KFRI Research Report No.239 ISSN 0970-8103

VISITOR MANAGEMENT STRATEGY FOR ERAVIKULAM NATIONAL PARK, PARAMBIKULAM AND NEYYAR WILDLIFE SANCTUARIES

Mammen Chundamannil
K. K. Ramachandran

Kerala Forest Research Institute
Peechi – 680 653, Kerala

July 2002

VISITOR MANAGEMENT STRATEGY FOR ERAVIKULAM NATIONAL PARK, PARAMBIKULAM AND NEYYAR WILDLIFE SANCTUARIES

(Final Report of the Research Project KFRI 351/2000 April 2000 to March 2002)

Mammen Chundamannil
Forest Economics Division
K.K. Ramachandran
Wildlife Biology Division

Kerala Forest Research Institute
Peechi 680 653, Kerala, India

July 2002

ABSTRACT OF PROJECT PROPOSAL

Project No.:	KFRI 351/2000
Title of the project:	Development of Visitor Management Strategy for, Eravikulam National Park, Parambikulam and Neyyar Wildlife Sanctuaries
Objectives:	To study the visitor needs and aspirations in the selected National Parks and Wildlife Sanctuaries To analyse the visitor behaviour and activities in the National Parks Identify the areas suitable for tourism zone and to assess their potential to absorb different levels of visitor activities in different seasons (carrying capacity) To develop an appropriate strategy for visitor management that will optimise visitor satisfaction and conservation priorities.
Expected outcome:	The study will generate data on the (a) Visitors levels, composition, seasonality (b) Visitor needs, aspirations and satisfactions (c) Management issues and challenges (d) Maps showing management zones, vegetation, biotic impact, habitat quality etc. The study will develop an appropriate strategy for visitor management in the selected sanctuaries
Date of commencement:	April 2000
Date of completion:	March 2002
Funding Agency:	Kerala Forestry Project (World Bank) Kerala Forest Department
Investigators:	Mammen Chundamannil Bennichen Thomas IFS, KFD* K.K.Ramachandran
Project Fellows:	M. Dileepkumar (Up to July 2001) K.M. Seena N.K. Ajesh Kumar (from August 2001)

*Could not associate

CONTENTS

ABSTRACT

Developing a visitor management strategy for three protected areas in Kerala, Eravikulam National Park, Parambikulam Wildlife Sanctuary and Neyyar Wildlife Sanctuary is the mandate of this report. Visitor management in protected areas is a new priority in both management and research in Kerala. The objective of the study is to develop an appropriate strategy for visitor management that will optimize visitor satisfaction and conservation priorities. The long term strategy developed aims at upgrading systems of management to raise the protected areas to the status of world-class sites for conservation, research, limited ecotourism and nature education. Improving basic visitor amenities such as providing drinking water and clean toilets in all parks and making parks visitor friendly, especially women friendly, is a must. Documentation of visitor profile and activities and improving the capacity to monitor changes are essential. Human resource development in this area is a prerequisite. Pre-project environmental impact assessment of all proposed activities in protected areas to avoid disturbance to wildlife habitats, biodiversity conservation and other park values is recommended. Enhanced information availability and transparency in all aspects of park management are suggested. A database of park quality assessments is to be maintained by the Kerala Forest Research Institute. Participatory methods of monitoring and review by creating a new institution, 'Friends of the Park' is proposed. Involving local communities in providing visitor services and park planning has been suggested. Ecodevelopment committees can serve to improve human resource development within the local community to make them partners in resource conservation and visitor management. Visitor management strategies both short term and long term for the three protected areas are presented.

1. INTRODUCTION

1.1 Background

Forests in Kerala including all protected areas are managed by the State Forest Department. Forest management is dynamically changing from the policy of keeping people out to welcoming visitors and participation of local communities in areas set apart as national parks and sanctuaries. Traditionally timber production and management were the primary mandate of the forestry establishment. With the growing importance of conservation, the focus on forest management has shifted away from timber management to wildlife management, biodiversity conservation and visitor management.

Recreational use is a major use of forests in the United States where the concept of National Park first evolved. The Wilderness Act of 1964 designated extensive areas as National Wilderness Preservation System. Parks, wilderness, nature reserves, sanctuaries and protected areas have definite meanings in conservation literature. In Kerala, we are not following the IUCN classification or categories of protected areas. Here parks are akin to wilderness designation and sanctuaries to national parks of international terminology. In this report parks, sanctuaries and protected areas are used interchangeably to denote conservation areas specially set apart for landscape, wilderness and biodiversity conservation.

With increasing affluence, leisure time and transport facilities, tourism to exotic destinations is gaining popularity. Tourism is now one of the fastest growing industries that provides income, employment and foreign exchange to many countries. National parks and protected areas provide great attraction and fascination to people. Protected areas are also great places for nature education. Visitors can be a source of revenue and supporters for the cause of conservation.

1.2 Visitor management as an integral part of protected area management

Protected areas need visitors and visitor management strategies. Visitor management is a component of protected area management. It is required to ensure high level of visitor experience, education and visitor services. Visitor management is also essential to ensure that visitor facilities are well maintained. Visitor management is particularly important in developing tropical countries where the forests are threatened by many forces and where the vulnerability to irreversible changes is high. Lack of efficient and effective visitor management can ruin an area and make it unattractive for future visitors. An important principle is to manage resources and visitors today, so that future visitors can also experience quality sites and appreciate the conservation values of each protected area. Protected areas achieve recognition and enhanced protection when sufficient number of people visit them, appreciate them and influence policy to

assure their survival. Visitor experience and support are critical components of protected area management.

Maintaining park quality and values is a function of park management. Effective park management requires prevention of misuse of the park by a section of visitors or inappropriate visitor behaviour or activities that are unacceptable to other visitors. As the economics axiom 'bad money drives good money out of circulation', bad visitors will drive good visitors out of parks. What is good and what is bad can be subjective but certain general rules can be applied to judge the better from the worse. The gender composition of visitors could be a useful indicator of the public image of a park. Sustaining visitor patronage and support for a park require maintaining a good image of the park. Visitor management has to be integrated with the purpose, priorities and values of the park. As conservation has an overriding priority in protected areas, visitor activities can only be secondary if there is a conflict between conservation objectives and visitor opportunities. Visitor management should aim at minimising the conflicts between visitor aspirations and conservation needs. Therefore any discussion on visitor management cannot be separated from a discussion on protected area management.

Visitor management is about people management. People management involve conflict management as priorities, perceptions, preferences and motivations defer among individuals, groups and organisations. Visitor management in protected areas is necessarily more than business management or hospitality management since resource conservation and maintenance or resource quality are important mandates. Further the citizens have a right to enjoy and appreciate the resources irrespective of who is the manager or trustee. Reasonable restrictions for conservation, sustainability, research and better visitor experience can be imposed. But, they shouldn't be arbitrary, particularly when the protected areas are publicly owned.

Conflict management requires careful planning and social skills. It is always prudent and cheaper to anticipate a conflict and prevent it rather than resolve it at a later stage. Standards of conservation, service quality and quality of visitor experience have to be developed and appropriate systems developed to ensure that such standards are maintained.

Developing standards and systems for its implementation or achievement require discussions within the management organisations and outside. It requires answers to several questions such as the appropriate level of access, activities or numbers; the ideal trade offs between different interests and stakeholders; appropriate standards for monitoring, documenting and regulating; appropriate mechanisms to review, correct or change standards and directions.

All these involve upgradation of the system and human resource development to levels that are much higher than that required for conventional forest management or wildlife protection. Policies, laws and rules have been formulated in the past to deal with problems, issues and situations prevailing then. Some of them may have become irrelevant or archaic in course of time and new issues and opportunities may require enabling or restrictive legislations and rules.

Systems developed during the colonial times may be unsuitable within a democratic framework where right to information and transparency is paramount. Procedures in use prior to the information technology (IT) revolution have to be revamped to keep pace with the changing opportunities and demands. An added challenge to past systems of forest and protected area management is the changing profile of visitors. More national international visitors are arriving in Kerala and seeking unique experiences. They require a totally different information and interpretation package. They are often coming from developed countries where service quality standards are highly advanced. Harassment cheating, corruption all spoil the image of a protected area and its management. Visitor management planning should seek out potential points or opportunities for harassment, cheating or corruption, identify the causes and modify rules, systems or procedures to minimise if not eliminate them.

In this globalised and liberalised milieu, there is bound to be increasing pressures for privatisation of sectors, functions, enterprises, etc. traditionally managed by the public sector in developing countries. Although for sustainable resource management, social justice and equity considerations continuation of the public sector role is advantageous. This argument may fail to convince if the management is perceived to be inefficient, corrupt or insensitive. Visitor management therefore requires appropriate and justifiable regulations and efficient implementations that not only is, but also seem to be fair and just. This is not to argue that the existing rules and procedures are deficient or defective. On the contrary a review by a team of mangers, legal experts, social scientists and visitor facilitators would reveal the strength and weaknesses in the rules and procedures and suggest changes to improve management capability and visitor experience. System upgradation requires periodic review and modernisation. The possible conflicts of interest and decision choices that can be made can be listed as follows:

- Protection and visitor access
- Restricted access (for the privileged or fortunate) to unlimited access
- Low charges / fees and high charges
- Enforcing regulations and freedom of activities for visitors
- Revenue for park and personal gain for guides and staff
- Large group visitors and solitude seekers / honeymooners
- All male groups and women visitors
- Drunk merry makers and teetotallers

- Vehicle users and foot travellers
- Park conservation and local community activities like farming, grazing, NWFP collection
- Visitor service enterprises owned by outside agencies / MNCs and those owned by local communities
- Enterprises owned by individuals / family and that owned by community cooperatives / EDCs

1.3 Current situation

During the 1990's ten year management plans were prepared, approved and implemented in all the protected areas in Kerala and these plans are being revised now. During the last decade wildlife censuses were conducted in all the protected areas. Some inspection bungalows, dormitories, information centres, staff quarters, etc. were constructed. A report on visitor management in the Periyar Tiger Reserve has already been sponsored and completed. This study is the second in this regard.

The National Geographic Society has identified Kerala as one of the fifty 'must see' destinations in the world. Government of India is giving a high priority for tourism development in the Tenth Five Year Plan. Government of Kerala is likewise promoting tourism with the active participation of the private sector. Kerala has much to offer to visitors. Among the attractions, the wildlife, forests and mountains are prominent. A sound visitor management strategy can utilize this opportunity and go in for a concerted effort in extending nature education, providing quality visitor experiences and obtaining revenue sufficient to manage protected areas sustainably.

The National Tourism Policy of 2002 seeks to position tourism as a major engine of economic growth to harness the direct and multiplier effects of tourism for employment generation, economic development and providing impetus to rural tourism. The Policy Document states that at the institutional level, a framework has to be evolved which is Government led, private sector-driven and community welfare-oriented. It calls for effective linkages and close coordination between the Forest Department and other Departments connected to tourism. It goes on to say that "greater emphasis should be laid on eco-tourism whose parameters should be broader than those of nature tourism alone. It must help in eliminating poverty, in ending unemployment, in creating new skills, in enhancing the status of women, in preserving cultural heritage, in encouraging tribal and local crafts and in improving overall environment and facilitating growth of a more just and fair social order" (Government of Kerala, 2001). Further, the policy acknowledges a new class of young tourists with a marked preference for adventure in hills, caves and forests is emerging, seeking simple and clean places to stay. The requirements of this class of tourists should be met and guest accommodation and guest tourism encouraged through Panchayaths, local bodies and associations.

Kerala has been recognised with the Best Performing State Award for the year 1999-2000 by Government of India for achieving rapid growth, development and advancement in the tourism sector. The State plan allocation for tourism rose from Rs.6.7 crores in 1994-95 to Rs 40 crores in 2001-02. The revenue earned by the State by tourism was Rs.28 crores in 1991. This has grown dramatically to Rs.580 crores in 2001. The tourist arrivals in Kerala during 2001-02 stand at 3.2 lakhs. Obviously it is now a big business. The Kerala Government has declared tourism as an industry and offers incentives and concessions to promote tourism products and attract private investments. The Government is promoting ecotourism in the Western Ghats region in the belief that it contributes to sustainability in tourism. The 14 protected areas of Kerala are the prime offering to tourists. A tourism vision 2025 for Kerala has been released by the Department of Tourism (Government of Kerala, 2001). The vision statement seeks to develop Kerala, 'God's Own Country', into upmarket high quality tourist destination through optimal utilisation of resources with focus on conserving and preserving the heritage and environment, and enhancing employment opportunities and income. It aims at making tourism the most important sector for the socio-economic development of the State. On ecotourism, it focuses on the conservation of ecological integrity to reduce impacts of tourism on the environment and to regulate tourism based on the carrying capacity of the destinations. Special efforts to tap the ecotourism potential of the forests are aimed, which the vision believes, will ultimately lead to conservation of the resources. It also calls for a proper monitoring mechanism for ecotourism products. In the strategy that follows, infrastructure development through private and public sector partnership is stressed with the government acting as a facilitator and catalyst. Human resource development in the sector is given high priority and new institutions in this area such as, Kerala Institute of Travel and Tourism (KITTS), Kerala Institute of Hospitality Management Studies (KIHMS), etc. are to be groomed into institutions of excellence.

Already the Director of Kerala Tourism Department has invited bids from consultants and master planners for preparing ecotourism and wildlife master plans for all the 14 wildlife sanctuaries in Kerala (The Hindu, 17 June 2002). Private sector tour operators and hoteliers are already advertising the attractiveness of our protected areas as excellent visitor destinations. The Kerala Tourism Development Corporation (KTDC) is operating many tourist facilities within and around the protected areas. The Kerala Forest Development Corporation (KFDC), set up to manage forest plantations, is preparing plans for ecotourism ventures in the forest. Multinational corporations (MNCs) will also find Kerala as a lucrative destination for tourism investments some of these MNCs are bound to have increasing leverage on State policy since we are dependant on foreign aid and loans from international organisations such as World Bank, Asian Development Bank, etc. for restructuring the economy and improving

infrastructure. The Forest Department's monopoly of control over the forests, its access and facilities is now seriously threatened.

Access to an unspoilt site or camping in such locations can fetch substantial revenue if marketed shrewdly; but to sustain such incomes, the destination should be preserved with the same quality. Due to the intense competition among different exotic locations and activities, the prime life of a tourist destination can be incredibly short. Management skills required to maintain and enhance the appeal of a destination are very high and complex. These range from habitat management, marketing, psychology, communication, environmental management, hospitality management, community development, etc. These skills have to be acquired and developed by whichever agency that has a long-term stake in the management of protected areas.

1.4 Study areas and scope

This study is limited to suggesting a visitor management strategy for Eravikulam National Park and Parambikulam and Neyyar Wildlife Sanctuaries in Kerala. It discusses the issues, the options and the constraints. It does not go into the preparation of action plans or operational plans which require inputs on management priorities, capabilities and wide consultation with the local communities, tourism facilitators, researchers and policy makers. This study can be the starting point of such deliberations and consultations.

1.5 Objectives

1. To study the visitor needs and aspirations in the selected Protected Areas.
2. To analyse the visitor behaviour and activities in the Protected Areas.
3. Identify the areas suitable for tourism zone and to assess their potential to absorb different levels of visitor activities in different seasons.
4. To develop an appropriate strategy for visitor management that will optimize visitor satisfaction and conservation priorities.

Figure 1 shows the location of the study areas. Al the three protected area are on the eastern border of the state on the slopes of the Western Ghats. Among them Neyyar Wildlife Sanctuary is most easily accessible. Parambikulam Wildlife Sanctuary, which has its entry through the Indira Gandhi Wildlife Sanctuary in Tamil Nadu the most difficult to access. Eravikulam National Park is a three hour drive from Kochi, the commercial hub of Kerala.

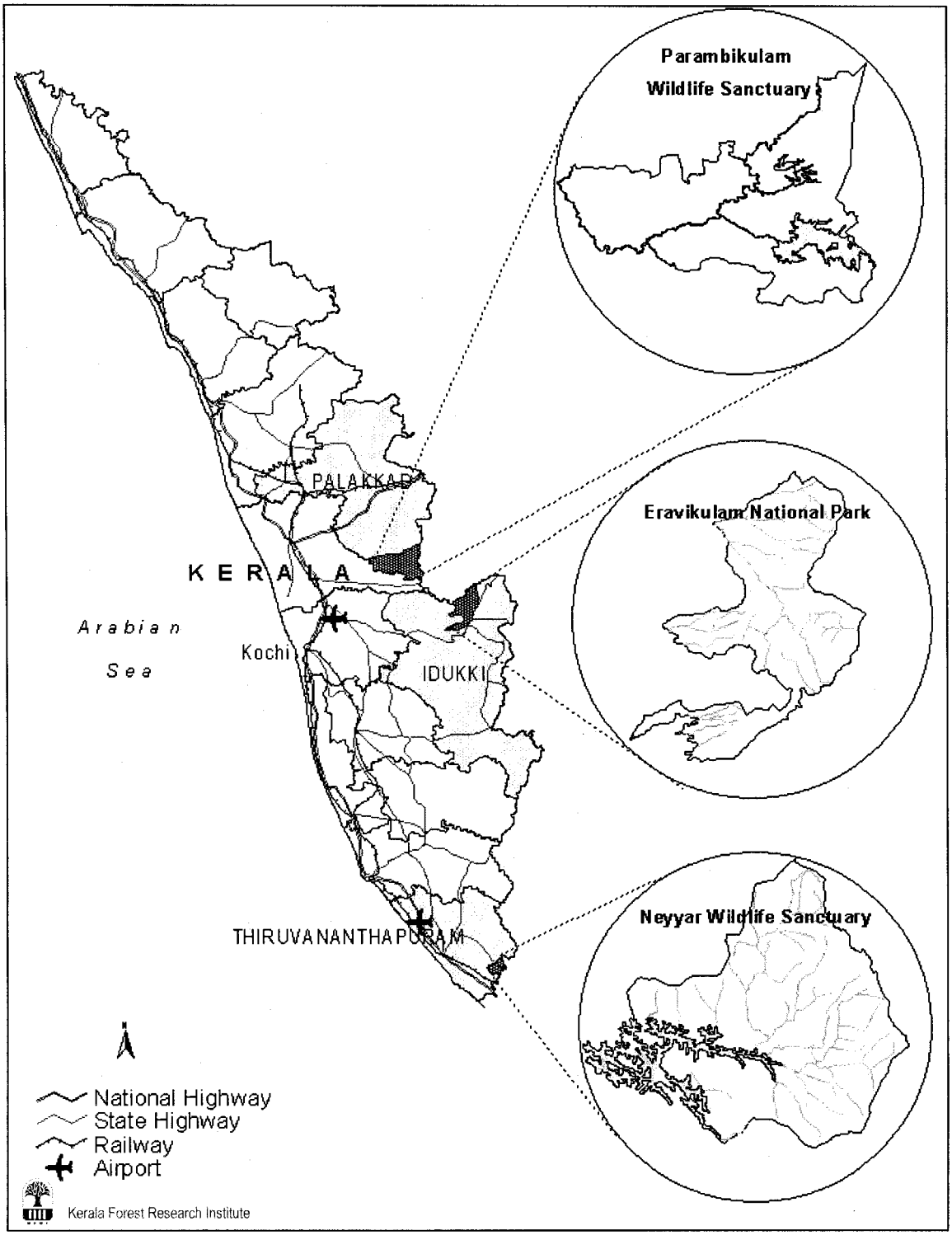

Figure 1. Location map of the study areas

2. METHODOLOGY

2.1 Data requirement and availability

Data from the protected area registers such as number of visitor numbers, origin and vehicle used were collected. Nature camps are organised in all the three protected areas free of charge to the participants. Data on the number of camps conducted, number of participants and the address of the groups are available. Currently Eravikulam and Parambikulam maintain registers which are primarily relating to the sale of entry tickets to visitors. As there is a distinction between Indian citizens and foreigners in the entry fee, the nationality and origin of the visitors are also recorded. There is an entry fee for vehicles depending upon the type. Therefore, the types of vehicles used by the visitors are also recorded at the check post. Essentially it is oriented towards ensuring that the revenue collected at the check post is deposited in the treasury. At Parambikulam, access to the Kannimara teak is regulated with a special fee for vehicles. However, it is accounted under other heads of revenue and no statistics on this are available. At Neyyar, the Lion Safari Park located within the Sanctuary, has a special entrance fee and the boating facility is provided both by the Forest Department and District Tourism Promotion Council.

Primary data were collected by direct interaction with the visitors. Visitor groups, activities, behaviour, aspiration and satisfaction levels were assessed through field surveys in each protected area. Research tools, such as structured and non-structured interviews, were used for data collection. Workshops were conducted in all the three protected areas as part of this study. The workshop in Eravikulam focussed on 'Park quality monitoring'. In Parambikulam the theme was 'Visitor management issues and community participation' and in Neyyar the workshop theme was 'Ecotourism opportunities and visitor management'.

2.2 Approach to the strategy

The task of developing a visitor management strategy was approached through three steps. The first step looked at the existing situation in each protected area. The second step was to conceive an ideal situation and the third step was to articulate the strategy of reaching the ideal. Both short-term and long-term measures are required for the strategy. As the three protected areas are different in their resource endowments, visitor appeal and management issues, individual strategies for each have been are developed.

3. OPTIONS IN VISITOR MANAGEMENT

3.1 Scale and intensity of visitor activities

There can be different scales of visitor numbers, intensity of visitor activities and the extent of visitor access in the protected areas. When no number limits for visitors and vehicles are set, the numbers can overwhelm the infrastructure and manpower available for the smooth functioning of the protected area. A range of intensities of visitor activities can also be envisaged. Starting from mass tourism, ecotourism, wildlife tourism, trails and nature education, a portfolio of options can be made available to visitors.

Visitor access can also range from complete free access to regulations on area, timing and mode of access. In a protected area in which there is no visitor pressure, it is possible to allow visitors to go where they wish or stay where they wish. Visitor access beyond a threshold limit will disturb the wildlife and may harm the habitat. When protected areas are set apart specifically as refuge to wildlife, it is important to ensure that wildlife conservation is taken into account while determining the access to visitors. Zoning in protected areas is a way to regulate access for a particular management priority.

Visitor numbers and vehicles have to be optimised based on the priorities of the protected area, the available infrastructure and the capability of managing the visitors. This is a dynamic situation in which the management capability, visitor needs and visitor culture can influence the optimum level. In a highly visitor services-oriented system a large number can be accommodated in a smaller area if the visitor turn around can be made quicker. When visitors are by and large law abiding and are committed supporters of the protected area, a large volume of visitors can be accommodated.

When visitor needs are minimum, as in a short day visit for a couple of hours, then it is possible to avoid extensive infrastructure within the protected area, if such visitor amenities are available within a reasonable distance from the protected area such as refreshment places, accommodation, etc. Visitor culture can also influence the optimum number that can be handled by a limited staff. In many developed countries where the population is basically urban, support for conservation and park regulation is high. The basic law abiding culture of advanced developed countries enables large parks and park facilities to be managed by a handful of people. The situation in many developing countries such as India is not comparable to the developed countries in that public property is not respected or cared for by many people. The culture and

attitude to public property, including parks, change slowly with increasing education, awareness and may be, even affluence.

Intensity of visitor activity in protected areas can range from very low to very high. High intensity uses will require modifications of the environment, provision of different services and high levels of energy and cash investment in a particular location. Amusement parks are examples of places of intensive use, but they are artificial environments often modified beyond recognition from the original landscape. These are best located on the fringes of urban areas away from protected areas. Low intensity uses permit conservation of the landscape and minimise pollution loads emanating from them.

3.2 Visitor opportunities

With increasing affluence, mobility and media exposure, visitors seek opportunities for different activities in protected areas. Recreation opportunities such as trekking, hiking, camping, boating, driving, picnic, etc. are sought by visitors. Some seek solitude and wilderness experience while others come in large groups for merry making. A range of options cater to a range of visitors. It may be a fallacy to assume that all visitors travel for noble purposes such as nature education. There are a few who seek to go high on drugs or liquor, abuse the poverty and vulnerability of local communities for sex or to collect or buy rare organisms such as butterflies and orchids. Each protected area has to decide the range and extent of visitor opportunities that are to be made available at different points of time and at different locations. Each protected area has to look at the resources available, its vulnerability to deterioration, its capacity to absorb visitor pressure, management priorities, management capability and constraints. Visitor opportunities influence visitor activity and visitor satisfaction. The challenge to management is to provide visitor options that enhance the park values and park image while carefully monitoring the health of the ecosystem as well as the well-being of the local communities. The management should actively manage visitor opportunities in desirable directions and firmly control activities that are detrimental to conservation and culture.

3.3 Management alternatives

Broadly four options can be considered. They are: 1) continue the current system without change, 2) involve other tourism sector players from the public and private sectors 3) involve local community alone, and 4) involve local community and visitors.

3.3.1 Option 1 : continue the current system without change

The current system has its advantages and disadvantages. The advantage is that it is cautious and slow so that the risk of catastrophic changes is minimal. The criticism against the current system is that it does not utilize the revenue potential of the

protected areas by pricing access and services. Further, whatever park revenues generated are often unavailable for park maintenance or the upkeep of visitor services. Park revenues go directly to the State exchequer and money flow to the park is often irregular and erratic. Another criticism of the current system is that visitor facilities are meagre. But even the limited facilities are not easily accessible to an ordinary visitor; for example, toilets remain closed or unclean, accommodation facilities can be obtained only through a tedious process of influence peddling. This is further complicated by poor documentation. Documentation of visitor use of facilities is often wanting. This situation enables the possibility of shady transactions and deprives the park of the revenue potential.

In the long run the current system is not sustainable because it is inefficient, undesirable and unsustainable for the following reasons. Public sector management is increasingly under criticism for its hassles, corruption and poor customer service. In overcoming these problems which are universal, it is imperative that the system changes towards more visitor friendliness and transparency. Another criticism of the public sector is that its operations are not often profitable. This means that the shareholder returns are poor. The decline of timber revenues has necessitated sourcing of funds from multinational financial institutions which require interest and service charges to be paid back in foreign exchange. A loss making operation cannot continue indefinitely in this scenario. Pressure from the World Trade Organisation, International Monetary Fund, World Bank and Asian Development Bank who have acquired a decisive influence on financial policies of the Country will limit public sector space and encourage privatisation and disinvestment.

3.3.2 Option 2: Involve other tourism sector players

The next option is to involve tourism sector players from either the public or private sector or both. Already an initiative has been made at the Periyar Tiger Reserve for involving tour operators to canvass visitors for an exclusive activity. It is marketed as 'tiger trail', where a limited number of visitors can accompany protection duty staff into the interior of the sanctuary which is otherwise closed to the general visitor. Two or three day camping facility is also provided along with the package. The successful bidder gets a monopoly of registering visitors in this programme at whatever price they can get. The tour operator is selected on the basis of open competitive bidding and the current successful bidder has bid for around Rs.75 lakhs for a three year period. This programme is highly popular and gives a clue to the revenue potential of our parks.

One of the largest expenditure categories for travellers is that of accommodation. Some parks operate camp-sites, cabins and lodges and charge visitors accordingly. Accommodation charges can be one of the largest income sources available for protected areas. The management of accommodation is a complicated activity that

requires specially trained staff and proper business procedures. The Kabini River Lodge is a successful wildlife tourism enterprise professionally managed in Karnataka. The visitors are treated to two trips one in the evening and another in the morning into the Nagarhole Sanctuary in the company's vehicles accompanied by a guide. The important point to be noted is that the lodge is located outside the Sanctuary and that their staff are well trained in visitor management and wildlife tourism. Further the price is quite high targeting the elite.

The operation of a protected area tourism industry requires cooperation of both the public and private sector. Neither can do the job alone. Each is fundamentally dependent upon the other. The long-term health of the natural environment and the financial condition of all sectors of ecotourism depend upon cooperation. Table 3.1 shows the activities usually carried out by the public as well as the private sector in park tourism.

Table 3.1 Public and private sector roles in park tourism

Roles typically handled by the public sector	Roles typically handled by the private sector
1 Environmental protection	1 Accommodation and food
2 Infrastructure (roads, airports, rail lines, electricity, sanitation)	2 Transportation (buses, automobiles, airplanes)
3 Security and enforcement	3 Conducted tours
4 Monitoring of impacts	3 Information (guides, advertising)
5. Evaluation of quality	4 Media (films, books, videos)
5 Allocation of access	5 Site promotion and advertising
6 Limits of acceptable change	6 Consumer products (souvenirs, equipment)
7 Information (interpretation, visitor centres)	7 Personal services (entertainment)
8 Conflict resolution	8 Nature education

Source: Adapted from Eagles *et al.*, 2002.

Many African countries have tried successfully to entrust visitor services to public corporations. The advantages are flexibility in operation, fostering quality in services by providing competency-based payments to employees. In government departments, remuneration levels and position in the hierarchy are frequently not based on performance evaluation, which could be a form of disincentive to employees.

3.3.3 Option 3: Involve local community alone

The option to involve local community alone may be advantageous in the short run for the local community. But this has a deficiency in that the local community needs sufficient time, probably many years to acquire the skills necessary for the proper conduct of visitor services.

3.3.4 Option 4: Involve local community and visitors

Involving local community, visitors and visitor facilitators has an advantage in that the aspirations of the visitors as well as the capabilities of the local communities can be matched. In the beginning years some specialised inputs for planning and capacity building for the local communities is essential. If the economic incentives are strong skill development would be quick. Involving local community however, should involve all at least in the consultation and decision making process. The more eligible and the more competent individuals should be selected by the community for particular tasks. Unless the whole community is involved in the planning and benefit sharing programme conflicts within the community could threaten the smooth functioning of the programme.

3.4 Pricing options

Entry fees and user fees can be an important tool in visitor management. It can be used to supplement budgetary support, contribute to park maintenance and improve visitor facilities. It can be used to shift visitors from intensively used or degrading sites to more appropriate locations. It can also be used to relieve pressure or peak loads to relatively underused seasons. Fees can act as price signals as indicators to potential customers that the experience will be one of quality. Visitor fees can allow engaging staff to manage or maintain areas of visitation and visitor facilities.

Protected areas in Kerala can learn from the experience of Costa Rica which has very similar natural endowments. It has a $ 1 billion tourism industry of which the national parks are an important constituent. Statistics show that 66 per cent of all tourists to Costa Rica visited a protected area. They follow a two-tiered fee system in which foreigners paid higher than residents. In Monteverde Cloud Forest Reserve, while the entrance fee for residents is US$ 2, that for foreigners it is US$ 23. It is managed by a non-profit organisation. The Tropical Science Centre, which is not only self sufficient, receives a higher revenue than all the other parks in Costa Rica put together (Honey, 1999; Brown, 2001).

Gorilla tourism in Rwanda was another popular programme which allowed only 24 visitors a day. Each visitor was charged US$ 200 for a one hour visit. In 1989, the fee income was US$ 1 million. This certainly was a unique resource which was marketed for high gain. It is reported that government spending on parks in developed countries is around US$ 2058, while it is US$ 157 per km^2in developing countries. Of course, there is a wide range of funding policies.

Differential pricing is an accepted practise in many parks. It is used as a tool of management to regulate numbers, to redirect visitor pressure and to spread visitor flow in seasons. It is also used to capture potential high revenues during peak

seasons. Differential pricing between local residents and foreigners is used in developing countries as an equity measure since the affluence levels of foreign visitors are often much higher than that of residents. Also a price suitable for a foreign visitor may be too high for local residents, which may deprive their access. Another interesting justification is that while there is no discrimination in the park entry fee in developed countries between local residents and foreigners, there is usually a very high differential in the fees of services such as in education for local students and foreigners. Differential pricing policies are more complicated to administer, may cause confusion amongst employees and guests and resentment when the reasons for use are not clearly communicated. For example, a survey in Tasmania showed that 86 per cent of the public felt fees were good if the income was returned directly to parks, but only 36 per cent support park fees if the revenue went to the national treasury (ANZECC, 2000).

Opposition to fee increases comes when the visitors perceive that the increased revenue may be siphoned out to the general treasury and not into improving the park quality or services. There is often wide acceptance of fee increases when it is perceived to improve conservation and maintenance of the park. Studies in developed countries have found that price responsiveness to visitation has been low. For example, fee increase from $ 10 to $ 20 at the Yellowstone National Park in the US left the visitor levels constant or without change. In developing countries there are few estimates of price elasticities in park visitation. There is greater responsiveness for residents from low income backgrounds. When close substitutes are readily available at lower cost it is likely that visitation will be price-responsive. In parks that are unique or have special attributes the price response would be very small.

There are different ways in which pricing can be a tool to optimise the number of visitors and reduce social conflicts. Disadvantaged people could be provided with equal opportunity and equity by providing special concessions targeted to them such as reduced fees to students, local residents, etc. Differential pricing such as week day fee, weekend fee and holiday fee and even open days without fees can be considered to optimise the number of visitor throughout the year. This method is practised in many parks. For example, in the White River National Forest the entry fee of $ 2 per person on a week day is enhanced to $ 5 per person on weekends. Even if the number of visitors do not reduce during the weekends, the enhanced revenue can contribute to park maintenance and cleanup after a rush period.

There are a range of revenue sources for parks ranging from entrance fees, vehicle entry fees, user fees for particular activities, accommodation charges, license fee for providing services such as refreshments, food, etc. Many successful parks obtain donations from visitors which may be as high as 9 per cent of the total park revenue as in the case of Saba Marine Park (Eagles *et al.*, 2002.

3.5 Zonation in the protected areas

In each of the sanctuaries there are areas which are accessible to visitors currently. These are either indicated as tourism zones in the management plan or these have been in use for a long period of time. To comment whether the same areas are the most appropriate zone, we need to look at each sanctuary and also to look at specific points or areas. In most sanctuaries there may be several entry points used by the local population legitimately or by illegal operators illegitimately. However, visitor access to the selected protected areas is limited to one or two entry points. Inevitably the entry points and their surroundings will necessarily have to be included in the tourism zone. Some protected areas, such as Parambikulam, are buffered by a much larger Indira Gandhi Wildlife Sanctuary and the entry point itself is a rich wildlife habitat where a variety of herbivores are present.

From the entry point how far visitors can be allowed is the next problem. To answer this question the mode of travel available to the visitors has to be considered. If the visitors are moving through a road and in a vehicle, as in Parambikulam WLS, the road naturally becomes the tourism zone. If visitors are allowed to drive their own vehicles it would be impossible to prevent them from stopping for wildlife viewing or picnicking wherever they wish. On the other hand, if park vehicles driven by park staff are used, then stops can be regulated.

When private vehicles are allowed, visitors may get out of the vehicle and go for off-trail trekking, or may go beyond the tourism zone. If it is mandatory to accommodate one park guide in the vehicle, then it is possible to control such events. This has two problems; first a family coming in a car may not have the space or willingness to accommodate another person to travel on a main road.

3.5.1 Rationale for identifying zones

If the protected areas are considered as refuges for wildlife, then tourists' access must be limited to minimise pressure on the target species. Zoning an area as out of bounds for visitors enables the wildlife to move about freely without being disturbed by vehicles or people. If zoning is done based on the current accessibility such as the road network, then all inaccessible areas are classified as core zones till the road network expands to those areas. If zoning is done to enable a small number of staff to mange a large area, zoning can help limit visitors to a smaller area, thereby the burden of the staff is minimised (Eravikulam National Park). If zoning is done on the basis of the fragility of an area which is sensitive to species erosion or habitat degradation, such prime areas need to be preserved without modification by visitor activities/access. In such a case the park areas should be classified according to the vulnerability to human disturbance. To sum up, the rationale of zoning could be the

need to minimise human disturbance in valuable conservation areas which are vulnerable and for the ease of management by limiting the visitors to a small area.

This involves preparing a hierarchy of ecosystems, habitats and species on the basis of conservation importance and vulnerability to degradation.

3.6 Carrying capacity as a multi-dimensional concept

Estimating carrying capacity could be a complex task. In a visitor management context, carrying capacity can be assessed at different levels. These include, physical or infrastructural capacity, system efficiency, ecological resilience, environmental standards and visitor needs and priorities. Physical carrying capacity includes availability of parking space, refreshment centres, guides, park vehicles, boats, accommodation, toilets, healthcare facilities, etc. The capacity of information interpretation centres, ticket counters, etc. will determine the carrying capacity of visitors at a particular time or on a particular day. Physical carrying capacity is influenced greatly by the efficiency of the system. When systems are streamlined the carrying capacity would increase. Availability and clarity of information, appropriate signage and helpful staff can enhance system efficiency and thereby carrying capacity. The attitude training, motivation of staff and visitor facilitators determine the carrying capacity. At the ecological level, visitor impacts on the habitat, wildlife behaviour and introduction of pests or weeds have to be considered. The selected national park and wildlife sanctuaries in the study have high conservation priorities. Carrying capacity for each ecosystem and habitat has to be assessed based on a detailed ecological monitoring system. The environmental quality standards that are desirable in the protected areas as a whole and in specific locations have to be prescribed. Carrying capacity can be defined in terms of environment quality too. Trained and motivated manpower, sufficient to mange situations, should be available and infrastructural facilities suitable for smooth functioning should be developed. What level of pollution of land, water, air and noise is acceptable? Visitors' need of space, privacy and solitude has also to be considered. In fact the park ambience determines the type of visitors that visit a park. Visitors seek opportunities to see, to ride, to explore and to experience the resources and ambience of a protected area. Carrying capacity in a physical sense is irrelevant when visitors' aspirations are taken into account. Lastly the level of funding and its timely availability affect the carrying capacity.

Traditionally, the concept of carrying capacity is used in biological context such as the fodder available to maintain a herd of herbivores. It has been extended to other realms also such as determining the limit of visitor numbers and activities. This is a mechanical method in which the total space available is divided by the space required for one individual or a vehicle. More refined methods have been developed for park management. A very useful concept is that of 'Level of Acceptable Change' (LAC). It

takes into consideration the potential impact of visitors and their activities on the values and quality of a park. The impact can be considered at different levels such as landscape, ecosystem, habitat, etc. and also the effect on animals' natural behaviour. Visitor activities may have widely differing impacts. For example, a large slow boat driven by a park staff may have very little impact on the wildlife in spite of 50 passengers as in Periyar Tiger Reserve. At the same time, a speed boat with one or two passengers may scare all the water birds away from a lake such as in Kumarakom. Therefore, carrying capacity depends not only on number of visitors but also on their activities. Level of acceptable change also considers crowding at various points, level of vehicular traffic, pollution, noise, etc. Standards have to be discussed and fixed for each of these criteria. What is not acceptable should not be allowed even if a group of visitors considers such behaviour is acceptable to it. This is to prevent or minimise conflict between different visitor groups whose park experience may be spoiled.

For arriving at a meaningful standard of LAC, all the relevant stakeholder groups such as park managers, researchers, current visitors, local residents, etc have to be consulted. The system of management wherein these standards are made known to the staff, visitors and local residents and which also have a system of penalising deviant behaviour should be in existence.

Impact analysis at different levels needs to be considered. Some of these are: 1 Environmental impacts on the protected areas and surrounding lands, both physical and biological; 2 Experiential or psychological impacts on visitors (qualitative methods); 3 Economic impacts on communities and protected areas; 4 Socio-cultural impacts on communities (qualitative methods) and 5 Managerial or infrastructure impacts on protected areas and surrounding lands. Several visitor management frameworks are in use in different countries. Usually these start with a specific prescriptive legislation regarding the desirable quality of parks or the experience that should be made available to visitors.

3.7 Visitor management frameworks

Several visitor management frameworks have been developed and are being used in different parts of the world. Each of these has been developed in a particular context of the need for management interventions taking into account policy directions, visitor expectation and management capability. Some are more suited to strict nature resource but most are applicable to national parks where provision for recreation opportunity is a mandate of park management. According to Eagles *et al.* (2002), some of the important visitor management frameworks are: 1) Visitor Impact Management (VIM); 2) Recreation Opportunity Spectrum (ROS); 3) Limits of Acceptable Change (LAC); 4) Visitor Experience and Resource Protection (VERP); 5) Visitor Activity Management Process (VAMP) and 6) Tourism Optimization Management Model (TOMM). These frameworks are summarised below.

3.7.1 Visitor Impact Management (VIM)

VIM was developed by researchers working for the United States National Parks Service and Conservation Association. The process addresses three basic issues relating to impact problem conditions, potential causal factors and potential management strategies. This method relies heavily on understanding the causal factors to identify management strategies. The process provides a matrix for evaluating management strategies. It is useful to evaluate current conditions of impact but it is not suitable to assess potential impacts.

3.7.2 Recreation Opportunity Spectrum (ROS)

Developed by researchers working for the U.S. Forest Service and Bureau of Land Management, the process comprises six land classes (primitive to urban) to aid in understanding physical, biological, social and managerial relationships and to set parameters and guidelines for management of recreation opportunities. The procedure includes analysing the physical, social and managerial components that affect the experience of the visitor. Six land classes are identified ranging from wilderness to urban and in each of these classes setting indicators are identified. The setting indicators are: 1) access; 2) remoteness; 3) visual characteristics; 4) site management; 5) visitor management; 6) social encounters and 7) visitor impacts. Further indicators developed by the U.S. Forest Service for the six land classes such as distance guidelines, remoteness, user density in terms of capacity and frequency of contact and degree of managerial oversight required.

The analysis includes identifying the setting inconsistencies, defining recreation opportunity classes, integrating with forest management activities, identifying conflicts and suggesting mitigation measures. The recreation opportunity spectrum is thus designed which has a strong monitoring component. The ROS provides a definition of the opportunity for experience expected in each setting, the indicators of the experience and the parameters and guidelines for management.

The strength of ROS is that it has wide applicability in almost all landscape planning exercises. It can rationalise management from three perspectives, viz. protection of the resource, opportunities for public use and the managements' ability to meet preset conditions. It ensures that a range of recreation opportunities are provided to the public. The weakness of ROS is that there must be a total agreement on the setting indicators and their criteria by all the participants before any options or decisions can be made. Disagreement will affect the rest of the planning programme. ROS maps are to be prepared based on the physical and biophysical characteristics of each area.

3.7.3 Limits of Acceptable Change (LAC)

LAC has been developed by researchers working for the U.S. Forest Service in response to concerns about the management of recreation impacts. The process identifies appropriate and acceptable resource and social conditions and the actions needed to protect or achieve those conditions. If conditions do not correspond with standards, the intensity of the management effort might need to be increased or new actions implemented. A key issue is to be sensitive to cumulative impacts, to practise adaptive management and to achieve consensus among stakeholders about how much impact is acceptable and where, in the protected area.

The LAC is useful as a planning tool in wilderness areas. It has been applied to wild and scenic rivers, historic sites and tourism development areas. It can be used to monitor ecological and social conditions.

3.7.4 Visitor Experience Resource Protection (VERP)

VERP was created by the United States National Park Service. It is a new process dealing with carrying capacity in terms of the quality of the resources and the quality of the visitor experience. It contains a prescription for desired future resource and social conditions, defining what levels of use are appropriate, where, when and why.

The steps of the process include: 1) assembling an interdisciplinary project team; 2) developing a public involvement strategy; 3) developing statements of park purpose, significance and primary interpretive themes, identifying planning mandates and constraints; 4) analysing park resources and existing visitor use; 5) describing a potential range of visitor experiences and resource conditions (potential prescriptive zones); 6) allocating the potential zones to specific locations within the park (prescriptive management zoning); 7) selecting indicators and specify standards for each zone; develop a monitoring plan; 8) monitoring resource and social indicators and 9) taking management actions.

The emphasis is on strategic decisions pertaining to carrying capacity based on quality resource values and quality visitor experiences. The product is a series of prescriptive management zones defining desired future conditions with indicators and standards. VERP is a thought process that draws on the talents of a team and is guided by policy and the park purpose statement. It guides resource analysis through the use of statements of significance and sensitivity. Visitor opportunity analysis is guided by statements defining important elements of the visitor experience. Zoning is the focus for management.

3.7.5 Visitor Activities Management Process (VAMP)

This is used by Parks Canada. The process relies on three Parks Canada documents which are Guiding Principles and Operational Policies, Management Planning Manual

and Visitor Activity Concept Manual. The factors and indicators considered are: visitor activity profiles, experiences/benefits sought, support services and facilities required at all stages of trip cycle, stakeholder profiles, interpretation theme presentation, resource values, constraints and sensitivities, existing legislation, policy, management direction, plans, current offer of services and facilities at all stages of trip cycle and satisfaction with service offer.

The strength of this process is that it requires a structured thinking to analyse both opportunity and impact. It combines social science principles with those of marketing to focus on visitor opportunities. It has not been widely used outside Canada.

3.7.6 Tourism Optimization Management Model (TOMM)

This is an Australian system, but applicable in situations of communities with nature-based tourism.

All the visitor management models described above were evaluated by Hall and McArthur (1998) for various characteristics. Each has its own strengths and weaknesses. All of these have wide applicability but research is needed to adapt the tools to suit to local situations. All of these are able to assess and/or minimize visitor impacts, consider underlying causes of impacts, encourage public involvement and shared learning, incorporate local resource uses and resource management issues, facilitate selection of a variety of management actions (except TOMM) and can produce defensible decisions and separate technical information from value judgements. Planning investment is needed most in TOMM and VAMP, medium in VERP, ROSS and LAC and least in VIM. In overall effectiveness VIM, VERP and VAMP have the least negative attributes.

4. PRIORITIES IN VISITOR MANAGEMENT

4.1 Priorities

Protected areas in Kerala are a valuable treasure house for biodiversity, a heritage resource and cultural backdrop. They need to be conserved for several reasons including sustainable tourism. A listing of the priorities in visitor management for the protected areas in Kerala is given below.

1. National parks and protected areas represent heritage resources of all humankind. The management organisation has to act as a trustee to ensure effective conservation and sustainable management.
2. Setting apart areas as protected areas creates conflicts of access and resource use.
3. Among the many stakeholders, the local community within the PA and in the neighbourhood have a higher claim than the others.

4. Visitors support parks by paying entry fees or user charges. Visitor management is needed to provide quality visitor experience and to ensure sustainability of the quality for other visitors in future.
5. Visitor impact must be frequently monitored using direct observation by the management and assessment of feedback from visitors, staff and researchers.
6. Criteria and indicators of park quality should be prepared for each PA considering the uniqueness of the landscape and biodiversity resources.
7. Indicators of adverse visitor impacts must be closely monitored and corrective measures should be taken to avoid further deterioration.
8. The mandate of conservation of the unique landscapes, ecosystems and culture should be upheld.
9. Sustainability of park values, ecosystem health and integrity should guide decisions on park management as well as visitor management.
10. Visitor access should be optimised enabling the non-consumptive and non-degrading appreciation of park resources.

Broadly the priorities in visitor management can be listed as: i) emphasis on conservation and sustainability, ii) ensuring quality visitor experience iii) benefits to local community and 4) managing conflicts.

Environmental impacts can occur at the ecosystem level due to construction activities and road building. It can be at the vegetation level around intensively used sites and facilities. Environmental degradation such as soil erosion or spread of weeds are other problems. Littering and lack of proper waste disposal can pollute land and water. Demands for fresh water may exceed the available capacity for all users. Water quality may also be affected due to the disposal of sewage and release of oil and fuel from boats. Air quality may be affected due to pollution from emissions of automobiles. Impacts on wildlife could be a disruption of feeding and breeding behaviour. It could affect their movement patterns due to noise, human presence or harassing behaviour. Familiarity with human presence can alter wildlife behaviour such as begging for food or garbage feeding.

It should be mandatory that all proposed activities in a protected area should be scrutinised by an independent Environment Impact Assessment (EIA). It should not matter whether the proposed activity is to be carried out by a public sector enterprise or by the forestry establishment. An EIA can at least bring up issues that need to be tackled.

4.1.1 Conservation priorities

Conservation priorities in protected area management are: 1. maintaining environment quality – water, air, land, flora and fauna. Avoidance of littering and proper waste disposal, 2. minimising disturbance to wildlife and wildlife habitats and 3. minimising conflict with the local population and providing benefits for local community while protecting their dignity and privacy. Visitor management strategy should aim at optimising visitor satisfaction while conservation priorities are upheld. The challenge of protected area management is to set benchmarks of conservation status and service quality and set up a monitoring framework to obtain feedback on the impacts and trends so that management can dynamically respond to changes and challenges. The challenge of marketing is to make the park attractive to the ideal visitors who can help the park maintain and enhance its value. A further challenge is to develop an information and interpretation strategy so that all visitors irrespective of their orientation, obtain a regard and respect for the protected area values and become appreciative of the conservation ethic and consideration for other visitors, present and future.

4.1.2 Visitor satisfaction

Visitor satisfaction depends on several factors. Among them, information and interpretation services are primary. Visitors require information that is accessible, up-to-date and reliable which is also user-friendly. Basic facilities required are clean toilets, drinking water, medical assistance, refreshments and attention to complaints. Opportunities sought for are scenic drives, vehicle safari, wildlife spotting, bird watching, trail using, picnicing, photography, boating, rowing, camping and wilderness experience. Visitor services expected include a full time visitor service desk, interpreters, guides, food, accommodation, protection from harassment and cheating, accident insurance, etc. Visitors appreciate and are attracted to parks because of their perception of park quality. Wildlife sighting opportunities, healthy wildlife population, natural healthy vegetation, well maintained facilities, friendly and helpful staff and absence of crowding, noise, harassment, cheating and littering are all components of park quality and ambience.

Rising levels of social and environmental consciousness among tourists provide an advantage for destinations that have better environmental standards and social equity. Visitors are attracted to parks that have a positive reputation of environmental quality and service standards. Protected areas in Kerala have a very high quality resource; they can sustain high quality tourism if the resource quality is maintained. High quality resource and high quality tourism can make a virtuous circle of development.

Many countries are developing certification processes that rate and grade destinations, service providers and other players in the ecotourism field. India should also promote certification programmes to facilitate evaluation and enhance quality in management and services. Different grading such as affiliate, bench marking and certifying are assigned to enterprises depending on their compliance with norms which are evaluated periodically by independent auditors.

Protected area planning must take into account different visitor groups. Older visitors who have more disposable income and leisure time will increasingly visit protected areas. To serve these visitors, more accessible toilets and trails with lesser gradients should be planned. Changing roles of women as earning members and decision-makers at home and work place make them more mobile. Demand for recreation opportunities in protected areas from women is increasing rapidly all over the world. Protected areas are ideal places for family recreation and nature education. Women with young children may wish to share outdoor experiences and introduce children to the magic of life which can be observed best in a protected area. Making parks women-friendly and children friendly should be a conscious programme of park management because women tend to prefer non-consumptive use and appreciative use of the environment. They can be the best ambassadors of nature education. Older women travelling with their partners are in an increasing presence among international visitors to protected areas in developing countries. There is a great financial potential for serving such clients. Both service quality requirements and the rewards are higher for this group. The challenges for managers include ensuring that they have service quality goals, programmes to deliver high quality service and monitoring programmes in place.

Perceptions of safety and security influence the choice of destination of visitors. A location which has a poor image of visitors' safety will not able to attract or retain visitors. Once a good image is lost it will take many years or even decades to restore visitor confidence in a destination. Political unrest, terrorism, *bandh, hartals,* can scare away both national and international visitors. Personal security is affected by the prevalence of violent crime, harassment of women, theft, cheating by service providers, water quality, poor sanitation, etc. Park management must address security concerns of the visitors and be responsive to any complaints or suggestions to improve the safety and security of the visitors. The acceptable level of safety standards in different cultures varies. In a globalised and liberalised milieu the standards have to improve in all destinations that are competing with each other. Southern India improved its share of national and international visitors due to the violence prevalent in northern India. It is possible that some visitors are unaware of the risks in a natural environment. These include snake bites, unpleasant wildlife interaction and minor accidents. Park managers have a duty to caution visitors about such risks

candidly. They must also have a plan to respond quickly in case of any untoward incidents and provide for medical attention or evacuation. Some form of insurance coverage to park visitors may also be required in future to provide for legal liabilities which may arise.

4.2 Information and Interpretation

Protected area information involves provision of data, facts and advice to visitors concerning the protected area, its biology and geography, locations of visitor facilities, rules and regulations and appropriate behaviour. This has the benefit of more visitors adopting appropriate behaviour that will reduce impacts and provide the visitors with more satisfying visit. Brochures, signs and other messages must be placed where visitors will take notice of them. They must be presented in the appropriate language for the visitors, at an appropriate level of educational attainment. The use of internet is a very cost-effective way of distributing information very broadly for a low cost. When protected areas do not provide their own information, they run the risk of others providing inaccurate or misleading information. It is very important that all protected area management agencies collect and provide data that are accurate, consistent and up-to-date. Marketing of parks needs to be done professionally using all the available technologies. The best approach is target marketing (i.e., going after the sector of population that is most suitable for the resources, services and products available). Protected area managers can also consider de-marketing, that is trying to convince potential park visitors to go elsewhere by reducing promotional activities or promoting alternatives. Higher revenues result when the visitors are interested in and agree with park management policies. Lower conflict occurs when the visitor suits the environment and services available within the protected area.

Interpretation involves providing information to visitors in such a way that they will be stimulated to learn more and gain more appreciation. Thus interpretation is more than the presentation of data and facts, but includes weaving them together so that visitors come to understand and appreciate the values for which the protected area was established. Interpretation services can be priced so that the costs can be covered and the content can be regularly updated. A priced service could give a message that the programme is valuable. Guiding services are a major source of employment in many protected areas. Information should be targeted at visitors on-site and potential visitors. Visitor appreciation and behaviour would be appropriate if information on the park resources, opportunities, facilities and rules are known to the visitor before arrival. The actual visitor may need more specific information. Information and interpretation programmes should aim at providing a better appreciation of the park values and to modify visitor behaviour appropriate to the park setting. Protected area managers have a responsibility to help create appropriate expectations.

A range of personal and non-personal techniques can be applied for interpretation. Personal services include information delivery at the visitor centre, by guides and tour operators. Non-personal services include information at websites and in brochures, sign boards, publications, etc. Guided tours can be important elements in park interpretation programmes. Interpretation also has a strong role in the management of visitors and of their impact on resources. It can be used to modify human behaviour so that it is appropriate to the area. Appropriate signage and interpretation methods can be used to influence visitor behaviour and thus assist protected area management; for example, by safeguarding fragile environments.

Visitor centres should provide a broad range of information, interpretation, safety and recreation services. Expensive visitor centres can become a "white elephant", due to poor location, outdated design, inappropriate messages or lack of maintenance.

Transportation infrastructure within protected areas provides visitors with access to opportunities for understanding, appreciation and enjoyment. This usually means motorised transport, which can have major negative impacts. Noise, pollution and dust can disrupt wildlife, damage vegetation and affect water quality. Visitors seeking wilderness experience, too, may be affected.

As visitor numbers increase, demands for basic services such as road maintenance, communications, policing, fire and health services will increase. The costs of such investments should not be transferred to the local host community in the form of tax burdens. The environmental impacts of tourism can be very subtle or can be quite glaring. They can be localised or can have impacts on a large area. Protected areas being inherently sensitive, call for capability to predict and assess environmental impacts in advance and to ensure that they fall within the acceptable limits.

4.3 Managing conflict

Within recreation management, conflict may be thought of as goal interference. Managers have a responsibility for the protection of protected area values, so their view may conflict with what visitors are seeking. Conflicts may arise when an area is crowded or when a group is engaged in behaviour considered to be inappropriate, unacceptable or obnoxious by others. Zoning, education and information, dispersal of use or enforcement of regulations may reduce such conflicts. Conflicts can occur between different recreation activities such as solitude seekers and vehicle users. Strategies to manage the problems of large number of visitors in some protected areas often need to be complemented by strategies designed to attract them to other areas.

Not all conflicts can be successfully resolved. Resolving conflicts requires that managers use a variety of tools and involve those impacted by the conflict in the management process. Usually, resolution involves better and more communications.

It is usual to prescribe group size limit for some activities, prior reservation for using some sites and duration of stay limits. Trip scheduling is another technique to regulate the flow of visitors. Barriers are also used to avoid accidents and protect fragile habitats from damage by visitors.

Protected area managers face a strategic choice between concentrating or dispersing recreational use. It is designed to allocate geographical areas for specific levels and intensities of human activities and of conservation. Typically, it involves a range of spatial zones with varying levels of intensity of human activity (and therefore development). At one end are developed areas, such as service centres or, in the case of protected landscapes, villages or towns with a strong emphasis on tourist provision; at the other end are remote and even wilderness areas with effectively no development at all. Zoning can also be temporal, that is an area set aside for different uses at different times, within the course of the day, over the week or seasonally. Zoning should apply to all activities occurring within a protected area: Conservation, other land uses and, of course, recreation and tourism. The zones, with the policies applied to them, should appear in the protected area management plan and thus guide the way in which the area is managed. For tourism, zoning involves decisions about what type of recreational opportunity will be provided and where. Typically, zoning of this type is based on the degree of impact which a type of recreation causes. This, of course, requires a sound information base related to the function and sensitivity of ecosystem structure, as well as the opportunities and impacts of existing and potential visitor experiences. Useful frameworks when considering zoning include the Recreation Opportunity Spectrum (ROS) and the Tourism Opportunity Spectrum (TOS). Each zone is considered for its suitability and capability to accommodate visitors for a range of opportunities such as those for resource management, appropriate activities and research. Thus, zoning provides direction for the activities of managers and visitors alike.

Regulations in numbers, types and speed of road vehicles, the use of public transport to reach and travel within the protected area and times at which movements can take place are frequently imposed. All these require proper legislative regulation and policing. Therefore protected area managers and their staff should develop the communication and negotiation skills needed to build good relationships and to persuade other stakeholders to co-operate for the benefit of the protected area as well as doing so in their own interests. Developing appropriate codes of practise for responsible ecotourism involving all actors through consultations and getting it ratified by all groups can go a long way in minimising conflicts in visitor management.

Visitor regulation should be done keeping in mind the eligibility and claims of various groups in society. For want of a proper policy, less eligible groups will crowd out the more eligible groups or even misuse the facilities. Visitor management policy should

spell out the method in which access to facilities or locations within the park will be allocated.

Who should decide on the priorities and the hierarchy in which different claimants can access the facilities? The protected area management with its mandate of conservation definitely should have the final say in the matter. As this involves citizen's rights, community rights, revenue generation and sharing, tour operators, hospitality industry and the visitors pursuing locations which are exotic and scarce, it is proper that a wider discussion and a larger forum should take a decision on priorities in allocation. Ideally a policy decision from the State Legislature considering the views of Forest and Wildlife Department, local government, NGOs, researchers and all interested stakeholders would be the best.

A range of criteria can be considered to determine the eligibility to access scarce facilities or limited access. Each has its own merits and demerits. Eligibility or priority in access or allocation could be determined by the following: 1)official status; 2)connection to influential persons in politics and government;3) money power; 4) nationality; 5) proximity of residence to the protected area; 6) education status including research interest; 7) religion / caste / tribal status; 8) age; 9) gender and 10) first come first served

Official status: When facilities are limited it is appropriately reserved for the managers and officers on inspection duty. This gives flexibility in conducting surprise inspections by senior officers. Allocating accommodation facilities to others in advance can deprive the use of these limited facilities by senior officers on inspection duty. When facilities are available, requests from officials unconnected to the forest department or unconnected with protected area management tend to be entertained. This is in fact for personal use of an official facility. The eligibility of such use by officials unconnected with the protected area management need not be higher than that of other claimants.

Connection to influenced persons: Persons with connections to political and official dignitaries can shortcut ways to access official and public facilities primarily because of poor documentation of such use. This has a great disadvantage in that if such persons with high connections chose to misbehave or misuse resources, it is very difficult to control them due to their access to centres of power. Decisions on transfers and posting of staff are made often arbitrarily and the threat of transfer could silence many officials and dissuade them enforcing regulations.

Money power: Pricing access and facilities with the aim of maximising revenue is a method used in developed capitalist countries. This has a great advantage of matching demand with supply. A scarce resource can be appropriately highly priced so that the

pressure on it can be reduced. The revenue from such scarce resources could be utilised for any purpose including conservation. The disadvantage is that only the richest people will be eligible to enjoy resources which are a heritage to all humanity. This violates the equity principle.

Nationality: Policy can prefer or avoid foreigners from protected areas. International tourism brings foreign exchange to the economy and it could help develop infrastructure within the country. Our resources may be more valued by people from far away places due to their exotic appeal. They may be willing to pay much more than local visitors for access to these locations. Further, the affluence of many developed country visitors makes them ideal groups if revenue generation is a priority. When the local community is poor and illiterate compared to foreign visitors it could have cultural impacts that may not be always desirable.

Local community: Goodwill of neighbours is an important factor for sustainable conservation. It is important that the neighbours of the protected area feel welcome inside the park and also benefit in some way in park conservation. Only then will they support park management. The policy could favour preferential access to the park's neighbours or try to keep them out. Focussing on the revenue criteria or official status or connections to officialdom could estrange the neighbourhood communities. One common method is to organise special nature education programmes in the park involving local communities as participants. Open days or free days in which local community people have access to restricted locations or facilities could be another method. In the long-term community support for conservation can be ensured if economic benefits are obtained by the local and neighbourhood communities and when those benefits are equitably shared within that community.

Education status: Sensitivity to the biodiversity value or the threatened status of species or habitats may not be the same between groups of educated and uneducated people. Education and awareness enable people to appreciate the value of scarce resources. Access to sensitive sites could be reserved to people with the required qualifications and appropriate intentions. Researchers as a community could claim a higher precedence to access to fragile zones in protected areas where the common tourists are not allowed. Concern regarding bio-piracy and unethical behaviour by researchers is also legitimate.

Religion/caste/tribal status: Religious pilgrimage within in a protected area has a potential to exclude people following other religions from access to some sites. There are communities like tribals who have been depending on a life style of living within the forest. They could claim a preference in access as a right more than any other non-forest group in a protected area. The policy could consciously promote the interests of such groups or negate it.

Age: Primarily due to safety considerations age limits could be used for access to areas that are difficult, hazardous or where unpleasant wildlife interactions could take place. Children could be barred from locations which are considered unsafe for them.

Gender: The constitution of India provides for gender justice; yet, the attitude of gender bias and discrimination against women continue in various subtle and overt ways. Unlike in the education or medical sector where the number of women in positions of power has grown, within forestry, women in positions of power are insignificant. This influences the sensitivity or the lack of it in the visitor management practices in protected areas. Obscurantist forces in society disapprove of women moving out of their homes or villages. In the absence of a proactive policy to correct the gender discrimination prevalent in many sectors of society, gender justice needs to be implemented. Globally many of the best parks have women in management positions. This helps to correct any past failures. An environment in which women feel safe and free from harassment has to be created so that women can access many of the facilities and locations within protected areas. Women guides and interpreters could also be advantageous to avoid a gender bias. There should also be a mechanism to document and act on complaints and suggestions from women visitors so that women feel more secure and welcome.

First come first served: Regulating access on a first come first served basis is a straight forward method. When the demand is more than the supply some form of prior reservation is to be implemented. The length of time of registration to the actual time of use could be an indicator of the demand. Pricing policies could also depend on such length of queue or the absence of it to determine appropriate pricing for a service or access.

Each of these criteria has its strengths and weaknesses. Obviously a single criterion is inappropriate. A combination of different criteria which enhances transparency, equity and revenue generation has to be adopted. In the absence of a policy directive, any of these or other criteria would be used by protected area managers arbitrarily. A clear cut policy can actually strengthen the protected area management and empower it so that a transparent system can be implemented where both the visitors and the management are aware of the rules of the game. Complaints of discrimination between visitor groups and conflicts among them or with the protected area management can be minimised if a clear cut policy is articulated both at the all State level and also at the park level.

5. PROFILES OF SELECTED PROTECTED AREAS

5.1 ERAVIKULAM NATIONAL PARK

5.1.1 Resources and Unique Selling Points (USP)

Eravikulam National Park has a fabulous landscape with rolling grasslands, shola forests and spectacular cliffs. This park is the stronghold of the largest population of Nilgiri tahr, the endemic goat species of the Western Ghats. The highest peak south of Himalayas, Anaimudi (2695 m), is situated in this National Park. The Park was managed as a game preserve by the plantation company which owned it before it was taken over by the Government in 1975 and elevated as a national park in 1978. It is one of the few areas in Indian subcontinent where competition with domestic cattle is not at all present.

It contains pristine grassland-shola ecosystem with grasslands interspersed with evergreen vegetation termed shola. Neelakurinji (*Nilgirianthus kunthianus*), a shrub that flowers once in 12 years is a great tourist attraction. The next flowering is expected in the year 2004. There are 20 species of mammals (tiger, leopard, elephant, etc), 132 species of birds and 87 species of butterflies and moths. The last census in 2000 revealed the number of Nilgiri tahr within the Park to be 750. *Pokayan* (a local name used by the tribal people for a predator similar to panther), which is as yet undescribed in science or photographed has been observed by the first author in the park enhancing the conservation value and sensitivity of the unique Eravikulam ecosystem.

The Park is well insulated by tea estates in the South and forests of Munnar Division and Indira Gandhi Wildlife Sanctuary (of Tamil Nadu) in the North. There is only one settlement of muthuva tribe between the Park and tea plantations. Some of these people are employed as Park watchers. The Park is well protected and poaching is infrequent.

5.1.2 Infrastructure and visitor opportunities

The Park headquarters is in Munnar town, where a new information centre and office complex have been constructed recently. An inspection bungalow for officers and a dormitory for nature camp purposes are functioning at Munnar. The Park Warden is assisted by an Assistant Wildlife Preservation Officer (Range Officer), two Foresters and seven Guards. Equipments such as TV, VCR, OHP and slide projectors are available there. An Interpretation Centre also exists at Rajamalai but it was found closed most of the time during the study period for renovation. There is a mini bus and jeep for interpretation assignments. Visitors are permitted to walk on the black

topped road at Rajamalai, which is the tourism zone and see the endangered Nilgiri Tahr, which is very much habituated to human presence. Visitors are not allowed into other parts of the Park as the entire area beyond Rajamalai is treated as a core zone of the National Park.

As recorded in the nature camp register at the Warden's office, a total of 77 nature camps have been conducted from January 2000 to October 2001 at the Eravikulam National Park. A total of 3,293 participants took part out of which about 40 per cent were females. The nature camp group composition showed that educational institutions constituted 49 per cent, clubs/families 42 per cent and Government employees 9 per cent. Nature camp activities are funded by the Government and free to the participants who have to apply to the Park Warden or Chief Wildlife Warden, in Thiruvananthapuram. Availability of funding is the decisive factor in conducting the nature camps.

5.1.3 Visitor profiles and feedback

Eravikulam National Park is increasing in popularity as a tourist destination. The growth in visitor numbers is phenomenal and a cause for concern during holidays. Table 5.1 shows the number of visitors during the period 1999 to 2001. Mean daily visitor numbers and composition during a sample week is given in Table 5.2. During that week the number of daily visitors ranged from 485 to 950. Foreigners comprised three per cent of the total visitors. The gender distribution of visitors is given in Table 5.3. During Onam, men including boys accounted for 74 percent of the visitors.

Visitors to Eravikulam consist of local visitors from the neighbouring districts, from other parts of the State, from other States in India and also from abroad (Table 5.5). Table 5.4 shows the composition of visitors from different places during week days, week ends and holidays. It can be seen that visit by foreigners is less during holidays, while visitors from rest of Kerala are the highest. Crowding during holidays is the reason for the foreigners keeping away from the Park. During week days visitors from far away places frequent the park. The origins of visitors were examined from the Park check post register from the period 1996 to 1999. It was seen that visitors from Ernakulam and Thiruvananthapuram top the list of visitors from different parts of Kerala (Table. 5.5). Among the visitors from other States of India Bangalore, Mumbai and Chennai accounted for the largest number of visitors in that order. Among the foreign visitors England, Germany and Australia led the number of visitors arriving in the Park.

Figure 2 shows the drainage map of Eravikulam National Park. Being the highest plateau in South India the park is an important watershed and drainage is both towards the Arabian Sea as also the Bay of Bengal.

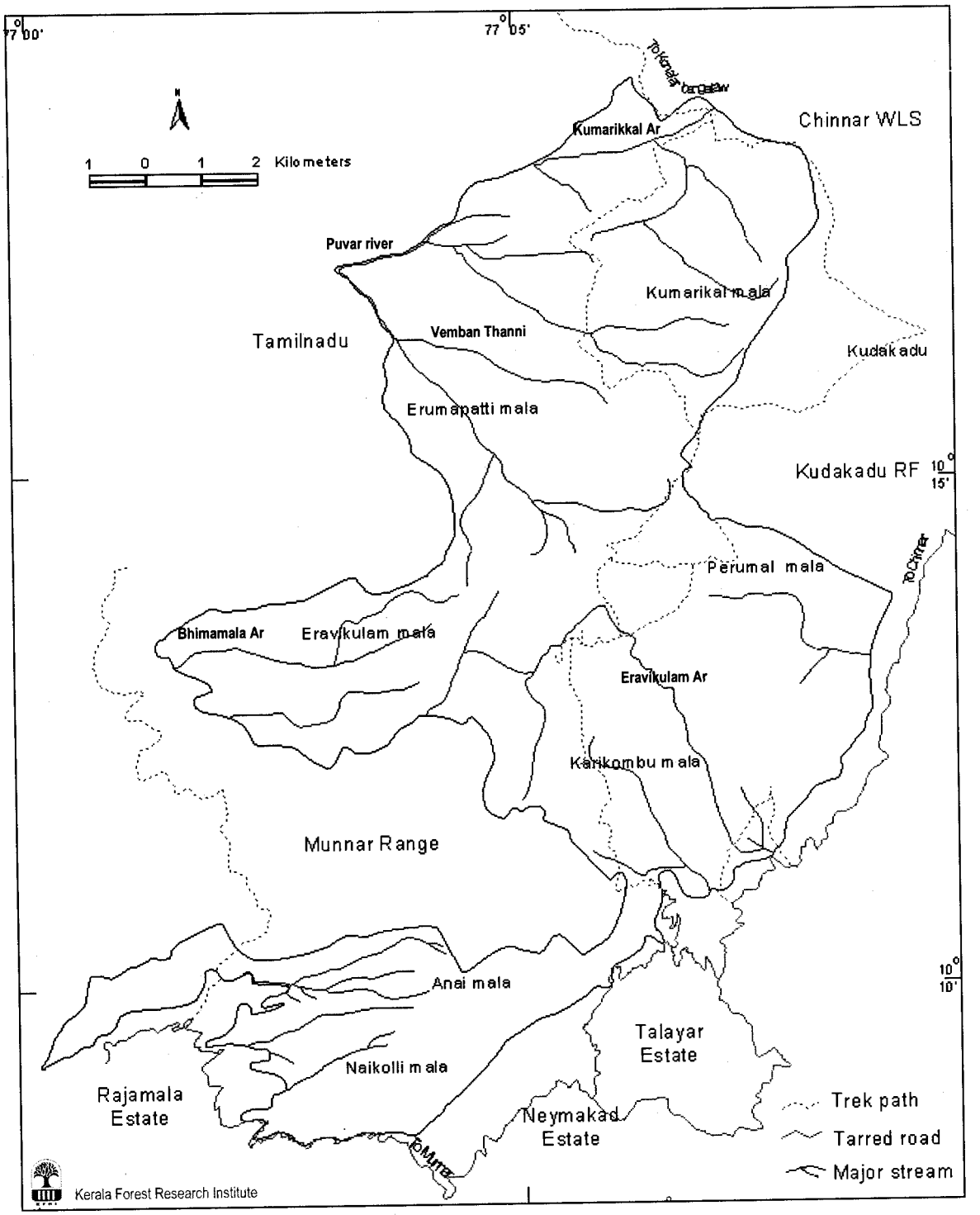

Figure 2. Drainage map of Eravikulam National Park.

Figure 3 shows the slopes of the Eravikulam National Park which is a plateau with several peaks. Anamudi, 2695 m. which is the highest peak south of Himalayas in India is situated in this park.

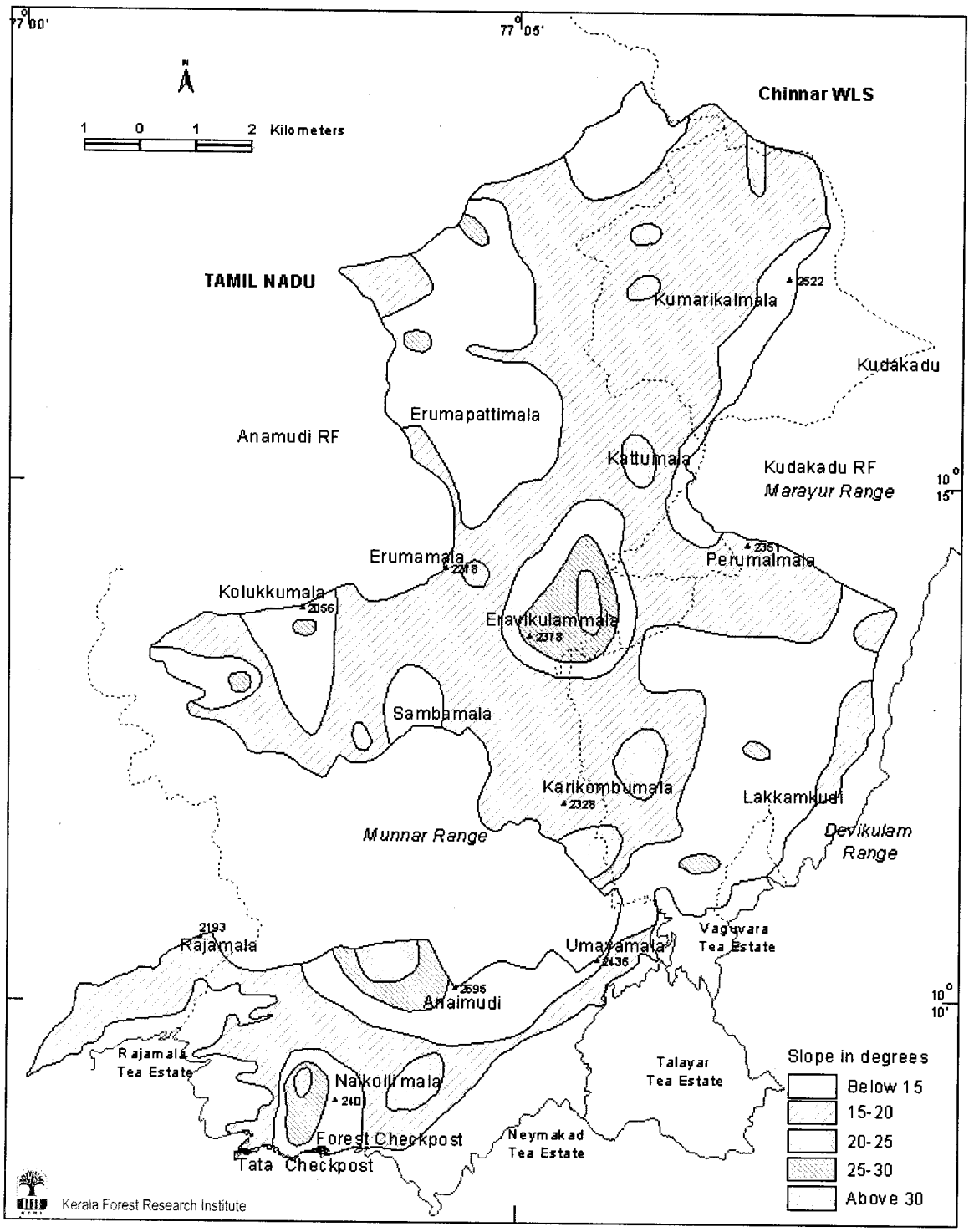

Figure 3. Slope - Eravikulam National Park

Figure 4 shows a perspective view of Eravikulam National Park showing the hills and valleys. The orientation is tilted to reveal the drainage pattern.

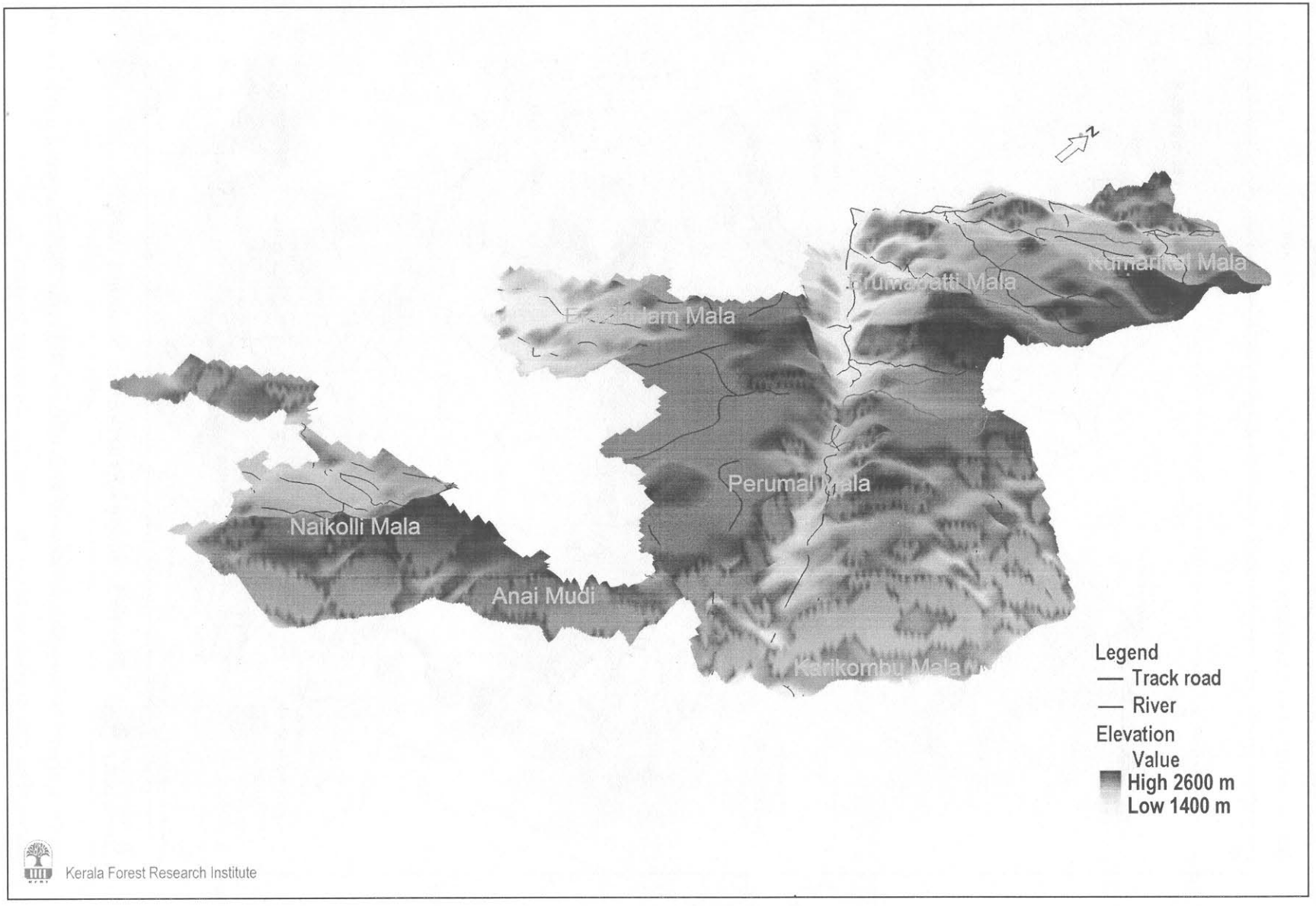

Figure 4. 3d map of Eravikulam National Park

Figure 5 shows the distribution of the vegetation in the Eravikulam National Park. The shola forest is further classified according to tree density and indicated as high, medium and low density shola. Exposed rocks and plantations are also marked. Extensive grasslands are a unique feature of the Park.

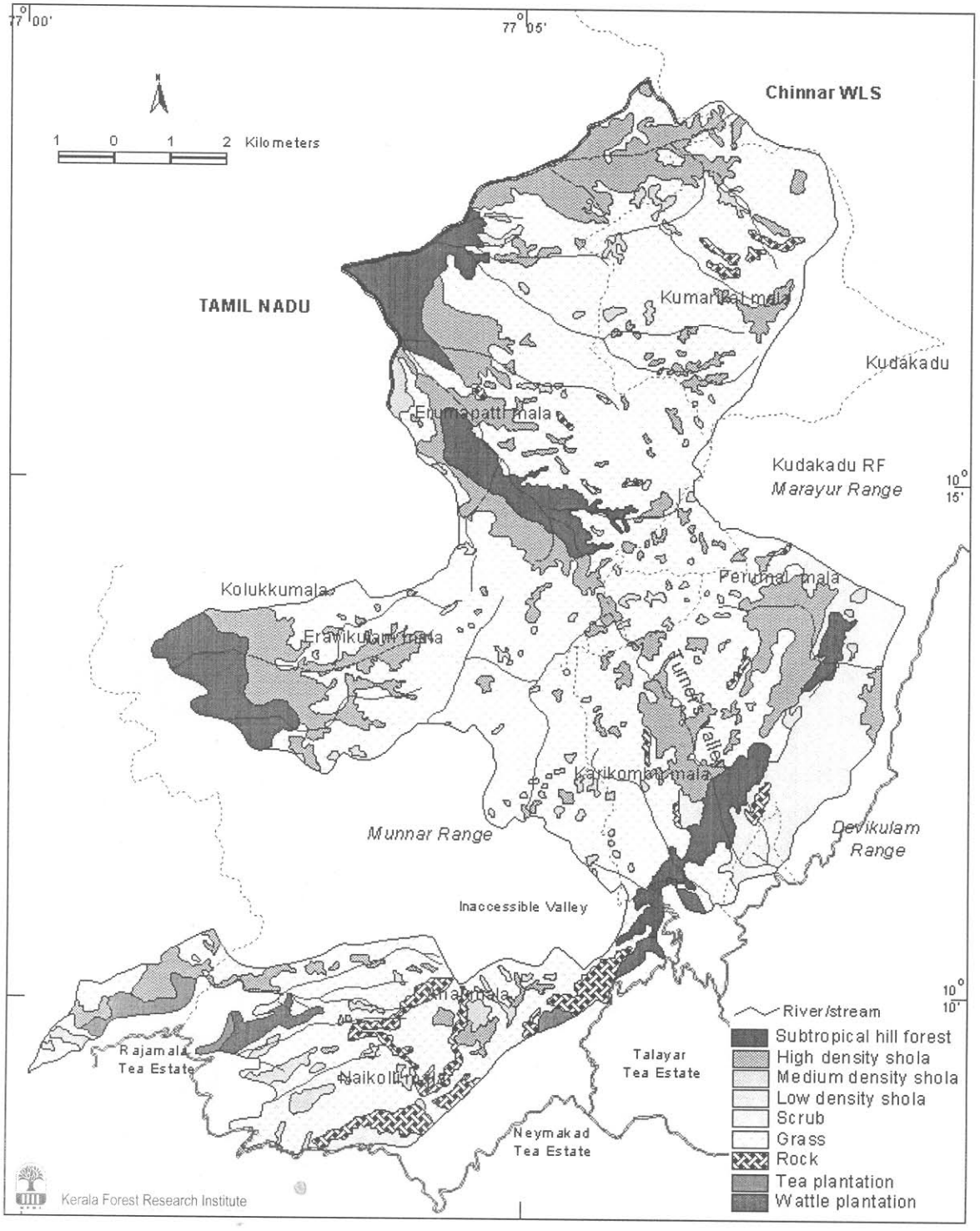

Figure 5. Vegetation - Eravikulam National Park

Figure 6 shows the management zones of the Eravikulam National Park. Only the area around Rajamalai check post and the environs around Naikolli mala is designated as the Tourism zone. Some area near the tribal hamlet of Lakkamkudi covered by scrub forest is proposed as an Eco-development zone. The rest of the area is designated as core zone.

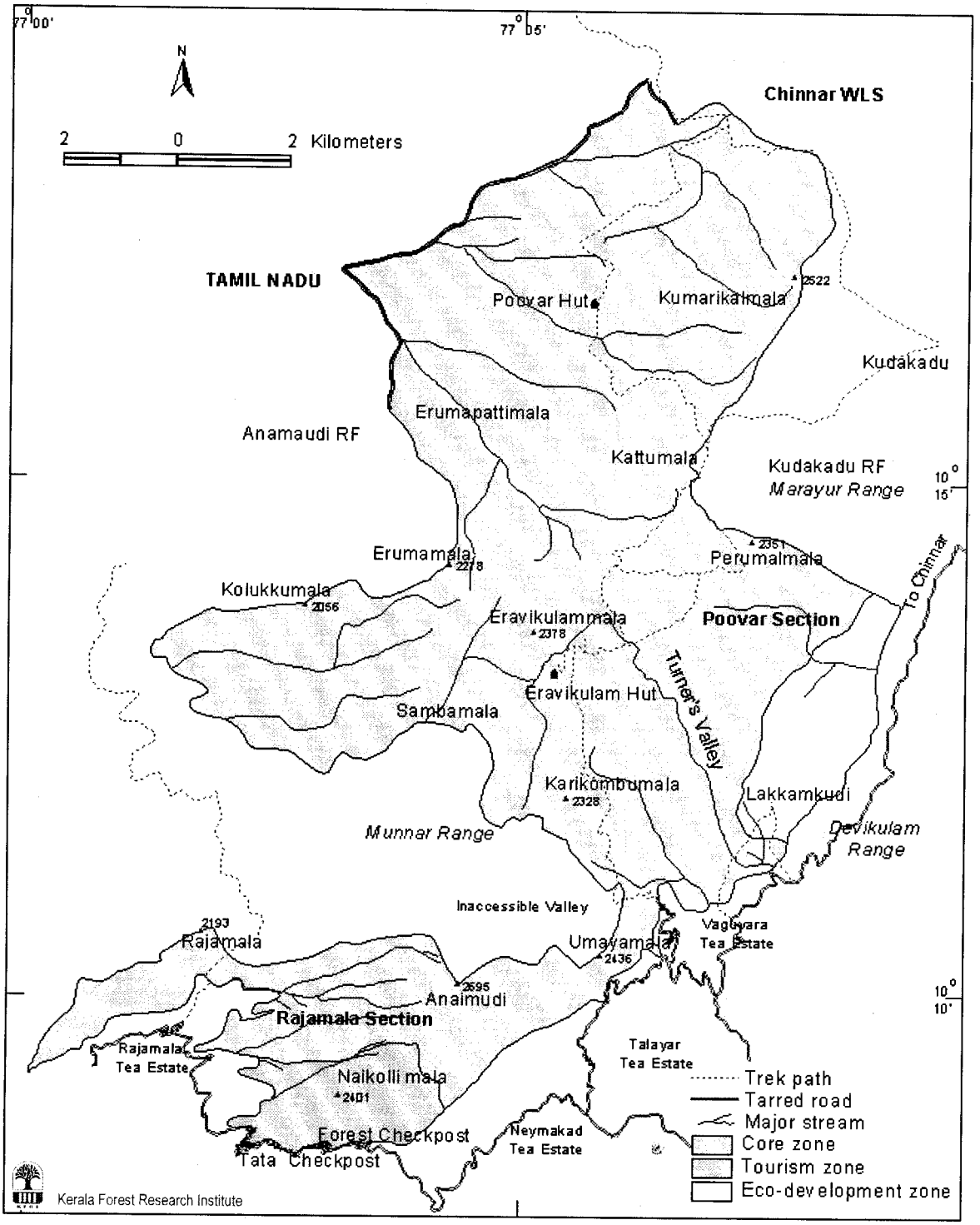

Figure 6. Management zones - Eravikulam National Park

Table 5.6 shows the group composition of visitors from a questionnaire survey. It showed that family groups accounted for 69 per cent of the total. The visitor population during the survey consisted of 53 per cent men, 32 per cent women, 10 per cent boys and 5 per cent girls. Table 5.7 shows that visitors coming in their own cars accounted for the largest groups followed by those arriving in a hired light motor vehicle. The frequency of their visits to the park is given in Table 5.8. First time visitors accounted for 76 per cent of the total visitors. The largest percentage of repeat visitors had come once before to the National Park.

Visitor satisfaction levels were among the questions asked. Table 5.9 shows the results of the first survey where 44 per cent of the respondents reported satisfaction regarding the information provided by the Park. Regarding opportunities of visitors 64 per cent reported satisfaction. Regarding the behaviour of other visitors 79 per cent reported satisfaction. Two subsequent surveys were carried out during the local holidays of Vishu and Onam of 2001. Regarding the information provided by the Park only 22 per cent of the respondents were satisfied during Vishu while 62 per cent reported satisfied with the information provided during Onam holidays. Table 5.9 shows the number of visitors in the Park on Vishu day and Onam day. While the number of visitors on Onam day was double that of Vishu, the satisfaction reported is three times more during the crowded day. It just goes to show that visitor satisfaction is related to expectations also. On such a crowded day as Onam the visitors have no great expectations regarding park services such as information or the local visitors who come on such days do not require any. But it is interesting to note that with increased crowding, lower level of satisfaction regarding the behaviour of other visitors and in the implementation of the Park rules is reported.

Table 5.1 Annual number of visitors to Eravikulam NP who purchased entry tickets

Year	Number of visitors	Entry fee collected (in Rs.)
During 1999	97,082	11,78,460
During 2000	1,28,468	12,92,194
During 2001	1,48,440	17,82,306

Compiled from Park records

Table 5.2 Visitor composition at Eravikulam NP

Category	No. of visitors in a day (2001)			
	Average during Weekdays November	Average during Weekend November	Vishu April 14	Onam Sept 2
Adults	362	693	1065	2283
Children	94	203	135	174
Foreigners	20	24	4	12
Total	476	920	1204	2469

Compiled from check post register

Table 5.3 Gender Composition of Visitors in Eravikulam National Park during Onam 2001

Gender	Percentage
Man	69
Women	23
Boy	5
Girl	3
Total	100

Table 5.4 Percentage composition of visitors in Eravikulam NP during October 1996 to Dec 1999

Days	Local	Rest of Kerala	Rest of India	Foreigners
Week days	18	30	43	9
Week ends	21	43	32	4
Holidays	21	60	18	1

Compiled from Checkpost register

Table 5.5 Places from where visitors came to Eravikulam National Park

Idukki & Kottayam Districts	Rest of Kerala	Rest of India	Foreigners
Munnar	Ernakulam	Bangalore	England
Kottayam	Tiruvananthapuram	Bombay	Germany
Muvattupuzha	Aluva	Madras	Australia
Thodupuzha	Kozhikode	Coimbatore	Switzerland
Kothamangalam	Thrissur	Madurai	France
Adimali	Palakkad	Hyderabad	New Zealand
Kattappana	Kollam	Pune	USA
Nedumkandam	Pathanamthitta	Belgaum	Canada
Kunjithanni	Perumbavur	Delhi	Holland
Idukki	Alappuzha	Erode	Sweden

Compiled from check post registers and arranged in descending order of frequency

Table 5.6 Visitor Group in Eravikulam National Park

Visitor Group	Percentage
Family	69
Friends group	13
Professional group	7
Educational group	4
Individual	1
Others	6
Total	100

Based on field survey

Table5.7 Vehicles used by the visitors of Eravikulam National Park

Sl.No.	Means of visit	Percentage
1	Own Car / LMV	42
2	Hired Car / LMV	33
3	Hired bus / Mini bus	15
4	Public bus	3
5	Bike	4
6	Hired Autorikshaw	1
7	No response	2
	Total	100

Based on field survey

Table 5.8 Frequency of visits to Eravikulam National Park

Previous visit	Percentage
Nil	76
Once	13
Twice	5
3-5 times	2
Regular	2
Others	2
Total	100

Based on field survey

Among the attractions to the Park mentioned by visitors, scenic beauty, panoramic views and landscape had the highest score; wild animal sighting (tahr) came next; the climate and the serene environment followed; the possibility of trekking attracted some; a few came for a forest experience. There were a few who came for the thrill, "to freak out", to unwind, etc. The level of visitor satisfaction is given in Table 8. The feeling of the visitors as expressed by them upon visiting the Park is as follows: Twenty six per cent of the visitors felt that it was a memorable/ valuable experience, 29 per cent of the visitors felt that it was a good experience, 36 per cent of the visitors did not respond to the question and the rest 8 per cent had other answers.

Table 5.9 Visitor satisfaction in Eravikulam National Park

Satisfaction regarding	December 2000 (N=154)	Vishu 2001 (N=65)	Onam 2001 N= 529)
	% Satisfied	% Satisfied	% Satisfied
Information provided by park managers	44	22	62
Facilities and opportunities	64	43	52
Behaviour of others	79	98	66
Implementation of Park rules	69	74	59

Based on field survey

The visitor flow into the National Park during Onam holidays from 30th August 2001 to 2nd September 2001 was studied. The peak time of inflow was between 9 AM and 11 AM in the morning and between 2 PM to 3 PM in the afternoon.

The suggestions made by the visitors to Eravikulam National Park include improving the information centre, providing an interpretation service, a nature education officer, toilets and drinking water. To most visitors rain was unexpected and they were unprepared for it during their walk away from their vehicles. Some suggested that a rain shelter be built. Considering the landscape values, it would be wiser to rent out umbrellas to visitors who need these. Some visitors suggested having more staff in the Park who are able to handle different languages as visitors come from all over India and abroad. Some stressed the need for enforcing the ban on smoking and alcohol abuse inside the Park. Regulating the speed of the vehicles that pass through the Park was another suggestion. Some of the vehicles used by the plantation companies for transporting tea leaves are old and spume smoke that lowers the expectation of the visitors to the Park as a pristine environment. The tea company can be encouraged to use less polluting vehicles inside the Park. When visitor behaviour in the Park is analysed based on a classification of visitors as local, from other Indian states and foreigners it was observed that undesirable behaviour was shown by a section of local visitors, never from foreign visitors and rarely by visitors from other states. This calls for a more effective interpretation and education programme.

5.1.4 Current issues and challenges

There is a very small area now open to visitors to the Eravikulam National Park. Visitors can drive from the first check post to the second check post which is about one kilometre inside the Park. Visitors' vehicles are not allowed beyond this point. There is hardly any parking space at this point. Les than ten vehicles can squeeze into the very limited space. During holidays there is great chaos for traffic and parking. Visitor crowding during holidays is acute. There is an urgent necessity to reduce the crowding during holidays at Eravikulam. Among the options raising the entrance fee during holidays is the simplest. As an experiment, doubling the existing entrance fee for visitors and vehicles could be tried to study the visitor response. If the visitor pressure does not reduce, enhancing the vehicle entrance fee to much higher levels could be considered. The park management is planning to locate a visitor centre with sufficient parking space near the main road four km ahead of the Park. Proposals to run a shuttle service using park vehicles or that of HRWEPA (the local conservation NGO) between the visitors parking area and the Park are being considered. Land for the same has already been identified. This proposal can regulate visitor numbers and vehicle numbers inside the Park by scheduling the shuttle service appropriately.

The proposed information and interpretation centre at the entrance by the main road can serve the needs of visitors. There is great potential to plan a few trails within the Park allowing a very limited number of visitors in very small groups under strict supervision of the park management. But before this could be allowed it is necessary to set acceptable levels of change and set standards to assess the condition of resources, environment and design and implement a monitoring programme.

At the tourism zone in Rajamalai, the population of Nilgiri Tahr has become too familiar with the human presence and there are increasing signs of taming. The local tribal elders distinguish the tahr population elsewhere in the Park and at Rajamalai, in that the former is healthier, larger and retain their wild behaviour.

The Park wardens have created a good rapport with the local groups at Munnar and the stakeholder workshops conducted by the park management have built a supportive relationship. The local NGO, High Range Wildlife and Environment Protection Association (HRWEPA) is providing manpower support and the Tata School children are helping in visitor management and education. This is very healthy development which needs to be consolidated in the form of an organisation like 'Friends of Eravikulam National Park' which can be a regular forum for consultation and volunteers.

Well managed trails and well regulated trail usage can provide a high quality visitor experience and good revenue. Care must be taken while designing these to keep clear of cliffs and ridge tops which are most vulnerable. Group size, duration of the trip and frequency are other critical considerations.

5.1.5 SWOT

A summary of the strength, weaknesses, opportunity and threats of Eravikulam National Park is given in Table 5.10. There is no threat of encroachment but sandalwood smugglers in transit through the Park are potential sources of unmanaged fires in the grasslands.

Table 5.10: SWOT Analysis of Eravikulam National Park

Strength	Weakness	Opportunity	Threat
High landscape, wildlife, conservation value	Current Visitor opportunity low	High revenue potential from tourists holidaying in Munnar	Habitat degradation due to human pressure
Well managed	At Rajamalai tahr natural behaviour has been modified	Unique nature tourism opportunities	Unmanageable pressure to enlarge access
Protection problems minimum, good relation with neighbours	Information dissemination in the tourism zone is insufficient	Spectacular trails mountains, sholas etc.	Collection of endangered species of plants and animals

Strength	Weakness	Opportunity	Threat
Few entry points	Fragile habitat of shola-grassland ecosystem.	Direct access to Nilgiri Tahr habitat and easy sighting	Unmanaged Fire
Legally protected as National park	Available field staff lack communication skills	Highest mountain south of Himalayas	Pollution of land and water
Pure water	Holiday rush strains management and generates conflict between visitors and between staff and visitors	Unique cool weather experience	Spread of exotic species like *Acacia mearnsii*
Involvement of conservation NGO, (HRWEPA)	Vehicle parking space is limited		

5.2 PARAMBIKULAM WILDLIFE SANCTUARY

5.2.1 Resources and Unique Selling Points (USP)

Parambikulam WLS is situated in the valley drained by Parambikulam and Aliyar Rivers of the Chalakkudi river basin. The Indira Gandhi Wildlife Sanctuary of Tamil Nadu is on the eastern side. Nenmara and Vazhachal Forest Divisions are contiguous with the Sanctuary. The sanctuary was formed in 1962 and has an area of 286.2 km^2. The landscape is a mosaic of teak plantations, moist deciduous forests, riparian forests, evergreen forests, bamboo brakes and *vayals* (marshy grassland area).

Parambikulam Wildlife Sanctuary is an excellent wildlife area and has the widest range of wildlife including gaur, elephant, sambar, spotted deer, Nilgiri tahr, Nilgiri langur, Malabar giant squirrel, leopard, tiger and is also rich in avifauna. The Sanctuary has the largest standing teak tree in India (360 cm gbh and 42.5 m height). Open forests and *vayals* enhance the prospect of wildlife viewing. The Sanctuary has three man-made reservoirs at Parambikulam, Thunakadavu and Peruvaripallam, for diverting water for irrigation to Tamil Nadu. Together these reservoirs have a water spread area of about 29 km^2.

The road network built during the construction of dams enable visitors to drive through the Sanctuary and observe the wildlife from their vehicles. The area was a teak plantation division earlier and has extensive areas under teak plantations. The riparian forests which were retained support rich wildlife. The Wildlife Sanctuary, surrounded by hills on all three sides and having access only through Indira Gandhi Wildlife Sanctuary is well protected. This is the unique sanctuary in Kerala which harbours the tiger and elephant, the national and state animal respectively; also, peacock and great Indian hornbill the national and state bird respectively.

5.2.2 Infrastructure and visitor opportunities

The Park staff consists of a Warden, one Assistant Conservator of Forests, four Assistant Wildlife Preservation Officers, a Wildlife Assistant, 10 Foresters and 20 guards. There are inspection bungalows at Anappadi, Thunakkadavu and Parambikulam. These are reserved for officials and available at times to privileged visitors.

For the visitors, two tree top huts with two beds each are available at Thunakkadavu and Parambikulam. A lodge accommodation is also available at Parambikulam with eight beds. A dormitory with twenty beds exists at Anappadi and a small community hall is available at Parambikulam. A building for the Salim Ali Nature Study Centre is located at Kuriarkutti. All of these are used to accommodate nature camp participants. Tamil Nadu PWD maintains an inspection bungalow at Parambikulam which has five suites which can be booked in advance. Besides these facilities, the quarters of Tamil Nadu PWD, Kerala Irrigation, Forest, Police and Health Department staff also occasionally accommodate a small number of overnight visitors. For the day visitors, basic facilities like toilet, drinking water, etc. are not available. Although a block of toilets has been built at Anappadi, near the information centre, these are not yet open to visitors. This affects women visitors, particularly.

There is a seminar hall and an interpretation centre at Anappadi. Basic audio visual equipments are available. There are a good number of slides, video films, posters, etc. These facilities are used for nature camps. There is a mini-bus for taking tourists to see the Kannimara teak and Kannimara vayal area from Anappadi. Trails have been identified for trekking. There is a mini-bus for taking tourists to Kannimara teak area from Anappadi, the Park entrance. During April 1999 to January 2001, 162 Nature camps were conducted in Parambikulam Wildlife Sanctuary, of which educational institutions accounted for 53 camps, clubs 34, government employees 17, professional groups 7 and others 51. Among the educational institutions 17 schools, 23 colleges, four technical institutes, five University groups and four teachers groups participated. Among the government employees who participated in nature camps 71 per cent were from Thiruvananthapuram.

Visitors can drive along the road from Anappadi, the entrance to the Sanctuary up to Parambikulam dam around 18 km away. Access to the internal roads requires permission of the Assistant Wildlife Wardens. Permission is given to each vehicle and a guide has to accompany the group. Visit to Kannimara teak requires an additional entrance fee. In all the other internal roads no fee is charged but the guides have to be paid. Trekking is permitted through designated trails accompanied by authorised local guides.

5.2.3 Visitor profiles and feedback

Parambikulam WLS attracts around 35,000 visitors annually Table 5.11. Figure 5.1 shows the pattern of visitor flow in Parambikulam Wildlife Sanctuary. The highest visitor arrivals coincided with the summer vacation in educational institutions. During March, when the adjoining Indira Gandhi Wildlife Sanctuary was closed, the visitor numbers in Parambikulam was the least. November to January had a high level of visitation. Table 5.12 shows the origin of visitors during different seasons. Like in all other tropical countries foreigners arrive during December to January. During Pooja holidays, visitors from Tamil Nadu outnumbered all others (Table 5.13). The daily visitor flow during Onam 2001 is shown in Table 5.14. The maximum number of 564 visitors arrived on September 1st. A lone Canadian also visited the sanctuary during the Onam holidays. The vehicle composition during the different days of Onam 2001 is shown in Table 5.15. Jeeps, Qualis, Sumo and other multipurpose vehicle were more frequently used by visitors. The gender composition of visitors is given in Table 5.16. Women including girls accounted only 13 percent of the total visitors. Results of two visitor surveys in Parambikulam are given in Table 5.17. Information, facilities and opportunities for visitors needs attention.

Table 5.11 Number of visitors and entry fee collected during 1999 to 2001

Year	Number of visitors	Entry fee collected (in Rs.)
1999	37,779	2,81,725
2000	34,431	2,32,845
2001	34,313	2,68,740

Compiled from sanctuary records

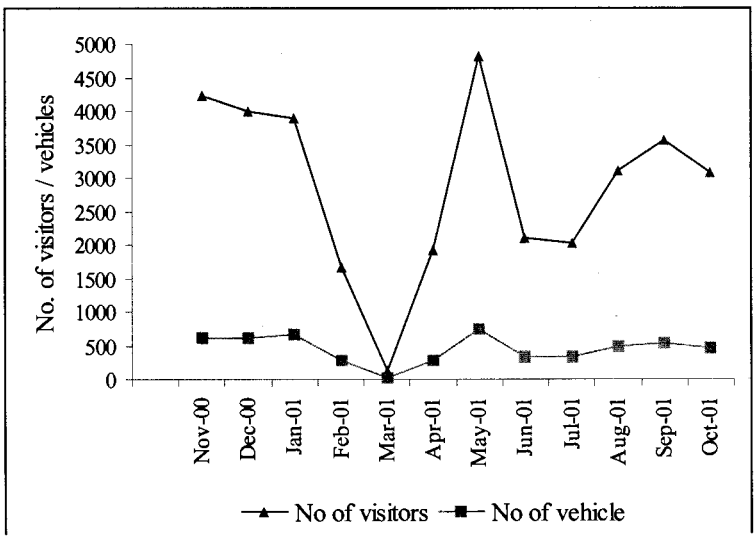

Figure 5.1: Pattern of visitor flow in Parambikulam WLS

Table 5.12 Visitors at Parambikulam during November 2000 – October 2001

Month & Year	Place of origin			
	Kerala	Tamil Nadu	Other states	Foreigners
November 2000	959	3313	150	-
December 2000	1543	2344	77	34
January 2001	1073	2692	50	71
February 2001	688	895	25	54
March 2001	94	42	-	5
April 2001	532	1322	72	6
May 2001	1043	3693	74	8
June 2001	385	1656	48	4
July 2001	394	1597	29	14
August 2001	437	2558	76	39
September 2001	1697	1867	6	1
October 2001	1111	1889	77	9
Total	9956	23868	684	245

Table 5.13 Visitors to Parambikulam Wildlife Sanctuary during Pooja holidays

Date	Karnataka		Kerala		Tamil Nadu		Others		Total	
	Vehicle	Visitors	Vehicle	Visitors	Vehicle	Visitors	Vehicle	Visitors	Vehicle	Visitors
25-10-01(Pooja)	1	3	14	128	10	100	-	-	25	231
26-10-01(Pooja)	2	17	16	125	31	152	1	9	50	295
27-10-01(Sat)	1	3	12	83	22	190	3	8	41	292
28-10-01(Sun)	3	9	4	20	14	110	0	-	21	139

Extracts from the exit register show that out of 50 vehicles which entered the Sanctuary on 26 October 2001 only 36 exited in that day meaning that 14 vehicles stayed overnight on that day.

Table 5.14 Composition of visitors to Parambikulam during Onam 2001

Category	30th Aug	31st Aug	1st Sept	2nd Sept	3rd Sept
Adults	47	106	539	506	92
Children	6	11	24	30	8
Foreigners	0	0	1	0	0
Total	53	117	564	536	100

Table 5.15 Vehicle composition in Parambikulam Wildlife Sanctuary during Onam 2001

Vehicle	30th Aug	31st Aug	1st Sept	2nd Sept	3rd Sept
Car	2	10	30	32	6
Jeep/ MPV etc.	3	7	32	30	8
Van/Tempo		2	11	16	
Total	5	19	73	78	14

The visitors to Parambikulam during Onam 2001 comprised groups from Palakkad, Polllachi, Wadakkenchery, Ernakulam, Kottayam, Thrissur, Kozhikode, Malappuram, Trivandrum and a lone foreigner from Canada. It was noticed that unlike Pooja holidays visitors from Tamil Nadu were few.

Table 5.16 Gender composition of visitors during *Pooja* holidays 2001 (N=990)

Gender	Percentage
Man	82
Woman	9
Boy	5
Girl	4
Total	100

The group characteristics showed that 31 per cent were family groups and 69 per cent belonged to all male peer groups from clubs, educational institutions or friends. Among the 96 visitor groups comprising 990 individuals interviewed, 82 per cent were men, nine per cent women, five per cent boys and four per cent girls. The visitors to Parambikulam comprise day visitors and overnight visitors. Day visitors come to the Sanctuary around 8 to 9 AM and return by 4-6 PM. During their visit most groups drive up to Parambikulam, have some refreshments and either return or try to visit other parts such as Kuriarkutty, Tunnel entry, Kannimara teak, etc. Overnight visitors usually have some accommodation arranged for them previously. They enter the Sanctuary usually in the afternoon or evening. Those who haven't arranged accommodation previously try to find an accommodation in any of the forest department places or quarters. They usually get an opportunity to go on a night drive through the main road for wildlife sightings. In the morning also they get a chance to take a vehicle trip or walk along a trail accompanied by authorized tracker.

As the access to the Sanctuary is from Tamil Nadu, most of the visitors are from Tamil Nadu during the week days and holidays in Tamil Nadu. During weekends and during holidays in Kerala visitors form Kerala are more. Foreign visitors account for less than one per cent of the total visitors. The difficulty of arranging accommodation in advance inhibits foreign visitors. The Indira Gandhi Wildlife Sanctuary has more accommodation at Top Slip and visitors who stay at Top Slip drive to Parambikulam as day visitors. Tamil Nadu Government runs a bus service twice a day from Pollachi to Parambikulam which is the lifeline for the local community, staff as well as many visitors.

Table 5.17 Visitor satisfaction – Parambikulam WLS

Visitor response	N= 61	Onam 2001 N= 97
	% Satisfied	% Satisfied
Information provided by sanctuary management	33	56
Facilities and opportunities	30	46
Staff attitude and helpfulness	44	71
Behaviour of others	63	66

Survey results

5.2.4 Suggestions of the visitor workshop

The points raised by the participants in the Workshop on Community participation in visitor management on 16-3-2002, is listed below. This group comprised tour operators, tourists, nature lovers, Forest Officials and Tourism EDC (Ecodevelopment Development Committee) members.

The important points raised by the group are:

1. Transparency in availability of accommodation and firm booking.
2. Communication facilities
3. Hygienic toilets, food and linen
4. Cordial behaviour from Department Staff
5. Receipts for all transactions and prevention of cheating
6. Ban on intoxicants
7. Personal security
8. Elephant safari
9. Unique Selling Points- hide outs, wildlife viewing, floating tents, trekking, fishing, ethnic food, boating, bird watching, vehicle safari, etc.
10. Codes of conduct for tourists and hosts
11. Trail packages with clear information on routes, time, difficulty levels, costs, etc.
12. Fixed rates for season, off season and peak season.
13. Tourist Information Centers with all facilities
14. Canteen, shops, etc
15. Trained guides and hospitality managers
16. NGOs to assist capacity building during initial years
17. Training at KITTS, KIHMS, etc.
18. Ecologist with communication skills
19. Marketing of tourism and reservations
20. Feedback from stakeholders and review
21. Differentiate tourist –one day and overnight campers
22. Waste management and plastic ban
23. Brochures, advertisements, web site, films, library, recreation facility
24. Time keeping
25. Research for developing responsible tourism,
26. Monitoring of changes, involvement of tourists in park management, etc.

5.2.5 Visitor behaviour and activities

Driving though the Sanctuary and picnicking is the usual visitor activity of the visitors. A very small percentage of the visitors use the trails for nature study or

trekking. Among the negative behaviour observed, fast driving and drunken behaviour were the most prevalent. The Sanctuary management has prohibited bringing in of liquor into the Sanctuary and at the entrance check post the vehicles are checked for liquor bottles. However, there is no restriction to those who are intoxicated. Visitors have ingenious ways of avoiding detection of liquor at the check post. Moreover, liquor is available clandestinely within the Sanctuary as there is a high premium for its supply. On holidays in Kerala, when the rush to Parambikulam is high the drunken behaviour by the visitors is quite noticeable. This gives a poor image of the enforcement of sanctuary regulations.

5.2.6 Current issues and challenges

5.2.6.1 Access to information

Information availability to first time visitors needs improvement. A full time information desk manned by officials who have the authority to permit visitors the use of any facility in the Sanctuary is necessary. Decisions on accommodation allotment are made by the warden. Permissions to visit Kannimara teak, Salim Ali Centre, or any of the trails are to be obtained from different Range Officers whose offices are scattered in different places. As all these officers have to attend to field work and conferences apart from their routine office work they cannot be easily accessed by the visitors directly or through a telephone.

5.2.6.2 Access to accommodation

The sanctuary resources can be enjoyed best by those who get an opportunity for overnight stay in the Sanctuary or at Top Slip. They get a better chance to spot wildlife in the morning and late evening. Further they get time to use a trail. There are two issues in accommodation: How is the limited accommodation to be allotted and whether accommodation facilities should be expanded and, if so, how? First of all documentation of use should be improved so that occasional review can serve to revise the criteria for allocation. Secondly, criteria should be decided as to the priority and method of allocation. A range of criteria and their implications are given in section 3. A transparent system of decision making and communication of such decisions should be adopted. When facilities are limited, inevitably there are those who are benefited and others who are deprived. Transparent systems help form fair decisions that are seen to be fair too.

5.2.6.3 New infrastructure facilities

Parambikulam and Thunakkadavu were developed as the headquarters of the Tamil Nadu PWD for dam construction and maintenance activities. The Forest Department has now built up the Sanctuary headquarters at Anappadi, which is one of good habitats of the elephant and gaur. Parambikulam being the oldest and largest

settlement is the most disturbed area for land mammals. Thunakkadavu comes next and Anappadi is least disturbed and hence the richest abode for wildlife. So naturally if more accommodation facilities have to be developed Parambikulam would be the safest considering disturbance to wildlife. All the facilities built during the dam construction are not needed now for routine maintenance. These facilities can be taken over by the Kerala Forest Department and used for improving visitor facilities. There exists an information centre built by the Tamil Nadu PWD. Currently this is not functioning and redundant for the PWD. This building would be ideal as a second visitor centre for the Sanctuary. As this area is already a centre of human activities it is safer to concentrate visitor infrastructure at Parambikulam so that undisturbed areas are not modified further. The feedback received from visitors and tour operators regarding the conditions in the sanctuary include complaints regarding the behaviour of guides. The absence of good trackers to identify large mammals, lack of fixed rates, haggling, cheating, were also mentioned. The need for training in interpretation and communication skills, for Park staff and guides, and better enforcement of regulations were stressed. Liquor abuse by all-male groups from Kerala is a serious issue. The Park ambience is spoiled for visitors seeking a nature experience or wildlife sighting. Women visitors feel unwelcome. Safe wildlife tourism using sanctuary vehicles is a lucrative option at Parambikulam. For the serious wildlife tourists trails are available. Trail use should be regulated prudently and marketed professionally.

5.2.6.4 Cattle

It is estimated that there are point of view feral cattle roaming about reduces the aesthetic attraction of the Sanctuary.

5.2.6.5 Coordination with Indira Gandhi Wildlife Sanctuary

As Parambikulam is contiguous with the much larger Indira Gandhi Wildlife Sanctuary and since the access to the Sanctuary is through it, there is need for good coordination between both the sanctuaries in enforcing regulations and in providing visitor services. A formal mechanism for a regular dialogue has to be created so that information can be better delivered to the visitors and also provision of visitor services such as park vehicles, accommodation, refreshments, etc. can be optimised.

5.2.6.6 Local communities

Parambikulam Wild Life Sanctuary has seven settlements (Table 5.18). They include tribals and settlers. People in these settlements depend on the forest department for their livelihood

Employment to local community from visitor services could be very limited and erratic. The population of local communities within the Sanctuary had better employment opportunities earlier during the phases of timber extraction, dam construction, plantation development, etc. Currently all these activities have ceased. The

employment opportunities are now limited to the sanctuary maintenance and plantation management. Bamboo extraction which was once a major activity at Parambikulam has also stopped. It is important that employment and income levels of the local communities are improved, so that the welfare of the people is attended to and this human resource which has no other option is utilised in a manner that will improve conservation and sanctuary values. Formation of eco-development committees is a step in the right direction. There is a great potential for high value wildlife tourism at Parambikulam in Park vehicles. The participation of EDCs in providing visitor services can improve human resource development within the community and provide quality visitor experience in the Sanctuary. Managing refreshment centres, providing guides, trackers, etc. are some of the functions EDC members can perform. They can be trained to help monitor park quality and help assess visitor impacts on habitat quality and wildlife behaviour so that visitor activities can be regulated and optimised.

Table 5.18 Settlements in Parambikulam Wildlife Sanctuary

Sl. No.	Name of the Settlement	No. of House holds	Population				Average Land Holding (in cents)	Major Employment
			Male	Female	Children	Total		
1	Kadars	54	56	61	88	205	2 - 3	Forestry operations
2	Sungam	80	89	100	120	309	5 - 6	Fishing
3	Earth Dam	32	42	38	48	128	2 - 3	Forestry
4	Ancham Colony	14	14	17	24	55	3 - 5	Agriculture & Forestry
5	Kuriyarkutty	58	79	88	86	253	10 - 20	Govt. & Estate work
6	Poopara	49	-	-	-	167	70 - 80	Agriculture
7	PAP	52	-	-	-	205	1 - 3	Business & Guides

Source: Sanctuary records

Figure 7 shows the vegetation for the Parambikulam Wildlife Sanctuary. The bulk of the moist deciduous forests have been converted to teak plantations during the last 50 years. Evergreen and semi evergreen vegetation also exist in the sanctuary. Parambikulam is a mosaic of different vegetation with margins covering very large areas. Three reservoirs: Parambikulam, Thunakadavu and Parivaripallum also have been built for inter basin diversion of water to Tamil Nadu.

Figure 8 shows a perspective view of Parambikulam Wildlife Sanctuary with its drainage and hills.

Figure 9 shows the management zones of Parambikulam Wildlife Sanctuary. The main road from Anapady to Parambikulam is the open access tourism zone. Side roads upto Kuriyarkutty and the Thellikal road have controlled tourist access. The plantation area and the tribal settlements are considered to buffer zones with rest of the area designated as the core zone.

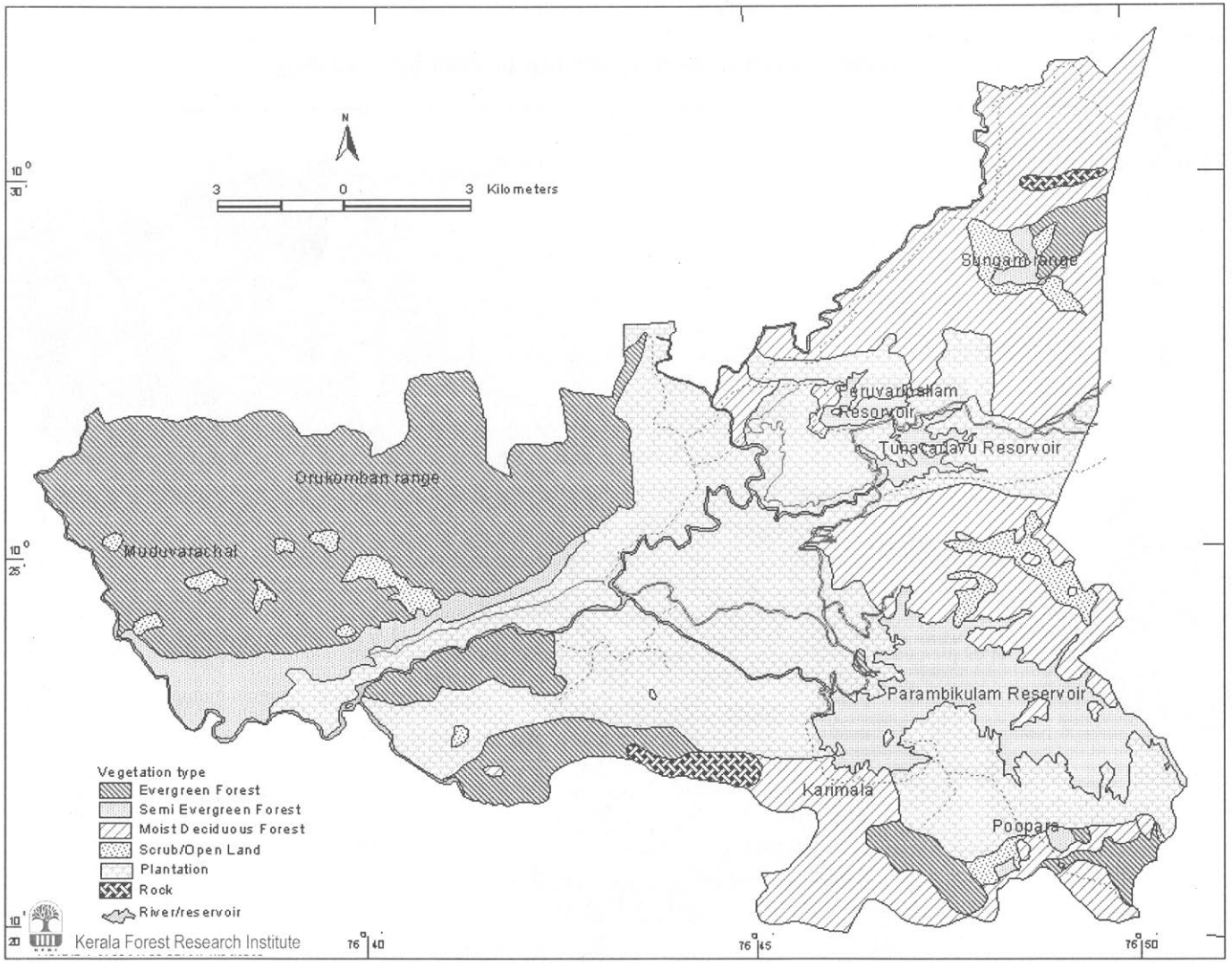

Figure 7. Vegetation – Parambikulam Wildlife Sanctuary

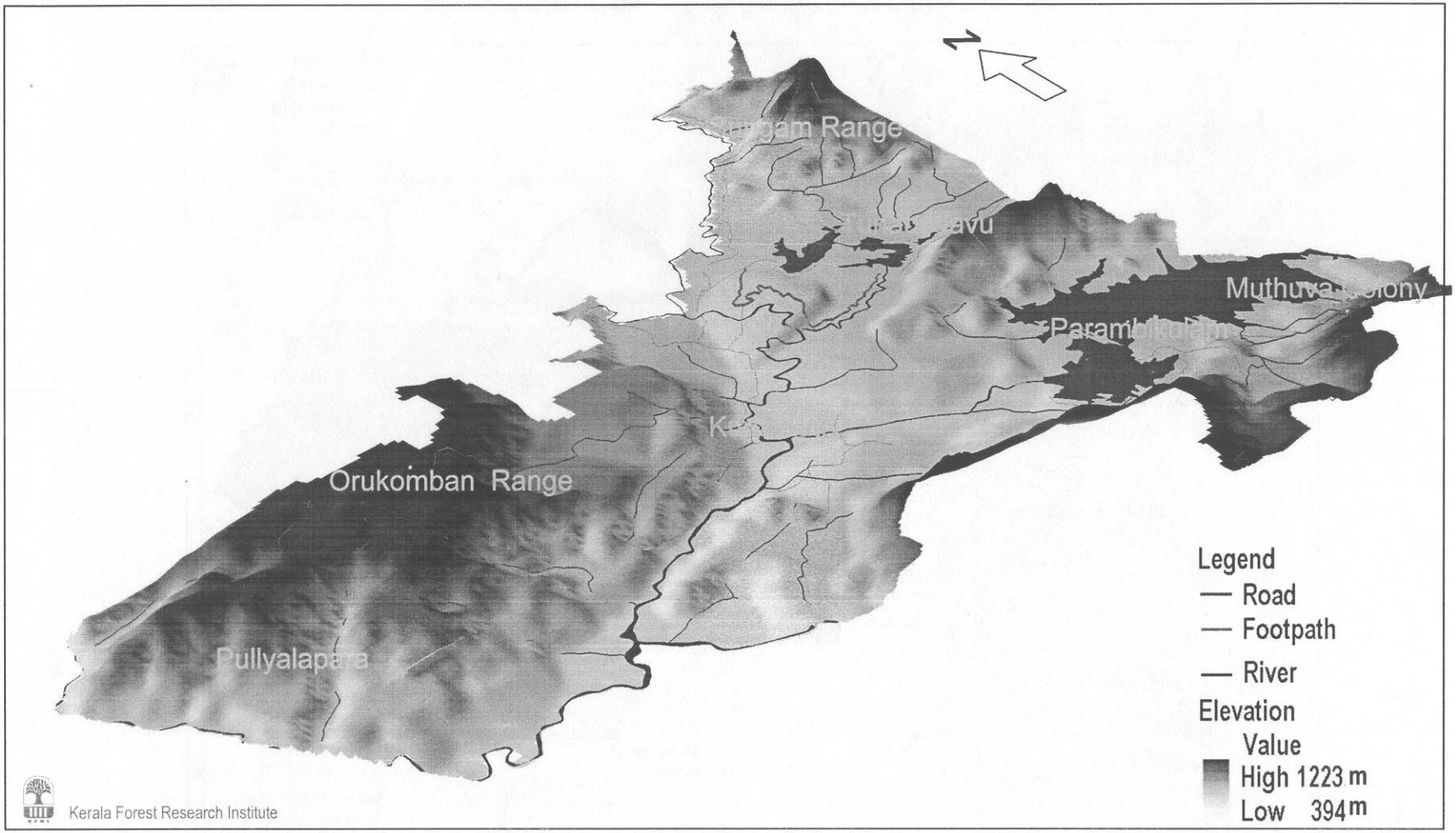

Figure 8. 3d map of Parambikulam Wildlife Sanctuary

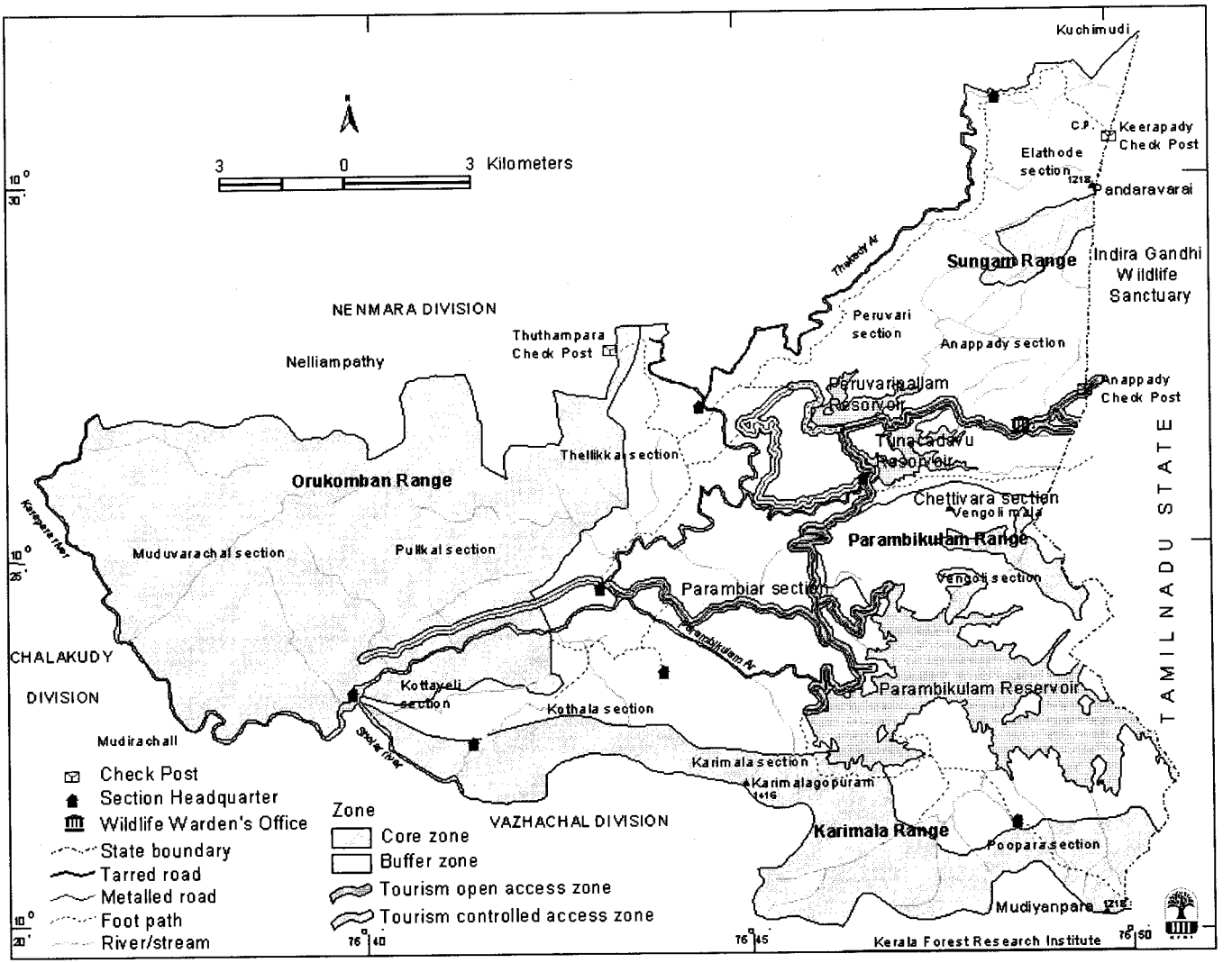

Figure 9. Management zones – Parambikulam Wildlife Sanctuary

Vehicular movements within the Sanctuary at night should be regulated. A night Safari in the park vehicle could also be thought of which can be highly priced. Due to the Vista clearance conducted every year, the roadsides are clear of trees and there is good forage there. Herbivores keep away from the main road during daytime but use it during night. Therefore night safari should not disturb the animals at night. Two visitor centres are needed in Parambikulam. The existing information centre at Anappadi and the information centre at Parambikulam under the control of the TN PWD should be developed to serve the visitors to the Sanctuary who now have serious difficulty in obtaining authentic information and permission for different activities.

5.2.7 SWOT

Table 5.19 summarises the strength, weaknesses, opportunities and threats faced by the Parambikulam Wildlife Sanctuary. The abundance of wildlife is the basic strength of the sanctuary.

Table 5.19 SWOT Analysis of Parambikulam Wildlife Sanctuary

Strength	Weakness	Opportunity	Threat
Diverse wildlife	Information centre not functioning	Unique wildlife tourism potential	Disturbance to wildlife
Presence of state and national bird and animal	Visitor amenities like clean toilets, drinking water lacking	Easy wildlife sightings	Opening of more entry points and poaching of animals
Well protected	Difficulty in securing accommodation	Karimalagopuram trekking, nature tails	Extensive and continuous vista clearings breaks the canopy continuity for arboreal species
Adjacent to a large wildlife sanctuary	No clean refreshment places	Boating	Water pollution
Mosaic of different ecosystems	Ineffective regulations on liquor abuse	Local community participation	

5.3 NEYYAR WILDLIFE SANCTUARY

5.3.1 Resources and Unique Selling Points (USP)

Neyyar Wildlife Sanctuary is a part of Agasthyamalai Hills. It covers an area of 128 km^2 and was declared as a Wildlife Sanctuary in 1958. It is contiguous with Agasthiavanam Biological Park, Peppara Wildlife Sanctuary and the Kalakkadu-Mundanthurai Tiger Reserve of Tamil Nadu. Neyyar WLS is 30 km away from Thiruvananthapuram. The topography is rugged and altitude ranges from 90 m to 1868 m (Agasthyar peak). The general climate is hot and humid with an annual rainfall of 2800 mm. Of the 128 km^2 of area, 40 km^2 is covered by evergreen forests,

80 km^2 by moist deciduous forests and the rest grasslands. Being the catchment of Neyyar Reservoir, management of the Sanctuary is vital for the irrigation project. Boating facility in the reservoir enables visitors access into the Sanctuary. Further, being close to Thiruvananthapuram, the capital city of Kerala, Neyyar WLS offers immense tourism potential.

The flora is diverse with high degree of endemism and over 1000 species of flowering plants have been reported from the region. Over 12 per cent of the plants are endemics. Nearly 125 orchids have been reported from Neyyar. Several rare, endemic plant taxa categorised in the threatened group have been found to grow here (*Poeciloneuron pauciflorum, Humboldtia unijuga, Eugenia floccosa, Janakia arayalpatra* etc.). The Neyyar Wildlife Sanctuary has a unique flora, extremely rich in biodiversity. Endemic mammals like lion-tailed macaque, Nilgiri langur and Nilgiri tahr are also found here. Other wild animals include elephant, gaur, sambar, etc. Though rare, the presence of tiger and leopard adds to the animal diversity. Wildlife sighting by visitors is infrequent. Avifauna of the sanctuary is highly diverse and rich. Added attractions to the Sanctuary are the Lion Safari Park (LSP), deer enclosure and Crocodile Rescue Centre.

5.3.2 Infrastructure and Visitor opportunities

Neyyar Wildlife Sanctuary is managed by a warden, whose office is at Thiruvananthapuram, one Assistant Wildlife Preservation officer, based at Neyyar, four foresters and 12 guards. The Neyyar WLS has a Seminar Hall and dormitory at Neyyar and dormitories at Adirumala and Meenmutti. Audio visual equipments like TV/VCR, OHP and slide projector are available with the Sanctuary authorities for interpretation.

There are three members of staff involved in nature interpretation. They are trained in forestry and wildlife management. The Neyyar WLS conducts over 80 nature education camps annually for school children and youth from Thiruvananthapuram District. The Sanctuary has a wildlife assistant for organizing these programmes. Separate financial provision for conducting interpretation and awareness programmes is provided annually.

The new information centre of Neyyar Wildlife Sanctuary is located near the boat landing area beside the reservoir. By road it is one kilometre away from the bus terminus and dam gate. The Water Resources Department which controls the dam and its vicinity has blocked the direct access to the Sanctuary information centre. Now, vehicles have to take a detour to reach there. The building has a lounge for tourists waiting for the boat ride. The department has appointed an information officer at the centre. The Water Resources Department has an information centre near the

dam site. But it is not functioning now. The location of this information centre is good and convenient to the visitors. If it is opened for visitors, information could be disseminated through this counter at the entrance. The District Tourism Promotion Council (DTPC) Thiruvananthapuram is also providing boating facilities in the reservoir using smaller boats.

5.3.3 Visitor profiles and feedback

The number of visitors to the Sanctuary during 2000-2001 is reported to be 28,361 persons. This includes visitors to the Lion Safari Park (75 %) and the rest, who take a boat ride or go for trekking. Foreigners accounted for around 6 per cent of the total visitors. This statistics is based on the entry tickets sold at the Sanctuary. Many visitors visit the garden maintained by the Water Resources Department and return without entering the Sanctuary, they are not accounted for in the above.

The main access to the Sanctuary is through Neyyar dam. Mayyam and Kappukad are the alternative entrances to the Sanctuary. These are guarded by the watchers. Only visitors who have obtained permission from the Warden at Thiruvananthapuram and entry tickets from Neyyar information centre are allowed inside. These are usually trekking groups. Foreigners who attend the yoga classes at the Shivananda Ashram nearby constitute most of the trekking group members. Neyyar Dam-Kombai-Meenmutty is one of the main trek paths in the sanctuary, an alternative route Kombai. Mayam-Puravimala-Kumbai and Kappukkad-Kombai are more frequently used. Agasthyamalai is an important trekking destination. As the trail starts from Peppara Sanctuaty, it is controlled from there. Only around two percent of the permit holders travel through Neyyar. This trail, running mostly along the crest line was promoted as a pilgrim route by the Forest Department through newspaper advertisements during the last two decades.

Details of the participants in the nature camps conducted at Neyyar Wildlife Sanctuary, during the year of 1998 to 2001 are given in Table 5.20. The composition of nature camp participants in Neyyar Wildlife Sanctuary is given in Table 5.21. Of the eighty camps conducted, education institutions accounted for twenty nine percent of the participating groups.

Table 5.20 Number of participants in Nature Camps in Neyyar Wildlife Sanctuary

Year	Number of Participants
1998-99	2937
1999-00	4217
2000-01	2396

Table 5.21 Composition of nature camp participants in Neyyar Wildlife Sanctuary during April 2000 – March 2001

Nature camps during 2000-2001	Number
Number of camps	80
Total participants (No.)	2396
Females (%)	35
Education Institutions (%)	29
Clubs /Family (%)	65
Government Employees (%)	6

Compiled from register

Table 5.22 shows the satisfaction levels of visitors sampled in Neyyar Wildlife Sanctuary. This survey was conducted before the opening of the new information centre near the boat landing. The situation may have improved since then. Table 5.23 shows the various Tribal Eco development Committees formed Neyyar Wildlife Sanctuary and the number of families in each.

Table 5.22 Visitor satisfaction, Neyyar Wildlife Sanctuary

Satisfaction	% Yes	% Not
Information provided by sanctuary management.	13	87
Staff attitude and helpfulness	74	26
Behaviour of other visitors	63	37
Perception of safety for women	39	61
Toilets	4	96

Based on field survey

Table 5.23 Tribal Eco development Committees in Neyyar Wildlife Sanctuary

Sl.No.	Name of EDC	Settlements	No of families in the	
			Settlement	EDC
1.	Chakkappara	Ayyavilakam	12	80
		Chakkappara	68	
2.	Kunnathumala	Kallukadu	14	45
		Kunnathumala	31	
3.	Karikuzhi	Sankinkonam	13	50
		Karikuzhi	37	
4.	Puravimala	Sankinkonam	10	55
		Puravimala	45	
5.	Thenmala	Kannumamoodu	12	41
		Thenmala	29	
6	Vlavetty-1	Vlavetty	47	
7.	Vlavetty	Vlavetty	38	85
8.	Komba	Komba,Ayiramkal,Pathayamvachappu	10	10
9.	Amala	Mele Amala, Thazhe Amala	10	10
10.	Anakal	Plathu	4	16
		Anakal	12	
Total			392	392

5.3.4 Current issues and constraints

Neyyar Wildlife Sanctuary, due to its proximity to the State capital and easy access by road, is a prime location for a nature education centre. The concentration of

educational institutions and Conservation NGOs at Thiruvanantahapuram makes it possible to develop nature education programmes and attract both participants and faculty to handle a range of nature-oriented programmes. The large number of tribal settlements with intense agriculture within the Sanctuary could be a resource if ecotourism programmes are developed in the sanctuary.

Ecotourism can flourish at Neyyar due to its access, reservoir and human settlements which can be the nucleus of small ecotourism enterprises run by Eco-Development Committee (EDC) in the area. A mechanism to generate and share the revenue from ecotourism should be evolved in such a way that the local communities gain benefits in the nature of employment and income and the Sanctuary gains by way of effective conservation of its rich natural forests in the Sanctuary.

EDC functioning depends on building trust and relationship between sanctuary authorities and the local communities and among all the people in the area. This naturally takes time to perfect. However, the momentum created by grassroots democracy at the Panchayat level can be carried forward in making the EDCs responsible for conservation and maintenance of the resources which will be their asset in attracting and marketing ecotourism programmes. A range of recreational activities can be considered in the Sanctuary including boating, trekking, bird watching, trail using, etc. These have to be planned in a participatory manner in which levels of acceptable change in all the parameters such as biodiversity conservation, site deterioration, cultural effects, institutional relationships, etc. have to be analysed.

5.3.5 SWOT

A summary of the strength, weaknesses, opportunity and threats of Neyyar Wildlife Sanctuary is given in Table 5.24. Opportunities for boating, trekking and nature education are indicated.

Table 5.24 Swot Analysis of Neyyar Wildlife Sanctuary

Strength	**Weakness**	**Opportunity**	**Threat**
Nearness to Capital city	Delayed release of money for running boat.	Boating, Lion safari park, Crocodile rescue centre, Deer enclosure	Expansion of cultivation within the sanctuary
Agasthyamalai peak (1868 m)	Permission for trail use to be obtained from Trivandrum	Meenmutti falls, trekking	Crocodile – man conflict
Adjacent to Peppara WLS and Kalakkad Mundanthurai Tiger Reserve	Absence of an interpretation programme.	Nature education	
	Visitor infrastructure inadequate	Ecotourism and Community participation	

Figure 10 shows the distribution of vegetation in Neyyar Wildlife Sanctuary. The eastern portions have evergreen vegetation with some high level grasslands and exposed rocks. Semi evergreen forests occupy the slopes immediately below. The valleys are covered by moist deciduous forests, some of which have been converted to eucalypt and teak plantation. The Neyyar irrigation reservoir extents into the valleys.

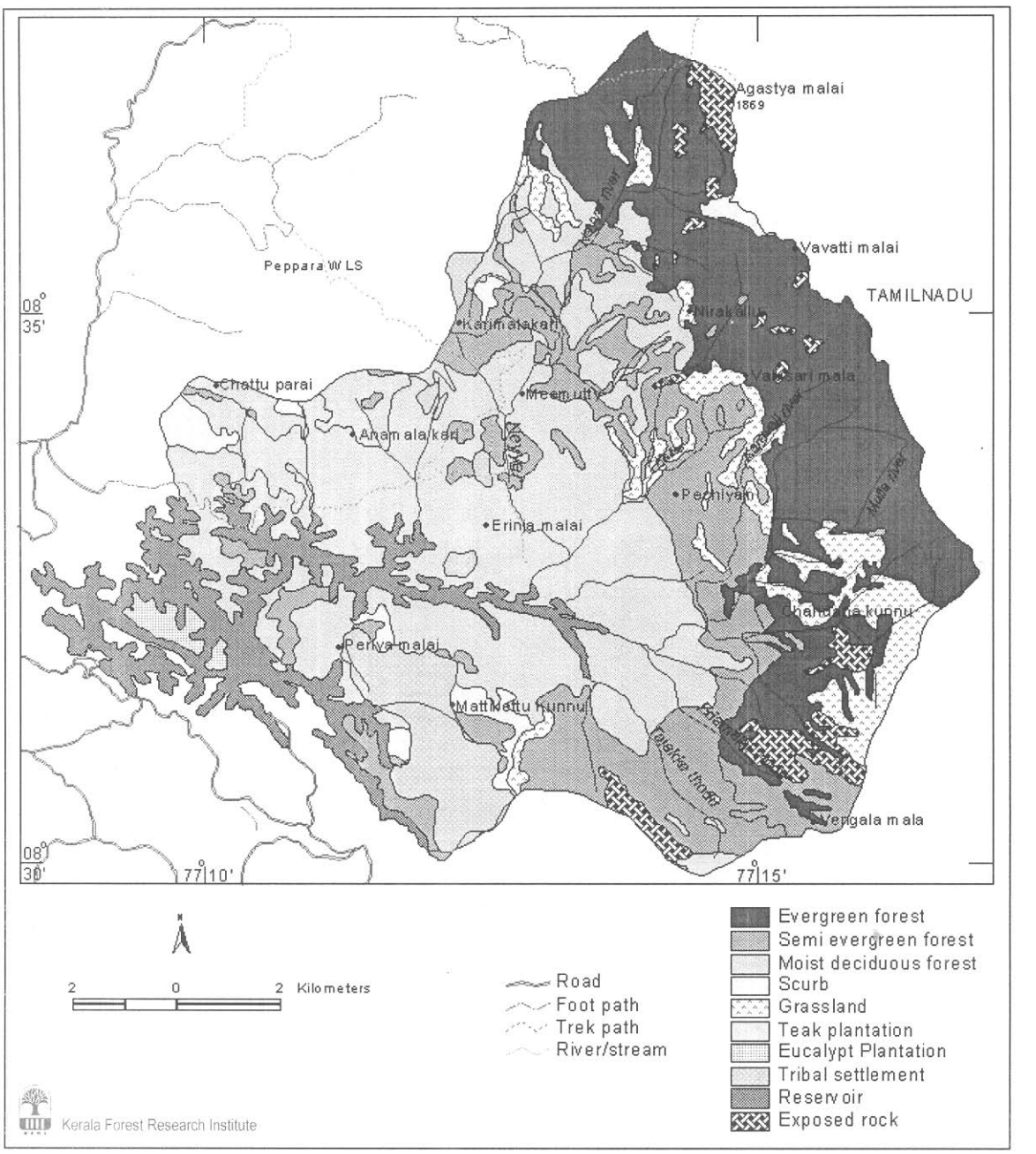

Figure 10. Vegetation - Neyyar Wildlife Sanctuary

Figure 11 shows a perspective view of the Neyyar Wildlife Sanctuary with its hills and drainage. The orientation is tilted to show the reservoir in the foreground.

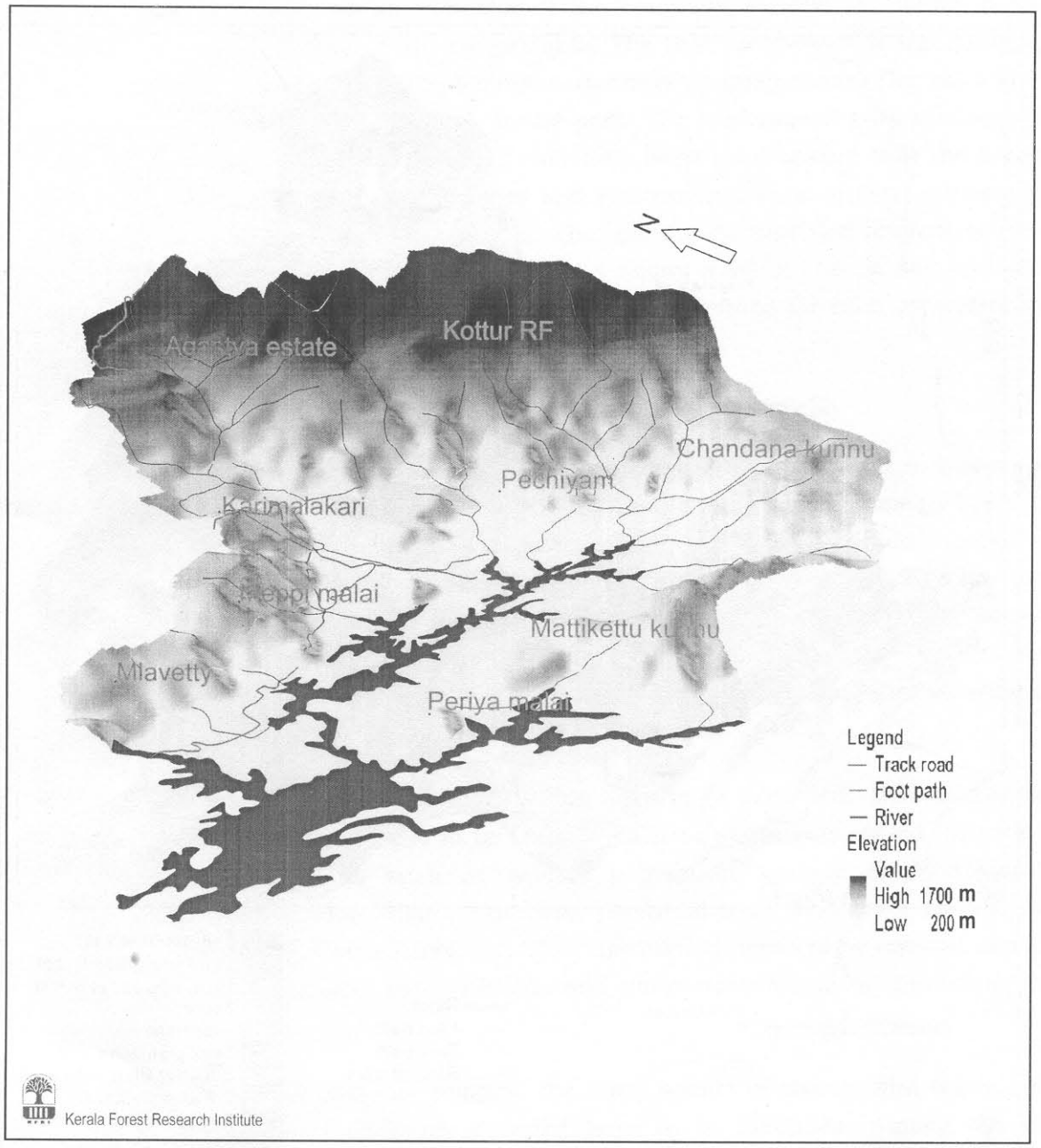

Figure 11. 3D map of Neyyar Wildlife Sanctuary

6. IMPROVING PARK QUALITY FOR CURRENT AND FUTURE VISITORS

6.1 Park quality

6.1.1 Park quality monitoring system

Park quality is defined as an indicator of the health of a park. We define it as a composite index with three main components. The first component is the landscape and aesthetics. The second is the biological richness or uniqueness. The third is the ambience or experience a visitor feels in the park. The challenge of park management is to strive to improve the park quality over time or at least ensure that the present quality is maintained for future visitors and generations. Park quality assessments have to be carried out periodically so that changes are documented and corrective or preventive actions are taken on time. Table 6.1 shows a set of criteria and indicators that can be used to assess park quality. This can be refined for each protected area with appropriate measuring scales.

6.1.2 Park quality assessment

Park quality assessments require first of all appropriate criteria and indicators for measuring status or changes. Secondly there should be a mechanism to apply the procedure in the field or document the observations. Thirdly there should be a process to monitor and review the values to ensure that it is candidly recorded. This has to be a dynamic and participatory process in which the park management takes the lead, researchers support the programme, the local community, the visitors and conservation NGOs are involved along with the staff in measuring and monitoring the park quality.

To start with, the current benchmark levels have to be recorded. The unique park values and park resources have to be identified. There exists substantial information on a range of resources such as wildlife population, canopy cover, vegetation distribution, weather data, visitor numbers, perennial rives and water bodies, road network, buildings and structures, etc. This information needs to be entered in a GIS format so that the status of specific blocks and compartments can be appreciated and monitored.

The nature of change that can happen, the likely agents of change and the margins where the change can be easily detected have to be identified. Among the park resources and landscape the most fragile, vulnerable and susceptible to deterioration have to be identified and monitored. The unit of measurement and frequency of monitoring should be appropriate to the likely change in the indicators. Multiple assessments should be encouraged so that different perceptions can be understood and deficiencies in one can be remedied in another.

Table 6.1 Criteria and Indicators

Components	Criteria	Indicators
Landscape and aesthetics	Land cover	Healthy natural vegetation, Flowing water, water bodies, Extent of degraded areas, Eroded areas
	Aesthetics, Preserving unique landscapes and scenic elements	Cleanliness, Obtrusive civil works, Extensive clearing/Monoculture, Burnt areas, Pollution
	Biodiversity *In situ* conservation of species and ecosystems	Conversion, Fire, unsustainable extraction, weeds, cattle grazing
	Environmental Pollution	Air quality, Water quality, Solid waste accumulation Plastics,
	Visual	Cleanliness, Roadsides, water's edge, refreshment areas, offices, parking areas
	Facilities	Maintenance Upkeep of Toilets Drinking water supplies, information centres, roads, accommodation facilities
Biodiversity	Ecosystem	Integrity
	Plants	Endemic, rare and threatened Abundance indices
	Insects	Habitat integrity/ sufficiency
	Birds	Number of species, Endangered/endemic
	Mammals	Number of species Charismatic species
Ambience	Pleasant and memorable visitor experience	Visitor satisfaction
	Information	Availability
	Wildlife sighting	Frequency of sighting
	Facilities	Refreshments Camping
	Access	Trekking
	Women friendly	Safety and Security

6.1.3 Park Quality Monitoring System (PQMS)

Changes happen all the time. These can be planned or unplanned. These can be expected or unexpected. Changes happen due to management actions, visitor impacts, local community activities, natural occurrences, criminal acts, etc. Parks change, their quality changes, their appeal changes, visitor numbers change and visitor satisfaction changes. There is a need to monitor park quality. For this purpose a monitoring system needs to be developed. A monitoring system can be the foundation of the park information and interpretation system. It can be a useful database for informed decision making. It can link the park management with the park users and service providers. The park quality monitoring system consists of a database which is regularly updated with inputs from park staff, researchers, visitors, local community, NGOs, etc. The status, conditions, appreciation and evaluations are documented and

open to scrutiny and additions. A workshop on park quality monitoring and visitor management in Eravikulam National Park conducted on 13 March 2002 came out with the following priorities, criteria and indicators. Management, local community, visitors and researchers formed working groups during the discussion.

Table 6.2 Criteria and indicators for park quality monitoring

Management Working group			
	Priorities	**Criteria**	**Indicators**
1	Maintaining wild tahr populations	Number Flight distance Animal health Closure of park	Census of herds frequency of sightings Distance and behaviour Disease monitoring
2	Streamlining of visitation	Carrying capacity of Park	Visitor count No. of vehicles Visitor opinion Monitoring by staff & HRWEPA
3	Reducing number of visitors	Increase entrance fee Controlled conducted tour in the Park	Annual decrease in visitors & increase in revenue Number and even spread of trips
4	Giving correct information on opportunities and rules	Clarity and quality in communication	1) Interpretation facilities 2) Feed back from visitors 3) Information given by hotels, taxi drivers, staff, guides etc.
5	Litter free	Clean environment	Quantity of garbage removed
6	Revenue flow back	Fund available with park management	1) Amount spent 2) % of the total amount collected
7	Less drunken behaviour	Periodic observation	Less unruly behaviour Less complains Feed back from visitors
8	Less vehicle crowding		Vehicle numbers
9	Co-ordinate functioning of KFD, DTPC, Panchayath, NGOs etc.	Improved relationship	1)No. of coordination meetings 2) No. of activities successfully taken up jointly

Local community (Lakkam kudi) – Working group			
1	Water	Less pollution	Clean water
2	Living conditions	Income	Health status Change in income Less negative dependence on park
3	Education	Physical quality of life	More children studying More adult literacy
4	Less wildlife conflict	Crop protection	Crop loss Human wildlife conflicts
Local community (Munnar) – Working group			
1	Water quality	Pollution free	Clean water
2	Sustainable income	All stake holders benefiting	Change in income Quality of life of local population
3	Healthy environment	Pollution free environment	Waste
4	More community benefits	Healthy community	Less social conflicts
Visitors – Working group			
1	Tahr in its natural habitat	1)Counting 2) Visitor feed back	Frequency of sighting from road % sighted Time required to sight
2	Kurinji and landscape values	Comparison	Kurinji protected, Greenery, Perennial streams Litter free
3	Visitor information	Availability of authentic information material	Happy visitor Visitors feed back Less strain to management Animals behaviour changes
4	Less crowding	Control the traffic, Timing of visits	Frequent sightings of tahr Stress free staff Less littering
5	Good communication	Training programmes Informative handouts Creating awareness on deterioration of destination	Informed visitor Visitor involvement in conservation
6	Staff as role models	Training and monitoring	Well behaved visitors and staff Less number of conflicts
7	Good signage of International quality	Involvement of all stake holders: Panchayath, DTPC, Tourism Dept., Hoteliers etc.	Optimum number of signs Designs in tune with nature Feed back from visitors

Researchers – Working group			
1	Unique ecosystem with rich biodiversity	Annual recording and documentation	1)Total number of species 2) % of endemic and endangered species 3) No. of exotic and introduced
2	Sustaining biodiversity	Documentation-Review annually	1)Population status of selected species 2) Demography of selected species 3) Frequency of sighting 4) Behavioural changes 5) Photographic documentation for studying vegetation dynamics
3	Scientific information	Proper scientific documentation and exhibiting	1) No. of exhibits 2) No. of enquiries 3) No. of beneficiaries
4	Positive perception of stake holders	Support for park management	Availability of volunteers to assist park management

6.1.3.1 Requirements

PQMS requires a plan for data collection and management. There should be an authorised person to carry out the database management. Elements of park quality should be identified and criteria and indicators should be developed for each of the identified elements. PQMS requires frequent and periodic assessments of status of resources and conditions in the park. A database for storing and analysing the data collected should be developed and training of staff in database management is necessary. Public access to the information generated is vital for review of the process and results.

Appropriate methods of assessments in quantitative or qualitative scale should be standardised. Formats for recording information have to be developed and the staff should be trained to handle these formats while carrying out surveys and assessments. A range of assessments can be conceived including physical quality assessments, ecological quality assessments, aesthetic and landscape quality assessments, experiential quality assessment, appreciation index for visitors, local communities, etc. These assessments require skills often beyond those available within the protected area management. Research organisations can provide the expertise required and the assessments can be carried out with the help of volunteers and park staff as already practised in the case of wildlife census in protected areas.

Maps are vital and all available maps should be digitised, and wherever possible, spatial data should be put in GIS format so that visual outputs can be generated. Geographic information can include, drainage, perennial water courses, water bodies, location of roads, trails, buildings, residential areas, offices, information centre,

vegetation, wildlife distribution, density, exotic plants, etc. Introducing GIS into park management may fundamentally change the way data are compiled, analysed and shared (Landres *et al.,* 2001).The division of the area into range, section, beats, compartments, etc. should be easily identifiable in the field.

Tour diaries of the park staff on protection duties can be a source of useful information on wildlife sighting, evidence of fire, poaching, camping, illegal extraction of NWFP, visitor activities, littering, etc. if an appropriate format is used. Compilation of these field reports can be a starting point for assessing the biotic pressure, threats, wildlife presence, visitor behaviour, etc. At the minimum it can serve as a record of the frequency of official visits to each compartment. Trail users or other visitors should also be encouraged to record their observations. Depending on their skills and experience, a wealth of information could be accumulated from bird lists to staff attitude.

6.1.3.2 Monitoring

Monitoring is an essential component of any planning or management process, for without monitoring, managers know nothing about progress towards the objectives that have been set or they have set themselves. Monitoring is the systematic and periodic measurement of key indicators of biophysical and social conditions. Monitoring of visitor impacts and monitoring of service quality need to be undertaken. Monitoring programmes are most effective when impacts and threats and are addressed to issues that affect both the stakeholders and the protected area are dealt with.

Monitoring should be focused on areas where problems are most acute, places where conditions are changing rapidly (Cole, 1983), areas where new management actions are taking place and areas where information is lacking. Monitoring should start with a sound benchmark assessment of the initial conditions.

6.1.3.3 The sustainability concept

The quality concept has to be whetted with the sustainability concept to incorporate the long term effects. This is expected to make its use and application for impact assessment. As the impact of a change is known only after it occurs, it may serve little purpose. Long-term issues can be considered in periodic assessments. Table 6.2 shows how indicators of threats, risks, and decay can be developed. Evaluation of protected area management can be done choosing appropriate criteria and indicators using a five point scale. Ranking can be given for the performance of each indicator. Courrau (1999) provides a useful framework for this purpose. An attempt is made in Table 6.3 to illustrate the use of such a frame work in our context. The indicators shown in the table are the best possible outcomes which scores five points. A

performance level below the best fetches lower points. This exercise shows that Eravikulam National Park is better managed than the other two.

Table 6.2 Sustainability

Issue	Criteria	Indicators
Threats	To the integrity of the forests To the vegetation and legal status of the forests	Demands for land and produce, Locating developmental projects, resettlement programmes, new agencies emerging to manage portions of forest
Risks	Of degradation of the forests	Fire, grazing, excessive collection, habitat degradation, decline in wildlife sighting
Decay	Institutional capability	Inefficiency, corruption, decline in park image and visitor appreciation

Table 6.3 Criteria and indicators for assessing Protected Area

Criteria	Indicators	Eravi kulam	Parambi kulam	Neyyar
Social				
Communication in the PA	Communication plan exists, in operation, evaluated, oriented to target population	1	1	1
Participation	Stakeholder groups participate in all aspects of planning, mgmt and decision making of PA	3	3	3
Environmental education plan for the PA	Plan is carried out and the impact evaluated regularly	1	1	1
Visitor satisfaction	90% visitors are very satisfied with the services and with their experience in the PA	3	3	3
Management				
Signs in the PA	100% of the required signs have been put in place	4	2	2
Personnel trained for visitor management in the PA	100% of the personnel is trained to carry out their functions	3	3	3
Volunteers	Volunteer programme that responds to the needs of the PA has been established and implemented	3	2	1
Protected area zoned to enable visitor management	Zoning that responds to management plan enforced	5	3	2
Threat analysis prepared	Threat analysis mechanism has been prepared and threats are identified, prioritized and dealt with through management actions	3	3	3

Natural and cultural resources area				
Impact of the vigilance plan on the PA	No illegal actions or prohibited actions take place	4	3	2
Adequate research programme for the PA	A structured programme appropriate to the needs of the management exists	3	3	3
Information systematized on the PA	There is a very functional system to register a wide array of information using technological resources	3	3	2
Species indicators of the area identified	Species indicators of the ecosystem of the PA are identified using scientifically valid information and these are available to field personnel	4	3	2
Economic - financial				
Products and services identified and valued	The PA has identified and valued the products and services that it produces	2	2	2
Stakeholder groups receive direct benefits	More than 75% of the stakeholder groups receive some type of direct benefit	3	2	1
		45	37	31

Adapted from Courrau (1999)

6.2 Upgrading systems

Visitor management has become quite sophisticated and refined throughout the world and it is important that in the globalised milieu we keep pace with the international standards. It is necessary to train forest department personnel as well as selected community members from EDCs to acquire skills in communication, business management, hospitality and enforcement of park regulations. If they do not acquire such skills quickly, it is likely that others, particularly from the private sector, may take over such functions. In the long-term interests of the protected areas it is advantageous to secure higher incomes and higher share of the incomes from ecotourism to the local communities. If skill development does not take place rapidly, the opportunity would be lost. It is also important for the Forest Department to acquire visitor management skills so that other agencies such as the Tourism Department or other public sector corporations who do not have a mandate for conservation usurp the role of the forest department and go in for overkill for short-term revenue disregarding long term park values.

It is necessary to involve training institutions in the tourism and hospitality sector such as Kerala Institute for Travel and Tourism Studies (KITTS), Kerala Institute for

Hospitality Management (KIMS), etc. to train forest department staff in the fundamentals of visitor management. It may be necessary to identify and engage consultants to design training programmes, attitude and aptitude testing for staff and EDC members for suitability for visitor management functions. Specialised tailor-made training must be imparted to suit the educational level of the selected individuals. As visitor management requires inter-personal skills of high order and the right attitude to public relations and conservation it is vital to institute a periodic review of the capabilities and attitude of the functionaries so that the standards are maintained in a competitive environment.

In the long-term the recruitment base for protected area management staff has to be widened to include more women and people skilled in visitor management, communications psychology, economics, etc. Advanced training in protected area management, in all aspects of planning, design, monitoring, visitor management, community development, etc. has to be provided to the new recruits so that the park environment is both people-friendly and well regulated. Systems for periodic assessments in which economic incentives and positions in the hierarchy are available to more efficient workers should be developed so that there are strong incentives for better performance. People-friendly behaviour should also be stressed and misfits should be screened out.

With increasing tourism pressure, protected area management systems have to be upgraded. There must be a visitor management plan which fits into the overall management plan of the protected area. To implement this system of management plan there must be a cadre of trained personnel with right attitude. There must be appropriate visitor infrastructure and facilities. Information availability and quality of visitor services should be frequently monitored. Possibility of corruption should be minimised taking into account suggestions and complaints of visitors. A documentation system which records visitor access activity and feedback must be created. Currently the visitor documentation is oriented towards ensuring that the revenue collection is remitted in the treasury. Basic information such as the gender is not recorded at present. The origin of the visitor and nationality is recorded, primarily because the entry fees are different. While foreigners and visitors from rest of India are accepted into the protected areas, no effort is made to man information centre with people who can communicate in other languages.

A code of conduct should be developed for the staff, visitors, local communities and researchers within the protected area. This will encourage different groups to behave in an appropriate manner that minimises conflicts and sustains park values. This is not a mere visitor regulation. It is developing a new outlook and behaviour standard that are compatible with high quality visitor experience. The code of conduct is essential to regulate the activities of guides, EDC members and staff who may

consider themselves above the law in remote areas. Conservation programmes can succeed only if effective implementation of conduct regulations is achieved.

Park quality monitoring system should be the key to regulate visitor activities in the park. It is not the number of visitors that matters. It is the impact that occurs on the park resources as well as other visitors that needs to be considered. An efficient park quality monitoring system could be a prime tool to dynamically adjust visitor access and activities if the desired condition of the resource, environment or the social ambience is affected. To implement this programme training is required both in documentation and data management. Ideally a GIS framework where all compartments, locations and trails are monitored on a real time basis for different attributes such as visitor numbers, vehicle numbers, noise levels, pollution levels, resource condition, etc.

The park quality monitoring should lead to periodic assessment of conditions within the protected areas which should be opened to review and comment by park staff, local communities, visitors, visitor facilitators, researchers, policy makers, etc. This would lead to improvements in the quality of data and the design and presentation of information. The 'Friends of the Park' could involve in data collection by providing volunteers to help visitor management as well as provide research inputs.

Conflict management is an important area of visitor management. It is inevitable that there would be conflicts between visitor interests and conservation interests. There could also be conflicts between visitors and local community. Conflicts may arise between visitors engaged in different activities and between visitors in different groups influenced by group size, characteristics and gender composition. Crowding is one factor that may accentuate conflicts. Visitor management should foresee possibilities of conflicts so that a plan for managing conflicts is available and known to the staff. It is always wise to avoid a conflict rather than solve it later. Conflict management should strive to minimise conflicts through the implementation of interpretation programme, promoting a code of conduct, regulating activity and implementing an appropriate zoning for various activities.

6.2.1 Training and development

Training of staff should cover visitor and community relations, conflict resolution and environmental education. It is always advantageous to invest and assign some tourism revenue to local communities, so that local people see direct financial benefits from park tourism. Planners and managers should therefore be active in stimulating maximum local economic benefit. Trained and motivated manpower, sufficient to mange situations should be available and infrastructural facilities suitable to smooth functioning should be developed.

6.2.2 Zonation in the protected areas

Within a protected area what is the rationale for identifying different zones? If the protected areas are considered as refuges for wildlife then tourists' access must be limited to minimise pressure on the target species. Zoning an area as out of bounds for visitors enables the wildlife to move about freely without being disturbed by vehicles or people. If zoning is done based on the current accessibility such as the road network, then all inaccessible areas are classified as core zones till the road network expands to those areas. If zoning is done to enable a small number of staff to mange a large area zoning can help limit visitors to a smaller area, thereby burden of the staff is minimised (Eravikulam National Park). If zoning is done on the basis of the fragility of an area, which is sensitive to species erosion or habitat degradation, such prime areas need to be preserved without modification by visitor activities/access. In such a case the park areas should be classified according to the vulnerability to human disturbance.

To sum up, the rationale of zoning could be the need to minimise human disturbance in valuable conservation areas, which are vulnerable and for the ease of management by limiting the visitors to a small area. This involves preparing a hierarchy of ecosystems, habitats and species on the basis of conservation importance and vulnerability to degradation.

6.2.3 Sustaining park quality

To sustain park quality it is necessary to understand, assess and monitor threats to park quality. Threats can be to the biodiversity in the protected area, habitat quality, wildlife corridors, landscape and aesthetic values, visitor facilities and services. The threats can be from any quarters. It could be from illegal private actions, it could be form ill considered public sector programmes or it could be from insensitive action or inaction of the staff. Assessing and monitoring these threats has to be an ongoing process with the involvement of independent agencies such as a research institution, which has multidisciplinary capabilities. All threats should be taken seriously and contingency plans should be developed in case the threats became serious or real. Threats from illegal private actions can be handled at the park management level itself provided they have no political backing. Threats from ill-considered public sector programmes require intervention of the government and interdepartmental consultation. Threats from insensitive action or inaction by the staff may require level of appeal to the government, the judiciary or a specially instituted Forest Commission. As in all cases prevention is better and cheaper than cure. Understanding threats and being prepared to eliminate or counter such threats would strengthen management capabilities and ensure that park quality is sustained. Many changes in sensitive and fragile ecosystems, as we have in the protected areas, may be damaged or irreversibly

changed by activities including visitor pressure. It would be foolish to try to increase park revenues or local community incomes through activities that compromise on sustaining park values.

The information need of park management and visitors can be met if a wide range of researchers could be involved. This can be achieved through the creation of a supportive and encouraging environment. Harmon (1994) provides additional guidelines to assist park managers in co-ordinating and managing research in protected areas. Adopting an open and welcoming attitude to research could be very fruitful. Setting up a research permit process can help formalise procedures. Researchers should be required to provide a copy of their research publications to the protected area. Maintaining research facilities and accommodation for researchers, a library of all studies undertaken in the protected area, a database of past research data sets, providing transport for researchers within the protected area and generally fostering a positive attitude by park staff towards research and researchers could improve information availability.

Regulations enforcement may rely on a firm, policing approach, or managers may decide that violation of a regulation is an opportunity to educate visitors. Either way, enforcement of the rules is important: If it is absent, protected area management will lack credibility and be undermined.

The potential effectiveness of information and education in solving management problems vary from low to very high. Visitor actions which are either unskilled or uninformed can be modified with better information and education. Effectiveness is low for modifying careless actions such as littering or noise. Illegal actions like collecting wildlife or plants, use of vehicles in wilderness zones, etc. may not be influenced by education. Such activity can be regulated only by firm enforcement of regulations (Manning and Lime, 2000).

Plans are written to change or work toward future conditions. To make plans socially acceptable it is useful to invite input from a large range of interests. Although all conflicts may not be resolved and consensus achieved, wide consultation can help in mutual learning and cooperation. Even those fundamentally opposed to park's objectives can benefit from seeing their interests honestly handled. Implementation of the plan is much enhanced if all stakeholders take responsibility and ownership of the plan. To build greater levels of trust Forest Department needs to overcome distrust or other problems, by openness. Open communication is necessary with the community and within the agency.

6.3 Friends of the Park

For the monitoring programme to be credible it is necessary to make this programme transparent. The use of internet and making available the information on indicators of park quality and visitor feedbacks can help foster transparency. Many of the world's leading parks publish draft management plans for comments in the internet so that not only the local stakeholders but the international community including visitors, researchers and policy makers can comment on prescriptions in a real time manner before final approval. The mechanism for involvement of visitors, volunteers and NGOs in providing, assessing and reviewing the information can be formalised by creating an institution such as 'Friends of the Park'. Interested people could be encouraged to take membership in the organisation which would give them access to park management, newsletter and invitation to annual meetings. This can be a continuation of the stakeholder workshops conducted in the protected areas during the revision of the management plan.

6.4 Local community involvement

While involving local communities as partners in resource management in protected areas it is important to take care of the communication, education, health care and training needs of the local community. Their support for park management will increase when their needs are seriously addressed and their quality of life is enhanced.

IUCN (1999) recommends such a strategy in developing countries.

Community participation in ecotourism programmes may not bring substantial benefits to change the living standards of the local population. The example of the Royal Chitwan National Park in Nepal should be an eye opener. This park which is a popular international destination provided income to only 6 per cent of the households in its vicinity and even they received just a pittance as wages (Bosselman *et al.*, 1999).

Cultural impact of any development activity including tourism is to be discussed with the community before any change is implemented. When the local community is very poor in comparison with the visitors they become vulnerable to exploitation. Park management has a responsibility to consult the community on the levels of acceptable change and impacts on local culture. It is possible that change may be welcome to local communities if the benefits are substantial and everyone is included in the distribution of the gains. Mechanisms to ensure the protection of the dignity and privacy of the local community should be devised so that unscrupulous tour operators or visitors do not take advantage of their poverty and powerlessness. A democratic institution such as eco-development committee can be strengthened to protect the interests of the local community and find ways of articulating and defending their interests.

Local community involvement has to be institutionalized in the form of ecodevelopment committees or tribal VSS (Forest Protection Committee). Just providing employment in forestry activities or protection to a few individuals is not sufficient for local community participation and empowerment. The institution of the EDC must be created, fostered and nurtured to make them competent to become partners in conservation and resource management. Without an effective EDC, that is democratically functioning it is difficult to ensure that the benefits are shared equitably among the community. A healthy EDC functioning generates much needed communication that can avoid misunderstandings between the park management and the community and can contribute to minimising conflicts among park management, local community and visitors.

It is the local community which has the greatest stake in the park management. A visitor boom may be a transient phenomenon. The park staff get transferred. Therefore formalised systems for consultations, confidence building and conflict resolution should be created. There is serious limitation to visitor targeting for EDC incomes and employment. The money flow from visitors may be too small and erratic in the beginning years. This can lead to shattered expectations and disappointment. An appropriate system would be to involve EDCs in resource conservation and park maintenance activities which can be planned and finances assured in advance. It is important to have the local community interested in conservation of the park by involving them in decisions on park management and visitor management. When decisions are owned by the community they tend to cooperate and support management actions.

Figure 12 shows a vulnerability analysis of Eravikulam National Park. Three levels of vulnerability namely high, moderate and low are indicated. This is based on the twin criteria of unique vegetation and the slope. In the high vulnerable class all sub tropical hill forest and shola forests of medium density and above are included. Slopes above 250 are also grouped in this class. In the moderate category low density shola forest and grasslands are included. In the low vulnerable class scrub vegetation and plantations are included. It may be noted that Naikolli mala which is indicated as the tourism zone in the management classification is in fact in the high vulnerable class due to its vegetation and slope. The management classification regarding Naikolli mala may be reconsidered to ensure its protection from degradation.

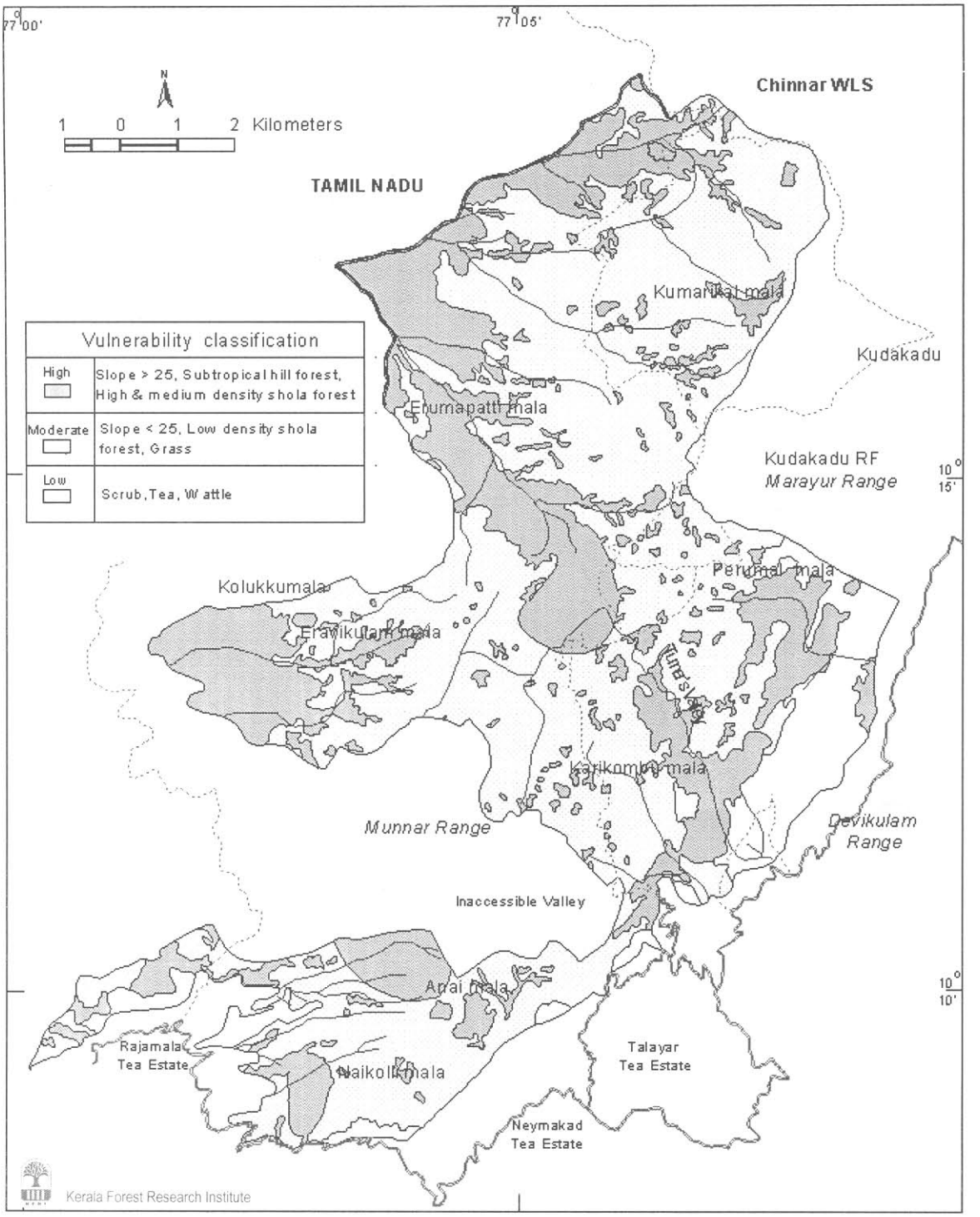

Figure 12. Vulnerability - Eravikulam National Park

Figure 13 shows the in the conservation value assigned for different areas in Parambikulam. In the Conservation Class 1 evergreen forest with vegetation density above 75% are included. In the Conservation Class 2 all riparian forests, the remaining evergreen and semi evergreen forests are included. Class 3 consists of moist deciduous forest and Class 4 consists of teak plantations. Vayals, which are a unique feature of the Parambikulam Wildlife Sanctuary, are also marked in the map.

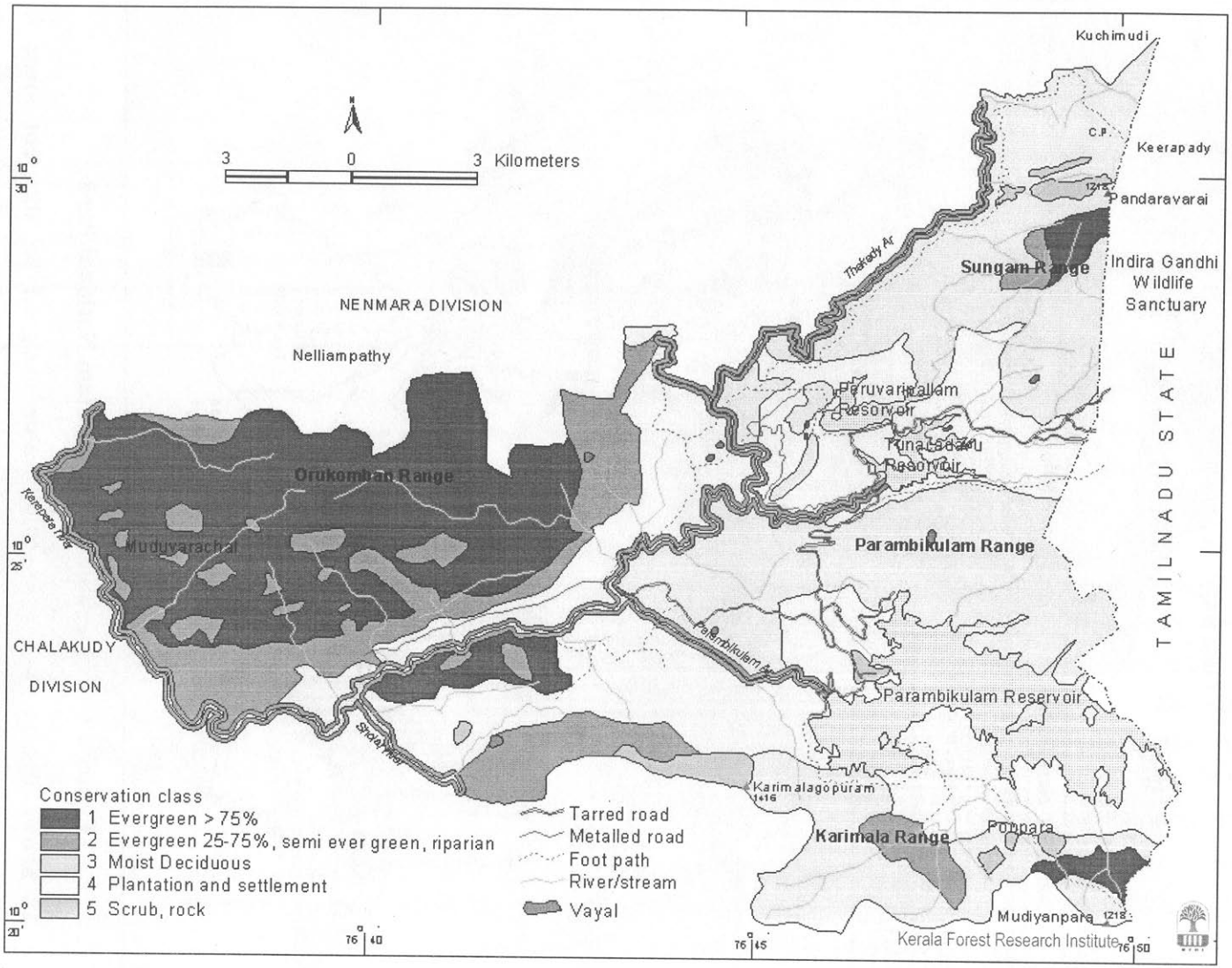

Figure 13. Conservation value assigned – Parambikulam Wildlife Sanctuary

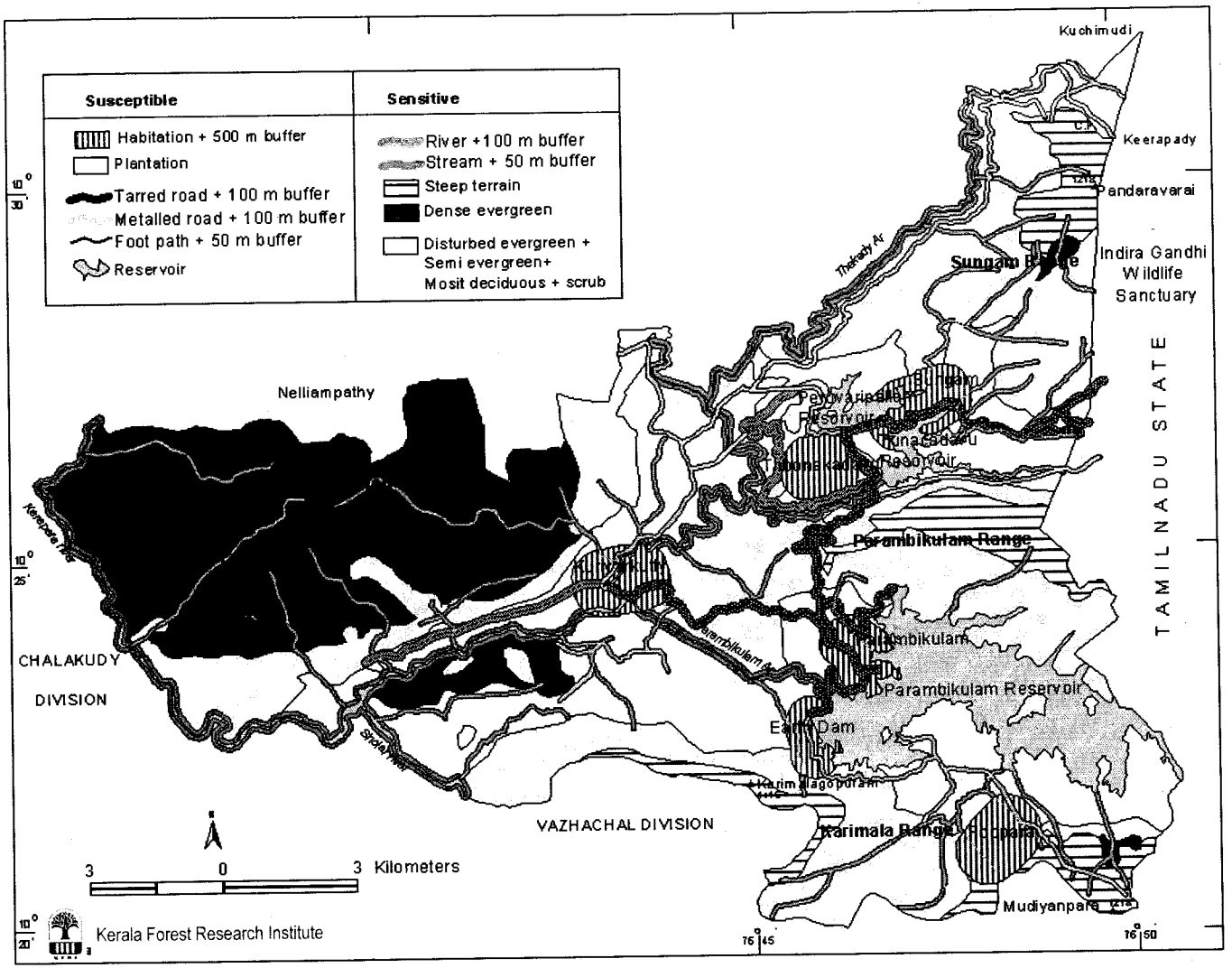

Figure 14. Vulnerability – Parambikulam Wildlife Sanctuary

The vulnerability classification of Parambikulam Wildlife Sanctuary is shown in Figure 14. Two categories are used: susceptible and sensitive. In the sensitive category rivers and streams with buffer of 100 m and 50 m respectively are included. Steep terrain which is the abode of Nilgiri Tahr is also included. Natural vegetation zones of evergreen, semi evergreen and moist deciduous are also included under the sensitive category. In the susceptible category habitations with 500 m buffer, roads with 100 m buffer, foot paths with 50 m buffer, teak plantations and reservoirs are included.

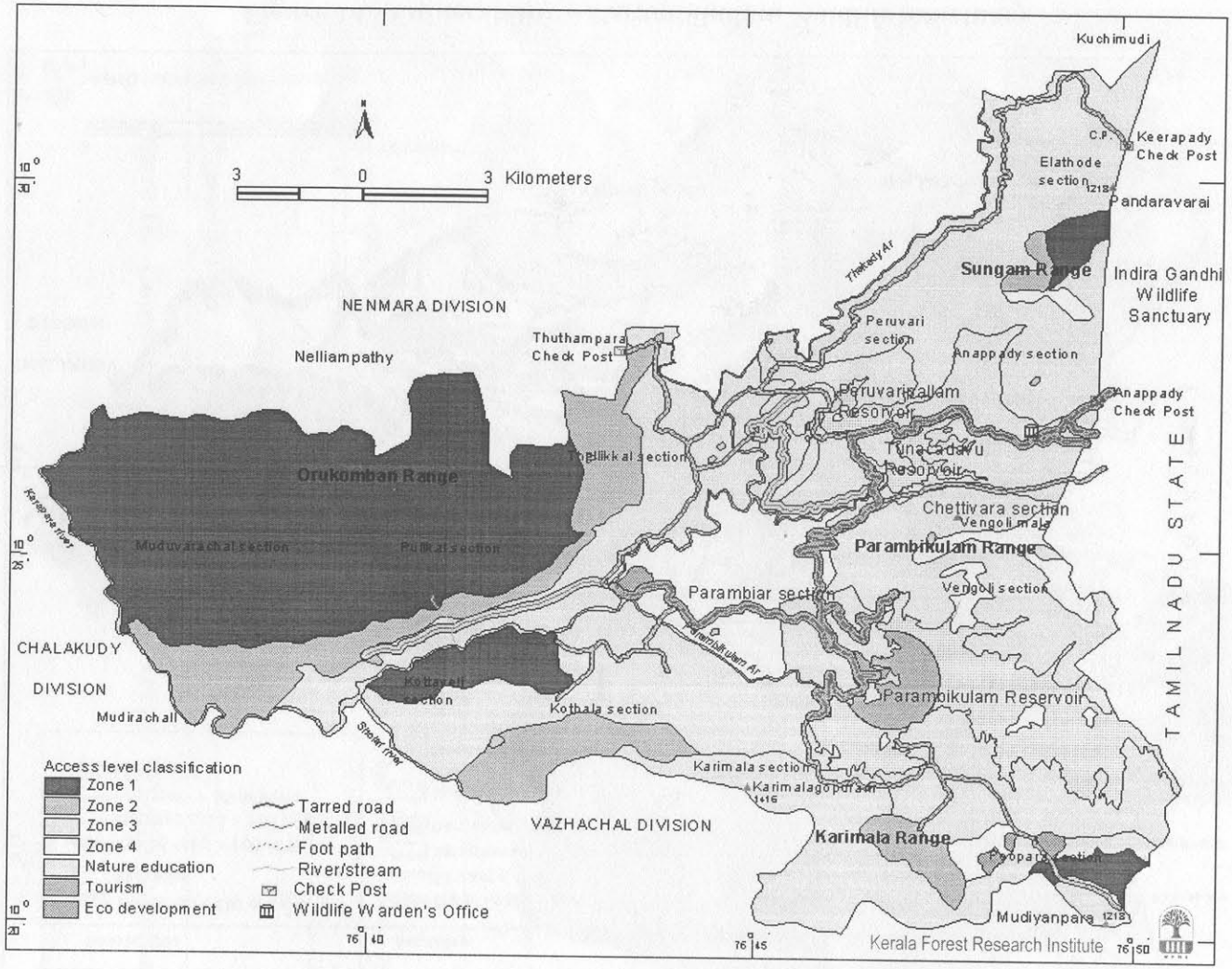

Figure 15. Visitor management strategy – Parambikulam Wildlife Sanctuary

Figure 15 shows the proposed visitor management strategy for Parambikulam Wildlife Sanctuary. Based on the conservation value and vulnerability, different access level classification is indicated. Zones 1, 2 and 3 are high conservation value areas which are also sensitive by the vulnerability classification. These should have the least access for visitors.

Figure 16 shows the conservation value assigned to different areas in Neyyar Wildlife Sanctuary. Conservation classes from 1 to 5 are indicated in the map. In Class 1 dense evergreen and terrain with high slope are included. In Class 2 semi evergreen forest and medium slope area are included. Moist deciduous forests comprise the Third Conservation Class. Tribal settlement and plantations are included in the Fourth Class. The artificial reservoirs are placed in the Fifth Class.

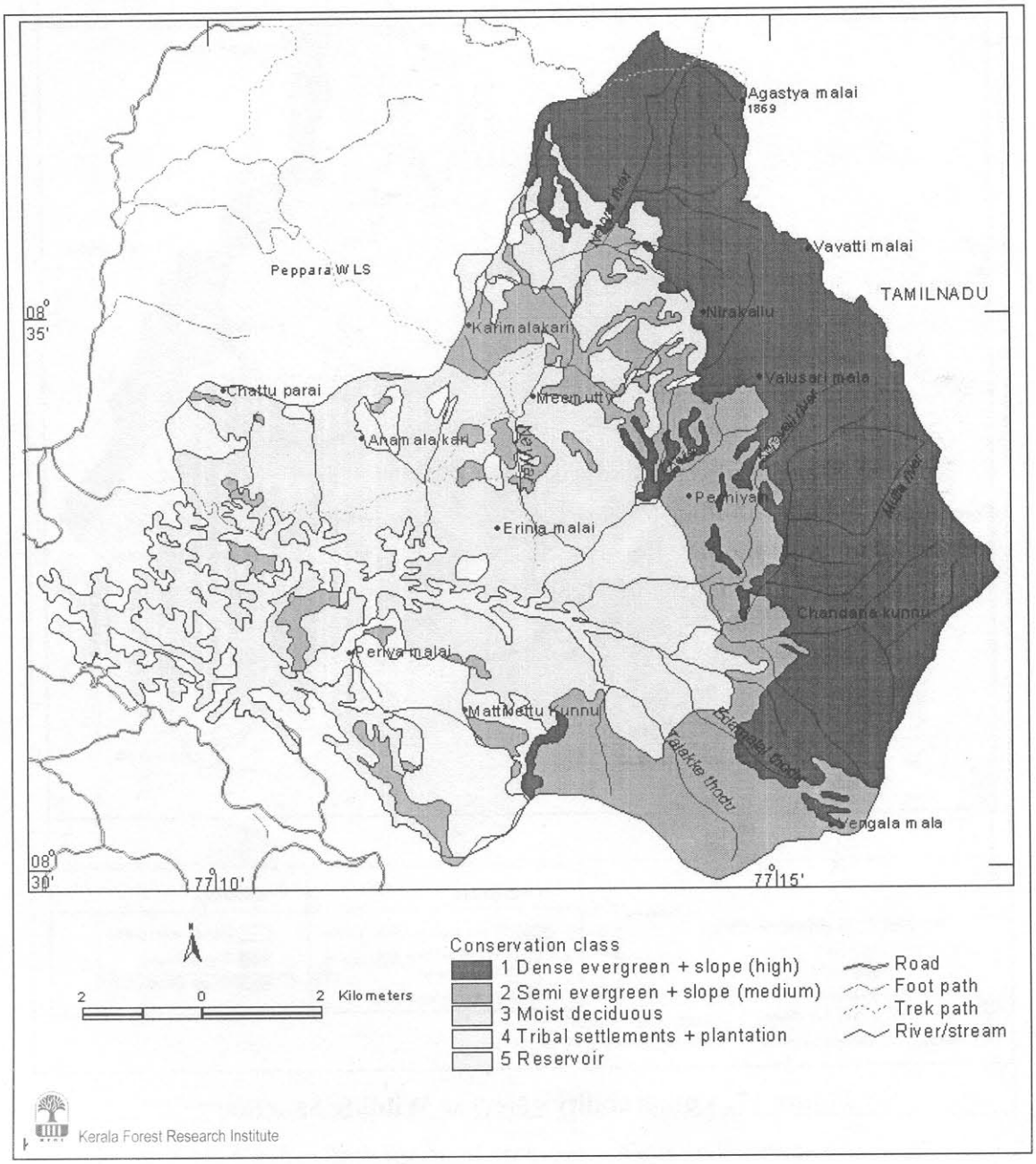

Figure 16. Conservation value assigned - Neyyar Wildlife Sanctuary.

Figure 17 shows vulnerability analysis of Neyyar Wildlife Sanctuary. Two categories namely sensitive and susceptible are shown. In the sensitive category dense evergreen forest and slopes medium and above are included. In the susceptible category the lower elevation areas foot paths and tribal settlement areas are included.

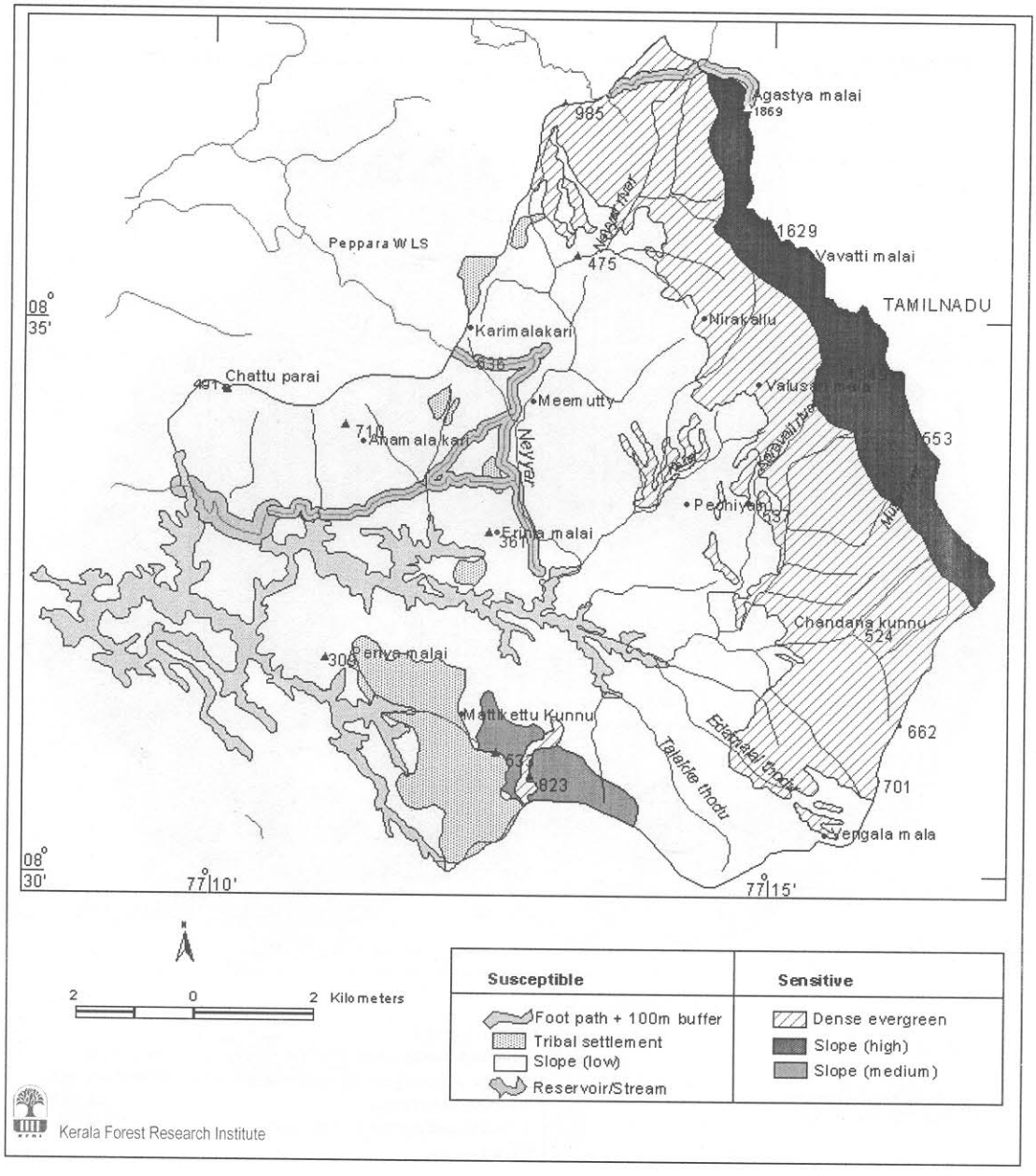

Figure 17. Vulnerability - Neyyar Wildlife Sanctuary

Figure 18 shows the proposed visitor management strategy for Neyyar Wildlife Sanctuary. Tribal settlements with buffer around them and plantations are included in the Eco development zone. The reservoir is placed in the nature education zone. Zone 1 to 4 which have high conservation value and which are sensitive in the vulnerable classification are placed in the restricted access category for visitors with zone 1 having the least access.

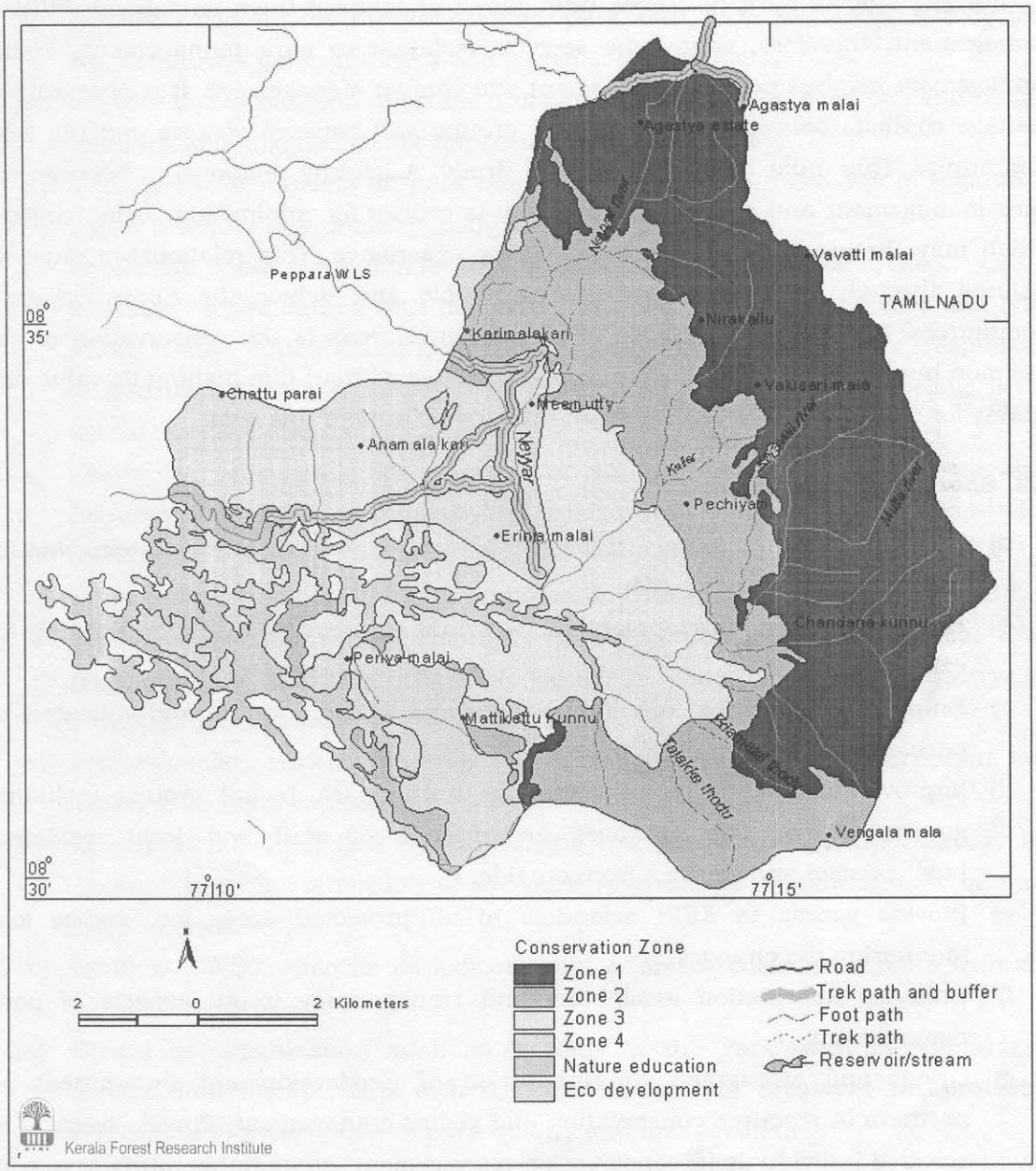

Figure 18. Visitor management strategy - Neyyar Wildlife Sanctuary

7. VISITOR MANAGEMENT STRATEGY

7.1 General approach

The general approach in the development of visitor management strategy is that parks have to be made more visitor-friendly by enhancing the quality of visitor experience. For quality visitor experience it is necessary to conserve the landscape, wildlife, biodiversity and all park resources unimpaired or manage them sustainably. Visitor management, therefore, cannot be seen in isolation to park management. Visitor management involves people management and conflict management. It is necessary to manage conflicts between visitors, visitor groups and between visitors and the local community. This must be done fairly and firmly. A healthy relationship between the park management and the local community is crucial for minimising social conflicts which may threaten conservation and visitor experience. This relationship must be fostered through the functioning of responsible and democratic Ecodevelopment Committees. The primary purpose of all protected areas is the conservation of our common human heritage for current and future use without diminishing its value and quality for all time. Visitor management must contribute to this goal.

7.2 Short-term strategy

a) Review the laws, manuals, rules and procedures to streamline systems and for effectiveness of conservation
b) Human resource development in Park management by initiating training for existing staff.
c) Enhancing capacity to monitor changes and develop criteria and indicators of park quality for each park
d) Improve documentation of visitation to the park by all groups including government officials, relatives and friends of staff and local residents, businessmen and workers from outside.
e) Provide access to KFRI scientists to all protected areas for studies and monitoring the changes.
f) Enhance information availability and transparency in all aspects of park management
g) Orient and strengthen the institution of Ecodevelopment Committees as partners in resource conservation and visitor management. Provide training to selected individuals in conservation management, sustainable tourism, nature education, hospitality services, financial management, community development etc.
h) Evolve appropriate plans for EDC functioning to make their participation meaningful and sustainable.

i) Provide basic facilities such as potable water outlets and clean toilets in all parks.

j) Make parks visitor-friendly, especially women-friendly and provide access to authorities in case of distress or complaints round the clock.

k) Redeployment of an Officer at the level of Assistant Warden for visitor management and delegate powers to impose on the spot fines for penalising vandalism and drunken behaviour in park.

l) Prepare a code of conduct for visitors, park staff, EDC members, researchers etc. to improve park ambience and lessen social conflicts.

m) Improve documentation of visitor number, gender, access, activities and obtain feedback and suggestions for improving visitor services.

n) Monitor visitor impacts on park quality periodically with the aim of regulating visitor pressure at vulnerable points.

o) Implement speed regulation for all vehicles inside the protected areas.

p) Redesign nature camps with the participation of conservation NGOs and offer priced nature education at graded levels with modern courseware, responsive to feed back from the participants. Target free nature camps to people living within the park and its periphery.

q) Identify suitable trails for visitors and fix user fees, limits of group size, frequency, timings, accompanying guides/staff and provide walkie-talkie connection to the visitor centre for all off road activities.

r) Carry out pre-project EIA of all proposed activities in protected areas including visitor access, activities, alignment of trails, construction activities, EDC programmes to avoid disturbance to wildlife habitats, biodiversity conservation and other park values.

s) Professionalize park management to eliminate possibility of corruption and avoiding wasteful expenditure.

t) Ensure steady fund flow by authorising the warden to operate Treasury PD Account to which a portion of the park revenues is ploughed back for park maintenance.

u) Conduct SWOT analysis periodically and address risks and threats with the required seriousness.

v) Create an organisation such as 'Friends of the Park' with individual and institutional membership with the Warden as the President for providing critical manpower, review of park quality and management.

7.3 Long-term strategy

a) Focus on Quality in Management to raise the protected areas in Kerala to the status of world-class sites for conservation, research, limited ecotourism and nature education by upgrading systems of management.

b) Make parks people-friendly with enhanced visitor opportunities by engaging people with the right attitude to conservation and visitor facilitation.

c) Widen recruitment base to attract specialists in visitor management, communication, social sciences, GIS, etc. and encourage women to compete for park management positions.

d) Engage specialist organizations such as KFRI, WII, KITS and consultants to design information systems, monitoring and evaluation systems, conservation programmes etc.

e) Implement participatory monitoring systems for assessing changes in park quality.

f) KFRI to create a database of park quality assessments for documenting resources, their status and changes.

g) Ensure sustainable community participation in conservation and visitor services.

h) Enhance transparency in park management decisions and activities and professionalize park management to the highest standards of performance and integrity.

i) Pursue a policy of zero tolerance to offensive or drunken behaviour by visitors or staff and impose heavy penalties to offenders.

j) Pursue a policy of zero tolerance to corruption in all aspects of visitor interface EDC functioning and park management.

7.4 Eravikulam National Park

7.4.1 Visitor management priority

Minimize visitor impacts on the fragile ecosystem

7.4.2 Short-term strategy

a) No modification of the landscape with construction activities, road building etc.

b) Improve protection of grassland-shola ecosystem and its unique wildlife.

c) Identify potential nature trails and determine limits of acceptable change to park quality.

d) Evolve mechanisms for trail management including limits to numbers, group size, frequency, pricing and involvement of eco-tour facilitators.

e) Create employment opportunities for the Lakkam kudi community in park protection, maintenance, monitoring of park quality. Improve literacy and educational opportunities of the population

f) Create infrastructure for visitor information and visitor services at the Munnar-Marayur road with sufficient parking facilities.

g) Provide vehicles for visiting Rajamalai in association with the High Range Wildlife and Environment Protection Association of Munnar.

h) Encourage tea company vehicles and that to Pettimudi to self regulate timing of vehicle movements through the park and to use newer less polluting vehicles.

i) Appoint or redeploy a visitor management officer at the level of Asst. Wildlife Warden to ensure quality visitor experience in the park at Rajamalai.

j) Provide online information regarding park status, timings and opportunities.

k) Lower visitor pressure on holidays and weekends by adopting differential pricing of entry tickets and vehicle parking fees by doubling the rates on such days.

7.4.3 Long-term strategy

a) Implement participatory park quality monitoring and evaluation system and document changes.

b) Open nature trails with necessary institutional arrangements for a limited number of trail users.

c) Build up information on the all aspects of conservation value including research studies, newspaper reports, video clipping, photographs, management programmes, budget, visitor statistics, visitor feed back and make it accessible on line with an interactive interface.

d) Provide regular training in wildlife management, visitor management, interpretation, documentation, etc. for park staff with the involvement of KFRI, Wildlife Institute of India and Kerala Institute of Travel and Tourism Studies.

7.5 Strategy for Parambikulam Wildlife Sanctuary

7.5.1 Visitor management priority

Limited wildlife tourism with community participation through EDCs

7.5.2 Short-term strategy

a) Maintain information centres at Anappady and Parambikulam.

b) Strengthen Ecodevelopment Committees and involve them in park maintenance and in providing visitor services such as managing refreshment centres, providing guides, trackers etc.

c) Restrict vehicular movement at night in the Sanctuary.

d) Initiate a system to monitor existing trails to document and analyse visitor impacts on habitat quality and wildlife behaviour.

e) Restrict trail usage to working days and ban trail usage by visitors on holidays and weekends when there is more vehicle pressure on the Anappady-Parambikulam road.

f) Enhance vehicle entry fees on holidays and weekends to lower vehicle pressure.

g) Provide online information regarding park status, timings and opportunities.

7.5.3 Long-term strategy

a) Create an institutional arrangement with the involvement of EDCs for high value wildlife tourism in park vehicles.

b) Take over the buildings, which are presently under the control of PAP authorities at Parambikulam and utilise them for sanctuary management.

c) Coordination with Indira Gandhi Wildlife Sanctuary in providing visitor services

7.6 Strategy for Neyyar Wildlife Sanctuary

7.6.1 Visitor management priority

Promote nature education, ecotourism and recreation tourism through EDCs.

7.6.2 Short-term strategy:

a) Establish coordination among KFD, Irrigation Department, DTPC and KTDC in providing visitor information and services.

b) Establish a centre for nature education by taking over sufficient land leased out to Irrigation Department at Neyyar dam, having easy access from the Neyyar dam bus terminus, for developing a nature education centre and visitor amenities so that further construction activities does not affect the forest area.

c) Improve functioning of EDCs by sharing responsibility in sanctuary maintenance, conservation, ecotourism and recreation tourism.

d) Identify visitor opportunities particularly, nature trails, their lay out and determine limits of usage.

7.6.3 Long-term strategy:

a) Develop Neyyar Wildlife Sanctuary as a premier locale for nature education and eco-tourism.

b) Ensure conservation of the ecologically sensitive and biodiversity rich fragments of natural forests within the sanctuary.

8. CONCLUSIONS

1. Visitor management is part of park management, which aims to enhance visitor experience and ensure conservation of the park values in perpetuity.
2. Parks need visitor management to minimise conflicts. A professional approach is necessary to deliver quality visitor services.
3. Parks cannot be managed as a mass tourism destination or as an amusement park as resources are vulnerable to degradation.
4. Optimisation of visitor number, visitor profile and activities are needed. This requires frequent quality assessment or participatory monitoring of resource status and changes, visitor services, visitor behaviour and impacts.
5. Closing a park to visitors to protect park resources may become counterproductive as illegal entrants may poach and plunder without detection. Visitors can serve as watchdogs to what happens within a park.
6. Visitors bring revenue to a park. They can contribute ideas and manpower in times of need. They can also help in monitoring the quality of the park resources and services. They can be utilised as an institution 'Friends of the Park'.
7. Nature education is a function of parks and it has to be designed and targeted carefully with the participation of conservation NGOs.
8. Good visitor management requires enlightened HRD, upgraded system of management that is transparent, people friendly and involves local community in management and benefit sharing.
9. Social sciences research should be encouraged to enhance understanding of the problems and options to overcome them, as park management is increasingly people management and conflict avoidance.
10. Protected areas in Kerala have a great potential as quality visitor destinations. Changes are already underway which can make Kerala an international showcase of human development as well as nature conservation.

9. REFERENCES

ANZECC (Australian and New Zealand Environment and Conservation Council) 2000. Benchmarking and Best Practice Program: User-Pays Revenue. Report of the ANZECC Working Group on National Parks and Protected Area management. [Homepage of Environment Australia] [Online]

Bosselman, F.P., Peterson, C.A. and McCarthy, C. 1999. Managing Tourism Growth:Issues and Applications. Island Press, Washington, DC, USA.

Brown, C.R. 2001. Visitor Use Fees in Protected Area: Synthesis of the North American, Costa Rican and Belizean Experience. The Nature Conservancy Report Series Number 2. [Homepage of the Nature Conservancy] [Online].

Cole, David N. 1983. Monitoring the condition of wilderness campsites. Research Paper INT-304. USDA Forest Service, Intermountain Forest and Range Exper. Station, Ogden, UT, USA. 10pp.

Courrau, Jose'. 1999. Draft document on Monitoring of Protected Areas in Central America. Presented in First Workshop for the monitoring of protected areas in Central America, Tegucigalpa, Honduras, May 12 and 13, 1997, PROARCA, CAPAS, CCAD, USAID (Online).

Eagles, Paul F.J., McCool, Stephen F. and Haynes, Christopher D.A. 2002. Sustainable Tourism in Protected Areas: Guidelines for Planning and Management. IUCN Gland, Switzerland and Cambridge, UK. xv + 183pp.

Government of Kerala 2001. *Draft Tourism Vision 2025.* Department of Tourism, Government of Kerala. 30pp.

Hall, C.M. and McArthur, S. 1998. Integrated Heritage Management: Principles and Practice. The Stationery Office, London, UK.

Harmon, D.1994. *Coordinating Research and Management to Enhance Protected Areas.* George Wright Society, Hancock, MI, USA.

Honey, M. 1999. Ecotourism and Sustainable Development: Who Owns Paradise? Island Press, Washington, DC, USA.

IUCN. 1999. Parks for Biodiversity – Policy Guidance based on experience in ACP Countries. For the European Commission by IUCN, Gland, Switzerland and Cambridge, UK.

Landres, P. Spildie, D.R. and Queen, L.P.2001. GIS Applications to wilderness management: Potential Uses and Limitations. Gen. Tech.Rep. RMRS-GTR-80, Fort Collins, CO: USDA, Forest Service, Rocky Mountain Research Station. 9pp.

Manning, R.E. and Lime, D.W. 2000. Defining and managing the quality of wilderness recreation experiences. In : McCool, S.F., Cole, D.N., Borrie, W.T. and O'loughlin, J. (Compilers), *Wilderness Science in a Time of Change.* Conference Missoula, Montana, May 23-27, 1999. Proceedings USDA, Forest Service, Ogden, UT, USA.

Olindo, P.M. 1974. Park values changes and problems in developing countries. In: Elliot,H. (ed.) World Conference on National Parks, 2nd, Yellowstone and Grand Tetron National Parks, International Union for Conservation of Nature and Nature Resources, Morges, Switzerland. pp. 52-60.