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CHAPTER SIX

Sustainable Development vs. Sustainable Biosphere

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The United Nations Conference on Environment and Development entwined its twin concerns into "sustainable development." No one wants unsustainable development, and sustainable development has for the decade and a half since Rio remained the favored model. The duty seems unanimous, plain, and urgent. Only so can this good life continue. Over 150 nations have endorsed sustainable development. The World Business Council on Sustainable Development includes 130 of the world's largest corporations.

Proponents argue that sustainable development is useful just because it is a wide angle lens. The specifics of development are unspecified, giving peoples and nations the freedom and responsibility of self-development. This is an orienting concept that is at once directed and encompassing, a coalition-level policy that sets aspirations, thresholds, and allows pluralist strategies for their accomplishment.

Critics reply that sustainable development is just as likely to prove an umbrella concept that requires little but superficial agreement, bringing a constant illusion of consensus, glossing over deeper problems with a rhetorically engaging word. Seen at more depth, there are two poles, complements yet opposites. Economy can be prioritized, the usual case, and anything can be done to the environment, so long as the continuing development of the economy is not jeopardized thereby. The environment is kept in orbit with economics at the center.

One ought to develop (since that increases social welfare and the abundant life), and the environment will constrain that development if and only if a degrading environment might undermine ongoing development. The underlying conviction is

that the trajectory of the industrial technological, commercial world is generally right—only the developers in their enthusiasm have hitherto failed to recognize environmental constraints.

If economics is the driver, we will seek maximum harvests, using pesticides and herbicides on land, a bioindustrial model, pushing for bigger and more efficient agriculture, so long as this is sustainable. This will push to the limits the environmental constraints of dangerous pesticide and herbicide levels on land and in water, surface and ground water, favoring monocultures, typically of annuals, inviting soil erosion and invasive species. The model is extractive, commodification of the land. Land and resources are "natural capital."

At the other pole, the environment is prioritized. A "sustainable biosphere" model demands a baseline quality of environment. The economy must be worked out "within" such a policy for environmental quality objectives (clean air, water, stable agricultural soils, attractive residential landscapes, forests, mountains, rivers, rural lands, parks, wildlands, wildlife, renewable resources). Winds blow, rains fall, rivers flow, the sun shines, photosynthesis takes place, carbon recycles all over the landscape. These process have to be sustained. The economy must be kept within an environmental orbit. One ought to conserve nature, the ground-matrix of life. Development is desired, but even more, society must learn to live within the carrying capacity of its landscapes. The model is land as community.

"Sustainable" is an economic but also an environmental term. The Ecological Society of America advocates research and policy that will result in a "sustainable biosphere," "Achieving a sustainable biosphere is the single most important task facing humankind today" (Risser, Lubchenco, Levin, 1991). The fundamental flaw in "sustainable development" is that it sees the Earth as resource only. The underlying conviction in the sustainable biosphere model is that the current trajectory of the industrial, technological, commercial world is generally wrong, because it will inevitably overshoot. The environment is not some undesirable, unavoidable set of constraints. Rather, nature is the

matrix of multiple values; many, even most of them are not counted in economic transactions. In a more inclusive accounting of what we wish to sustain, nature provides numerous other values (aesthetic experiences, biodiversity, sense of place and perspective), and these are getting left out. The Millennium Ecosystem Assessment explores this in great detail.

A central problem with contemporary global development is that the rich grow richer and the poor poorer. Many fear that this is neither ethical nor sustainable.

Global inequalities in income increased in the 20th century by orders of magnitude out of proportion to anything experienced before. The distance between the incomes of the richest and poorest country was about 3 to 1 in 1820, 35 to 1 in 1950, 44 to 1 in 1973, and 72 to 1 in 1992 (United Nations Development Programme (UNDP), 2000, p. 6).

For most of the world's poorest countries the past decade has continued a disheartening trend: not only have they failed to reduce poverty, but they are falling farther behind rich countries (United Nations Development Programme (UNDP), 2005, p. 36).

The distribution of wealth raises complex issues of merit, luck, justice, charity, natural resources, national boundaries, global commons. But by any standards this seems unjustly disproportionate. The inevitable result stresses people on their landscapes, forcing environmental degradation, more tragedy of the commons, with instability and collapse. The rich and powerful are equally ready to exploit nature and people.

Such issues come under another inclusive term, "environmental justice." Now the claim is that social justice is so linked with environmental conservation that a more fair distribution of the world's wealth is required for any sustainable conservation even of rural landscapes, much less of wildlife and wildlands. Environmental ethicists may be faulted for overlooking the poor

(often of a different race, class, or sex) in their concern to save the elephants. The livelihood of such poor may be adversely affected by the elephants, who trash their crops. Or it may be adversely affected because the pollution dump is located on their already degraded landscapes—and not in the backyard (or even on the national landscapes) of the rich. They may be poor because they are living on degraded landscapes. They are likely to remain poor, even if developers arrive, because they will be too poorly paid to break out of their poverty.

If we have trouble enough making sustainable development equitable, then, so much the more to be feared is emphasis on the sustainable biosphere—some will argue. Now the argument takes a new turn. The poor are kept poor because their development is not only constrained by the wealthy rich but by the setting aside of biodiversity reserves, forest reserves, hunting and catching limits. The priority of economics is the priority of human welfare, and that includes the welfare of the poor.

"Human beings are at the centre of concerns..." So the Rio Declaration begins, formulated at the United Nations Conference on Environment and Development (UNCED), and signed by almost every nation on Earth. This document was once to be called the Earth Charter, but the developing nations were more interested in asserting their rights to develop, more ecojustice, more aid from the North to the South, and only secondarily in saving the Earth. The Rio claim is, in many respects, quite true. The human species is causing all the concern. Environmental problems are people problems, not gorilla or sequoia problems. The problem is to get people into "a healthy and productive life in harmony with nature" (UNCED, 1992b).

Wilfred Beckerman and Joanna Pasek put it this way:

The most important bequest we can make to posterity is to bequeath a decent society characterized by greater respect for human rights than is the case today. Furthermore, while this by no means excludes a concern for environmental developments—particularly those that many

people believe might seriously threaten future living standards—policies to deal with these developments must never be at the expense of the poorest people alive today. One could not be proud of policies that may preserve the environment for future generations if the costs of doing so are borne mainly by the poorest members of the present generation (Beckerman and Pasek, 2001, p. vi).

That is certainly humane, and no one wishes to argue that the poorest should bear the highest of these costs, while the rich gain the benefits. We are not proud of a conservation ethic that says: the rich should win, the poor lose.

But look at how this plays out with World Health Organization policy:

Priority given to human health raises an ethical dilemma if "health for all" conflicts with protecting the environment. ... Priority to ensuring human survival is taken as a first-order principle. Respect for nature and control of environmental degradation is a second-order principle, which must be observed unless it conflicts with the first-order principle of meeting survival needs (World Health Organization, Commission on Health and Environment, 1992, p. 4).

Again, that seems quite humane. But in India this policy certainly means no tigers. In Africa it means no rhinos. Both will only remain in Western zoos. To preserve, even to conserve, is going to mean to reserve. If there are biodiversity reserves, with humans on site or nearby, humans must limit their activities. Else there will always be some hungry persons, who would diminish the reserve. The continued existence in the wild of most of Earth's charismatic endangered species depends on some 600 major reserves for wildlife in some 80 countries (Riley and Riley, 2005). If these are not policed, the animals will not be there.

No, Keep some pocket reserves. Use them for eco-tourism, and the poor can benefit from the wildlife reserves on their lands. But

the main driver is still going to be economics: sustainable development.

Economics is the overall governing driver; there is no escaping this, economists may say. For all of human history, we have been pushing back limits. Especially in the West, we have lived with a deep-seated belief that life will get better, that one should hope for abundance, and work toward obtaining it. Economists call such behavior "rational"; humans will maximize their capacity to exploit their resources. Moral persons will also maximize human satisfactions, at least those that support the good life, which must not just include food, clothing, and shelter, but an abundance, more and more goods and services that people want. Such growth is always desirable.

Some will say, if you wish to know what policy to sustain, you should ask an ecologist. Ecology is strikingly like medical science. Both are therapeutic sciences. Ecologists are responsible for environmental health, which is really another form of public health. Health is not just skin-in; it is skin-out too. One cannot be healthy in a sick environment. Health is something it is easy to advocate and the criteria seem to be scientific.

Any sustain-economic-development ethic, these ecologists may say, needs to be brought under a sustainable biosphere ethic. The fundamental concern is that any production of such goods be ecologically sustainable. Development concerns need to focus on natural support systems as much as they do peopled needs. So "development," which has long been a concern and at which the West has been so successful in the modern epoch, is now entwined with, constrained by, "environment."

But ecologists have no special competence in evaluating whether to give priority to economic development or to conserving nature beyond what ecology is required for human development. A people on a landscape will have to make value judgments about how much original nature they have, or want, or wish to restore, and how much culturally modified nature they want, and whether it should be culturally modified this way or that. Ecologists may

be able to tell us what our options are, what will work and what will not, what is the minimum baseline health of landscapes. But there is nothing in ecology per se that gives ecologists any authority or skills at making these further social decisions. Science does not enable us to choose between diverse options, all of which are scientifically possible.

I can equally substitute the word "economics" for "science" in what I have just been claiming. (Alternately put, "science" in the preceding claims, includes "economic science.") Economists have no special competence in evaluating what rebuilding of nature a culture desires, or how far the integrity of wild nature should be sacrificed to achieve this. Economists, like the ecologists, may be able to tell us what our options are, what will work and what will not. But there is nothing in economics per se that gives economists any authority or skills at making these further social decisions. Economics does not enable us to choose between diverse options, all of which are economically possible.

After four centuries during which economics has progressively illuminated us about how we can transform nature into the goods we want, the value questions raised in economics too are as sharp and as painful as ever. Economics can, and often does, serve noble interests. Economics can, and often does, become self-serving, a means of perpetuating injustice, of violating human rights, of making war, of degrading the environment. Religion and ethics do ask about how to live justly. We need religious insights into human nature as well as into nature. But here too both religion and ethics will be required to enlarge the scope of their classical concerns. Now, as did the ecologists and economists, the ethicists equally have their problems: caring for persons versus caring for nature. In the West we have built development into our concept of human rights: a right to self-development, to self-realization. Today, such an egalitarian ethic scales everybody up and drives an unsustainable world. When everybody seeks their own good, there is escalating consumption. But equally, if one seeks justice and charity, when everybody seeks everybody else's good, there is, again, escalating consumption.

Humans are not well equipped to deal with the sorts of global level problems we now face. The classical institutions—family, village, tribe, nation, agriculture, industry, law, medicine, even school and church have shorter horizons. Far-off descendants and distant races do not have much "biological hold" on us. Across the era of human evolution, little in our behavior affected those remote from us in time or in space, and natural selection shaped only our conduct toward those closer. Global threats require us to act in massive concert of which we are incapable. If so, humans may bear within themselves the seeds of their own destruction. More bluntly, more scientifically put: our genes, once enabling our adaptive fit, will in the next millennium prove mal-adaptive and destroy us.

Is there any hope? Humans are attracted to appeals to a better life, to quality of life, and if environmental ethics can persuade large numbers of persons that an environment with biodiversity, with wildness is a better world in which to live than one without these, then some progress is possible—using an appeal to still more enlightened self-interest, or perhaps better: to a more inclusive and comprehensive concept of human welfare. That will get us clear air, water, soil conservation, national parks, some wildlife reserves and bird sanctuaries. Environmental ethics cannot succeed without this, nor is this simply pragmatic; it is quite true. This may be the most we can do at global scales, even national scales, with collective human interests.

We may prove able to work out some incentive structures. The European Union has transcended national interests with surprising consensus about environmental issues. Kofi Annan, Secretary General of the United Nations, praised the Montreal Protocol, with its five revisions, widely adopted (191 nations) and implemented as the most successful international agreement yet. All the developed nations, except the United States and Australia, have signed the Kyoto Protocol. The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) has been signed by one hundred and twelve nations. There are over one hundred and fifty international agreements (conventions, treaties, protocols, etc.), registered with the United Nations, that deal

directly with environmental problems (United Nations Environment Programme, 1997; Rummel-Bulska and Osafo, 1991).

Sustainable development is impossible without a sustainable biosphere. Thirty percent of the Millennium Ecosystem Assessment Development Goals depend on access to clean water. A third of the people on the planet lack readily available safe drinking water. Consider the conclusion of some of its principal authors:

We lack a robust theoretical basis for linking ecological diversity to ecosystem dynamics and, in turn, to ecosystem services underlying human well-being. ... The most catastrophic changes in ecosystem services identified in the MA (Millennium Assessment) involved nonlinear or abrupt shifts. We lack the ability to predict thresholds for such changes, whether or not such a change may be reversible, and how individuals and societies will respond.

... Relations between ecosystem services and human well-being are poorly understood. One gap relates to the consequences of changes in ecosystem services for poverty reduction. The poor are most dependent on ecosystem services and vulnerable to their degradation (Carpenter, et al, 2006).

Pushing development in ignorance of the resulting outcomes on the poor, risking abrupt shifts at unknown thresholds past which the poor suffer much more degraded environments only further escalates the rich getting richer at the expense of the poor. The moral imperative is to keep the ecosystem services needed for the poor, even more than those needed for the rich. Since ecosystem services are involved for persons living immediately in contact with nature, such conservation is as likely to focus on a sustainable biosphere as on sustainable development.

The fundamental flaw in sustainable development as first priority is moral in yet a deeper sense. Ecologists, economists—and ethicists and theologians—alike need to learn that there is

something morally naive about living in a reference frame where one species takes itself as absolute and values everything else relative to its utility, even if we phrase it that we are taking ourselves, rich or poor, as primary and everything else as secondary. If true to their specific epithet, ought not Homo sapiens value this host of life as something with a claim to care in its own right? If we humans continue as we are headed and cause extinctions surpassing anything previously found on Earth, then future generations, rich or poor, are not likely to be proud of our destroying this wonderland planet we have been given.

Develop! Develop! Develop! Maximize endless development? The theme of this AAAS Convention is Our Planet and Its Life: Origins and Futures. Is the future we want maximized development for human satisfaction? Perhaps when we couple origins and futures, we will in the midst of our development also seek to sustain life on this wonderland planet. People and their Earth have entwined destinies; that past truth continues in the present, and will remain a pivotal concern in the new millennium.

References:

Beckerman, Wilfred, and Joanna Pasek, 2001. Justice, Posterity, and the Environment. New York: Oxford University Press.

Carpenter, Stephen R. et al, 2006. "Millennium Ecosystem Assessment: Research Needs," Science 314(13 October):257-258.

Riley, Laura and William Riley, 2005. Natures Strongholds: The World's Great Wildlife Reserves. Princeton, NJ: Princeton University Press.

Risser, Paul G., Jane Lubchenco, and Samuel A, Levin, 1991. "Biological Research Priorities—A Sustainable Biosphere," BioScience 47:625-627.

Rummel-Bulska, Iwona and Seth Osafo, eds., 1991. Selected Multilateral Treaties in the Field of the Environment II. Cambridge: Grotius Publications.

United Nations Conference on Environment and Development (UNCED), 1992b. The Rio Declaration. UNCED Document A/CONF.151/5/Rev. 1, 13 June.

United Nations Environment Programme, 1997. Register of International Treaties and Other Agreements in the Field of the Environment. Nairobi: United Nations Environment Programme.

United Nations Development Programme (UNDP), 2000. Human Development Report 2000. Oxford, UK: Oxford University Press.

United Nations Development Programme (UNDP), 2005. Human Development Report 2005. New York: United Nations Development Programme.

World Health Organization, Commission on Health and Environment, 1992. Our Planet Our Health: Report of the WHO Commission on Health and Environment. Geneva: World Health Organization.