SUSTAINABLE DEVELOPMENT OF INSTITUTIONAL AND INFRASTRUCTURE RESOURCE CAPITAL

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Summary

Human behaviors with respect to nature can often be understood by realizing that individuals are ordinarily driven to act not out of choice but out of necessity. Many of those who undertake actions that seem environmentally unsound are exercising choice in only a very limited sense of that word. Choosing between remaining in the urban slums of developing countries or migrating to the fragile hills may look like choice, but when necessity forces actions, there is little scope for choice.

The sustainability of institutional and infrastructure capital can sometimes entail the raising of awkward questions. Is sustainability of these forms of capital desirable regardless of the social and ecological consequences that flow from those arrangements? Sustainability in this realm is properly regarded as part of a process of evolution of existing capital into new institutional arrangements that will assure both ecological integrity and the general ennobling of human life over the long run. The precautionary principle may be precisely what is needed to avoid serious ecological disasters. Sustainable development is a cautious approach to how humans interact with nature. Caution in the social and economic realm, however, may be the enemy of ecological sustainability. This paradox arises because solutions to existing destructive uses of nature may indeed entail profound changes in institutional and infrastructure capital. In this realm, the prudence principle is of greater value than the precautionary principle.

Institutional and infrastructure capital are assured of sustainability if political processes allow for transitions in these arrangements and organizational forms so as to allow and encourage economic progress and ecological integrity. This will be enhanced only if the present can be understood in terms of the future. Social progress presumes that collective action be seen as an exercise in practical reason. Practical reason brings

together two kinds of premises. The intentional premise specifies which possible futures seem most valuable. The epistemic premise specifies what necessary steps seem likely to secure those futures.

1. The Problem

While the precise meaning of sustainable development is open to debate, there can be little doubt that the ecological dimension of sustainability cannot be considered apart from the social dimension. This necessarily follows from the fact that the social dimension concerns how and why humans interact with their physical surroundings as they do. Are tropical forests being cleared at a rate that concerns ecologists and atmospheric scientists? Is soil erosion in agricultural areas threatening future agricultural production and river ecosystems? Do industrial and agricultural chemicals pose a threat to living organisms? Are unique habitats-repositories of rare genetic resources being savaged in the name of "progress"?

Each of these physical realities (or possibilities) is simply the observed outcome of human interaction with the environment. More important, these physical manifestations of human behavior are also manifestations of human interaction in a social and economic domain. If sustainability is to be understood there must be concern with the ways in which humans relate to each other. Only then can attention be turned to how humans interact with their physical surroundings. Notice that this takes one step back into the realm of the reasons for particular human behaviors.

Are foreign exchange earnings of such profound importance to governments-perhaps to service debt from prior borrowings that forests are seen not as habitats but as sources of income? Is the current structure of landownership such that masses of landless peasants face a future of but two equally unpleasant choices—remain in the overcrowded urban slums in a fruitless search for work and sustenance, or migrate to the rural frontier in the hope of, at minimum, growing what they must eat? Are economic conditions in the hinterland so grim that those who live there must exploit all possible ecological niches in a way that compromises habitat viability in the long run?

The challenge here is to understand human behaviors not at the point where individuals interact with nature. Rather, human behaviors must be understood from the point where individuals are driven to act not out of choice but out of necessity. A government heavily indebted to foreign creditors is a government without choices. Being landless is to be without choices. Life in the hinterland is life without choices. Farmers who cultivate steep hillsides, thus giving rise to soil erosion, can be said to exercise choice in only a very limited sense of that word. Clear thinking about sustainability is not advanced if a start is made from the false notion that most of the participants in the systems studied act on the basis of free choice. Choosing between the slums and migrating to the hills may look like choice to those far removed from the harsh reality of those forced to choose one future over the other. But it is a mistake to call such behavior the result of "choice." When necessity forces actions there is little scope for choice.

The problem, therefore, is to understand the conditions in which individuals and groups find themselves acting—not choosing as an expression of free will, but responding as a

manifestation of necessity. All individuals are embedded in a structure of economic and social relations that are not of their own choosing. Humankind is born into such a structure, and depending on the luck of that birth, individuals stand a reasonably good chance—or no chance at all—of influencing that structure in the future. Regardless of human capacity to alter that structure, all individuals face differential opportunities to move fluidly within that structure, or to be thwarted by it at almost every turn. The oldest son of a *hacendado* (landowner) in Latin America faces profoundly different life prospects ("choices") than does the oldest son of a landless peasant who manages to maintain a meager shack at the far reaches of that same *hacienda* (property). The official structures of the state into which these two eldest sons are launched (projected) constitute the working rules and organizations of a going concern whose purposes constitute the reasons for the antecedent conditions of that structure. When, therefore, the sustainability of institutional and infrastructure capital is discussed, this socially constructed stock of working rules and organizations that shape—and very often preordain—individual's lives must be borne in mind.

To talk of the sustainability of these institutional arrangements and their organizational counterparts is, then, to raise an awkward question. Should their sustainability be advocated regardless of the social and ecological consequences that flow from them? Or should their sustainability be advocated because they are plausibly seen as part of a process of gradually searching for—and evolving into—new institutional arrangements that will assure both ecological integrity and the general ennobling of human life over the long run? This question is a reminder that traditional labels and approaches can be problematic. Very conservative (cautious) approaches to environmental behaviors may be precisely what are needed to avoid serious ecological disasters. Care must be taken with the forest, care must be taken with genetic resources, caution must be exercised with endangered species—and indeed circumspection about the arrogance of human domination of nature. Conservative principles serve well in the realm of protecting the environment against the onslaught of human exploitation. Sustainable development is, in a sense, a cautious and precautionary approach to how humans shall interact with nature. Recent interest in the "precautionary principle" captures this idea.

However, caution in the social and economic realm may well be the enemy of ecological sustainability. This paradox arises because solutions to existing destructive uses of nature may indeed entail quite drastic changes in the working rules and their correlated organizational manifestations that now constitute plausible reasons for destructive behaviors toward the environment. If steep hillsides and other fragile lands are overrun with migrants desperate for food and livelihood, it must be asked why the fragile hillsides represent the only option for those seeking a better life? Are there not large expanses of quite good agricultural land that might be made available for such landless people? To ask such questions may well implicate a structure of landownership that results in large-scale landlessness. Those individuals well served by the prevailing institutional and organizational capital from which massive landlessness springs may not be eager for this attention.

If timber concessionaires are savaging the forest, it must be asked why this behavior is permitted? These forest practices constitute serious threats to nature, and if the prevailing institutional arrangements are seen as the reasons for the results (the plausible

explanation of the behaviors), then those institutional arrangements are immediately suspect. To the extent that certain segments of society are well served by those working rules—and if they were not well served by them it might not be possible to explain the existence of such rules—it can be seen that altering current behaviors and practices inimical to ecological sustainability threatens the presumed goodness (instrumentality) of the existing working rules. And once there is talk of the need to alter existing working rules and practices, particular vested interests-well served by those rules can be expected to mobilize against the proposed changes.

The problem therefore, in addressing the sustainability of institutional and infrastructure capital, is to recast the reasons for prevailing rules. Many of the rules and organizations that mediate human action toward the environment are products of the age-old imperatives that regarded nature as a means of economic development. Nature has traditionally been seen as a storehouse of raw materials whose proper purpose was to serve human extraction and use. That is, nature existed to be subjugated to the human will, and nature's bounty—timber, minerals, fish, water, kinetic energy for hydroelectric generation, coal, oil, natural gas, solar energy—was solely to serve human purposes. In addition to this provision of raw materials, nature was also intended to provide a stream of resource services. That is, nature's rivers would carry away human and industrial waste, and the atmosphere would carry away automobile exhaust and industrial smoke in some presumed act of disappearance. The working rules—the institutions—throughout most of human history have been predicated on this view of the purposes of nature.

But if, as many people argue, the survival of the human race is imperiled by the serious overuse of nature's materials and resource services, then caution in the social and economic realm—where caution means aggressive defense of the prevailing institutions (working rules) and organizations—instead of enhancing ecological sustainability will almost certainly undermine it. This threat from a cautious strategy arises because the existing institutions and organizations were crafted and refined during an era when there was a different purpose of nature than that which now seems to be emerging. With a new purpose of nature it follows that there must be a new purpose—a new rationale or justification—for the working rules and organizations that mediate human interaction in the social and economic realm, but also in human interaction with nature. If the new purpose of nature is not reflected in modified working rules (institutions), then nature will continue to suffer from human actions, and eventually it will be impossible to maintain existing social and economic relations. It is for this reason that caution in the social realm, where institutional and infrastructure capital are concerned, will lead to serious threats to that very stock of capital.

Sustainability of institutional and infrastructure capital is thus assured by their continued evolution, and (if perhaps) by their recreation. Stasis, rather than change, is the corrosive enemy of institutional and infrastructure capital. There must be a gradual process in which the working rules of nation-states, and the physical manifestations of those institutional structures, are modified in accord with the evolving purposes of nature. It may seem odd that sustainability implies change and evolution rather than caution and stasis, but this essential evolution is driven by the fact that the purposes of nature are changing. If institutional arrangements and the related infrastructure capital

fail to adjust accordingly, social processes will be threatened, and out of that threat arises a great danger of accelerated harm to nature.

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Biographical Sketch

Daniel W. Bromley is Anderson-Bascom Professor of Applied Economics at the University of Wisconsin-Madison. He was Visiting Fellow at Wolfson College, Cambridge in 1986/87. Professor Bromley has published extensively on natural resource and environmental economics, and on economic development. He has been editor of the journal Land Economics since 1974. He has been a consultant to: the Global Environment Facility; the World Bank; the Ford Foundation; the U.S. Agency for International Development; the Asian Development Bank; the Organization for Economic Cooperation and Development; and the Ministry for the Environment in New Zealand. He has worked and lectured in Russia, Finland, Norway, Sweden, France, Germany, England, South Africa, Pakistan, Indonesia, the Dominican Republic, the Philippines, New Zealand, Thailand, Haiti, India, and Sudan. Professor Bromley has written and edited ten books, the most recent of which are: Economic Interests and Institutions: Conceptual Foundations of Public Policy (1989) Oxford: Blackwell; Environment and Economy: Property Rights and Public Policy (1991) Oxford: Blackwell; Making the Commons Work: Theory, Practice, and Policy (1992) Oakland: ICS Press; The Handbook of Environmental Economics (1995) Oxford: Blackwell; Environment and Economics in Project Preparation: Ten Asian Cases (1999) Manila: Asian Development Bank; and Sustaining Development: Environmental Resources in Developing Countries (1999) Cheltenham: Elgar. He is now writing Sufficient Reason: A Theory of Economic Institutions.