Wilderness woes – Tribals vs tigers: Pros and cons

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The proposed 'Schedule Tribes (Recognition of Forest Rights) Bill 2005' has raised controversies regarding forest management. Whereas the traditional tribal knowledge is significant, it is felt that the green mantle should remain under scientific management. M. S. Swaminathan's socio-ecological classification of forest appears to provide the right approach. A few recommendations have been made for the welfare of forest-dwellers shifted from their original habitat.

The proposed Bill has generated the tribal–tiger controversy. But why the tiger, when wildlife includes myriads of denizens of the forest? Madhav Gadgil (pers. commun.) explains that when the apex species at the top of the pyramid of the food chain, like the tiger is protected, the entire ecosystem receives protection. The crux of the problem is who has the primary right to manage the forest, the usual custodian, i.e. the forest department or the forest dweller associated with the tree-covered land over centuries. In the wake of vanishing wildlife, the latter is being ousted from the core areas. Also, central to the controversy is whether the issue is only of the tiger territory or does it also involve other wooded areas that are the habitat of elephants, gaurs or endemic primates? Can the conservation of dense forests with rare and threatened species be entrusted to the tribes dwelling close to these areas?

Some of the ills associated with the present-day forest management may be traced back to the time when the very word 'forest' was coined. What was once a legal term derived from 'foris', meaning out of doors and denoting land outside the common law subject to a special law with the sole object of preserving the king's hunting, the word 'forest' came to acquire a technical meaning, namely a dense stand of trees and underbush[1,2]. Thus with the reservation of the tree-clad land used as hunting ground by rulers, the foundation was laid for the division of biological resources into agriculture and forestry classes. The management of these resources instead of being handled in a rational integrated manner, came under the dichotomy of agriculture and forestry. Thus the bamboo, a commonly used resource, often consumed as food, came under forest category beyond the reach of the tribal and the villager. Also, the forest species by their very name and status became state properties, even while growing on private farms.

Tribals' traditional knowledge

The traditional knowledge of the tribal is undeniable; through the course of centuries he has gained a deep insight into the medicinal values of plants. It was through the contact with the *Adivasis* of Jawhar Hills in the Western Ghats (Thane district) that a team of doctors from Mumbai learnt about the life-saving properties of *Sarpagandha* (*Rauvolfia*) herb. Another example is that of *Ormocarpum sennoides* growing in the scrub jungles of Coromandel, known to the villagers for healing fractures; hence its Tamil name 'Elumboti' (bone-knit). Unfortunately, some communities residing even in remote forests no longer collect their medicines from the forest, but depend on clinics for antibiotics.

A cause of concern is that the forest-dwellers are by and large innocent and gullible people, very likely to be influenced by outside sources. Therefore, leaving the management entirely in their hands may not be a step in the right direction. We have instances of even celebrities engaging in poaching.

Defining forest

According to FAO[3], vegetation should be classified as forest only when it satisfies the following conditions: (a) exerts influence on local climate, (b) maintains water regime and (c) provides shelter for wildlife and produces wood.

Failing these criteria, it should be placed in the category of degraded vegetation. Within this broad definition of degraded forest will be included several physiognomies ranging from scattered shrubs in a wasteland to thickets and scrub-woodlands (jungles) on the one hand, to tree savanna, shrub-savanna and grasslands on the other[4,5]. Savanna-woodlands would be excluded from the degraded category because not only do they resemble an open forest but also because of the continuous carpet of tall grasses in ground cover, they comprise some of the best wildlife sanctuaries in the country.

Strict conservation vs villagers' rights

Contrary to the popular belief, vigorous protection does not necessarily mean progression towards a dense forest structure. Ainurmarigudi Reserve Forest (RF) within the Bandipur Wildlife sanctuary has been declared a Project Tiger reserve since 1983. However, density of trees in it is decreasing because of the damage caused by elephants and periodic fires[6]. In the nearby Mudumalai National Park, Sukumar *et al.*[7] also noted a decline in the population of woody species in a 50 ha plot by as much as 14% in two years. Yet another protected neighbouring area, Nagarhole, witnessed violent scenes because of the conflict between preservers and forest dwellers.

In contrast, let us examine the case of Marakkanam RF located on the Coromandel coast, 40 km north of Pondicherry. Neighbouring villagers enjoy certain rights: branches are cut to serve as fuel-wood, cattle are grazed and medicinal herbs and other plants of economic value are collected. In spite of this, the forest continues to survive in its scrub-jungle physiognomy and has not disappeared altogether, because of the constraints exercised by the villagers in exploiting the RF. Alternative energy plantations with fast growing species around the villages would give a chance to the scrub-jungle to evolve further.

Socio-ecology in forestry

The agricultural scientist M. S. Swaminathan (pers. commun.) has proposed a rational classification of forest from socio-ecological point of view:

(1) Forests for conservation of biodiversity. These include protected areas (Tiger Reserves, National Parks, Wildlife Sanctuaries, RFs). Stakeholders are foresters and conservationists with active participation of forest dwellers.
(2) Forests for community use, which include village common grounds, used by the people for their daily needs like fuel-wood and for grazing their cattle. Stakeholders are tribals and villagers.
(3) Forests for commercial use for growing plantations for industries. Wastelands may be reclaimed by incurring high costs. Stakeholders are industrialists.

There was a proposal from the Ministry of Environment and Forests for involving the industry in afforestation as well as provision for meeting the requirements of the tribal and rural underprivileged communities. The forest land would continue to remain a property of the Government and the deal with the industries or entrepreneurs leasing the land to them was to be worked out by the Forest Development Corporation, which has access to degraded forest land and wasteland. Such degraded land is not only susceptible to encroachment but without tree-cover, it suffers also from severe soil erosion and further deterioration. Such land could cater to the increasing demands for pulp and timber. Though the shares of local communities, industries, forest department and Forest Development Corporation were outlined, environmentalists voiced a concern that the local communities would not derive enough benefit from the programme.

Eco-development for tribal welfare

Under the Eighth Five-Year Plan (1992–97), eco-development and proper medical and schooling facilities were planned around the protected areas. In addition, there should be schemes to augment the income of forest-dwellers, who eke out a miserable living growing minor millets or selling forest produce under exploitation by middle-men. For the shifted population evacuated from their earlier forest land, programmes should be undertaken for plantations of perennial economic species like lemon-grass and vetiver, fruit-yielding species like sapota and passion-flower and fast growing fuel-wood trees. Small-scale remunerative cottage industries and cooperative societies could be started for extraction of lemon-grass (*citronella*) oil, vetiver essence, neem oil; canning industries for fruits, and plants for bottling sapota juice and passion-flower fruit juice. The profits should be ploughed in for tribal uplift[8,9]. Plantations should also include trees like *Pongamia pinnata*, whose seeds are a source of bio-diesel; wastelands may be planted with *Jatropha*, another bio-fuel yielding plant. India imports clove from Zanzibar and Penang. Clove trees need a humid climate, but experiments could be undertaken for grafting the branches of clove trees (*Syzygium aromaticum*) on the indigenous hardy jamun or jambol tree (*Syzygium cumini*). The success of the trial could pave the way for augmenting the income of the rural poor because jamun is a robust tree, common around villages.

Firewood shortage is rated as the principal cause of deforestation. In Pondicherry, *Acacia holosericea*, an Australian species has produced good results. Even on compact, lateritic soil, *A. holosericea* grew well, without irrigation or manuring. It reaches maturity within seven years, is a prolific seed-yielder, seeds being self-sown. Production rate of wood is 12 tonnes per ha per year; the wood has good calorific value for burning. Its root nodules enrich the soil with nitrogen. Seeds are edible. The species has given good response in West Bengal and Gujarat where it has been planted and could go a long way in overcoming fire-wood shortage, if wastelands are brought under this species. Related species of Australian *Acacia (A. auriculaeformis*, *A. mangium*) earlier raised as fuel-wood plantations, now provide wood for furniture making, given the ban on felling of forest trees.

These are some suggestions to improve the lot of tribal communities shifted from their habitat to accommodate wildlife. In cooperation with the forest department, they have a vital role to play in sustainable forest management and conservation. The Tiger Task Force appointed by the Prime Minister prescribes measures for co-existence of tigers and tribals[10].

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