



Enchantment and Disenchantment: The Role of Community in Natural Resource Conservation

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Summary. — The poor conservation outcomes that followed decades of intrusive resource management strategies and planned development have forced policy makers and scholars to reconsider the role of community in resource use and conservation. In a break from previous work on development which considered communities a hindrance to progressive social change, current writings champion the role of community in bringing about decentralization, meaningful participation, and conservation. But despite its recent popularity, the concept of community is rarely defined or carefully examined by those concerned with resource use and management. We seek to redress this omission by investigating “community” in work concerning resource conservation and management. We explore the conceptual origins of the community, and the ways the term has been deployed in writings on resource use. We then analyze those aspects of community most important to advocates for community’s role in resource management — community as a small spatial unit, as a homogeneous social structure, and as shared norms — and indicate the weaknesses of these approaches. Finally, we suggest a more political approach: community must be examined in the context of development and conservation by focusing on the multiple interests and actors within communities, on how these actors influence decision-making, and on the internal and external institutions that shape the decision-making process. A focus on institutions rather than “community” is likely to be more fruitful for those interested in community-based natural resource management. © 1999 Elsevier Science Ltd. All rights reserved.

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1. INTRODUCTION

The poor conservation outcomes that followed decades of intrusive resource management strategies and planned development have forced policy makers and scholars to reconsider the role of community in resource use and conservation. In a break from previous work on development which considered communities to hinder progressive social change, current writing champions the role of community in bringing about decentralization, meaningful participation, cultural autonomy, and conservation (Chambers and McBeth, 1992; Chitere, 1994; Etzioni, 1996). But despite its recent popularity, the concept of community rarely receives the attention or analysis it needs from those concerned with resource use and management.

We seek to redress this omission by investigating "community" in work concerning resource conservation and management.¹ We begin by exploring the conceptual origins of the community, especially as it relates to writings on resource use. The ensuing analysis reveals that three aspects of community are most important to those who advocate a positive role for communities in resource management — community as a small spatial unit, as a homogenous social structure, and as shared norms. We suggest a more political approach. Community, we argue, must be examined in the context of conservation by focusing on the multiple interests and actors within communities, on how these actors influence decision-making, and on the internal and external institutions that shape the decision-making process. A focus on institutions rather than "community" is likely to be more fruitful for those interested in community-based natural resource management. We conclude by suggesting that research and policy move away from universalist claims either for or against community. Instead, community-based conservation initiatives must be founded on images of community that recognize their internal differences and processes, their relations with external actors, and the institutions that affect both.

2. COMMUNITY IN HISTORY

To understand the current widespread preoccupation with community requires an understanding of at least some history of the concept's use. Such a history shows the ways in

which "community" has moved in and out of fashion, and prompts caution in accepting community as a panacea to problems concerning the conservation of natural resources.

Current perceptions of community appear strongly linked to analyses of 19th and early 20th century scholars attempting to understand the portentous transformations that rocked their world.² The source of these changes was thought to lay in the economic sphere — industrialization, monetization, and production to satisfy material needs. Sir Henry Maine, for example, saw the world moving from relationships based on status, kin networks, and joint property to one based on contract, territory, and individual rights.³ Maine's underlying image of societal evolution influenced Tonnies's formulation of *Gemeinschaft* and *Gesellschaft*, or community and society.⁴ Tonnies's view of community as an organic whole continues to color present conceptions to a significant degree, and accounts for some of the attraction community holds for many conservationists.

Most of these scholars of social change highlighted the disappearance of community and its replacement by other forms of social organization. Their theories of classification, in this sense, were also theories of evolution.⁵ For Marx and Engels, Spencer and Comte, and even for Weber and Durkheim, society moved along an evolutionary path. Status, tradition, charisma, and religion would increasingly give way to equality, modernity, rationality, and a scientific temper. This theorization of social change automatically pits community against the market, since marketization and urbanization erode community.

Modernization theorists shared this evolutionary view. Under the strong influence of Parsonian structuralism, they characterized whole societies using the evolutionary labels of "underdeveloped," "developing," and "developed." The dichotomous pattern variables of Parsons were not only presumed to describe existing realities and directions of historical change, but also the desirability of movement in that direction.⁶ Analytical categories representing discontinuous social states overshadowed the real processes of historical change.

While scholars of social change generally accepted the ongoing nature and irreversibility of change, they differed in their judgements regarding the benefits of progress and the desirability of traditional community. A strong correlation exists between those who view progress positively and community negatively:

Marx, Spencer, and the early Durkheim saw ongoing social changes as liberating humanity from the coercive and limiting world of the past, from the "idiocy of rural life," that community, in part, embodied. The same is true of most modernization theorists.⁷ Other scholars with less sanguine views about the benefits of progress did not abandon community altogether. Writers such as Tonnies, the later Durkheim, and Dewey did not see any utopia at the end of the social changes they described. Instead of liberation from the tyranny of custom, they saw "progress" dissolving the ties that anchor humans to their milieu, providing a sense of selfhood and belonging. Writers during this period and after made impossible searches for the community that they believe existed, fully formed, just prior to the disruptive set of social changes they experienced.

3. COMMUNITY AND CONSERVATION

Like more general works on community, the history of community in conservation is also a history of revisionism. Images of pristine ecosystems and innocent primitives yielded over time to views of despoiling communities out of balance with nature, mostly due to the double-pronged intrusion of the state and market. A recuperative project on behalf of the indigenous and the local (community) has attempted to rescue community. But the rescue project has itself come under attack by new anthropological and historical research which suggests communities may not, after all, be as friendly to the environment. The practical and policy implications that accompany these changing images are immense.

The basic elements of earlier policy and scholarly writings about local communities and their residents are familiar. "People" were an obstacle to efficient and "rational" organization of resource use.⁸ A convincing logic undergirded the belief that the goals of conservation and the interests of local communities were in opposition: Conservation required protection of threatened resources: wildlife, forests, pastures, fisheries, irrigation flows, and drinking water. Members of local communities, however, rely on these resources for their fodder, fuelwood, water, and food and thus exploit them without restraint. This schematic representation, popularized by Garrett Hardin and bolstered by several theoretical metaphors that served to (mis)guide policy,

provided a persuasive explanation of how resource degradation and depletion took place.⁹

Empirical evidence about the context within which most rural communities are located helped prop up the view. The population of many rural areas in tropical countries has grown rapidly, even with outmigration to cities.¹⁰ Demographic growth, it was argued, could only increase consumption pressures. Penetration by market forces, which linked local systems of resource use to a larger network of demand, further increased the pressure on natural resources.¹¹ At the same time, many believed that poorly articulated and enforced property rights arrangements provided disincentives for individuals to protect resources.

These factors implied that even if people had successfully managed resources in some harmonious past, that past was long gone. Instead, the way to effective conservation was through the heavy hand of the state or through the equally heavy, if less visible, hand of the market and private property rights. Such ideas supported conservation policies that aimed to exclude locals. National parks and other protected areas are the most obvious result of this thinking. International conservation agencies backed many of these policies.¹²

While many of these beliefs persist,¹³ most of the current ideas about the community's role in conservation have changed radically: communities are now the locus of conservationist thinking.¹⁴ International agencies such as the World Bank, IDRC, SIDA, CIDA, Worldwide Fund for Nature, Conservation International, The Nature Conservancy, The Ford Foundation, The MacArthur Foundation, and USAID have all "found" community. They direct enormous sums of money and effort toward community-based conservation and resource management programs and policies. A flood of scholarly papers and policy-centric reports also feature community-based management (e.g., Arnold, 1990; Clugston and Rogers, 1995; Dei, 1992; Douglass, 1992; Perry and Dixon, 1986; Raju, Vaghela and Raju, 1993; Robinson, 1995). Exemplifying the swing toward community, a recent collection of essays on community-based conservation tells us, "Communities down the millennia have developed elaborate rituals and practices to limit off take levels, restrict access to critical resources, and distribute harvests" (Western and Wright, 1994, p. 1).¹⁵

A host of other more specific factors have aided advocates of community-based conser-

vation. The past several decades of planned development and top-down conservation practices have made one fact amply clear: the capacity of states to coerce their citizens into unpopular development and conservation programs is limited. These limits are seen starkly when state actors attempt to discipline resource users.¹⁶ Where resources such as fodder, fuelwood, fish and wildlife are intrinsic to everyday livelihood and household budgets, even well-funded coercive conservation generally fails. Faulty design, inefficient implementation and corrupt organizations have played an equally important role in the poor outcomes associated with state-centered policies. Combined with local intransigence and lack of livelihood alternatives, this mix of factors has pushed most enforced conservation projects into spectacular failures. In their review of 23 conservation and development programs, Wells and Brandon (1992) argue that the weaknesses of state-centric policy means few options other than community-based conservation exist.¹⁷

Some contextual factors have also focused the attention of conservationists on community. With the spread of democratic political structures and the increasing insistence on participation,¹⁸ unrepresentative development and conservation projects have become as unattractive as they are impractical. The increasing prominence of indigenous and ethnic claims about the stewardship role of native populations in relation to nature (Clay, 1988; Redford and Mansour, 1996) assists those who advocate a central role for community.¹⁹ In addition, nongovernment organizations (NGOs) at different political levels have helped to amplify the voices of local, indigenous, and community groups (Borda, 1985; Borghese, 1987; Bratton, 1989a).

The recognition of the limits of the state and the emphasis on popular participation have come roughly at the same time as new revisionist ecological research began to question the two other main planks of coercive conservation. The first was that pristine environments untouched by human hands existed until the very recent past. The second was the belief that indigenous and other local communities had been relatively isolated in the past (and therefore used their resources sustainably). Questioning these two beliefs has thrown the romantic image of the "Ecologically Noble Savage" into disarray (Redford, 1990).²⁰

Historical ecologists emphasize that environments have histories from which humans

cannot be excluded. To categorize landscapes as natural or human-influenced is a false dichotomy since humans have modified ecosystems greatly for millennia. Many of the more recent studies that question the notion of "virgin forests" received at least part of their inspiration from Darrell Posey's work on the forest islands of the Kayapo in Brazil (1984, 1985).²¹ Denevan (1992) argues that most forests are, in fact, anthropogenic. An increasing number of scholars have marshaled evidence about how humans manipulate biodiversity and influence the species composition and structure of forests around them (Alcorn, 1981; Bailey and Headland, 1991; Balee, 1992, 1994; Brookfield and Padoch, 1994; Conklin, 1957; Hart and Hart, 1986; McDade, 1993; Posey and Balee, 1989; Roosevelt, 1989). The intentional clearing of central African forests for cultivation may have begun more than 5000 years ago (Clist, 1989; Phillipson, 1985). Traditional swidden agriculture, like small-scale disturbances in the forest, can enhance biodiversity (Bailey, 1990, 1996; Park, 1992; Sponsel, 1992; Sponsel, Headland and Bailey, 1996; Yoon, 1993).²²

Such studies undermine arguments that portray communities only as despoilers of natural resources. If humans have shaped and used their environments in sustainable ways for thousands of years, it may be possible to establish partnerships that accomplish the same results today. Indeed, as anthropologists begin to pay greater attention to the historical experiences of "people without history" (Wolf, 1982), it has become increasingly obvious that if local communities in the past had used resources without destroying them, they had done so even as they remained in contact with other peoples. Such contacts contributed to survival and helped to conserve resources by allowing foragers, hunter-gatherers, and pastoralists to get starches and other foods from farmers and traders.²³

In addition to empirical and historical works that have helped resurrect community and local participation in conservation, a choice-theoretic foundation for the role of community in conservation has become available as well. Research from scholars of common property has shown communities to be successful and sustainable alternatives to state and private management of resources. Scholarship regarding the commons (Berkes, 1989; Bromley, 1992; McCay and Acheson, 1989; McKean, 1992; Ostrom, 1990, 1992; Peters, 1994; Wade, 1987)

has highlighted the important time- and place-specific knowledge that members of local communities possess and the institutional arrangements they forge to achieve successful, local level resource management.

In light of the significant symbolic, theoretical, and intellectual resources available to advocates of community, it is somewhat surprising that claims on behalf of community-based conservation often retain a rather simple quality. One such form such claims assume is that “communities” have a long-term need for the renewable resources near which they live, and they possess more knowledge about these resources than other potential actors. They are, therefore, the best managers of resources.²⁴ Some refinements to this view can be found: if communities are not involved in the active management of their natural resources, they will use resources destructively (Sponsel, Headland and Bailey, 1996; Western and Wright, 1994). Still other work includes the notion of interests, in addition to that of needs: since it is in the interest of a community to protect its resources, it will.²⁵

In its prescriptive form, this thesis of community-based conservation and resource management uses new beliefs about the suitability of communities to suggest policy recommendations. The implicit assumption behind these recommendations is that communities have incentives to use resources unsustainably when they are not involved in resource management. If communities are involved in conservation, the benefits they receive will create incentives for them to become good stewards of resources (if only the state and the market would get out of the way).²⁶

This vision of community — as the centerpiece of conservation and resource management — is attractive. It permits the easy contestation of dominant narratives that favor state control or privatization of resources and their management (Li, 1996). Such positive, generalized representations of community make available “points of leverage in ongoing processes of negotiation” (1996, pp. 505, 509).²⁷ But such representations of community ignore the critical interests and processes within communities, and between communities and other social actors. Ultimately, such representations can undermine their advocates’ long-term goal of increasing the role of community in natural resource management.

4. WHAT MAKES COMMUNITY?

The vision of small, integrated communities using locally-evolved norms and rules to manage resources sustainably and equitably is powerful. But because it views community as a unified, organic whole, this vision fails to attend to differences within communities, and ignores how these differences affect resource management outcomes, local politics, and strategic interactions within communities, as well as the possibility of layered alliances that can span multiple levels of politics. Attention to these details is critical if policy changes on behalf of community are to lead to outcomes that are sustainable and equitable.

Although current writings on community-based conservation assert that community is central to renewable resource management, they seldom devote much attention to analyzing the concept of community, or explaining precisely how community affects outcomes.²⁸ Some authors refuse to elaborate on what it might mean, preferring to let readers infer its contours in the descriptions of specific cases (e.g., Western and Wright, 1994). Most studies in the conservation field however refer to a bundle of concepts related to space, size, composition, interactions, interests and objectives. Much of this literature sees community in three ways: as a spatial unit, as a social structure, and as a set of shared norms. It is on the basis of one or a combination of these three ideas that most of the advocacy for community rests. But these conceptions fail to explain the cause of these features or articulate their effect on natural resource use. They offer, therefore, a weak foundation upon which to base policy.

(a) *Community as a small spatial unit*

Small size and territorial affiliation have been proxies for community since the very beginnings of writings on the subject. Tonnies, for example, saw *Gemeinschaft* as existing in villages, and characterized it by “intimate, private, and exclusive living together” (cited in Bender, 1978, p. 17). Such closeness was impossible in large cities, and impractical if not impossible to achieve at a distance. Increased mobility and larger settlements that accompanied urbanization and industrialization, it was believed, weakened communal bonds naturally found in small villages. These two aspects of community — smallness (of both area and numbers of individuals) and territorial attach-

ment — also mark many current writings on community-in-conservation. Instead of examining and drawing out the possible connections of shared space and small size with the political processes of local conservation, they tend to assume a link between the territorial conception of community and successful resource management.²⁹

The popularity of this view of community can be traced, at least in part, to the fact that the renewable resources that communities use, manage, and sometimes protect, are themselves usually located near territorially fixed homes and settlements. If top-down programs to protect resources failed because of the inability of governments to exercise authority at a distance, the reasoning goes, then decentralization of authority to those social formations that are located near the resource might work better. There may be other contributing factors at work. Members of small groups, sharing the same geographical space, are more likely to interact with each other more often. Such regular, more frequent interactions can lower the costs of making collective decisions. These two aspects of community — fewer individuals and shared small spaces — may also contribute to group distinctiveness. Because of continuing interactions among members over time, territorially circumscribed communities might also be able to develop specific ways of managing the resources near which they are located. These advantages have led some policy makers and analysts to define strictly the size of “communities” that should be participating in community-based resource programs.³⁰

Because many small, territorially contained groups do not protect or manage resources well, and because some mobile, transitional groups manage them efficiently, important processes are at work that are not captured by spatial location alone (Agrawal, 1999). Indeed, the territorial attachment of small groups may make them *inappropriate* managers for particular resources because the geographical spread of the resource (large watersheds, forests, lakes, etc.) could be larger than a small community could ever hope to control. Consequently, it becomes important to consider the negotiations and politics to which common spatial location and small size might contribute.

The bounded and stationary character of terrestrial resources such as forests and pastures does not imply a consequent ease in their allocation to particular spatial communities, e.g., a piece of forest or pasture for every

community. Because more than one community (in the spatial sense) may be located near a given patch of forest or pasture, and because the members of each would have an interest in the resources nominally belonging to the other community, spatial bases for allocating resource management rights can prove untenable. For fugitive resources such as wildlife and fish, an added dimension of complexity might be introduced (Naughton-Treves and Sanderson, 1995). The literature on community-based conservation also often elides the thorny question of densities: does the success of a conservation practice depend on the density of individuals per hectare of land, per hectare of productive land, or per hectare of a certain natural resource (Matzke and Nabane, 1996)? Focusing on a community’s shared space and small numbers alone, therefore, is necessarily incomplete and possibly misleading to analyze local level management of resources.

(b) *Community as a homogeneous social structure*

Much of the rhetorical weight of community comes from papering over the differences that might prevail within actually existing communities. Indeed, the feature of community receiving the greatest attention in its construction as a social artifact is its homogeneous composition. Typically, observers assume communities to be groups of similarly endowed (in terms of assets and incomes), relatively homogeneous households who possess common characteristics in relation to ethnicity, religion, caste, or language. The relationship proceeds both ways since ethnic, religious, or linguistic homogeneity is often presumed to lead to community as well. Such homogeneity is assumed to further cooperative solutions, reduce hierarchical and conflictual interactions, and promote better resource management. Outside the community conflicts prevail; within, harmony reigns.³¹

The notion that a community is homogeneous meshes well with beliefs about its spatial boundaries. In the rural areas of poorer countries (the sites where most advocates of community-based resource management locate their analyses and projects) people living within the same location may indeed hold similar occupations, depend on the same resources, use the same language, and belong to the same ethnic or religious group. These similarities may facilitate regular interactions among group members.

Even if members of a group are similar in several respects, however, it is not clear at what point the label "homogeneous" can be applied, nor is it clear that these shared characteristics are critical to conservation. Because all human groups are stratified to some extent or the other, it becomes important to analyze the degree of homogeneity and those dimensions of it that are important to resource conservation. Few studies, however, wrestle with the difficulty of operationalizing what social homogeneity might be.³² Most studies, when they do focus on the social composition of a community rather than assume it to be homogeneous, indicate intentionally or unintentionally that within the same group (e.g., Masai, or pastoralist, or women), multiple axes of differentiation exist.³³ Recent studies of resource use at the local level have recognized the salience of intracommunity conflicts (Agrawal, 1994a; Gibson and Marks, 1995; Ilahaine, 1995; Madzudzo and Dzingirai, 1995; Moore, 1996a, b). Yet even highly differentiated communities may be able to take steps to use local resources sustainably (e.g., Agrawal, 1994b). These studies show that there is no easy correspondence between social homogeneity and sustainable resource use.

(c) *Community as common interests and shared norms*

The concept of community as shared norms and common interests depends strongly upon the perceptions of its members; in this sense all communities are imagined communities. This imagined sense of community attracts scholars of conservation to community. It is this notion of community that is supposed to grow out of common location, small size, homogeneous composition, and/or shared characteristics. As Ascher puts it, community exists among individuals who share "common interests and common identification... growing out of shared characteristics" (1995, p. 83). Common and shared rather than individual and selfish is what makes successful resource management more likely. In a community, "individuals give up some of their individuality to behave as a single entity to accomplish goals" (Kiss, 1990, p. 9).

Internalized norms of behavior among members of communities can guide resource management outcomes in desired directions. Community as shared norms is itself an outcome of interactions and processes that take place within communities, often in relation to

those perceived as outsiders. But community as shared norms also has an independent positive effect on resource use and conservation.

Shared community level norms can promote conservation in two different ways. First, norms may specifically prohibit some actions. In many villages in semi-arid western Rajasthan, for example, existing norms impede villagers from cutting *khejri* trees (*Prosopis cineraria*), especially when these trees are present in the local *oran*, a common area set aside for grazing, and often dedicated to a religious deity.³⁴ In the same region, the *Bishnois* have strong norms against the killing of wild animal species such as deer. Cook (1996, pp. 279–282) details how the Amung-me in Irian Jaya protect certain groves of trees as sacred, and a marsupial (*amat*) that plays a role in the propagation of the Pandanus trees. Mishra explains that women belonging to *Juang* and *Saora* tribal communities in Orissa follow strong norms about the timing and season for collecting non-timber forest products (1994). Other examples of "conservationist" norms also exist.³⁵

Second, it is possible that the existence of communal norms will promote cooperative decision-making within the community. If members of a community believe in shared identities and common experiences, they also may be willing to cooperate over more formal decisions to manage and conserve resources. The presence of community-level norms can facilitate resource management by preventing certain behaviors, or encouraging others (Coleman, 1990).

Although community as shared norms, especially when such norms are about the management of resources or conservation, may be the hope of conservationists, the extent to which norms aid conservation needs to be questioned.³⁶ At a minimum, current research indicates that conservationist norms cannot be equated with particular identities such as "woman," or "the indigenous."³⁷ Norms, in fact, may be a significant part of the problem to a conservationist if a norm promotes exploitation (posing an enormous obstacle for those interested in community-based conservation).³⁸ For example, as a result of land laws in the early colonial periods of many countries in Latin America, there is a strong norm that land is only useful when cleared of trees and used for agriculture.³⁹ In many parts of Africa, wildlife is considered a threat to crops and human lives, not a resource to be conserved (Marks, 1984; Naughton-Treves, 1997). Further, norms can-

not be taken as a set of beliefs that communities hold, never to give up. They come into being in relation to particular contextual factors, and even when codified and written do not remain static.⁴⁰ Just because some small social groups hold conservationist norms today, they will not necessarily hold them in the future.

Those who conceptualize community as shared norms may fail to recognize the difficulties this position poses for conservation. Unlike the factors of community size, composition, and links to a specific territorial space which can all be directly influenced through external intervention, community as shared understandings is probably the least amenable to such manipulation. Conservationist norms cannot be easily introduced into a community by external actors (although the current emphasis on participation and conservation by state actors means that at least the attempt is being made in many locations).⁴¹ Indeed, we hardly know which strategies successfully alter the norms people hold about conservation, especially when the resources in question are a critical part of the family income.

5. ACTORS, INTERACTIONS, AND INSTITUTIONS

To summarize, advocates of community-based conservation forward a conceptualization of communities as territorially fixed, small, and homogeneous. These characteristics supposedly foster the interactions among members that promote desirable collective decisions. Figure 1 depicts the connections between different attributes of community and conservation outcomes indicated by the literature regarding community-based conservation.

While certain types and levels of these characteristics might facilitate collective action, however, few studies demonstrate that this collective action is necessarily connected with conservation behavior. Most important, few social scientists or policy makers have systematically tested these propositions in the field.

In fact, some community characteristics considered important to collective action may actually thwart conservation efforts. Small sized groups may be unable to defend their resources in the face of strong external threats, or be unable to manage resources if they are spread over large areas. Strongly held norms may support exploitative behavior, or be resistant to outside attempts at their modification.

To be more accurate in our efforts to depict communities and their relationship with their natural resources — and thus to be more relevant to policy-making — we argue greater attention be focused on three critical aspects of communities: the multiple actors with multiple interests that make up communities, the processes through which these actors interrelate, and, especially, the institutional arrangements that structure their interactions. These three proposed foci for the study of community-based conservation allow for a better understanding of the factors critical to the success or failure of efforts aimed at local-level conservation.

(a) *Multiple interests and actors*

A growing number of studies that explore natural resource management at the local level do not find communities comprising just one group of individuals who possess similar endowments or goals. Instead, they find many

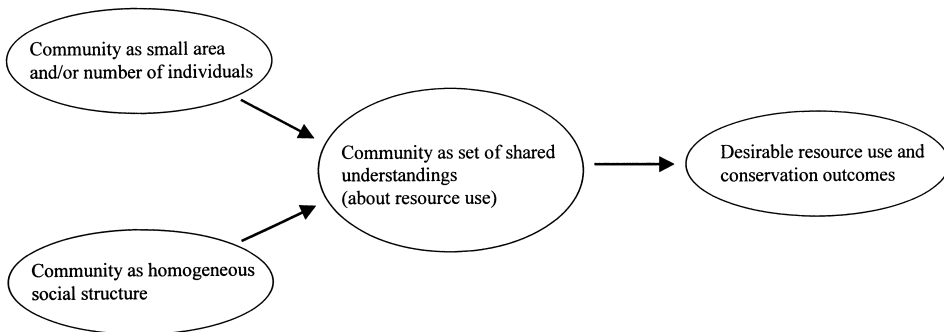


Figure 1. A conventional view of the relationship between community and conservation.

subgroups; and within subgroups they find individuals with varying preferences for resource use and distribution. These authors bring to light the politics of the local: economic elites may vie with religious elites; chiefs may battle with their advisors; women may contest the rights of their husbands; the politically marginalized may dispute the acts of the politically dominant. Recognizing and working with the multiplicity of actors and interests is crucial for those advocating community-based programs. Such recognition indicates that empowering local actors to use and manage their natural resources is more than the decentralization of authority over natural resources from the central government to “a” community. The far more challenging task is to understand patterns of difference within communities.⁴²

Recognizing that multiple actors exist at the local level is a useful step forward because it forces researchers to consider their different and dynamic interests.⁴³ A more acute understanding of community in conservation can be founded only by understanding that actors within communities seek their own interests in conservation programs, and that these interests may change as new opportunities emerge.

(b) *Local-level processes*

Within communities, individuals negotiate the use, management, and conservation of resources. They attempt to implement the agreed-upon rules resulting from their negotiations. And they try to resolve disputes that arise in the processes of implementation of rules. These three types of local interactions are irreducibly influenced by the existing distribution of power and the structure of incentives within a given social group.⁴⁴ Because the exercise of power and incentive-oriented behavior are variable over time and space, and because all groups have members who can be strategic in their behavior, planned conservation efforts can never address all contingencies completely.

Analyses of only local-level phenomena are insufficient to explain interactions at the local level. All local interactions take place within the context of larger social forces. Attempts by governments to implement community-based conservation and specific projects of NGOs that seek to involve communities are examples of directed influence on local level conservation. Such initiatives bring into the local context those larger political forces that generated the programs. Other pressures — changes in

prices of different resources, development assistance, demographic shifts, technological innovations, institutional arrangements at different levels — also impinge on local interactions.⁴⁵

Local interactions may also prompt responses from macro level actors. Local reactions to conservation programs can lead to modifications in the shape of these programs. Thus, although it is convenient to talk about the community and the state, or about the local and the external, they are linked together in ways that it might be difficult to identify the precise line where local conservation begins and the external (that helps construct the local) ends.

(c) *Institutional arrangements*

Institutions can be seen as sets of formal and informal rules and norms that shape interactions of humans with others and nature.⁴⁶ They constrain some activities and facilitate others; without them, social interactions would be impossible (Bates, 1989; North, 1990). Institutions promote stability of expectations *ex ante*, and consistency in actions, *ex post*. They contrast with uncertain political interactions among unequally placed actors, and unpredictable processes where performances of social actors do not follow any necessary script. Strategic actors may attempt to bypass the constraints of existing institutions, and create new institutions that match their interests. But institutions remain the primary mechanisms available to mediate, soften, attenuate, structure, mold, accentuate, and facilitate particular outcomes and actions (Ensminger, 1992; Alston, Eggertsson and North, 1996; Agrawal, 1995b; Gibson, 1999). This holds whether change is radical, moderate, or incremental.

When actors do not share goals for conserving resources and are unequally powerful, as is likely the case in most empirical situations, institutions are significant for two reasons. On the one hand, they denote some of the power relations (Foucault, 1983, pp. 222, 224) that define the interactions among actors who created the institutions; on the other they also help to structure the interactions that take place around resources. Once formed, institutions exercise effects that are independent of the forces that constituted them. Institutions can change because of constant challenges to their form by the actions of individuals whose behavior they are supposed to influence. No

actual behavior conforms precisely to a given institutional arrangement. Everyday performances of individuals around conservation goals possess the potential to reshape formal and informal institutions. Institutions can also change when explicitly renegotiated by actors. Institutions should be understood, therefore, as provisional agreements on how to accomplish tasks. Rather than setting the terms of interactions among parties with varying objectives, they help the behavior of actors congeal along particular courses.

Authority to manage resources effectively at the local level requires the exercise of authority and control by local actors over three critical domains mentioned previously: (i) making rules about the use, management, and conservation of resources; (ii) implementation of the rules that are created; and, (iii) resolution of disputes that arise during the interpretation and application of rules.⁴⁷

The authority to make rules defines who has the rights to access, use, and conserve resources and exclude others from carrying out these activities. It also includes the determination of the ability to transfer these above rights. The authority to implement implies the rights and the abilities to meter and monitor the use of the resource, and specify sanctions against those who violate existing rules. The authority to resolve disputes includes the rights and capacities to ensure that sanctions are followed, and adjudicate in the case of disputes.

The problem of analyzing community-based conservation, thus, requires exploring a three-step process of institutional formation. At each step, two issues must be addressed: Who will exercise the authority to make the rules? and What will be the content of the rules? Typically, community-based conservation programs devolve to local actors only the authority to implement rules created elsewhere. Government agencies generally reserve for themselves the right to create rules and to arbitrate disputes.

6. INSTITUTIONS AS SOLUTIONS

A focus on institutions, conceptualized as sets of rules describing and prescribing human actions in three related domains, leads to a substantially different focus for locally-oriented conservation policies in comparison to policies that result from an acceptance of the "mythic" community. Rather than feature the primacy of size, space, or norms, an institutional approach

focuses on the ability of communities to create and to enforce rules. Institutional analysis requires identifying the possibly multiple and overlapping rules, the groups and individuals affected by such rules, and the processes by which the particular sets of rules change in a given situation. In some cases, the homogeneity of a settlement's members or the norms they hold may be crucial to explaining the rules that people follow and the outcomes that their behavior engenders. In other cases, formal and informal rules may have little to do with the conventional view of community, and an institutional analysis instead notices overlapping, multilevel, and differentiated sets of rules that help explain resource outcomes.

There are substantial arguments in favor of recognizing that actors in the local space may be the more appropriate source of rule-making for a significant range of problems because of their specialized information about the local context and resources. Government agencies and bureaucracies are unlikely to be familiar with the specifics of local resource systems. Community actors and their representatives may possess far greater knowledge, as a raft of literature on "indigenous knowledge" has begun to indicate.⁴⁸ But it is also important to ensure that local-level institutions for making rules about resource use have representatives from the multiple groups that are affected by the rules in question. Members of these groups should also have opportunities to exercise a right to remove their representatives if the performance of the representatives is unsatisfactory as deemed by those affected by rules (Ribot, 1996).

Further, vesting the authority to arbitrate disputes in distant government agencies can only increase the costs of dispute resolution. Arrangements to decide local disputes within the community by community representatives would be far more cost effective. Appeals against these decisions, and disputes involving individuals from multiple communities, could be settled in meetings attended by government officials and representatives from concerned communities in a far more cost-effective manner.

This does not eliminate the need for national or regional government involvement. Local communities often do not possess the material or political clout to fend off invasive actions by outsiders. Indeed, intracommunity conflicts themselves may need the arbitration or enforcement efforts of formal government agen-

cies. In addition, there is almost always room for nonexploitative technical assistance from extension agents regarding management techniques.

To say that communities with assistance from state actors should possess the authority to make rules, to implement them, and to resolve disputes, already specifies some of what the content of these rules should be: It should be what specific communities and their representatives decide. Such an answer to the question, one might argue, leaves very real concerns unresolved. What if communities are dominated by elites? What if they have scant interest in conservation?

To such concerns, one response may be that specifying the concrete content of rules at different stages goes against the very notion of community-based management. A second response is more realistic and more pointed. It is precisely because of the deficiencies of centralized, exclusionary policies (“Communities should protect wildlife, stop cutting trees, stop overgrazing, leave protected areas, etc.”) that we have now begun to talk about community-based management. The attempts to impose conservation have often failed. A focus on institutions does not necessarily lead to better outcomes (more biodiversity, more biomass, sustainable stock levels, etc.) but it does offer the tools for understanding local-level processes and outcomes better. It also offers more concrete points of intervention and design than a general reliance on community. It is important to recognize that not all local institutions can be changed in desired directions through an external intervention. Especially difficult to change would be deep-seated informal norms. Especially impotent in bringing about change would be policies that do not allow resources and authority for local-level management, enforcement, and dispute resolution.

The plea to establish a partnership between the state and the community comes with two crucial qualifications. First, we must recognize that state officials and community representatives are located within asymmetric organizational structures. They enjoy access to very different levels of resources and power. For community actors to possess some leverage in their dealings with state officials, it would be imperative that they organize themselves into larger collectives or federations that can span the gap between the local and the national. Second, external forces, such as new state policies in relation to community-based conservation, can drastically change the shape of existing local institutions (e.g., Agrawal and Yadama, 1997; Peluso, 1996). On the other hand, introduced changes will themselves be contested in the local context, their limits tested, and their meanings transformed by the communities whose actions they are supposed to alter.

In light of the above discussion of multiple actors and interests, political processes, and institutional arrangements around conservation, a different conceptualization of the relationship between different aspects of community and resource management outcomes is possible. In contrast to Figure 1, the emphases of this review on multiple interests, processes, institutions, and outcomes are summarized in Figure 2. The figure does not present a theory of community-based conservation; rather, it summarizes the main thrust of this essay by indicating some of the directions in which we can seek insights about the devolution of power to actors in community-level institutions.

In Figure 2, community characteristics (e.g., size, composition, levels of dependence on the resource, prevailing norms, types of technology employed to use resources, etc.) have an impact

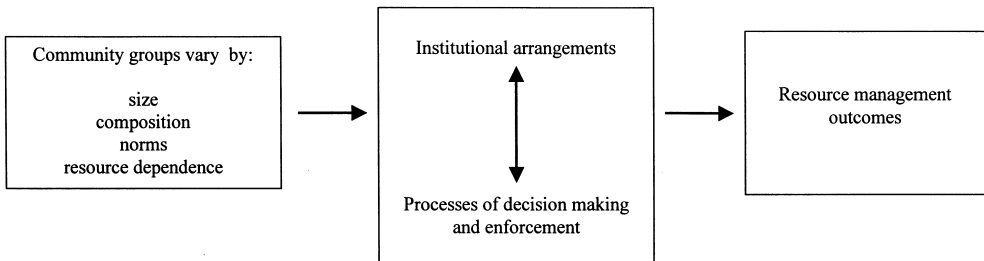


Figure 2. An alternative view of community and conservation.

on resource management because they affect interactions of different actors around conservation. Their interactions are shaped by and simultaneously shape prevailing institutions. Viewed at any one point in time, institutions may be seen as constraints on political processes and the actions of individuals. Over time, however, they are under constant contestation and (re)formation through the performances and negotiations of actors.

7. CONCLUSION

To analyze community-based conservation, this essay began by casting a critical historical eye at the notion of community. Current works on community borrow extensively, if unconsciously, from past writings. Visions of community as an organic whole, as small and territorially fixed, as under siege and eroding, or as standing in opposition to markets and states, can be traced directly to writings from the 19th and the early 20th century. A longer-term perspective on community prompts caution before one embraces it as a general answer to conservation-related woes.

An analysis of the perceptions of community in the literature on conservation reveals strong oscillations over time in the recognition and value accorded to it. The current valorization of community should be viewed in the context of a general loss of faith in progress and future utopias. It also stems from the disillusionment of conservationists with two other gross concepts — the state and the market. In addition, revisionist historical ecological research and contributions from the scholars of the commons have also played a role in bringing community to the fore.

The celebration of community is a move in the right direction. But the implications of turning to it are little analyzed in most writings on community-based conservation. The existing literature on community-based conservation reveals a widespread preoccupation with what might be called “the mythic community”: small, integrated groups using locally evolved norms to manage resources sustainably and equitably.

Such characteristics capture the realities of few, if any, existing communities. The vision of “the mythic community” fails to attend to differences within communities. It ignores how differences affect processes around conservation, the differential access of actors within

communities to various channels of influence, and the possibility of “layered alliances” spanning multiple levels of politics. Small, territorially attached, and relatively homogeneous communities, where they exist, might find it easy to make decisions collectively. They would still find it difficult, however, to withstand external threats (even from other community groups competing for access to the same resources), or manage resources that have a wide geographical spread. A focus on the shared norms of community is also incomplete because norms may not prevent overexploitation of resources, and they are scarcely amenable to change through external interventions.

We propose a shift in emphasis away from the usual assumptions about communities: small size, territorial fixity, group homogeneity, and shared understandings and identities. Instead, we suggest a stronger focus on the divergent interests of multiple actors within communities, the interactions or politics through which these interests emerge and different actors interact with each other, and the institutions that influence the outcomes of political processes.

Our advocacy is for a changed emphasis for those of us who believe in locally-oriented management of resources and a move away from states and markets. Greater autonomy to local groups means that external actors would have to relinquish control over the rules and the outcomes of community-based conservation. In addition, the directions in which institutional outcomes in local spaces will unfold cannot be plotted precisely, they can only be roughly assessed. Demands for greater certainty suffer from the same utopian longings that identify “community as shared norms” as the solution to problems of conservation.

We conclude our analysis by discussing four possible areas for new research. In the preceding text of the essay we have only hinted at each of these following four points. They require considerable more development. We state them here as issues for future work.

First, community-based conservation would more profitably be founded on principles of checks and balances among various parties — local groups, government actors, even NGOs and aid agencies — rather than faith in the regenerative capacities of any one of them. Unchecked authority for community-level decisions is likely to lead to perverse conservation outcomes.

Second, local groups are usually the least powerful among the different parties interested in conservation. Community-based conservation requires, therefore, that its advocates make more strenuous efforts to channel greater authority and power toward local groups. Only then can such groups form effective checks against arbitrary actions by governments and other actors. Critical to such attempts is the need to forge federated structures of community user groups that can negotiate with government officials and aid agencies on more equal terms than those prevailing today. Negotiations on terms of equality are foundational to hold government actors accountable.

Networked structures, bringing together the resources of several communities, are also important for other reasons. They may prove far more effective in resolving intercommunity conflicts in comparison to distant, time-consuming legal mechanisms that are, in any case, biased against marginal groups. They may also be useful in addressing challenges from members of local elites to community-based conservation.

Third, those interested in community-based conservation should seek to implement reasonable processes of decision-making rather than focus upon guarantees about outcomes. "Reasonable" implies that (a) different interests, especially those that are usually marginal, are represented in decision-making, (b) mechanisms exist to ensure that the outcomes of current decision processes are going to form

part of the data on which future decisions will be based, and (c) the performance of those who make decisions is periodically reviewed by those affected by decisions. Local representatives of communities, and those elected as officials in federated structures of community groups must themselves be accountable to their constituents if a new understanding of community-based conservation is to have any teeth. Regular and open elections in which decision-makers submit to choices made by their constituents may be indispensable to ensure such accountability. Without mechanisms of accountability, federations of community groups may become yet another channel for centralizing tendencies.

Finally, effective institutionalization of community-based conservation requires that local groups have access to adequate funds for implementing the rules they create. The sources for these funds should also be local, raised through contributions of users rather than granted by central governments. Over time, this would mean that government agencies not just cede their authority to make rules about conservation, but that community groups also demand control over the resources themselves.

The points outlined above do not provide a blueprint for community-based conservation. Rather, they emphasize the importance of institutions, the ubiquity of political processes, the need to institute checks to contain arbitrary exercise of power, and the impossibility of escape from an uncertain future.

NOTES

1. Throughout the article we use the terms conservation, resource use, and resource management interchangeably: renewable resources such as forests, pastures, wildlife, and fish have been, are being, and will always be used by people; those who wish to conserve must incorporate use and management in their strategies (Robinson and Redford, 1991, p. 3).

2. The quick review that follows pays little attention to the earliest scholars of community such as the Greek philosophers. For an introduction to these writings, see Booth (1994). The ensuing discussion on community is strongly influenced by Bender (1978) and Gusfield (1978).

3. Maine (1871, 1905) was focused primarily on issues of law and political economy, including a comparative

study of property in village communities. But the distinctions he drew were equally influential in understanding social changes related to urbanization and modernization.

4. We note that community and society are not exact, but only close translations of *Gemeinschaft* and *Gesellschaft*.

5. For an introduction to how classical theories of cyclical change in Europe gave way to evolutionary beliefs in progress during the nineteenth century, see Cowen and Shenton (1995).

6. Parsons expanded the *Gemeinschaft/Gesellschaft* dichotomy into four parallel dimensions (Bender, 1978, p. 21; Parsons, 1951, 1960; Parsons and Shils, 1962). These

comprised: affectivity versus affective neutrality; particularism versus universalism; ascription versus achievement; and diffuseness versus specificity. Initially, Parsons included a fifth, collectivity-orientation versus self-orientation. Parsons (1966) shows his interest in applying his pattern variables to social systems.

7. Writing to address concerns about the direction of change in the newly emerging nations of the so-called Third World, these theorists argued against particularistic affiliations of kinship, religion, and ethnicity. These arguments were also explicit arguments against traditional community. Lerner (1962), perhaps, provides the classic statement on the apathy, fatalism, passivity, and static nature of traditional communities. But he is certainly not alone. Almond and Verba (1963), Black (1967), Deutsch (1961), Geertz (1963), and Shils (1962) wrote influential studies of modernization, forming the viewing lens for an entire generation of scholars.

8. See, for example, Eckholm (1976). Ives and Messerli (1989) present a discussion of some of the literature, especially in the Himalayan context.

9. See Ostrom (1990) for a discussion of how the metaphors of the "Prisoner's Dilemma" and the "Logic of Collective Action" have been important in shaping understandings about the (im)possibility of cooperation.

10. Given the large literature on the negative impact of population growth on resource conservation, it is perhaps unnecessary to refer to it at length. For some general statements, see Meffe, Ehrlich and Ehrenfeld (1993), and Myers (1991) and essays in the journal *Population and Environment*. Dissenting views are available in Lappé and Shurman (1989), and Simon (1990). Arizpe, Stone and Major (1994) provide a thoughtful summary.

11. For a critical review of some of the literature on overpopulation and market pressures, and an emphasis on institutions in the context of resource management, see Agrawal and Yadama (1997).

12. See Ascher (1995), Fairhead and Leach (1994), and Gibson and Marks (1995) for discussions of examples and brief reviews of the relevant literature.

13. Although new beliefs have entered the picture, not all who think about the role of community in resource use have begun to subscribe to new views. The result is a complex mosaic of notions about how villages or other nonurban groups may be connected to the resources upon which they depend. The ensuing lines on commu-

nity in conservation attempt to pick on the most important beliefs that depart from earlier themes.

14. An enormous outpouring of literature bears witness. See Bhatt (1990), Ghai (1993), Gurung (1992), and Lowry and Donahue (1994). See also Wisner (1990) for a review.

15. Scholars in developed countries have also argued for the importance of community in resource management. See Huntsinger and McCaffrey (1995) for a study of the state against the Yurok in the United States, and Hoban and Cook (1988) for a critique of the conservation provision of the US Farm Bill of 1985 for its inadequate involvement of local communities.

16. A number of works are available that point to the inadequacies of state-centric policy in general. See, for example, Bates (1989) and Repetto and Gillis (1988).

17. Ecologists have also underscored the limits of the state in protecting resources. Even if states had the power to enforce perfectly, some ecologists argue that protected areas are often too small to maintain valued biological diversity (Newmark, 1995, 1996).

18. A number of writings have focused on the importance of participation for sustainable democratization. Many of them have also highlighted the (potential) role of NGOs in the process (Bratton, 1989b; Clark, 1991; Fernandes, 1987; Kothari, 1984; Warren, 1992). The Fall 1996 special issue of *Cultural Survival Quarterly* edited by Pauline Peters (Vol. 20, No. 3) contains a number of useful essays on the role of participation in conservation and development.

19. Agrawal (1995a) questions the possibility of separating indigenous forms of knowledge from western or scientific forms while stressing the political significance of claims on behalf of the indigenous.

20. On the subject of the "Ecologically Noble Savage," see also Alvard (1993).

21. Anderson and Posey (1989) present a later work on the same group of Indians. For a strong critique of Posey's work, see Parker (1993).

22. A significant body of research argues against indigenous peoples being natural conservationists (Alcorn, 1993; Edgerton, 1992; Hames, 1991; Parker, 1993; Rambo, 1985; Robinson and Redford, 1991; Redford and Stearman, 1993). But as Sponsel, Headland and Bailey conclude after an extensive survey, there is

relatively widespread agreement that values, knowledge, and skills of indigenous peoples and many local communities “can be of considerable practical value” (1996, p. 23).

23. See Fox (1969), Morris (1977), and Parker (1909) for early arguments highlighting contacts between local groups and “outsiders.” Bailey *et al.* (1989), and Wilmsen (1989) present similar arguments more recently.

24. For two examples of this view, see Lynch and Talbott (1995) and Poffenberger (1990). Often the last part of the claim is probabilistically modified, “Communities are likely to prove the best managers.”

25. McNeely (1996, p. xvii). See also the various issues of the influential Indian news magazine *Down to Earth*, published by the Center for Science and Environment, New Delhi.

26. See the various chapters in Western and Wright (1994) for an elaboration of this perspective, and Gibson and Marks (1995) for a critique.

27. Zerner’s, 1994 essay on *sasi*, a highly variable body of practices linked to religious beliefs and cultural beliefs about nature in Indonesia’s Maluku islands, also makes the same point (cf. Zerner, 1994). Current images of *sasi* depict it as a body of customary environmental law promoting sustainable development. *Sasi* has, thus, emerged as a site and a resource for social activists to contest an oppressive, extractive political economy. In *sasi*, the rhetoric of local environmental management can be united with culturally distinctive communities. The result is an unusually potent political metaphor. See also, Baines (1991) for a similar argument in relation to assertions on the basis of traditional rights in the Solomon Islands.

28. One exception can be found in Singleton and Taylor (1992, p. 315). They conceive of community as implying a set of people with some shared beliefs, stable membership, who expect to interact in the future, and whose relations are direct (unmediated), and over multiple issues. Significantly, they do not include shared space, size, or social composition, a concern of many other writers, in their discussion.

29. See, for example, Donovan (1994), Hill and Press (1994), and Poffenberger (1994). The point is not that links between group size and the emergence of community are nonexistent. It is, rather, that such links, if present, require substantial attention and institutional-

ization if they are to become a foundation for community-based conservation.

30. For example, Murphree refers to the “optimal” size for communities (around 90 families) for revenue-sharing schemes incorporated within the CAMPFIRE wildlife program in Zimbabwe (Murphree, 1993). See also Agrawal and Goyal (1998) for a game theoretic argument about the relationship between group size and successful collective action in the context of resource management by village residents.

31. Such difficult-to-believe notions of community, in part, become possible owing to the conventional separation of market, state, and community from each other, and the erosion of community that is presumed to proceed apace when external forces impinge upon it.

32. Taylor (1982) uses anthropological and historical sources to provide an extensive survey of hierarchy and stratification within even supposedly egalitarian communities. See also Rae (1981) and Sen (1992) for related arguments about the nature and existence of inequality.

33. See Western (1994) whose study of the Amboseli National Reserve shows, even though this is not a focus of the study, the differences within the putative community of “Masai.” Agrawal (1999) and Robbins (1996) point to stratification within *raika* pastoralist groups who see themselves as distinct from landowners within their villages.

34. For similar proscriptions on cutting particular tree species, see Dorm-Adzobu and Veit (1991) and Mato-wanyika (1989).

35. See for example, Nikijuluw (1994) for a discussion of *sasi* and *Petuanang* which influence harvests of fish; and Rajasekaran and Warren (1994) for a discussion of sacred forests among the *Malaiyala Gounder* in the *Kolli* hills in India.

36. Dove demonstrates how developers, planners, academics, and bureaucrats working with the *Kantu* of *Kalimantan* incorporated their own desires, hopes, and fears into the construction of a local “community” (Dove, 1982).

37. The history of massive deforestation that occurred even prior to industrialization, and recent empirical literature that shows wasteful practices among indigenous groups shows that “the indigenous” cannot be identified with a conservation ethic. See Abrams *et al.* (1996) for a review of evidence in the case of the early

Mayans; Fairservis (1975) for the Harappan civilization; and Meilieur (1996) and Steadman (1989) for Polynesia.

38. Western and Wright broach this idea in their first chapter (1994). See also the discussion in Wells and Brandon (1992) who point out that sometimes communities may not be as effective as state officials in protecting resources or ensuring conservation.

39. Tully (1994) presents a clear argument about how Western theories of property, which provided the justification for taking over lands from native Americans, were founded on land being used for agricultural purposes.

40. For insightful discussions of how tradition may often be only recently created but change through politicized memory into a timeless, unchanging tradition, see Hobsbawm and Ranger (1983). Related work on how the past may be constituted in the present, or exert a strong influence to shape contemporary regimes of conservation, see Saberwal (1996) and Sivaramakrishnan (1995). In various forms these points are also being made in several recent writings on community, but rarely together. For some representative works, see Anderson and Grove (1989), Baviskar (1995), Fairhead and Leach (1996), and Sivaramakrishnan (1996).

41. For example, staff from the Game Department of Northern Rhodesia had a publicity van that traveled in rural areas trying to foment values for conservation in the early 1950s. Poaching rates remained unaffected.

42. Those who have worked with community-based projects in the field recognize this multi-actor reality, and are forced to deal with complex webs of interests on a daily basis. It is curious why this reality has not found its way into those papers and studies which advocate community-based conservation. Watts (1995, p. 60) approvingly cites Eagleton's concern (1990, p. 88) about the attention to difference, as if "we have far too little variety, few social classes, that we should strive to generate 'two or three new bourgeoisies and a fresh

clutch of aristocracies.'" Eagleton's worry about too many different groups is explicable, perhaps, as the worry about not being able to carry out neat Marxist or rational choice analyses.

43. See for example Agrawal (1994b, 1995b).

44. The reverse also holds true. Power is visible only when it is put in action — its workings cannot be imagined or understood outside of the trace it leaves on processes. See Foucault (1983, pp. 219–220).

45. Indeed, the list of the possible political-economic factors that impact upon processes at the local level can be increased several times without redundancy. See Sanderson (1994) and the other essays in Meyer and Turner (1994) that examine land use and cover change more generally.

46. See Bates (1983), Riker (1980), and Shepsle (1989). We define institutions in keeping with the large literature on the subject. But we underline that institutions in the shape of informal norms are difficult if not impossible to change in desired directions through external intervention.

47. For this conceptualization of the different domains, we have drawn upon a number of different works, even if the manner in which we state them might differ from the works we have consulted. See, especially, Agrawal (1995b, 1996), Dahlman (1980), Ostrom (1990), Ostrom and Schlager (1995), and Schlager and Ostrom (1992).

48. The local knowledge of different members in a community, also often called "time and place information" (Hayek, 1937; Ostrom, Schroeder and Wynne, 1993), may be invaluable to the success of conservation projects. The entire corpus of writings on indigenous knowledge is based precisely on this premise (Chambers, 1979; Richards, 1985). For the significance of such information and the need to incorporate local expertise, see also Jagannathan (1987), and Tandler (1975).

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