

Monthly Global Security Briefing – July 2012

FOOD SECURITY AND CLIMATE CHANGE

Paul Rogers

Background

Rising food prices point to a potential crisis later this year as poor communities across the world find themselves unable to afford basic foodstuffs. The crisis now unfolding has some similarities to the major problems that occurred in 2008 that led to food riots in many countries. It also has echoes of the much more severe World Food Crisis in 1973/74. This time, though, there is mounting evidence that climate change is playing a role.

A Crisis in the Making

The corn (maize) belt of the United States is experiencing one of the most severe droughts in decades. While not yet as serious as the drought that led to the “dust bowl” era in the 1930s, it now affects 60% of the country and 78% of the corn-growing regions (*US Drought Monitor*, 24 July). According to the *National Drought Summary*, “in the 18 primary corn-growing states, 30% of the crop is in a poor or very poor condition”. This is not just a result of a hot dry summer this year, but started back in 2011 with very hot and dry conditions towards the end of that growing season. These were then followed by a relatively dry winter, followed by the exceptional temperatures and lack of rain experienced so far this year.

The problems in the United States are serious mainly because it is such a large grain exporter. They are paralleled by poor harvests across much of South America during the 2011-12 growing season. Furthermore, the Indian monsoons have come late this year and have been relatively weak in the early months. Unless there are rapid changes, it is highly likely that Indian grain production will be well below last year’s figures. The global position is further complicated by extraordinarily heavy rainfall in a number of countries, including China and Japan, often leading to the flooding of croplands.

At the time of writing (late July), we are unlikely to see disastrous famines affecting large parts of the world of the kind seen in the 1980's, sufficient to lead directly to widespread starvation. While there are 35 countries currently in need of external food assistance, including Afghanistan, North Korea, Haiti, Iraq and 28 countries in Africa, according to the latest Crop Prospects and Food Situation report by the UN's Food and Agriculture Organisation (FAO), the key issue is access to food. What is far more likely is a period of high grain prices, exacerbated by speculative commodity markets, resulting in limited food intake among the world’s poorest communities, which in turn leads to increased malnutrition with all the consequences for ill-health and suffering that this entails.

Past Experience

Issues of world food security form part of Oxford Research Group’s longstanding work on sustainable security and were covered in two earlier briefings in this series (*Food, Poverty and Security*, May 2008 and *Awakening and Famine in the Global Context*, July 2011). This wider work focuses on the inter-relationship between four drivers of potential insecurity (see May 2008 briefing):

- the widening socio-economic divide leading to the relative marginalisation of the majority of the world's people, even in the context of continuing economic growth,
- the impact of climate change, especially in terms of the impact on food production and supply in tropical and sub-tropical regions,
- competition over resources, especially energy resources and water, and
- processes of militarisation, especially the tendency to use military force to maintain the *status quo* rather than address underlying problems.

The July 2011 briefing was principally concerned with severe problems affecting the Horn of Africa, though these were seen as part of a long-term issue of food insecurity. The earlier briefing in May 2008 was published in the context of a serious world-wide shortage of food grains that led to riots in more than twenty countries and drew comparisons with the most severe world food crisis of the past half century, in 1973-4. These comparisons are highly relevant to the current predicament and are therefore worth summarising.

After more than a decade from 1960 onwards, during which food production prospects seemed favourable, by early 1974, the situation had changed drastically. As many as 40 million people were threatened with starvation in more than twenty countries across sub-Saharan Africa and southern Asia. World grain reserves plummeted, prices were soaring and the food shortages were exacerbated by increases in fertiliser prices. The causes were complex, with a number of factors acting synergistically to produce a crisis which came as a surprise to most analysts.

There were two long-term issues. One was the relative neglect of rural development, especially subsistence agriculture in the previous two decades as the emphasis in many newly independent countries was on the development of urban and national infrastructure, even if the majority of populations at that time were rural rather than urban. The second long-term factor was the continuing rise in population requiring a year-on-year increase in food production just to keep pace with demand. It is true that the 1960s had marked the early years of the development of substantial crop breeding programmes known as the "Green Revolution", and the optimism occasioned by these successes was a further reason why the problems in 1973-4 were so unexpected.

The long-term factors were compounded by five short-term issues:

- increased consumption of meat, especially in the Euro-Atlantic community and East Asia, leading to a greater demand for animal-feed grains at the expense of food grains grown for human consumption,
- severe weather conditions, especially the Sahel drought affecting northern Africa,
- a shortage of compound fertilisers leading to unusually high prices,
- decreased grain yields for Green Revolution varieties as these required high fertiliser inputs beyond the reach of poorer farmers, and

- a 400+ percent increase in oil prices that severely limited the ability of many poorer countries to fund food imports.

In the short term, the worst of the crisis was averted in the wake of the World Food Congress held in Rome in November 1974, partly by emergency financial support to enable poorer states to import grain. Much of this support came from the newly enriched oil producing states of the Middle East, but the UK, Canada, the Netherlands and Scandinavian countries were also significant. Longer term responses were far more limited. The World Food Congress had debated establishing a world food forecasting system, coupled with an emergency grain bank to enable a multilateral response to future national or regional food shortfalls, but little progress was made. A further proposal was a three-fold increase in research and development of tropical agriculture, combined with a multi-lateral World Food Council. The latter was established, but the subsequent financial support was far lower than required, even though it would have amounted to less than two percent of world military expenditure.

Perhaps the most important aspect of the 1973-4 crisis is that there was never a time, even at the peak of the crisis, when there was not enough food to satisfy global human needs. During the early 1970s, world grain reserves were halved, but there was never even a remote risk of an overall food deficit. The problem was essentially one of poverty - economically weak countries were temporarily unable to import food grain because of increased costs of imported energy resources, prices spiralled, and poorer communities could not afford to buy food.

What Has Changed?

The striking thing about the current situation is how little has changed in terms of some of the underlying factors. While much work has been done to promote agricultural development, and there have been many successes in breeding improved crop varieties, the increases in food production have barely kept pace with population growth, and there has been a persistent underfunding of tropical agricultural development. One consequence is that the proportion of the world's population that is malnourished is little different to the early 1970s and in terms of actual numbers is much higher. As in the early 1970s, there is always enough food to go round, but with too many people in abject poverty who cannot afford it. Put bluntly, this is in line with the argument that the global economic system in recent decades has been successful in promoting patchy economic growth but has been singularly deficient in promoting equity.

The situation is compounded by other issues with striking similarities to forty years ago. One is that economic growth that consistently favours the richest fifth of the world's population, around 1.5 billion people, means that those people tend towards more expensive foods, especially meat. Given the amount of vegetable protein needed to produce animal protein (typically a 10:1 ratio), this adds to the pressure on land. We are also in an era of high energy prices, and while these are not as severe as 1973-4, they do have an impact, not least in the production of nitrogen-based fertilisers. Moreover, they encourage the production of bio-fuels, which in turn put pressure on land otherwise suited for food crops.

What is different is that climate change is now starting to have an impact in a manner which is different to the sporadic if dangerous weather events of the early 1970s. It operates in two ways. One is that there is ample evidence that climate change over the next two or three decades will be asymmetric in its impact. The indications are that the increase in temperatures over the oceans, with the exception of the Arctic, will be relatively small, whereas the increases over the land masses will be much more substantial. The tropical and sub-tropical land

masses, in particular, will experience substantial increases in temperature, as well as decreases in rainfall. These are likely to have a grievous impact on the ecological carrying capacity of many of the world's most important croplands, leading to an inability to support human populations.

The second aspect is that there are worrying indications that climate change is actually accelerating. The loss of Arctic sea in recent summers has exceeded forecasts using climate modelling and some recent events have been startling in their intensity, including the extent of the thawing of surface layers of the Greenland ice cap during the early part of July.

The combination of acceleration and asymmetry suggests that there will be profound changes in food security in the coming decades, however much is done to improve agricultural adaptation to the new conditions. With the failure of the recent Rio environment conference to deliver promises of rapid decreases in carbon emissions, the prospects look bleak. This, though, is where recent food security issues are so important.

The Canary in the Coal Mine

While the evidence is not conclusive, there are strong indications that climate change may provide an early warning of what is to come, yet may be short of an utter catastrophe. This is like the canary in the coal mine, warning of problems ahead. In the case of climate change, the "canary" is the likelihood that severe weather events may be apparent long before the full impact of climate change is upon us. Sometimes referred to as "global weirding", this does not necessarily mean increasingly frequent severe weather events, rather that the events themselves - whether floods, droughts, cyclones or other phenomena - become more intense.

If this is the case, then the present experience of the effect of multiple severe weather episodes on food security is a marker for the next few years. It means that climate change is already having a serious impact on human well-being, principally through food shortages and price inflation, and many people will suffer as a result. At the same time, it is about an obvious indication of future trends, especially when taken alongside the other more direct impacts of global weirding on communities, especially floods.

It is just possible that the many voices now being raised to urge radical action on carbon emissions might get a more sympathetic hearing from the wider community. It is, though, a reflection of the current political stagnation in matters concerning climate change that it might take even more serious food scarcities of the kind we are now starting to witness before really serious multilateral action is taken to avoid catastrophic climate change.

Paul Rogers is Global Security Consultant to Oxford Research Group (ORG) and Professor of Peace Studies at the University of Bradford. His international security monthly briefings are available from the ORG website at www.oxfordresearchgroup.org.uk, where visitors can sign-up to receive them via email each month. These briefings are circulated free of charge for non-profit use, but please consider making a donation to ORG, if you are able to do so.

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