

HUMAN RIGHTS AND NATURAL LAWS

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“Gravity; it’s not just a good idea—it’s the law,” goes an old quip. Indeed, the laws that underpin ecosystem integrity are not just to be admired, they are necessary for maintaining life-support systems, and our health. In this context, environmental health, basic needs, and human rights—as considered by the United Nations—become barely distinguishable. It is the human role in undermining or rescuing nature’s regulatory strategies that is the subject of this editorial.

Self-regulatory mechanisms are active at all levels in living systems. Within the nucleus of DNA-containing organisms, regulatory genes deactivate abnormal cells, while others perform “spell-checking” functions—excising mismatched base pairs from mutated structural genes. In the cytoplasm, harmful oxygen-derived free radicals are neutralized before they disrupt DNA. And at the organismic level, T-cells and Natural Killer cells carry out active surveillance to expunge malignant cells.

It is this *diversity* of regulatory responses that maintains informational stability over time—among the networks of genes critical for generating form and body plans, and for ensuring flexibility of immunological responses to insults and invasions.

Within ecosystems, *biodiversity* is the primary buffer, assuring resilience in the face of perturbations and resistance

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to the emergence and invasion of opportunistic organisms. Birds, bats, reptiles, and fish, for example, help regulate mosquito populations; coyotes, owls, and snakes consume rodents that damage crops and carry numerous disease agents. Preserving a balance among *functional* ecological groups—in particular, among predators and prey—impedes the proliferation of pests and pathogens; these co-evolved systems providing natural biological controls. Just as immunodeficient persons lack “predatory” cells, disturbed habitats disproportionately lose large predators—both conditions favoring the emergence of opportunistic infections.

Several human activities are disrupting the health of many terrestrial and marine ecosystems. Habitat loss and fragmentation, expansion of monocultures, and overuse of pesticides are three primary practices. Meanwhile, major changes in global systems—and decade- and century-level records in climate variability and extreme weather events—pose new challenges for ecosystems. And these factors *compound* to favor the growth of opportunistic species like insects and rodents.

Several symptoms may be seen as part of a generalized Environmental Distress Syndrome. Among these are: the pattern of newly emerging and resurging infections affecting humans as well as marine and terrestrial plants and animals; the dominance of “generalists” with wide-ranging diets such as Canadian geese, crows, and gulls, over “specialists” like plovers, with local, disappearing niches; and the decline in pollinators (ardent specialists) such as bees, birds, bats, butterflies, and beetles.¹

Of primary concern, clusters of toxin-related and infectious diseases are occurring globally at an accelerating rate. And, the impacts of epidemics (like *E. coli* in Japan and mad-cow disease in the U.K.) can cascade through the psyches of societies and ripple devastatingly through their economies.

To reduce susceptibility of populations and the vulnerability of ecosystems to disease emergence, generalized defense systems need to be nurtured. Forests and flowers (offering nectar) succor birds that dine on bugs; wetlands filter pollutants while absorbing carbon dioxide and nursing fledgling marine creatures. Such highly developed systems—and the multiple functions they perform—may be amenable to res-

toration; they certainly cannot all be replaced by engineered devices. Adequate nutrition, clean water, clean air, and healthy habitats are necessary buttresses for the “laws” that sustain complex, living, adaptive systems.

Current international dynamics are, however, undermining these natural laws. Widespread, armed conflict, population displacement, and environmental degradation are increasing under the weight of ever-mounting debts, inequitable terms of trade, and imposed economic programs that weaken the regulatory role of nation-states. Moreover, these international forces negate the positive incentives provided by the projects, programs, and policies designed to encourage healthy development, curtail population growth and conserve the environment. One agricultural specialist at a recent World Bank Symposium affirmed the need for strong governments to protect public welfare *and* to ensure healthy competition among industries.

Human intervention to rekindle system-sustaining mechanisms is necessary at many levels. We are exhausting fossilized and living resources (species), and generating wastes at a pace beyond the capacity of natural biogeochemical systems to recycle them. Incentives will be needed to stimulate industries and markets for restoration, reclamation and the efficient use of renewable resources. International accords to regulate the commons—fisheries, forests, fossil fuels and toxics—need to be enforced. These regulatory measures include: the United Nations Convention on the Laws of the Seas; the Biodiversity Convention; the Basel Convention on Toxins; the Montreal Protocol on Stratospheric Ozone-depleting Chemicals; and the Framework Convention on Climate Change.²

In this issue of *Health and Human Rights*, two articles consider environmental rights as they pertain to health. Dolan et al. depict the unhealthy and precarious purgatory inhabited by Mozambican refugees—and the inescapable necessity of considering their legal status. Iles takes a broad look at environmental health and calls for better integration of health surveillance with environmental monitoring.

A common question weaves through these articles: can the environmental rights/ecosystem health/human health nexus be translated into action?

This connection has to date been addressed quite cogently by the New York-based Center for Economic and Social Rights, which has brought court action against oil companies (with over 300 drilling sites) contaminating the Ecuadorean headwaters of the Amazon.³ Litigation in Bhopal, India, and in Woburn, Massachusetts, USA are further examples and there are many others, less well-publicized.

The effort to nourish environmental health and ensure our future security is a common one. Initially, we must recognize the unfolding biological consequences of global environmental change. Ultimately, greater international governance will be required to restrain the intentional and unintentional forces that put short-term goals ahead of long-term environmental and economic viability.

Restoring local and global systems will not be easy nor inexpensive; though the process may bring unexpected savings and could spur new, better distributed economic growth. But redirecting environmental and energy policies away from "business as usual" is not just a good idea; it is a necessity in order to sustain the underlying laws and complex systems that support us. Institutions at every level—nongovernmental, intergovernmental and governmental—will have roles to play in establishing new practices and a new legal framework that can maintain the resilience of local and global systems over time. The costs of not changing course are beginning to rise.

References

1. S.L. Buchmann, G.P. Nabhan, *The Forgotten Pollinators* (Washington, D.C.: Island Press, 1996).
2. The Conference of the Parties to the Framework Convention on Climate Change, framed at the 1992 Rio Earth Summit, will convene in December 1997 in Kyoto, Japan to consider targets and timetables for reducing the global emissions of air polluting chemicals.
3. Center for Economic and Social Rights, "Rights Violations in the Ecuadorean Amazon," *Health and Human Rights* 1 (1) (1994):82-100.