It began as just another day for the smugglers and poachers of Periyar Tiger Reserve. “On that fateful day, our group went into the interior forests of the sanctuary. We were already starting to peel off cinnamon bark from the vayana trees (*Cinnamomum* spp.) when suddenly a team of forestry officials appeared. Those who were on the ground were able to escape. But most of us, including myself, were up in the trees. We had to get down and before we could run, the government men had encircled us. There were eight of us who were caught and we were taken into custody,” recalled Naushad Mohamed Haneefa, a former smuggler who is now a leader of an Eco-Development Committee (EDC), which helps to protect the forests.

Most of those who were involved in smuggling did so because they had no other means of earning money. “We earned our livelihood by smuggling and poaching for many years,” Naushad indicated. “Generally, local merchants bought our smuggled products. If we were lucky, we might also have killed an animal, but the meat had to be sold discreetly. Of course, the money we got from these endeavours was not sufficient for a decent life. And the worst thing was that if we were caught, the merchants would not help us. Everyone in our village, including family members, considered us criminals.”

Under the Kerala Forest Act, offenses committed by smugglers and poachers are punishable by imprisonment for up to five years and by a fine of up to US$105. Thus, most earnings from smuggling and poaching are spent on advocates to defend their court cases and payment of fines handed down by the
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courts. “We had to spend considerable sums to defend ourselves in court,” Naushad remembered.

Much of the remaining money was wasted on liquor and narcotics. To get more money, they had to resort to more poaching and smuggling. Being treated as criminals they behaved like criminals. They were caught in a vicious circle of crime, pursuit and punishment, and lived largely as fugitives from the law.

The Periyar Tiger Reserve

The Periyar Tiger Reserve lies in the Western Ghats in the Idukki District of the Indian state of Kerala. The northeastern boundary of the reserve is a 90-kilometre ridge, which also forms part of the boundary between the states of Kerala and Tamil Nadu. The reserve lies along the watershed of the Periyar and Pamba rivers — two of the largest rivers in Kerala.

In 1895, a dam was constructed across the Periyar River to provide irrigation for parts of Tamil Nadu. The forest around the new reservoir, the Periyar Lake, was declared as reserve forest in 1899 and was named Periyar Lake Reserve. The sanctuary was extended to 777 km² in 1950, and was designated as a Tiger Reserve in 1978. The core area of the reserve (about 350 km²) was declared a national park under a preliminary notification in 1982.

Tropical evergreen and moist deciduous forests dominate in the lower regions, with grasslands at higher elevations interspersed with shola forests (small patches of evergreen forest with peculiar characteristics occurring in protected pockets amidst grassland). Many small rivulets and streams that ultimately form the Periyar and Pamba river systems originate and run through these grasslands and forests.

Wildlife is plentiful: 62 species of mammals, 318 species of birds, 44 species of reptiles, 16 species of amphibians, 38 species of fishes and 119 species of butterflies have been identified formally to date.

Natural habitat for tigers

In the early years of the reserve, the forest provided habitat for a significant tiger population. More recently, however, deforestation and other human activities have encroached on the forest and the number of tigers in the reserve has dwindled. In 1973, the Government of India introduced Project Tiger as a centrally sponsored scheme to ensure a viable population of tigers in India. Periyar was declared a Tiger Reserve under Project Tiger in 1978. At that time, only five tigers were known to inhabit the forest. Project Tiger implemented a range of programmes including consolidation of boundaries, relocation of human dwellings from the interior to minimize disturbances to wildlife, fencing or digging trenches
in vulnerable areas to prevent cattle from straying into the sanctuary, habitat improvement, prevention of wildfire, maintenance of swamps and waterholes, encouraging the growth of fodder species and elimination of commercial exploitation of forest products. By 2000, as a result of these efforts, there were 36 tigers living in the reserve.

Important place of worship

The reserve is famous for tigers, but it is also an important place of worship for Hindus. Two ancient Hindu temples — Mangaladevi and Sabarimala — are located within the reserve boundaries. During festival seasons, many pilgrims visit these temples for worship, especially between November and January. In recent times, new roads have improved access to the temples and created an enormous influx of visitors. In the past, pilgrims had to walk 45 kilometres through dense forests to reach the temples. Today, however, the walking distance is reduced to six kilometres and the Sabarimala Temple attracts five million visitors during the 60-day annual pilgrimage.

In the early 1950s, the area began to acquire its reputation as an important tourist destination. The major attraction was a boat cruise on the lake, from which a variety of wildlife could be viewed. At that time, very few of India’s other wildlife sanctuaries offered this type of tourist attraction. Initially, the government provided only limited accommodation and tourist facilities. Today, however, the Kerala Tourism Development Corporation, an independent government agency, operates three luxury hotels and five boats.

Major threats

Since its inception, the Periyar Tiger Reserve has faced major challenges. The pilgrimage, for example, constitutes an ongoing and serious threat to the local environment. In the 1960s, throngs of people started coming to the hill shrines. Temple authorities were required to provide basic amenities to visitors and the influx prompted the construction of more roads (ergo the opening up of forests along the route to the shrine), permanent buildings to accommodate pilgrims and officials, sanitary infrastructure, water supplies, electricity and medical facilities.

As the business potential of the pilgrimage became evident, shops and hotels sprang up along the jungle routes. Trees adjacent to pilgrimage routes were felled for construction materials and fuelwood. Plastic and other non-biodegradable matter were discarded routinely in the forest, and insufficient sanitary facilities meant the forests were littered with human waste. For most of the impoverished people living near the pilgrimage routes, the increased traffic meant marginal improvement in living standards. Without money or influence, most of them had to settle for menial employment — working for the shopkeepers. Many were
engaged in illicit felling of trees, construction of makeshift hotels, shops and accommodation, and collecting fuelwood.

The challenges confronting Periyar are not confined to the pilgrimage. The successful promotion of tourism has resulted in an additional influx of tourists to the sanctuary. In 2001, more than 350 000 tourists visited the reserve. The crush of visitors has meant that facilities have regularly been overloaded. Business opportunities have attracted more people to the area, which has exacerbated pollution problems. At the same time, enhanced transportation infrastructure has facilitated access for poachers, smugglers, illicit grazers and other encroachers to the reserve. Smugglers and poachers continued to seek a range of products from the forest including the *vayana* bark sought by Naushad’s band, highly prized sandalwood, teak, rosewood and elephants’ tusks. Some people — including encroachers from adjoining Tamil Nadu State — have cultivated narcotic plants (e.g. *Cannabis sativa*) inside the Tiger Reserve.

The extent of these challenges led to a realization during the mid-1990s, that policing alone would not bring the situation under control. A handful of enthusiastic forest officers at the reserve — from the executive level to the supervisory level, and at policy- and decision making levels — realized that people’s participation in management, decision making and in the day-to-day running of the park offered the only hope for solving the vexing problems facing Periyar Tiger Reserve.

**The Eco-Development Project**

In 1996, the Kerala Forest and Wildlife Department launched the India Eco-Development Project (EDP) for the Periyar Tiger Reserve with financial assistance from the World Bank and the Global Environment Facility (GEF). The important components of the EDP are village ecodevelopment programmes, improved protected area management, and environmental education and awareness campaigns. A fundamental basis of the project is the preparation of microplans for income generation and conservation measures for each of the villages fringing the reserve.

Efforts are being made to minimize biotic pressures resulting from grazing, fuelwood collection, non-timber forest product collection, fishing and fire, by providing alternative income generation activities and improving efficiency in the utilization of natural resources.

“Our vision is to minimize people-park conflict in every sense — for mutual benefits,” explained Dr Veeramani Arunachalam, an ecologist with the Periyar Tiger Reserve. “The mutual benefits are biodiversity conservation, protection and maintenance of Periyar Tiger Reserve, and decent livelihoods for the people so they won’t have to pursue illegal activities.”
In implementing the programme, Periyar Tiger Reserve staff needed to redirect the people who were dependent on the reserve into sustainable and non-destructive livelihoods. This was not simple. In the vicinity of the Tiger Reserve, there was an immense diversity of people, based on ethnicity, profession, skills and ambitions. They included tribal groups engaged in the cultivation of pepper and other crops, migrants from other regions who had come to the area to work as labourers or petty merchants, graziers, poachers, smugglers and fuelwood collectors. The major factor that they had in common was that their livelihoods were at least partially dependent — lawfully or otherwise — on the Periyar Tiger Reserve.

**Eco-Development Committees**

After initial surveys and consultation, it was decided that the most viable approach would be to establish a number of Eco-Development Committees (EDCs), grouping together like-minded people to form each committee. Prolonged discussions were held with various groups to help in establishing EDCs based on locality, ethnicity, professional backgrounds and habits. Tribal groups on the fringes of the Tiger Reserve formed EDCs according to their ethnicity and culture, such as the Paliyakudy EDC and the Mannan EDC. Labourers engaged by merchants and traders along the pilgrimage route to Sabarimala Temple formed a number of Swamy Ayyappan Poonkavanam Punaruddharana EDCs at different localities along the footpath to the temple.

Each committee was required to contribute to the protection and management of the Tiger Reserve. In return, they were given opportunities — essentially granted tourist or resource concessions — to earn legal livelihoods. To date, 72 committees have been established, with approximately 5,540 families participating — from an overall target population of 58,000 people living within a 2-kilometre radius of the Periyar Tiger Reserve.

The EDCs can be categorized into four functional groups depending on their mode of operation:

- **Neighbourhood EDCs** — families in a particular geographical or administrative area;
- **Professional EDCs** — organized along occupational lines;
- **User Group EDCs** — organized to utilize a particular physical resource; and
- **Pilgrim Management EDCs** — organized to provide a specific service to pilgrims.

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1 EDCs for rehabilitating the Holy Abode of the Lord.
Each EDC decides on a way of earning money, which is discussed, refined and approved by the Tiger Reserve authorities. All EDCs are required to follow general guidelines issued by the authorities, a fundamental component of which is the requirement to take an active part in protecting the reserve and conserving biodiversity.

In the preliminary phase — following the establishment of each EDC — Tiger Reserve staff conducted participatory resource assessment exercises with committee members. Microplans suitable for each EDC and its specific locality were drafted and approved. Reserve authorities and a special assistance committee helped EDC members to complete this phase.

Each EDC was eligible to receive working capital of approximately US$260 per family as a government contribution. The members of each committee were, however, also required to contribute 25 percent of the government allocation in either cash or in-kind contributions (e.g. labour or agricultural products). Each EDC had discretion as to how the government contribution was spent, provided expenditure conformed with microplan guidelines.

Some EDC members have been employed directly by the reserve authorities to provide specific conservation services. These employees are paid according to specified government rates. Approximately 10 percent of these employees’ salaries are retained by the authorities and deposited in a revolving fund called the Community Development Fund (CDF). The fund is used mainly to create sustainable assets, provide loans to members and to meet unforeseen needs of the local community. It is envisaged that the CDF will be used as a means of continuing support beyond the conclusion of the India Eco-Development Project.

The decisions on the structure, formation and functioning of EDCs were crucial to the success of the initiative. Establishing EDCs on the basis of social, ethnic and occupational groups has given each EDC a strong degree of homogeneity that has helped to develop and nurture mutual cooperation and trust. Since members of any given EDC have largely similar socio-economic status, discussions and negotiations are equitable and disputes are resolved more easily. The reserve staff regularly arrange EDC awareness classes for students, government officers, people’s representatives and the public, using real-life examples of dispute resolution.

**Poachers become gamekeepers**

In the meantime, what had happened to Naushad and his cohorts? Like most people living near the Tiger Reserve, they were aware of the new government project. “We heard about the Eco-Development Committees,” said Naushad. “We discussed it among ourselves. Finally, we decided to join the government’s programme. But our problem was how? Someone advised us to contact the Peermade Wildlife Society.”
The Peermade Wildlife Society is a non-governmental organization, based in Kerala, which works with the Periyar Reserve primarily on tiger conservation. Peermade Society officials agreed to talk with government officials, provided the smugglers and poachers were committed to halting their illegal activities. As part of a negotiated agreement, the government agreed that outstanding poaching charges against them would be dropped. “We agreed, as forming an EDC was much better than living in fear, earning little and spending everything on court cases. Our EDC enables us to lead a normal life. In addition, we offer considerable help to the authorities to protect Periyar Tiger Reserve, since we know every corner of the forests,” said Koshy Joseph, a former criminal who is now an elected member of the local 2 panchayat.

The group of former smugglers and poachers who had been caught peeling vayana bark formed their own collective — the Ex-Vayana Bark Collectors’ EDC. They underwent intensive training in the basics of forest protection and management. Because they knew the Periyar Tiger Reserve so well, the group helped reserve staff to protect the forest and wildlife by forming patrol squads. These activities were carried out voluntarily — as their contribution to the conservation of the forests from which they earned their new livelihoods. The new EDC developed a series of tourism packages, including trekking, rafting on the lake and night camps in the jungle, which were refined by experienced Tiger Reserve management staff. The EDC members now take small groups of tourists on wildlife-spotting excursions; this is their principal business activity.

Seventy percent of the money the group earns from guiding tourists goes to the EDC Common Fund (from which members’ salaries are drawn), while 10 percent is apportioned to a subsidiary Welfare Fund (used for giving loans to EDC members). The remaining 20 percent pays for operational expenditures, including food and camping equipment, reserve entry fees and business promotion costs. Each member of the group is paid a monthly salary of approximately US$75 from the Common Fund.

“Individuals are not allowed to receive payments directly,” explained an official. “Payments are received by the committee and are remitted to the Common Fund. At the end of the month, each member is paid his base salary irrespective of the quantum earned through him.”

As a tourist-dependent enterprise, the Ex-Vayana Bark Collectors’ EDC tries to maximize its earnings during the peak tourist season. During the off-season, members draw their monthly salary from the surplus accumulated during the peak season. Today, most EDCs have accumulated hefty cash balances in their accounts.

2 An administrative body of elected members for a group of villages.
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Developing new ideas

Each EDC is expected to earn its own income. This requires members to work in an entrepreneurial fashion to develop new ideas to make money. Ideas are submitted to reserve officials for fine-tuning. “If a particular EDC is not profitable, its members are urged to come up with new profit-making ventures,” the official explained. Some of the more innovative profit-making schemes have included manufacturing notebooks, umbrella-making and bamboo raft tours. The EDCs have also established contractual agreements with two commercial tour operators. A World Bank assessment of the project estimates that, to date, contributions to the Community Development Funds of all EDCs total almost US$600 000.

Live and let live

Today, the 85 former poachers and smugglers of the Ex-Varyana Bark Collectors’ EDC are proud to contribute productively to a society that once despised them. “Now, I can influence others in the panchayat and organize environmentally friendly campaigns to help clean up plastic waste or expand sanitation works, not only in the sanctuary but in the whole panchayat. My ambition is to spread a message of ‘live and let live’ through the protection of forests and wildlife,” said Koshy Joseph.

The EDC also undertakes welfare activities. For instance, it helps to pay school expenses for a student whose father — a warden in the reserve — died while on duty. Their laudable endeavours have earned the former poachers several prestigious awards. In 2002, they received the Green Guard Award (a national recognition of the best group engaged in biodiversity conservation) from Junglees, a non-governmental organization based in Kolkata. In the same year, the Kerala Forest and Wildlife Department awarded them an EDC Best Performance Award.

Reserve authorities took the initiative to organize more than 400 people from 25 local villages, who previously worked as casual labourers for shopkeepers on the pilgrimage route, into the Swamy Ayyappan Poonkavanam Punaruddharana (SAAP) EDCs. These EDCs are allowed to open shops during the festival season (but must dismantle them after the festival) under the strict supervision of reserve authorities. Materials used in construction of the shops are brought from outside the forest. Reserve staff oversee waste disposal and ensure quality and reasonable prices for food sold. Use of plastic packaging is not allowed, instead reserve staff supply alternative packing materials. A liquid petroleum gas outlet has been established to supply villagers with an alternative fuel source, thereby removing demand for fuelwood from nearby forests.
Tremendous results

The results of the Eco-Development Project have been tremendous. Not only have negative impacts been reduced considerably, but EDCs have been able to earn good incomes from new activities. Dumping of rubbish and littering, particularly of plastic waste, has been reduced substantially. “The effects are clearly noticeable in the excrement of wildlife, especially large herbivores,” Veeramani observed.

Within a short time span, the forest has regenerated dramatically. “Every year, we save more than two million seedlings and saplings from destruction,” noted Pramod Krishnan, Deputy Director of Periyar Tiger Reserve. In 1999, the Indian Government honoured the SAPP EDCs with the prestigious Indira Priyadarshini Vrikshamitra Award, one of the country’s highest awards for environmental conservation.

Hilltribe families, who have been relocated by the government to the fringes surrounding Periyar Tiger Reserve, also have some success stories to tell. Members of this EDC are mostly illiterate. But after attending special coaching classes offered by reserve staff they can now speak English, according to Manikantan Churuli, who belongs to the Paliya tribe.
Indigenous tribal groups who were engaged in fishing and the collection of honey and fuelwood were organized to form an EDC called Tribal Trackers-cum-Guides. Initially, the EDC had 12 members, but this has expanded to 19, of whom 8 (including Manikantan) are employed directly by tour operators. They take small groups of tourists on three-hour sightseeing trips, either on foot or by riding a raft. Tour operators have an agreement with the EDC to pay guides a daily retainer. Other members of the Tribal Trackers EDC work as freelancers and take groups on their own into the sanctuary. Each guide receives US$70 per month from the EDC. As a sideline, the EDC rents out leech-proof socks to tourists and distributes colour brochures on Periyar Tiger Reserve. They have a telephone connection in their office and an extension in a reserve suboffice.

“The level of contribution to an EDC’s Common Fund is decided by members themselves, and may vary slightly according to the capacity of the EDC to earn money,” explained an official. “Since each functions as a totally independent unit, there should be no chance of disputes or dissatisfaction.” Those who lag behind are, as stated earlier, free to initiate new fund-generating activities at any time.

Meanwhile, what will happen to the various EDCs when the World Bank funding expires in 2004? “We are not worried,” assured Pramod Krishnan. “The EDCs are becoming self-sufficient. They can look after themselves.”

About the authors

M. Govindan Kutty and T.K. Raghavan Nair are retirees from the Indian Forest Service. Both have worked as Head of the Department of Forests in Kerala, India (as Principal Chief Conservators of Forests) in 1998 and 1997, respectively. They have postgraduate degrees in forestry from the Indian Forest College, Dehra Dun. Currently, they work as freelance consultants on forestry, wildlife and environmental issues, primarily with the Government of Kerala.