
Climatic change is a hot scientific and political topic. As a result, books about potential impacts of climatic change appear regularly, and this one follows suit. It is a collection of papers, some by prestigious authors, from a 2003 workshop on “Climate Change, Carbon Dynamics, and World Food Security”—it is not a textbook, comprehensive reference, or synthesis. A college degree in agriculture is sufficient expertise on the reader’s end, though jargon is used.

As is typical of workshop proceedings, the book lacks linkages between most chapters, some key issues are overlooked, redundancies exist, and styles vary among chapters. Topical coverage in most chapters is too brief; fewer, more detailed chapters would be better. Some chapters are too informal, mentioning important data without references, leaving the nonexpert with no entry into the primary literature. Some photos, maps, and charts are of reduced quality.

The book’s title led me to presuppose it is about effects of climatic change on food security. Conversely, I find that at least 17 of the 30 chapters have little or no treatment of such effects (some chapters have no food security or agricultural coverage at all). Nine chapters focus on carbon sequestration as a climatic change mitigation strategy, without regard to food security.

An up-to-date, authoritative chapter at the front on climatic change is absent. Some chapters review climatic change briefly, but they duplicate similar reviews in other chapters. The reader would be better served by other sources for climatic change information. Indeed, technical errors exist. Page 174 says that increased CO₂ traps more solar radiation in the atmosphere, causing warming, whereas the warming is actually caused by increased absorption of terrestrial (longwave) radiation, not solar radiation. Page 322 states that climate models predict further increases in atmospheric CO₂ concentration, but CO₂ concentration is an input to, not an output from, the models considered. Page 114 draws a parallel between a greenhouse environment and the “greenhouse effect” that is mechanistically incomplete—limited convective heat exchange is critical to greenhouse temperature, but not global warming. Page 35 suggests that “effects of the tilt of the earth” may be the “main cause” of warming, but the climatic changes at issue are not caused by earth’s tilt. And page 651 implies that there is scientific controversy about whether humans are contributing to climatic change. Humans are causing climatic change. The questions are, How much and how fast?

Food security involves food production and physical and economic access to it. Most chapters that consider food focus on production. In chapters that consider access (mainly poverty issues), climatic change is mostly ignored or treated superficially. For example, Havener et al. (Chapter 3) present a pithy outline of the Green Revolution, list remaining needs, and discuss important public policy issues, but only briefly mention climatic change. Darwin et al. (Chapter 4) suggest, based on a food security assessment model, that climatic change is already reducing food production in tropical/subtropical “low-income countries,” but the analysis goes only through the year 2012. Rosenzweig and Hillel (Chapter 10) give a well-written, informative overview of modeled effects of climatic change on some aspects of crop production, but the wealth of relevant real-world data and experience is referenced only in the most general terms, and access to food is not considered. Eakin (Chapter 12) cogently covers climatic change and tropical agriculture, with a focus on maize in Mexico, concluding that, “while aggregate world food production may be able to keep up with population growth, the social consequences of climate change impacts in areas already struggling with high rates of poverty and malnutrition are cause for considerable concern” (p. 295), but details of the concern are unstated. The vulnerability of sub-Saharan Africa to climatic change and food insecurity is a theme mentioned, often briefly, in many chapters (the situation there may be dire), but usually without defined links between climatic change and access to food (the exception is the case study of Mali by Butt and McCarl, chapter 29). Joern et al. (Chapter 13) thoroughly review potential effects of climatic change on crop pests (a terribly complicated, location-dependent issue), but the analysis is not tied to food security. Tweeten’s outline (Chapter 27) of links between public policy and food security is excellent, but the consideration of climatic change is short.

A synthetic chapter relating climatic change to food security is needed, but missing. Warming could reduce production in the tropics, where food security is often weakest. Rising CO₂ concentrations might enhance production, but extreme weather may increase. More rapid sea level rise, caused by increased thermal expansion of the ocean and melting of terrestrial ice, may enhance financial strains and reduce access to food by displacing millions of poor people in coastal areas. Other effects of climatic change could further hurt weak economies, against a backdrop of increasing populations, thus decreasing access to food. These (and other) potential relationships between climatic change and food security deserve careful consideration, but a penetrating analysis of such relationships is not in this book.

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