Community-based conservation in a globalized world

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Communities have an important role to play in biodiversity conservation. However, community-based conservation as a panacea, like government-based conservation as a panacea, ignores the necessity of managing commons at multiple levels, with vertical and horizontal interplay among institutions. The study of conservation in a multilevel world can serve to inform an interdisciplinary science of conservation, consistent with the Convention on Biological Diversity, to establish partnerships and link biological conservation objectives with local development objectives. Improving the integration of conservation and development requires rethinking conservation by using a complexity perspective and the ability to deal with multiple objectives, use of partnerships and deliberative processes, and learning from commons research to develop diagnostic tools. Perceived this way, community-based conservation has a role to play in a broad pluralistic approach to biodiversity protection: it is governance that starts from the ground up and involves networks and linkages across various levels of organization. The shift of attention to processes at multiple levels fundamentally alters the way in which the governance of conservation development may be conceived and developed, using diagnostics within a pluralistic framework rather than a blueprint approach.

commons | complexity | governance | institutions | sustainability

Biodiversity conservation is an activity for which a number of panaceas, blueprint approaches, have been widely promoted. Over the past century, conservation has largely relied on national parks controlled by central governments, a model adopted by much of the world as the main, if not the only, way to carry out conservation. Is the national level the only one at which conservation measures can be taken? Some scholars have emphasized the importance of biodiversity conservation at the global level and have suggested that solutions need to be imposed by international agencies. Others have emphasized community-based conservation and yet others, the privatization of conservation areas. There has been much debate on the merits of these various solutions but little discussion of pluralistic approaches, such as the distribution of authority across multiple institutions (1) or considerations of ways to use institutional diversity in general (2). This omission is not due to a lack of theory. Much of the relevant material is in the commons literature (3).

Biodiversity conservation can be treated as a commons problem, specifically as a multilevel commons problem. Biodiversity is a global commons important for humanity as a whole, a regional commons important for ecotourism and other benefits, and a local commons that produces ecosystem services for human well-being at the community level (4). As a multilevel commons, the ownership and control of biodiversity are complex. Some biodiversity is under state ownership, some is under the control of communities, and some is privately owned. Many of the lands that support biodiversity are under multiple and competing claims, including nominally government-owned forests under community control (5); protected areas designed for biodiversity conservation but that allow for human use, as with the World Conservation Union's protected-area categories V and VI (www.unep-wcmc.org/protected_areas/categories/index.html); and locally maintained traditional protected areas, such as the sacred groves of Kerala, India, which can be as effective as nearby government protected areas (6).

If the ecosystems that support biodiversity were simple systems, and if the creation and implementation of protected areas did not involve social and political controversy (7), state control would be an appropriate low-cost solution. But this is not the case. Conservation is typically a complex systems problem, because the natural environment itself is a complex adaptive system with issues of scale, uncertainty, and multiple stability domains (8). Ecological systems are hierarchically organized, with each subsystem nested in a larger subsystem. Complex systems theory holds that the levels are linked, but that each level requires diverse concepts and principles. Self-organization provides a unifying principle for complex adaptive systems: "The specifics are in the often simple rules that govern how the system changes in response to past and present conditions, rather than in some goal-seeking behavior" (ref. 9, p. 12).

The social systems involved in conservation also are multilevel, with institutions at various levels of organization from local to international. Processes at these levels require different but overlapping sets of concepts and principles, an idea reflected in the commons literature (10, 11). Because each level of a scale is different, the perspective from each level is likely also different. The global lens of biodiversity conservation (that it is a global commons) is therefore different from the local lens on biodiversity (local commons for livelihoods). This difference does not mean one perspective is right and the other wrong; it means they can both be correct from different points of view. Pluralism in perspectives is mirrored in pluralism in knowledge. In conservation disputes, local knowledge may often appear at odds with science. But in many cases, the differences in knowledge and understanding of a resource system have to do with differences in the level at which information is obtained (12), a point often missed in blueprint approaches.

Insights from the path-dependency concept in complex systems further reveal the inadequacy of the blueprint approach. As may be applied to social sciences, this is the argument that context (history, politics, and culture) is important in understanding a particular case. This is not to say that changing direction is impossible; rules and practices change all the time through adaptation and learning, although in some cases changing directions or reversing a path may be costly. Rather, the point is that each case is conditioned by the context in which it developed, meaning a solution package developed from one case cannot readily be transferred to others (13, 14). For example, the community-based marine protected-area approach, developed in one area of the Philippines and replicated throughout the country with little attention to context, resulted in a high rate of failure (15). However, with attention to context, it should be possible to transfer lessons, insofar as similar diagnoses call for similar treatments.

In sum, the perspective of biodiversity conservation and the relevant social–ecological system as complex and multilevel is in sharp contrast with the simple view of biodiversity conservation that has led to blueprint solutions. When we shift away from the panacea

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Abbreviations: EI, Equator Initiative; ICDP, integrated conservation and development project; NGO, nongovernment organization; UNDP, United Nations Development Programme.

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of state control to a solution that emphasizes the complexity of biodiversity conservation, what are some of the conceptual and practical problems? How do we rethink the conservation issue so that community-based conservation does not itself become another panacea?

In examining community-based conservation and its place in a pluralistic approach, I argue that implementing governance to deal with the complexity of biodiversity conservation requires developing the capacity to deal with multiple objectives, using deliberative processes and partnerships, and learning lessons from commons research. I use illustrative material from the United Nations Development Programme (UNDP) Equator Initiative (EI) projects for integrating biodiversity conservation and poverty alleviation (16–18). After some definitions, I first discuss the context of community-based conservation and then explore the issues of multiple objectives, deliberation, and learning from commons research.

The seminal definition of community-based conservation, provided by Western and Wright (ref. 19, p. 7), "includes natural resources or biodiversity protection by, for, and with the local community." Defining it more precisely would be futile, note Western and Wright, because community-based conservation includes a range of activities practiced in various parts of the world, but that the central idea in the concept is "the coexistence of people and nature, as distinct from protectionism and the segregation of people and nature" (ref. 19, p. 8).

The terms conservation development and integrated conservation and development projects (ICDPs) are sometimes used interchangeably. Here development largely refers to livelihoods, making a living, meeting needs, coping with uncertainties, and responding to opportunities (20). Institutions are defined as the sets of rules actually used or the working rules or rules in use (21). Following Young (22), institutional interplay involves institutions that may interact horizontally (across the same level) and/or vertically (across levels of organization). Complexity may be defined as an interconnected network of components that cannot be described by a few rules; order and function of complexity generally manifest themselves in structure and emerge from interactions among the diverse components (ref. 9, p. 231).

Context of Community-Based Conservation

The ownership of biodiversity and wildlife makes an intriguing story. Before the 19th century, sacred groves and ancient royal forests provided nature protection in some ways comparable to conservation in contemporary protected areas (23). Roe *et al.* (24) point out that the late-19th-century notion behind the idea of national parks, that people and wildlife are in conflict and that natural areas should be set aside purely for nonconsumptive purposes, was a historic anomaly. So is the assumption of ownership of wildlife resources by the state, an idea that has come to dominate conservation policy worldwide.

Establishing such a policy is one thing; enforcing it is something else. Resource-based rural communities, especially indigenous ones, have always challenged the claims of the state over their resources (14, 19, 25). But can communities conserve? Issues over community conservation are as complex as issues over community management (26). The question of whether community-based commons management can lead to conservation and whether conservation can be entrusted to communities is hotly debated (7, 27). The answer depends in part on how conservation is defined (28). Community-based conservation as prudent use, because livelihoods depend on the long-term sustainability of local resources, no doubt has a long history. However, community-based conservation as a concept and panacea is relatively new and seems to have developed in reaction to the panacea of state-managed conservation (29).

According to Salafsky and Wollenberg (20) and Brown (30), there have been several distinct phases of community-based conservation. The Word Bank and the Asian Development Bank started funding ICDPs in the 1980s. Many of these projects were based on a protected-area concept, and the goal was to increase benefits from alternative livelihood activities as a way to reduce the threat to conservation from local people. Community-based conservation of the 1990s went further by trying to establish a direct linkage between conservation and local benefits. Such a link between biodiversity and livelihood closes the loop and becomes the driving force leading to conservation by establishing a direct incentive for local people to protect biodiversity in the long term (20).

These various kinds of community-based conservation approaches, developing in part as a reaction to the failures of state-run exclusionary conservation, were more inclusive and sensitive to local needs. Soon "the old narrative of 'fortress conservation' was largely displaced by the counternarrative of development through community conservation and sustainable use" (ref. 29, p. 2). However, community-based conservation as a blueprint solution threatened to become a panacea itself. Such was the popularity of the concept that Hackel (ref. 31, p. 730) remarked it would soon "be difficult to find a rural conservation project that does not define itself as community-based." Barrett *et al.* (ref. 1, p. 497) observed, "the current fashion for community-based natural resource management overemphasizes the place of local communities in tropical conservation efforts, much as the previous top-down model underemphasized [it]." Rethinking conservation using a complexity perspective can start by developing the capacity to deal with multiple objectives.

Dealing with Multiple Objectives

If conservation and development can be simultaneously achieved, the interests of both can be served. However, many ICDPs are either primarily concerned with conservation or primarily emphasize development, but rarely both. More common are situations in which one objective or the other dominates (30). For example, involving local communities in conservation is often used as a means of making conservation measures less likely to meet local resistance, but the ultimate objective remains one of conservation. Conversely, protecting the productivity of a resource may be used as a means to enhance local livelihoods and development options, but the main objective remains development. Management approaches that explicitly have more than one objective are far less common than approaches that have only one.

The problem is that multiple objectives pull in different directions. However, this has not prevented various fields, such as economics and engineering, from developing models to deal with multiple objectives. In the field of sustainability science, the Millennium Ecosystem Assessment tackled the issue, referring to the multiple-objectives approach as integrated responses, defined as policy responses that explicitly and purposely state that their objectives address more than one ecosystem service and human well-being simultaneously (32). The Assessment explored ICDPs as one of the four areas in which integrated responses were needed, along with sustainable forest management, integrated coastal zone management, and watershed and river basin management, all of them complex systems problems (32).

Hence, integrated responses may be a way of moving from problem solving as if conservation involved simple commons to problem solving in a complex commons that requires multilevel governance. Consistent with the needs of managing complexity, integrated responses tend to involve networks and partnerships of various levels of government, private sector, and civil society (32, 33). However, there are barriers to establishing such networks and partnerships because of differences in power held by the various parties involved. In particular, there has been resistance to dealing with livelihood and biodiversity conservation objectives simulta-

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neously, with the argument that social objectives dilute the all-important conservation objectives (25).

This resistance may be due in part to differences in power and agendas. But it also may be partly due to the inability and discomfort of the conventional science of resource management to deal with multiple objectives, as seen, for example, in the area of fisheries management in moving from single-objective management, the maximum sustainable yield, to multiple objectives, including biological, economic, and social objectives. In the present case, there is little common language or common concepts between conservation practitioners and development practitioners. The biological conservation literature has very little overlap with the rural development and livelihoods literature, a barrier to the search for common goals. The issue is perhaps one of capacity building among the practitioners, and the eventual development of an interdisciplinary science of integrated conservation development that has a tradition of using multiple objectives and dealing with tradeoffs.

The UNDP EI Guyana case provides an example of use of both conservation and livelihood objectives and how tradeoffs can advance both kinds of objectives, even in a situation of vast power differential between local people, Makushi Amerindians, and national authorities. Conservation of the giant Amazon fish *Arapaima gigas* has buy-in at the community level, which is an apparent loss of revenue. The case identified several factors for local support of conservation: training of local fishers to carry out *Arapaima* counts, local responsibility for monitoring with promise of harvests when the resource again becomes plentiful, and the ability of the Guyanese national nongovernment organization (NGO) Iwokrama to identify local concerns and foster a dialogue between fishers and government. Iwokrama's long-term development assistance to the local communities, building a level of trust and reciprocity in the management of other species and forests, was seen as particularly important (16). The ban on *Arapaima* fishing appears to have been an acceptable tradeoff for local empowerment and participation in conservation and management decisions.

Importance of Partnerships and Deliberative Processes

There has been a dearth of successful cases of community-based conservation, often because biodiversity conservation, as conceived by international conservation agencies, is not usually a high priority for local communities (34). In turn, conservation based on livelihood needs, as conceived by local communities, does not fit the conventional thinking of people-free protected areas (25). If one examines the relatively few cases of the successful integration of conservation and development, such as UNDP EI projects nominated for international awards (16), some of them highlighted in *World Resources 2005* (18), a common characteristic is the presence of many partners and multiple linkages. In many cases, there are key alliances within a project in which two parties bring their relative strengths to the partnership (35).

Table 1 shows that a sample of nine UNDP EI projects typically involved 10–15 partners. Based on information from on-site research, these partners included local and national NGOs; local, regional, and (less commonly) national governments; international donor agencies and other organizations; and universities and research centers. These partners interact with the local community to provide a range of services and support functions that a successful conservation-development project apparently requires. These include raising funds, institution building, business networking and marketing, innovation and knowledge transfer, technical training, research, legal support, infrastructure, and community health and social services. These findings support the hypothesis that integrated responses tend to involve networks and partnerships of various kinds (32).

In addition to carrying out case research, we also have surveyed a larger set of UNDP EI cases from UNDP's database. The studies confirm that the vast majority of cases examined have a diverse

Table 1. Numbers of levels of social and political organization and partners involved in UNDP EI cases

Cases	No. of partners	No. of levels
Medicinal Plants Conservation Centre, India	11	6
Arapaima conservation, Guyana	16	4
Kenya		
Honey Care Africa Ltd., Kakamega	8	5
Honey Care Africa Ltd., Kwale	6	5
Cananeia Oyster Producers Cooperative, Brazil	14	4
TIDE Port Honduras marine reserve, Belize	13	4
Pred Nai mangrove rehabilitation, Thailand	20	5
Casa Matsiguenka indigenous ecotourism, Peru	7	3*
Nuevo San Juan forest management, Mexico	22	5
Torra Conservancy, Namibia	8†	4

Ref. 16 and workshop with case-study researchers.
*Until 2003, there was an international NGO level.
†Some earlier linkages leading to Torra were not counted.

variety of partners that help satisfy a diversity of needs. For example, 79% of 42 cases involving indigenous groups had partnerships for business networking, 64% for empowerment and equity, 57% for innovation and knowledge transfer, 50% for fund-raising, and 43% for training and research (36). UNDP EI cases cannot prove that success is more likely with partners than without, because all of these cases were nominated for their presumed success. However, other studies also have indicated that partnerships and networks are important. For example, Nagendra *et al.* (ref. 37, p. 87) found that successful leasehold forests in Nepal were the ones that had networks involving government extension agencies and commented on "the extent of technical assistance provided by this almost bewildering array of supportive agencies play[ing] a crucial role in determining forest condition."

Such partnerships are consistent with the intent of the Convention on Biological Diversity. According to the Convention, a key consideration is to design conservation-development arrangements that involve communities as partners. Partnership is more than participation as used in most conservation projects of the past. Many authors have documented that participation is often used as part of a top-down process of cooption and consultation. Brown (30) considers these top-down processes as a major reason for the failure of many ICDPs. The kind of partnership where partners play key roles in various kinds of capacity building and participation occurs through working relationships, as in the UNDP EI Guyana case, is very different from the top-down participation that Brown criticized.

Collaboration that takes local priorities and objectives, as well as the extralocal ones, into account requires systematic multiparty interaction. Brown (30), Stern (38), and others refer to such interactions as deliberation: processes for communication and for raising and collectively considering issues in which the various parties engage in discussions, exchange observations and views, reflect on information, assess outcomes, and attempt to persuade each other. Deliberation is important not only to deal with problems of multiple and competing objectives, but also to deal with competing understandings of human–ecosystem interactions and when understanding requires an interdisciplinary approach (12, 38).

In multilevel conservation, such understandings require the input and knowledge of players at different levels, from local to international. Local and indigenous knowledge can complement science not only in terms of adding to the range of information available but also in terms of scale, giving a more complete accounting at the various levels of analysis from local to global (12). Differences in perspectives and knowledge are inputs for the process of deliberation. Negotiation and tradeoffs are the appropriate tools for

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Table 2. Diagnostic questions for building community-based conservation

Questions related to the project area: Commons basics
• Is the exclusion (or the control of access of potential users) difficult in the project area?
• Do the users have institutions (rules in use) to deal with the subtractability problem in the project area?
Questions related to principles of sustainable commons (21, 41)
• Are there clear boundaries that define the resource to eliminate open-access conditions?
• Are there clear context-appropriate rules and the recognition that no one set of rules will be suitable for all areas?
• Are there collective-choice arrangements through which participants gain a stake in and participate in the creation of the rules and governance structures?
• Is there monitoring of resource use by appropriators to address issues of subtractability and status of resource?
• Are there graduated sanctions for appropriators who violate agreed-upon rules?
• Are there platforms for low-cost effective conflict-resolution mechanisms to address conflicts among appropriators or between users and officials?
• Is there political space for appropriators to devise their own institutions?
Questions related to institutional linkages (22, 35)
• Are there nested institutions to provide a hierarchy of governance structures?
• What horizontal linkages (across the same level of organization) and vertical linkages (across levels of organization) exist in the study area?
• Are there boundary organizations involved in the project that can play bridging roles across levels of organization?
Questions related to strengthening community-based conservation (12)
• Does the project allow for pluralism by recognizing a diversity of perspectives?
• Does the project foster the building of mutual trust among the parties?
• Does the project accommodate local, traditional, or indigenous knowledge?
• Does the project recognize a mix of methodological approaches and tools that allow for broad stakeholder participation and deliberation?
• Are there platforms for deliberation?
• Does the project use a diversity of modes of communication for deliberation?
• Does the project foster the development of different skills among stakeholders, particularly for those stakeholders who usually have been excluded or marginalized?
• Does the project undertake capacity building and development of skills for strengthening horizontal and vertical linkages?
• Does the project report back to the community and other parties on its findings?
• Has the project invested enough time and resources in capacity building, trust building, and mutual learning?

reconciling these differences and balancing the moral imperative of conserving global biodiversity with the moral imperative of protecting human rights and entitlements.

The basic idea behind deliberation, argues Stern (38), is that democracies have multiple centers of power, which is to some extent true also in developing countries without long traditions of Western-style democracy; many of them do have traditions of local-level deliberation through village councils, elders' groups, panchayats, and the like. In any case, deliberation provides correctives for error and bias. It "makes it easier to detect and sanction violations, and it therefore gives citizens incentives, as well as moral justifications, for upholding the norms" (ref. 38, p. 980). All of these roles of deliberation are clearly important for ICDPs, especially in the linked-incentives model of Salafsky and Wollenberg (20), in which sustainable livelihoods directly depend on protecting biodiversity.

The challenge is to build a fully communicative, deliberative, multilevel system that deals with tradeoffs between social and ecological objectives in an optimal fashion, without being skewed by disciplinary biases or the political economy of power relations (39). The challenge brings the issue to the realm of commons and institutional design. Can commons institutions function across levels and deal with tradeoffs, while ensuring that the local people reap the benefit of their own management actions so that conservation incentives are maintained?

Lessons from Commons Research

Except for a few cases (e.g., ref. 40), conservation science has not made good use of the lessons from commons theory and a number of other relatively recent subfields that combine natural science and social science thinking, such as ecological economics, environmental history, and political ecology (26). Much of so-called community-based conservation of the last two decades or so has been half-hearted, misdirected, and theory-ignorant. Improving the diagnosis of conservation-development projects needs to involve using the results of extensive theoretical and empirical research on the commons carried out since the 1980s. This body of work can be used to generate a list of diagnostic questions that should be asked of a project at the beginning and throughout its evolution to generate feedback about its progress and needs.

Making better use of commons theory to develop a diagnostic assessment can start by going back to commons basics. Commons share two characteristics: exclusion or the control of access of potential users is difficult, and each user is capable of subtracting from the welfare of all others, or the exclusion problem and the subtractability problem, respectively (21). Hence, a diagnostic for the conservation-development practitioner can start by asking whether there is an exclusion problem, and whether there is a subtractability problem in the project area. Table 2 is one way to approach diagnostics; another way to proceed might be to identify problems of commons management using the approach of Dietz *et al*. (10).

The exclusion issue is important, because community-based conservation is more likely to work if the users enjoy exclusive rights to the resource and have a stake in conserving the resource. The subtractability question is important, because community-based conservation needs to build on existing local rules in use. Here the practitioner would need to know that common-property systems have two-way feedbacks that enable institutions (rules in use) to regulate resource use. By contrast, in open-access systems, there are no institutions to respond to signals from the resource and no negative or stabilizing feedbacks to regulate resource use. The consequence is that open-access use is characterized by positive feedback loops (vicious circles), whereby resource depletion leads to more intensified use, which leads to even more depletion.

At the next level of inquiry, the conservation-development practitioner can turn to the findings of Ostrom (21) that a set of

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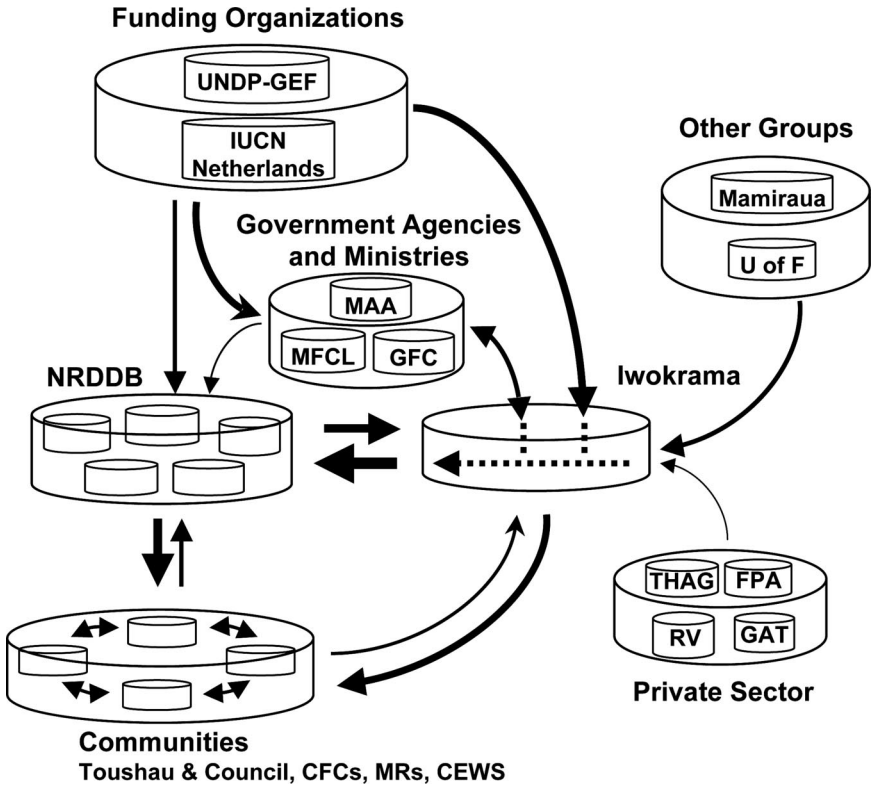


Fig. 1. Key institutional linkages facilitating the activities of the *Arapaima* conservation project, Guyana. Arrows show information and financial flows; thicker lines indicate stronger interactions. [Reproduced with permission from ref. 16 (Copyright 2004, University of Manitoba).] The figure was prepared by Damian Fernandes (Natural Resources Institute, University of Manitoba, Winnipeg, MB, Canada).

eight principles tend to characterize sustainable commons, as opposed to unsustainable ones. See also the detailed set of critical enabling conditions for commons sustainability by Agrawal (41). Ostrom (2) provides a broad diagnostic approach to dealing with these variables that is complementary to the list of questions in Table 2. Especially important here for the multilevel world are questions with regard to linking and networking (33), political economy and power relations in these partnerships (39), and the effectiveness of NGOs and other groups that have a role in bridging scales (35).

The first set of questions in Table 2 helps to take stock of the status of the commons and commons institutions in the area of the conservation-development project. For effective community-based conservation, the project needs to do something more: find strategies to strengthen existing commons institutions; build linkages horizontally and vertically; engage in capacity building, trust building, and mutual learning; and invest sufficient time and resources to achieve these objectives (Table 2). Linkages seem to be crucial for conservation-development project success. Our preliminary results from the UNDP EI cases indicate that successful projects tend to have not only rich networks of support involving more than a dozen partners but also links across four or five levels of organization (Table 1).

The structure of the linkages in the Guyana case, one of the simpler cases in the sample of UNDP EI projects, is sketched in Fig. 1. The linkages cross four organizational levels: the community; the regional level involving the North Rupununi District Development Board, a regional NGO representing the communities, and its key partner, Iwokrama; national government agencies; and the international level involving donor organizations. Different groups bring different inputs for the conservation of *Arapaima*. For example, a Brazilian group, Mamirauá Institute for Sustainable Development, which had experience in *Arapaima* conservation, shared its expertise in community-based monitoring of *Arapaima* and provided technical training for fishers through Iwokrama.

The multiple linkages, the ever-changing mix of partnerships and needs, and the fact that no two UNDP EI projects had identical sets of relationships add up to a complexity that cannot be addressed through set prescriptions. Consistent with the idea of path dependency, projects evolve in different directions, with different linkages and partnerships and different strengths and needs. As such, any blueprint approach is likely to be inadequate, thus the need for a diagnostic approach (2).

Conclusions

There is agreement in the Convention on Biological Diversity and in the findings of such global studies as the Millennium Ecosystem Assessment (32) and *World Resources 2005* (18) that ecosystem management and human well-being should be integrated, recognizing that biodiversity conservation and livelihood needs are ultimately complementary goals. This integration requires building the capacity to deal with multiple objectives, the use of deliberative processes, learning from commons research, and, in general, developing a complexity approach for commons governance.

In the context of panaceas (2), the complexity approach highlights how simplistic the blueprint approach has been, and how meaningless, given that the "correct" governance mechanism depends on the level at which one chooses to examine the social–ecological system. The panacea of community-based conservation is probably no more effective than the panacea of exclusively state-based conservation, because they both ignore the multilevel nature of linkages and multiple partners required for any biodiversity conservation project to be successful. Such an analysis would suggest that conservation cannot be conceived and implemented only at one level, because community institutions are only one layer in a multilevel world. Thus the debate over community-based

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conservation ignores the fact that commons need to be managed at multiple levels, with vertical and horizontal institutional interplay. This fundamentally alters the way in which we may develop governance for conservation in the commons.

An increasingly globalized world requires institutions that link the local level to the various higher levels of social and political organization. Such linkages can provide ways to deal with multiple objectives (32) and multiple knowledge systems (12) and may result in the creation of networks for learning and joint problem solving (33). They may "involve distributing authority across multiple institutions, rather than concentrating it in just one" (ref. 1, p. 497) and help address various aspects of complexity, such as scale. Once the necessity of a pluralistic approach is recognized, the false dichotomy of the state vs. the community can be discarded (1), leading to a discourse to explore how institutions can be linked at multiple levels.

One of the implications of these considerations is that the seminal definition of community-based conservation (19) needs to be extended so that it includes natural resources or biodiversity protection by, for, and with the local community, taking into account drivers, institutional linkages at the local level, and multiple levels of organization that impact and shape institutions at the local level. Hence, community-based conservation extends beyond communities to include institutional linkages and multiple levels of organization that impact and shape institutions at the local level. Complexities of this multilevel world introduce additional challenges in reconciling local and global objectives of conservation.

Solutions include the use of multiple perspectives and knowledge systems to capture an appropriately wide range of considerations and information. There is sufficient understanding of institutional diversity (42) to do a better job conceiving, researching, and analyzing community-based conservation in terms of organization and scale. Issues of uncertainty and emergence (for example, the resilience of social–ecological systems in a world of change) are also important but are beyond the scope of this article. When the system under consideration is simple (for example, including only the biophysical aspects of protected-area planning), expert knowledge may be perfectly adequate. But if there are "people issues," as there usually are, the era of expert-knows-best management is over. The more complex the system under consideration is, the greater the need for deliberation in the process of collective judgment and interpretation (38).

At the practical level, multilevel management has implications for transaction costs that include research, monitoring, and decision making. More work is needed on the distribution of costs and benefits over time regarding multiple linkages. Also fundamentally important is the question of how to deal with differences in power within networks and among groups at different levels of organization (39).

In reconciling local and global objectives of conservation through community-based conservation, it is necessary to transcend simplistic formulations, such as "Does community-based conservation work?" or "Are indigenous people conservationists?" (26). As Steiner (ref. 34, p. 90) observes, "Society no longer needs to frame conservation solutions as either 'we touch it' or 'we don't touch it.' The latter is a very fundamentalist option to impose on people." There are legitimate community perspectives on what conservation is or could be, and it is an important task for conservation-development practitioners to understand these perspectives and deal with them. Conservation solutions can be framed as long-term sustainability issues that take into account considerations of both global commons and local commons and biological conservation objectives as well as local livelihood needs.

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