Graeme Hammer  
Agricultural Production Systems Research Unit  
Queensland Department of Primary Industries  
PO Box 102  
Toowoomba, Qld. 4350  
Australia  
(hammerg@dpi.qld.gov.au)

**Land Resources: On the Edge of the Malthusian Precipice?**  

Two hundred years after Thomas Malthus published his essay predicting that population growth would inevitably outstrip food production, world population is within months of surpassing 6 billion. Was Malthus wrong or just off on his timing? The debate still rages, quite often in the form of political or religious tirades in which facts are irrelevant.

**Land Resources: On the Edge of the Malthusian Precipice?** is the output of a 1996 meeting hosted by the Royal Society in London to make an objective scientific assessment of the agricultural production potential of the world land base in relation to projected increases in population. Plentiful data, full referencing of sources, clear statements of all assumptions, and the acknowledgment of uncertainties characterize this volume.

The book begins with a thorough overview of world demographics and the factors influencing rates of population increase. The authors clearly explain why demographic momentum ensures that, despite recent declines in fertility rates, an increase in global population to 9.4 billion or more by the year 2050 is virtually guaranteed. Equally important, the global distribution of population, land, and other agricultural resources is not even. Regions with the greatest current and future imbalances—Africa and western- and south-central Asia—will face particular difficulties and are unlikely to achieve food self-sufficiency.

Regional differences is a theme maintained throughout the book as the contributors address the primary factors controlling agricultural production including soil resources, water and nutrient availability, and the infrastructure required to support a productive agriculture. An overview of ecological differences among regions and the use of a regional framework for analysis and policy decisions is provided by Sivakumar and Valentin. In their own regional analysis, Penning de Vries and others estimate potential food production and illustrate the wide disparities in potential food security among regions. The authors recognize that dietary aspirations (e.g., vegetarian vs. meat based) and differing attitudes regarding the proper use of land will have a major impact on demands for food and resources are harnessed, and adequate measures taken to minimize soil degradation, sufficient food to feed the population in 2020 can be produced, and probably sufficient for an additional 1 billion more.” Of course, these premises could lead to one of two conclusions, for instance “it should be understood that solutions are not always technical in nature, but are also social, cultural and economic considerations. The focus, though, is on agriculture, and I would characterize most of the contributors as believing that future generations will probably have adequate food, but with regional disparities and little margin for error.

The editors reflect this view when they state “If all resources are harnessed, and adequate measures are taken to minimize soil degradation, sufficient food to feed the world in 2020 can be produced, and probably sufficient for an additional 1 billion more.” Of course, these premises could lead to one of two conclusions, for instance “it should be understood that solutions are not always technical in nature, but are also social, cultural and economic considerations.” The focus, though, is on agriculture, and I would characterize most of the contributors as believing that future generations will probably have adequate food, but with regional disparities and little margin for error.

The contributors focus on the less developed countries because that is where most of the population increase is projected to occur. However, this could be an important oversight. The U.S. population is increasing by 2.4 million annually, and could nearly double by the year 2050. Under such a scenario, the USA could become a net food importer, a change that would have important implications for global food security.

Overall, the 14 papers in this book provide a detailed analysis of future global food demand and the factors that meet that demand. Transcripts of the discussions, though, give a sense of the many variables that can affect such conclusions. There are no definitive conclusions, only an accumulation of information with which readers can start the process of formulating their own conclusions.