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Sustainable Development:

A Biologist's view

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I have increasing discomfort with the term Sustainable Development. My discomfort stems from two key concerns with the term. First, it remains too ambiguous and ill-defined. It is being used so widely that there are too many shades of meaning attached to it. Second, I am concerned that as the term is commonly used, it does not embody the notion of limits. I mean limits to growth, limits to human population increase, limits to material consumption by western society, and limits to the capacity of ecosystems to recover from disturbance and assimilate wastes. Therefore, I fear sustainable development will not serve as the central, unifying concept or paradigm on which to hang our collective efforts on environmental management.

My first recollection of the term was in IUCN's World Conservation Strategy, published in 1980, which referred to the sustainable use of living resources. Then came the Brundtland Report in 1987, in which sustainable development was presented as a sort of panacea. Canada's response to Brundtland, the National Task Force on the Economy and Environment, referred to *environmentally sustainable economic development*. To me, this is actually the most understandable use of the term I have seen so far.

During the time these terms were gaining wider use, I was becoming aware that older concepts for guiding environmental stewardship, such as Leopold's land ethic, or the foresters' old notion of sustained yield, had simply failed. I welcomed the possibility that the idea of *sustainable* development would emerge as a body of understanding that would drive fundamental change, and instill the attitudes and behaviours necessary for the challenges ahead. To me, *sustainability* made sense, and fit my biocentric world view in which there are limits, and checks and balances. Because I think I understand nature, I have an intuitive closure on the correctness that limits exist.

But something has gone wrong. Now, I think sustainable development has been broadly corrupted to mean *sustained* development. No limits. It has become standard rhetoric in some circles within industry and government communities. I believe industry uses the

term in the hopes that it can continue to pursue a "business as usual" agenda but with the appearance of greenness. While I think there is evidence that some industries have responded to some extent, especially the really big ones which can afford it, there is basically no fundamental change in the way business or government is conducted.

Frequently, I hear that all sustainable development means is being more aware of the environmental consequences of our actions. But I fear this simply conveys a message that there is no need for fundamental change, and that mitigation or restoration techniques will continue to do the job. Again, there is no notion of limits here. To me, any approach like this, that places ultimate faith in our technical abilities, is consistent with our existing cultural norms but is tragically flawed. This is because we already know both that ecosystems are not always *predictable*, and therefore not vulnerable to *technique*, and that technical solutions will always fail where what is required is a change in societal values.

Still others say that sustainable development is a matter of *integrating the environment and the economy*. This integration is a fascinating notion; seductive and alluring, and completely impossible. Every fundamental principle underlying the industrial growth society we presently live in runs contrary to the notion of limits embodied by the idea of *sustainability*. So why don't we just stop kidding ourselves? This kind of integration is simply not going to happen.

My view is that when most people talk about sustainable development, they don't have a clue what they mean, or what the real implications of sustainability are. For a concept with such wide use and currency, it remains unsatisfactorily vague and ambiguous. I am concerned in fact that the term will prove to be counter-productive, in the sense that initiatives of government or industry may be labeled as models for sustainability, but in fact may be just the same old way we do business dressed in a different cloak.

Any underlying social principle founded on the idea that there are limits could not be politically or socially acceptable yet. Inevitably, limits pertain to population size and individual access to resources (read *wealth*). Both are part of a conventional dystopian view of society. However, we have known for 20 years that the impact we are having on the environment is the product of population, multiplied by per capita consumption of resources, multiplied by the impact of consuming those resources. So, applying the basic principle of limits will eventually get us into the fields where these sacred cows are kept.

As a biologist, I suggest use of the notion of carrying capacity as the central integrative paradigm for environmental stewardship. This concept has inherent in it the notion of limits, and a recognition of adaptive strategies for partitioning resources among competitors. However, it does not paint an egalitarian picture of human society. The individual may not be favoured over the group, and there may be no allowance for misfits. Resource partitioning could be determined by real competition instead of the fake structure we have now, and population size could be determined by the resource spectrum available.

We have seen numerous *economic* analyses of the notion of sustainable development, but almost no *ecological* ones. In neither are incorporated an analysis of scenarios under the limits ultimately imposed by nature. I would like to see a serious analysis of the economics of limits. This may require the development of an entire new economic theory, because the current one is based on the notion that there are no limits. Economists argue that as a resource gets scarce, its price escalates to the point that demand is adjusted downward accordingly. There is no provision for exhaustion. No limits. This is theory; it may apply to Toyotas but it has not prevented species extinctions.

I would also like to see a serious analysis on the biology of limits, as it might apply to human society. It seems to me that sustainability is analogous to a "steady state" ecosystem, such as an old growth forest, in which energy and material inputs and cycling are in balance with productivity and outputs. We should be asking ecologists and other experts what they think sustainable development means according to empirical evidence and existing models supplied by nature.

Ultimately, I think we will not be able to do better than these.