



Food

Recent UN statistics confirm that the number of undernourished people in the world has been decreasing, but not fast enough to achieve the UN's Millennium Development Goal (MDG 1c) target to halve the proportion of people who suffer from hunger between 1990 and 2015.¹

The UN Food and Agriculture Organization's estimates put the number of undernourished people worldwide at 780 million in 2015, 211 million fewer than during the 1990–92 base period. This represents a reduction in the proportion of people undernourished during the same period from 23.3 per cent to 12.9 per cent.²

More than half the countries monitored achieved the MDG 1c target. Most of these enjoyed stable political conditions and economic growth.

Many of the countries that failed to reach the international hunger targets, underwent natural and human-induced disasters or political instability which resulted in increased vulnerability and food insecurity for large parts of the population.³

In the short term, the problem with food availability may be primarily a matter of distribution and ability to pay. However, a number of essentially limited resources are vital to meet human food requirements, including suitable land area (or area of oceans/lakes), topsoil, potable water and sunlight, as well as a suitable climate for crops to prosper. Thus it is clear that if populations continue to increase, absolute scarcity of food will (again) become a major global issue.

In the mid 20th century, there was widespread concern about finding enough food to supply the growing world population. What came to be known subsequently as the "Green Revolution" dramatically increased the amount of food being produced; this was particularly successful in India and other Asian countries.

The Green Revolution involved a combination of factors, from development and distribution of higher-yielding varieties of cereals to enhanced irrigation infrastructure. Widespread use of synthetic fertilizers, pesticides and herbicides also made a major contribution. The developing world's production of cereal crops, such as rice, more than doubled between 1961 and 1985.⁴

Although agricultural production has increased, this has required a proportionally larger increase in energy input. Green Revolution agricultural practices require substantial quantities of agrochemicals. In particular, synthetic chemical fertilizer production is very energy-intensive, typically being dependent on fossil fuels. Not only do the related greenhouse gas emissions contribute to climate change, but this dependence on fossil fuels also makes staple food production vulnerable to changes in the price or availability of oil and gas. There is a risk that the agricultural sector's fossil-fuel dependence will eventually result in a dramatic decline in food production, and this could be disastrous in regions where population size has grown to the limit sustainable by the enhanced agricultural output.

Industrialized agriculture, with its high-yield varieties, is often extremely water-intensive — yet another instance of a trade-off between one scarce resource and another (in this case, between food and water). The sustainability of intensive agriculture is often further compromised because it tends to pollute water courses and deplete the quality of soil.

There are many arguments for and against the long-term consequences of intensive agricultural developments, and the jury is out as to how sustainable the Green Revolution will ultimately prove to have been. Undoubtedly, further significant yield-increases of some crops will occur, but it is unclear to what extent this will be possible while simultaneously reducing dependence on fossil fuels, and without additional risk to biodiversity and local ecosystems.

Although average food production may be sufficient to support larger populations, any population that depends on the maximum amount of food it can grow in an average year is at risk of a severe shortfall in the event of a poor harvest in any one year, be this the result of random weather patterns, longer-term climate change, pests or disease.



Many important food crops grow well only under specific climatic conditions. If, as seems most probable, widespread climate change takes place during the 21st century, the ability to grow food in different regions may change dramatically. If the change is slow, it may be possible to cultivate alternative varieties more suited to the new conditions, and it is also possible that some areas not currently agriculturally productive may become available.

On the other hand, if climate change takes place too rapidly, it will not be possible to bring new areas into cultivation and new crop types into production at a sufficient rate to compensate for the resultant impact.

References

Internet references accessed 06/04/2016

¹ Report: The State of Food Insecurity in the World 2015. UN Food and Agriculture Organisation. Key messages: <http://www.fao.org/hunger/key-messages/en/>

² Ibid.

³ Ibid.

⁴ Conway, Gordon (1998). The doubly green revolution: food for all in the twenty-first century. Ithaca, New York: Comstock Pub.