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## **SOCIAL ACTION, SOCIAL RESPONSIBILITY, AND SECONDARY SOURCES OF ENVIRONMENTAL INFORMATION**

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*The day is coming when scientists and intellectuals will accept the need to take social action and accept social responsibility as an integral, and not a supplementary part of their scientific responsibility, adding their voice and their actions to those of million of others. That will be a day of great hope for a direly threatened world.*

Dimitry N. Evdochenko, The Lighthouse, 28 June 2004 <http://www.demetra-net.org>

I hope that Evdochenko's expectation that scientists and intellectuals accept social responsibility will be realized. A *sine qua non* of this endeavor is communicating the basic message of information generated by professionals to the general public, especially those people who do not have the time and/or the specialized education needed to obtain their information from primary resources (e.g., disciplinary journals). Secondary sources (e.g., newspapers, environmental news letters) are both more accessible and more understandable to people whose disciplinary literacy, except for their personal discipline, is not high.

Social activism is less appropriate than social responsibility since the general public should be trusted to decide when social action is needed rather than just being told. Professional objectivity is particularly important in an era in which powerful attempts are made to discredit science when it conflicts with political ideology. For example, mainstream science has accepted the evidence on global warming for years, but their influence is overshadowed by influential politicians who may receive major funding from special interest groups.

A number of reasons why environmental information should be more egalitarian follow.

- (1) By excluding some major sources of information for ordinary citizens, communication is impaired with them and scientists can evade responsibility based on the excuse of disciplinary rules.
- (2) Readers are likely to have access to a computer (which makes available much information through secondary sources) but not necessarily to a major library.
- (3) Even when available, the specialized scientific journals rarely focus on the ethical issues involved.
- (4) Environmental politics is more likely to be emphasized in the news media, governmental hearings, and the like.
- (5) Most scientific journals have a substantial lag time between submission of the manuscript and publication.

(6) Most scientific publications use technical terms unfamiliar to the typical reader, even when a member of another discipline.

(7) Most secondary sources provide the original source of the information (e.g. conferences, UN meetings, academic journals, and governmental hearings) for those wishing more detail.

(8) Many Internet sources (e.g., *The New York Times*, *Environmental News Network*) are free.

(9) Many articles that I cite are called to my attention by colleagues (e.g., in US National Academies of Science and Engineering), which furnishes another confirmation of the value of secondary sources.

(10) The news media reflect public concerns more than the academic journals do.

(11) Environmental ethics must involve all of global society, not just a select professional few.

(12) Most secondary sources focus on a particular event rather than providing a synthesis of a variety of related information from a variety of sources.

Rosen (2004) describes an issue raised in Anchorage, Alaska, involving citizens of Anchorage and members of the US Senate Appropriations Committee. Due to global warming, floods and shoreline erosion are increasing markedly since the Arctic ice is thinner and more fragile, which in turn increases turbulence of the sea. Storms are eroding coastline once protected by both permafrost and the Arctic ice pack. Construction of seawalls and/or relocating entire towns would cost the United States millions of dollars for each town. This undertaking is beyond the resources of the residents. Some airstrips, so vital to transportation in Alaska, are swamped. Ice cellars once used to store food are now filling with water. The US General Accounting Office states that, of the 213 native Alaskan villages, 184 face flooding and erosion problems, with very serious problems in about 20. In addition, Cheary (2004) describes a situation in the Netherlands where global warming and rising sea levels are major concerns because about half the population lives below sea level.

Understanding the complexity of sustainable use of the planet will not be achieved if sources of information are limited to highly focused disciplinary journals. Of course, the accuracy of the information used in a manuscript should be "verifiable," but an open and free discussion will be inadequate if a variety of viewpoints is not encouraged. The global stage should be sufficiently broad to include a variety of viewpoints, which will not be achieved unless a broad variety of reliable information sources is used.

The two illustrative case histories I cited were chosen on the assumption that readers have some knowledge of global warming and sea level rise. Mainstream science has addressed and is continuing to address these issues. The concomitant ethical issues have not been adequately addressed. Humankind should be committed to improving open and free discussions of ethical issues, which science and economics have made apparent.

Increasing environmental literacy at all levels of ecological organization will require a major increase in time allotted by both professionals of all disciplines and ordinary citizens. The many individuals who state they have no spare time for this undertaking should consider the effects of disequilibrium of the biospheric life support system upon individuals, society, and posterity. Increasingly, evidence indicates the system is approaching major tipping points and may already have done so in some areas (e.g., global warming). No clear indication is available of how much time increasing environmental literacy will take per person, but 10% seems a good starting point. In view of the complexity of the issues humankind faces, this level of involvement is truly a modest estimate. With an expected 3 billion increase in the human population by 2050, the crisis requires substantive attention and meaningful remedial action before the middle of the 21<sup>st</sup> century at the latest.

Those individuals who doubt the urgency of the present environmental crisis, and they are numerous, should become better acquainted with the serious air pollution problem that a Chinese official, Zhang Lijun, warned could quadruple within 15 years if the country does not curb its rapid growth in energy consumption (Yardley 2005). China is already the world's second biggest producer of greenhouse gases and is expected to surpass the United States. The US city of Los Angeles now has, on certain days, 25% of the particulate matter originating in China according to the US Environmental Protection Agency. However, discussion is not forthcoming on the leading environmental issue — climate change (The Independent 2005a), even though policy is available to address this situation (The Independent 2005b), such as:

- (1) set legally binding carbon dioxide reduction targets.
- (2) decentralize the energy supply system.
- (3) require that all new buildings be carbon dioxide free.
- (4) insist on use of energy-efficient light bulbs.
- (5) boost neglected renewables: solar, wave, and tide power.
- (6) focus again on offshore wind power.
- (7) get radical with energy efficiency.
- (8) tackle the gas guzzlers.
- (9) curb the growth in cheap flights.
- (10) have a late-night talk with US President George Bush.

Humankind's political systems and lifestyles must be changed (Cameron 2005). Clearly, the time is long past for tentative, voluntary, partial measures to avoid major catastrophes, such as the already evident problems resulting from global warming. Even the Kyoto Protocol (Lies 2005), which mainstream scientists feel is inadequate to eliminate global warming, still lacks support from the two largest sources of anthropogenic carbon dioxide (United States and China). It is, however, a badly needed first step on a long journey.

There are grounds for hope. For example, Denmark has stabilized its population, banned the construction of coal-fired power plants, banned the use of non-refillable beverage containers, and is now getting 15% of its electricity from wind (Brown 2005). Europe has stabilized its population within its food producing capacity, and China has lower fertility than the United States and is moving toward population stability.

### Concluding Remarks

Clearly, the illustrative issues in this commentary have had no global discussion. Some newsworthy items (e.g., melting of glaciers) are usually discussed in isolation from other major obstacles to sustainable use of the planet. Recently, I had a paper published (Cairns 2001 as of 2005) that was written in early 2001 and scheduled for publication in September 2001. I received notification of its publication on 1 November 2005. The issues raised are even more urgent today than when they were written. In short, humankind is no nearer to the goal of sustainable use of the planet. A new forum is badly needed, and the Internet may be the ideal forum for this synthesis of a diverse array of topics.

A major drawback of the Internet is the lack of quality control. This problem can be diminished by encouraging contributors to provide evidence of their qualifications. My personal Internet site provides current publications, curriculum vitae, recent books (archives), degrees, and professional organizations. Books and some journal articles are accompanied by condensed biographical information. Numerous publications provide condensed versions of biographical information on authors (e.g., *American Men and*

*Women in Science*). Once an Internet forum is established, a quality control system will likely develop. However, the forum should be understandable to non-specialists and, therefore, should be based on a transdisciplinary rather than a disciplinary model.

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#### LITERATURE CITED

- Brown, L. R. 2005. A monumental undertaking. *Population Press* 11(2): 3.
- Cairns, J., Jr. 2001 as of 2005. The age of transition to sustainability: the end of the exponential growth period. *Politics and the Life Sciences* 20(2):131-138.
- Cameron, D. 2005. Change our political system and our lifestyles. *The Independent* 1 Nov  
<http://comment.independent.co.uk/commentators/article323747.ece>
- Cheary, M. 2004. Low lying Dutch fear rising seas. *Environmental News Network* 2 July  
[http://www.enn.com/news/2004-07-02s\\_25491.asp](http://www.enn.com/news/2004-07-02s_25491.asp)
- The Independent. 2005a. The elephant in the room at the world climate talks. 1 Nov  
[http://www.independent.co.uk/leading\\_articles/article323750.ece](http://www.independent.co.uk/leading_articles/article323750.ece)
- The Independent. 2005b. Climate change: 10 ways to save the world. 1 Nov  
<http://www.news.independent.co.uk/environment/article323793.ece>
- Lies, E. 2005. Japan wants all nations in post-Kyoto deal. *Environmental News Network* 31 Oct  
[http://www.enn.com/today\\_PF.html?id=9137](http://www.enn.com/today_PF.html?id=9137)
- Rosen, Y. 2004. Alaskan natives say warming trends imperils villages. *Environmental News Network* 2 July  
[http://www.enn.com/news/2004-07-02s\\_25490.asp](http://www.enn.com/news/2004-07-02s_25490.asp)
- Yardley, J. 2005. China's next big boom could be the foul air. *The New York Times* 30 October, Late edition-final, Section 4, p. 3. col. 1.