Conservation as if Biological Diversity Matters: Preservation versus Sustainable Use in India

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Introduction

Debates over the rationale for conservation are now fast being consigned to history. More people and governments than ever before recognise the need to conserve biological diversity, with over 180 countries now having become signatories to the International Convention on Biological Diversity (UNEP 1992). With the dawn of such a broad consensus, conservation debates have now focused more narrowly on the means of attaining the goal of conserving biological diversity (Gadgil 1992; IUCN et al. 1980; IUCN et al. 1991; Kramer et al. 1997; Terborgh 1999; Terborgh et al. 2002; Wells and Brandon 1992).

The conservation community in India, as in other regions in the tropics, stands polarised between two forceful conservation paradigms: preservationism and sustainable use (Rangarajan 1995, 2001; Saberwal et al. 2001). Preservationism—hitherto the most common approach to conservation—entails the earmarking of state-administered 'wildlife reserves' within which extractive human activity is either greatly restricted, or completely halted using coercive means (Saberwal et al. 2001). It holds that, given India's socio-economic and demographic milieu,

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and the biology of wild species and ecosystems, strict and exclusive wildlife reserves represent the most important and realistic means of conserving biological diversity (Karanth 1998, 2000; Madhusudan and Karanth 2002). Lately, however, there is growing popularity of an alternate paradigm—the sustainable use paradigm—which urges that authority over natural landscapes, including wildlife reserves, be devolved to the local communities using them (Gadgil and Guha 1995; Guha 2000; Swaminathan 2000). This approach builds on the premise that subsistence users of biological diversity value it the most, are worst affected by its depletion and are therefore motivated to use it in a sustainable fashion (Gadgil 1992). While these divergent conservation paradigms might well apply to all landscapes in the country, the debate assumes its most strident tone in respect of the country's network of wildlife reserves (wildlife sanctuaries and national parks).

Cauldrons of Conflict: Wildlife Reserves in India

In India, the early notifications of wildlife reserves followed an understandable course—one of ease. Beginning with the Hailey (now Corbett) National Park in 1936, the earliest of the wildlife reserves notified were large expanses of habitat with relatively low human densities and hence, easy to set aside. In the 1970s, with an appreciation of mounting threats to species and their habitats, the conservation value of an area gained primacy over the ease criterion in the notification of wildlife reserves. A powerful lobby of preservationists ensured that non-use value of species and their habitats in an area overrode considerations of their use-values to local people (Rangarajan 1996). Subsequently, to ensure better representation of diverse ecosystems within the country (Rodgers and Panwar 1988), smaller areas with relatively high human densities were increasingly notified as protected, and traditional users were severely restricted or excluded altogether. Wildlife reserves, which numbered 131 in 1975, rose to some 572 in 1999. These reserves cover about 156,000 sq. km., or 4.7 per cent of India's land area (Forest Survey of India 2000). A survey carried out in the mid-1980s estimated that some 69 per cent of India's wildlife reserves were inhabited by local human communities, whose population was provisionally put at ca. 4.5 million; a similar percentage of wildlife reserves were at least partly grazed by local livestock; and 57 per cent were subjected to collection of non timber forest products (NTFP) (Kothari et al. 1989). The vigorous pursuit of a preservationist programme within such scenarios has resulted in escalated conflict between wildlife reserves and people.

Two factors other than tightened protection are also culpable in such conflicts. One, the early exclusions of people (in the 1970s in Kanha and Nagarahole, for instance) did not result in the protestations or backlashes that are common today: displaced people had neither the voice nor the advocates they have today. However, starting in the 1980s, the perceived role of wildlife reserves underwent drastic revision—from restriction, to provision, as the means to conservation. Virtually every wildlife reserve that was hitherto successful in the sense of restricting human use woke up to a fresh wave of conflicts when traditional users rose up in defence

of their rights, buttressed this time around, by new-found advocates. This included incidents of arson in wildlife reserves, law and order problems and denotification of reserves to make way for industry or as a way to escape conflict. Two, populations of resident human communities within the insular wildlife reserves have increased rapidly, further intensifying existing levels of conflict over land and resources between local communities and conservation interests.

The persistence of such conflict makes the prognosis for conservation of biological diversity in India bleak. How then, can this conflict be eliminated, or at least minimised to enable more effective conservation? The approaches one might adopt in answer to this question essentially define the scope of this debate.

Conservation Paradigms

Starting from 1980, in a landmark effort to provide direction to conservation programmes worldwide, the World Conservation Union formulated strategies championing a conservation that was compatible with development (IUCN et al. 1980; IUCN 1991). Termed sustainable development, the three primary objectives of this strategy were: (*i*) the maintenance of essential ecological processes and services; (*ii*) the sustainable use of biological resources; and (*iii*) the conservation of biological diversity. With sustainable use then, as the selling point for conservation, biological diversity, in its popular estimation, came to represent the gamut of ecological products and services. Such a notion of biological diversity has met with understandable success in enhancing the appeal of conservation efforts among use-oriented audiences. In addition, it has also spearheaded a shift in conservation policy from 'a defensive posture—protecting nature from the impacts of development—to an offensive effort seeking to meet peoples' needs from biological resources while ensuring the long-term sustainability of the Earth's biotic wealth' (WRI et al. 1992).

In stark contrast to the sustainable use paradigm, the preservationist paradigm stems from biological premises of evolutionary and functional uniqueness, and the ethical value of species, regardless of their utilitarian value to humans. It contends that, mere maintenance of ecosystem services and/or the sustainable use of certain forms of biological diversity does not ensure that a full or large complement of biological diversity is conserved. Thus, its conservation emphasis lies in the hard-line of strictly protecting examples of natural ecosystems from human activity and ensuring that they are minimally altered. Conflicts, as the ones they are apt to generate, are handled using social disincentives (e.g., chastisement and penalisation), rather than economic incentives (Brandon 1995; Kramer et al. 1997).

The Indian Context

In its Indian version, the sustainable use paradigm is built around the premise that traditional resource-use practices of indigenous communities are sustainable (Gadgil 1987; Saberwal 1996). This assumption is based upon the observation

that many traditional practices by indigenous communities appear to demonstrate prudent use rather than profligate exploitation. These include self-imposed measures including the protection of keystone resources such as *Ficus* trees, temporal limitation of resource use such as closed seasons for hunting, spatial restriction of resource use such as protection of forests as sacred groves or 'safety' forests, and use within bounds of renewal as in long-cycle shifting agriculture (Gadgil 1985, 1987; Gadgil and Guha 1992).

Such traditional practices, it is postulated, meet conservation goals implicitly, rather than directly. This position also lays down that an essential prerequisite to the sustainability of traditional practices is the institutional configuration under which they operate. Citing the spectacular failures of enterprises aimed explicitly at sustainable use of biological diversity resources such as fisheries and forestry, authors argue that the large, centralised, bureaucratic systems managing them operate in ways that are insensitive to local needs, triggering biological diversity losses, as well as imbalances in resource sustainability (Gadgil and Guha 1995). On the other hand, smaller, decentralised institutions—typically traditional ones mediating land uses like shifting cultivation and pastoralism—exercising complete control over the access to and management of biological diversity resources are held as being more careful in maintaining their local sustainability, and hence, conserving biological diversity better (Gadgil and Guha 1995).

The wildlife reserve is hardly a recent importation into India—it has a hoary past. Kautilya's Arthashastra, written in the 3rd century B.C., set forth enforceable laws concerning the protection of forests and wild animals, including establishment of large reserves, and imposition of death penalties to anyone killing elephants (Gadgil and Guha 1992). Such exclusive wildlife reserves followed through into colonial times as princely hunting reserves, and from the 1860s, also as reserve forests under the Imperial Forest Department. Post-independence, an influential conservation lobby ensured that the colonial legacy of a regimented forest service was vested with the task of protecting India's biological diversity (Gadgil and Guha 1992). In the early 1970s, serious concern over the tiger's decline in India necessitated that protection was resumed with a renewed vigour. This resulted in powerful new legislation (Anonymous 1997) for the protection of large wildlife species, and a spate of notifications of national parks and sanctuaries.

Precepts versus Practice

Sustainable Use

Sustainable use and sustainable development, among the most ambiguous terms to have entered into the lexicon of the conservation movement, have been remarkably successful in projecting a middle-of-the-road solution to balance conservation and development needs. Their inherent appeal has been attributed on the one hand to the absence of any rigorous definition, thereby allowing anyone to take it to mean anything they want it to mean (Terborgh 1999). A more lenient view is

that it envisions smaller, 'inclusive', democratic, equitous, tradition-mediated resource use by underprivileged village dwellers in wildlife reserves as against the current swell of unscrupulous, city-driven, commercial exploitation.

However, at the heart of the sustainable use paradigm lie several largely untested assumptions about how conservation needs may be reconciled with extractive use in wildlife reserves (Robinson 1993). First, it assumes that once local communities exercise control over their catchment, traditional management and their dependence on biological diversity will ensure its upkeep and survival. Experience, however, seems to suggest otherwise. Large tracts of forests—all under local community ownership—in India's north-eastern states continue to be cleared for traditional shifting agriculture in ways that also demonstrably cripple its biological diversity values (Raman 1996, 2001; Raman et al. 1998). Wildlife surveys in these forests have also shown widespread decimation of many large vertebrate species targeted by traditional hunters, often using modern firearms (Mishra et al. 1998); similar detrimental effects of hunting are also well documented in tropical forests of southern India (Madhusudan and Karanth 2002). Traditional beliefs regulating subsistence practices no longer seem to exist in reality, and even where they do, they are being increasingly disregarded, as documented for sacred groves in Meghalaya state (Tiwari et al. 1998).

Second, the sustainable use paradigm tends to impose a notion of stasis on communities resident within wildlife reserves: they have but mere subsistence demands, with little or no aspirations convergent with the urban omnivore. This assumption is wholly unfair and naïve. The sweeping power of global markets has not spared even the remotest corners of our land. Community-owned lands are being sold out to loggers and developers in north-eastern India (Kothari et al. 1995a). Faraway markets for *shahtoosh* drive local hunting of the chiru (*Pantholops hodgsoni*) in the Trans-Himalaya (Wright and Kumar 1997). Similar market forces substantially alter traditional, subsistence cropping practices—agro-pastoralists in remote Spiti now grow green peas to cater to markets as far away as New Delhi, instead of solely relying on their traditional crop of barley (Mishra 2000), while concurrently overstocking livestock and overgrazing pastures (Mishra 2001). Around Nagarahole in Kodagu, subsistence wet-paddy cultivation has made way for the more lucrative ginger. In nearby Bandipur, farmers have abandoned unprofitable rain-fed agriculture for the more lucrative option of grazing cattle in the adjoining forest land. This is in order to collect and sell dung to cater to the demand for organic manure in the coffee districts of Kodagu, Wynaad and Nilgiris, which in turn soars when coffee prices increase in the global market (Madhusudan 2000). Aspirations, to which the markets play, often dictate exploitation pressures to greater extents than needs do, and none seems immune to them. These changes in aspirations and resource use and their accompanying detrimental impact on natural resources and wildlife are also accentuated by massive demographic flux (intrinsic population increase, migration and settlement) that increasingly characterise even the remotest corners of India as in other parts of the world (Singh 1996; Terborgh 1999; Terborgh and Peres 2002).

Third, the paradigm assumes that use within the bounds of replenishment (ecological sustainability) will satisfy growing local needs and aspirations (economic sustainability). Regardless of the size of a resource base, there is always an ecologically sustainable level of use. The conservation of biological diversity, however, is contingent upon reining in economic sustainability within the limits of ecological sustainability. Given the high density and growing populations of people often dependent on India's small-sized wildlife reserves, even their modest subsistence demands threaten to overshoot the limits of ecological sustainability. In north-east India, for instance, traditional shifting agriculture practiced under ten-year fallow cycles may be sustainable for the agricultural economy (Ramakrishnan 1992), but would be severely detrimental for the conservation of native biological diversity in the absence of strictly protected reserves of mature forest (Raman 1996, 2001; Raman et al. 1998). Finally, the sustainable use paradigm also assumes that capabilities exist locally to prescribe and monitor levels of off-take; and extraction for subsistence and market use is readily discernible and possible to regulate locally. This can be seriously compromised by factors such as migration of people (which continually alters the composition of the 'local' community), increasing linkages with markets due to development of roads and infrastructure, changing attitudes and aspirations, and the intrinsic social structure and equations within these communities (wherein resources may be iniquitously garnered by socially dominant segments within the community).

Preservationism

If the sustainable use approach draws strength from its popular backing, the preservationist paradigm relies mainly on its force of experience, and the long-standing hegemony of its proponents over the country's conservation policy and action (Rangarajan 1995; Saberwal et al. 2001). This dominance has been successfully maintained due to the plainly observable fact that a large complement of biological diversity remains only within areas that are maintained inviolate. Species such as the brow antlered deer (*Cervus eldi eldi*), the Indian rhinoceros (*Rhinoceros unicornis*), the Asiatic lion (*Panthera leo persica*) and other large vertebrates survive only within the network of wildlife reserves, while their populations outside have been completely decimated. Preservationists see this as a vindication of their stance, adopting and implementing conservation policies that err on the side of caution. Much of this has been accomplished using force deployed through a large and regimented forest service invested with the task of managing India's natural areas (Rangarajan 2001).

However, preservationism too comes with its share of problems and criticisms. From the perspective of administration and implementation, conflict with local communities is perhaps the single most important drawback with the preservationist approach. Factors generating and perpetuating such conflict go beyond a mere restriction of access to previously free resources. The cost of livestock and crop depredation by wildlife from wildlife reserves, and subsequent bureaucratic apathy with compensations inflames local communities against this approach (Madhusudan and Mishra 2003; Saberwal 1997). Double standards, reflected in the local imposition of the opportunity costs of preservationism, and distant accrual of its benefits (e.g., recreation opportunities, tourism revenue, employment), also aggravate existing conflict (Gadgil and Guha 1995; Saberwal 1997). For these very reasons, the preservationist approach is held to be counterproductive, inciting local communities to retaliate through poaching and arson within wildlife reserves (Gadgil 1992; Madhusudan and Karanth 2000). The preservationist approach is also accused of being overly bureaucratic, authoritarian and expensive, especially in the light of the above lapses (Saberwal 1996, 1997; Guha 1997). Also preservationists often neglect the long-term impact that processes outside wildlife reserves, such as ecodevelopment and large-scale land use change, have on within-reserve conservation. Smaller-time law and order problems are overemphasised (e.g., small time poaching), while more serious deep-rooted problems (e.g., grazing by thousands of cattle) are ignored because they do not have instant solutions. Preservationist managers often work under a *laissez faire* approach in the belief that because an area is being protected there is nothing more to be done. Conservation objectives are seldom framed for wildlife reserves and implementation and effectiveness of management is almost never monitored rigourously, with more effort being expended on civil engineering works such as construction of roads, waterholes and watchtowers. Finally, successful examples of preservationist efforts have, almost as a rule, been strongly personality-driven (for example, see Karanth 2002), and the ability to institutionalise these effective and successful practices has been poor. As a consequence, it has not inspired much faith as an approach that is uniformly implemented across varied contexts.

The biological basis of preservationism too has come in for criticism. One, its obsession with the conservation of large and charismatic species has been questioned for its ability to conserve other species effectively (Gadgil 1992). Two, its goal of keeping wildlife reserves inviolate has been disputed under the contention that at least some ecosystems appear to have evolved, or have later been maintained, under anthropogenic disturbance regimes: grasslands, for instance, are believed to have adapted to grazing and burning pressures from pastoralists (Kothari et al. 1995b; Saberwal 1996). Three, preservation does not directly address the need for restoration of degraded areas, a growing concern worldwide (Dobson et al. 1997). Four, preservation seldom tackles the problem of exotic species and proliferating weeds that continue to be 'preserved' under a *laissez faire* preservation programme (Ramakrishnan 1991). Five, the influence of habitats surrounding wildlife reserves on conservation of species within them is mostly neglected. Finally, the need to extend conservation to larger landscapes including private forests (Umapathy and Kumar 2000) and habitats such as shade-coffee plantations and rural waterbodies is ignored under a policy of strict preservation of wildlife reserves.

Synthesis

The two paradigms—preservationism and sustainable use—clearly have their strengths and weaknesses. The sustainable use approach undoubtedly succeeds in raising local interest and involvement in conservation of widespread and non-charismatic forms of biological diversity compatible with extractive human use. The strength of the preservationist approach, on the other hand, lies in its recognition that certain forms of biological diversity (large vertebrates, habitat specialists, disturbance-sensitive species and so on) are nearly impossible to conserve in contexts of high human densities and extractive use, and hence need inviolate areas (Madhusudan and Karanth 2002; Raman 2001). Wildlife reserves, therefore, must be seen, not as contrivances to restrict or deny local communities access to traditional resources, but as a reflection of the enormous constraints under which conservation efforts must proceed. The bottom line is that conservation efforts should be designed as if biological diversity matters—the currency of success and failure should be judged on the basis of the species and ecosystems conserved.

In India's incredibly diverse mosaic of ecosystems, assorted ethnic groups, and differing socio-economic and political climates, to embrace a single, absolute conservation *mantra* is not feasible. At the landscape level, conservation in India undoubtedly mandates both approaches. But, within local contexts, how is one to decide the suitability of either approach? Conceivably, gathering primary data on human and biological diversity needs could foster a more objective appraisal of the approach to take. A disconcerting element of the entire debate remains the dearth of primary field data on the social, cultural, economic, political and biological contexts of conservation, under either paradigm. In their absence, the conservation debate has been a source of more heat than light (Guha 1997; Saberwal 1997).

Unfortunately, such heat has obscured the discernible zones of concurrence that exist between the two ideologies. Regardless, the fact remains that proponents of sustainable use recognise (Kothari et al. 1995b; Saberwal 1997) that not all species can be conserved under their anthropocentric paradigm, while the preservationists concede (Karanth and Madhusudan 1997; Mishra and Rawat 1998) that local community needs cannot be trifled with even in biocentric approaches to conservation. What is needed, therefore, are greater efforts founded on this zone of agreement. We need examples whereby the sustainable use approach successfully conserves megafauna such as the tiger and elephant within regimes of extractive use by high-density human populations before this approach is advocated in existing wildlife reserves. Similarly, preservationist interest in conservation of endangered species and ecosystems must translate to solid examples wherein opportunity costs to local communities are justly neutralised, before pursuing an expansion of the wildlife reserve network.

Deciding where biological diversity needs override human needs and aspirations is not easy. Science—social or biological—can only inform, but not answer this charged ethical question defining the scope of both paradigms. No neutral

paradigms exist in conservation. Each carries a charge capable of kindling a political programme, and this is a challenge the conservation community must face realistically. Swift and decisive action, more than bitter polemic or persuasive rhetoric, is the need of the hour. A more meaningful approach to conservation can be forged when, instead of attempts to replace one another, opposing ideologies acknowledge their respective utility, and deign to learn from each other. Should this realisation be late in coming, the paradigms will 'smugly preside over the demise of biological diversity while waving the banner of conservation' (Robinson 1993).

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