

Promoting Socio-Economic Development to Promote Biodiversity Conservation

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That Arunachal Pradesh is a highly valuable global biodiversity repository is a well-known fact that does not require any emphasis. This is seen as a matter of pride, and rightly so, by many Indians including some people in Arunachal Pradesh. On the other hand this biodiversity wealth is viewed by many in Arunachal as a curse, and legitimately so, because of the hindrance it imposes on socio-economic development of the state. In this article I propose that both conservationists and protagonists of economic development must approach this conflict with a modified perspective which interweaves the “others” objectives into “one's own” goals.

This work is not based on a socio-economic study, nor on any formal study in conservation biology; nor have I been associated with issues of governance and public policy at any level. However, I have spent a good fraction of the last 15 years in Arunachal Pradesh implementing a simple common-sense conservation paradigm which is based on the assumption that people who are economically better off and with a secure future are more likely to be positively inclined towards conserving the biodiversity in their region. With help from many quarters including local communities, the Forest Department and other Government officials we helped the Bugun tribal community set up a conservation-oriented ecotourism venture in the buffer zone of Eaglenest wildlife sanctuary. This venture, perhaps the first of its kind in Arunachal Pradesh, has proved to be a commercial success and also greatly helped in elevating the conservation profile of Eaglenest. This paper describes the Eaglenest story and explores the possibility of scaling up the ecotourism venture in Eaglenest and its applicability in other parts of Arunachal Pradesh. It also makes a not-so-obvious claim that lack of socio-economic development may actually be harming the long-term survival of the famed biodiversity of Arunachal Pradesh. I propose that a well designed strategy to generate large amounts of employment in the industrial and service sectors in compact special economic zones may actually contribute to biodiversity conservation in Arunachal Pradesh

Officially, about 80% of Arunachal is covered by “Forests”, though intact “pristine” forests only cover about 50% of the area and the rest are in various degrees of degradation. About 15% of the land area in wildlife sanctuaries and national parks are at least nominally protected by the Forest Department under the framework of the Indian Wildlife Protection Act. The Forest Conservation Act imposes strong constraints on economic activities on legal “Forests”, to promote conservation of this globally important biodiversity hotspot. There are no large scale industries, polluting or otherwise, in Arunachal; commercial timber extraction operations are a thing of the past; of the 100+ proposed hydroelectric

projects only a handful have even managed to enter the phase of construction. Yet, one can see vast areas of degraded forest in many areas of Arunachal Pradesh.

Paradoxically, the lack of economic development may have actually contributed to the loss of forests during the last 2 decades. The legal constraints have stopped the impact of large scale commercial activities on the wilderness. However, there has been a continuous below-the-radar loss of forests in Arunachal at the level of individual households and communities, which is substantial when summed over the decades. Most of the population depends on farming, primary resource extraction (logging, quarrying, etc) and allied services – all at essentially the subsistence level. The practise of *jhum* exacerbates the problem. A hundred years ago the much lower population density would result in a large time gap between successive *jhum* on the same plot of land. This is no longer the case nowadays, and, in fact, the consequent reduced fertility may actually require more land per capita for the same yield. Farm land for the burgeoning population (among the highest decadal growth rate in India) has contributed to recent forest clear-felling. Additionally, neighbourhood forests also subsidise many other needs of everyone in the community like fuel, timber, and fodder causing further degradation. Furthermore, the mainstreaming and escalation of their aspirations thanks to improved travel and communication imposes even heavier burden on forests which are essentially their only resource.

Ecotourism in Eaglenest

Eaglenest wildlife sanctuary is an extraordinary wilderness in West Kameng district. In 2003, I initiated the Eaglenest Biodiversity Project to inventory the wildlife of the area with the idea of using the knowledge to help the local Bugun tribe extract non-timber money out of Eaglenest by setting up a community-based ecotourism venture. In 2003, Eaglenest had a major advantage over other wilderness areas of Arunachal in its combination of altitudinal range (more than 3000m) and easy access. Only five hours separated Eaglenest from the airport at Guwahati, the travel hub of north-east India. A jeep track cuts through Eaglenest from its base at 100 m altitude to Eaglenest Pass at 2800 m. A mere 125 km drive along this highway brings the visitor to alpine meadows at 4000 m in the neighbouring Dirang and Tawang. The famed Kaziranga on the Brahmaputra flood plains is only a three-hour drive from Eaglenest. Our ecotourism venture was designed as an integrated package with Eaglenest as the core.

Ecotourism is a hold-all term which encompasses several varieties of tourism: large mammal tourism of Kaziranga (Rhino) or Ranthambore (Tiger); picnic tourism of Mahabaleshwar (Maharashtra) and Doodhsagar Falls (Goa); long distance treks of Manali (Himachal Pradesh) and Khangchendzonga national park (Sikkim). All of these categories attract large numbers of nature lovers but mostly of a casual kind; it does not require a high degree of knowledge to appreciate a tiger or an elephant or the views of spectacular snow peaks.

We chose a fourth variety of ecotourism, of a kind not common in India. We targeted “serious naturalists” who target specific groups of animals and in large numbers. In particular we targeted birdwatching tourists, both national and international. Such tourists are usually quite easy in terms of living facilities but are highly demanding in terms of the bird species they want to see – 250 to 450 different species during a 10-20 day visit, several of which are extremely rare. This suited us both in terms of our very small financial purse and our long-standing expertise in observing and identifying bird species. Our entire investment was just 15 lakhs including 2 years of research (for developing the bird data base), tourist facilities, local staff training and publicity. Quite remarkably, the venture made a profit from the very first year of tourism (2006) and achieved an annual revenue of Rs. 40 lakhs from the second year (2007) onwards. The entire operation was completely

handed over to the local people in 2010. A decade on, it continues to run in a self-sustaining manner.

There were several reasons for the rapid and sustained success of the venture:

1. it was built upon a solid base of high quality knowledge of the product (birds)
2. it was carried out in close partnership with the Bugun tribal community of small
3. the upfront investment was very low and therefore cost of investment was negligible
4. it attracted the right tourists who were more interested in the birds than the facilities
5. even though the motivation was conservation of Eaglenest and the ecotourism was just one part of the conservation bouquet, it was run as a disciplined commercial venture with the stated aim of achieving financial self-sustenance. We were very clear that the “project phase” with external financial grant support would end at the earliest, and it did by 2008.

Unlike most other commercial venture attached to community conservation initiatives, the Eaglenest ecotourism venture was made the “property” of an individual entrepreneur. It was felt that an individual entrepreneur would run it in a more fiscally responsible manner than the Bugun community as a whole. Of course, the individual was selected by the Bugun community. On the other hand, we also felt that a single individual making a profit would not serve the cause of conservation. We made a provision that each visitor would pay a substantial daily fee to the Bugun community, in explicit recognition that the community was entitled to benefit from its proximity to Eaglenest. I would like to gratefully record here that the Arunachal Pradesh Forest Department played a supportive role throughout this initiative; during the initial years they waived their right to collect an visitor entry fee and allowed the entire amount to be deposited with the Bugun community village council to encourage the Buguns to realise the economic potential of Eaglenest and the importance of its conservation.

Thus, the engagement with a single entrepreneur led to a financially responsible and commercially successful ecotourism venture. It provided employment to about 25 persons from the Bugun village and contributed about Rs. 40 lakhs annually to the local economy (provisions and vehicle rental). Apart from the employment and support to local shops it also provided some money to the Bugun village council that they used for welfare activities. The venture moved from externally supported project mode to financially self-sustaining commercial mode in just 3 years. Equally importantly, by 2010 the venture was being managed entirely by the local people without any external help.

Apart from the money itself pride has been an important reason for the sustained interest of the Buguns. The advent of national and international tourists has also brought an understanding of the global value of the resource in their backyard.

During the initial years we deliberately sought to keep the quantum of tourists low as we were not sure of the impact of ecotourism on the long term security of Eaglenest. With a decade of experience I believe that the ecotourism in Eaglenest can generate several crores of revenue every year without impacting the ecosystem. This will require upgraded facilities and diversification of tourist activities that are currently in the planning stage.

Eaglenest is an excellent example of sustainable utilisation of the biodiversity resource of Arunachal Pradesh in a manner which benefits the local community and encourages them to contribute to the conservation of the resource. It involved a process of pragmatic evaluation of objectives (conservation and economic benefit) and resources (wildlife sanctuary) without being constrained by prejudices in conservation circles (that profitable tourism is bad for wildlife sanctuaries).

Based on the Eaglenest experience and the wisdom gained from it I would like to propose a strategy for marrying socio-economic development of Arunachal Pradesh with the

conservation imperative. This new strategy is meant for a much wider canvas and, unlike in Eaglenest where an individual or a small group of people could do it all, will require Governmental intervention.

A Recipe for Socio-Economic Development

I propose here a recipe for socio-economic development that has the potential for promoting biodiversity conservation as well. I believe that this recipe, if properly presented and implemented, will forge a way through the legal barriers to socio-economic progress. At the moment, and from my station, it is only be a glimmer of an idea. It will require the knowledge, experience and resources of the Government to take it to success. Instead of the perpetual clash between economic progress and conservation let us develop a paradigm wherein rapid economic progress and the consequent employment generation in well regulated industrial and service sectors will reduce subsistence dependence on forests and hence actually promote conservation. It involves a realistic appraisal of “Forest Lands” as pristine areas and irretrievably degraded areas. The conservation goal is to ensure that currently pristine forests continue to remain pristine in the foreseeable future at the cost of giving up on the irretrievably degraded forests.

The land in Arunachal can be divided into 3 categories according to the forest they host (see Figure 1):

1. Protected Areas (PA): wildlife sanctuaries and national parks (green), nominally under the protection of the Forest Department but secured largely by inaccessibility.
2. Community forests (CF): legally a “Forest” but “belonging” to communities by custom with little legal protection in practice. They span from the pristine (blue) through various degrees of degradation to the irretrievable (red).
3. Human-dominated landscapes (cross-hatched in grey or red)

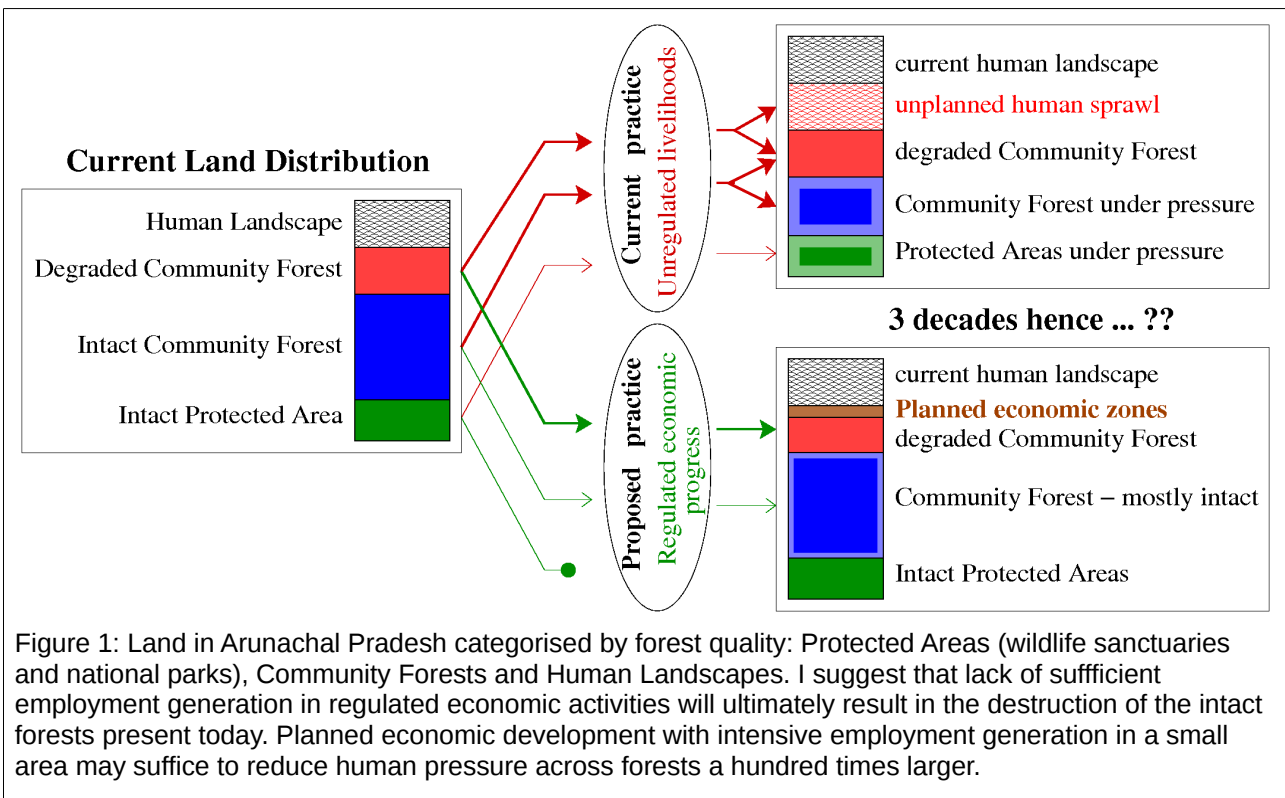


Figure 1: Land in Arunachal Pradesh categorised by forest quality: Protected Areas (wildlife sanctuaries and national parks), Community Forests and Human Landscapes. I suggest that lack of sufficient employment generation in regulated economic activities will ultimately result in the destruction of the intact forests present today. Planned economic development with intensive employment generation in a small area may suffice to reduce human pressure across forests a hundred times larger.

The current extent of the categories is in the left half of Figure 1 while the anticipated future trajectories are shown in the right half.

I propose that the Government take up 2 key economic initiatives, both of which will reduce the spread of human pressure on forests:

1. strongly promoting ecofriendly economic activities (e.g. ecotourism, horticulture, etc) in the buffer zones around intact wilderness. Apart from generating local employment they can also contribute some surplus revenue to support community conservation activities in the same area. Our ecotourism venture at Eaglenest, with some improvements and adaptation, can be a model throughout the state.
2. Develop “smart townships” or “special economic zones” in severely degraded areas to develop employment intensive and (relatively) ecofriendly commercial activities. The goal must be to concentrate employment of tens of thousands of families within a small area (10 km²) thus reducing the pressure of these families on the vast surrounding community forests (spanning hundreds of km²) .

In recent years, one has seen a lot of resources poured into roads, with some success, and hydroelectric dams, with far less success. As an conservationist and ecologist I have undertaken studies to propose conservation plans to mitigate the effect of these projects on wildlife habitats. In my opinion, some of the smaller/medium-sized dams are definitely worth pursuing because of their minimal impact on surrounding wildlife habitats. However, many of these dams have been stalled by local communities or are facing legal challenges. Part of the reason is that local communities view these dams as exploitative in that they includes few plans for local development. Most of the dams are seen as properties of “outsiders” exploiting a local resource (electricity) for sale outside the area.

Instead of trying to push through a hundred dams I propose that the Government focus on a dozen small/medium-sized dams in different districts and make these the nucleus of an comprehensive economic ecosystem. A hydroelectric dam supplying electricity locally,



Figure 2: A road near Seppa facilitating the clear-felling of forests for agricultural use. The same area of land can sustain much higher employment under industry and service sectors, ultimately resulting in the reduction of dependence on forest land.

road and air connectivity, telecommunication hub, local transport and educational and skill-development institutions should all be part of an integrated package to attract and sustain entrepreneurs. A compact modern township with relatively clean industries providing employment will actually promote conservation over a large area. It is a simple calculation that 10 acres per subsistence agricultural family translates into 400 km² of forest land for 10,000 families. Providing alternative employment for 10,000 families does much more for forest conservation than any other proscription strategy that one can think of. Of course, the nature of the economic activity must be in strict conformity with the needs of conservation and environmental health.

There is enough in this for protagonists of socio-economic development, and also for those who push for securing Arunachal Pradesh's biodiversity. All it requires is an acknowledgement of ground realities – that people will exploit forest resources in the absence of economic opportunities; that there are degraded “Forest” lands that are worthless for biodiversity and they would best serve the ends of biodiversity conservation by being used as hubs of economic activity to reduce pressure on other, intact, wilderness; that Arunachal's biodiversity is an extraordinary resource, and indeed heritage, that the state should exert every effort to conserve.

In summary, I propose that future economic development strategy should emphasise the advantages of concentrated economic zones for biodiversity conservation. Promoting compact zones of economic growth in small areas of highly degraded forest lands will generate sufficient employment to reduce the pressure on other much larger areas of intact forests. This will require vision, planning and execution at the level of state and central governments in a holistic manner that will benefit both the people and the biodiversity of Arunachal Pradesh.



Figure 3: The hydroelectric dam site at Bichom. The hill slopes above the river consist of thinly covered pine woods which are very poor in biodiversity; indeed open ground dominates over the tree canopy. One could denotify this essentially worthless “Forest” and convert it into a special economic zone to employ tens of thousands of families who would otherwise have felled additional forest for subsistence agriculture.