# Colorless Green Ideas Sleep Furiously: Is the Emergence of "Sustainable" Practices Meaningful?

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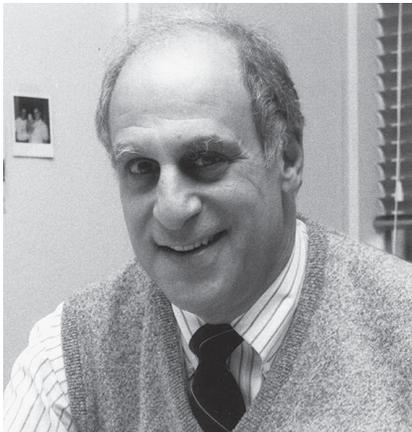
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"The tree which moves some to tears of joy is in the eyes of others only a green thing which stands in the way. Some see Nature all ridicule and deformity, and by these I shall not regulate my proportions; and some scarce see nature at all. But to the eyes of the man of imagination, Nature is Imagination itself. As man is, so he sees."

William Blake (1757–1827)

"When the going gets tough, the tough go shopping."

Anonymous

My title comes from a famous passage by Noam Chomsky in which he explains that sentences that make sense syntactically or structurally may carry no meaning (Chomsky, 1957). So we might ask whether the emergence of green practices in firms signals a meaningful sea change or remains merely some familiar but meaningless pattern. And further, given the spate of books and articles (for example, see Hart, 1997; DeSimone and Popoff, 1997; Roome, 1998) that suggest that only firms with sustainable strategies will be tomorrow's winners, we should ask whether the moral or romantic exhortations that usually accompany these texts are sufficient motivators to induce a critical mass of firms to adopt sustainable trajectories. Reasons to remain skeptical exist on both accounts.

I will telegraph my conclusions by suggesting that few, if any, of the many new practices being touted as green or eco-efficient or some other manifestation of sustainability are, in fact, sustainable. My argument does not follow the line of others who have seen the actions of firms claiming to be sustainable as strategic in a positive light or dissembling in a darker vein (Welford, 1997). My argument stems from a more deep-seated, fundamental question about the meaning of sustainability itself. The basis of this argument is that sustainability is a radical concept (or perhaps better to say revolutionary,[1] as in the sense of Kuhn, 1962), unavailable within the existing set of institutional and societal action-producing structures or, as others might say, within the current dominant social paradigm. Indeed, the origin of the sustainability problem can

be attributed to the inadequacies of this current paradigm (Ehrenfeld, 1997). Thus, on this view, any assessment of emergent new practices needs to be made in the light of their consistency with a different concept of sustainability. Next I will develop such a concept and follow with an evaluation of several types of corporate practices, including specific so-called greener products and services, new policy frameworks, and collective sectoral codes of practice.

What Is Sustainability?

If one adopts the now familiar United Nations Commission on Environment and Development (Brundtland) definition of sustainable development (sustainable development is a form of development or progress that "meets the needs of the present without compromising the ability of future generations to meet their own needs") as the operating principle for sustainability, then what is or is not a sustainable practice is both simplified and made opaque at the same time. It is simple in the sense that it suggests that the current social/economic system needs only to be made more efficient. On the other hand, it clouds the fundamentally unsustainable character of this system and encourages an uncritical view of the current world situation and its trajectory. This definition begs many questions and has led to sets of criteria for judging new practices that are primarily means-oriented. One that the business community has created is the notion of eco-efficiency, basically promising more service or function while using fewer materials and less energy. This idea parallels many calls for vastly improved technologies in the range of factor 4 to 20 more efficient than those they replace (von Weizsäcker, Lovins et al., 1997). I would argue that, while such improvements are necessary for the creation of sustainability, they are insufficient. Their failings spring from two sources: one is simply the insufficiency of efficiency improvements to counter the absolute impacts created by growth occurring at rates greater than those of the improvements. Such growth is expected and projected by virtually all models of near-term patterns of global development.

A second shortcoming, and the one I will focus on, is that this definition and associated criteria fail to capture the inherent radicalness of the very idea of sustainability. Many scholars and critics coming from very diverse points of view and disciplinary bases have foreseen that more than technological improvements are needed. For example, Ophuls writes:

> The human race has reached a critical point in its social evolution when it has no choice but to make peace with its biological origins and to learn how to live again as a member and partner of the natural community rather than its dominator and destroyer. In other words, we must rediscover how to live as our savage ancestors once lived—in nature, rather than apart from it, much less above it. We must invent the civilized analogue of the hunter-gatherer way of life, the only truly sustainable mode of human existence the planet has ever known. This is not a call to return to the Stone Age: we have many possibilities open to us that were not available to our forebears, for we have been enormously enriched and enlightened by the long experience of civilization (or at least so one hopes). Nevertheless, how such a profound transformation of civilization toward a more experienced and wiser savagery can be achieved is obviously an immensely difficult problem, for it will clearly entail quite *radical changes in the way we think and act* (emphasis added; Ophuls, 1996).

Some 20 years earlier, the eminent psychoanalyst Erich Fromm wrote in a remarkable, prescient book *To Have or To Be?*, "The first crucial step toward [a healthy economy] is that production shall be directed for the sake of 'sane consumption'" (Fromm, 1976, p. 176). Fromm comes to this now central notion of sustainability from his psychological/therapist roots by observing the possibility of two fundamental modes of human existence—being or having—and suggests that the *having* paradigm that has come to dominate modern indus-

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Commentary
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John Ehrenfeld is one of the most courageous, inspiring, and refreshing commentators writing today on sustainability. In naming sustainability as a "radical concept" requiring fundamental changes in the way we think and act, Ehrenfeld willingly places himself among the radical.

What's refreshing here? His emphases on the moral and ethical dimensions of sustainability. Conventional environmental business tends to assess its success in terms of "eco-efficiency." Technological fixes that maximize resource efficiency are the strategy for meeting a double bottom line defined by financial and environmental indicators. This approach, like single-loop learning in Argyris' terms, may allow us to get better at doing the wrong things. If we're heading to Florida when we want to be going to New York, slowing down won't solve the problem. Building cars with twice the fuel efficiency won't help us if the number of automobiles on the planet goes up by a factor of four. Ehrenfeld says that we must move beyond technological improvements to become morally responsible actors, "taking care of the future as if it belonged to [us] today."

Our self-concept in relationship to the web of life will need to shift. In our consumption-driven society, it's easy for us to fall into the trap of defining personal value by how much stuff we've accumulated. Ehrenfeld describes the pathological equation: "*I am = what I have and what I consume.*" An identity shift from *having* to *being* is essential if we are to live sustainably on this planet.

In his closing remarks, Ehrenfeld suggests that we need [new] dreams of a sustainable future, coupled with bold new actions. I'm reminded of a story from author and ecologist John Perkins, who has had a relationship for the past 30 years with the Shuar people, natives of the Ecuadorian Amazon. After a successful career in business, Perkins offered to

help the Shuar "save the Rain Forest." Their reply, "We're fine. Your people are the problem. The dream of your people is a nightmare, destroying the delicate web of life on our planet. Go back and change the dream of your people." What new dreams will we need to envision to enact a sustainable future in which life flourishes for 1,000 generations?

trial cultures has turned pathological and only a shift to a "radical" alternate mode—*being*—can save both the human species and the natural world in which we live.[2] I cannot possibly do justice to the richness of Fromm's text, but I will attempt to capture his set of distinctions. Fromm says that "having and being are two fundamental modes of experience, the respective strengths of which determine the differences between the characters of individuals and the various types of social structures" (Fromm, 1976, p. 16).

Having is a familiar mode of living in which identity is completely tied up with possessing. *Being* is a much more diffuse concept. It is the experience of acting and leads to the sense of aliveness and connectedness of which humans only rarely are aware. Fromm notes that the beingness of experience has become lost in the modern linguistic practice of using nouns in place of verbs. We say, for example, "I have an idea," instead of saying, "I think." At the extreme, the relationship of humans to each other and to the surrounding world collapses into a pathological identity, "*I am = what I have and what I consume*" (emphasis in the original, Fromm, 1976, p. 26). The implications for sustainability should be obvious.

Another feature that makes the Brundtland concept of sustainability development problematic is that there is no way to ascertain whether or not the momentary state of the world is sustainable, i.e., whether the desired conditions will be present in the future. Sustainability is essentially not assessable other than to observe that the present world is, indeed, a flourishing place. Unsustainability, on the other hand, can be observed in the present and is a characteristic of our modern mode of living. Our knowledge of the rules that govern the transformation of the present to the future is doomed to be insufficient to allow us to determine whether the present conditions can or will persist into the future. Thus sustainability cannot be reduced to some deterministic set of characteristics and rules.

Sustainability is (ontologically) a mere possibility that human and other life will flourish on the earth forever.

In seeking an alternative way to think about sustainability, I would argue that sustainability is (ontologically) a mere possibility that human and other life will flourish on the earth forever. And flourishing means not only survival, but the realization of whatever we humans declare makes life meaningful—justice, freedom, and dignity. And as a possibility, it is a guide to actions that will or can achieve its central vision of flourishing day by day by day for time immemorial. Possibilities are empty, created by the declarative power of human language. Possibilities are unconstrained by the limits to action created by following deterministic rules that, in a paradigmatic sense, are always the product of past experience and limit action to incremental change. If societies can escape the bounds of the existing mode of living, then all is, indeed, possible, even that which does not appear available from inside the existing paradigm.[3]

Thus sustainability as possibility is indeed a profoundly and radically different notion of the world than the notions that dominate our current way of thinking. Sustainability is definitely not a technological characteristic of the global system such as is embedded in the term sustainable development, and yet its possibility depends on the nature of the system. It is a future vision from which we can construct our current way of being. This sense is clearly insufficient as a guide, although I believe it to be a very powerful way of thinking and acting about sustainability. Collapsing many current "definitions" of sustainability into a statement ontologically mappable as such a possibility, I suggest the following working definition:

Sustainability is a possible way of living or being in which individuals, firms, governments, and other institutions act responsibly in taking care of the future as if it belonged to them today, in equitably sharing the ecological resources on which the survival of human and other species depends, and in

assuring that all who live today and in the future will be able to satisfy their needs and human aspirations.

Again, compared to the sustainable development construct, I believe that this way of talking about sustainability is a radical conversation. It is directed at moral actors, not just utility maximizers, and not at some shapeless development process as is the Brundtland form. The Brundtland and related concepts of sustainable development are all inextricably rooted in the present dominant social paradigm (at least in the industrial world) and cannot be radical in the paradigmatic sense that I believe is essential. In the language of complex systems, the notion of sustainable development is an emergent property of such a system, whereas the radical definition is focused on the actors within the system. One key word in the above definition is *responsibility,* and I will use it as a criterion by which I evaluate whether corporate actions and greening are meaningful. Responsibility is important as it returns a moral dimension to economics (see, for example, Etzione, 1989) and deepens the role of the actor as much more than a resource maximizer. American economic historian, Robert Heilbroner, has noted:

> A second familiar, but no less serious objection [to economic-driven behavior] is that a general subordination of action to market forces demotes progress itself from a consciously intended social aim to an unintended consequence of action, thereby robbing it of moral content (Heilbroner, 1993, p. 312).

Robert Solow, a Nobel Prize-winning economist, abandoned his traditional roots for a moment and said in a lecture that sustainability must be considered "an obligation to conduct ourselves so that we leave to the future the option or capacity to be as well off as we are" (Solow, 1991). E.F. Schumacher (1973), another economist who also happens to be a philosopher and humanist, argued that the present social order (still much the same today as when he wrote) leads to a fundamental societal sickness that will become catastrophic without a radical change in the system and in individuals. Bennis, Parikh et al., writing from a management point of view, state that, "The radical change arising out of the moral choice to pursue a course of [sustainability] must result in a change both in the shared values and in the vision of most commercial enterprises" (1996, p. 320).

I could expand and augment this discussion with a great deal more from the literature supporting the radicalness of sustainability. Such sources would include several on the idea of paradigm and its centrality in producing institutional or social patterns of culture and behavior (for example, Kuhn, 1962; Giddens, 1984). But I will move along, relying on only two facets of the radical nature of sustainability as the basis for evaluating the recent evidence of the "greening" of industry. These two are sustainability innovations and practices that (1) bring about a shift in the underlying cultural structures that produce individual and collective action to embody a more explicit sense of responsibility toward other human beings, other species and nature itself, and the future, and (2) bring about a shift in the mode of acting by the players involved from *having* to *being* act, using the terms as Fromm defines them.

Responsibility means that every action taken would entail an assessment of the potential harm of that action to the *possibility of sustainability* along the principal axes of environment, equity, and futurity. The meaningfulness then of corporate action with respect to the first of these radical concepts of sustainability would then be assessed by examining its so-called green or sustainable actions or practices and offerings to the market to see whether or not these activities do create or have the potential to create an enhanced sense of responsibility in either individual or institutional actors?

Let us look at a widely discussed example of greening in the United States. Interface Corporation has introduced a new product-marketing concept called the Evergreen lease for its office carpeting materials. Interface now leases instead of selling the carpets and recycles the used stock it recovers. While Inter-

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Commentary
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In his beautiful, incisive, sometimes curmudgeonly style, Ehrenfeld asks us to think—and then think again. He goes beyond mere economic modes of sustainable development, does not stop at the "green" view of sustainable living, but makes the point that a life worth sustaining must be meaningful as well, lived with "justice, freedom, and integrity."

Ehrenfeld talks about morality, ethics, and responsibility with regard to economics and human action in a way that is empowering and compelling, not judging or shaming. His work is fundamentally about vision and values, from *having* a lifestyle to a *being* way of life. He points out that moving toward a sustaining future requires not just a shift in business efficiency or strategy; it requires a fundamental shift in *who we are*, individually, organizationally, and globally. He gives us a possible dream of a sustaining and sustainable future.

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face touts the technical aspects of the concept as innovative, I would identify the leasing structure as the "radical" aspect. Leasing does two things. One, it extends and explicates the responsibility of Interface for the product over, more or less, its entire life cycle. Previously, following the prevalent practice, Interface dropped off its products to its customers and, except for legal obligations, handed over responsibility for actions along the rest of its life cycle to them. It is the creation of a new domain of responsibility for the product or service that I would rate as consistent with the radical definition of sustainability, even though the idea itself, that of service provision, is not new. But, in this case, it is new to both Interface and its customers and requires new ways of thinking and acting by both. While this example, in and of itself, does not equate to the immediate embedding of new responsibility-related moral structures at Interface, it shifts the cultural underpinnings so that such new norms are, in my view, likely to become more and more immediate to the actors in the firm.

Xerox also has embarked on a bold corporate strategy called "asset recovery management" in which it too sees itself as providing services rather than delivering products. Its vision is to close loops completely through reuse, recycle, and remanufacture of products it owns and controls, leasing them to customers, but retaining all lifetime maintenance and disposal responsibilities.

Further, this concept has the potential to shift the mode of acting from *having* to *being*. Interface's or Xerox's customers can have their needs for office functions and amenities satisfied without owning anything and, perhaps, will begin to look for similar routines in other areas. So too might the workers carry the same idea home with them and shift their domestic consumption patterns.

This argument is not, by any means, to say that vastly improved technological (that is, eco-efficient) systems for satisfying individuals are not important. Many emergent new forms of technology and infrastructure are very different from those they replace. Such systems constitute technical improvements in the environmental, equity, and futurity dimensions of sustainability. In the strict technological sense and within much of innovation theory (Afuah, 1998; Song and Montoya-Weiss, 1998), they might be designated as "radical." But to the extent they arise from the conventional domain of competitive market forces, they are not radical with respect to sustainability. Only if they embody the potential to shift the moral and ontological aspects of sustainability, would I deem them meaningful in the sense of this paper.

Evaluating Meaningful Corporate Practices

With this long preface in place, let me offer a description of what I claim an ideal sustainable firm would think and do (there may be other attributes to this ideal sustainable firm, but this list will do for the moment):

1. Use a set of "sustainability" tools to guide its actions.
2. Operate with the same set of policies and standards in every location where it makes or markets its goods and services.
3. Maintain high levels of employment and flatten wage discrepancy between management and workers ("The challenge of [sustainability] requires that movement towards a participative style of . . . management should accelerate in all kinds of company" (Bennis, Parikh et al., 1996, p. 324).
4. Market only services (and goods) that conform to a set of sustainability principles and performance measures based on the latest state of scientific understanding and on a set of societal values obtained by broad public participation.
5. Focus on the services, as opposed to the goods, it provides to customers and strive to provide them in the least resource-intensive and ecologically damaging form it knows how to design and deliver, taking account of life-cycle impacts over the entire value chain.

6. Educate its customers and strategic partners along the entire life-cycle value chain about the implications of their actions on sustainability and, thus, contribute directly to the formation of consumer preferences.

7. Publicly report on all its activities that impinge on sustainability.

8. Lastly, do all the above routinely and responsibly with its actions arising from a vision of sustainability and a set of normative values deeply embedded in its culture.

The first four of these items address the technical aspects of sustainability and, as noted earlier, are necessary, but insufficient. Item five is a practical form of the notion of shifting modes of living from *having* to *being*. Items six through eight are, similarly, practices that embody the notion of responsibility. If firms are to assume more responsibility as part of the legitimate set of social institutions that societies will rely on to produce a sustainable world, firms will have to account publicly for their actions in domains now considered private.

Finally I note the reference to "routinely" in the description of the ideal firm. Sustainable practice must become an everyday new form of business-as-usual. It cannot be a sideline or set of functions relegated to a group of technical specialists or merely a serendipitous event. Routines, in many models of organizational or institutional theory, arise from changes in the underlying paradigm or set of cultural attributes. It is this process of change and learning that gives the power to the innovations examined here and to others of similar ilk. Whereas every technological advance may be a singular event in the historical unfolding of innovation, these radical offerings as defined here have the potential to produce continuous change and the emergence of new kinds of routines. It seems to me that a sustainable world can be built only on such a foundation.

Sustainable practice must become an everyday new form of business-as-usual.

The following sections are based on on-going research and report on work in progress. The assessment included is partial and preliminary.

Greener Products and Services

Our MIT research group has collected examples of product and service innovations and incorporated them in a web-based searchable database (http://tbe.mit.edu/gallery/) titled "The Gallery of Environmentally Preferable Goods and Services." Our selection criteria screen items that have characteristics arguably both of a strongly innovative technological sense and of radical attributes in the sense of the above definitions. I use several entries to continue my evaluation of them as examples of the meaningfulness of corporate actions.

SafeChem, a joint venture between Dow and RCN (a German recycling company), was initiated in 1994. In a standard chemical purchase, the supplier gives chemicals to the consumer in exchange for money. SafeChem retains control of the chemicals over the entire life cycle of the chemicals, including the process use and disposal stages. The "rent a chemical" concept establishes producer/supplier responsibility and control for many of the environmental impacts of chemicals: worker exposure, recycling, reuse, and disposal. This concept has been profitable for both Dow and its customers and is being emulated by competitors. Like the earlier examples, it conforms to the radical concept of sustainability.

This type of innovation is quite different from those primarily technical in nature. For example, Electrolux has designed a solar-powered lawn mower that reduces greenhouse emissions and fuel use. S.C. Johnson has introduced a novel packaging system called Enviro-Box® used in the distribution of its professional line of products. IKEA began in 1997 to market an inflatable line of chairs and sofas, designed to reduce material intensity and transportation bur-

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dens on the environment. While all these are most interesting from a design viewpoint and have real positive technical contributions to reducing environmental burdens, they are not radical. So it is with most of the entries. It is interesting to note that many have won environmental awards for the innovativeness of the design. I suspect that this is further manifestation of the technical character of sustainable development and its variants today.

Eco-efficiency

This viewpoint focuses on the inefficiency of material and energy consumption prevalent in current practices. Some 100 or so of the world's largest firms have lined up behind the idea of "eco-efficiency" through the World Business Council on Sustainable Development (DeSimone and Popoff, 1997). Their notion of eco-efficiency has been offered as "the primary way in which business can contribute to the concept of sustainable development" (WBCSD, 1996, p. 4). They note further:

> Eco-efficiency is a management philosophy. It encourages business to become more competitive, more innovative and more environmentally responsible. The pursuit of eco-efficiency does not require companies to abandon all their current practices and systems. It calls for them to adapt these in order to achieve higher levels of economic and environmental performance through continuous improvement. This means a significant change from "business as usual." . . . Although it is a new and unfolding concept, the vision of eco-efficiency is simply to "produce more from less" (WBCSD, 1996, p. 4).

The concept of eco-efficiency rests on "five core themes: (1) an emphasis on service, (2) a focus on needs and quality of life, (3) consideration of the entire product life cycle, (4) a recognition of limits to eco-capacity, and (5) a process view" (DeSimone and Popoff, 1997, p.47).

The WBCSD has listed approximately ten cases of eco-efficiency in its member firms on its website (http://www.wbcsd.ch). I reviewed the cases to see how well, if at all, they fit the radical sense of sustainability. In particular, I looked for evidence of the concept of environmental responsibility included in their own descriptive. I found little evidence of any shifts in responsibility or changes in the mode of ownership (*having* to *being*) that could be attributed directly to the idea of eco-efficiency. Again, I am not criticizing the practices described as without a contribution to the reduction of resource demands.

Chaparral Steel points to a more efficient and economically attractive re-use system of materials from bag-house dust, electric-arc furnace slag, and automobile shredder residue. Millar Western describes a chlorine-free closed-loop paper manufacturing process now used in several of its mills. Danfoss shows an improved water-use program for a facility on a Baltic sea island that reduced demands on a failing aquifer that was threatening the viability of the plant's operations and the well-being of the entire island population. Beacon Press (UK) has a waterless, low-discharge printing process. Azurel SA has introduced a line of energy-efficient building products based on Dow's Styrofoam® polystyrene polymer. Ladish Malting solved an expensive treated-water disposal problem by creating an artificial wetland. STMicroelectronics showed how it found a productive use for waste-water treatment sludge by recycling rather than land-filling.

I found no evidence in any of these examples of a shift in the ethical basis of sustainability or in the existential mode in which either the company or its customers act. The WBCSD characterized the value or importance of these eco-efficient solutions as falling into one of the following classes: cost savings, mar-

ket expansion, or risk management. I agree that they do serve as examples of getting to the double bottom line of both environmental and business benefits, but see little or nothing that would conform to my view of sustainability. The Danfoss example seemed to have been driven primarily by regulatory pressures, rather than any sense of responsibility independent of such requirements.

Two additional examples from the WBCSD web site were somewhat different in nature and hint at a new sense of responsibility. Bristol-Myers-Squibb discussed a new process of product life-cycle reviews and development of an in-house database of some 240 best practices for dealing with environmental problems. While the particular examples given in the case are fairly mundane and do not embody the radical aspects of sustainability, the company appears to be taking a more responsible stance toward its product line. Similarly, S.C. Johnson described the results of self-imposed pollution reduction requirements and its process for continuously tightening targets. While the technical nature of the individual projects is not remarkable, the process at S.C. Johnson, which includes dialogue with community and national interests, exemplifies a long-standing commitment to be good corporate citizens.

While more efficient use of resources is undeniably critical, eco-efficiency as a proxy appears to be an insufficient means to achieve the full sense of sustainability. Given these examples and the way in which the WBCSD presents them, the term "eco-efficiency" seems to send a message that a technocratic solution is available and that little reshaping of corporate responsibilities and values needs to be done.

Product Stewardship

Product stewardship is a shift in the sense of responsibility from merely delivering a product or service that meets its legal and warrantee provisions to one that accepts responsibility across the entire product life cycle (DeSimone and Popoff, 1997, p. 32). It is the explicit acceptance of stewardship (in the sense of taking care of the environment beyond that which is mandated by law) that lends this concept power to alter corporate cultural structures. Further, from a sustainability viewpoint, this broad concept is directly tied to the creation of a new ethical core. It challenges a firm's vision and values. It forces designers and planners to consider issues omitted from the customary focus on cost and performance. And it opens the firm to new relationships with its suppliers, distributors, customers, and waste managers. The potential of raising a new consciousness of both responsibility and changing the mode of product and service delivery lends a radical potential to these programs.

On the other hand, the current practices do not embody full radical potential. The Responsible Care® program of the world chemical industry promotes its Product Stewardship code as its centerpiece. The language of the code contains explicit statements that reflect the ethical sense of responsibility in my previously stated radical definition of sustainability. A related code dealing with distribution directs firms to stop doing business with customers that lack sufficient knowledge or competence to manage chemical use. It would seem, then, that actions springing from Responsible Care® are becoming meaningful. New product/service strategies, such as the SafeChem system of Dow and RCN, are consistent with these codes and may have been the outcome of an interesting mix of conventional strategizing and a new sense of product stewardship. My hesitancy in the last sentence is an empirical shortcoming, not a value judgment. Our research on the chemical industry is insufficiently deep to make causal statements with satisfactory confidence.
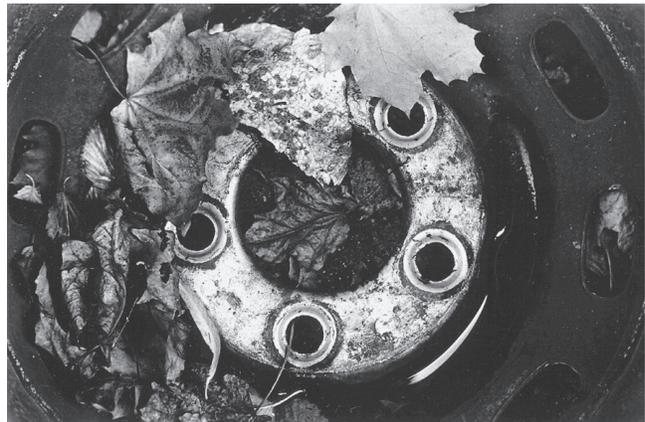
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Conclusion

Another way of investigating the meaningfulness of corporate actions is to look at the public statements made by corporate spokespeople and in public reports. I have selected two examples that have received a great deal of public airing. Robert Shapiro, CEO of Monsanto, said in an interview:

> We're entering a time of perhaps unprecedented discontinuity. Businesses grounded in the old model will become obsolete and die. At Monsanto, we're trying to invent some new businesses around the concept of environmental sustainability. We may not know exactly what those businesses will look like, but we're willing to place some bets because the world cannot avoid needing sustainability in the long run (Magretta, 1997).

John Browne, CEO of BP Amoco, put the challenge somewhat differently. In a speech, he said, "It is a moment for change and for a rethinking of corporate responsibility" (Browne, 1997; see also Browne in this issue).

The radicalness of sustainability begins to emerge in these two statements and in others by industry leaders. Some interesting new product and service ideas are showing up. And many of the new policy and self-regulatory programs contain language that could be interpreted in the radical sense of sustainability. Whether these positive signs will grow is anybody's guess. An examination of recent, emergent practices in firms, on the other hand, leaves much doubt about the embeddedness of the radical nature of the concept. Many critics of capitalism and of the modern competitive corporate form (see, for example, Korten, 1995) argue that such practices, as suggested by the list of sustainable practices I gave earlier, could not be sustained in the simple competitive sense and that any firms devoted to operating from them would not and could not survive. Others, including Giddens (1984) and Jonas (1973), argue that, in our modern world, technology has led to such a large separation in both time and space of the consequences of acting from the act itself that this separation confounds the knowledgeability and ethical intentions of the actor in the domain of responsibility. This feature of our world, I believe, is a root cause of unsustainability and of environmental problems in general. Even if firms have the best intentions for assuming responsibility, the knowledge, legal, and other institutional structures characteristic of modernity don't support such actions. I add this last note to alert those who might be tempted to use my statements as a polemic against the corporate world that the barriers to change are much more deeply embedded than are those arising from the boardroom.

The barriers to change are much more deeply embedded than are those arising from the boardroom.

Perhaps, returning to my title, the future was hidden in Chomsky's deliberately meaningless sentence. I reconstruct his sentence word by word:

> Colorless—a metaphor for justice and equity
> Green—an obvious connection to environment and nature
> Ideas—exactly what we will continue to need
> Sleep furiously—if I join these two, it might raise the image of dreams that occur during the intense REM phase of sleeping. Ideas coupled to dreams of a sustainable future are precisely what will be needed to move from the unsustainable present to the possibility of a sustainable future.

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Acknowledgement

Notes

1. Tom Gladwin, in some unpublished work, has deemed the concept of sustainability "subversive" but then drops this use in the published version. Although I believe his use is appropriate in a real sense, I think radical is a term that can be understood by a wider audience.

2. The ontology of being is the central theme in Heidegger's work (Heidegger, 1962) and that of many works examining the nature of the post-modern world.

3. The notion of paradigms, in the sense developed by Thomas Kuhn, and possibility are related. In a paradigm, the world and one's actions within it are constrained to working out problems in a "normal" manner (Kuhn, 1962). But when that "normal" manner no longer can solve problems, then one must or is free to create new possibilities in the form of a new paradigm that challenges the set of constructs as to how the world is and how one ought to act. Such, indeed, is the crisis of sustainability to those who see it as a crisis.

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Commentary by D. Jane Pratt

What my constituency wants from the academic community is research and analysis that yields operational guidance for the field practitioner. In addition, I like language that conveys common rather than esoteric meanings, so that we can have a meaningful conversation. So, from this perspective, I'd like to share my reactions to John Ehrenfeld's article.

Definitions are helpful when they serve as a standard from which practical guidance flows. The well-known Brundtland definition of sustainability doesn't really do this. Ehrenfeld's redefinition contributes a helpful nuance in pinpointing the requirement for individuals, firms, and governments to "act responsibly in taking care of the future . . . " as well as "in equitably sharing . . . ecological resources . . . and . . . assuring that all who live today and in the future will be able to satisfy their needs and human aspirations."

On this basis, we can begin to look for "hooks" to indicate that responsibility and accountability are operating and, hence, that a given set of actions might be sustainable. In the rest of the redefinition, however, the "practical helpfulness" criterion is less well met. It isn't clear, for example, in what ways equity, however desirable and laudable, is necessary for sustainability. More dramatically, the burden for "assuring that all who live today and in the future will be able to satisfy their needs and human aspirations" seems too heavy a responsibility for mere mortals. In the end, the new definition doesn't add a great deal of power to the ability of those of us in the front line—in the field—to understand and act.

That said, the concept of corporate responsibility and accountability being introduced is a good one. It correctly identifies the need for responsibility as a key element in ensuring sustainability. The current Director General of the UN Environmental Program, Dr. Klaus Töpfer, successfully promoted this approach in Germany when he was Minister of Environment. Regulatory approaches were introduced that require companies to take life-cycle responsibility for their products. Audi started making recyclable parts, and German supermarkets have to take back packaging of any product they sell for recycling. This has made a difference in a country where people have to pay by the bag for their garbage service. It is radical in the sense that Ehrenfeld suggests because it induced a change in mentality and behavior. The German approach seems a particularly good example of what it would mean to apply Fromm's *being* versus *having* concept to industry. The shift of this concept from psychology to management is provocative, and the implications hinted at are interesting. In distinguishing between *being* and *having*, Fromm is talking helpfully about the liveliness and connectedness of *being*, about quality of life as distinct and apart from the consumerism of *having*. Powerful operational guidance can come from such insights.

Fromm did not go so far as to suggest that increased responsibility is a prescription for engendering ethics. That is, however, the import of Ehrenfeld's argument as I understand it: either he suggests that, without a moral and ethical shift, increased responsibility will not lead to sustainability, which is a tautology within his definitional framework; or Ehrenfeld implies that increasing responsibility necessarily leads to a moral and ethical shift, and this in turn is a prerequisite to sustainability. It is a leap not justified either by his starting assumptions or by the evidence cited in the article to posit that responsibility-leading-to-heightened-morality is a prerequisite to sustainability. Nor does it guide practitioners in deciding how to frame policy or action so that responsibility engenders the morality shift desired. Does responsibility always lead to greater morality, or just sometimes, and under what circumstances?

Ehrenfeld also suggests that "responsibility means that every action taken would entail an assessment of the potential harm of that action to the *possibility of sustainability* along the principal axes of environment, equity, and futurity." In seeking operational guidance, I would have to ask, "Is that really what responsibility means—assessing the potential for harm?" Or should we be assessing the potential contribution of that action for good—for enhancing the possibility of sustainability? The distinction is important if the argument is based on moral and ethical responsibility. It is even more important if we seek to shift toward sustainability as rapidly as possible. Do we seek to limit damage or to maximize positive contributions? Investments must surely be weighed by criteria other than the rate of return. But would assessments of the potential damage of every

action be affordable? More important, could such assessments be as "helpful" as some alternative—say, a new "double standard" whereby every investment must meet rate-of-return criteria, and every investment additionally must contribute to a shift toward sustainability. Sustainability here would be defined in terms of sustainable levels of re-source consumption, throughput (in Herman Daly's sense; see Daly, H. and J. Cobb, *For the Common Good,* Boston: Beacon Press, 1989), and waste management.

Finally, there is the question of what is meant by "radical" actions. Do actions have to be "radical" according to the definition proposed in order to constitute meaningful con-tributions to sustainability? Probably not. What are meaningful contributions to sustainability? How are they achieved? And how can stakeholders be held accountable for becoming responsible and for staying "at the table" to continue making meaningful contributions over time? I agree that we need to focus increasingly on the "actor," but feel the focus on the firm is insufficient. From my experience, approaches that work re-quire the *sustained* participation of all relevant stakeholders.

Even from the limited perspective of the corporate actor, both Xerox and Interface in the cases cited have good bottom-line reasons for doing what is in their own interest as well as what is in society's interest from a sustainability standpoint. What incentive is there, however, for other stakeholders to come to and remain at the table? Where is the reliable motive to change behavior when self-interest is not the driver?

Ehrenfeld says, "Only if they embody the potential to shift the moral and ontological aspects of sustainability, would I deem them as meaningful in the sense of this paper." Aside from setting up a highly subjective criterion, what is the operational significance of getting a gold star for radical behavior? Is there an implication that we should rely more than we do on public shaming as a driver for transformational change?

Let's assume for a moment that responsibility can engender a new sense of morality, and that new moral structures are an essential prerequisite to sustainability. If the goal is "embedding of new responsibility-related moral structures," then an important ques-tion is whether moral responsibility must exist first in order to engender sustainability actions, or can sustainability actions engender moral responsibility? In other words, are moral and ethical responsibility and responsible action communicative—can one engen-der the other and vice versa?

In the final analysis, Ehrenfeld's argument ("Only if they embody the potential to shift the moral and ontological aspects of sustainability, would I deem them as mean-ingful") seems tantamount to saying that the redemption of man is essential to his sur-vival. I hope not. On the contrary, what is the point of dismissing systems that meet the environmental equity and futurity criteria as not "radical" *if* we cannot be certain when the shift in "moral and ontological aspects of sustainability" has taken place?

There is a great deal of judgment, highly individualized, to determine which systems qualify as meeting Ehrenfeld's sustainability criteria. He says, for example, "I found no evidence in any of these examples [the ten WBCSD cases] of a shift in the ethical basis of sustainability or in the existential mode in which either the company or its customers act." Therefore, the cases do not fit Ehrenfeld's definition of sustainability, whatever other virtues they incorporate. But I still long for objective operational guidance that can help those of us working in the real world. The list of what corporations should "think and do" to meet the sustainability criteria is nice, but hardly "radical." Aside from lacking in operational specificity, it is limited to the firm level. What is needed in addi-tion is sector-level analysis on resource use, throughput, and waste management. What is radical, then, in Ehrenfeld's list is the stipulation of transparency, public information, and public statement of standards for which a company is willing to be accountable.

I close with an example about major mining operations in the Andes Mountains. The challenge is to deal with multiple mining developments occurring around Huascaran National Park and the Huayhuash Range, each in the $1 billion to $2 billion investment range. One mining company, Antamina, entered the region to build Peru's largest polymetallic mine. With an investment of nearly $2.3 billion, Antamina plans to export $950 million a year in minerals, once the mine starts production in 2002. This is an ex-ample of a process occurring in other mountain areas. The mine will take about 5 years to build and operate for 15 years.

The Mountain Institute, of which I am the leader, works in the same region to conserve biodiversity, improve the lives of poor mountain communities, and strengthen respect for their traditional knowledge and culture. We questioned Antamina's initial plan to haul ore from mine to port on a road directly through Huascaran National Park. At a meeting with Antamina, The Mountain Institute explained that environmental threats would result in the park being placed on the "threatened" list, which would cause environmental groups to protest financial support for the project. While this would not likely stop the project, it could well cause delays—and the company's contract had a heavy penalty clause. Subsequently, Antamina developed an alternate transport plan using a slurry pipeline, and the risk of catastrophic environmental damage to the park was avoided.

As always in extractive industries, the pace of engineering work outpaces the ability to implement even the best-designed environmental and social mitigation plans. The road through the park has been avoided, but concerns for managing environmental and social impacts have not abated. The current need is to find means to maintain effective dialogue among partners with highly uneven power. Four elements are necessary: (1) public information, (2) a level playing field, (3) technical skills and knowledge, and (4) incentives for stakeholders to remain at the table. The challenge of keeping stakeholders of highly differing power and perspectives together at the table is the most difficult challenge.

Can we wait for companies in a hurry for profit and faced with cut-throat competition to shift from *having* to *being*, to recognize their responsibilities, and then to shift their moral and ethical stance before we can require them to judge investments by the dual criteria of rate of return and ability to move their sector toward substantially increased sustainability? I think not. The urgencies we face won't allow us to wait for radical transformations.

I believe that people's beliefs drive their behavior, and a resurgent moral and ethical stance is essential for the earth. But the emphasis on the responsibility of firms begetting a new moral order is both too extreme and too timid. What is implicit and truly valid in Ehrenfeld's argument is that it is essential to reject the present paradigm that assumes economic judgments and eco-efficiency can bring about sustainability for the human system. Ehrenfeld should make this explicit: sustainability will depend on investments being driven by ethically based criteria, including a criterion stipulating that a contribution to sustainability itself is essential. We don't need to wait for responsibility to engender a moral and ethical shift to impose regulatory standards and practices now that meet the requirements of moving us toward a path of sustainability.

Response by John R. Ehrenfeld

I completely agree with Jane Pratt that "practical helpfulness" is essential to provide sustainable activities over the long run. I did not write this article from that point of view. Guidelines such as those available from The Natural Step, McDonough and Braungart, and industrial ecology offer such practical notions as closing material loops, prolonging product life, dematerializing, and so forth.

I choose to describe the way I speak of sustainability as radical simply because it is not like any of the many definitions that I and others have found. It is only a possibility, not a state of the world, as it refers to a special kind of future where humans and other species will flourish. How flourishing will look is up to those living at the time. I would expect it would include basic thoughts such as survival and diversity. Other important aspects especially for humans are dignity, an individual notion. Collective ideas like equity and fairness are more difficult to elaborate.

And, perhaps, the burden for assuring such flourishing for the future is a heavy responsibility, but it cannot be a "too heavy responsibility." If not you or I, then who will take care of the future? My argument is that the existing way of thinking places responsibility somewhere in the external world of knowledge and in the rules and norms of positivism and neo-classic economics. I do argue from a very classic and limited view of responsibility as not knowingly doing harm. It is not at all a utilitarian idea of doing the most good. So my response to the comment about whether responsibility means that every action needs some sort of *a priori* assessment of its potential harm to the possibility of sustainability is yes, it does. Part of our modern, technological paradigm is that it has

become exceedingly difficult to do just that. But if we do not find ways to assess what we are about to do, we are, in my humble opinion, even more likely to produce ever more of the unintended consequences of our economies, which are tantamount to the very threats to sustainability that have triggered whatever social concerns now exist.

My criticism of many of the recent evaluations of corporate strategies and offerings to the market is not that they are not helpful nor will retard the rush to resource catastrophe. They will and should be encouraged. But they are not enough. They are merely technological attempts to slow down our excesses a bit. My concept of responsibility here is deeply ethical. It is not the codified version that Klaus Töpfer brought to Germany and is now more and more the center of European policy. The codified version will bring positive change and perhaps instill the ethical sense in firms and their actors. No, I speak of a deeply ethical norm that is missing today for many reasons, not the least of which is the frustration of not being able to assess the harm we may do. But surely our technocratic, narcissistic culture blinds us to the consequences of our actions.

I do not have "the practical answers" that are certainly necessary. The best creators of practical responses to breakdowns, large and small, are those involved; particularly those who design the products and strategies that create the market. But if they are to bring us anything other than more, cheaper, or faster, then they must come from a new set of deep-seated models of how the world works and what their responsibility to it is. These are the mental models of Peter Senge or the structures of Anthony Giddens. Getting to sustainability is not just an improved way of operating; it is a fundamental new way of being. I have tried only to make that point and suggest some new language and new "mental models" to help us along the way.