

2B: NO FREE LUNCH: THE GLOBAL DISTRIBUTION OF FOOD AND MICRONUTRIENT ENTITLEMENT

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Global resource inequities

The Food and Agricultural Organisation (FAO) of the United Nations estimates that the current number of human beings who suffer from energy and/or protein malnutrition (“undernourishment”) is about 790 million; approximately 13% of the global population. Encouragingly, the FAO estimates that this number has fallen, both absolutely and relatively. Tim Dyson (1999a) argues that the FAO estimate is excessive, because of a conflict of interest - that is, the chief bureaucracy concerned with world hunger might lose status and funding if its estimates are conservative. However, he still concluded that “several hundred million” people do not have enough food to eat.

In addition, many hundreds of millions of people suffer from micronutrient deficiencies, particularly involving iron and iodine. Darnton-Hill (1999) estimates that over half of all women living in low-income countries suffer from a degree of anaemia. In many developing countries a low dietary intake of easily absorbable forms of iron is compounded by parasitic diseases such as malaria and hookworm.

Macro- and micro-nutrient deficiencies help to entrap populations in poverty, by reducing work, cognitive and immunological capacity. Children born in iodine deficient regions are estimated to lose an average of 10 IQ points (Darnton-Hill, 1999). Iron deficiency – even without frank anaemia - is also increasingly recognised as a factor that limits intellectual potential (Brown, 1996). In part this is because of simple tiredness, which reduces the interaction of malnourished individuals with the wider society, and thwarts the encouragement of the keenest teacher. However, nutrient deficiencies may also reduce neurocognition during brain development, in some cases with a high degree of irreversibility (see also paper 2c)..

Deficiencies of Vitamin A, zinc and folate are also widespread, and their importance is becoming increasingly appreciated, as the subtle developmental, neurological and immunological effects of sub-clinical micronutrient deficiency are slowly unravelled. Zinc and thiamine deficiency may, for example, depress appetite and contribute to anorexia (Wahlqvist and Wattanapenpaiboon, 2001).

Most people with macronutrient deficiency probably also suffer micronutrient deficiency. In any case, people who lack adequate calories are likely to suffer chronic tiredness, and, especially if experienced in childhood, this is likely to reduce their intellectual development, already handicapped by an inevitable association with poverty.

Food entitlement

The causes of hunger and micronutrient deficiency are contentious, but one cause can clearly be eliminated. The world has no absolute shortage of food. Despite concerns caused by a fall in per capita grain production during the 1980s (see figure 1), sufficient grain and complementary legumes are grown to provide everybody with sufficient calories and adequate protein) (Dyson 1999b). Nor is there any global shortage of iodine, iron, Vitamin A or other micronutrients.

The root cause of undernutrition is one of distribution. Although it is as essential for life as air, nutritious food needs to be purchased, or obtained by growing, gathering, hunting or fishing. In turn, these activities require resources, such as money, or access to land, water, seeds, tools, fertiliser, transport systems and functioning ecosystems. In some cases, such as populations reliant upon crops grown in iodine-poor soils, nutrients must be imported to eliminate under-nutrition (see paper by Basil Hetzel, 2C). In other cases, such as during the 19th century Irish famine, hunger may be caused by inadequate purchasing power of locally grown food (Butler, 2000a).

Advocates of market economies argue that free markets are the most efficient means of distributing limited resources, but they rarely seem to consider the effect of these policies upon populations with the least ability to compete successfully. The Nobel laureate in economics, Amartya Sen, introduced the concept of “entitlement” to explain how hunger, and even frank starvation, could co-exist with warehouses bursting with grain. He showed that during the Bengali famine of 1941-3 far more deaths occurred during 1943, even though the harvest was higher that year. An important cause was that lower wages were paid to labourers, reducing their purchasing power of existing food (Sen, 1993).

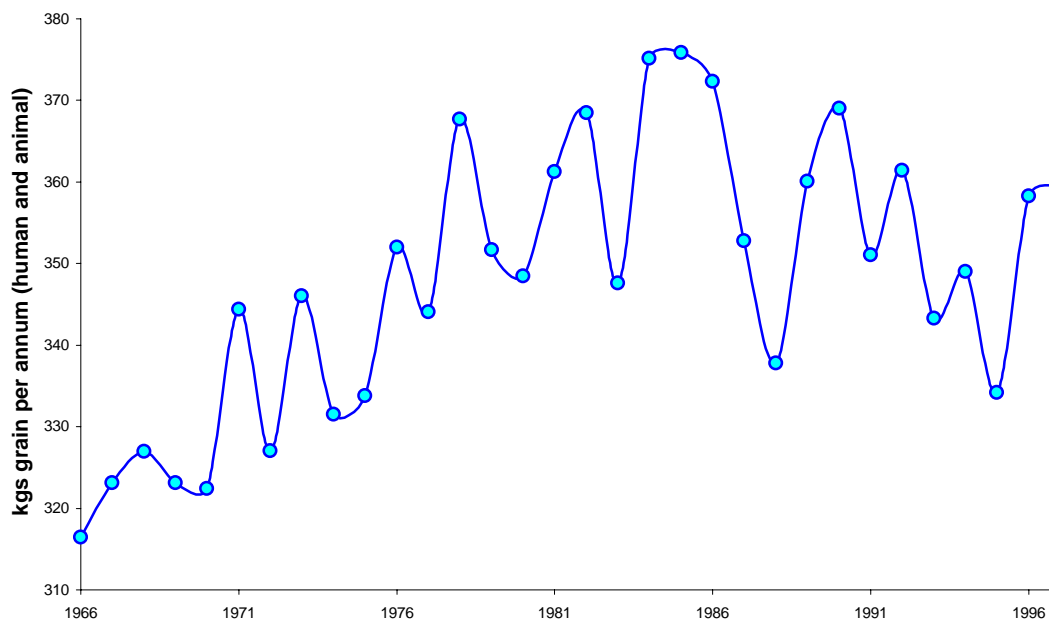


Figure 1. World grain consumption 1966-1997

Some authors have expressed concern that the decline in grain consumption evident since the mid-1980s indicates a world in which population is growing dangerously faster than grain production. A more likely, and reassuring, interpretation is that the peak in the mid-1980s was an aberration, caused by factors including government subsidies that caused excessive grain planting, especially in Europe. About 40% of all grain is fed to livestock. Raw data: FAO and UN Population Division.

The worst famine in the last century, in China in the early 1960s, was clearly mainly caused by human factors, though contributed to by drought (Smil, 1999). There the problem may be analysed as a lack of political entitlement by individual Chinese, unable to influence the wider policies that exacerbated the famine. The current North Korean famine has some similarities. Dyson (1999a) has criticised entitlement as “obvious” but Sen’s

work is important, making it harder for those in power to attribute hunger solely to natural forces.

Food production is of course vulnerable to climatic variation, for example from the El Niño Southern Oscillation. Prudent economies cope with lean years by using either saved or borrowed resources; in other words “entitlement”. But just as poor individuals are frequently denied credit – or pay a higher interest premium if they can get a loan – hungry and impoverished populations find it difficult to borrow and then keep the resources needed to permanently escape hunger.

Food security is also placed at risk by war. Populations at the greatest risk of hunger – for example the largely Christian population living in Southern Sudan – frequently lack sufficient domestic entitlement to access needed resources, even if their governments are able to obtain concessionary loans from bodies such as the World Bank.

Hunger and the global economy

The number of micro- and macro-nutrient deficient people currently alive probably exceeds the total global human population 100 years ago (approximately 1.6 billion). At the same time, obesity is becoming increasingly prevalent, not only in high-income countries, but also among the emerging middle classes in the South. Gardner and Halweil (2001) claim that the number of overfed and obese people now exceeds 1 billion, and that over 400,000 liposuction procedures were performed in 1998 in the USA alone!

In 1974, at the Rome food conference, Henry Kissinger, then US Secretary of State, proclaimed “a bold objective that within a decade no child will go to bed hungry, that no family will fear for its next day's bread, and that no human being's future and capacities will be stunted by malnutrition” (Njoku, 1986). Two decades later, in 1996, a more conservative goal was adopted at the World Food Summit, where the target set was to reduce the number of undernourished people by half, to 400 million, by 2015. In November, 2001, world leaders attended the “World Food Summit: five years later”, with the warning from FAO that greater political commitment will be needed if the target set in 1996 is to be met (FAO, 2001).

In a globalised market economy, how can people who are not only hungry, but disproportionately illiterate, landless, voiceless and –possibly– cognitively impaired generate the political commitment to ensure these promises are kept? How likely are the promises made by leaders of wealthy countries to be recalled by their own populations, saturated with media images of food, diet clubs, and exercise machines?

On the positive side, the FAO estimates that the absolute number of undernourished people has decreased by about 40 million since 1992. Freer trade, theoretically, can benefit agricultural producers in the South. But it is difficult to disentangle this improvement from other causes, such as improved literacy, the diffusion of technologies, and lag effects from more interventionist practices towards development in the Third World made particularly in the early post WWII decades. The benefits of “free trade” are also rarely realised in practice between partners with unequal bargaining power.

Even if the extent of absolute poverty and frank hunger in the South has fallen, the rich world should not rush to congratulate itself. Inequality between nutrient-replete and nutrient-scarce populations has increased, in a world in which the wealthy increasingly embrace neo-liberal economic policies. The excessive calories consumed by wealthy

populations suggest that global hunger could be reduced far more if the political will existed.

Evidence of the shift to neoliberal economic policies in Australia is provided by the increasingly harsh response to refugee seekers, the “mutual obligations” imposed upon welfare recipients, and the growth of homelessness. The justification for deregulation and tax cuts as a mechanism to “trickle down” opportunity and wealth to the poor has been forgotten. It is unsurprising that the concern of such populations for those who are poor in other countries would fall; this is reflected by the foreign aid budget, continuously pared in both Australia and many other wealthy countries, for several decades, with little debate (see figure 2).

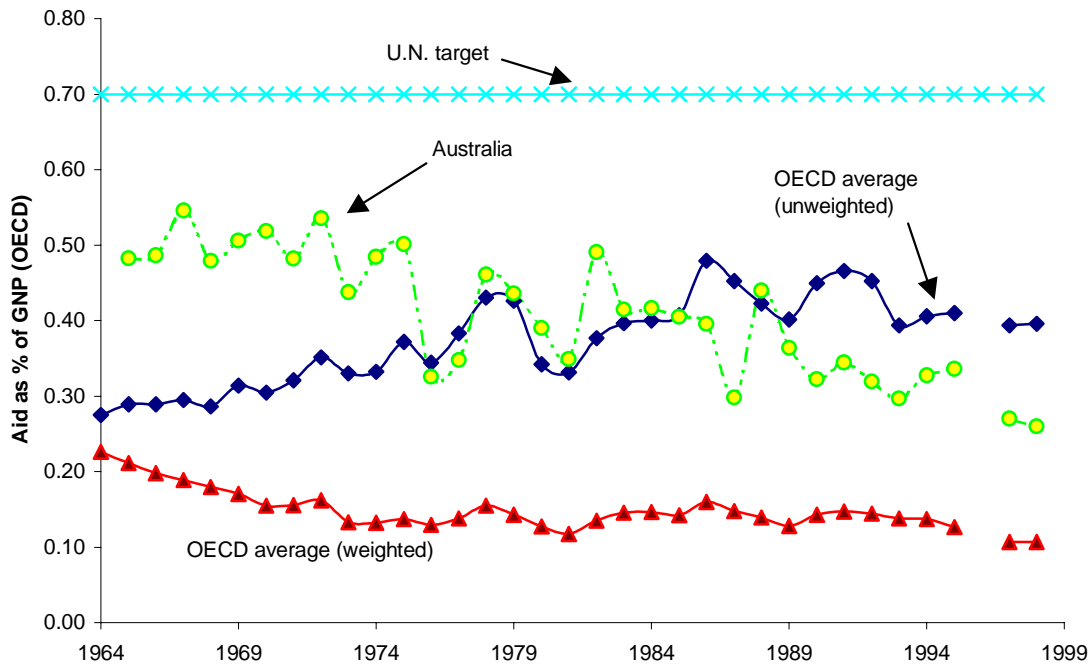


Figure 2. Overseas aid.

Aid, as a population-weighted percentage of the GNP of 21 wealthy countries, all members of the OECD, has never approached the UN target 0.7%, and has gradually declined. The unweighted OECD average reflects substantial increases in aid by several small countries, especially in Scandinavia. Raw data: OECD, World Bank

Golden rice and transgenic sweet potatoes

The United Nations Development Programme has recently attracted criticism from environmental and development groups for its advocacy of genetically modified organisms (GMOs) in the South (Vidal and Aglionby, 2001). Undoubtedly, the potential of GMOs as a way to abolish undernutrition has been exaggerated. For example, claims that “golden rice” (rice modified to produce beta-carotene, thus turning it yellow) could play an important role in eliminating xerophthalmia (blindness caused by Vitamin A deficiency) have been overstated. An adult relying solely upon golden rice for their average daily requirement of Vitamin A would need to eat 9 kgs of cooked rice (about 12 times the average consumption!); and a pregnant woman would need to eat twice as much (Brown, 2001). Furthermore, blindness can occur even among children who consume sufficient

Vitamin A, because absorption depends upon sufficient co-absorption of fat or oil. Although golden rice contains some oil, researchers say that it is unclear if the amount is sufficient to enable adequate absorption of the vitamin (Schnapp and Schiermeier, 2001).

Advocates of GMOs claim that they may greatly assist food security among poor populations. Examples include virus-resistant sweet potatoes (Mungai, 2000), reduced iron-absorption limiting phytates in grains (Holmes, 1999), the insertion of genes that promote drought resistance (Somerville and Briscoe, 2001) and BT modified crops that require far fewer applications of expensive pesticides.

However, I have argued that hunger and other forms of undernutrition are not primarily caused by an absolute shortage of nutrients, but by their maldistribution. The key challenge to eradicate hunger is, therefore, to generate a fairer distribution of entitlement. Reliance on any single strategy, including GMOs, is unlikely to be enough. Sustainable food entitlement depends on many other forms of entitlement, including to science, efficient economic mechanisms, adequate wages, and improved government and business accountability, irrespective of income and nutritional status. Existing technologies, such as fertilisers and better roads, can also help to make domestically grown food competitive with imports and thus reward farmers and promote improved food security (Conway and Sechler, 2000). An unhealthy emphasis on only one of these elements, ever freer markets, is unlikely to do more than, at best, improve global nutrition at its recent unacceptable rate.

Climate change and food security

A recent FAO report argues that GMOs will not be needed to produce sufficient food for the global population predicted to be alive in 2030 (Food and Agriculture Organisation, 2000). It is a concern that this report does not appear to consider the potential impact of climate change upon future food security. The International Institute of Applied Systems Analysis has recently concluded that even with climate change the world should be able to produce sufficient food, at least for most of this century (Fischer *et al.*, 2001) (see figure 3). However, climate change is likely to aggravate inequality in regional food production, thus creating an enormous challenge to distribute fairly the food that is grown, in a world where the distribution of tradable currency is grossly unequal.

Conclusion

Evolution is often characterised as a struggle for existence, where only the fittest survive. Yet co-operation is also vital, both within and even between many species (Dugatkin, 1999). Greater international co-operation is needed for the survival of our civilisation. This seemed to be better recognised in the early post WW period, in a world chastened by the awful events of the early 20th century (Butler, 2000b).

Policies which sustainably improve nutrition for the poor cannot be separated from policies which reduce inequality. Economic growth, as conventionally measured, has been successful at increasing the total production of goods and services, but not at generating a more even distribution of these resources. Both the absolute and relative number of undernourished people have decreased in recent decades, but undernutrition remains a major problem, unlikely to be solved by continuing existing global economic policies.

Wealthy populations can either continue their retreat to a life of passive, well-fed virtual reality, or leave their couch and exercise a moral and practical leadership that befits their privileged nutrient status. The latter approach will reduce obesity, diabetes, liposuction

demand, and embarrassment by wealthy leaders at world food summits. It is also likely to lead to a more sustainable civilisation.

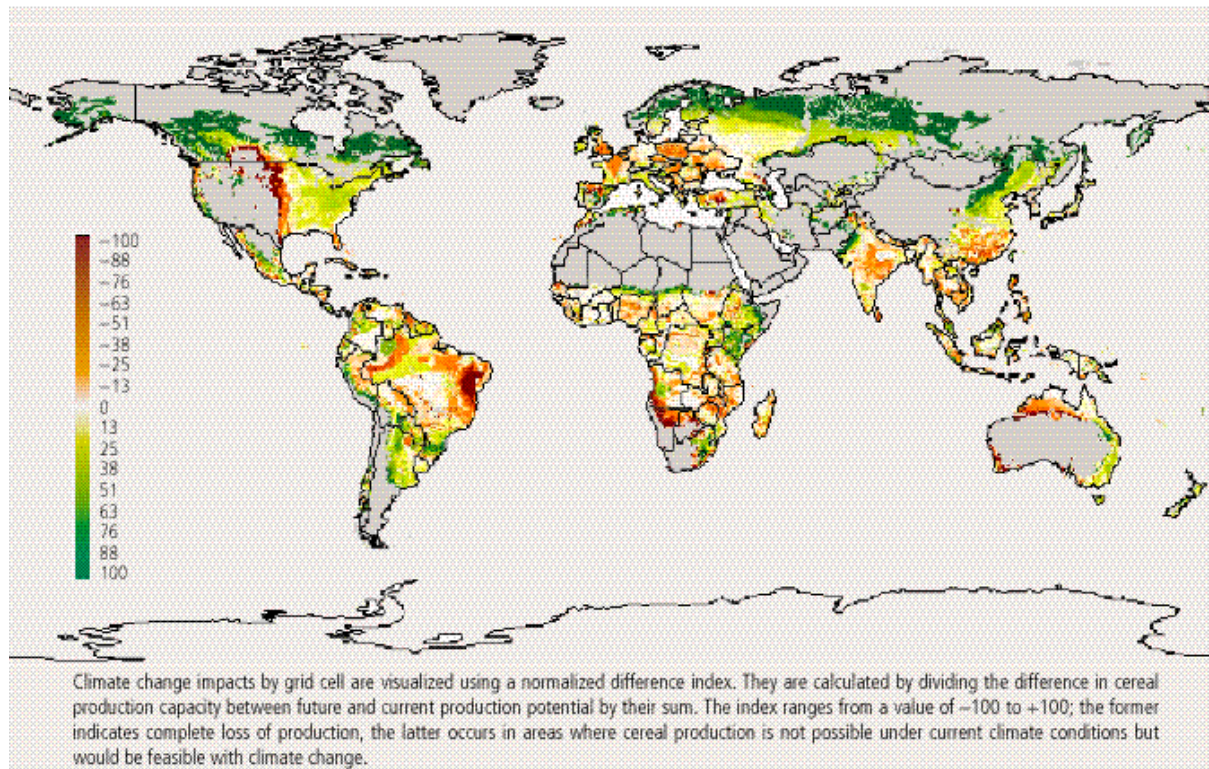


Figure 3. Impacts of climate change on multiple cropping production potential of rain-fed cereals. According to this scenario, by 2080, the potential for rain-fed cereal production in large parts of the Indian sub-continent, south-east Asia and sub-Saharan Africa is lower than today. Data modelled using Max Planck Institute of Meteorology/ECHAM4 2080. Figure reproduced with permission (currently requested) from International Institute A.S.A. (Fischer et al, 2001).

Discussion notes

- Maldistribution is not the only cause of undernutrition. Part of the root cause is our farming systems that produce mass quantities of grain that needs to be transported, instead of producing foods locally. This latter can provide a greater variety of nutrients without the reliance of outside input and fuels for long-distance transport. The example of Malawi indicates that food entitlements that are based on maize create a dependency on hand-outs. There is a need for communities to share knowledge and skills to develop their own sustainable and diverse crops.
- Many low-income countries use the best land to produce cash crops for export (e.g. cattle, tropical fruits, flowers and grain), which results in comparatively cheap goods for the importer and benefits to exporters which mainly flow to a comparatively powerful group, especially those who own the land. While this has some benefits to the exporting countries as a whole, it tends to increase inequalities within poor countries.
- The other contributor to undernutrition is population growth. Half a century ago, high birth rates were generally considered to be beneficial, through promoting economic and agricultural development and as an insurance against the death of children. Now that population pressures are causing resource depletion, lower birth rates are thought to be more desirable and can help to reduce global inequality. On the other hand, in many

poorer parts of the world, for example Afghanistan, women are denied education and access to family planning, so that birth rates, death rates and soil depletion remain high and are unsustainable.

- The rich 20% of the world's population consume 80% of its resources, Thirty years ago, rich nations pledged to allocate 0.7% of their GDP to helping the poor nations, a commitment which has been steadily eroded by OECD nations, with the exception of Scandinavian countries. Moreover, much of Third World GDP is allocated to paying off the interest on World Bank loans, for which food may be exported at low cost for the importers.
- Industrialised countries are presently reluctant to embark on debt relief for poor nations, which is a short sighted policy in terms of global stability. Although billions of humans both in the North and the South have benefited by the application of science and technology during the past century, inequalities remain and appear to be increasing. Inequalities are likely to be increased further by global warming and by political unrest and terrorism, which are fuelled by perceptions of oppression and dispossession. The global economy might be regarded as one in which the powerful parasitise the weak, as they always have - at least since the birth of agriculture. The struggle for democracy might be envisioned as trying to replace frank parasitism with a measure of justice, in which the benefits of scientific knowledge and technology are distributed more widely and equitably.
- Although there remains little current political commitment to reducing inequalities, a move in this direction might be made through (a) a lot more grants (with strings, but not structural adjustment programs); (b) a lot more micro-credit at low interest rates; (c) more morality and frugality in the west and the elite in the south; (d) replacing high living and exploitation with more commitment to ethics and intellectual honesty, not least by our political leaders and their economic advisors.

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