Book review

Human Choice and Climate Change, Vol. 2. Resources and Technology
Steve Rayner, Elizabeth L. Malone (Eds.), Battelle Press, 1998

This Vol. 2 ‘Resources and Technology’ is one of a series of four on Human Choice and Climate Change. The others are ‘The Societal Framework’ (Vol. 1), ‘The Tools for Policy Analysis’ (Vol. 3) and ‘What Have We Learned?’ (Vol. 4). The intention of the whole series, as declared by an illustrious International Advisory Board of gentlemen (there are no ladies but at least three ‘the Honorable’ and half a dozen Professors here!), is to see climate change through ‘…a social science lens’. It is believed that this will help to make natural and social policy review more relevant and more effective to the policymaking process.

Indeed, given that the issue of climate change only rarely has been viewed with focus upon human adjustments, the serious applied climatologist would be attracted to such a treatise. We are only too conscious that there is no such a thing as a constant climate, and that climate variation and variability become critical to the well being, and even survival of ecosystems, biomes and human societies. At the larger scale, we are very aware that on the basis of past geological events and Milankovitch curves, the present interglacial warm must be approaching termination. At the smaller scale, we are daily reminded that the potential for human intervention in climate events may be significant within secular periods, and recent evidence is providing insights into cyclical solar fluctuations that show that their energies and processes become dominant at the decadal level. Especially, given the political developments following the Kyoto conference, and the possible present-day peaking of energy emissions during the 23rd solar magnetic cycle, the context and timing of the present series appears to be most appropriate.

In carrying out an assessment of only one part of an integrated series, one is very aware of the truncation in interpretation; it would have been much better for the whole series to be covered within the same review. Nevertheless, since each volume can be purchased separately, and all seemingly carry the same introductory 30-page segment ‘Why study human choice and climate change?’ by editors Rayner and Malone, clearly the intent is for each volume to be able to stand alone. Thus, separate critiques become both justifiable and necessary.

Within the introduction, the editors point to a two-part goal for the first three volumes. The first is to overview social science material relevant to global climate change, and the second is to provide reference material for both scholars and practitioners for research, negotiating, planning and policy implementation. The introduction itself becomes a valuable document stating both intent and content of the volumes, and perhaps most usefully so, in innovatively encapsulating essential themes. These encapsulated themes, 20 altogether for the first three volumes, are dramatically highlighted within the text using the striking globe-human-process cover logo of the series, and the reader can be forgiven for thinking of these as fundamental questions or even as empirically demonstrated principles.

Most of these encapsulations well represent the current paradigms of social science within the areas of environment — resource — hazard perception, adaptation, policy, and risk management. Indeed, such themes and principles are universally applicable to all change scenarios, and their collation and integration becomes a valuable and timely exercise.

In this context, we may note for Vol. 2, the following four of the six encapsulations:
Climate is by no means necessarily the most important challenge to the sustainability of land and water resources.

The adaptive coping abilities of coastal, often rural, and often nonliterate people have enabled their survival under stress. In the policy hierarchy they seldom get their due recognition.

What would the social world have to be like before specific energy related innovations made sense?

There is no simple technical fix.

The detailed discussions underpinning the above are Chapter 2 ‘Land and Water Use’ (Meyer, Adger, Brown, Graetz, Gleick, Richards and Maghalães), Chapter 3 ‘Coastal Zones and Oceans’ (Rahman and Huq), Chapter 4 ‘Energy and Industry’ (Weyant and Yanigisawa), Chapter 5 ‘Energy and Social Systems’ (Shove, Lutzenhiser, Guy, Hackett and Wilhite), Chapter 6 ‘Technological Change’ (Rip and Kemp) which become valuable summaries and source materials. There clearly is purposeful editorial control of the contents, with overall uniformity in clarity of statement of conclusions, definitions of the material under discussion, the context and assumptions made. Also most welcome are the hundreds of references in each chapter. While such materials are not exactly bedtime reading, the authors can be praised for their presentations. The material should provide systematized and well balanced insights within the topics covered to the non-specialist. Apart from Chapter 4 on energy utilization, the future scenarios used as illustrative materials are only incidentally related to Greenhouse warming, and equally the lessons learned may be applicable to most trends, climate extremes and even global cooling.

Unfortunately, the other two encapsulations and their related Chapter 1 ‘The Natural Science of Global Climate Change’ (Wuebbles and Rosenberg) largely undoes the good work. The encapsulations for this chapter are two-fold:

- Although the signal is still emerging from the noise of natural variability, recent studies suggest that the current changes in climate are indeed related to human activities.
- In the absence of new policy initiatives, emissions projections range from a modest decrease to an increase by a factor of 15 over the next century.

The intent of the volume and the series becomes quite clear; this is not intended to be an evaluation based on balanced scientific evidence, but one to expound the entrenched viewpoint of the Intergovernmental Panel on Climate Change (IPCC). Indeed, while well written, detailed and amply documented, Chapter 2 becomes little more than a polished litany of Greenhouse beliefs. Scientific scepticism gives way to another restatement of current surface temperature trends, radiative gas increases, the wonders of climate modelling, scenario projections and the more obvious physical and biological impacts. Past climate change as such, illustrated by smoothed temperature trend diagrams at three scales, is presented merely to illustrate that temperatures indeed will vary over time, but there is no discussion of why the Holocene and medieval warmth occurred, and none for the Little Ice Age of the 16–18th centuries. There is minimal discussion about the inadequacy of cloud data and modelling, or the dominant role of global temperature control by variability of water vapour, by far the most significant of the radiative gasses.

Most regretably, there also is the seemingly deliberate shunning of information on solar radiation variability that shows close correlation to temperature trends. It is far from satisfactory, that solar variability is dismissed without referencing or quantification, with a bland statement “...Sun’s output of energy is known to vary by small amounts over the 11-year cycle associated with sunspots, and there are indications that the solar output may vary by larger amounts over longer time periods.” Such a cavalier treatment must be a monumental source of frustration to solar physicists and others who find their observations and models simply ignored. How can anyone claiming scientific integrity, omit reference to the work of Friis-Christansen, Svensmark, Schatten, Landscheidt and Hoyt in preference to minutiae of atmospheric chemistry, theoretical models and speculative scenarios?

Uncritical commitment to assumptions of IPCC mantra on anthropogenetic Greenhouse warming is increasingly being compromised by ongoing observations of differences between surface temperatures and those from satellites and baloons. Simple claims that disagreements disappear when satellite positioning, transient Pinatubo and El Niño effects are taken into account, as suggested in Chapter 2, are far from true. This important debate is very much ongoing. Moreover, omission of reference to observations on solar
energetics that explain 0.5 of the 0.6°C temperature rise over the past century (Broecker, 1999; Soon et al., 1996; Lockwood et al., 1999), and those on the impact of solar flares on cloudiness that appear to explain all recent global warming (Svensmark, 1998), must raise concerns about the overall integrity of Chapter 2. Ultimately, neither science nor effective coping strategies are likely to be well served by overstatement and lack of objectivity, or by assumptions of validity by virtue of popular consensus.

The main theme of the book is uncertainty, but unfortunately the biggest uncertainty of all is neglected. The main question is not whether there is climate change, but in which direction is the change, when and to what magnitude? Is it not ironic that the greatest potential source of error in the important problem of human climate adaptation, choice and survival appears to lie not within the ‘soft’ approaches of social scientists, but within the field that would prefer to think of itself as ‘hard’ science?

References


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