
"How can we best feed some ten billion people who will likely inhabit the Earth by the middle of the twenty-first century?" is the mighty question that Vaclav Smil addresses in this book (p. ix). This is not, as he points out, the same as asking how many people the earth can feed, an issue he considers "futile and counterproductive" (p. ix). So Smil sticks to something he regards as more meaningful and practical: "Can human ingenuity produce enough food to support healthy and vigorous life ... without irreparably damaging the integrity of the biosphere?" (p. x). Steering between cornucopian and catastrophist standpoints, he considers the complete food cycle, from planting to harvesting, wasting, processing, eating, and discarding. In the process he shows how we can make more effective use of resources by increasing farming efficiency, reducing waste, and transforming our diets.

Without a doubt this is both a major issue and a geographical one, situated as it is between humans and resources. It is a pressing issue because of population growth, the demand generated by rising disposable incomes, the dietary shift toward meat that this often implies, and the undesirable environmental changes brought about by agricultural extension and intensification. It is also an important issue because of the potential role of genetically modified organisms, a topic that has split the British royal family but that, curiously, Smil does not address.

The structure of the book is clear and logical. After setting the scene, Smil explores the potentially adverse effects of agriculture on environmental change. Then he examines whether higher cropping efficiencies can be obtained by increasing the effectiveness of fertilizer and water use. Food production from animals is subsequently discussed, as are several major advances that have taken place in recent decades. Moving on from production, Smil considers the questions of post-harvest food losses and such matters as the uncertainty of actual food intakes. He then moves on to ask how much food we need and what we should be eating for optimal health. He wraps the book up by investigating the complexity of these issues in China. This produces a final cheering and upbeat message:

There do not seem to be any insurmountable biophysical reasons why China should not continue feeding itself during the next two generations. ... A combination of well-proven economic and technical fixes, environmental protection measures, and dietary adjustments can extract enough additional food from China's agroecosystems to provide decent nutrition during the coming generations without a further weakening of the country's environmental foundations. (p. 315)

To deal with such a wide compass requires a certain sort of mind that is not given to all mortals. Smil assimilates and deploys a huge range of disparate material, explaining his thoughts with clarity and directness. He has a message and delivers it with panache. From time to time he wanders into dangerous territory, advocating the merits of human omnivory over vegetarianism and championing the virtues of the pig, but overall his is a balanced work that displays a high level of synthesis. The breadth of literature that he cites is extraordinary--how many of us regularly browse the Journal of Cardiopulmonary Rehabilitation, the Paediatric Infectious Disease Journal, or the American Journal of Digestive Diseases? The end result is a book that one can enjoy and profit from, whatever one's disciplinary or subdisciplinary interests.

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