

# How to avoid a global food crisis

May 16 2012, By Chris Barrett

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We need a multi-pronged strategy to ensure our grandchildren do not confront chronic global food crises, writes Professor Chris Barrett.

The world faces a major challenge in the coming decades as global food demand is poised for unprecedented growth.

The [global population](#) will increase from 7 to 9 billion people by 2050 and may exceed 10 billion by the century's end. Most of this growth will occur in developing countries, especially in urban areas, which will be home to 70 percent of the world's population.

In addition, the economies of today's low- and middle-income countries are expected to grow by more than 5 percent annually - more than three times faster than today's high-income countries.

This combination of income growth and urbanization will drive demand for diets that are more varied and more energy intensive to produce. Urban, high-income populations want a greater variety of vegetables, fruits, and especially more processed foods and animal products.

Human appetites for basic crops such as grains and pulses may decrease, but demand to grow these crops for animal [feedstock](#) will increase many more times. All of these developments will magnify the pressure on the crop land, fossil fuel energy, and water necessary to produce feed and [food](#).

Australian agriculture can and will play a significant role, both as a surplus producer and as a source of innovation and investible capital. But despite Prime Minister Julia Gillard's recent call for Australia to become the food bowl of Asia, the predominantly local nature of food supply chains means the answer is not as simple as simply shipping food from major food surplus economies, such as Australia and the United States, to the deficit regions of Africa and Asia.

We need a multi-pronged strategy to ensure our grandchildren's generations do not confront chronic global [food crises](#) of the sort that our grandparents' generations so skilfully averted on our behalf.

First, governments and the private sector need to substantially expand investment in [agricultural productivity](#), with an eye toward producing the full range of nutrients needed for healthy living - not just maximising yields and calorie supplies. Agricultural research investments pay off handsomely, averaging rates of return of 30 to 75 percent annually.

Because food is perishable and expensive to transport, 85 to 90 percent of food is consumed within the country in which it is produced. So we must emphasise productivity growth in Africa and Asia, where most demand growth will happen, and where agricultural yields are only one-

third those of the highest-income nations. (An important aside worth noting is that growth in agricultural sectors is two to three times as effective at reducing poverty as growth in non-agricultural sectors).

Second, we must accelerate efforts to adapt agriculture to climate change, which will hit hardest in precisely those regions where food demand growth is expected to be greatest. Land use change due to agriculture currently accounts for one third of human-caused CO<sub>2</sub> emissions.

If food demand outstrips supply, higher food price rises will only add to the pressure to convert carbon-rich forests, wetlands and grasslands to crop and livestock production - accelerating greenhouse gas emissions, aggravating climate change, and putting further pressure on agriculture.

Third, we must reduce food loss and waste. As much as half of global food production is lost between the farmer's field and the dinner plate. Consumer food waste in developed countries equals the entire food production of sub-Saharan Africa.

Reducing food waste, while simultaneously ending policies that divert agricultural output into biofuels production, will help alleviate the pressure to bring more land and water into food and feed production.

In the developing world, by contrast, post-harvest losses occur primarily on farm as well as in processing, storage, and transport. Simple technological advances in physical transport and communications, as well as institutional improvements in grades and standards, contracting arrangements and reduced administrative barriers to intra-regional and international trade, can sharply reduce spoilage rates.

Fourth, we need to conserve scarce soil nutrients and water. Managing natural resources in agriculture has taken a back seat compared to

making genetic improvements in crops and livestock. But increasing natural resource scarcity will mean that natural resources management-based approaches will become increasingly important to stimulating productivity growth and resilience.

Fifth, we need to ensure that the poor can afford a healthy diet. Jobs programs and cash transfer programs that keep children in school directly increase the poor's productivity and thereby their incomes and food security. Supply-side stimuli cannot meet the coming food security challenge alone without complementary support of effective demand among poor consumers worldwide.

No magic bullet solution exists to the looming challenge of feeding 9 to 10 billion people. The multi-pronged strategy outlined here is necessary, but changes must occur disproportionately in today's low- and middle-income countries in Africa and Asia.

The global food price crises of 2008 and 2011 offered a glimpse of what is to come if we do not act swiftly.

Provided by University of Sydney

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