
Panelist's Remarks

Joan Martin-Brown

Over the past three decades a flood of new scientific information has greatly expanded the public's awareness of global ecological conditions, and of how the functions of ecosystems underpin and connect human well-being. In many cases this better understanding reaffirms more intuitive and traditional belief systems about humankind's relationship to nature. It has also provided a more sophisticated basis for understanding the interactions among the ecological, social, and economic realms. Finally, it has led us to question approaches to development.

An ecosystem is not some abstract concept. It is a scientific term used by biologists, botanists, estuarine hydrologists, agronomists, and many other "-ists" in the highly specialized fields of the physical sciences. Ecosystems are also the first point of reference for the work of anthropologists, sociologists, paleo-ecologists, archaeologists, and others in the social sciences. Consideration of ecosystem roles *should be* integral to the work of political scientists, because the character and capacity of an ecosystem not only directs the physical evolution of life within it but also serves as the basic template for how *societies* arrange themselves for survival. The ecosystem is the birthing bed whose conformations and restrictions give shape, structure, and character to every form of life on Earth, as well as to the cultures that develop within it.

The functions and contributions of ecosystems are as definable as the functions and contributions of an economic market. Like markets,

ecosystems operate at both the macro and micro levels, can be aggregated or disaggregated for analysis, and are symbiotically linked to individuals and societies. The characteristics and capacities of ecosystems determine the initial potential for economic development, and thus set the stage for production, markets, and trade.

The experience common to all life forms is that, in the very first instance of existence, the survival of each life is challenged by the specific conditions of its assigned ecosystem. This challenge requires immediate and continuing adaptations for survival. Because each ecosystem provides the first formative experiences, which require certain survival behavior, the ecosystem *de facto* establishes the priorities in behavior for both the individual and the community. Insofar as life's survival is pursued within a specific ecosystem, it is required to alter course as the ecosystem changes. Changes in ecosystem characteristics or their capacities have profound implications for the lives and societies dependent upon them, reshaping their options for survival in the present and near and far future.

In his "hierarchy of needs" noted theoretical psychologist Abraham Maslow asserts that *survival* is held in common by all people as the first "value." Taking this a step further, one might well assert that this is the *primary* value intuitively or cognitively shared by *all* living things, and expressed overtly by both the individual and the community. Holding survival as *the* core value is the basis for all ethical constructs.

Survival exists both as an abstract concept and as a physical impulse in a specific time and place, and has both universal and specific relevance.

This nexus of an ecosystem's deterministic role and life's impulse for survival is the basis for valuing environmentally and socially sustainable development, and for the subsequent construct of development ethics (ethics operationalize values). This requires that the values and the ethical constructs of environmental and social ethics must inform and relate to each other. The connection between valuing life's survival and the role of ecosystems builds on Albert Schweitzer's philosophical premise, "reverence for life," which is as elegant and elemental to values as Albert Einstein's $E = MC^2$ is to physics.

Historically, the most serious threats to the survival of humanity and its societies and cultures have come from deteriorating conditions, or changes, in the atmosphere, water, and soil systems. Nature's capacities to threaten human existence have been matched by human practices (validated by special-interest valuing) that have resulted in the gross abuse of ecosystems, subsequently leading to social chaos, political instability, famine, pestilence, or epidemics. History is replete with examples of ecosystem bankruptcies or contaminations that have resulted in the dislocation of social groups due to overgrazing (desertification) or vast landslides (from forest destruction), epidemics (from contaminated water), and blights and famines (enabling pests by disruption of food chains), all of which can threaten capacities to govern.

In the past 30 years such concerns and public awareness have caused the worlds of the farmers and physicians, educators and researchers, academics and communities, urban dwellers and political leaders to coalesce in pursuit of survival for people, their communities, and other life forms. This pursuit has led to substantive discussions among scientists, nongovernmental organizations, as well as civic, religious, and governmental leaders and diplomats. These discussions have had important implications for values and ethics, since much of the discourse has focused on the values and ethics that guide natural, social, and economic systems and the *disconnect* among these values. This recognition of a disconnect, in turn, has led to growing efforts to

articulate a universal value or a set of core values (not unlike those in the United Nations Charter on Human Rights) that are globally inclusive and that call for intertwining the valuing of social and natural systems with economic formulations in development processes.

Valuing the survival of life and the natural systems (ecosystems) that enable life should be the defining *core value for sustainable development*, against which development proposals must be judged. *Does existence carry with it the right to survive?* Most belief systems assert that this is so. This tenet links many values and belief systems to environmental ethics. Intertwining the valuing of life's survival and the capacities of ecosystems to support life enables derivative values and ethical constructs that include not only the valuing of each person, social cohesion, cultures, and their heritage, but also the intrinsic worth of other life forms, their cultural arrangements, the inheritances of their characteristics, and the cohesive integrity of ecosystems. As these manifestations all operate within Nature's embrace, the values and ethics supporting development models that deny standing for Nature's capacities to support life deny this broader moral accountability.

Valuing survival as separate from life, and separate from the valuing of ecosystems, is a perversion of the essential virtues of sustainable development; it is "survival of the fittest" development—the genesis of most development problems. Furthermore, adherence to the core value of environmentally and socially sustainable development is ineffective if applied selectively or separately only within a sector or realm, such as forestry or coastal, or rural or urban development. Economists, sociologists, and environmentalists all have met policy and program defeat by not considering how cultures, sectors, and ecosystems relate to one another. It is essential not only that environmental and social values be addressed and reconciled in a specific social and ecological context, but also that the impacts of development's ripples or "seepage" must be anticipated, since the results can, and have, destroyed cultures and ecosystems over the long term.

Naturally, variations in ecosystems generate disparate approaches in social and cultural arrangements even among the same species and are instructive to development approaches. In the

case of human beings the variations in ecosystems, and thus their survival requirements, are evident in even the most cursory survey of languages, diets, shelter design, dress, religion, rituals, taboos, and technologies.

The long, flowing robes worn by natives of arid, equatorial regions provide protection from the searing sun and cool the skin; the tropical homes are constructed of grass and bamboo to resist high winds; and the indoor plumbing systems of northern temperate-zone dwellers testify to the unique conditions of local ecosystems.

Consider the many words for “snow” among arctic-dwelling peoples, or the equally rich vocabulary among island dwellers for the many variances in ocean-surface conditions. These many words reflect the dominant characteristics of their originating ecosystems, with the language and symbols critical for surviving in nature. The exponential growth in the capacity of contemporary science to monitor regional and global ecological conditions, and to assess possible threats to survival, has been accompanied by the exponential growth of both scientific and lay vocabulary to communicate information about these threats. The power of such knowledge in political forums has been greatly amplified by global communication technologies—the same technologies that transmit local news—from a variety of cultures worldwide and that monitor and enable highly complex (at times *stratospheric*) financial transactions 24 hours of every day.

Globally operating ecosystems sustain the survival of life “in common.” Each person, regardless of place, requires approximately 1,240 quarts of air every 24 hours. Polluting these quarts of air threatens the health, survival, social stability, and, often, the economic well-being of individuals and communities. These same air pollutants are the greenhouse gases that have serious potential for generating sea-level rise, drowning human communities and fish-breeding estuaries, enabling the wider migration of pestilence and blights, and changing climates in ways that can threaten biodiversity.

Every human being is approximately 70 percent water (as is the Earth). When water (and thus food) are unobtainable, social cohesiveness is quickly threatened; survival becomes highly anarchistic and atomistic.

The core value central to sustainable development—valuing the survival of life *and* ecosystems—enables the affirmation of the whole. It creates for development the capacity to be inclusive and to unify, to generate social and economic cohesiveness, and to enable complementarity *and* foresight about future consequences. It enables innovation, and mutually supportive synergy among natural, economic, and social systems.

The following story illustrates the critical importance of valuing life and ecosystem survival as the moral basis for development.

Once there were three people living happily on a small island, an island that provided all the necessities for their survival. One day the Fates visited and announced that at the end of the next 24 hours a huge tidal wave would wash over their island home and sink it—and them—under the sea. The three people had no way to escape their destiny, so the Fates took pity on them and offered each one the opportunity to spend his or her last 24 hours however he or she wished. The first person chose a grand party, and invited all the famous people in the world to the island to consume the remaining stores of food and wine. The second person chose to travel, to spend the next 24 hours visiting the great wonders of the world. The third person thought for a while, and then she requested all the books that had ever been written on how to live under the sea.

With the demise of their island ecosystem the inhabitants have little hope for survival. The announced shift in their “eco-place” shifts their states of minds. All other interests and values evaporate, and survival becomes the prime goal. With this transformation the woman determines that her state of knowledge is totally inadequate and seeks information. Her belief that new knowledge alone will enable survival is flawed insofar as existence under the sea will also require new skills.

As the lives of these three move from a tropical paradise to a watery realm of seaweed, plankton, and fish, they will find their survival skills and traditional knowledge, as well as all their ethical constructs and belief practices, of little rele-

vance. They will confront the realities that many cultures and subcultures experience as values and development assumptions forged in one ecosystem are transferred to a very different type of ecosystem.

What will be the quality of life under the sea? Will the undersea arrival of the island's inhabitants (if they succeed in creating a life-sustaining support system) be viewed as an invasion by those existing there? How will the new arrivals' beliefs and values have to change? Those under the sea that once were meals for the islanders will now be their neighbors.

As Jacques-Yves Cousteau's underwater hours grew longer, and his state of knowledge about this water world broadened and deepened, his state of mind about life, nature, and himself was transformed. His sense of his place in the world was altered, and his values and belief systems were dramatically affected. He felt compelled to speak for those who live in ecosystems beyond our normal reach. He was "reinvented" under the sea.

During the past 400 years individual and social arrangements originally devised to promote survival in temperate-zone ecosystems have been indiscriminately applied in non-temperate-zone regions of the world, often generating ecological and social disintegration and creating cultural and *environmental refugees*,¹ with little options for reinvention.

For those in the island story the forces of nature are *beyond* the inhabitants' control. What, however, are the value and ethical implications of conscious and deliberate actions that can have the same effect—that can "sink" an island? Can Africa ever accommodate temperate zone solutions in its arid and tropical lands and coastal estuaries? Can every ecosystem accommodate the same degree of individualism? Is the survival of a group in the Arctic more critical than the survival of a group in a temperate zone metropolis? What are the human, social, economic, and ecological costs of ignoring the downstream or upwind connections of ecosystems, or of disconnecting urban and rural development planning?

Consider the many island nations at risk from climate-change-induced sea-level rise in Asia and the Western Hemisphere. What development values permit conscious decisions of such threaten-

ing magnitude? If development and its accompanying technologies are to enhance life, then "sinking" an ecosystem violates the core rationale for development. With greater scientific understanding of environmental systems and a growing global "sense of place," with the ability to monitor local, regional, and global behavior, value and ethical questions arise as to an individual's or community's right to thrive by preempting the capacities of another's ecosystem. Today, there is a more widely shared comprehension as to what many countries confront when having to accommodate the values and assumptions transplanted from another ecosystem, or when the global pursuit of specialized interests threatens the survival of lives and a country's ecosystems.

As we end this millennium, we understand that global environmental problems are *not imported to Earth*. They reflect the aggregate of local and national policies and actions. Understanding this reality explains governmental efforts to devise international environmental treaties, and the desire for a globally shared development framework as advanced by Agenda 21 and adopted by governments at the 1992 Rio Earth Summit. But without a clear and commonly held core value presiding at the center of environmentally and socially sustainable development, implementation of such a plan and implementation of global treaties are severely retarded. In the final analysis global and regional environmental treaties are as much about making peace with Nature as about making peace among peoples and nations. In essence, these global treaties are pledges among nations to cooperate in ways that enable Nature to support the survival of life and Nature's capacities.

Nature's sovereignty serves as a promising point of departure for pursuing peace among people, and prosperity through economic, social, and technical development. To flourish in this Earthweb, we must sustain the whole. As the new millennium begins, we must ask whether it is any longer enough to save the inhabitants and not the island.

Note

1. Coined by the author as Joan M. Nicholson in a 1981 speech.