Takers see humans as the end product of evolution, destined to rule the world. Leavers see humans as a part of nature, destined to play their role in a continuously evolving sustainable biosphere. Takers think the world belongs to humans, Leavers think humans belong to the world. Not bad as a shorthand definition of the conventional (Taker) economics world view compared to an ecological (Leaver) economics world view.

Taker society's fundamental flaw is that it is inherently unsustainable. Its attempt to rule the world will inevitably lead to the destruction of that world, on which it depends for its very existence. It breaks a fundamental law of sustainable competition, which, according to Ishmael, states that you can compete with other species for food and resources, but you can't wage war on them by eliminating them or their habitat from existence. This Hitlerian elimination strategy is exactly what Taker society does when it argues that since the world is made for and belongs exclusively to humans, we are not only justified but compelled to expand continuously and at all costs. Leavers do not wage war on nature and thus managed to live sustainably as part of the biosphere for over 3 million years.

So what are the prospects? Can we break out of the cultural prison of Taker society? Is there still time for the Leaver world view to reassert itself before it's too late? What would a viable Leaver alternative to modern Taker society look like? According to Ishmael, the only hope is in developing and articulating this vision of a modern Leaver alternative and convincing enough people that it is not only our only hope for survival, but that it is a much more desirable and humane society in which to live. It seems to me that this is exactly what *ecological economics* and the entire "sustainability" movement is trying to do. This book will help by carrying the discussion to a new and more compelling level. Tinkering at the edges of Taker society will not get us to sustainability. We need to adopt a new Leaver world view, envision what that world would look like, and convert the mass of humanity to that vision. In Ishmael's words "...people need more than to be scolded, more than to be made to feel stupid and guilty. They need more than a vision of doom. They need a vision of the world and of themselves that inspires them." "...breaking out of the Taker prison is a common cause to which all humanity can subscribe."

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Integrated Environmental and Economic Accounting

Integrated Environmental and Economic Accounting. United Nations publication ST/ESA/STAT/SER.F/61, 1993, United Nations, New York, NY, 182 pp., ISBN 92-1-161359-0.

This is an important and long-awaited document. Its ambitious goal is to set forth a standard set of guidelines for integrated environmental and economic accounting at the national level. Implementing the guidelines will allow the value of the environment to become a more obvious and integral part of the assessment of all nation's performance.

This inclusion of ecological services and natural capital in national accounting is a very good thing, albeit a very difficult one. The report is refreshing in its refusal, when confronted by the many obviously important but fundamentally irresolvable questions that this task entails, to simply take an arbitrary stand. Instead it adopts the much healthier attitude of open-ended experimental adaptation and gradual improvement. It spends the first 33 pages on a conceptual introductory overview that lays out not one, but six different versions (with several subversions) of the proposed System of Integrated Environmental and Economic Accounts (SEEA) and their relationship to the standard System of National Accounts (SNA). The conceptual overview carefully differentiates between a conventional economic point of view and a more ecological point of view and describes their integration into an ecological economic framework. For example, the report asserts that: "An integrated framework should reflect a synthesis of, or at least a compromise between, the ecological and anthropocentric (economic) points of view. The economy should not be considered only in terms of its being a part of the environment nor should the natural environment be viewed only in terms of its economic usefulness. The natural environment and the economy could be interpreted as constituting two sides of the same coin. An accounting framework should therefore assist in identi-

fying strategies of sustainable development that balance the satisfaction of human needs with the long-term maintenance of environmental functions" (p. 3). This attitude toward the problem should certainly be welcome among readers of *Ecological Economics*.

The six versions of the SEEA represent a gradual incorporation into the SNA of more and more of the ecological point of view. The report acknowledges the mutual interdependence of physical data about environmental stocks and flows (as expressed, for example, in materials/energy balances) and monetary data on the value of those stocks and flows (as expressed, for example, through the valuation of environmental stocks and flows). It also stresses the importance of fully integrating the physical and monetary data.

Chapters 2–5 detail the various versions of the SEEA with some examples, while chapter 6 deals with issues of implementation. The potential users of the handbook are thus given a range of alternatives along a consistent spectrum from which to choose, depending on their needs and capabilities. There is also the assumption that with time more countries will implement higher versions of the system, and that the system itself will evolve and improve with use. This evolutionary approach is essential. There will always be quibbles and uncertainties about such a complex endeavor. The point is to lay the conceptual groundwork and start the ball rolling. One can then "learn through doing" rather than waiting for all the issues to be worked out ahead of time.

If the system is flexible and adaptable, then improvements can be made with time and use. For example, one element left out of the current versions is the issue of dealing with data of radically different quality in the same framework. One needs to have some way to rank or "grade" data so that its underlying uncertainty and quality can be honestly communicated and incorporated into the interpretation of conclusions (Costanza et al., 1992). There are several possible ways of doing this, but the SEEA framework seems open and flexible enough to allow this kind of elaboration.

In summary, the UN's new SEEA accounting system represents a pathbreaking event in the ongoing effort to integrate the study of ecological and economic systems. It is a "must read" for anyone concerned with ecological economics.

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From Catastrophe to Chaos

From Catastrophe to Chaos: A General Theory of Economic Discontinuities. J. Barkley Rosser, Jr. 1991, Kluwer, Dordrecht, 402 pp., ISBN 0-7923-9157-8.

This book covers so much ground that it is difficult to characterize. It basically takes the ideas of discontinuous change, chaotic dynamics, and catastrophe theory and applies them to almost every major area of interest to economists, and to many areas that are of special interest to ecologists and ecological economists. Its chapter titles range from "discontinuities in microeconomic systems" to "chaos theory and macroeconomics", to "discontinuous evolution of urban historical forms", to "perspectives on economic and ecologic evolution", to "ecosystems and economics", to "the limits to growth and global catastrophe revisited." Throughout it all, Dr. Rosser maintains an engaging and highly readable, if somewhat eclectic, style that is accessible to both the mathematical and non-mathematical reader alike. The breadth of material he is attempting to synthesize is truly staggering, encompassing all branches of economics and many branches of ecology, along with a few twigs from other disciplines. Just to give some idea of this range, the list of references is 62 densely-packed pages (a full 15% of the book).

One can ask whether the book lives up to its ambitious subtitle. Does it really provide "a general theory of economic discontinuities"? I think not, at least not in the sense that I have of what constitutes a general theory. What it does provide is a rather thorough