Involving local people in biodiversity conservation in the Kalakad–Mundanthurai Tiger Reserve – An overview

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Kalakad–Mundanthurai Tiger Reserve, the 17th Tiger Reserve in the country, located in the southern Western Ghats is a priority area for conservation of its rich floral and faunal diversity, both in terms of species richness and endemism. The forests of the Reserve are important catchment for many rivers and streams. A pioneering effort in involving local people in conservation has been in progress since 1995 in the Reserve. Attempts are being made by educating, motivating and involving people under the eco-development strategy with aims to bring in reduction in the dependency of local people on the resources of the Reserve and thus leading to habitat improvement, watershed development and overall conservation.

THE Kalakad–Mundanthurai Tiger Reserve (KMTR) was established under the auspices of Project Tiger as the 17th Tiger Reserve of the country during 1988. It is the only Tiger Reserve in Tamil Nadu. The Reserve is situated in the Southern Western Ghats region (8°25′–8°53′N latitude and 77°10′–77°35′E longitude) in the biogeographic provinces 4.14.4 (Deccan thorn forest) and 4.1.1 (Malabar rainforest). The Reserve comprises two adjacent Protected Areas (PAs) – the Kalakad Wildlife Sanctuary and the Mundanthurai Wildlife Sanctuary, both in Tirunelveli district, as well as part of Veerapulli and Kelamalai Reserve Forests in Kayakumari district which was added to the Reserve during 1996. The total area of the Reserve is 895 km^2, of which 537 km^2 is in the core zone.

Biological richness of the Reserve

The Reserve proudly treasures some of the largest and most intact extents of natural forests, which harbour a variety of altitudinal climax forest communities. The very location of the Reserve in the Western Ghats recognized as one among the 18 global 'hot spots'[1], makes it unique in its tropical forest conglomeration and extremely rich floral and faunal diversity, both in terms of species richness and endemism. The Agasthyarmalai hills, part of which falls within the Reserve, is recognized as one of the five centres of plant diversity and endemism in India. The area harbours not less than 2000 plant species out of 3500 species found in the Western Ghats[2]. About 150 localized endemic plant species occur in the area[2,3]. The rich forests of the Reserve are the catchment for many important rivers and streams, which serve as backbone for the irrigation network and drinking water supply for the people of the district[4]. Seven major reservoirs located in and around the Reserve owe their existence to the rivers and forests of the Reserve. The Reserve has been identified as among the Type-I Tiger Conservation Units (TCU) representing the tropical moist evergreen forests worldwide[5].

Due to short duration of ecologically dry months, the Reserve treasures the largest extent of tropical evergreen forest in peninsular India. The Reserve with an undulating laddered topography has forests beginning at 40 m msl and reaching up to 1800 m msl at various places. Ten distinct forest types as per Champion and Seth classification are recognized in the Reserve. In addition to the flagship species of the Reserve, the tiger *Panthera tigris* in its southern-most territory, because of its tropical location and high vegetation density, the Reserve provides habitat for a very rich variety of wildlife, including other carnivores, primates, ungulates, small mammals, birds, reptiles, amphibians and many other life forms[6,7].

Pressures on the resources

The Tiger Reserve is bounded in the north, south and west by forests having protected status and belonging to the states of Tamil Nadu and Kerala. The periphery of the Reserve along the eastern side has human and cattle population in many villages, and small and moderately large townships. Therefore, the forest resources of the Reserve experience moderate to marginally high pressures by way of cattle grazing, cutting and removal of firewood, small and large timbers, collection of non-timber forest products and occasional poaching of prey animals. This biotic interference also makes the forest prone to fires during summer months, which extend over a larger period along the dry zone areas of the Reserve surrounding these habitations. About 145 villages/hamlets comprising about 30,000 households with human population of about 1 lakh lie within the 5 km of the eastern boundary of the Reserve. There are considerable number of people residing within

the Reserve in staff colonies and work sites belonging to the State Electricity Board, a large private tea estate and factories, a few other private estates and five habitations of one tribal community. People living inside the Reserve do put pressure on the resources of the Reserve. The peripheral villages mostly practice rainfed agriculture, which is usually their single most important source of livelihood. The villages also face problems of crop damage mainly from wild boars and occasionally from elephants[6,7].

Involving local people in conservation

It cannot be denied that the Tiger Reserves and majority of PAs in the country have local communities around them who depend on the resources of the PA for sustenance and even livelihood. A survey carried out by the Indian Institute of Public Administration revealed that 69% of surveyed PAs have human population living inside and 64% have community rights, leases or other customary concessions[8]. The consultative processes involving local people while declaring the PAs and subsequent regulation and restriction of resource use were generally found missing. Locals residing in and around PAs feel neglected and lack of awareness about the efforts being made and the need and urgency of such efforts towards conservation and wildlife protection. This is one important reason that makes conflict resolution between the PA authorities and the local people very difficult. The PA authorities have failed to a great extent in seriously attempting involvement of local people in conservation planning and management taking their concerns into mind and trying to solve the issues through better management options derived through consultations and consensus building. The ongoing debate about the justification, planning and management of India's PAs between wildlife conservationists and human rights advocates overlooks the fact that both wildlife and local communities are today equally threatened. A reconciliation between the two is possible if local communities and government agencies evolve a partnership in conserving the habitats with critical support from NGOs and independent researchers[9].

The PAs constituted under the provisions of the Wildlife Protection Act restrict activities which are detrimental to the PA and its ecosystems. Human habitations, grazing and other resource exploitation activities are prohibited in a National Park, whereas grazing and continuance of some rights by local people may be permitted, if these are not detrimental to conservation in a wildlife sanctuary. Only about 4.5% of the total land area of the country is under PA system and in many cases the areas do not have the capacity to allow resource extraction and restrictions imposed are the control mechanisms making way for conservation of genes, species and ecosystems and their variability in these PAs to the best extent possible.

Keeping these views in mind, the efforts to involve local people in conservation activities are visualized and planned to reduce resource dependency by them on the PA resources. Providing assistance to people depending on the PA resources for livelihood is a major concern in this approach. Since the exploitation of resources is not the recommended action the concept of resource sharing, as followed in many Joint Forest Management (JFM) approaches in various on-going forestry programmes in the country, is not highlighted and followed in approaches designed to seek local people's participation and involvement in conservation programmes. A new concept of eco-development approach has now been followed since 1980s in many PAs and the experience gained and the results obtained are significant, positive and encouraging.

Panwar (unpublished report) defined eco-development as a site-specific package of measures derived through people's participation, which addresses all aspects of land use and other resources in order to promote sustainable land use practices as well as off-farm income generating activities, which are not deleterious to PA values. The Ministry of Environment and Forests, Government of India[10] describes eco-development as a package of programmes that will demonstrate the concerns of the PA manager for the socio-economic development of the fringe or buffer zone villages and will result in greater co-operation of the residents of the villages in the conservation and management of wildlife.

Keeping these objectives in mind the Government of India has been assisting implementation of eco-development activities in and around PAs across the country for the past several years. The initiative has made the PA authorities assist the local people and seek their co-operation and support in conservation activities. However, in majority of cases no formal tie-ups were made with the PA authorities and the local people in these efforts.

Initiatives attempted in KMTR

A pioneering attempt aimed at conservation of biodiversity through improved park management and eco-development was initiated in KMTR in the south and the Great Himalayan National Park (GHNP) in Himachal Pradesh in the north as a pilot project involving local people in conservation. This five-year project (1995–1999) with an outlay of Rs 91 million for KMTR is envisaged to generate vital experience and information on causes, concerns and outcome of local people's involvement in conservation of biodiversity. The project which is a component of the larger Forestry Research Education and Extension Project (FREEP) is assisted by the World Bank[11].

The project preparation document defines eco-development as a strategy for protecting ecologically valuable areas from unsustainable or otherwise unacceptable pressures resulting from the needs and actions the people living in and around such areas[12].

The eco-development activities under the project have been concentrated in the villages within the 5 km zone area and in the local tribal habitations. According to the original survey, there are 145 villages/hamlets within this zone which extends over 110 km along the eastern boundary of the Reserve. About 113 villages (consisting of a population of 80,317 people in 20,020 families and out of which 15,298 families have joined the Village Forest Committees (VFCs) so far have been covered till 31.03.2000 and the eco-development activities as envisaged in the micro-plans are under full swing presently.

The prime objectives of the project and the avenues for achieving these objectives with respect to eco-development initiative under implementation are as follows.

(i) To establish committed grass root level organizations concerned with conservation by educating, motivating and involving local people in the eco-development villages.
(ii) To achieve reduction in resource dependency on forests of the Reserve and thus lead to habitat improvement and conservation. This is being achieved by providing alternate income generation activities to forest dependents in the community and improving their skills and knowledge for the new way of living; developing suitable biomass in and around the target villages (firewood, fodder, small timber and fruit trees) and encouraging reduction in the use of firewood, increasing the efficiency of energy use, motivating people to use alternate energy materials and methods.
(iii) To create awareness about the value of the Reserve and the need to conserve it among the target villages using different media (folk arts, audio-visual, posters and brochures).
(iv) To enhance the capacity among local people in needed skills and knowledge by way of organizing training courses, workshops and field visits.

The important steps to achieve the project initiative and its objectives have been the following.

(i) Developing a relationship with local people so that the ideas and efforts that follow later are appreciated and the desired flow of information and involvement is achieved. Preliminary activities (like repair of a village road, providing drinking water facility, improving a community structure, etc.) are taken up in order to develop credibility and to receive better support from the local people. Fifty thousand rupees, exclusive of people's contribution @ 25% of the cost of works have been utilized for preliminary activities in each eco-development village.
(ii) On achieving the desired level of understanding, the eco-development planning and implementation team consisting of project staff, local NGO representatives (52 representatives from nine local NGOs are working in the project) and local villagers sit together and facilitate enrolling the members and establishing a local grass root organization, i.e. VFC. Membership is open to one male and one female member from each household and a nominal monthly membership fee (Re 1 per member per month) is collected. The members then select six executive members (not less than 50% are to be female members, which assures representation of women in the VFC) and finally the VFC chairman is selected from among the executive committee members, who holds the position for one year.
(iii) The planning team then takes up the participatory rural appraisal (PRA) and other information collection work in the target villages. The negative and positive interactions between the Reserve and the people are analysed and possible combat strategies are discussed, identified and finalized in active consultation with the local people.
(iv) Based on the active consultation and information collected, an eco-development micro-plan is prepared in the local language and approved. The micro-plan contains three major components, viz. provision for biomass regeneration in and around the target village; alternate energy materials and methods in order to reduce and save energy from firewood, and alternate employment opportunities for the forest department. For targetting the assistance to forest dependents, the households are divided into three categories of 'Red', 'Yellow' and 'Green' group families based on their economic status and relative dependence on the forest for livelihood or otherwise. The Red group families are the poorest and have maximum dependence on forests for livelihood for a greater part of the year. In the micro-plan budget (Rs 2.5 lakhs for a village of about 200 households) the approximate allotment of expenditure is in a ratio of 25 : 25 : 50 for the above three major components.

Uniqueness in the approach

Certain new initiatives have been taken for the first time under the project. The salient features of these initiatives can be summarized as follows.

(i) The VFCs are registered under the Tamil Nadu Societies Act 1975 and thus become a statutory body attracting the provision of the Act.
(ii) The various eco-development activities as envisaged in the micro-plan are implemented by the VFC. The project staff and the NGOs act as facilitators for the micro-plan implementation. The State Government's decision in this regard to permit disbursement of funds to VFCs for implementing the micro-plan is historical and now works as a model. The funds for implementing the micro-plan activities are released to the joint account of the VFC held by the VFC chairman and the member secretary of the VFC (the project staff).
(iii) No activity carried out under the project is absolutely free. The VFC members contribute 25% or even more of the cost of all activities. The contribution many a times comes in the form of kind, if not in cash. This brings a

sense of attachment to the activities carried out under the project.

(iv) All assistance is provided under the project to identified beneficiaries through the project under alternate employment generation works and some of the alternate energy materials and methods is recovered with a simple interest (@ 12% p.a.). These funds are managed by the VFC as a revolving fund making the VFCs to provide assistance to local people on a sustainable basis.

(v) To ensure transparency, funds can be released from VFC account only with the approval of a two-third majority of VFC members.

(vi) Electric fencing over 5 km length has been provided in one of the vulnerable areas in Papanasam range to control the crop damage by wild boars through people's active participation. Ten VFCs have jointly taken up the responsibility and have contributed to more than 40% of the cost of construction and have been very successfully managed it for the last three years by organizing themselves in a small sub group called Electric Fencing Management Committee.

Achievements so far

The efforts made so far have shown positive results and in general a strong partnership has been moulded among VFC members, NGOs and project staff. Participating villagers have developed a keen sense of ownership of the micro-plan activities and are being equipped with organizational, technical and financial skills needed to continue and sustain these initiatives. The project now stands good chances of survival[13].

The salient achievements so far are the following.

(i) Out of total 20,020 families in 113 villages where VFCs have been constituted, 15,298 families (i.e. 76% with 10,221 families Red group), 3982 families (Yellow group) and 1097 families (Green group) have joined the VFCs.

(ii) Direct reduction of resource dependency of 5943 forest dependents (Red group families) has been achieved till 31 March 2000.

(iii) Out of the assistance of Rs 2,37,45,661 given for alternate income generation activities to 113 VFCs, the successful recovery of installments enables VFCs to provide assistance for 1430 more forest dependents, indicating the successful onset of a revolving fund mechanism. The VFCs are managing the job very well and the average recovery of assistance [loans] from the beneficiaries is almost 80% as on 31 March 2000.

(iv) Grazing in the forest of the Reserve has been reduced to more than 50%, mainly through disposal of scrub cattle, resorting to stall feeding and exchanging scrub cattle with improved breed.

(v) Greater awareness has been created among the target villagers on the need to conserve the forests and biodiversity of the Reserve.

(vi) Training and workshops on themes of leadership qualities, micro-plan implementation, basic accounting procedures, revolving fund management conducted so far have helped in capacity building of VFC members.

(viii) People have opted for alternate non conventional energy use in a very significant way. As on 31 March 2000, 3546 families have been provided with hot point stoves, husk chullas, smokeless stoves, bio gas, LPG stoves and pressure cookers.

(viii) The continued increase in the number of VFC members after the beginning of micro-plan implementation indicates that the people have developed strong belief in the eco-development strategies. There has been increase in the VFC families by over 36% (2727) in Red group, 35% (1053) in Yellow group and 49% (365) in Green group when compared to the strength of the VFC families in the initial stages.

(ix) The number of forest and wildlife offences has been marginally reduced (from 271 forest offences in 1996 to 234 offences in 1998), thus reflecting the health of the forest of the Reserve to recoupe.

(x) VFCs have now started informing the Reserve authorities about various attempts on the part of antisocial elements and offenders, thus facilitating the authorities to book the culprits easily.

(xi) The initial line of experience and direction of project implementation at KMTR towards planning, developing and innovating eco-development approaches for conservation has been the forerunner in providing a framework for similar eco-development efforts now undertaken in five Tiger Reserves and two National Parks in the country, under the India Eco-Development Project (1997–2002) assisted by the World Bank and the Global Environment Facility (GEF). Many representatives from other PAs and eco-development sites in India have visited KMTR to learn and share the experiences gained so far.

(xii) Due to the decrease in interference by the local people, the sightings of wildlife, including that of the tiger even in the fringe forests have become common. The regeneration in fringe forests has started in some of the most degraded forest beats in the Reserve.

Conclusions

The initial line of experience gained through eco-development initiatives in the Reserve has provided an opportunity to the Reserve authorities to seek local people's participation towards reducing resource dependency and thus getting the local people involved in conservation efforts, leading to habitat improvement and providing an opportunity for the biodiversity of the Reserve to improve. Eco-development may not work as a panacea for all conservation problems, yet as a process it has had a successful start in KMTR and with continued sincere efforts may eventually further intensify the involvement of local people in being partners in the PA management.

Eco-development activities have potential to support people's participation and to provide assistance to local people who depend on forests for livelihood and other basic needs. Strict enforcement and regulation of the Acts and rules and policing the forest will have to continue to tackle the damages caused and pressures imposed on the resources by habitual forest offenders and wildlife poachers, who primarily satisfy their greed for money and other materialistic benefits at the cost of the natural resources[14].

A collaborative bond has been forged among the Reserve authorities, NGOs and participating villages to conserve KMTR's biodiversity and improve the grass root economy. The efforts made so far have been appreciated by the World Bank and the project initiatives in KMTR has been found to have potential to become a successful model for such endeavours at national and international levels[15]. The long-term success of these efforts will depend on sustaining the quality of the relationship between the local communities and the Reserve authorities. This itself is assured due to the sense of belonging to the natural treasures of KMTR which is now in place in the Community and should endure in its progeny.

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