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ENHANCING SUSTAINABLE USE

INCENTIVES, POLITICS AND SCIENCE

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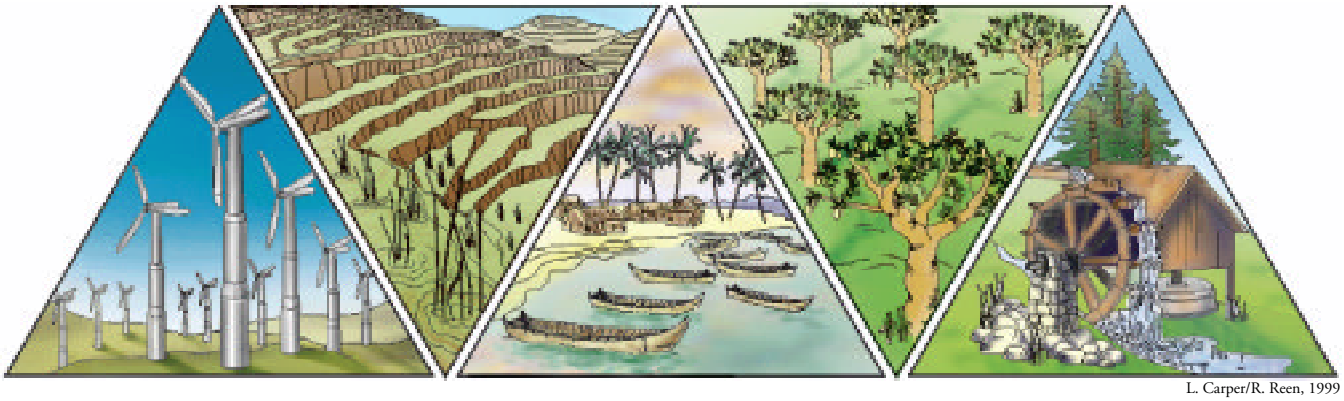

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ENHANCING SUSTAINABLE USE: INCENTIVES, POLITICS AND SCIENCE

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INTRODUCTION

A scholar from the colonies must enter these honoured halls with an awareness of privilege and prudence. Privilege, in the sense that one has been granted temporary membership in one of the pre-eminent forums of the international scientific establishment that dictates the paradigms and processes of discourse on environmental affairs. Prudence, in the sense that one should not claim an expertise beyond one's experience or prescribe on affairs which are outside one's own realm of responsibility.

This applies to me today. I am not a forestry expert and my knowledge of forest management issues in California or the United States is rudimentary. My scholarship is drawn from the savanna areas of Eastern and Southern Africa, with a bias towards their faunal resources. Its primary responsibilities are to those who live in these areas and depend on these resources. Thus I cannot afford to be presumptive about what I do not know of your situation, or prescriptive about what is your responsibility. Instead I must find common ground with my audience.

This, I believe, is found in the issues suggested in my title. A common objective in searching for incentives which enhance sustainability in the use of natural resources. A common concern for the politico-economic dynamics which impede this search. And an examination of the modes of scholarship which can either divide us or join us in common cause.

CONTROL AND INCENTIVE IN USE

In their book *The Lessons of History,* Will and Ariel Durant have this to say:

> So the first biological lesson of history is that life is competition. Competition is not only the life of trade, it is the trade of life—peaceful when food abounds, violent when the mouths outrun the food. Animals eat one another without qualm: civilized men consume one another by due process of law.[1]

I use this quote at the beginning of this address because it contains three seminal pointers for a discussion of our topic. It speaks of supply, it speaks of demand, and it speaks of competition and control. Mankind's use of species and ecosystems (and, I might add, mankind's use of man) is critically deter-

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* Paper delivered as the Rudy Grah Lecture on Forestry and Sustainable Development, University of California, Berkeley, September 28, 1998.

1. Quoted by Mark Kurlansky, in: *Cod: A Biography of the Fish That Changed the World.* London: Jonathan Cape, 1998.

mined by these three variables. And it is in the relationships between the three that the clues are to be found as to whether our use of natural resources is likely to be sustainable or not. Currently our work in IUCN's Sustainable Use Specialist Group is exploring a conceptual framework, stated as follows:

> The likelihood that use will be sustainable will depend on the relationships which exist between the demand for a resource, the controls over exploitation of a resource and the resulting supply of the resource. A use is likely to be sustainable when the controls over the resource are sufficient to ensure that its supply does not exceed its biological potential for renewal under all situations of demand.[2]

From this conceptual framework spring a wide range of issues which have been placed on our analytic agenda. Time does not allow me to go into details, other than to say that we place emphasis on comparing "the effectiveness and efficiency of various systems of regulatory control under a range of conditions of demand for and supply of resources."[3]

This emphasis on control is the focus of my presentation. Control is a necessary (if not sufficient) condition for sustainability in use and unless we get this condition right our objective will not be attained.

All forms of environmental management are essentially regulative in function. They are of course more than this and are usually also directed at improving environmental productivity. But as they are, above the level of individual management, systems of collective action for collective good institutionally they must have the means to induce collective conformity if they are to work.

All of this may sound commonplace, and it is an assumption which runs through the international environmental culture of which our scholarship is a part. This includes the plethora of environmental conventions with which we interact, such as CITES (Convention on International Trade in Endangered Species) and the CBD (Convention on Biological Diversity). Thus Article II of CITES in describing its appendix listings speaks of "particularly strict regulation" (Appendix I), "strict regulation" (Appendix II) and "effective control" (Appendix III). The CBD uses similar vocabulary, and in Article 8 we find, for instance, the words "regulate," "manage," "control" and "prevent."

What is unfortunately not so commonplace, however, is the recognition by this international environmental culture that effective regulation is far more than a matter of proscriptive legislation. We only grasp this when we understand a central sociological insight, that regulation is comprised of a set of incentives, both negative and positive.

Incentive is thus the fulcrum of regulation. Regulation almost invariably requires an element of negative incentive, proscriptions backed by powers to enforce them. But any regulatory system which relies primarily on negative incentives is—in the long term—in trouble. Enforcement costs are high and the legitimacy of the system in the eyes of the enforced is called into question. History shows that such systems are unstable and that sustainable systems of regulation are those that rely primarily on positive incentives—economic, cultural and institutional—which are affordable.

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2. Report of the Technical Advisory Group, 5th Working Meeting of the SUSG Steering Committee, June 1998.

3. *Ibid.*

If we take this lesson from social history seriously and apply it to environmental governance, we must conclude that one of the main reasons our efforts have not generally produced the results we seek lies in the fact that they have the balance between negative and positive incentives wrong. They emphasize negative and expensive proscriptions which are beyond their capacities of enforcement. They give insufficient attention to positive inducements, which are more cost-effective and incentively powerful. This balance must be redressed. The issue is not one of negative or positive incentives per se, but one of finding the right mix of these ingredients in specific systemic contexts. We need to reprofile our approaches so that they represent incentive packages of regulatory compliance in which negative sanctions can be enforced because they are held to affordable levels and in which the burden of compliance is shifted to positive, more viable and implementable incentives.

INCENTIVES AND SCALE

I have spoken of the need to find the right mix of negative and positive incentives, which work in specific systemic contexts. Are the incentive regimes which we advocate congruent with the characteristics of the resource or ecosystem concerned and with the profile of management dynamics involved? We cannot begin to answer the first part of this question until we disaggregate resources and ecosystems into categories determined by their management requirements rather than by Linnaen or other typologies. When we do so we discover that the required regime varies widely. What is required for sand grouse and what is required for migratory waterfowl are likely to be vastly different in scale.

We cannot answer the second part of the question unless we also grasp the importance of scale on institutional efficiency. Generally, the smaller a regime is the more effective and efficient it will be. Increases in scale complicate communication and decision-making, and beyond certain levels regimes must bureaucratize with attendant costs. Compliance inducement shifts from low-cost modes of moral and peer pressure to the high cost methods of policing and formal coercion. Beyond this, increase in scale erodes the sense of individual responsibility. These insights led Garrett Hardin to once remark that in environmental affairs "globalization favors evasion." He than went on to advocate a simple rule: "Never globalize a problem if it can possibly be dealt with locally."[4]

Thus our search for effective incentive regimes must reconcile scale effects on institutional dynamics with the regime requirements of specific environmental problems. There *are* global environmental problems requiring collective international incentives to control them. The ozone layer continues to thin, with climatic effects which are hotly debated in their specifics but are nevertheless likely to significantly alter the extent and configurations of biological diversity. Toxic pollutants seep through aquifers or spread through the atmosphere, inhibiting ecosystem resilience and negatively impacting on populations far from their source. Issues of this type are truly global and require collective international controls. And, indeed, there has been no lack of international response to these issues. To date nearly 200 multilateral environmental agreements have been produced. Many of these are "soft" agreements, statements of mutual concern and voluntary intent to carry out remedial action. But, as Douglass points out, "voluntary agreements tend to have little direct behaviour-

4. Garrett Hardin, *Filters Against Folly.* New York: Penguin Books, 1985, p. 144.

modifying effect on nations." Thus "soft" agreements become largely "an intermediate step to a "hard" agreement which will bind the parties to a common, enforceable goal."[5]

So far, so good. But, when we examine "hard" multilateral agreements and conventions, we find that the incentives for compliance they contain are almost exclusively punitive and negative. Furthermore, punitive mechanisms which are politically viable are limited. In fact "non-compliance protocols" usually boil down to one measure: trade sanctions against the offending state. "Economic sanctions have become the policy enforcement tool of choice for international enforcement."[6] Leaving aside any discussion of the costs involved in using this instrument, and the conflict between it and another major global trend—the dismantling of protectionist barriers and the encouragement of free trade—we can note that little if anything by way of positive incentive is offered in these treaties and conventions.[7] There is, of course, one important exception to this. National and international environmental bureaucracies "become both the benefactors and beneficiaries of environmental treaty development."[8] As Wiener observes, "The diplomats negotiating the treaty often come from the very government agencies and elite cliques which would be enlarged and enriched by the task of handling these resource transfers."[9]

This profile of incentive packages in our global efforts to address global problems—heavily skewed towards negative and expensive sanctions of questionable impact—is the prescription for stasis and inefficiency, for discord and disillusion.[10] The world is understandably becoming impatient with the noise of our solemn assemblies, with expensive gatherings which turn into choirs singing hymns of pious environmental rectitude, strong in proscriptive resolutions reflecting intent but weak in approaches which link intent and consequence through incentive regimes which work.

But, returning for the moment to the issue of scale, we need to recognize that most of the problems involving the sustainable use of natural resources will be determined by the policies and actions of people at a smaller scale, at national and sub-national levels. The further down the hierarchy of scale we go the closer we get to hands-on management and use. And it is here that the determinative decisions on use are made. At these levels decisions are personal rather than abstract, they are operational rather than propositional, they emphasize positive effort rather than passive compliance and their implementation is direct, carried out by those who make them. Because they are

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5. Christopher Douglass (1998) "Environmental Crossing Guards: International Environmental Treaties and U.S. Foreign Policy." St. Louis: Center for the Study of American Business, Washington University, Polity Brief No. 168, May, p. 3.

6. Douglass, *op. cit.,* p. 8.

7. The CBD, with its emphasis on the sustainable use of biodiversity and the equitable sharing of the benefits of such use, is a notable exception.

8. Douglass, *op. cit.,* p. 7.

9. Jonathan B. Wiener (1997) "Designing Global Climate Policy: Efficient Markets Versus Political Markets." St. Louis: Center for the Study of American Business, Policy Study No. 143, December, p. 33.

10. A good example is the UN General Assembly Special Session ("Earth Summit 2") held in New York in June 1997. For detail see *Arbor Vitae,* The IUCN/WWF Forest Conservation Newsletter, August 1997, p. 5.

generally made in contexts distanced from any effective instruments of international or state coercion they are relatively autonomous, responsive to private or local agendas rather than those set by the abstractions of the international conservation discourse.

Two important points arise. Firstly, since these determinative decisions are taken in contexts insulated from, and indeed often hostile to, externally imposed regulatory proscription, incentives for sustainable use at this level must give particular attention to positive inducements. Secondly, since these contexts represent a myriad number of specific situations, no single incentive profile can be universally applicable. As our Sustainable Use Specialist Group's report to the World Conservation Congress in 1996 stated, "There are a multitude of configurations of biological, social and economic conditions at which sustainability of use might be achieved."[11] John Robinson puts this more colourfully: "Sustainable use is not an exercise in coloring by numbers. Instead what you have is an identification of the social, economic and biological factors that always need to be considered, and which sometimes enhance, or not, the sustainability of resource use... And the sustainability lies not in the factors themselves but the interaction between the factors."[12] This complexity and variability should serve as a warning against our reductionist proclivity to search for polyvalent "guidelines" rather than principles.

INCENTIVES IN SOCIO-ECONOMIC CONTEXT

I turn now to the importance of values and goals in constructing effective incentive packages for sustainable use. Socio-economic and socio-cultural location importantly shapes what these values and goals are. For those located in urban and industrialized society wild life and habitat has little direct economic significance and emphasis is placed on the intrinsic or recreational values derived from these resources. Our definitions of conservation are couched in abstract terms such as "biodiversity" and "ecosystem maintenance" and our objectives become those of the maintenance of species and habitats for aesthetic, recreational or scientific purposes. Incentive packages for sustainability responsive to these objectives are likely to emphasize the role of the state, the guidance of scientific technicism and the compliance of the citizenry in preserving the little of what urbanization and technology has left of "the natural."

For rural farmers and pastoralists where the presence of wild land and wildlife has important economic implications, conservation incentives take a different, more instrumental form. While they too hold profound and powerful intrinsic valuations of nature, conservation is for them an investment (in direct of opportunity costs) for present and future value, the goal being the maintenance or enhancement of their livelihoods. Sustainable use *is* conservation; whether it involves regulated off-take of biological productivity or the designation of areas for tourism enterprises.

There is nothing intrinsically incompatible in the two incentive profiles I have just described. The differences between them can be seen as differences in means-end sequencing, the one stance

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11. IUCN Sustainable Use Initiative (1996) *Factors Influencing Sustainability.* Gland: IUCN, p. 3.

12. John Robinson (1998) "Evolving Understanding of Sustainable Use," in: *Enhancing Sustainability: Resources for Our Future,* edited by H. van der Linde and M. Danskin. Gland: IUCN. - (SUI Technical Series, Vol. 1, p. 5).

being livelihood enhancement as a means to conservation and the other being conservation as a means to continued well-being. Dissonance arises when the two are brought together in one arena of action and where one stance is accorded what Hirschman has called "privileged problem" status.[13] At present the tendency is for intrinsic and existence valuations to be accorded higher order level status and to regard local and instrumental conservation incentives as lower level factors to be co-opted in the pursuit of these values. This produces an impasse. Allied to international and state coercive instruments, intrinsic and existence valuations impose proscriptions which inhibit the implementation of local, instrumental incentives. However, local incentives also have a powerful veto dimension. Unless they are accommodated, international and national values and goals will be subverted by local responses ranging from defiance to covert non-compliance. Impasse results, a socially constructed stalemate in which no one wins and the environment is the loser.

INCENTIVES AND POLITICS

To get around this impasse, one approach is to identify the congruent aspects of incentive which operate at different levels of scale and bind them together in structures and processes which enhance their potential for synergy. Bromley refers to this as "incentive compatibility," which, he says,

> ... is established when local inhabitants acquire an economic interest in the long-run viability of an ecosystem that is important to people situated elsewhere ... Such ecosystems represent benefit streams for both parties; those ... who seek to preserve biodiversity and those who must make a living amid this genetic resource.[14]

There is a great deal that can be said in support of strategies of incentive compatibility. Environmental conflicts do not necessarily involve a zero-sum game and rightly structured the interests of the larger collective whole and those who use and manage its constituent elements can often be brought together for coactive, mutual benefit. This is the implicit assumption which lies behind the many programmes that flourish today under such titles as "integrated conservation and development" and "community conservation."

But we should not allow our enthusiasm for the "win-win" solution, for incentive compatibility, to cloud our grasp of politico-economic realities. Providing effective incentive packages for sustainability at local levels usually will require significant transfers of power, of rights and resources. There will be losers as well as winners. This is an unpalatable fact, but unless we face it, our prescriptions will continue to deal with symptoms rather than causes.

Let me illustrate with the case of "community conservation" projects mentioned above. Recently I have been involved with a number of colleagues in a comparative study of such projects in Eastern and Southern Africa.[15] We have found that performance rarely approximates promise and is

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13. A. O. Hirschman (1963) *Journeys Towards Progress.* New York, Twentieth Century Fund.

14. D. Bromley (1994) "Economic Dimensions of Community-based Conservation," in: *Natural Connections. Perspectives in Community-based Conservation,* edited by D. Western and R.M. Wright. Washington, D.C.: Island Press, pp. 429-430.

15. AWF (Nairobi), CASS (University of Zimbabwe), IDPM (University of Manchester) Study on "Community Conservation in Africa: Principles and Comparative Practice," funded by the Economic and Social Research Council, U.K.

sometimes abysmal. There are a number of reasons for this. Some of them relate to planning and implementation. Some are demographic or ecological and involve resource/demand ratios. Some, importantly, are institutional and organizational. *But the single most important reason for failure is aborted devolution;* the failure to confer the necessary level of rights and responsibilities required to achieve efficient localized control regimes enhancing sustainability. The incentive package, in both its negative and positive dimensions, is incomplete and inadequate.

Why this aborted devolution, in spite of all the rhetoric by governments and funding agencies about "community-based management" and "decentralized control" over natural resources? The answer lies fundamentally in the value of natural resources and the importance of power to control and benefit from them. The history of colonial Africa is a history of the appropriation of this power and benefit by the state from those who live with and use natural resources. This was done largely by claiming the *de facto* and often *de jure* ownership of natural resources for the state and conferring only weak, usufructural rights to the land on which these communities live. This condition has persisted into the modern post-colonial state almost without exception. As in colonial times, "communal lands" continue to be in various degrees the fiefdoms of state bureaucracies, political elite and their private sector entrepreneurial partners.

My example has been from Africa, but its characteristics can be found in a multitude of examples from around the world—not only the "developing" world but the "developed" world as well. Devolution in tenure, in responsibility, in rights and access to benefit streams is a fundamental allocative and political issue. Power structures at the political and economic centre are not disposed to surrender their privileges and will use their power, including their abilities to shape policy and law, to maintain the monopolies of their position.

All this is not new in essence. An 18th century rhyme put the issue succinctly for that period of English history:

> The law doth punish man or woman
> That steals the goose from off the common,
> But lets the greater felon loose,
> That steals the common from the goose.[16]

And so we are back to the observation of my opening quote. In the competition which is the trade of life, "civilized men consume one another by due process of law." I am not suggesting here that we dispense with law, with socially legitimated proscriptions against deviance which form an important negative incentive in our search for sustainability. What I am suggesting is that the processes which lead to policy and law be further democratised and made more responsive to the incentives for sustainability which lie with those who are the primary users, producers and managers of our natural resources. To put my point differently, good civil governance is an indispensable component in the search for sustainability.

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16. "On enclosures," 18th century, anonymous. My thanks to Rowan Martin for drawing this quote to my attention.

THE ROLE OF SCIENCE

The advocacy of good civil governance is something which we, as academics, can easily accept. Within our own academic culture it is politically correct. And subtly it suggests that this is something others must do. This is comfortable, since it keeps us out of the cut-and-thrust of politics. No Kenneth Starr investigations of us, thank you. Our role is, however, more integral to the issue than this comfortable distancing of scholarship from action implies. The robust devolutionism that incentives for sustainability require involves not only a fundamental reallocation of rights to resources and benefit streams. It also involves a reallocation of the roles and rules in cognitive discourse, a new configuration of scholarship more pluralist, more inductive, more experimental in its approaches and more contingent in its conclusions. It involves the "mainstreaming" of adaptive management in environmental science. It requires, in a phrase, cognitive devolution.

A move in this direction is evident among environmental scientists concerned with evolutionary biology and system approaches to ecology which extend the scope of investigation beyond physical and biotic data to include the structures and dynamics of human activity. Scientists in this school recognize the inherently contingent nature of scientific knowledge and emphasize its role as an actor, with policy and management, in social experiment.[17] They recognize that sustainability is a social goal, not a "fixed end-point to be reached but a direction that guides constructive change."[18]

This perspective on professional science's epistemology and role, in its applied form, has "emerged regionally in new forms of resource and environmental management where uncertainty and surprises became an integral part of an anticipated set of adaptive responses." [19] Dissonance remains, however, where bureaucracies retain the expectation that science can provide *a priori* certainties. As Constanza remarks, "... most environmental regulations ... *demand certainty* and when scientists are pressured to supply this non-existent commodity there is not only frustration and poor communication, but mixed messages in the media as well."[20] One can also add that this pressure is a perverse incentive for the integrity of science itself, since it carries with it the temptation to assert as definitive that which is tentative.

Unfortunately, there remains a strain in our scholarship where science is still regarded as specialized domain outside the realm and mandate of local people. Our language often betrays this, as when for instance we read the following criterion for sustainable use: "Governments involve local people in decisions affecting the use *while continuing to base management decisions on science.*"[21] That last phrase is the telltale clause. We can "involve" and "consult" local users and managers, but the decision-

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17. C. S. Holling (1993) "Investing in Research for Sustainability." Ecological Applications 3(4) pp. 552-555.

18. Lee, K.N. (1993) "Greed, Scale Mismatch, and Learning." *Ecological Applications* 3(4) pp. 560-564.

19. C. S. Holling, *op. cit.*

20. Constanza, R. (1993) "Developing Ecological Research that is Relevant for Achieving Sustainability." *Ecological Applications* 3(4) pp. 579-581. Emphasis in original.

21. SSN (1996) *Criteria for Assessing the Sustainability of Trade in Wild Fauna and Flora.* Wildlife Use Working Group of the Species Survival Network. Humane Society of the United States, Washington DC, 4 pp. Emphasis mine.

making base for management must remain ultimately with a professional scientific establishment separate from them.

Whether we care to admit it or not, we are part of this establishment, a community of scholars, consultants and agency bureaucrats which at national and international levels sets the analytic agenda, defines the privileged problems and solutions and determines what constitutes cognitive authority.

History and economics locate the core of this establishment in industrialised and urbanised society, and it inevitably draws its paradigms of conservation from this source. In implementation its scholarship involves a division of labour, paralleling that which Mkandawire describes for African studies which, he says, "has essentially meant that the "North" carries out the conceptual work and designs the field work programmes for African researchers who conduct the interviews and fill in the forms." He suggests that this reduces the role of local scholars to that of "barefoot empiricists" and encourages the "invisibility of African scholarship." He goes on to complain that "We are probably the only part of the world about which it is still legitimate to publish without reference to local scholarship."[22]

Mkandawire was speaking of the nexus between African and international scholarship but his points have equal salience for the nexus between the epistemic community of intellectual environmentalism and the world of managers and users everywhere. To what degree does our scholarship consign managers and users to the role of "barefoot (or booted) empiricists"? To what degree does it render invisible the results of their own experimentation and analyses in the arena of sustainable use? The answers will give us a measure of the degree to which we, in our professional and scientific role, have been responsive to the challenge of fashioning effective, situated incentive profiles for sustainable use.

A candid examination of our record must conclude that our scholarship has been complicit in this aborted cognitive devolution. It arises from our roots in an intellectual establishment located at a scale distanced from the levels where most of the operational decisions on sustainability are made. It is fed by professional and bureaucratic self-interest, with their imperatives of centralized control. It acts as a magnet for recidivism, [23] drawing the reality of our scholarship back from the rhetoric of our theory.

How can this tendency be changed? Given the congealing inertia of our professional location one can be skeptical about the possibility of a positive answer. But I cannot end on a pessimistic note. Several trends in contemporary environmental scholarship give room for optimism. There is the intellectual excitement which new interdisciplinary configurations of study have brought to academia. There is the heightened awareness of the limitations and contingencies of our scientific findings. There is a growing appreciation of the importance of analyses produced by grounded managerial experience and properly situated scholarship. All of these are forces which can link the voice of science and the voices of democracy. And if they are allowed to flourish, science may become part of the answer rather than part of the problem in the socially constructed stalemate that impedes our search for incentives to sustainable use.

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22. Thandika Mkandawire (1998) "The Social Sciences in Africa: Breaking Local Barriers and Negotiating International Presence." Roskilde University, International Development Studies, Occasional Paper No. 19, pp. 122-145.

23. "Recidivism": Habitual or chronic relapse into old patterns or habits. (cf. *Webster's New Twentieth Century Dictionary*, unabridged second edition. William Collins, 1979).

ABOUT THE AUTHOR

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Founded in late 1996, the **BERKELEY WORKSHOP ON ENVIRONMENTAL POLITICS** emerged from a long-standing commitment to environmental studies on the Berkeley campus and from the presence of a core group of faculty whose research and scholarly interests linked environment, culture, and political economy. The workshop draws together over fifty faculty and doctoral students from San Francisco Bay Area institutions (the University of California campuses at Berkeley, Santa Cruz, and Davis, and Stanford University) who share a common concern with problems that stand at the intersection of the environmental and social sciences, the humanities and law. The Berkeley Workshop on Environmental Politics has three broad functions:

- to assist graduate training and scholarly research by deepening the theoretical and methodological toolkit appropriate to understanding environmental concerns in an increasingly globalized world;
- to bring together constituencies of local and international scholars, activists, and policy makers for transnational conversations on environmental issues; and,
- to bring community activists and policymakers to Berkeley as Residential Fellows, thus providing synergistic possibilities for developing new learning and research communities.

The Berkeley Workshop on Environmental Politics is funded by the Ford Foundation, the Hewlett Foundation, the Institute on Global Conflict and Cooperation, the MacArthur Foundation, and the Rockefeller Foundation.

THE INSTITUTE OF INTERNATIONAL STUDIES was established in 1955 to promote interdisciplinary research in international, comparative, and policy studies on the Berkeley campus of the University of California. The current emphasis is on the following intellectual themes: peace and security after the Cold War; environment, demography, and sustainable development; development and comparative modernities across regions; and globalization and the transformation of the global economy. The Institute has several major research programs, and provides support to Berkeley faculty and fellowships to Berkeley graduate students. Ongoing research colloquia bring together faculty, advanced graduate students, and visiting scholars for discussions. The Institute hosts distinguished visiting fellows who participate in Institute programs while in residence at Berkeley. Its public outreach programs include lectures, forums, conferences, interviews, and the *Connecting Students to the World* program. The Institute publishes *Policy Papers in International Affairs, Insights in International Affairs, Currents,* and the Globetrotter website <http://globetrotter.berkeley.edu>.