Arijit Guha, Marci Baranski, Karina Benessaiah, Chad Monfreda, Christina Wong

Week 5 Synthesis

11 October 2010

The chapter provides a good overview of the concept of ecosystem services, natural capital, the concepts and processes associated with them, and their dynamics. It is well-written, generally easy to understand, and logically organized. However, discussion amongst the members of the ASU group makes clear that there are numerous areas in which the chapter could be improved.

First, returning to a point the ASU group has made already, the organization of the chapter would improve greatly with the authors making three points at the beginning of the section: (1) explaining in greater detail what the chapter will cover; (2) connecting the chapter’s content with the rest of the book; and (3) identifying how the chapter presents ideas necessary for the study of sustainability science. For example, the chapter would benefit from more clearly linking the ideas discussed here to the CHES framework identified in the previous chapter, while the text would be improved by connecting the authors’ ideas to previous research traditions and ideas, and explaining in detail how/why the authors’ ideas build on and improve on previous ideas in a manner necessary for the study to sustainability science. If sustainability science is indeed a new field and representative of a new approach to human-environment relations, each chapter must clearly articulate how it contributes to this emerging discipline.

On a related note of how the overall book and individual chapters are structured and written, there seem to be tensions and inconsistencies within and among the chapters regarding the intended audience. In this chapter, for instance, certain terms coming from the ecological sciences like “state” and “function” used without explanation. If anyone aside from an expert audience is expected to pick up this book, then terms and concepts should be better defined before they are used. Meanwhile, if the intended audience is supposed to be a group of already highly-educated sustainability scientists, then the material may be a bit too detailed regarding ecosystem services, yet still too vague and not detailed enough regarding their complex interactions in the human environment system.

With regard to terminology and language, on the key points of this chapter, the authors could provide greater clarity. The authors assert a distinction between global assessments of ecosystem services and primary research on biophysical processes, for example. What exactly this conceptual difference consists of is not clear, however — besides the difference in scale of the institutions doing the research and assessment. The authors are similarly unclear when discussing ecosystem and environmental service; the similarities and differences between environmental services and ecosystem services is not made clear enough. In the introductory chapter, the term environmental services was introduced, yet this chapter seemingly at times uses the terms interchangeably and, as such, does not explain why the authors of the volume have agreed to use the term environmental service at all (rather than the accepted nomenclature of ecosystem services), and why such a conceptualization is superior and necessary for sustainability science.

This leads to another point brought up during discussion amongst the ASU group: in the conceptualization of environmental services used here, it is the services themselves that are valued (meaning those services which have been identified by humanity as being important) rather than the larger set of earth system functions that are necessary for life — even if they have not yet been recognized for their importance. That is, so far as we understand it: natural capital has the capacity to provide ecosystem services, but does not necessarily by definition — whereas, ecosystem services *by definition* provide something of value to humans. Clarification on this distinction would be appreciated; the readers would benefit from some discussion about whether indeed the ecosystem/environmental services framing is too narrow and fails to recognize the importance of unknown but important environmental and earth systems processes.

Additionally, though promised by the chapter title, the chapter itself does not expand sufficiently into dimensions of human well-being. We are left wondering how these different interacting ecosystem services relate to different conceptualizations of human well-being. Interestingly, there is no discussion of what well-being is and what it encompasses (beyond the broad categories listed in the figures and tables and drawn from the MA) and how different disciplines/sectors may define human well-being beyond an ecosystem/environmental services framework. We recognize that well-being is covered in greater detail in its own chapter, but nonetheless a stronger linkage between the ideas here and human well-being could and should be established in this chapter.

Lastly, the section invoking Kates and Parris’ work on competing conceptualizations of sustainability (“assigning weights is a value-laden process and therefore subject to debate”) is very useful as it builds upon the argument made by Bill Clark in the introduction: that values matter and the very idea of sustainability is a normative judgment, and there are competing definitions. Nonetheless, in section 2.3.3, this idea is ignored and the authors remark that the main challenge in assigning economic value to ecosystem services is the “lack of data.” No doubt more data is needed to better understand the functioning of the earth system, but the fact remains that economic valuation of ecosystem services is contingent upon having identified underlying issues of societal values and preferences. Identifying the only barrier as lack of data fails to tell the whole story.

Specific comments:

P1-.2 The authors state that “understanding dynamics of ecosystems and benefits they provide for humans […] has emerged more directly from biophysical research on the structure and function of ecosystems”. I was wondering if other type of research- for instance social or applied conservation- did not also influence that understanding. [Karina Benessaiah]

p.2 “A host of human and social processes- demography […]-interact with human well-being and are also …” What is the difference between a human and a social process? Also, I would replace interact (in italics here) by shape human well-being. Human well-being is not something that interacts with other factors but a property of these interacting factors. [Karina Benessaiah]

P. 3 Why not call, as Billie mentions frequently, earth and ecosystem services, environmental services? To be clear that it includes both these dimensions? [Karina Benessaiah]

P.4 Valuation is mentioned to be impossible for some regulating services, I would also add that it is impossible for some cultural services (i.e. the sacred). [Karina Benessaiah]

P. 5 may help decision-makers recognize threshold that should not be transgressed- an example would be welcome here. [Karina Benessaiah]

P.6 “Natural capital is often linked more directly to the well-being of the most vulnerable”- this should probably be either referenced or hedged as a statement since I don’t think it’s universally accepted. [Karina Benessaiah]

P.8 Nutrient mobilization section- a bit too descriptive as a section. [Karina Benessaiah]

P. 12 “studies of earth system history reveal no balance of nature”- what do you mean here? That there is (theoretically) such a thing as a balance of nature but it was never achieved or that the concept of balance of nature itself does not exist (panarchy)? [Karina Benessaiah]