sup>7</sup> Stephen Devereux, *Famine in the Twentieth Century*, IDS Working Paper 105, Institute of Development Studies, University of Sussex. <https://www.ids.ac.uk/files/dmfile/wp105.pdf>

<sup>8</sup> *Ibid.*

<sup>9</sup> This was the figure in 2016, estimated by the UN Food and Agriculture Organization.

<https://news.un.org/en/story/2019/07/1042411>

<sup>10</sup> *Ibid.*

<sup>11</sup> <http://www.foodaidfoundation.org/world-hunger-statistics.html>

<sup>12</sup> <https://www.help-ev.de/en/topic/food>

<sup>13</sup> 'A diversified approach to fighting food insecurity and rural poverty in Malawi', International Federation of Red Cross and Red Crescent Societies.

[https://www.preventionweb.net/files/globalplatform/entry\\_bg\\_paper~adiversifiedapproachtofightingfoodinsecurity.pdf](https://www.preventionweb.net/files/globalplatform/entry_bg_paper~adiversifiedapproachtofightingfoodinsecurity.pdf)

<sup>14</sup> '17 organizations fighting global hunger', *Foodtank*, September 2017.

[www.foodtank.com/news/2017/09/17-organizations-fighting-hunger/](http://www.foodtank.com/news/2017/09/17-organizations-fighting-hunger/)

<sup>15</sup> War on Want, *Food Sovereignty: Reclaiming the global food system*.

[https://waronwant.org/sites/default/files/Food%20sovereignty%20report.pdf?\\_ga=2.255252552.1134652775.1578391196-1667303507.1578391196](https://waronwant.org/sites/default/files/Food%20sovereignty%20report.pdf?_ga=2.255252552.1134652775.1578391196-1667303507.1578391196)

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<sup>16</sup> Amartya Sen (1981) *Poverty and Famines: An essay on entitlement and deprivation*. Oxford: Clarendon Press.

<sup>17</sup> Thomas Malthus, *An Essay on the Principle of Population As It Affects the Future Improvement of Society, with Remarks on the Speculations of Mr. Goodwin, M. Condorcet and Other Writers* (1st ed.). London: J. Johnson in St Paul's Church-yard. 1798. The first edition was published anonymously but the author was soon identified.

<sup>18</sup> de Waal, Alex (2018) *Mass Starvation: The history and future of famine*, Cambridge: Polity Press.

<sup>19</sup> *Ibid.*

<sup>20</sup> *Ibid.*

<sup>21</sup> Even at the time of writing this paper, reports were received of the devastating effects of a swarm of locusts destroying crops in Somalia. It was said to be the worst incident of its kind for a quarter of a century and subsequently spread to neighbouring countries in the Horn of Africa, a region already vulnerable to periodic famines. See 'Somalia hit by worst locust invasion in 25 Years', VOA News, 18 December 2019.

<sup>22</sup> UN Sustainable Development Goal 2 *Zero Hunger*. 'End hunger, achieve food security and improved nutrition and promote sustainable agriculture'.

<sup>23</sup> *Ibid.*