

Our Unsustainable Present: Why, and What Can We Do About It?

Paul H. Reitan

University of Buffalo

Eric Reitan

Seattle University

.....

Sustainable human societies; are they threatened? Do we have credible measures of the magnitude of the threat? Is it possible to understand how we got to this point? Is it possible for us to find our way toward sustainable societies? We think the answer is "Yes." We think there will be found ways to organize humans into multiple simultaneously sustainable societies, but those that are sustainable will share a deep respect for the non-human world. They will share holistic ethics based on an expansive universal empathy underlying an ecocentric/anthropocosmic (Tucker 1991) world view.

Human societies are facing a crisis of destruction and disruption of Earth systems upon which they depend for their survival. As has been indicated by Pimentel (1998), human population is already three times the size that can be comfortably sustained on Earth. But beyond sheer numbers, we can see the evidence of the huge impact on Earth systems resulting from the way we live. We are significantly changing the composition of the atmosphere with broad ranging effects, from local health damage caused by urban and industrial air pollution, to regional acidification of precipitation and its destruction of ecosystems, to polar extreme reduction and global thinning of the ultraviolet-shielding stratospheric ozone, to global climate change with its host of adverse effects that are growing in magnitude in response to elevated levels of greenhouse gases.

There are many specific examples. We abuse our soil and accelerate its erosion; nearly 1/3 of the world's arable land has been lost to erosion in just the last forty years. (Pimentel et al. 1995) World irrigated cropland has more than doubled in the last fifty years and fertilizer use has increased by a factor of ten (Brown 1997), but for all but the world's best-fed fifth of the population the per capita food production over the last thirty years has barely increased or has decreased (Meadows et al. 1992). Some forty to fifty percent of the land has been transformed or degraded (Daily 1995), with row-crop agriculture and urban-industrial areas accounting for about half of that (Olson et al. 1983). We are now using over fifty percent of the readily accessible fresh water (Postel et al.

1996), dramatically reducing the delivery of water by some rivers to the sea, and polluting the water that remains with toxins and excess nutrients. We are extracting ground water resources throughout the world at rates that far exceed recharge. This is a mining operation that is exhausting reserves, and we continue to contaminate much of what remains. Two-thirds of marine fisheries are at or beyond their sustainable limits of exploitation (Botsford et al. 1997; FAO 1994). Many of nature's free services, such as pollination of plants by insects and birds are being threatened as the pollinators and their habitats are reduced (Daily et al. 1997). The best scientific assessment showed ten years ago that humans were pre-empting over forty percent of the terrestrial net primary product of photosynthesis (Vitousek et al. 1986) and it has increased since then.

This is a partial, but long enough, summary of the impact humans now have on the Earth systems that sustain us. It is the result of both a cancer and a deadly communicable disease, that is, both human population growth that has become malignant, and excessive consumption by the world's wealthy, or "affluenza." Our modification of and encroachment on natural systems is causing widespread species extinction that is undercutting our own survival. Why has this problem become so severe? Why have we not noticed and responded? We suggest that with the mastery of inanimate energy most of us have become alienated from nature. We have been unable to feel the warnings that have been given. The subliminal perception of this alienation is there and can be traced back at least 150 years. It has found expression by sensitive observers.

Close contact with nature has, however, become rare rather than inevitable. Intuitive empathy with the pulse of natural rhythms and sensitivity to its changes is gone. People who have experienced nothing but the urban environment cannot be expected to have that empathy or sensitivity; they are deprived of the ability to recognize or understand the signals of the disruption of ecosystems or even feel concern about them. It came as a surprise to me (PHR), but probably should not have, when I was told by inmates that they had never been outside the boroughs of New York City until being put on a bus to be sent to prison in the western part of the state.

Out of touch and insensitive to what is happening! Milk? It comes from cartons. Peas? Are they really the seeds of something? How many really think about the fact that the beef they eat needs open rangeland somewhere on which cattle can graze? How many people immediately recognize the meaning of the phrase, "Our ecological footprint"

(Wackernagel and Rees 1996)? Can we love something we don't know anything about, to which we do not feel connected (Pestrong 1997)? If we are alienated from natural systems, can we care about them? Can we care about something as foreign to us as soil loss if we never think about soil as necessary to grow wheat, or even that we need wheat for bread? What we **are** taught is that we need to have a job to make money and that money is the measure of our success in dealing with the world. What **is** important is the company's bottom line, regardless of how it is maximized.

The consequence of alienation is that we are crippled in our relationship to the non-human world. Without a sense of the importance of the integrity of whole ecosystems, how can we embrace holistic ethics? How can we adopt a worldview that will cause us to sustain Earth systems, if the whole concept of Earth systems is neither intellectually nor experientially understood? And yet we know that our worldview determines what we will choose to do, what we can be motivated to do. Does this mean that our environmental crisis will have to become much worse, that we will have to experience large-scale chaos before social learning can occur (Milbrath 1989), before societies can see that change is necessary, that we need a different dominant world view?

We have suggested that our control of energy coming from inanimate sources lies at the root of the problem, which is expressed in industrialization and with it the crowding into urban areas of an ever increasing proportion of a growing population. When trapped in a tram, usually between buildings, and preoccupied with the cares of living in this place, it can be hard to notice the magnificent sunset over the river. When one's life has been lived in the desert canyons of New York City, not even ever getting to the beaches of Long Island, and been deprived of education, the disappearance of pollinators providing one of nature's free services is of no importance; it must also be impossible to imagine the harmony and peace one feels in the deep woods or the sense of freedom that comes from the wide open spaces seen from a mountain top.

What can be done? We need to prepare the ground so that social learning will occur as soon as possible. If we have identified the root causes correctly, then education and experience directed toward the ability to recognize and respond sensitively to the destruction of the only sustaining geobiosphere we have is essential. We need to continue to broaden and deepen our understanding of the geobiosphere. We must continue to improve and enlarge the knowledge base upon which decisions are made that determine the practices and policies of our

societies. We must continue to call attention to what we must stop doing, what has to be protected, and what the possibilities of changed behavior can be. As we develop technologies, we must consciously be as far-seeing as possible so as to anticipate the results of their introduction – to what extent will their impact be good and when will it become negative? We need to be far-sightedly sensitive in our choice and application of technologies. It is as obvious as it is true; the science and the technologies we have must constantly be evaluated to be sure that they are helping us. They can help, but they cannot solve all our problems. Science and technology alone will never be enough. We need, therefore, to do more than just maximize our intellectual understanding of natural systems. We need also to broaden the experiential intuitive understanding that comes with contact. We must find ways to bring people into intimate contact with nature. Not through videos and the World Wide Web, but into first-hand experience of non-urban, minimally modified, as-near-as-natural environments as possible. People must experience nature in order to respect and love it. We need to personalize our relationship to planet Earth if we are to be good long-term stewards of it.

The only practical route toward speeding the development of sustainable societies is through the cultivation of worldviews that, in contrast to the present dominant worldviews, have a chance of motivating sustainable behavior. This means that sustainable human societies will only become possible after the dominant worldview of how humans relate to the non-human world is changed profoundly. The specific ways of organizing societies that are sustainable are, we are sure, many. As long as societies share a dominant worldview that is compatible with sustainability, sustainable societies will be possible. So how do we get there? By elevating to the level of primary importance the study of world views, the frameworks that shape our choices of how to live. When we recognize the failure of our present dominant world views, the ones that have brought us to the crisis we now face, we should be prepared to begin the next step. That is to think seriously about what world views are able to lead us to behaviors that in the long run will work, and then, how to make those world views widespread.

The sciences bring us to this point. Beyond this point the sciences must become the followers and servants of philosophy in the search for sustainability.

References

Botsford, L. W., Castilla, J. C., and Peterson, C. H. (1997). "The

Management of Fisheries and Marine Ecosystems." *Science*, v. 277, p. 509-515.

Brown, L. R. (1997). "Facing the Prospect of Food Scarcity." *State of the World 1997*, p. 23-41.

Daily, G. C. (1995). "Restoring value to the World's Degraded Lands." *Science*, v. 269, p. 350-354.

Daily, G. C. et al. (1997). "Ecosystem Services: Benefits Supplied to Human Societies by Natural Ecosystems." *Issues in Ecology*, No. 2.

FAO Fisheries Technical Paper 335. (1994). Rome: Food and Agricultural Organization.

Mackenzie, F. T. (1998). *Our Changing Planet*. Upper Saddle River, NJ: Prentice Hall.

Meadows, D. H., Meadows, D. L., and Randers, J. (1992). *Beyond the Limits*. Post Mills, VT: Chelsea Green Publishing Co.

Milbrath, L. W. (1989). *Envisioning a Sustainable Society: Learning Our Way Out*. Albany, NY: State University of New York Press.

Olson, J. S., Watts, J. A., and Allison, L. J. (1983). *Carbon in Live Vegetation of Major World Ecosystems*. Washington, DC: Office of Energy Research, U. S. Department of Energy.

Pestrong, Raymond., (1997). "The Earth Needs Geologists." *Abstracts with Programs*, p. A-268. Geological Society of America.

Pimentel, David. (1998). "Population Growth and the Environment." *Electronic Green Journal*, Issue no. 9.

Pimentel, David et al. (1995). "Environmental and Economics Costs of Soil Erosion and Conservation Benefits." *Science*, v. 267, p. 1117-1123.

Postel, S. L., Daily, G. C., and Ehrlich, P. R. (1996). "Human Appropriation or Renewable Fresh Water." *Science*, v. 271, p. 785-788.

Tucker, M. E. (1991). "The Relevance of Chinese Neo-Confucianism for the Reverence of Nature." *Environmental History Review*, p. 55-69.

Vitousek, P. M. et al. (1986). "Human Appropriation of the Products of

Photosynthesis." *BioScience*, v. 36, p. 358-373.

Wackernagel, Mathis, and Rees, William. (1996). *Our Ecological Footprint*. Gabriola Island, BC: New Society Publishers.

Wilson, E. O. (1998). "Integrated Science and the Coming Century of the Environment." *Science*, v. 279, p. 2048-2049.

Paul H. Reitan, <preitan@acsu.buffalo.edu> Dept of Geology, State University of New York, Box 603050, Buffalo, NY 14260-3988, USA.

Eric Reitan, General Science, Seattle University, 900 Broadway, Seattle, WA 98122-4460. USA.