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# Who Will Feed China?

A Book Review by Elizabeth A. Brown

For Lester Brown, the most pressing environmental threat as we enter the 21st century is not global warming, thinning ozone, or depleted energy sources. For Brown, it's the likelihood that the earth simply will not be able to produce enough food to feed all its inhabitants.

Limits to food production are already crippling croplands around the world: water for irrigation has become scarce; additional fertilizer no longer significantly improves output; promises of bio-technology have paled; and ocean catches are on the decline.

WHO WILL FEED CHINA?
WAKE UP CALL FOR A SMALL PLANET
By Lester R. Brown
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Meanwhile, demand for food continues upward, and may skyrocket when China's 1.6 billion people (by the year 2030) begin importing massive quantities of grain. According to Brown, this will trigger an unprecedented rise in food prices that will be felt around the world, from the New York supermarket to the street vendor in Bombay. (Indeed, a preview of this phenomenon appeared in the fall of 1994 with a 30 percent increase in wheat prices due to increased demand and declining world stocks of the grain.) Rising food prices may lead to political unrest and could send a tide of migrants across national borders on a scale not seen before.

Chinese officials, naturally, are quite defensive when discussing — usually denying — author Brown's projections for their country's future grain needs. But for Brown, this is a straightforward exercise in numbers. He writes:

> *It will be tempting to blame China for the likely rise in food prices, because its demand for food is exceeding the carrying capacity of its land and water resources, putting excessive demand on exportable supplies from countries that are living within their carrying capacities. But China is only one of scores of countries in this situation. It just happens to be the largest and, by an accident of history, the one that tips the world balance from surplus to scarcity.*

Much of the material in this book appeared first in a 1994 "Worldwatch" magazine article, then in Brown's and Hal Kane's book *Full House: Reassessing the Earth's Carrying Capa-city* (Worldwatch, 1994).[1] In 1994, while Chinese officials were vehemently denouncing Brown's statistics as inaccurate, grain prices in China rose 60 percent in a matter of months, inflation soared to 24 percent annually, and the Chinese government broke corn export contracts with South Korea, banned trading of rice futures on the Shanghai Commodity Exchange, and ultimately had to import a record 6 million tons of grain, mostly from the United States.

In a matter of months, China had switched from exporting 8 million tons of grain in 1993/94 to importing a net 16 million tons in trade year 1994/95 — in addition to depleting about 40 percent of its domestic grain reserves.

Apparently Brown's predictions have started to come true; even some officials in China now have credited Brown's works with turning their attention to the agriculture sector, which they'd been neglecting in their breakneck effort to industrialize.

Yet the great success of China's rapid industrialization is what Brown sees as the greatest danger to agriculture. Brown compares China to three other countries in the world that — like China — were densely populated before industrializing: Japan, South Korea, and Taiwan. As industry grew, all three countries lost vast amounts of valuable cropland to factories, warehouses, roads, parking lots, and homes. As incomes grew, many rural peasants left for the city, and their diets moved up the food chain. All three countries now rely heavily on imported grain.

While Brown predicts a fall in grain production in China, the United Nations' "official" projections have output increasing. This, says Brown, is because the UN doesn't take into account the heavy loss of cropland that historically has thwarted countries that were densely populated before industrializing.

China in 1990 has the same cropland per person as Japan had in 1950: 0.08 hectares (0.2 acres) per person. (For comparison, in the U.S. it is 1.3 acres per person — in 1994, 324 million acres were planted in crops for a population of 263 million.[1]) China may be huge, but only one-tenth of the land is arable, half the cropland is irrigated, and four-fifths of the grain harvest comes from irrigated land. If China's economy grows at the same rate Japan's did — with industry gobbling up farmland

and citizens quickly growing wealthier, and demanding a more grain-intensive diet that would include meat and eggs — then China will need to import massive amounts of grain.

***"Can anything be done to prevent the Chinese `accident of history' from devastating the planet?"***

Turning to ocean fisheries is not an option for China as it was for Japan, since oceanic catches now have begun to decline. Japan today relies on imports for 72 percent of its total grain consumption. Will China follow the path of the Japanese? Brown writes:

> *It is one thing for a nation of 120 million people [Japan] to turn to the world market for most of its grain. But if a nation of 1.2 billion [China] moves in this direction, it will quickly overwhelm the export capacity of the U.S. and other countries, driving up food prices everywhere.*

What do people around the world spend on food? As a percentage of income, people in China spend 50% on food; in Sierra Leone 65%; Sudan 61%; the Philippines 57%; Iran 53%; India 53%; Korea, 39%; Thailand 37%; Venezuela 34%; the former U.S.S.R. 30%; South Africa 28%; Italy 26%; Germany 21%; Japan 20%; France 16%; Sweden 15%; the United Kingdom 12%; and the U.S.: an astonishingly low 9%.[3]

Clearly the impact of rising food prices will differ among nations.

The sheer numbers of China's projected demand are daunting. By 2030, notes Brown, China's grain (rice, corn, wheat) production will fall by at least 20 percent — from 340 million tons in 1990 to 272 million tons by 2030. This is due to loss of cropland, even figuring in some increase in yield on the remaining land.

Brown presents two scenarios for demand, one without, the other — more likely, he says — with rising demand for a diversified diet including meat, eggs, fish, beer, sugar, vegetable oil, and other products dependent on grain. Both possibilities far outstrip projected supply and the current available exports (in 1990) of 200 million tons.

Assuming no change in the current diet, China's demand for grain by 2030 could be as little as 479 million tons; this would leave a shortfall of 207 million tons, roughly equal to *total* world grain exports in 1990. But if Chinese demand for meat and other foodstuffs grows even a small amount to a diet equal to that in Taiwan (400 kilograms of grain per person annually; in the U.S. we consume twice that), then demand could be as much as 641 million tons, leaving a dearth of nearly twice the exports available in 1990. U.S. export capacity will likely *fall* by 2030, due to a projected increase of 100 million in its population, and a resultant loss of cropland. For example, between 1982 and 1992 development cut Michigan's cropland from 16.5 million acres to 10.0 million acres.[4]

Nor is China alone in its growing need for grain. Brown includes data for ten of the world's most populous countries. This group, which includes India, Iran, Pakistan, Egypt, Nigeria, and Mexico, will together need to import 190 million tons of grain by 2030, not much less than the total of 200 million tons exported in 1990.

Can anything be done to prevent the Chinese "accident of history" from devastating the planet? Brown points to several steps China and other countries should take soon:

1. Stabilize world population, notably by strengthening the unpopular one-child-per-couple policy in China.
2. Protect the agricultural base — topsoil, aquifers, climatic system. Price water at full cost (especially near Beijing); protect farmland from nonfarm uses; plant more trees.

The more affluent countries must help: decrease consumption of livestock products; stop using corn to produce ethanol fuel; switch tobacco and cotton fields to grain; improve food storage facilities; invest in agricultural research.

This book, really a truncated and hence more readable book than Brown's and Kane's *Full House*, should be studied by policymakers and politicians who care about the future. Time is not on our side, says Brown. "China's prospective emergence as a massive grain importer is a wake-up call — one that will force us to address issues we have long neglected.… Unless we act quickly and decisively, neither history nor our children will judge us kindly." ■

NOTES

[1] Ms. Brown reviewed this book in THE SOCIAL CONTRACT, Vol. V, No. 4, p.310.

[2] Data by phone from the office of Agricultural Statistics, Department of Agriculture, Lansing, MI, (800) 453-7501.

[3] Food, beverage and tobacco costs as a percentage of income statistics are from United Nations, National Accounts Data Tape, provided by American Farm Bureau, Albany and Chicago offices. Information on China furnished in Brown's book.

[4] Source: Michigan Farm Bureau. Cited in an editorial in *The Petoskey News-Review*, December 15, 1995, p.4.

Suddenly, China is starting to lose the capacity to feed itself. The decline comes after four decades of impressive progress, particularly since the agricultural reforms of 1978, which transferred land from production teams to individual families. The energies unleashed by these reforms boosted China's grain output by half, to more than 300 million tons in 1984 from 200 million tons in 1977. That put China ahead of the United States as the world's leading grain producer.Â  This potential grain deficit is raising one of the more difficult questions international leaders have had to face: Who will feed China? The world's most populous nation is moving into uncharted territory on the food front. This inevitably will affect other countries. In 1994, Brown wrote an essay, Who Will Feed China? It triggered an explosive response. Chinese leaders angrily denounced him.Â  In northern China, subsidence affects a region the size of Hungary. Irrigated fields produce the most food, but water mining will eventually force a reduction in irrigation. Some regions may be forced to stop growing rice, a water-guzzling crop, and replace it with less productive millet or sorghum.