

The environment is nice as long as it's free

Editorial (2010)^{1,2}

You walk through the cool woods taking deep, energizing breaths of fresh air. No charge! The trees or other photosynthetic organisms take your exhaled waste (carbon dioxide) and turn it into wood that can be used to build houses or make paper. No charge! For nearly 200,000 years, human wastes were just deposited in the environment and turned into less harmful materials. No charge! Small hunting and gathering tribes acquired their food from the environment. No charge!

However, at present, wastes from nearly 7 billion people on Earth and industrial and municipal wastes are more than the environment can handle. Some wastes are chemical substances that the environment cannot even use as raw materials. In addition, other types of wastes are discharged into the environment in quantities too large for the environment to assimilate.

Wastes also must be treated, not only to prevent harm to the environment but recycled or transformed into materials beneficial to the environment. Such procedures cost money — maintaining a functioning environment is no longer free, and some industries and some people find these circumstances disturbing. For most of the 200,000 years that *Homo sapiens* has been on Earth, the Biosphere (i.e., the environment) has provided both goods (e.g., natural resources) and services (e.g., maintaining the atmospheric gas balance) free. However, no action in natural systems is without consequences — some beneficial, some detrimental.

Humankind has made an irrational, unsustainable decision to maintain economic growth even though it has already damaged the biospheric life support system, probably beyond repair — once tipping points have been passed, the changes are irreversible. The morality of obtaining renewable resources at a rate beyond the Biosphere's ability to regenerate them will damage the natural system that provides the services. Using resources beyond their regeneration rate is ecological overshoot; in 2010, humans used 140% more resources than could be regenerated. August 21, 2010, was the day that the ecological budget was exhausted for the year — clearly an unsustainable situation. On December 26, 2010, humankind had used 154% of Earth's resources. Using a percentage beyond the resources available reduces natural capital, which is like using the capital in a bank account, i.e., the interest is reduced because of the decrease in capital available. In this example, natural capital is resources and interest is ecosystem services. As a result, each year of overshoot reduces the capital even more and, thus far, no effort has been made to replace it.

Retirement annuities and institutional retirement benefits are calculated on the basis of how long a person of a certain age is statistically likely to live and is based on a particular starting date. The goal is for the money to last as long as the individual. This practice assumes that the financial market will not collapse. The same procedure applies to the Biosphere, i.e., reserve resources for future use and do not deplete them or the structure will collapse. At least eight major global crises are interacting at present (Cairns 2010). Humankind can help the present Biosphere persist longer if it does not continue business as usual. Atmospheric carbon dioxide can be reduced by reducing anthropogenic (human-caused) greenhouse gas emissions, i.e., carbon dioxide can be markedly reduced by using non-carbon alternative energy sources (e.g., solar panels, windmills) to replace carbon rich fossil fuels (e.g., coal, petroleum). European countries have already begun the transition in a substantive way.

Many costs of climate change are just beginning to be discovered. For example, 30 new diseases have emerged in the last 20 years. In addition, a resurgence and a redistribution of old diseases have surfaced on a global scale (Epstein et al. 1998). A warmer world is producing a sicker world, as such diseases as malaria, heart ailments, and dengue fever (carried by mosquitoes whose numbers are increasing with warmer temperatures) are among those undergoing resurgence and redistribution (Associated Press 2006). In North America, the bark beetle is expanding its range already causing damage to forests. The global warming has enabled the beetle to expand its range. These costs and risks are yet to be adequately factored into estimating the full costs of climate change.

Humankind should be concerned for future generations as well as those now living. Every day humankind fails to increase its environmental literacy, live sustainably, stabilize its population within Earth's carrying capacity, and take effective remedial action on climate change.

¹I hasten to emphasize that the editorial was criticizing an overzealous Commonwealth Attorney General of Virginia for investigating a well known climate scientist for possible misuse of Commonwealth funds. At this time, no evidence of misuse has been found.

²I am indebted to Richard Rusk for calling this editorial to my attention.

Acknowledgments. I am indebted to Darla Donald for transcribing the handwritten draft and for editorial assistance in preparation for publication.

LITERATURE CITED

- Associated Press. 2006. Global warming causing disease to rise. 14Nov
http://www.msnbc.msn.com/id/15717706/ns/health-health_care/.
- Cairns, J., Jr. 2010. Threats to the biosphere: eight interactive global crises. *Journal of Cosmology*.
- Editorial. 2010. Ken Cuccinelli vs. the world. Roanoke Times 20Oct
<http://www.roanoke.com/editorials/wb/264483>.