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# Sustainability as a Bridging Concept

ROBERT PAEHLKE

Environmental and Resource Studies Program, Trent University, Peterborough, Ontario K9J 7B8, Canada, email rpaehlke@trentu.ca

My view of sustainability differs from that of Newton and Freyfogle because for me, as a social scientist, the concept is centered in economics, public policy, and ethics rather than in the biological sciences. From a social science perspective, I agree that sustainability is an amorphous concept with multiple meanings, but for me it is important and provides a conceptual basis for integrating the natural and social sciences. Thus, in my mind sustainability has a natural science component that is important, but part of a larger whole. Agreement on this view of sustainability is not universal, but it is probably a wider view than Newton and Freyfogle would have.

This view of sustainability, as largely a concept in the social sciences, involves the reconceptualization of economic efficiency and productivity and helps advance, as Carley and Spapens (1998) elaborate, the idea of material sufficiency. I believe that Newton and Freyfogle would be comfortable with at least some of these outcomes. The efficiency aspect of sustainability assesses the production of human well-being (not necessarily material goods) per unit of extraction from, or imposition upon, nature (in terms of air and water emissions, ecological impacts, land use, or whatever measures natural scientists deem to be important as the science and art of sustainability analysis evolves).

Efficiency in this context is very different from economic efficiency as one would ordinarily think of it. It is in addition to, and arguably more important than, the efficient use of labor (productivity) or even the effective and efficient use of capital. This concept is important because it establishes a systematic point of entry into economics, policy analysis, politics, and public administration for ecological considerations. Currently, these latter realms are largely dominated by economic considerations. Ecology takes up only a small corner in selected agencies with minimal power.

Only the natural sciences can measure extractions from, impositions upon, and capacities of nature. I con-

cur with Newton and Freyfogle that it is critical to assess such impacts primarily in terms of ecology and ecological health. But sustainability analysis itself is larger than that and centrally about how to change human societies and economies—how, in effect, to maximize the mileage gained from human impositions on nature. I detail this process of bridging and balancing, sustainability analysis, in recent articles and a book (Paehlke 2001, 2003).

Most sustainability analysts would agree that improved efficiency in this new sense is crucial but not in itself adequate to the array of necessary tasks, including the protection of nature. A sense of sufficiency is also necessary. *Sufficiency* is a value-laden notion that today's (not to mention tomorrow's) affluence and human numbers imply that humans are approaching (some would say already exceed) a limit to the (literally) material wealth that we should seek or expect (Princen et al. 2002). I say literal material wealth because, within limits, societies can grow richer without additional physical extractions. Some analysts in a subfield that has been called "nondollar economics" make the case that we could be twice as rich with half the material throughputs (e.g., von Weiszäcker et al. 1998).

Thus, sustainability also serves several positive functions that Newton and Freyfogle understandably do not fully appreciate. One is that this amorphous concept directs attention to the stark fact that much of what we humans have created in recent centuries depends on energy sources that are both finite and ecologically problematic. Something approaching half the endowment of fossil fuels that have made industrial society possible have already been extracted and burned.

Replacing that energy implies economic, technological, and ecological challenges that no society has even begun to face. More than that, using the remaining half of this fossil fuel endowment may well cause irreparable global climate change. Even the renewable energy sources advocated by many environmentalists will pose conservation and ecological challenges were we to seek yields that approach today's North American energy demand.

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Achieving a sustainable postfossil-fuel society and economy will require many changes, including the reconfiguration of human settlements (using less land per person), the redesign of industries to run primarily on recycled feedstocks, and the near-to-universal adoption of energy-efficient technologies. Sustainability is thus first and foremost about product design, industrial ecology, public policy, and even a radical sociocultural adaptation of the material aspects of the American dream. That this thrust of the concept has perhaps spilled over into a throwback from Leopold to Pinchot in the realm of biological conservation is unfortunate but not, in my view, grounds for abandoning the concept in its larger use.

In sum, unlike conservation, sustainability is also directly concerned with how to get from our dependence on fossil fuels to the next energy source (or sources) while avoiding economic collapse and wars over the remaining oil. Avoiding such dire outcomes implies that we must anticipate the scale of the transformation required, and that for me is what sustainability directs us toward.

Although the word sustainability is vague, it, or some concept like it, is essential to move policy and economic discussions beyond the “nowness” of our contemporary media-driven society. Newton and Freyfogle make an important point about this function of sustainability as a concept: it is not an easy sell. As they put it, sustainability “has too little allure” and seems to suggest “a life that is stagnant or repetitive.” That is worth saying and should serve to sharpen our discourse, but it remains the case that however unpopular it might be, our society needs to face the fact that much will need to change if some things we hold dear (including both ecological health and economic well-being) are to continue or remain “repetitive.” Repetition in some things is good, and public discussions of what those things are and how we can achieve them is urgently needed.

Within academic discourse, one of strongest appeals of sustainability is that it has some potential to reduce the gap—C.P. Snow’s (1964) unbridgeable gulf—between the humanities and the sciences. In sustainability analysis the humanities might take a lead, as environmental ethics has, on the meaning of human well-being. The natural sciences, as noted, have a dual role—in terms of ecological health and the redesign of industrial society. The social sciences are essential to rethinking public policy instruments and institutions and even the structures and rules of democracy.

To elaborate slightly, the natural science focus within sustainability analysis and implementation must be conservation biology at its most advanced, but it should also focus on toxicology and the fate of contaminants and equally on industrial ecology (the redesign of products and processes). The social science focus is on what policies (e.g., shifting taxation from income to energy use) might advance industrial redesign and help alter human behavior. Sustainability provides an integrated perspec-

tive for each of these fields because it implies (in a way that conservation does not) that industrial society as constituted today is both problematic for nature and unlikely to continue in its present form in any case.

Sustainability also seems to have found a limited place within everyday public discourse. It plays a central role in the platforms of green parties, including those in Australia, Germany, and Canada. Perhaps ironically, it is important politically that green politics not be only about environment protection. Sustainability, as Newton and Freyfogle amply demonstrate, is not a sound-bite sort of term, but green candidates on the stump in Europe and elsewhere speak of the future of our children and grandchildren rather than the wonkish-sounding sustainability. This does not diminish the analytical usefulness of the concept, and within green parties sustainability analysis still means going beyond traditional concerns with conservation without relegating such concerns to one policy item on a shopping list.

Green politics, whether advanced by a green party or not, needs a logically consistent point of view on the full range of citizen concerns, including social, economic, and foreign policy. Environmentalism (now largely supplanted by the broader term green politics) is, as I argued in 1989, the first new political ideology since the rise of socialism a century before, albeit one with a truncated ideology and no position on a wide variety of political subjects. In embracing sustainability, “greens” have since developed an intellectually consistent position on the full array of public concerns.

The key to this intellectual transformation lies in the quest for sustainable, in effect ecologically efficient, production of human well-being. There may be disagreement among sustainability analysts about whether this goal is as important as or more important than labor productivity or profit maximization, but in either case it is about rebalancing our social and economic priorities. I have characterized this as a transformation from economism (a monolithic quest for economic growth and profit at any cost) to triple bottom-line thinking (a balancing of social, economic, and environmental goals as discussed, for example, in Elkington 1998).

I agree with Newton and Freyfogle that there is not a fully shared understanding of the detailed meaning of *sustainability* and no universal agreement on what it is we wish to sustain. But the disagreement is not as widespread as they would have it, and the concept may come to have a more widely accepted meaning in time. More than that, policy analysis, not to mention politics, is a messier business than the subject matter of natural sciences. In the social sciences and humanities, conceptual contestation is more normal. Such contestation may not be resolved for decades, if ever. Newton and Freyfogle speak of some analysts’ “personal” views on sustainability, but those views are not so much personal as part of the conceptual contestation.

A closer look at the sustainability literature clarifies some matters. In this literature another function the concept of sustainability has served is to spare us some of the problems associated with *sustainable development*. Sustainable development has been called an oxymoron, seen by some as little more than a justification for otherwise unacceptable practices and as development by another name. In contrast, sustainability points toward a more genuine balance between economic and environmental factors. Sustainability thus travels with somewhat less political and conceptual baggage even though it carries its own multiplicity of meanings. Stable, sustainable, and widely shared economic output is the societal objective, rather than a surging, and likely unstable, economy that pays only lip service to ecological and social concerns.

Finally, policy analysts see sustainability as having three distinct dimensions: (1) the protection of ecology, habitat, biodiversity, and wilderness; (2) the control of pollution to improve air and water quality; and (3) the conservation of renewable and nonrenewable resources. In ecological analysis it is perhaps important to see these three issues in an integrated way, as Leopold might. But in policy analysis this subdividing of the concept allows one to isolate and to measure its several aspects and to understand that some policies promote one aspect of sustainability, some another, and others two or more. Effective policy analysis always requires that one identify and clearly understand trade-offs and priorities and accept that trade-offs are often necessary. At the same time, we must be ever watchful for what are called “elegant solutions” or “win-win-win scenarios,” either in terms of simultaneous ecological, social, and economic gains or the possible three-dimensional sustainability gains as noted here.

None of this excludes a realization that any and all human activities, especially those that require large-scale ex-

tractions from nature, may carry costs that are flatly unacceptable. Nature is fragile and we humans, despite our adaptive capabilities, are a part of nature. A crucial point is that humans do not understand all the ways in which we depend on the health of ecosystems and countless species of plants and animals. We therefore should always err on the side of precaution. On this point, there is wide agreement across the social science–natural science boundary.

The capacity of humans to negatively affect nature, including those parts essential to our own prosperity and health, is constantly growing as human numbers expand and human technologies evolve. A growing concern with sustainability is really about learning, in an integrated way, how to anticipate and avoid or ameliorate many of the risks we continuously pose to ourselves and to nature and to judge our economic initiatives and societal structures broadly rather than narrowly in the long term rather than the short.

#### Literature Cited

- Carley, M., and P. Spapens. 1998. *Sharing the world*. Earthscan, London.
- Elkington, J. 1998. *Cannibals with forks: the triple bottom line in 21st century business*. New Society Publishers, Stoney Creek, Connecticut.
- Paehlke, R. 1989. *Environmentalism and the future of progressive politics*. Yale University Press, New Haven, Connecticut.
- Paehlke, R. 2001. Environmental politics, sustainability and social science. *Environmental Politics* 10:1–22.
- Paehlke, R. 2003. *Democracy's dilemma: environment, social equity and the global economy*. MIT Press, Cambridge, Massachusetts.
- Princen, T., M. Maniates, and K. Conca, editors. 2002. *Confronting consumption*. MIT Press, Cambridge, Massachusetts.
- Snow, C. P. 1964. *The two cultures and another look*. Cambridge University Press, London.
- von Weiszäcker, E., A. B. Lovins, and H. L. Lovins. 1998. *Factor four: doubling wealth, halving resources use*. Earthscan, London.

