

Beyond exclusion: alternative approaches to biodiversity conservation in the developing tropics

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The exclusionary protected area-based approach to biodiversity conservation has succeeded at several places, but at a significant social cost and conflict, especially in the developing country tropics. More inclusive approaches, including community-based conservation (CBC), its subset enterprise-based conservation (EBC), and payments-based conservation (PES) programs, have been tried in the past 15 years. A brief summary of the literature on socio-economic impacts of the exclusionary approach suggests that, although detailed studies and documentation is missing, impacts are significant, and the ethical argument against forced displacement quite strong. We then examine the potential of non-exclusionary approaches from a broader perspective that values biodiversity gains as well as socio-economic ones. Our review suggests that (a) comprehensive socio-ecological and comparative studies of such initiatives are surprisingly scarce, (b) enterprise-based conservation offers some potential if design flaws, poor implementation, assumptions about homogeneous communities, and inattention to tenurial change and security are addressed, (c) payments-based programs require caution because of their focus on economic efficiency, and simplified assumptions regarding the nature of rights, biological information, monitoring costs, and state interventions, and (d) the alternatives to exclusion have often not been given adequate state support and space to function, nor is the ongoing neoliberalization of the political-economic system conducive to giving them that space, except when they fit the direction of this larger process.

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Introduction

Loss of biodiversity in general, and in tropical forests in particular, has been a source of major concern for modern society. The mainstream response, promoted by conservation groups and adopted by governments, has been the establishment of ‘protected areas’ (PAs) where human use and presence is minimized or at least curtailed significantly. Today, there are over 100,000 protected areas that cover ~12% of the Earth’s land area [1], of which 28% (by area) are in the tropics. Several studies suggest that protected areas have reduced rates of deforestation, prevented species extinction, and conserved land and water resources [2].

The PA approach, however, remains plagued by several problems. First, its effectiveness in conservation has been somewhat more mixed than the above studies suggest. Although deforestation rates have decreased in many areas, significant forest decline has continued in others [3]. There is also probably a selection bias in PA sites, that is, sites that are less accessible and so less subject to degrading pressures in the first place are likely to be selected as PAs. Second, in several regions (e.g., in Borneo: [4]), pressures from resource use have ‘leaked’ into surrounding areas, causing higher deforestation rates elsewhere. Third, it is not clear whether complete exclusion of human activities is necessary for conservation effectiveness, and whether pristine-ness is a meaningful goal, given historical modifications of these landscapes [5,6]. In some places, mega fauna inside PAs have disappeared even after strict exclusion (e.g., the Sariska tiger: [7]). In a few places, excluding resource use has actually been deleterious to the key biodiversity value of the PA [8]. Fourth, the alienation of local communities has turned potential conservation allies into adversaries [9]. Fifth, at a more fundamental level, an exclusionary approach inevitably produces ethical challenges, calling into question the legitimacy of such conservation interventions [10*].

The last three aspects have generated significant conflicts around PAs and limited their conservation gains [11**]. Consequently, analysts and activists have proposed, and conservation agencies and field organizations have experimented with, alternative approaches. The Integrated Conservation-Development Projects (ICDPs) of the late 1980s were followed by more explicitly community-oriented and participatory experiments start-

ing the mid-1990s. The last decade has seen the emergence of another model, namely, payments-based schemes that seeks to marry the efficiency of the market with conservation goals.

In this paper, we review the sizeable literature that has emerged around these alternative approaches in the context of the developing tropics, a region in which high biodiversity coincides with high poverty and often a colonial past, making the issues sharper. State conservation initiatives here have historically been PA-focused. Nevertheless, one difficulty in comparing different approaches is that the normative lenses through which different assessments are carried out often differ greatly. In some cases, success is defined solely in biodiversity terms, while others use multi-criteria approaches incorporating social dimensions of outcomes in various ways. The absence of a consistent framework causes researchers to talk past each other. We therefore begin with a brief overview of the literature that highlights the social impacts of PAs (section 'Conservation by exclusion'). We use this analysis to argue that biodiversity conservation is as much a social issue as an ecological one. Consequently, we contend that conservation approaches and assessments should not use biodiversity outcomes as the sole measure of success. We therefore review community-based (section 'Community-based conservation: rights and enterprises') and payments-based conservation (section 'Payment-based conservation: conservationists turn market-savvy?') using multiple norms. We then discuss the underlying challenges in pursuing conservation in practice, including institutional arrangements, social process, and the larger political economy (section 'Social structure meets social process: the challenges of pursuing conservation in practice'). We conclude with a summary of key points and an agenda for future research (section 'Summary and looking ahead').

Conservation by exclusion

Historically, the creation of PAs with strong prohibitions on land and resource use has been a defining feature of the conservation paradigm in most countries [11^{••}]. This exclusionary approach was integral to the first national parks celebrated in the United States [12], was subsequently exported across the world in diverse colonial settings, and was embraced by most governments in the developing tropics after independence [13].

The exclusionary approach typically involves the forced removal of people from their homes and/or significantly curtailment of their activities. Thus, socio-economic impacts can be of three different kinds: complete physical displacement, economic displacement through restrictions on resource use (e.g., on collection of firewood and other non-timber forest products, grazing, and water use), and cultural displacement through restricted access

to locations of cultural and symbolic value [14[•]]. Reliable data on the form, extent, and socio-economic impacts of resettlement from PAs are hard to come by. For instance, estimates of physical displacement range from 900,000 to 14 million people for the African continent [15] and have generated significant controversy [16]. For India, they range from 100,000 to 600,000 [17]. Some research suggests that economic displacement is the most significant impact [18]. Uncertainties notwithstanding, the social costs of exclusionary approaches are clearly considerable [14[•]], but equally clear is the need for more research on the magnitude and nature of these impacts [19].

While some conservationists continue to support a completely exclusionary approach (and the use of force to implement it) [20], most now accept the need for some level of inclusion, although reasons differ. Many have stressed a pragmatic argument, namely, that conservation without local support is doomed to fail [21]. Others have, however, pointed out that conservation projects can succeed even if they lack local participation and support, because communities in these areas are often poor, politically weak, and isolated [22]. The most convincing argument is an ethical one: that displacing some groups without their consent is unfair and displacing already disadvantaged groups is doubly so [10[•],23]. Balancing legitimate claims of local communities with a larger social claim on biodiversity is thus a necessary complication that conservationists have to address.

One policy response to these critiques of exclusionary conservation has been to experiment with alternatives that might integrate local priorities with conservation,^a to which we now turn. But the methodological implication of the ethical argument also is that assessments of conservation programs must include the socio-economic impacts, quality of participation, and social justice as independent additional criteria along with biodiversity conservation for evaluating success [25].

Community-based conservation: rights and enterprises

The ICDPs of the 1980s and early 1990s used a combination of buffer zones and general local development support to 'reduce the pressure on a protected area' ([26], see also [27]). Local communities were 'involved' more as recipients of concessions and development assistance than as part of conservation activities. Thus, the early ICDPs were just an extension of conservation by exclusion [28].^b

^a Other responses focus on doing a better job of the exclusionary approach, by following 'codes of conduct' [24] and better rehabilitation packages for new PAs, and/or compensation to historical displaces [19].

^b Not surprisingly, presence of ICDPs was not found to be correlated with conservation success in 81% of the 16 PAs in Africa sampled in [29], because the ICDPs contributed little to local livelihoods.

Subsequently, advocacy for increased local participation (e.g., [30]) led to the emergence of the idea of ‘community-based conservation’ (CBC), which has biodiversity conservation as one of its goals and some form of community involvement as its approach.^c Occasionally, this may simply involve sharing of revenues from PAs with the local community (e.g., [31]). But most CBC experiments usually aim to provide both poverty alleviation and participation in governance of the PAs, using a combination of changing the rules of engagement between state agencies and local communities, providing financial subsidies, livelihood training, and building community institutions to regulate resource access and use. In most cases, the experiments seek to build on historical traditions of conservation in the community.

‘Enterprise-based conservation’ (EBC)^d is a subset of CBC that has specifically focused on increasing the economic incentive for conservation by investing in strengthening or setting up anew conservation-compatible activities that are based on the biological resource in PAs and other biodiversity-rich areas. These include ecotourism, safari hunting, and the sale of non-timber forest products (NTFPs). Such programs assume that an increase in communities’ economic returns from use of a natural resource will create an incentive to protect the resource.

Assessing the success of CBC and EBC programs is constrained by (a) the scarcity of good and comparable data, especially covering social and ecological dimensions with equal rigor, (b) varying goals of the programs, (c) the wide variety of potential criteria for evaluation, and (d) the inherent challenges in abstracting from complex local conditions [32,33]. Nevertheless, the available studies suggest that outcomes have been mixed. One relatively systematic attempt to run an ‘adaptive experiment’ in EBC—the Biodiversity Conservation Network (BCN)—concluded that ‘yes, an enterprise strategy can lead to conservation, but only under limited conditions... and never on its own’ [34^{*}]. Even within Mexico’s Monarch Butterfly Reserve, there is much variation in CBC quality [35]. A recent review of three experiments in the Caribbean suggests that EBC may generate financial benefits to local communities but these may ‘result in the adoption of more unsustainable resource use practices’ [36]. But

^c Also termed variously as ‘co-management or joint management of PAs’, ‘community(-based) wildlife management’, or ‘community conservation’, although the last may refer only to situations where communities have initiated the efforts themselves. Note that we use ‘conservation’ to mean biodiversity conservation, not forest conservation or resource conservation, and therefore this review does not cover broader attempts at what one may call community-based natural resource management.

^d This is a subset of ‘community-based enterprises’ (CBEs) in that it only refers to those enterprises that have biodiversity conservation (not just resource conservation) as an explicit goal or constraint (cf. footnote c).

some projects have lasted and even thrived as a visit after 10 years to a sea-turtle CBC project showed [37]. And a meta-analysis of 28 CBC-type projects showed positive outcomes on multiple dimensions of success (ecological, economic, attitudinal, and behavioral) correlated with decentralization [33].

Reasons for the mixed success of CBC programs need careful sorting. First, many may not really constitute serious CBC attempts, as they focus only on livelihood enhancement or poverty alleviation and not on conservation goals. Second, many others suffer from significant implementation flaws, with too much outsider influence and funding and not enough insider buy-in. Third, building community institutions is easier said than done. Communities are fragmented and rife with political tensions at various levels [35]. Even local non-governmental organizations (NGOs) involved in implementation can become obstacles to community empowerment [38]. Fourth, enterprise-based approaches run the risk of commodifying biodiversity, with both ecological and equity implications. For instance, payments for ibex hunting in Pakistan distorted conservation priorities and created intra-community tensions [39] and when a ‘successful’ eco-tourism enterprise adversely affected traditional social relations and intensified resource harvest [40^{*}].

Perhaps the biggest constraint faced by CBC efforts is the tenuous and incomplete nature of rights and operational space that are granted to participating communities by the state. Substantive changes in rights of access and role for communities in PA governance often do not take place, and control remains with state agencies on key issues. A classic example of this is that, after 10 years of permitting an NTFP-based CBC experiment in which rigorous biological monitoring was being carried out, the forest department of Karnataka state in India cancelled the permission for NTFP harvest citing a Supreme Court order, depriving the enterprise of raw material and the NTFP-dependent tribals of their traditional livelihood [41].

Payment-based conservation: conservationists turn market-savvy?

CBC projects often involve substantial external support (financial, technical, human). Nevertheless, some economists consider CBC-type efforts as ‘indirect’ in the sense that they do not link local communities directly through the market to those who wish to see conservation happen and payments are not ‘performance-based’, that is, in proportion to biodiversity conserved [42^{*}]. Pointing to the mixed performance of ICDPs and EBCs, they argue for ‘direct’ payments for conservation as being more economically efficient [42^{*},43]. This is part of a larger trend in support of ‘payments for ecosystem services’ (PES) including watershed services and carbon sequestration.

Experiments with payments to local people for conservation began post-2000, mostly in Costa Rica and other parts of Latin America. China has also implemented a major program of fiscal subsidies for upland conservation. However, in these cases, biodiversity is almost always bundled along with other ‘services’ such as watershed benefits or carbon sequestration [44]. Furthermore, payments usually do not come from individual ‘buyers’ of conservation ‘service’, but from the state or international donors, making these transactions not quite market-based [45]. Proper tests of PES-based conservation are therefore difficult to carry out.

The limited information that is available on these partial experiments provides an ambiguous picture. Outcomes may not be equitable [46,47^{*}] or locally empowering [48]. They may not even be efficient unless careful targeting is done [49]. PES in practice requires a similar amount of state intervention and NGO facilitation as that required in CBC-type approaches [50].

Normatively, PES is concerned with efficiency, not with equity; it takes the existing distribution of property rights as a given (and implicitly equitable). Analytically, payment-based approaches make broad assumptions about well-defined and secure property rights and adequate control (including the right not to conserve) in the hands of the payee, full information about the biodiversity implications of land-use decisions, and low transaction and monitoring costs [45,51]. These assumptions rarely hold good. For instance, while farmers in Latin America in some cases do control large portions of the forested landscape, in most of Africa, south Asia and China, the state asserts rights over most forested areas and the rights of communities are highly attenuated and contested [52]. Even in Brazil, ‘land grabbing, insecure tenure, overlapping claims, and lacking information on private tenure constitute real medium-term impediments to PES’ [53]. Thus, while PES sounds pro-poor as it assumes communities have the right not to conserve and proposes paying them to conserve, it makes too many simplifying assumptions to be able to achieve these social and environmental objectives in practice.

Social structure meets social process: the challenges of pursuing conservation in practice

The constraints faced by CBC efforts and the critiques of payments-based approaches point to a larger set of issues—the complexity of structural and process-based factors in shaping all efforts. One way of thinking about this is to see biodiversity conservation as falling within the broader domain of environmental governance [54]. Core issues such as decentralization, connectivity across multi-level social–ecological systems, and democratization have been covered in previous reviews [55^{*},56]. In examining how governance concerns play out with respect to con-

servation initiatives, we highlight three themes: institutional arrangements, social process, and political economic forces.

Institutional arrangements refer to both organizations and rule systems that govern social interaction. One area of research in this area explores how different complex organizations—including network forms of organization—interface with one another in the context of conservation programs [57]. Much of the work focused on conservation dovetails with the literature on development, analyzing how complex social–ecological problems require multi-scalar, nested regimes (rules systems) that depend on the production and maintenance of human-made capital: physical, human, and social. For example, Brondizio *et al.* [55^{*}] examine the case of the Xingu Indigenous Park in Brazil, uncovering how successful management by an indigenous group was undermined by agro-pastoral development in the wider watershed. The study points to the need for broader connectivity across resource governance systems.

In comparison to the institutional design literature, less attention has been focused on conservation as a social and political process. Brechin *et al.* [10^{*},57] point to several considerations in constructing and maintaining collaborative processes that are perceived by those involved as being legitimate. The diversity of actors typically involved with conservation interventions makes deliberative approaches difficult and potentially time and resource intensive. Examples from Bolivia, Brazil, and Colombia suggest that partnerships among indigenous communities, NGOs, multi-lateral aid organizations, and state agencies have achieved some success but also point to complex power dynamics [57–59].

In Chernela’s [59] analysis of a conservation partnership in Brazil’s central Amazon region, transnational interlocutors dominated social process by defining the criteria by which local demands came to be defined and problematized. Similarly, West’s work in Papua New Guinea [60] shows how an EBC effort failed to account for how Gimi-speaking people produce knowledge. Thus translation, broadly construed, becomes a key process issue in cases where ontological and epistemological differences regarding human/nature relations emerge among cultural groups. Finally, studies that unravel complex social processes within community-based conservation initiatives suggest how local histories of both conflict and cohesion impact discrete projects [61].

Beyond institutional arrangements and social process, a major challenge to pursuing conservation in practice stems from the political-economic contexts within which interventions are embedded. A considerable number of recent studies have focused on the ways in which neo-liberal economic approaches have shaped conservation

initiatives at multiple scales including fundraising by large conservation organizations, reliance on corporate partnerships, creation of private reserves, and a preference for market-based approaches to project design, among others [62–64]. Concerns regarding ‘neoliberal conservation’ focus not only on commodification of biodiversity, as mentioned above, but also on marginalization of certain groups, transformation of property rights, and accountability of governance networks. Related to these types of concerns, Grandia [65] shows how the Mesoamerican Biological Corridor, which began as an ecoregional conservation initiative, was transformed by the World Bank into a ‘vague bureaucratic framework’ that masked threats to biodiversity by three overlapping, transnational trade corridors—the Central American Free Trade Agreement (CAFTA), Mundo Maya (tourism), and the Plan Puebla Panama.

Beyond the specific trends mentioned above, the ‘neoliberalization’ of conservation constitutes an institutional and cultural shift toward privatization of property rights, marketization of exchanges, deregulation of the policy environment, and re-regulation in the form of state policies that restructure state policies to facilitate privatization and marketization [66,67]. In this sense, political economic forces enable and constrain conservation/development activities in specific contexts, adding complexity to community-oriented, rights-based approaches among others. In the case of the Xingu Indigenous Reserve, mentioned above, a rights-based approach generated effective governance *in situ* but significant deforestation still occurred in areas of the Xingu watershed outside of the reserve because of agro-pastoral development activities. Similarly, a shift to neoliberal economic policies in Mexico during the early 1990s brought an end to agrarian reform, allowing the dissolution of collective property regimes (*ejidos*) among other changes. Wilshusen [68] details how this political and economic reform process did not precipitate formal land privatization but did facilitate a liberalization of natural resources governance (both institutional arrangements and social process) among nine forestry *ejidos*, where community forests constitute highly valued conservation landscapes connecting two biosphere reserves. Both PES and CBC approaches that advocate market engagement need to factor in these larger dynamics to understand the constraints and implications.

Summary and looking ahead

This overview of the critique of exclusionary conservation and alternative approaches in the developing tropics has highlighted several issues relevant to conservation policy and research. First, the exclusionary approach has provided biodiversity gains in certain locations. But it has imposed severe hardships on local communities through physical, economic, and cultural displacement, leading to political conflict in several locations. Ultimately, this

approach has lost legitimacy owing to its inherent unfair and undemocratic approach, and conflicts are emerging not only around proposed new PAs, but even in existing PAs. Local communities may or may not be critical to conservation, but a broader approach to thinking about conservation as an ethical social process is clearly required. Researchers need to generate more detailed, comparative studies on the social, economic, and cultural impacts of PAs.

Second, local communities are neither inevitably the destroyers (when not involved) nor (when involved) the saviors of biodiversity. The evidence regarding CBC and EBC projects is mixed: most did not have adequate data to reach a conclusion, some achieved gains in community development, but few made a positive impact on conservation. Basic design flaws, poor implementation, assumptions about homogeneous communities and inattention to or inadequate support for tenurial security plague most efforts.

Third, while CBC/EBC approaches have received a limited trial, donor and international conservationist attention has rapidly swung towards payments-based programs. These programs inherently limit the normative focus to economic efficiency, and make several additional assumptions about nature of rights and monitoring costs that are not valid in practice and eventually require state and other interventions.

Fourth, a common theme is the lack of attention to how rights to resources and biodiversity need to be distributed and regulated between individuals, communities, and the state, and the more detailed restructuring of different agencies that may be required. Equally important is the need to recognize that institutional re-design cannot ensure success—location-specific histories and processes will inevitably complicate matters. And trends in the larger political economy and how these forces may constrain or enable conservation also need to be understood.

Research on conservation strategies must define success along multiple dimensions, monitor these dimensions more rigorously, and develop more nuanced propositions about the links between social process, tenure, economics, and outcomes. Much will, however, depend upon the space provided by states for alternative approaches. Mainstream development pressures and neoliberal thinking forces states to reduce the concern and space for all—conservation, sustainable use, poverty alleviation, and social equity. Conservation researchers would do well to see this convergence and engage with civil society groups to expand the space for such alternatives.

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