

## **NAGARHOLE NATIONAL PARK**

### **1. PREFACE**

Implementation of IEP activities at NNP was dropped during phase III, as no funds were released to the PA during 2003-2004. The PA authorities at NNP did incur some expenditure from the remaining amounts of the previous year (2002-2003). Consequently, expenditure details of the project are given in the section – ‘Project Progress Status’ later in the report. Our TOR for the third phase of IEP did not include Nagarhole in our tour itinerary and thus no visits were undertaken to NNP during 2003-2004. The observations presented below pertain to the progress achieved at NNP up to March 2003.

The salient findings with respect to IEP implementation, arising from our three field visits in phase II and earlier five visits during phase I to NNP, are given below:

### **2. OBSERVATIONS AND DISCUSSIONS**

#### **2.1 Salient Findings**

- In the extended Phase of IEP, emphasis was on Village Ecodevelopment. Other components, such as Impact Monitoring and Research, Improved PA Management and Environmental Education and Awareness were assigned low priority.
- The beneficiaries are using the assets provided during the first phase, such as LPG, Biogas plants etc. As a result of continuous use of fuel saving devices, there has been a reduction in extraction of firewood from PA forests to the tune of 40% to 50%. Now more and more villagers are coming forward for fuel saving devices, particularly, LPG, which can be obtained by paying 50 percent of the total cost as beneficiary contribution.
- Most of the microplans have been revised recently and are available in local language. In some of the villages, beneficiaries want to substitute a few of the microplan activities with activities that were found more useful in the previous phase.
- The average amount of microplan funds spent for providing benefits to the landless families was low primarily on account of their inability to provide the matching 25% contribution.
- The women SHGs formed during first phase of the project are continuing to function effectively. The process of formation of SHGs is continuing in the extended phase of IEP. The SHG members are regularly making contributions to the SHG corpus, which is rotated as loan to SHG members. Sustenance of the SHG depends on enabling members to acquire skills for undertaking income generating activities.
- An increasing number of poor beneficiary families were assisted for initiating self-employment activities by providing wage labour in community oriented activities (community hall, boundary wall, etc.).
- In some villages, implementation of IEP has been unsatisfactory with low investments varying between Rs.2000 to Rs.9000 per family.
- Fast pace of microplan implementation in the extended phase of IEP encouraged a large number of beneficiaries to deposit 25 percent contribution. The EDC members who did not deposit 25% contribution earlier were ready to do so in the extended phase.

- Records of EDC funds, total expenditure incurred, total amount realized from the members and outstanding balance etc. continue to be available only with the concerned Member Secretaries.
- Investments made under Improved PA Management have led to a substantial reduction in the intensity of PA resource use, in comparison with the scenario that existed prior to the start of IEP.
- Since most farmers had requested that solar fencing be erected around their fields for protecting their crops from wildlife, the PA authorities undertook solar fencing work in some areas along PA boundaries, and around some EDC villages.
- PA authorities have established anti-poaching camps in the PA to minimize poaching threats through effective vigilance.
- Three NGOs were retained in the extended phase of IEP for providing microplan implementation support in sixty EDC villages (twenty villages assigned to each NGO). These are not functioning effectively as they have not received copies of microplans, the revised statement of accounts relating to investments, and unspent amount available with the EDCs.
- Delay in the posting of Field Director adversely impacted project progress, as in his absence field level staff could not take timely decisions regarding project implementation.
- There are wide variations in EDC members' and field officers' estimates of quantum of reduction in fuelwood consumption and grazing of cattle - 75 to 85% and 40 to 50% respectively. Estimates made by NGOs tally with estimates of field officials.
- In the last quarter, the speed of work was slow due to non- release of 56.83% of the total outlay for 2002-03. Also, there was inadequate supervision of the project activities due to prevailing uncertainty and confusion in the appointment of project administrators. This issue needs to be addressed on an urgent basis.

## **2.2 Improved PA Management**

### **2.2.1 Critical Management Issues**

**Man-animal conflict:** Crop raiding by wild animals, particularly elephants, has been a common problem in NNP. There are occasional cases of human injury or death due to elephant trampling. This has been a contentious issue that has been adversely impacting the relationship between the forest officials and the villagers of peripheral villages. Despite solar fencing and EPT construction work undertaken in some areas along the PA boundaries and around some EDC villages, it continues to be a critical issue, which needs to be adequately addressed. There is a need to construct more such effective animal control barriers in critical locations.

**Dependency on PA resources:** A large human population on the periphery of PA is exerting pressure on the PA as this population is dependent on PA resources for day-to-day sustenance. Despite some reduction in PA resource use by local population through various IEP interventions, pressure from coffee estates and tobacco curers is yet to be adequately addressed.

**Hadi:** The tribal population living inside the PA, estimated at 6145, negatively impacts upon its habitat quality. Many of these settlements, called Hadi, have taken to agriculture within the PA for their sustenance and survival by converting the habitat to agricultural lands. This has posed severe threat to

PA's biodiversity. Voluntary relocation of some families has been successfully carried out till March 2002. Remaining families should also be relocated, if they voluntarily agree for relocation.

### 2.2.2 Site-specific Key Strengths and Shortcomings

#### Strengths

- Improvement of 176 km of gravel roads were carried out in the PA with a total investment of Rs. 16.06 lakhs.
- About 1,376 km of the fire protection line was constructed in all ranges of PA with an expenditure of Rs. 51.80 lakhs.
- Construction of water harvesting structures/ feeder channels was undertaken.
- Effective animal control barriers have been put up in some of the EDC villages. In some cases solar fencing, with a running length of 105 km, has been put up, which has been useful. Besides this, about 110 km of EPT restoration works have been undertaken.
- An ecologist was engaged, during Phase I, for collection of basic data for estimating reduction in firewood use and intensity of grazing. Average firewood use is estimated at 5 tons/per family/per year and average fodder grazed by cattle is 467 tons/village/year.
- Soil – working around natural bamboo clumps was undertaken with a total expenditure of Rs. 7.01 lakhs to improve the availability of fodder by enhancing the productivity of clumps.

#### Shortcomings

- The services of the ecologist were discontinued in the extended phase of IEP.
- Coffee estates located around the PA and tobacco **barons** in peripheral villages continue to put pressure on PA resources. Both tobacco curers and labourers from coffee estates extract firewood.
- Despite efforts to control crop depredation by wild animals, the problem is continuing.
- Staff inadequacy continues to constrain PA management. Number of posts of forest guards, forest watchers and foresters, among others, are vacant.

### 2.2.3 Management Plan Implementation

During the first phase of IEP, the PA authorities finalized the new management plan for NNP. At present, the conduct of activities is based on the recommendations and prescriptions of this management plan. The PA authorities have spent 83.95% of targeted funds under the Improved PA Management component, which is as per the new management plan.

In the first phase of IEP, the PA authorities were not able to utilize the entire allocation under the civil works subhead of the Improved PA Management component. In the second phase only remaining works were undertaken. This was confirmed by the DCF during the wrapup meeting. During Phase II, the PA authorities planned to invest Rs.5.00 lakhs for upgrading basic amenities (staff quarters and Inspection Bungalow), and till December 2002 an expenditure of Rs.2.99 had been incurred.

Crop raiding, mostly by elephants, is a common problem in NNP. Therefore, solar fencing work was undertaken in some areas along the PA boundaries and around some EDC villages. During our visits, we observed that solar fencing work of about 8 km was undertaken in Veerannahosahalli, which will help in minimizing crop raiding by elephants and other animals.

We also visited two anti-poaching camps established by the PA authorities to minimize/control the threat of poaching, mostly from across the Kerala border, which is quite porous. The PA authorities claimed that these camps are very effective in reducing poaching. The overall strategy of the camp focuses around vigilance, patrolling and fast communication. The two camps visited were Gadipalya and Jaladakatte anti-poaching camps. These camps were located close to waterholes, as during summer and drought conditions animals frequently visit the waterholes and become easy targets for the poachers.

The PA, particularly the Eastern Division, suffered from water scarcity during 2001-2002. During our visit inside the PA, we observed that in two of the water holes (Jaladakatta and Marallukatta) the water level had drastically reduced. These water holes are frequented by elephants and other animals. The PA authorities shared that they have started monitoring all the water holes on a daily basis to check the availability of water. During monitoring, it was found that 36 water holes had completely dried up and water was available only in 65 water holes in the entire PA. In addition to taking steps to ensure that water is supplied to dried water holes through artificial means, particularly during peak summer, the PA authorities need to find permanent solutions on a priority basis to address the water scarcity problem.

Inadequate staffing has also constrained PA management. A number of posts (56 forest guards, 18 forest watchers, 5 foresters) are lying vacant. It is necessary to fill up these positions for effective PA management.

### **Habitat Improvement and Restoration**

In the first quarter of the extended phase of IEP, no habitat improvement works were started. However, this had gained momentum in the second and third quarters of the extended phase of IEP resulting in completion of the following:

- Desilting of four water tanks in the PA was undertaken in the second quarter. We visited three tanks that were desilted during phase I of the project. These were Maralukatte, Jaladakatte and Viderakatte. Except for Viderakatte, the two other desilted ponds were filled with water, whereas Viderakatte pond was only partially filled. Indirect evidences of animal use of the area were observed.
- Putting up of animal control barriers.
- Soil working around bamboo clumps in the PA to improve the growth of bamboo and availability of fodder.
- Weed eradication.
- Maintenance and improvement of roads.
- Fire line clearance and controlled burning in Kallahalla range.
- View line clearance in Kallahalla range.
- Weed eradication in Kallahalla range.

Habitat improvement works like uprooting of *Eupatorium* and other weed species in hadlus (swampy land) were undertaken in Kallahalla, Nagarhole and Mathigod Ranges with a total expenditure of Rs 23 lakhs. Some weed clearance work was also undertaken in the last quarter of the year. It was observed that *Lantana*, a prominent weed species was growing in many areas and its eradication should be taken up on a priority basis. The weed eradication works have helped improve the habitat and availability of fodder to ungulate and other herbivores.

The following habitat improvement works were financed this year by discretionary funds at a cost of Rs. 109.78 lakhs:

- Improvement of 170 km of gravel inspection roads in the PA with a total expenditure of Rs 16.06 lakhs.
- Construction of four check dams, causeways, culverts in Kallahala, Mathigod, Metikuppe and Nagarhole Ranges.
- Construction and repair of animal control structures such as EPT and solar fence with a total expenditure of Rs 4.39 lakhs.
- Building maintenance and other works.
- Construction of 1,376 km of fire protection line in all the seven Ranges in the PA with an expenditure of Rs 51.80 lakhs.
- Desilting of eight tanks in the PA.
- Construction of water harvesting structure / feeder channel.
- Construction of fire watchtower at Masalebetta in DB Kuppe wildlife range was completed in the month of March 2003.
- Soil-working (i.e., increasing the porosity of soil for moisture absorption) around natural bamboo clumps was undertaken with a total expenditure of Rs 7.01 lakhs to improve availability of fodder by enhancing the productivity of clumps.
- View line and clearance of weed was undertaken for which an expenditure of Rs 18.48 lakhs was incurred.

Besides regular habitat improvement works to improve and restore the habitat quality, the PA authorities have been successful in addressing the issues related to PA resource-use to some extent.

During the visit to PA areas and some of the peripheral forests, we observed that the intensity of grazing, which had adversely impacted the peripheral forests, had reduced since our last visit. Despite a drought condition, the forests were adequately stocked. There was evidence of reduction in cattle visiting the PA and both the project authorities and some EDC Chairmen corroborated this observation. Some of the EDCs had successfully reduced the number of cattle in their villages whereas some other EDCs had voluntarily prevented cattle from grazing inside the forests. While visiting some EDC villages, we also observed that a large number of cattle were grazing in the village common lands or fields already harvested.

Firewood extraction from the forests had reduced to some extent. According to rough estimates made by PA authorities, almost 40% to 60% reduction may have been achieved since a large number of beneficiaries were provided with LPG connections and biogas plants. However, most villages visited by us claimed that they have achieved about 75% reduction in firewood extraction from the PA forests.

While small farmers and some landless beneficiaries are regularly using fuel saving devices and have reduced their dependence on firewood for cooking, use and sale of firewood is still prevalent in some areas, such as H.D. Kote talluk. Use of firewood in tobacco curing is also continuing. Similar observations have been made, and relevant data presented, in a report on *Firewood Headloaders Socio-economic Issues and Exploring Alternate means of Livelihood along the periphery of Rajiv Gandhi National Park (Nagarhole)*. Thus 75% reduction in firewood appears to be a tall claim. It is most likely in the range of 40-45%, an estimate that the PCCF agreed with. This itself is very encouraging, as it would facilitate faster regeneration of forests.

Since use of LPG is becoming popular, the PA authorities should monitor the regularity of supply of LPG cylinders to beneficiaries, as non-availability of cylinders may constrain the use of LPG. Some of the villages are remotely located and the gas agency may be disinterested in providing its services in these areas. Thus, intervention by PA authorities, should such a condition arise, would be crucial to sustain the regular use of LPG and reduction in firewood extraction; it will also earn the goodwill of the beneficiaries.

#### 2.2.4 Wildlife Status

The PA authorities have provided details of wildlife population from 1993-94, 1997-98 to 2001-2002. In 1998, tiger population was 60 in NNP and Brahmagiri Sanctuary. In 2001-2002 the tiger population was in the range of 55-60. Thus, the tiger population has remained virtually stable since 1998, and NNP has been successful in maintaining the tiger population despite the pressure on its habitat and other anthropogenic threats in the PA. This demonstrates that IEP implementation has benefited wildlife.

An increasing trend in the population of herbivores reflects improvement of habitats and availability of adequate biomass for foraging. However, population of elephants has shown a decreasing trend from 1707 in 1997-98 to between 1500 and 1600 in 2001-02.

Population census estimates for 2001-2002 have a wide range that makes it difficult to present/quantify the extent of increase since 1993-94, although an increasing population trend is discernible. Table 2 gives the details of wildlife population in the PA.

**Table 2: Year-wise census figures for selected wild animals at NNP**

Name of Wildlife	Year		
	1993 - 94	1997 - 98	2001 - 2002
Tiger	53	55-60	55-60
Panther	15	--	25-30
Elephant	1448	1707	1500-1600
Gaur	368	170	1000-1100
Deer	--	--	7000-8000
Samber Deer	--	96	300-325
Barking Deer	--	--	60-65
Wild Boar	--	--	900-1000

## 2.2.5 Status of Offence Cases

PA authorities provided the details of offence and poaching cases for 1997 - 2000<sup>1</sup>. In all seven ranges of NNP, a total of 767 cases of offences and 11 cases of poaching have been recorded. The exact status of cases under trial in various courts is not known. However, most of the cases are still continuing and pending in the courts. Absence of special courts for environment and forest related cases coupled with inadequate knowledge about wildlife protection laws precludes expeditious disposal of cases by the courts, and results in low conviction rate.

Year-wise analysis of offence cases indicates a declining trend in offence cases in NNP. In 1997-98, a total of 272 cases of offences were recorded whereas in 1998-99 and 1999-2000 a total of 249 and 246 cases were recorded respectively. This decline in recorded cases of offences is, perhaps, due to successful implementation of IEP, which has resulted in increased awareness among forest dependent communities regarding conservation of PA resources, and as a result they are meeting their reciprocal commitments by participating in joint PA protection, etc. The status of poaching cases has remained stable in these years. Table 3 gives details of forest offence cases and poaching cases in the NNP.

**Table 3: Details of Forest Offence Cases & Poaching Cases for Last 3 Years in Nagarhole National Park**

Range	Offence Cases			Poaching Cases		
	1997-98	1998-99	1999-00	1997-98	1998-99	1999-00
Anechowkur	51	12	16	1	2	-
Veeranahosahally	7	29	57	--	1	-
Kallahalla	15	6	7	1	-	-
Nagarhole	21	3	4	--	-	-
Metikuppe	128	47	86	--	-	4
Antharasanthé	19	125	40	--	-	-
D.B. Kuppe	31	27	36	1	1	-
	<b>272</b>	<b>249</b>	<b>246</b>	<b>3</b>	<b>4</b>	<b>4</b>

## Analytical Evaluation and Assessment

### 2.2.6 Environmental Impact Assessment

We conducted EIA in accordance with prescribed format that was given to the DCF for responses. The format was filled by the DCF in which he has scored 51 points for the PA out of a maximum of 57 points, which is quite high for NNP. The duly filled EIA format is appended at Annex III. The PA authorities have been liberal in allotting maximum scores for a number of criteria. For example, a maximum of 3 points have been scored for criteria number 1, 2 and 3. These criteria are negatively impacted by low expenditure patterns due to delayed fund release. Further, the Management Plan for NNP is very recent and it would require sometime for its full implementation. Similarly, for criterion number 5, the DCF has given a score of 3, where PA authorities have only limited control over land use in adjoining area of the PA. This is more true for the coffee estates. Therefore, the score of 51 is on the higher side and seems unrealistic.

<sup>1</sup> Details for the years 2001 and 2002 are not available.

The detailed findings of the EIA and their analysis are presented below in the following table:

**Table 4 : Findings of EIA and Their Analysis**

S. No.	Issue and Criterion for EIA	Response of PA Authorities	Score	Consultants View
1	PA Management Plan Implementation.	Approved management plan is being implemented to the satisfaction of PA authorities.	3	Though the PA authorities are satisfied with the Management Plan implementation, the plan is being inadequately implemented due to constraints imposed by delayed release of funds.
2	Management intervention.	Management interventions required are known and are being fully implemented.	3	After the recently approved PA Management Plan, the required management interventions are known. Although PA authorities have indicated that these management interventions are fully implemented, variable budgetary allocations coupled with delayed fund release limits their complete implementation.
3	PA Resource Management.	PA resources are being managed satisfactorily according to the prescriptions of the approved management plan.	3	Management of PA resources is satisfactory, as per PA authorities. However, continuing pressures from coffee estates and tobacco curers is yet to be adequately addressed.
4	PA resource use.	Intensity of PA resource use has reduced substantially due to various interventions and new interventions are under implementation to further reduce PA resource use.	3	There has been a considerable improvement in reducing PA resource use by local population through various IEP interventions. Continuous implementation of this project is likely to improve the situation further.
5	Control of land use and activities in PA neighbourhood.	Such mechanisms are being implemented effectively and there are evidence to measure their outcome.	3	Land use (agriculture) in peripheral areas of PA does not impact the PA adversely.
6	Neighbours.	There is regular contact and issues of mutual concerns are adequately and satisfactorily addressed	3	The PA authorities have been able to establish good contact with neighbours, especially by appointing NGOs that facilitated microplan

S. No.	Issue and Criterion for EIA	Response of PA Authorities	Score	Consultants View
				implementation. Crop raiding by wild animals is the main issue of contention between PA authorities and neighbours, which is being addressed through project funds.
7	Visitors.	Visitors to the PA negatively impact PA and the management has worked out an action plan to contain this, which is fully being implemented yielding desired or near-desired success.	3	Visitation to the PA is not very large and is well accounted for. Private agencies also undertake limited tourism activities inside the PA.
8	Equipment support.	Equipment procured and distributed as per plan and used fully.	3	PA Management has upgraded its capacity with respect to mobility, communication and patrolling by fully using the procured equipment.
9	Staff.	The staff is moderate in strength and trained for carrying out conservation and habitat improvement works.	2	There is a shortage of staff, particularly at the field level. The available staff is undertaking regular habitat improvement works, such as desilting, weed removal, fire line clearance etc.
10	Quantification of Gains from Improved PA Management.	Gains achieved through various interventions under Improved PA Management have been partially quantified and efforts are going on to complete the quantification.	2	Reduction in dependence on PA resources has been observed and partially estimated by way of assessing the requirement of firewood and extent of grazing in the peripheral EDC villages.
11	PA biodiversity.	Updated checklists are available for major groups and efforts to map the entire PA biodiversity have started.	2	Some important studies were launched under the Research and Impact Monitoring component. Efforts to map the entire PA biodiversity may require sustained availability of funds, even beyond the project period.
12	Threats to PA.	Action plan, based on the approved management plan, to counter threats is completely	3	Though PA authorities have indicated complete operationalization of an action plan to address the threats faced by the PA, its

S. No.	Issue and Criterion for EIA	Response of PA Authorities	Score	Consultants View
		operationalized.		implementation is not full due to constraints, such as, moderate staff strength, lack of smooth funds flow, continuing dependency of coffee estate laboureres and tobacco curers on PA etc.
13	Habitat restoration.	Restoration works have started yielding desired results and more works are underway	3	Soil working around bamboo clumps, continuous weed removal etc have started yielding desired results.
14	PA protection system	Protection systems are very successful in positively impacting PA conservation and the results can be quantified.	3	Recently, PA authorities have established anti poaching camps for addressing interstate poaching issues leading to strengthening of the PA protection system.
15	Education and Awareness.	Education and Awareness activities have had good success in reducing negative impact by stakeholders.	3	NNP has benefited by contracting NGO services for undertaking education and awareness activities. This has enabled large-scale coverage of stakeholders in all EDC villages.
16	Research Studies.	Important research studies were awarded during Phase I of IEP, the findings of which have been useful and effective in managing the PA.	3	Delayed launch of research studies resulted in the exclusion of their findings in the recent PA Management Plan. However, since all studies have been completed, their findings may now be used for PA management.
17	Soil & Water Conservation.	S&M works were undertaken as planned and adequate funds and trained staff was available for implementing them, resulting in noticeable improvement in conservation of soil and water, however, such improvement can not be quantified.	2	Limited works under soil and moisture conservation were undertaken and their outcome has not been quantified.
18	Vegetation Status in the PA.	Various efforts under Improved PA Management has contributed to the improvement of vegetation in the PA but such improvement cannot be measured in	2	Vegetation status inside PA is improving after relocating a number of tribal households from the PA forests. However, this improvement is recent and is yet to be sizeable in order to be measured. Vegetation improvement has

S. No.	Issue and Criterion for EIA	Response of PA Authorities	Score	Consultants View
		terms of increase in forest area, density, canopy cover, biomass etc.		also benefited from EPT and solar fencing by preventing the entry of cattle to the PA forests.
19	Status of Wildlife.	There is limited information on the population sizes of endangered and vulnerable species and population of both endangered and dominant species show a stable trend.	2	Population sizes are estimated based on animal census. Poaching incidences have reduced since project start and as a result, both endangered and vulnerable species are indicating a stable population size.

### 2.2.7 Threat Sources and their Analysis

The sources of threats were reviewed with PA authorities during visits to NNP for which a format was provided to them. The duly filled format is appended at Annex IV. The main threats, in order of intensity are as follows:

#### Grazing

Grazing is a major threat in PA mainly due to lack of alternate grazing lands. According to PA authorities about 7,000 cattle graze in the PA resulting in damage to habitats. The biomass consumed by cattle reduces the availability of grass to herbivores. However, estimates of biomass consumed are not available. According to PA authorities, there was a reduction in grazing by cattle in the PA by 75% at the end of Phase I of IEP. The PA authorities believe that during the extended phase, population of grazing cattle will decline by another 23%, which implies that by the end of the extended project phase the number of grazing cattle population would have declined by 98%, and grazing threat virtually eliminated. In our view this is an unrealistic estimate as the measures taken for addressing the grazing problem are inadequate. Also, experience indicates that 23% reduction in cattle population grazing in six months is unlikely. Our observation, based on our visit to PA interiors, and discussion with EDC members, is that reduction in cattle population grazing in the PA may be about 40-50%. Actions like watch and ward around park peripheries, and construction of EPT and solar fences may help counter grazing. Also, the PA authorities propose to carry out research studies with regards to biomass consumption.

#### Fuelwood Extraction

Firewood extraction for cooking, selling and particularly for curing tobacco by the revenue and forest villages, and tribal settlements is the main source of threat. The Hadis living inside the PA pose a severe threat, as they depend on firewood collection from the surrounding forests to meet their cooking needs. According to PA authorities, average fuelwood collection from the PA is 5 tons / family / year. Nearly 75% of fuelwood extracted from PA forests is used for self-consumption. PA officials believe that average extraction of fuelwood at the end of Phase I of IEP has reduced by 10% mainly due to use of alternate fuel saving devices like LPG, biogas, chullah, Kerosene stove, pressure cooker, etc. in EDC villages. Distribution of these devices has

continued in the second phase, and is expected to further reduce fuelwood extraction from the PA.

### **Tourism / Pilgrimage**

Tourism is not a major threat in NNP. According to PA officials, NNP is visited by limited number of tourists who are confined to the tourist area and are not allowed in other areas of the park. To create awareness of wildlife and its conservation, PA authorities distribute pamphlets to tourists, and have posted signboards and appointed nature guides.

### **Poaching**

According to PA authorities, incidents of poaching are not common in PA and generally poaching is confined to fringe areas of the PA surrounded by villages, which is mostly minor in nature. In order to stop poaching incidents, the PA officials have set up anti-poaching camps, increased the intensity of patrolling, and are collecting information through EDC beneficiaries.

### **Collection of NTFP**

Collection of NTFP is not a major threat to NNP. According to PA authorities, collection of NTFP is banned in the PA. However, tribals living inside the NNP are involved in collection of NTFP such as honey, gooseberry, lichens, etc.

## **2.2.8 Management Interventions and Strategies**

**New management plan and research:** The PA authorities have prepared a new management plan, which provides effective direction for improved management of PA and preservation of biodiversity. Most of the research studies awarded in Phase I of IEP have been completed. Findings and recommendations of these studies will be useful in improving PA management.

**Strengthening PA management:** Permanent anti poaching camps are now being built. Earlier the camps were located on treetops or in thatched huts, which were easily burnt or damaged by the poachers or smugglers when the staff was away on patrol. With working (logging operations) of forests having completely stopped, majority of the elephants belonging to the forest department, which earlier carried out logging and other operations in the forest, have no work and are now being assigned for patrolling along the boundaries and vulnerable locations.

**Animal control barriers:** Animal control structures have been useful in reducing man-animal conflict in some EDC villages. It also protects crops of farmers thereby increasing their household income. In a few pockets more animal control barriers are required, as crop raiding by wild animals, especially elephants, is still reported occasionally. It would be useful to study the socio-economics dynamics with regard to such interventions.

**Habitat Improvement:** Activities to improve PA ecology and management are continuing with works such as animal control barriers, fire line clearing and weed removal etc. The activities carried out earlier have now started showing results. Soil-working around bamboo clumps is expected to enhance fodder production in natural forests for the wildlife. Removal of weeds has

also been undertaken in some of the areas besides undertaking desilting of tanks in NNP. The works related to road and track path improvement have been carried out in order to improve the protection and patrolling efforts.

**Conservation awareness:** An environment education and awareness strategy was developed and an NGO was entrusted with the execution of this strategy. A number of activities under this strategy were undertaken<sup>2</sup>.

**Voluntary relocation of tribal families:** More than 250 tribal families have been relocated out of the PA by providing houses and agricultural land to them. The resettlement colonies have been liked by other families who are still living inside the PA, and many of them are willing to move out after seeing the developmental prospects arising out of migration from the PA forests.

## 2.3 Village Ecodevelopment

### 2.3.1 Critical Issues

**Providing benefits to landless:** There was inadequate focus on the landless and poor families in the initial microplans. Also, due to their inability to contribute 25% share, many of them could not avail benefits out of the IEP. Increased involvement of poor and landless would be critical for sustaining the gains achieved under IEP, and thus such families need to be provided with income generating opportunities so that they can contribute the mandatory 25% of the costs of an asset they choose to acquire.

**Man-animal conflict:** Some of the villages face severe threat of crop raiding by wild animals. This issue is a critical factor in developing cordial relations with the village community, which is essential for soliciting their support in PA management.

**Absence of patrolling by villagers:** At Nagarhole, no mechanisms have been developed to encourage the villagers to undertake patrolling of PA forests for preventing excessive grazing and firewood collection.

**Reduced frequency of EDC meetings:** Since the project is nearing completion, the general interest of the beneficiaries in ecodevelopment activities has reduced. The regularity of conducting EDC meetings has been disrupted because of project nearing completion.

### 2.3.2 Site-specific Key Strengths and Shortcomings

#### Strengths

- Involvement of NGOs in microplan preparation and implementation had been useful. Three NGOs were contracted by the PA authorities for facilitating microplan implementation in the EDC villages. The representatives of these NGOs are from surrounding areas and are well versed with the local language and cultural conditions.
- One hundred eight microplans were prepared to cover 15,500 beneficiary families.

---

<sup>2</sup> Activities regarding awareness generation are discussed later under the section of Environmental Education and Awareness

- About 6,500 households have been provided with LPG connections and this is likely to reduce firewood extraction from PA forests.
- More than 250 tribal families from Hadies located inside the PA have been successfully relocated to areas outside the PA.
- Translation of microplans in local language from English and distribution of translated microplans to respective EDC villages.

### **Shortcomings**

- Inability of a large number of landless beneficiaries to derive benefits from IEP in some of the EDC villages.
- Inadequate capacity of EDC Chairmen in keeping and maintaining records pertaining to EDC activities.
- Administrative delays due to frequent transfers of senior officers lately have slowed the progress of microplan implementation.

### **2.3.3 Analytical Evaluation and Assessment**

#### **Microplan Implementation**

In Phase I, four NGOs, namely Vikasana, BAIF, TARDO and MGT provided microplan implementation support to the PA authorities. In the extended phase, a new agreement was signed with two of these NGOs, and work started from November 2002. The two NGOs continuing in the extension period are VIKASASA, and TARDO. Each of them has been assigned 20 villages for providing microplan implementation support. The NGOs have engaged women animators (coordinators) for a group of villages to organize women for formation of SHGs and various group activities. The NGO representatives, who accompanied us, informed that they were not given copies of the revised microplans of the concerned villages, and the latest status of interventions. They have, however, collected some information on revised microplans and related activities. A task oriented approach for the NGOs should be adopted so that all relevant and necessary activities are completed at least one month prior to project completion.

During the visit to EDC villages, it was observed that in two EDCs (Kharapura and N. Beltur-B) the microplan copies available with the concerned Chairmen were in English, even though copies of the microplans were available in local language. However, in majority of the villages visited by us, we found that the EDC Chairmen had local language version of microplans. Most Chairmen were found generally aware about microplan activities, but they depended on Member Secretaries for expenditure related information. In some EDCs (Veeranahosally, N.Beltur-B, Alalur, Mudanhalli, Kirangoor) the microplan budget continues to be reflected @Rs.10,000 per beneficiary family.

We had recommended earlier that 'Bill Boards' should be displayed at convenient locations for informing the community on microplan thrusts, for imparting greater transparency with respect to implementation of village ecocodevelopment programmes. We observed that in keeping with this recommendation, Billboards have now been placed at strategic locations in most of the villages. However, activities incorporated in the revised microplans, activities dropped, and unspent microplan budget are not indicated in the billboards.

Microplan implementation suffered in some villages where landless and poor families were unable to derive benefits from the project due to their inability to contribute 25% share. In our earlier reports we had highlighted the importance of employment opportunities for landless and poor EDC members to enable them to earn wages and pay 25% contribution for assets (for example fuel saving devices). However, due to the prevalent system of tendering, there are limited opportunities for employment of local labourers for such activities as community hall construction. As number of poor households is significant in some EDC villages - Sogahally (134), Gurupura (326), Kirangoor (98), Annurhosally (88), and Kademanugahally (55) - these villagers must be brought in the ambit of microplan activities so that they reduce their dependence on the PA resources and contribute to the success of the project.

### Project Investments

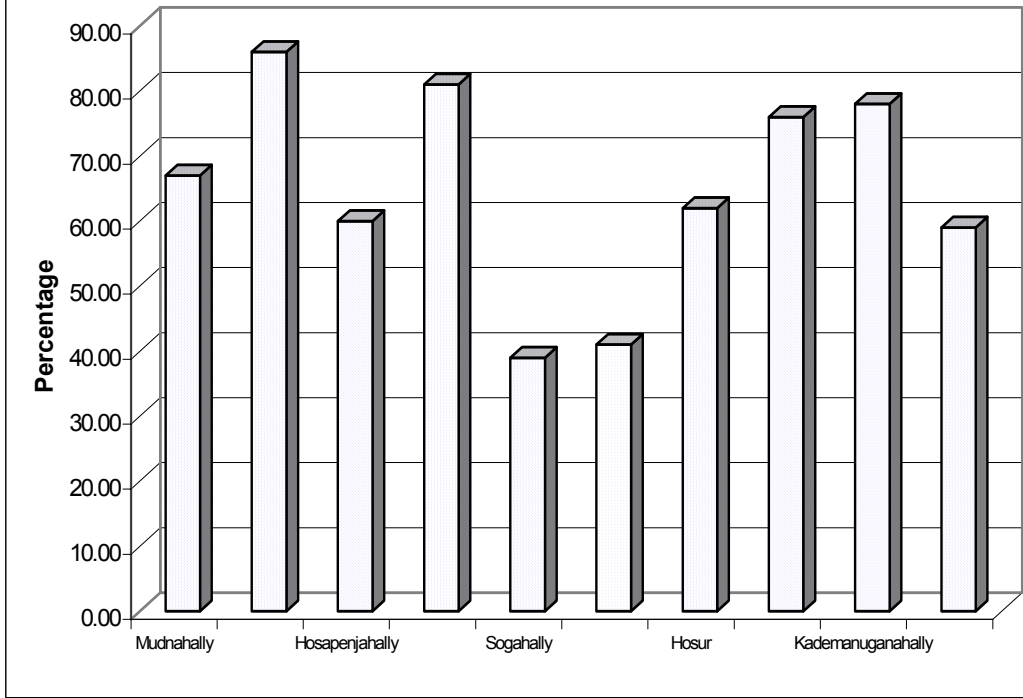
The pattern of project investment under the Village Ecodevelopment component was determined on the basis of analysis of investments in a sample of 10 villages in Nagarhole visited during Phase II of IEP. Table 5 below gives details of investments made in 10 sample villages, microplan budget, and investment per family.

**Table 5 - Status of Microplan Implementation based on a Sample of 10 Villages Visited by the Consultants**

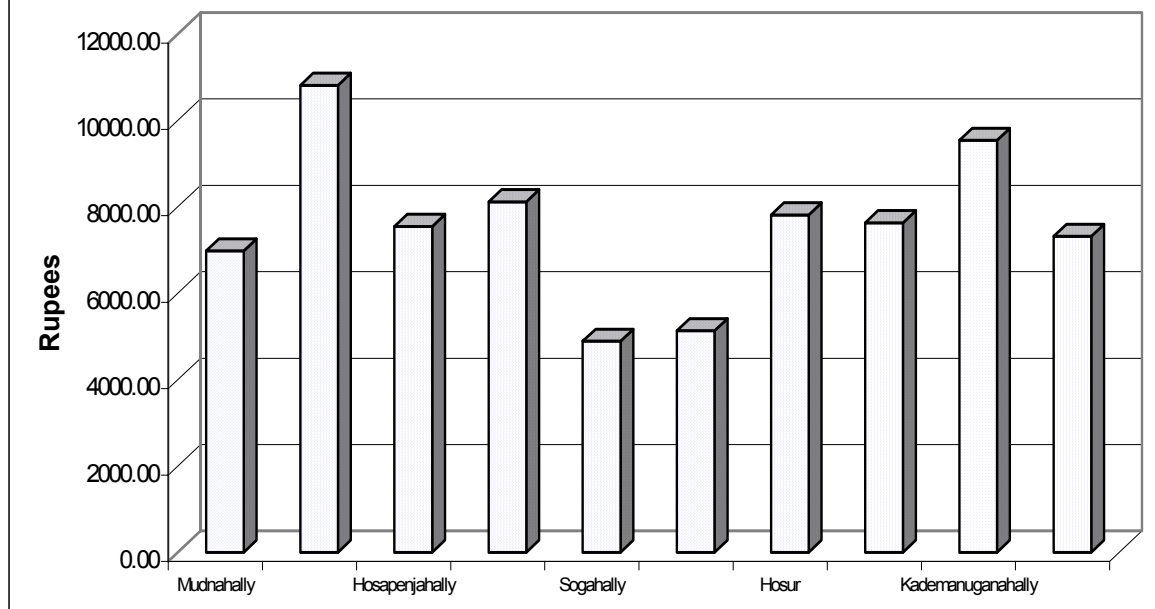
Sl. No.	EDC Village (total households)	No. of Families	Total Microplan Budget (in lakhs)	Expenditure Incurred (in lakhs)	% Expenditure	Per Family Expenditure (in Rs.)
1	Mudnahally	304	31.60	21.21	67	6976.97
2	Kachuvanhally	178	22.25	19.24	86	10808.99
3	Hosapenjehally	198	24.75	14.93	60	7540.40
4	Alalur	153	15.30	12.41	81	8111.11
5	Sogahally	261	32.62	12.75	39	4885.06
6	Annurhosally	254	31.50	13.02	41	5125.98
7	Hosur	212	26.50	16.56	62	7811.32
8	Kirangoor	295	29.50	22.51	76	7630.51
9	Kademanuganahally	176	21.62	16.78	78	9534.09
1	Gurupura	464	58.00	33.94	59	7314.66
	<b>Total</b>		<b>293.64</b>	<b>183.35</b>	<b>62</b>	<b>7348.70</b>

There is a wide variation in utilisation of Microplan budget. It varies from the low of 39% (Sogahally) to the high of 86% (Kachuvanhally). The average utilisation of microplan budget across 10 villages is 62%.

**Figure 1: Investment as a percentage of Microplan Budget on a Sample of 10 Villages**



**Figure 2: Average Investment per family in a sample of 10 villages**



## Avenues of Project Investments

The failure of cotton crop in the last season led to a decline in income of most beneficiaries. Worst affected were the landless who work as agricultural labourers. As a result, they were unable to give their 25% contribution for taking benefits. This adversely impacted project investments.

Project investments also suffered in some of the villages, as the villagers wanted to change the activities to which they had earlier agreed. This delayed the implementation of microplan activities. For instance, in village Chikkahejjur, villagers wanted EPT restoration and solar fencing to prevent elephants entering in their field and destroying their crops, and were not willing to take any other benefit from the scheme. The PA authorities should increase budgetary allocations for erecting more solar fences and undertaking restoration of EPT in villages where crop raiding is a major problem and due to which villagers have to face economic losses.

The PA authorities have implemented almost identical activities across the IEP villages. These include providing LPG connections, pressure cookers, roofing materials, agricultural implements, agroforestry (fruit trees and forest tree species), loan for self-employment for starting petty shops, tailoring, driving training etc. Almost all activities were individual-based; very limited community-based activities were undertaken. Construction of community-halls in many villages is one of the community-oriented activities besides erection of solar fencing or restoration of EPT. In some of the villages, the EDCs have established '*pavitra van*' (Sacred Grooves) by planting horticultural and forest tree species around temples. On an average, the survival rate of planted seedlings varied from 50% to 60%.

During 2001-2002, the PA authorities had introduced fuel saving devices in the form of LPG, biogas plants and pressure cookers to many beneficiaries across most of the villages. In the extended phase of project implementation, we observed an increased demand for LPG connections in many villages. As noticed in the village Malangi, the villagers expressed their willingness to adopt biogas unit only after we highlighted the benefits arising out of biogas plants to users. For popularizing biogas among families that have adequate number of cattle, the PA authorities should initiate inter-village visits by different EDCs. The NGOs providing microplan implementation support should assist in this process by highlighting the success stories within the PA. However, for effectiveness, such inter-village visits must be completed at the earliest and prior to finalizing the village microplan activities in the extended project period.

One family in Mudnahally village demonstrated the effective use of compost produced as the byproduct of the Biogas unit. By using this '*waste*' as manure in the agricultural fields, the family was able to save approximately Rs 1,500 per year on chemical fertilizers. According to that family, the crop yield also improved by using this organic compost. Such success stories should be documented and widely disseminated by the PA authorities to encourage other beneficiaries to opt for biogas as an alternative fuel saving devices.

As discussed above, the PA authorities emphasized distribution of a large number of fuel saving devices for reducing the dependence of beneficiaries on fuelwood. Details of the alternate fuel saving devices (1997 - 2002)

provided to EDC villages (including Hadi Villages) in the entire PA and the expenditure incurred so far, is given in the table 6 below:

**Table 6 : Details of the alternate fuel saving devices provided to EDC villages and the expenditure incurred**

Energy Saving Device	Total Numbers (upto Dec. 02)	Total Expenditure (Rs) (upto Dec. 02)
LPG	6312	1,75,24,015
Biogas	321	11,49,992
Pressure Cooker (5 ltr)	1967	22,04,852
Pressure Cooker (10 ltr)	4551	69,60,270
Kerosene Stove	272	1,00,020
Astra Ole	320	64,150

Distribution of energy saving cooking devices has helped in reducing firewood extraction from the PA. Whereas beneficiaries claimed that they have achieved about 75 - 80% reduction in firewood extraction from the PA, the PA authorities were of the view that reduction in fuelwood dependency may be between 50-60%. Even this estimate seems to be on the higher side, as many beneficiaries are using LPG sparingly due to its high cost of refilling (for example in villages Alalur and Muddanahalli). Since large number of energy saving cooking devices have been provided in the EDC villages, there is a need for an impact study covering all EDC villages to ascertain the actual impact on the PA and vice versa. Effective utilization of these devices needs to be monitored besides ensuring regular supply of LPG cylinders to beneficiaries.

Following the Periyar model, a Confederation of EDCs may be set up for taking LPG agency to ensure regular supply of cylinders. The Confederation would be able to earn profit, provide employment to a few unemployed youths, and impart a sense of community participation.

Most landholders and affluent farming families have taken benefits averaging between Rs 8,000 to Rs 9,000, and only a small amount of money, per family remains to be utilized. However, the total of unutilised funds per family is considerable in the context of the village. The PA authorities should explore the possibility of utilizing this amount for community works. However, for this the specific families should be willing to contribute their remaining share for the overall benefit of the village, and the EDC must pass a resolution to this effect in the GBM, that must be signed by all members. .

Large amount of VDF is lying in the EDC accounts and EDCs do not know how to utilize this fund. The PA authorities need to develop guidelines regarding the use of VDF in a manner that the entire community is benefited. EDCs should be guided to keep with themselves a good part of VDF for future investment in support of ecodevelopment works. EDCs could also opt for keeping a part of the VDF in fixed deposits for increasing the seed money.

It was observed that the actual amount of funds in VDF account (25 percent villager's contribution) reflected in the Bank Pass Books were roughly one fourth of the total investments made in the six villages visited by us. Steps taken to deposit 50 percent or more of VDF in fixed deposit accounts have sensitised the Executives and Members to the following characteristics of

VDF: (i) interest can be earned from VDF, i and (ii) the entire VDF amount cannot be spent on infrastructure development (roads, compound wall, etc.). EDCs are awaiting clear policy guidelines with respect to utilization of VDF resources. Some EDCs have taken a view that a portion of VDF money should be given to the SHGs as loan for income generating activities, and they are awaiting necessary instructions from the PA authorities. Women SHG members are in favour of loan facilities from the VDF.

### **Community Feedback**

Our interactions with the community/beneficiaries with respect to project investments revealed that they were satisfied with the benefits accruing from both individual and community-based project investments. Also, in some of the villages, beneficiaries were open to the idea of using the VDF resources for project investments on activities that would benefit those families that were left out of the microplan list.

### **Community Participation**

During Phase II, Executive Committee meetings were held regularly (one meeting in each month) in all the EDCs on a fixed date to discuss utilization of funds, and collection of 25 percent beneficiary contribution. In some EDCs, villagers had deposited Rs.20,000 to Rs.60,000 for availing assets, but they were yet to receive the assets. Keeping in view the hardships faced by large number of landless / poor beneficiaries in each village, we have suggested that activities for wage generation, for the community should be identified and undertaken. This will enable the poor and landless to earn wages and deposit 25 percent contribution for receiving fuel saving devices and other assets.

EDC Presidents and Executive Committee members are not adequately trained in documentation of records and continue to depend on Member Secretaries. Such gaps should be adequately addressed by providing suitable training to all concerned. This would facilitate EDC functioning during the post project period as well. Educated young beneficiaries should be encouraged to come forward and take responsibilities of documentation and accounting of EDC related matters. This would be a positive step for increasing community participation.

As was observed in the first phase of IEP, patrolling by EDCs was not undertaken at Nagarhole National Park. However, since the villagers had benefited from village ecodevelopment activities, they had willingly reduced firewood extraction from forests by switching to alternative fuel saving devices. Further, they had voluntarily taken steps to reduce the number of cattle, and prevent their cattle from grazing inside the PA. This indicates that there has been increased participation of the village community in meeting their reciprocal commitments, as laid out in the microplan. The field staff of the PA confirmed that they received support and cooperation from the villages for undertaking fire prevention activities during fire season. Sometimes, villagers provided useful information that helped prevention of illegal felling of timber, poaching etc.

It was encouraging to observe that women SHGs, which were formed during the first phase of IEP, were functioning well even in the absence of direct project support in the form of Women Development Officer. The SHGs were

collecting weekly contributions from the members regularly and utilizing it to provideloans to the members at 2% to 3% interest per month. Upon inquiring, we found that most members took loans to meet emergency medical requirements and children's education. In some cases, the loan had also been used for purchase of seeds for agriculture and improved cattle breed.

In the first phase of IEP, appointment of the Women Development Officer was useful in mobilizing women for formation of SHGs. However, in the extended phase there was no such officer to facilitate SHGs. Women animators were, however, working for strengthening SHGs and encouraging women for increased participation in microplan implementation. Since the functioning of SHGs was an entirely new concept for most women in villages, the services of the Women Development Officer would be required even in the post project period.

We have been highlighting that for sustainability of SHGs it is imperative for SHGs to establish tie-up with NABARD, and to get marketing support from the NGOs looking after implementation of ecocodevelopment programmes. However, the PA authorities have not given adequate attention to this issue, Large number of SHG members are keen to run their groups in a profitable manner, but they lack skill and need proper guidance.

During our visits to the EDC villages, we observed that the concerned Member Secretaries were maintaining the records, registers and minutes books properly. However, the concerned Chairmen of the EDC villages were not able to provide latest information about expenditure during Phase II as all the records, bank passbooks etc. are maintained by the member secretaries only.

The NGOs engaged for facilitation of microplan implementation are also adequately exercising their responsibilities.

### **Resettlement in NNP**

The tribal population living inside NNP has been estimated at 6,145, grouped in 1,550 families in 54 Hadis. Twenty-nine tribal Hadis are in Kodagu district with a population of 3,720, spread across 950 families, and 25 Hadis are in Mysore district with a population of 2,425 distributed across 600 tribal families. Although, as per NNP rules, the NNP land cannot be used for any agricultural or other land based activities, and collection of NTFP is not allowed, the tribal population located inside the NNP engage in agricultural activities for their sustenance and survival. As this poses a threat to PA's biodiversity, the Government of Karnataka has taken steps to resettle these forest villagers on the fringes of the PA through a process of voluntary relocation to Veeranhosahally revenue village. For this 1931 ha of land in Veeranhosahally, Sollepura and Shettyhally forest areas was diverted under the provisions of the Forest Conservation (1980) Act, Government of India. The relocation and resettlement commenced during the middle of 1999-2000, and the process is continuing. A total of 250 families had been relocated till March 2002 (see Annexure - V).

### **Social Impact**

The social impact of Village Ecocodevelopment component has been critically assessed and examined through a snap beneficiary survey of all the seven PAs, including the Nagarhole National Park. As mentioned above, the

beneficiary survey was conducted to understand the dynamics of the village ecocodevelopment programmes in terms of its interface with PA conservation. The specific objectives of these surveys were to ascertain:

- i) whether microplan activities benefited people in EDC villages;
- ii) whether microplan implementation and associated benefits to villagers reduced their dependence on PA resources;
- iii) the extent of beneficiaries awareness regarding microplan provisions and its realization; and
- iv) whether project implementation increased people's participation and empowerment of women.

### **Methodology for conducting the Beneficiary Survey**

The survey was conducted within a fully participatory approach involving all stakeholders and through structured and unstructured meetings. The survey covered a sample of 70 beneficiaries who were selected using stratified random sampling techniques. A survey questionnaire was developed to obtain beneficiary feedback on fifteen parameters related to the above objectives. The survey questionnaire addressed four broad issues:

1. Microplan activities and socio-economic impacts.
2. Microplan activities and ecological impacts.
3. Microplan provisions and beneficiary awareness.
4. Microplan implementation and women empowerment.

The above classification facilitated our examination of consistency of actual project outputs/deliverables with the planned/anticipated impact of implementation of village microplans.

Survey questionnaires were provided to individual beneficiaries for filling during our second and third visit to each of the seven PAs. A brief introduction to survey objectives was given to the beneficiaries prior to administering the survey questionnaire. All clarifications sought by the beneficiaries were addressed adequately. The survey questionnaire was translated in local languages<sup>3</sup> for beneficiaries' convenience.

The Responses of the surveyed beneficiaries are given as a Response Matrix at Annex VI. The analysis of the beneficiaries' responses is discussed below in Table 7.

### **Salient Findings of the Beneficiary Survey**

- In the extended Phase of IEP, emphasis was on Village Ecocodevelopment. Other components, such as Impact Monitoring and Research, Improved PA Management and Environmental Education and Awareness were assigned low priority.
- The beneficiaries are using the assets provided during the first phase, such as LPG, Biogas plants etc. As a result of continuous use of fuel saving devices, there has been a reduction in extraction of firewood from PA forests to the tune of 40% to 50%. Now more and more villagers are coming forward for fuel saving devices, particularly, LPG, which can be obtained by paying 50 percent of the total cost as beneficiary contribution.
- Most of the microplans have been revised recently and are available in local language. In some of the villages, beneficiaries want to substitute a

---

<sup>3</sup> Survey form was translated in Hindi, Malayalam, Kannada, Gujarati and Bengali

few of the microplan activities with activities that were found more useful in the previous phase.

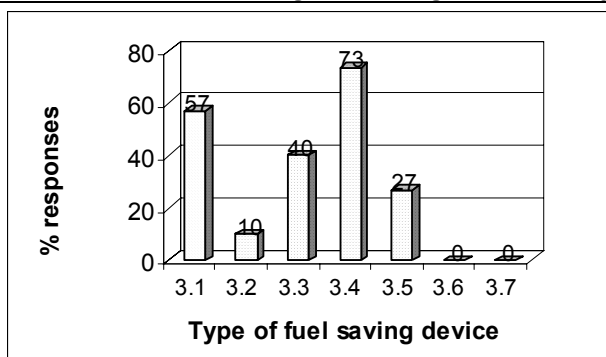
- The average amount of microplan funds spent for providing benefits to the landless families was low primarily on account of their inability to provide the matching 25% contribution.
- The women SHGs formed during first phase of the project are continuing to function effectively. The process of formation of SHGs is continuing in the extended phase of IEP. The SHG members are regularly making contributions to the SHG corpus, which is rotated as loan to SHG members. Sustenance of the SHG depends on enabling members to acquire skills for undertaking income generating activities.
- An increasing number of poor beneficiary families were assisted for initiating self-employment activities by providing wage labour in community oriented activities (community hall, boundary wall, etc.).
- In some villages, implementation of IEP has been unsatisfactory with low investments varying between Rs.2000 to Rs.9000 per family.
- Fast pace of microplan implementation in the extended phase of IEP encouraged a large number of beneficiaries to deposit 25 percent contribution. The EDC members who did not deposit 25% contribution earlier were ready to do so in the extended phase.
- Records of EDC funds, total expenditure incurred, total amount realized from the members and outstanding balance etc. continue to be available only with the concerned Member Secretaries.
- Investments made under Improved PA Management have led to a substantial reduction in the intensity of PA resource use, in comparison with the scenario that existed prior to the start of IEP.
- Since most farmers had requested that solar fencing be erected around their fields for protecting their crops from wildlife, the PA authorities undertook solar fencing work in some areas along PA boundaries, and around some EDC villages.
- PA authorities have established anti-poaching camps in the PA to minimize poaching threats through effective vigilance.
- Three NGOs were retained in the extended phase of IEP for providing microplan implementation support in sixty EDC villages (twenty villages assigned to each NGO). These are not functioning effectively as they have not received copies of microplans, the revised statement of accounts relating to investments, and unspent amount available with the EDCs.
- Delay in the posting of Field Director adversely impacted project progress, as in his absence field level staff could not take timely decisions regarding project implementation.
- There are wide variations in EDC members' and field officers' estimates of quantum of reduction in fuelwood consumption and grazing of cattle - 75 to 85% and 40 to 50% respectively. Estimates made by NGOs tally with estimates of field officials.
- In the last quarter, the speed of work was slow due to non- release of 56.83% of the total outlay for 2002-03. Also, there was inadequate supervision of the project activities due to prevailing uncertainty and confusion in the appointment of project administrators. This issue needs to be addressed on an urgent basis.

**Table 7 : Analysis of the beneficiaries' responses**

<b>Section 1: Microplan activities and socio-economic impact</b>															
<b>Q1 What type of activity under Eco-development Project has benefited you?</b>															
<p>A 3D bar chart with the y-axis labeled '% responses' ranging from 0 to 100 in increments of 20. The x-axis is labeled 'Activities' and has five categories: 1.1, 1.2, 1.3, 1.4, and 1.5. The bars represent the following values: 1.1 is 84, 1.2 is 43, 1.3 is 46, 1.4 is 53, and 1.5 is 0.</p>	<table border="0"> <thead> <tr> <th></th> <th style="text-align: right;">% of response</th> </tr> </thead> <tbody> <tr> <td>1.1 Income Generating Activity</td> <td style="text-align: right;">84</td> </tr> <tr> <td>1.2 Personal Benefits</td> <td style="text-align: right;">43</td> </tr> <tr> <td>1.3 Community Benefits</td> <td style="text-align: right;">46</td> </tr> <tr> <td>1.4 By Labour Work Assignment</td> <td style="text-align: right;">53</td> </tr> <tr> <td>1.5 No Response</td> <td style="text-align: right;">0</td> </tr> </tbody> </table>		% of response	1.1 Income Generating Activity	84	1.2 Personal Benefits	43	1.3 Community Benefits	46	1.4 By Labour Work Assignment	53	1.5 No Response	0		
	% of response														
1.1 Income Generating Activity	84														
1.2 Personal Benefits	43														
1.3 Community Benefits	46														
1.4 By Labour Work Assignment	53														
1.5 No Response	0														
<p>The ranking of ecodevelopment activities in terms of their benefits as perceived by the sample of surveyed beneficiaries is as follows:</p> <ol style="list-style-type: none"> <li>1. Income generating activities</li> <li>2. Labour work assignments</li> <li>3. Community-based activities</li> <li>4. Individual-based activities</li> </ol> <p>It needs to be highlighted that the above ranking derived from response analysis should be interpreted as indicative and not absolute as some beneficiaries may have obtained benefits from more than one activity.</p> <p>Income generating works have been preferred over other activities. Many landless and poor households consider community-based works as income generating activities, since they get wage employment. This perception of the respondents is reflected in the survey findings. Also, towards the fag end of the project (Phase I) there was a focus on providing loans to poor households for taking up self-employment in the form of petty shops etc. Respondents also reflected their preference for labour oriented works, which were mostly in the form of community halls and restoration of EPT as they were able to earn wages. Personal benefits were least preferred, as for such activities, beneficiaries had to contribute their share as cash, whereas for community-based works they contributed their 25% contribution in the form of labour. This is also reflected in the survey findings under question 9.</p>															
<b>Q2 Which of the following activities under the Eco-development Project have benefited you?</b>															
<p>A 3D bar chart with the y-axis labeled '% responses' ranging from 0 to 80 in increments of 10. The x-axis is labeled 'Activities' and has six categories: 2.1, 2.2, 2.3, 2.4, 2.5, and 2.6. The bars represent the following values: 2.1 is 17, 2.2 is 0, 2.3 is 14, 2.4 is 76, 2.5 is 23, and 2.6 is 0.</p>	<table border="0"> <thead> <tr> <th></th> <th style="text-align: right;">% of response</th> </tr> </thead> <tbody> <tr> <td>2.1 Check Dam</td> <td style="text-align: right;">17</td> </tr> <tr> <td>2.2 Well Development</td> <td style="text-align: right;">0</td> </tr> <tr> <td>2.3 Pond Development</td> <td style="text-align: right;">14</td> </tr> <tr> <td>2.4 Land Leveling</td> <td style="text-align: right;">76</td> </tr> <tr> <td>2.5 Fencing of PA</td> <td style="text-align: right;">23</td> </tr> <tr> <td>2.6 No Response</td> <td style="text-align: right;">0</td> </tr> </tbody> </table>		% of response	2.1 Check Dam	17	2.2 Well Development	0	2.3 Pond Development	14	2.4 Land Leveling	76	2.5 Fencing of PA	23	2.6 No Response	0
	% of response														
2.1 Check Dam	17														
2.2 Well Development	0														
2.3 Pond Development	14														
2.4 Land Leveling	76														
2.5 Fencing of PA	23														
2.6 No Response	0														

Land leveling has emerged as a popular activity, which the farmers considered as income generating activity, since it augmented agricultural productivity. This was also reflected in the preference for income generating activities in question 1. Some of the poor households have also preferred this activity, as they got wage employment. Fencing of PA was the next preferred activity followed by land leveling, which again is beneficial for the farming community, as it will lead to reduced incidence of crop raving by wild animals. Check dam and pond development follows fencing at 17% and 14% respectively. These activities also benefited the farmers more than the landless and poor.

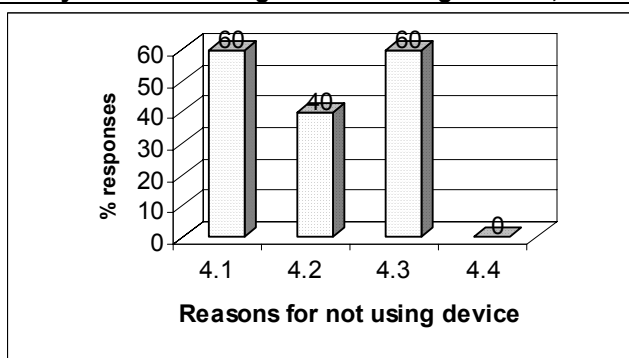
**Q3 Which of the following fuel saving device have you received from IEP?**



	% of response
3.1 LPG	57
3.2 Bio-gas	10
3.3 Kerosene stove	40
3.4 Pressure cooker	73
3.5 Smokeless chullah	27
3.6 None	0
3.7 No Response	0

Pressure cooker is one of the most popular fuel saving devices provided to beneficiaries, as is reflected by its acquisition by 73% respondents. The PA authorities started providing it during early years of project implementation. Consequently, by now its use has increased. LPG is also a preferred device (57%) of respondents and after experiencing the convenience of LPG, more and more families have shown their willingness to adopt this device. Many families have received both pressure cooker and LPG. Despite the twin uses of biogas (gas for cooking and fertilizer), it has not been accepted most by beneficiaries. This is primarily because some of the biogas units installed earlier did not function effectively, which discouraged the beneficiaries.

**Q4 If you are not using the fuel saving devices, what have been the reasons?**

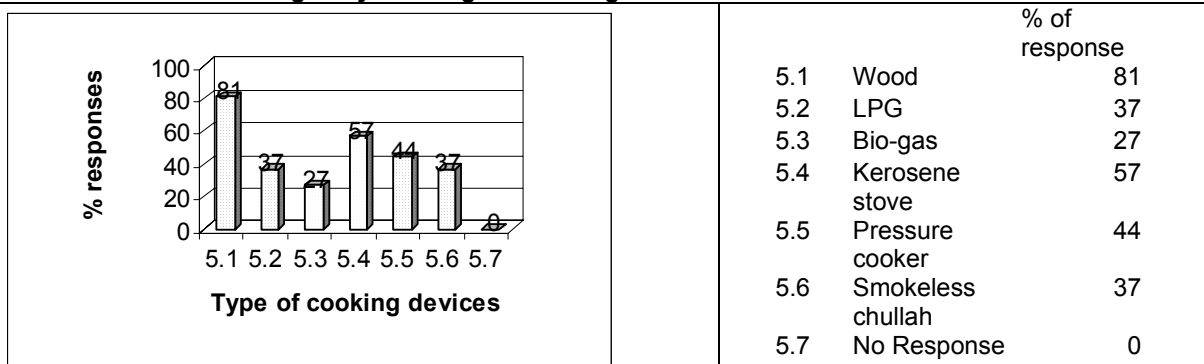


	% of response
4.1 Can not afford	60
4.2 Not aware of their functionality	40
4.3 Difficulty in procurement	60
4.4 No Response	0

Non-affordability and difficulty in procurement of LPG are the two main reasons for limited distribution of this device. Both these reasons have been given by 60% of respondents. Despite these two constraints, more and more beneficiaries are now willing to adopt this device.

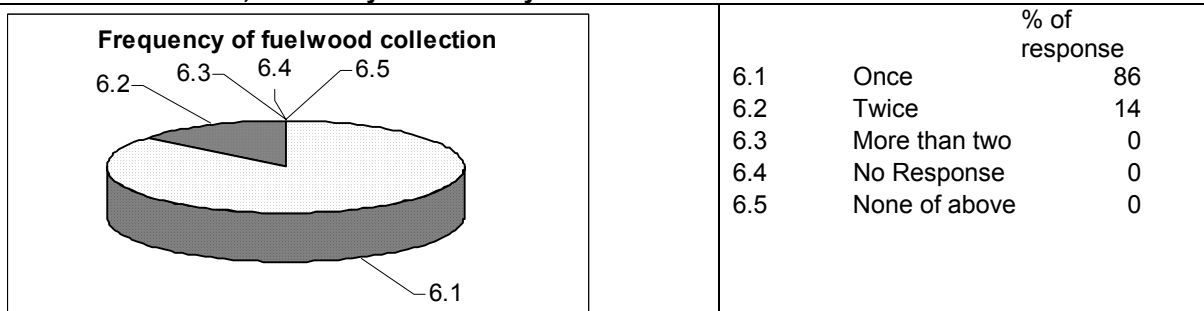
**Section 2: Microplan activities and ecological impacts**

**Q5 Which of the following are you using for cooking?**



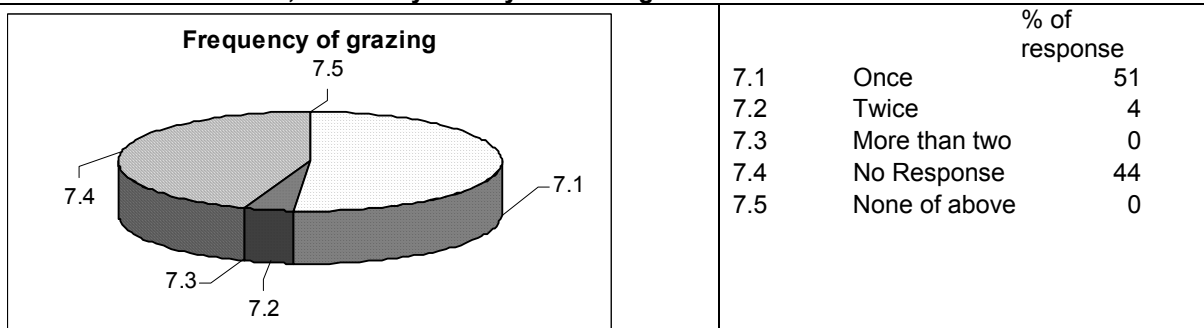
A high percent (81%) of respondents confirmed the use of wood for cooking. However, upon interacting with them, they clarified that agricultural waste is largely used. Since most farmers grow cotton, there is substantial agricultural waste that lasts for a number of days. The use of LPG is increasing gradually. The response (37%) for using LPG is lower than the response under question 3 wherein 57% respondents have indicated that they received LPG. This is because, some of the poor households are now either not using it or using it very sparingly.

**Q6 In last two weeks, how many times have you visited the forest to collect fuelwood?**



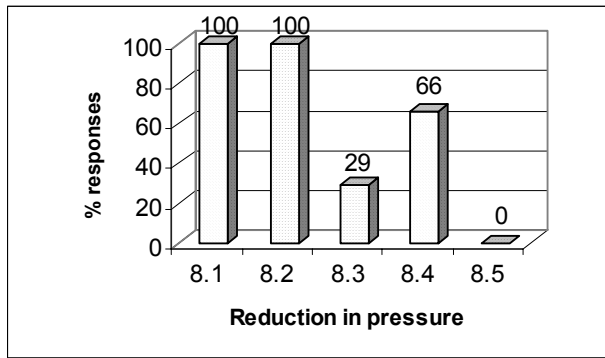
A large number of respondents (86%) have clearly indicated that they visit the forests for firewood collection at least once in a fortnight. This percentage response is close to the response in question 5, wherein 81% respondents have indicated that they use wood for cooking. Only 14% shared that they visit twice. With distribution of LPG there has been some reduction in firewood extraction.

**Q7 In the last two weeks, how many times your cattle grazed in PA forests?**



More than half of the respondents (51%) confirmed that cattle visit the PA at least once in 14 days. A rather high percent (44%) of the respondents have avoided responding to this question. This indicates that their cattle may be continuing to visit the PA for grazing. Over the last two years there has been some reduction in the number of cattle. However, according to the PA authorities, there has been a substantial reduction in grazing.

**Q8 Have Eco-development interventions reduced pressure on:**

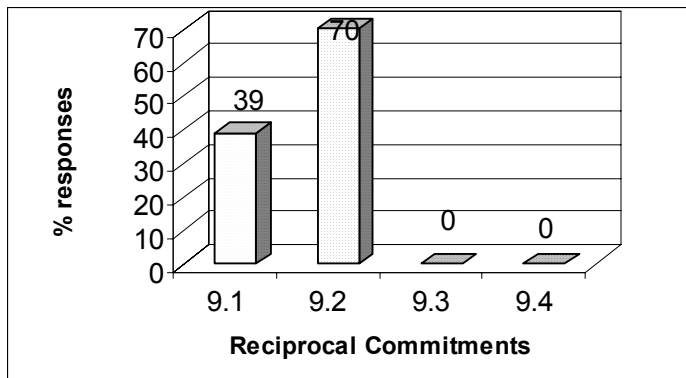


	% of response
8.1 Fuel Wood Collection	100
8.2 Grazing	100
8.3 Collection of NTFP	29
8.4 Poaching	66
8.5 No Response	0

All the respondents indicated that there has been a reduction in fuel wood collection from the forests. As discussed above, fuel saving devices and agricultural cotton waste has contributed to the reduction of firewood from the forests. Besides the reduction in the frequency of visits to forests for firewood, the quantity of wood extracted has also reduced.

**Section 3: Microplan provisions and beneficiary awareness**

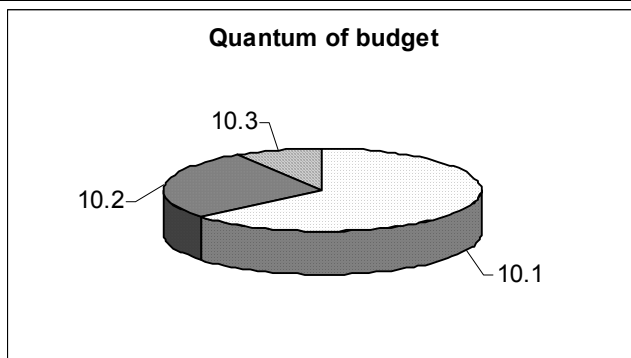
**Q9 What has been your contribution in the above-mentioned interventions?**



	% of response
9.1 25% Financial Contribution	39
9.2 Labour	70
9.3 Raw Materials	0
9.4 No Response	0

Most landless and poor families have contributed labour instead of cash towards meeting their reciprocal commitment of 25% contribution. This is reflected in the response of 70% surveyed beneficiaries. Some beneficiaries contributed partly in cash and partly in the form of labour. Beneficiaries generally contributed in cash for obtaining LPG and other personal benefits.

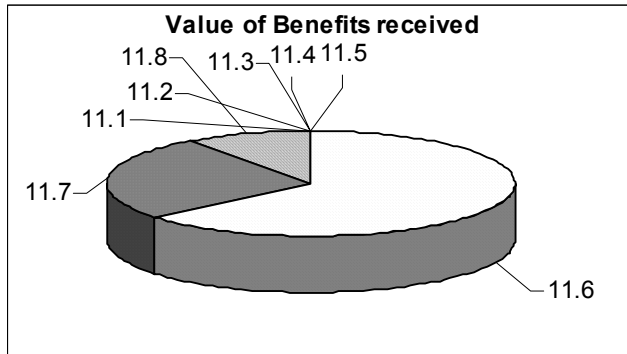
**Q10 What is the Budgeted value of the benefit to be received by you under the Eco-development project?**



	% of response
10.1 Rs. 10,000/-	64
10.2 Rs. 12,500/-	27
10.3 No Response	9

Most respondents (64%) were not aware of the revised microplan outlays of Rs 12,500 per family, which explains why only 27% of the respondents indicated the revised microplan outlays. This may be because in the initial project period the microplans were not available in local language. However, later the microplans were translated and distributed to the village communities, yet most beneficiaries did not know the revised outlays.

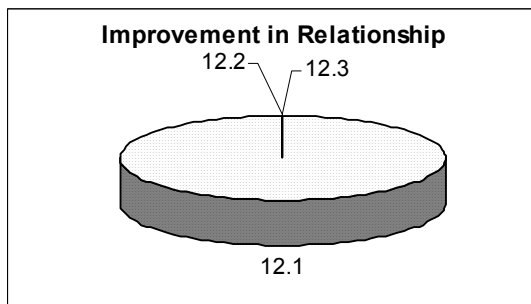
**Q11 What is the value of the benefits received by you?**



		% of response
11.1	Upto Rs. 1000/-	0
11.2	Upto Rs. 2000/-	0
11.3	Upto Rs. 3000/-	0
11.4	Upto Rs. 4000/-	0
11.5	Upto Rs. 5000/-	0
11.6	Upto Rs. 6000/-	64
11.7	Above Rs. 6000/-	26
11.8	No Response	10

Most beneficiaries have derived benefits between Rs 5,000 and 6,000 indicating that at least 50% of the microplan budgets in the EDC villages have been utilized. Personal benefits have remained low, most benefits are in the form of community-oriented works

**Q12 Do you think the relationship with the Forest Department has improved?**

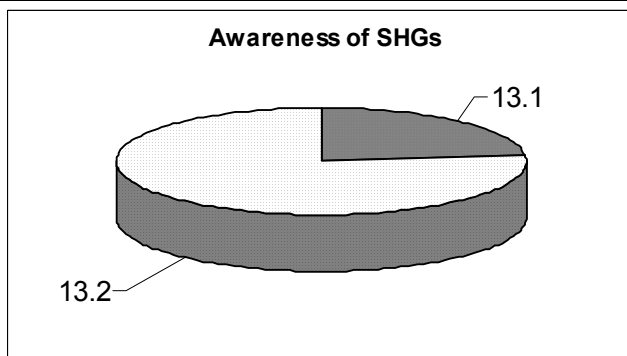


		% of response
12.1	Yes	100
12.2	No	0
12.3	No Response	0

All respondents have unanimously indicated that relationship with the forest department has considerably improved from an earlier hostile and uncooperative to a fruitful and trusting relationship. They were also aware that this change has been made possible due to the implementation of IEP.

**Section 4: Microplan implementation and women empowerment**

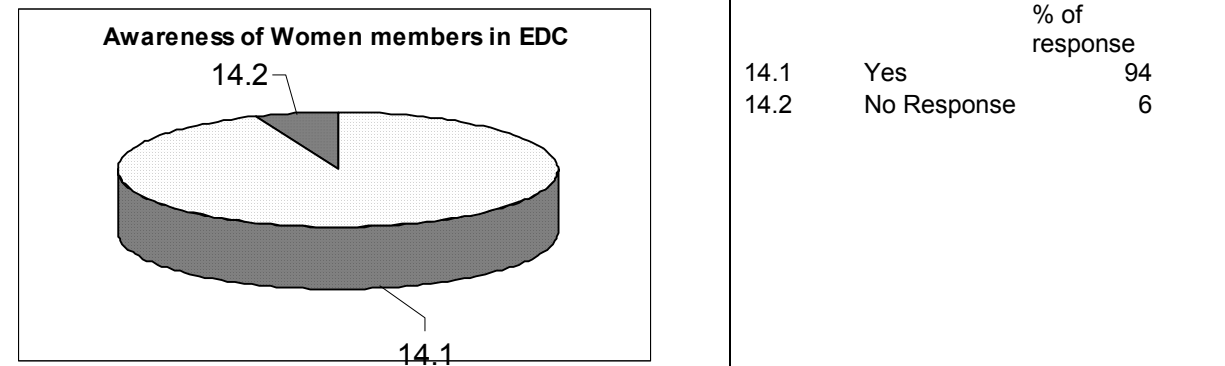
**Q13 Do you know how many SHGs are functional in your village?**



		% of response
13.1	Yes	23
13.2	No Response	77

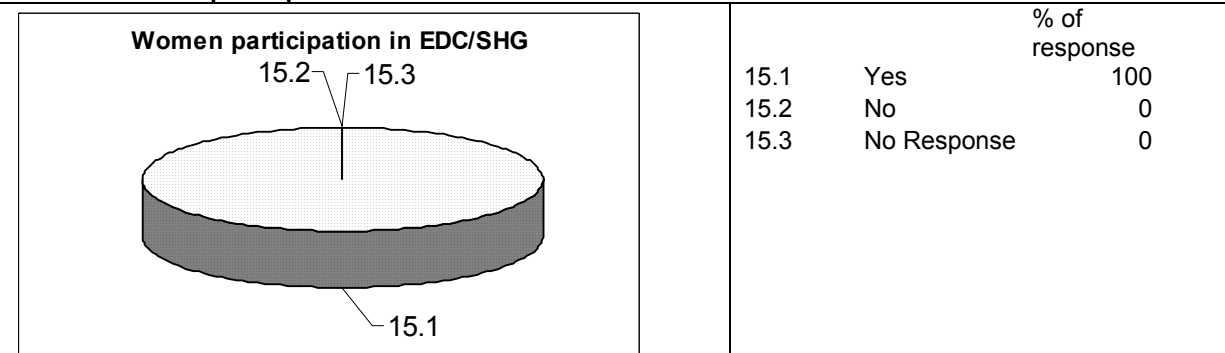
'No Response' from 77% of surveyed beneficiaries indicates that they are not aware of the existence of functional SHGs in their villages. However, SHGs were formed earlier with the help of a Women Development Officer and their presence is known to few beneficiaries (23%). Most women members of EDC were aware of the existence of SHGs.

**Q14 Do you know how many women members are in your EDC?**



A high percent of respondents (94%) were aware of the number of women in their EDC Executive Committee, indicating that there is increased awareness regarding EDC structure.

**Q15 Has women participation increased due to involvement in EDC/SHG?**



All respondents have confirmed that women participation did increase due to project implementation.

**2.4 Environmental Education and Awareness**

**2.4.1 Critical Issues**

**Maintaining contacts with stakeholders:** A regular system should be put in place for maintaining contact with the stakeholders, particularly the ones who have participated in environmental education and awareness building. This would be useful in further spreading the message of conservation of biodiversity.

**Extending contract of NGO:** The environmental education and awareness strategy has been implemented by a local NGO at Nagarhole. In order to increase the level of awareness of stakeholders up to expected levels, such contracts should be continued.

## 2.4.2 Site-specific Key Strengths and Shortcomings

### Strengths

- Construction of NIC at Nagarhole with audiovisual facilities has been useful for organising workshop and environmental education and awareness programmes.
- Involvement of local NGO for conducting environmental education and awareness programs.
- Good implementation of awareness programs during first phase and extended phase of IEP with a variety of programs conducted targeting many specific groups besides general population.
- PA has developed good absorption capacity for fund utilization under this component.

### Shortcoming

- Recently constructed NIC at Veeranhosally is not yet functional.
- Workshop proposed in the APO was not conducted by the PA authorities.

## 2.4.3 Analysis of Activities Initiated by PA

The services of a local NGO (IITE), which was contracted in the first phase of IEP, were continued for the extended project period. The implementation of education awareness programs through an NGO has been a useful strategy, as the members of the NGO were familiar with local cultural conditions and were able to successfully carry out a number of awareness building events for schools and other stakeholder groups, such as, EDC Presidents and Executive Committee Members. Many of these were well received and had a good impact on people.

Civil works like construction of Nature Interpretation Centre at Nagarhole has been completed. Construction of Nature Interpretation Centre at Veeranhosahally is presently in progress. For the awareness programs, the PA authorities were able to utilize substantial part of the allocated funds (90.71%) under this component by spending Rs 32.72 lakhs.

Financial performance for 'Development of Conceptual Framework' and 'Education Center' was impressive. The PA authorities had utilized 86.28% of the allocated funds for this activity. Construction of NIC at Nagarhole with audiovisual and other facilities had been completed. This has proved to be useful for organizing workshop and environmental education and awareness programme for stakeholders. Recently constructed NIC at Veeranhosally is not yet functional.

During the current year, the PA authorities have conducted six Trekking and Nature camps for school children, adventure club members and others to create environmental awareness. Field visits and workshops for staff and EDC members were also conducted, for which an expenditure of Rs 6.06 lakhs was incurred in the current year.

Good community participation was observed in a number of environmental education and awareness activities that were carried out in villages as well as Hadies. For example, 24 tree-planting activities were organized in which

about 1,200 villagers and tribals participated. Similarly, more than 2,000 beneficiaries participated in eight fire awareness programmes.

## **2.5 Impact Monitoring and Research**

### **2.5.1 Critical Issues**

**Continuous monitoring of habitat works:** Habitat improvement works, such as weed removal, tank desilting, fire line clearing, and restoration of EPT, solar fencing etc should be continued even beyond the project period. For this, both monetary and manpower arrangements should be made besides skill development of forest staff for undertaking ecological monitoring of PA habitats.

**Research Projects:** Remaining Research Projects which are not yet completed should be completed in time so that their findings and recommendations could be used in PA management.

**Monitoring of assets given:** Many beneficiary families have been provided with assets in the form of fuel saving devices. It would be important to monitor the utilization of these assets.

### **2.4.2 Site-specific Key Strengths and Shortcomings**

#### **Strengths**

- Many research studies awarded in the first phase have been completed.
- Research study for mapping diversity in some lower groups, which were, so far, not studied from Nagarhole has been completed. Some of the species have been recorded for the first time from Nagarhole.
- Scientific assessment of some of the habitat works, such as, soil working around bamboo clumps.

#### **Shortcomings**

- Delay in starting research projects, as a result of which these studies could not be used in the preparation of management plan.
- No new research projects were awarded in the extended phase.
- Services of the Ecologist were not available in the extended phase of IEP.

### **2.5.3 Analysis of Activities Initiated by PA Authorities**

Many of the completed research projects and consultancies would be useful in increasing the understanding of wildlife conservation. Some of these studies are important and had not been carried out before in Nagarhole, for example, studies on the biodiversity of diptera, survey of ticks and mosquitoes of Nagarhole Forest Range and study of microbial ecology of lotic/lotic aquatic of NNP.

The PA authorities awarded a total of 35 research projects and consultancies under IEP to various agencies and individuals. Of these, 26 research projects/consultancies had been completed. The findings of most of the research projects were now available. The projects completed have been

useful, particularly in the preparation of forest guidelines and draft management plans.

Some other consultancies that had been completed include GIS based mapping of boundaries of NNP by NRSA and a research project on different faunal groups by ATREE.

Many important studies initiated during Phase I of IEP had been completed and some very important findings had come forth, which have implications for PA management. For example, a study sponsored during Phase I on *Ecological Studies of Weeds in Nagarhole National Park* found that *Lantana camara* and *Chromolina oderata* occupy vast areas in natural forests as well as teak plantations. The study sampled fully stocked and under stocked natural forests and teak plantations. Another important observation made by the study, that may have implications for PA management, is that weed density was higher (60.5%) in dry deciduous forests in comparison to moist deciduous forests (45%).

A study on assessment of the crop and livestock damaged and mitigation strategies around Rajiv Gandhi National Park highlighted that management strategies should be aimed at reducing and mitigating the affects of conflicts between elephants and humans based on severity of damage experienced in different areas.

Another study, *Assessment of Biodiversity of Lesser Known and Functionally Important groups in Nagarhole National Park*, highlighted that with the exception of land snails, moist deciduous forests were species-rich for most of the taxa sampled under the study. The study found that amphibians, birds and butterflies were more in the moist deciduous forests. These habitats were also found to be richest in dung beetle diversity.

A study on determining seasonal utilization of habitats by Asian Elephants in the Nagarhole National Park, highlighted that elephant densities were found to be uniform across dry deciduous habitats, swamps and plantations during the dry season, and lower in the moist deciduous habitats. During the pre-monsoon, densities were highest across all habitats. As the monsoon progressed, elephant densities dropped across all habitats.

To develop an effective strategy to deal with the problem of firewood extraction and grazing, the PA Ecologist had completed a study for estimating the reduction of fuel wood use and extent of grazing in the first phase of IEP. According to the findings, average fuel wood use is 539 tons/year/village and average fodder grazed by cattle is 467 tons/year/village. Based on this baseline data, further measures can be adopted to reduce the intensity of these threats that have a direct bearing on PA habitats.

Such important findings should be factored in plans for habitat improvement and conservation of biodiversity in the PA.

### **3. TRANSFER OF KNOWLEDGE WORKSHOP**

#### **3.1 Objective**

Implementation of Ecodevelopment programmes has generated new knowledge with respect to population - PA interface and its impact on reducing pressure on PAs. The success and failure stories emanating from implementation of the Ecodevelopment Project have provided insights into processes, programme structure, and management that facilitate the realisation of the project objective of reducing people's pressure on PAs. JPS Consultants have disseminated these insights and resulting knowledge to various stakeholders, including the project beneficiaries and staff of the participating PAs through conduct of a Transfer of Knowledge Workshop.

The basic objective of the Workshop was to increase institutional learning and replication of successful interventions under the project. The workshop was organized at Antharasanthe Range. A list of participants is at Annex VII.

#### **3.2 Agenda for the Workshop**

JPS Consultants conducted a Transfer of Knowledge workshop during the extended phase of IEP at Nagarhole National Park (NNP) as per the following agenda:

- To brief the participants about the objectives of IEP
- To enhance the understanding of the EDC Chairmen, Executive Committee members and stakeholders about the IEP concept and interventions, and to sensitise them to the need for fully utilizing the opportunities provided by the Ecodevelopment project to maximize the proposed project benefits flowing to both PA and EDC villages.
- To share information generated through monitoring, environmental assessment and social assessment
- To create awareness on various interventions and initiatives undertaken at various project PAs
- To discuss the problems faced by project beneficiaries as also PA authorities
- To highlight the beneficial outputs from the IEP-PA protection and management, creation of self-sustaining livelihood activities for project beneficiaries, among others, both in the NNP and other PAs
- To equip the field level officials of the PA (foresters, forest guards and range officers) with better understanding and skills to tackle day to day problems relating to implementation of the various schemes under the IEP, in the context of PA protection work.

#### **3.3 Workshop Proceedings**

##### **3.3.1 IEP - An Overview**

JPS Consultants gave an overview of IEP to the workshop participants, as elaborated below.

India Ecodevelopment Project was initiated with the primary objective of conservation of biodiversity by a concerted strategy of strengthening capacity of park management and encouraging local community participation in PA protection and management. For this, the IEP aimed to undertake Village

Ecodevelopment to trigger socio-economic development of villages for reducing their dependence on PA resources.

To achieve the twin objectives of reducing people's dependence on park's resources and to reduce the negative impact of PA on people, the Project Tiger Office of the Ministry of Environment and Forests, with assistance from the World Bank, launched the India Ecodevelopment Project in seven protected areas in India. These seven sites were selected on the basis of severity of the pressure faced by them and the richness of the biodiversity they possess. Further, these areas represented diverse ecosystem types. The seven selected PAs were:

1. Buxa Tiger Reserve (West Bengal)
2. Gir National Park (Gujarat)
3. Nagarhole National Park (Karnataka)
4. Palamau Tiger Reserve (Jharkhand)
5. Pench Tiger Reserve (Madhya Pradesh)
6. Periyar Tiger Reserve (Kerala)
7. Ranthambhore Tiger Reserve (Rajasthan)

### **3.3.2 Significance and Uniqueness of IEP**

#### **Issues Highlighted by JPS Team**

JPS team informed the participants that the India Eco development project- IEP- is a unique project to enhance beneficiary participation in protection of forest. The project views this participation as an evolutionary process. It began with creating awareness and development of sense of ownership vis-a-vis the project interventions. This was done by securing stakeholders agreement on eco-development issues to be addressed and by ensuring their participation in formulation and implementation of eco-development activities, including microplan preparation. It is a novel approach for reducing the biotic pressure on PAs and has been adopted by the respective forest departments of the participating states.

JPS Consultants informed the participants that the second phase of the project, which is under implementation, will end in June 2003. Unless the EDC Executives and EDC Secretaries take prompt steps to secure twenty five percent contribution, and effectively utilize the funds earmarked in village microplans, the project goals will not be fully achieved.

Discussions with the beneficiaries confirmed that IEP is of immense significance, not only for protecting the PA, but also for socio-economic development of villages.

During the workshop, JPS Consultants highlighted the following **unique features of IEP**:

- Each village selected for IEP implementation has its own microplan.
- Microplans have been made in consultation with the villagers and those are people's plan.
- PA protection and biodiversity conservation is to be achieved with assistance of the people who live in and around the PAs.

- Alternative livelihood approaches, such as modified and diversified agriculture and other income generating activities, have been implemented under IEP.
- The dependence of people on PA resources is sought to be reduced in a way that their survival and needs continue to be satisfactorily met.

### **Participants' Feedback**

The participants' feedback with respect to our presentation on the significance and uniqueness of IEP was as follows:

- The microplans have been prepared by the PA authorities in consultation with the villagers of the concerned EDC villages. They were informed about the activities and the villagers, according to their interest and capacity tried to avail the benefits.
- The participants appreciated IEP's interventions for creating assets and expressed that this activity be undertaken in all EDC villages.
- The participants appreciated IEP's interventions for creating opportunity for alternative livelihoods and reported substantial improvement in their economic status.
- The participants, while welcoming the consultative process initiated under IEP, suggested that these should be widened and continued beyond the project life.

### **3.3.3 Location Specific Factors Negatively Impacting on IEP Implementation**

#### **Issues Highlighted by the JPS Team**

At Nagarhole, 108 microplans were drawn up covering 15,500 beneficiary families. There are different types of villages inhabited by several ethnic groups having multifarious socio-economic background. The villagers are expected to contribute to PA management and conservation of biodiversity. However, despite the implementation of IEP for over three years now, the PA continues to face threats. The following Nagarhole-specific factors negatively impacting on IEP implementation were brought to the attention of the participants:

- Continuing pressure from Coffee estates located around the PA. Both tobacco curers and labourers from Coffee estates extract firewood from the PA
- High resource use such as fuel wood, fodder, NTFP collection is a critical factor in non-sustainability of the Nagarhole ecosystem.
- Inadequate measures for controlling crop depredation by wild animals also adversely impacted PA implementation.
- As a result of inadequate communication, beneficiaries were not fully aware of microplan implementation and related financial allocations. This adversely impacted on IEP implementation by reducing the responsiveness levels of intended beneficiaries.
- Inability of beneficiaries to adequately meet their reciprocal commitments
- In the initial stages, interests of the poor and landless families were not adequately reflected in IEP activities.

## Participants' Feed Back

The following salient points were made by the participants:

- The participants broadly recognized the negative impacts on PA arising from their activities. They highlighted that wildlife from PA damages their crops occasionally.
- The participants expressed the view that, tobacco curers mostly meet their fuelwood requirement from the crop residue of pulses, cotton sticks, among others. They further highlighted the fact that fuelwood requirement of coffee estate labourers was met from crop residue and plantation grown on their land. They now prefer to go for more energy plantation on private land owned by them in order to reduce their future dependence on the PA.
- The participating beneficiaries felt that their villages were selected for IEP implementation on the basis of their proximity to NNP.
- Villagers expressed concern that IEP is under implementation only in selected villages and some villages in the neighbouring areas have been excluded. They were also concerned that some families living in the EDC villages were not included in the microplan for some reason or the other.
- The participants highlighted a key concern with respect to the use of LPG - high cost of refilling and irregular supply of cylinders that precluded continuous use of these cooking devices.

### 3.3.4 Experience and Knowledge Sharing

#### Issues Highlighted by JPS Team

JPS Consultants shared with the participants, successful implementation stories from other PAs. The participants were informed that various EDCs have evolved unique methods to improve their performance and have, through innovative methods, increased the Village Development Fund (VDF). The following successful examples were brought to the attention of workshop participants –

1. In Buxa, one of the EDCs has purchased a power tiller, which is rented to both EDC members and non-members. The rental charges differ and are steeper for the non-members. This constitutes an assured source of income for EDC resulting in the augmentation of the EDC funds.
2. In Buxa, some EDCs are producing vegetables, rearing pigs, and poultry farms, where landless members are provided with wage employment. The investments are secured and extra profit earned is deposited in the EDC fund. The poor members are able to earn wages and pay 25% contribution for procurement of assets.
3. In Buxa, many beneficiaries are now providing useful information for controlling illicit timber trade. For example, Nimati range FPC members helped in seizing a truck with illicitly felled timber.
4. In Buxa PA, authorities have stopped giving transit pass to legally extracted firewood from PA forests. Due to this, abundant firewood is now available in local markets leading to reduced price and easy availability. As a result of this, most beneficiaries are now able to purchase the firewood and do not prefer to go to the PA forests for firewood collection.
5. In Buxa, EDC members undertake regular patrolling and also maintain a register listing the names of the people who go for patrolling. They also list out any case of illegal act noticed by them.

6. In Periyar, one EDC is running a community shop. All villagers purchase goods from that shop. This way EDC is able to increase its funds. Some EDCs have been formed to exclusively manage petty businesses for the benefit of both pilgrims, tourists and the ad hoc forest staff who get wages for few days though they work for the entire month.
7. In Periyar, the 'Pamba Jyothi' LPG godown in Angel Valley III EDC is functioning effectively to ensure regular supply of LPG to the beneficiaries in the Pamba Valley. It is run by the confederation of EDCs of West Division. During a visit to Pamba Jyothi, we were told by the beneficiaries that functioning of Pamba Jyothi is prompt and supply of LPG is regular. The extraction of fuel wood from the PA has declined by 90% as told by the beneficiaries and PA authorities.
8. In Periyar, 'Ecospices', a curry powder unit has been established with an investment cost of Rs.4 lakh in Pamba Valley and is run by the Angel Valley III EDC. Products like curry powder (chillies, pepper, cumin, coriander, etc.) are manufactured in the brand name of Ecospices and sold in the local market. The EDC has started earning profit and is looking forward to a larger market for the sale of their products.
9. In Ranthambhore, most EDCs have declared their areas as *Kulhari band* (No Axe) and the axe is impounded if anyone is found carrying it. Activities like anicut, kharanja (road), pond, enclosure, have increased the ground water table and fodder production.
10. In Ranthambhore, the provision of drinking water through bore well in the Khatkupura village has been an exemplary work done by EDC under village ecocodevelopment. EDC members have taken the responsibility of its maintenance and proper use in future.
11. In Pench, holding of camps by senior officers in selected EDC villages, have been found very useful in solving problems of the villagers, taking on the spot decisions, approval of schemes on the basis of requirements/capacity of beneficiaries and reducing pressure on the lower level staff (particularly member-secretaries) who avoid taking decisions on controversial issues.
12. In Pench, installation of a large number of biogas plants in more than 2500 households/families has resulted in reduced firewood extraction from PA forests to the tune of about three tons/year/family.
13. In Pench, issue of grazing has been addressed by encouraging EDCs to develop alternative pasturelands. At present, 23 EDCs are developing 1400 ha of pasturelands in village common lands.
14. In Pench, a unique feature has been the introduction of Anaj Bank (Grain Bank) by some of the EDC villages. In this scheme the grain is given to the lender on loan to be returned with 10 percent additional grain within a stipulated time. Some of the EDCs could double their capital within a year's time through Anaj Bank's operations.
15. In Gir, community farming and orchards have been raised for generating a sustainable source of income. In most of these efforts, landless labourers have been employed ensuring their year round wages. Pastures have also been developed in common village lands to meet the increasing fodder demand for cattle.
16. In Gir, the PA authorities have shifted Maldhari settlements from the interior of the PA to the PA boundary thereby decreasing the pressure on PA.

JPS Consultants also informed the participants about noteworthy innovations at Nagarhole, as listed below:

- **Reducing farmer's dependence on PA:** The needs of a large number of small and large farmers were addressed by providing them with inputs that improve their agriculture productivity and increases their household income. Some of the interventions in this regard were land leveling, irrigation facility providing agricultural implements, petty business, poultry etc. This way the PA authorities have indirectly reduced the dependence of peripheral farmers on PA resources.
- **Focus on providing alternative fuel saving devices:** Over 6,300 of beneficiary families have been provided with LPG, 6518 families with Pressure Cooker, 321 with bio gas plants, 272 families with stove and 320 families with fuel efficient Chullah to reduce the extraction of firewood from PA forests.
- **NGO Support for IEP implementation:** Several local NGOs provided useful services in creating awareness, preparation of microplan and implementation of ecodevelopment programmes.
- **Successful relocation of tribal families:** 250 tribal families have been relocated outside the PA. Those families are able to make a living from the land allotted to them and other assistance provided under the scheme.
- **Women Self Help Groups:** A large number of EDCs hve formed Women Self Help Groups with the help of a Women Development Officer. The women members have become more organized through the intervention of NGOs and consultants engaged in the PA management.

### **Participants' Feedback**

The participants' feedback arising from the experience and knowledge sharing were as follows:

- Most women participants informed us that they appreciated the new cooking devices provided by the project, as they could use the time saved in fuel wood collection to acquire skills for undertaking income generating activities like tailoring.
- The participants expressed their desire to form an association or Federation of EDC to have LPG agency at a point central to a group of EDC villages as done in the Periyar Tiger Reserve. The participants were of the view that replication of the Periyar model for distribution of LPG would resolve their problems. Presently, cost of refilling is high and supply of LPG cylinder is irregular
- Grain (Anaj) Bank that has been set up in some EDC villages in Pench was found attractive. Some participants wanted this to be replicated in some EDC Villages.
- The Buxa practice of regular patrolling and maintaining a record of patrolling and listing illegal acts attracted the attention of the participants who expressed their desire to adopt the Buxa practice.
- Many participants welcomed group based activities initiated in Buxa and Gir where assets will be owned by the EDC, labour will be provided by the poor and landless would be given top priority. They have started creating community assets like community Hall, ponds, anicuts, nurseries etc.
- The women participants expressed that their self-confidence had increased due to their involvement and representation in SHG and EDC activities. They were now prepared to expand the SHG activities, for which training for skill upgradation, and marketing support would be required.

### **3.4 Impact of Workshop**

A major impact of the workshop was in terms of sensitising participants to the benefits of IEP, increasing their confidence in the programme, and catalyzing them to engage in discussion on improving IEP's implementation through replication of best practices. Thus, at the end of the workshop, participants held group discussions on adoption of best practices brought to their attention during the workshop. For example, participants decided to popularize LPG as alternative fuel saving device. They also observed that each household should use LPG along with pressure cooker to reduce pressure on fuelwood.

They expressed that they would explore the possibilities of setting up grain - bank (Anaj Bank) for poor and landless families and set up small groups for patrolling PA boundary. They also expressed that in the next General Body meeting they, would discuss issues like group activities with thrust on poor and landless families, who are yet to avail adequate benefits from IEP.

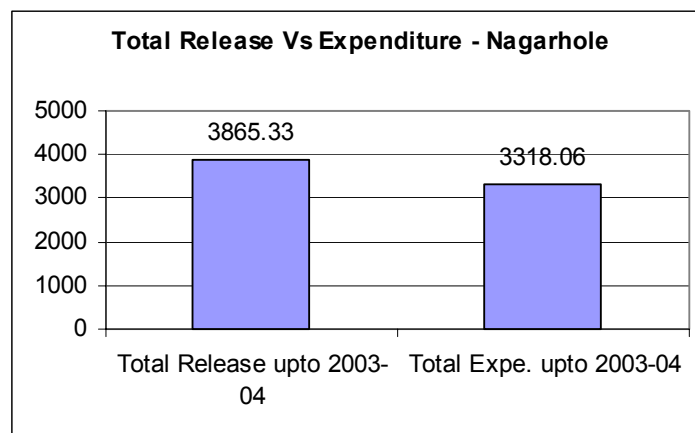
The women SHGs proposed to convene General Body meetings shortly and discuss possibilities of adoption of some income generating activities with additional financial assistance from banks, NABARD and village EDCs (VDF funds).

## 4. PROJECT PROGRESS STATUS

### 4.1 Overall Investment Scenario

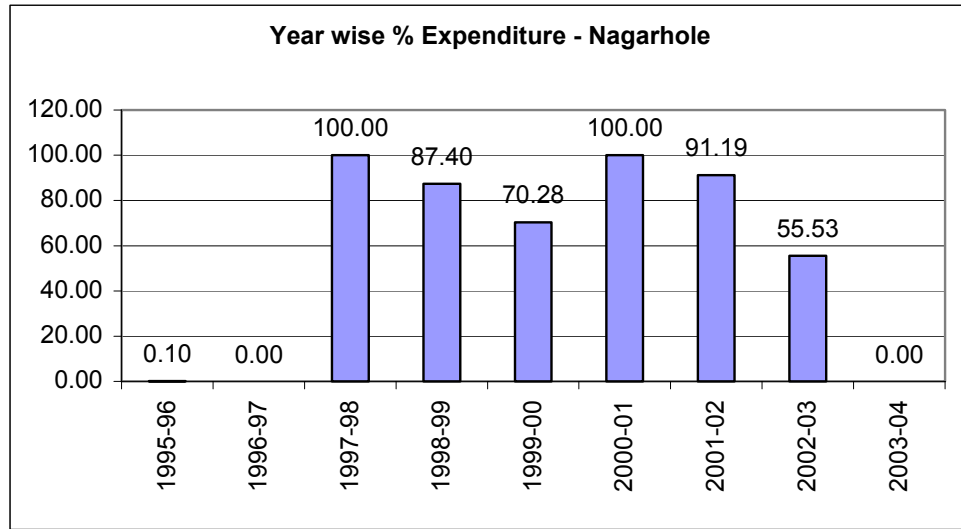
Funds for the PA are provided through budgetary allocation. Both state sponsored and centrally sponsored schemes cover the expenditure for the PA. There are both recurring and non recurring expenses.

The total utilization of funds at NNP for the entire project period is at 85.84%. The total amount utilized against the released funds is given in figure below.

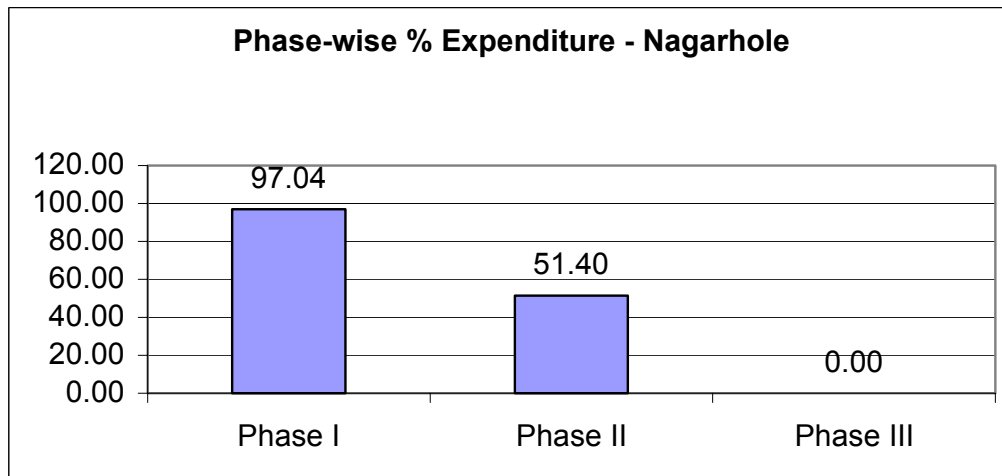


The year-wise release and expenditure amounts, including the revalidated figures and percent utilization of funds is given Table below for NNP and is graphically presented in Figure followed.

Year	Release	Expenditure	Revalidated Amount	% Utilization
1995/96	10	0.01	9.99 (1996/97)	0.1
1996/97	0	0	9.99 (1997/98)	0
1997/98	50	59.99	0 (1998/99)	100
1998/99	432	377.56	54.44 (1999/00)	87.40
1999/00	955.15	709.59	300 (2000/01)	70.28
2000/01	425.85	725.85	0	100
2001/02	950	867.40	82.60	91.30
2002/03	1042.33	578.76	463.57 (2003/04)	55.53
2003/04	0	0		
<b>Total</b>	<b>3865.33</b>	<b>3318.06</b>	<b>920.59</b>	<b>85.70</b>



Phase-wise expenditure at NNP is given in below Figure. Since project implementation was limited to the first two phases, there is no expenditure in phase III. The performance in phase I vastly outscore that of phase II indicating that phase two could neither consolidate the gains of phase I nor could it sustain the high investment levels of phase I. The project implementation was mired by certain controversied and judicial inquiry in the form of *lok Ayukta* was ordered due to which the World Bank and Project Tiger Office decided not to extend the IEP for 2003-2004 (phase III).



### Project Performance during 2002-2003

For the year 2002-2003, the PA authorities proposed an outlay of Rs 1,349.65 lakhs. This includes both investment costs (amount spent on various project activities) and recurrent costs (salaries and O&M costs). Whereas investment costs are funded through the Central Government Funds (Project Tiger Office), recurrent costs are met by the State Government funds.

The maximum outlay is for the Village Ecodevelopment component at Rs 1,199.44 lakhs followed by Rs 77.69 lakhs under Improved PA Management. Earlier, the PA authorities had proposed a higher outlay for Improved PA Management but in the revised APO, this amount was reduced. As a consequence of this, the PA authorities have proposed some of the activities of Improved PA Management under the Village Ecodevelopment component. For example, fire protection and weed removal are reflected in the Village Ecodevelopment in the revised APO. This is one of the reasons for the huge differences in the outlays between the two components.

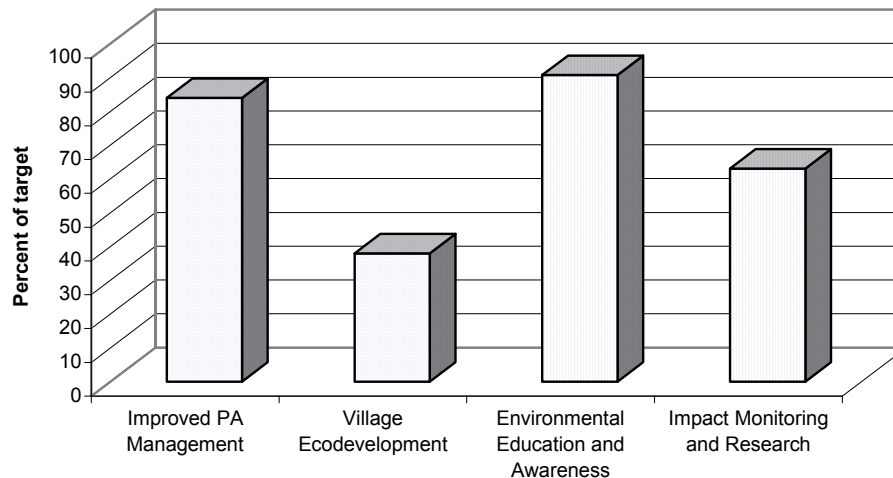
Total component-wise investment as a percentage of targeted expenditure has varied from the low of 37.91% (Rs.454.17 lakhs) for the Village Ecodevelopment component to the high of 90.71% (Rs.32.72 lakhs) for the Environmental Awareness and Education component, followed by 83.95% (Rs 77.69 lakhs) for the Improved PA Management component. These variations in funds utilization as a percentage of targets are primarily a reflection of amounts released for different components and not a reflection of the performance efficiency of the respective project components. Component-wise details of expenditure incurred up to March 2003 are given in Table 8.

**Table 8: Component-wise details of expenditure incurred up to March 2003**

Component	Financial Target (Rs lakh)	Expenditure up to March 2003 (Rs lakh)	Expenditure as % of target
Improved PA Management	92.54	77.69	83.95
Village Ecodevelopment	1,199.44	454.17	37.91
Environmental Education and Awareness	36.07	32.72	90.71
Impact Monitoring and Research	21.6	13.62	63.06
<b>Total</b>	<b>1349.65</b>	<b>578.2</b>	<b>42.88</b>

Figure 3 depicts the expenditure under the four components at NNP.

**Figure 3: Components-wise Expenditure as a percentage of target upto March 2003**



#### 4.2 Fund Flow

The APO outlay for 2002-03 for NNP was Rs.1349.65 lakhs. However, the actual amount released by the state government, in nine installments, was Rs.582.60 lakhs i.e. 43.17 % of the outlay (see table below for details). This has contributed to overall low fund utilization during the financial year 2002-2003. However, it is encouraging to note that 99.24% (Rs.578.20 lakhs) of the total released funds (Rs.582.60 lakhs) were utilized by the PA.

Installments	Amount (Rs in Lakh)	Date
1st Installment	82,00,000	May 21, 2002
2nd Installment	60,000	June 6, 2002
3rd Installment	98,00,000	August 8, 2002
4th Installment	2,00,000	September 9, 2002
5th Installment	98,00,000	September, 26,2002
6th Installment	2,00,000	October 18, 2002
7th Installment	1,98,00,000	October 19, 2002
8th Installment	2,00,000	November 30, 2002
9th Installment	1,00,00,000	March 27, 2002
<b>Total</b>	<b>5,82,60,000</b>	

As a result of only 43.17% of the outlay released to the PA, the overall funds utilization as a percentage of targeted funds is low, and stands at 42.88% of the target (Rs.1, 349.65 lakhs).

#### 4.3 Compliance with Project Benchmarks

Since the start of the India Ecodevelopment Project, a number of benchmarks were established to ascertain project progress. Table 9 gives the compliance status of Nagarhole with respect to established project benchmarks.

**Table 9 : Benchmark compliance status**

S. No.	Benchmark	Whether Complied with Benchmark (PA's View)	Comments of the PA	Consultants View
		(Yes/No)		
<b>Improved PA Management</b>				
1.	Preparation of detailed guidelines for PA Management Plan Update	Yes	Management Plan for Rajiv Gandhi National Park has already been prepared and is under implementation.	Although the draft management plan was prepared in May 1999, it was later revised to take account of zoning of PA and to include inputs from other research studies. The management plan was finalized by June 30, 2001 and approved by PCCF. The plan had been sent to the World Bank.  State government is yet to approve the plan. In the absence of state's approval, the PA authorities are following the broad guidelines/directions of the plan for PA management.
2.	Preparation of Draft Management Plan	Yes		
3.	Finalization of Management Plan	Yes		
4.	Management Plan Submission to the World Bank	Yes		
5.	State Government's approval for the Management Plan	No	State Government is yet to accord the approval.	
6.	Completion of Baseline Mapping	Yes	No comments.	NRSA Hyderabad was contracted for preparation of detailed baseline maps, indicating the PA boundaries. Both the award and completion of the mapping was delayed.
7.	Inventory and assessment of activities outside the project scope that could negatively impact PA conservation and ecodevelopment strategy	No	No comments.	Benchmark not complied.

S. No.	Benchmark	Whether Complied with Benchmark (PA's View)	Comments of the PA	Consultants View
		(Yes/No)		
8.	Conducting Regional Planning Workshop	Yes	No comments.	Benchmark complied.
9.	Incorporating Regional Concerns in PA plan	Yes	No comments.	Benchmark complied. Regional concerns, such as, presence of over 200 coffee estates over an area of 1143 ha have been dealt with and a PA plan incorporating PA and the Land use Situation have also been finalized.
10.	Establish investment criteria with direct relevance to PA conservation	Yes	No comments.	Benchmark complied. Investment criteria for making investments under village ecodevelopment was established.
11.	Conduct staff attitude survey in Project year 1 and 5	Yes	Staff attitude survey for the year 5 to be conducted.	Benchmark complied. However, as indicated by the PA authorities, full compliance will be after conducting the second staff attitude survey.
<b>Village Ecodevelopment</b>				
12.	Number of Microplans to be prepared	Yes	108 to be prepared	Benchmark complied. Total 108 microplans have been prepared which include 28 microplan of Hadi settlements.
13.	Number of Microplans to be implemented	Yes	All the 108 microplans are under implementation.	Benchmark complied. However, all microplan activities have not been implemented.
14.	NGO contract for microplan preparation	Yes	No comments	Benchmark complied. Three NGO's naming TARDO, VIKASANA and IITE were contracted for microplan preparation and implementation support.
15.	NGO contract for microplan implementation	Yes	Contract has been awarded to 3 NGO's namely (1) IITE (2) TARDO (3) VIKASANA to monitor the implementation.	

S. No.	Benchmark	Whether Complied with Benchmark (PA's View)	Comments of the PA	Consultants View
		(Yes/No)		
16.	Development of VDF utilization guidelines	Yes	Only draft guidelines developed, however it is being upgraded.	Although the PA has indicated that they have met the benchmark, there has been an inordinate delay in meeting the benchmark, which has been met only partially. Guidelines for use of VDF, to be developed by Jan 2001, are not yet developed. Draft guidelines need to be finalized at the earliest.
17.	Conducting Public Review	Yes	No comments.	Public review at EDC level held.
18.	Issuance of GO on EDCs (Enabling Resolution)	Yes	No comments	GO was issued. It may be revised/updated considering EDC sustainability issues.
19.	Revision of microplans	Yes	Depending on the demand most of the microplans have been revised.	Benchmark complied. Revision of microplans addressed the concerns of landless and poor to some extent. Revised microplans led to infrastructure creation (community halls).
20.	Number of EDC meetings per year planned and held	Yes	Monthly EDC meetings are held, however on special occasions additional meetings are also held.	Meetings are irregular and sometimes missed. This is due to inadequate implementation of microplans towards the end of the project period.
21.	Second participatory monitoring of reciprocal commitments at all EDCs	No	No comments	Not complied.

S. No.	Benchmark	Whether Complied with Benchmark (PA's View)	Comments of the PA	Consultants View
		(Yes/No)		
<b>Environmental Education and Awareness</b>				
22.	Development of Environment Education and Awareness Strategy and Action Plan	Yes	Action has been taken to develop the same.	Benchmark complied. Final draft of the awareness strategy and action plan was prepared by CEE in 2001.
23.	Award NGO contracts for implementing action plan	Yes	No comments	Benchmark complied. One local NGO (IITE) has been contracted for implementation support.
<b>Impact Monitoring and Research</b>				
24.	Reprioritization of Research Needs	Yes	No comments	Benchmark complied. Most of the research studies/consultancies have been completed.
25.	Identification of agencies for conducting research	Yes	In all about 20 research studies have been carried out during the project period.	Benchmark complied. A number of agencies, including Universities, were identified and research contracts awarded to them.
26.	Finalization of Impact Monitoring Contract	No	No comments	Benchmark not complied. Participatory monitoring has not been carried out.
27.	Development of a Monitoring Plan	Yes	No comments	Although the PA authorities have indicated that they have complied with the benchmark, the Management Plan is largely silent on this. Animal movement has started with monitoring of elephant movements. Participatory monitoring of village ecocodevelopment activities are being done partially by the NGOs contracted for microplan implementation support.
28.	Number of research projects planned and awarded	Yes	Number of research projects planned 20 and awarded and completed are 20.	Benchmark complied. 25 research project awarded and completed. Besides this, 10 consultancies were also awarded.

S. No.	Benchmark	Whether Complied with Benchmark (PA's View)	Comments of the PA	Consultants View
		(Yes/No)		
<b>Capacity Building/Training</b>				
29.	Impart Accounts Keeping training to EDCs	Yes	No comments	Formal training on account keeping provided to few EDCs.
30.	Strategy and action plan for capacity building for ecodevelopment	No	No comments	Benchmark not complied. NGOs contracted for microplan implementation support should be engaged for capacity building of EDCs.
31.	Hiring of Ecologist	No	We would hire during extension period.	An Ecologist was working during Phase I of IEP. However, his services were discontinued in the extended phase of IEP.
32.	Hiring of Sociologist	Yes	No comments	Although the PA authorities have indicated that they have complied with the benchmark, there is no sociologist working at Nagarhole. The three NGOs working there may have sufficed for the position of sociologist.
33.	Impart Gender Sensitization training to staff and EDCs	Yes	Women development officer working in the project carried out this activity.	Women Development Officer appointed in the first phase, resigned during second phase of the project.
<b>Studies and Strategies</b>				
34.	Award Process Documentation Study	No	No comments	This study has not been awarded.
35.	Finalization of Dissemination Strategy	No	No comments	Not undertaken.
36.	Implementation of Dissemination Strategy	No	No comments	Not carried out.
37.	Development of Tourism/Visitor Strategy	Yes	It is being done through a forestry expert (Consultant).	Being done.

S. No.	Benchmark	Whether Complied with Benchmark (PA's View)	Comments of the PA	Consultants View
		(Yes/No)		
38.	Preparation of Sustainability Strategy	Yes	No comments	Benchmark not complied. Though the PA authorities have mentioned a 'Yes'. Financial sustainability study not completed.
39.	Implementation of Sustainability Strategy	No	No comments	Not carried out.
40.	PA level workshop with other agencies to finalize action plan and establish linkages	No	No comments	Not complied.
41.	Development of Impact Monitoring Strategy	No	No comments	Impact monitoring strategy has not been developed.
42.	Development of a research strategy	Yes	No comments	As part of research strategy, 25 research studies were awarded. The PA authorities awarded a number of research studies.
<b>APO Targets (% expenditure)</b>				
43.	Execution of at least 80% of APO targets for Fy02/03 completed	No	No comments	Poor performance against current APO i.e., only about 42% of APO financial targets met.
<b>Overall Project Management</b>				
44.	Whether Staff Plan filled completely in First Project Year	No	Since it is at the disposal of Government of Karnataka.	Not complied.
45.	Senior staff transfers not to exceed 25% in any project year	No	During 2003-04 all the key officers (except 3 Range Forest Officers) have been transferred. This amounts to >90% change.	Not complied as per set norms. Field Director, DCF (looking after Ecodevelopment Project) and PCCF transferred within a short period in the extended project period.
46.	Publication of Newsletter (at least semi-annually)	No	However action is being taken.	Not complied.

## 5. INSTITUTIONAL AND FINANCIAL ASPECTS

The institutional and financial aspects were discussed with the PA authorities. These aspects covered improvements in institutional capacity building and financial functioning of NNP, as outcome of IEP implementation. For this, a questionnaire on institutional and financial aspects was provided to them. The questions asked and responses given by the PA authorities along with our views are presented below in Table 10.

**Table 10: Institutional and financial review questions, response of PA authorities and our views**

Question	Response of FD	Our View
<b>1. Policy and Program Formulation</b>		
Has the formulation of the new Management Plan institutionally strengthened the PA?	Yes. It developed skills and personality of staff and provided guidelines for PA management.	The revised management plan has helped in identifying the critical areas (such as habitat improvement, PA protection, etc.) and addressing them along with other inadequacies in improving the PA management.
Has the policy for implementing the new Management Plan resulted in improved PA management?	Yes. It has helped management of forests through participatory processes.	Implementation of new management plan has been helpful in participatory management of forests. There has been visible reduction in PA resource use by construction of EPT, solar fence and distribution of LPG etc. in the EDC villages.
What new institutional mechanisms have been developed under Village Ecodevelopment Program?	Formation of EDCs, SHGs, VDF and security deposits.	EDCs and other institutions have been constituted to implement the village ecodevelopment programs as per the microplan.
Is there an exit policy for the post project period?	No formal policies are formed. However, the project activities are likely to continue through linkages with other projects, like project tiger, and with forest department (wildlife).	As no exit policy has been developed so far, the PA authorities should develop an effective and flexible policy and linkages with other stakeholders, NGOs, and organizations for post project sustenance.
Has the PA developed policy/guidelines for utilization of VDF account by villagers?	Not yet. But there is a proposal to deposit 50% of VDF as a fixed deposit for three to four years. The rest will be used to provide loans on interest-based repayment.	Effective guidelines should be formed regarding utilization of VDF at the earliest, which should be communicated to EDCs.

Question	Response of FD	Our View
<b>2. Program Implementation</b>		
<b>a. Delivery mechanisms</b>		
Are Improved PA Management works based on new Management Plan?	Yes. Most of the works carried out are as per the guidelines provided in the new management plan.	The work is generally done as per the direction / guidelines in the new management plan.
Is the PA capacity adequately built for improved PA management?	Yes.	Although the existing status is adequate to deal with most of the issues related to Improved PA Management, infrastructure needs further strengthening and field level position posts like forest guards and forest watchers should be filled.
If yes, can it be demonstrated through examples?	Setting up of anti-poaching camps, fire watch towers, patrolling parties, information gathering groups and installation of solar fences.	As cited by PA authorities.
<b>a(i) Sensitization</b>		
Are the activities/works undertaken sensitive to people's requirements?	Yes. Works and activities are implemented through joint decision in EDC meetings and resolutions.	Microplans were prepared with people's participation. EDCs are involved in microplan implementation. Microplans are revised based on changing requirements of the beneficiaries.
Has IEP implementation raised stakeholder awareness regarding nature conservation/ PA protection?	Yes. Nature camps and other educational and awareness tours to EDC members have raised the level of awareness regarding wildlife and importance of park.	The awareness level of stakeholders has certainly increased through training, workshops and exposure visits. The transfer of knowledge workshop conducted by us has been useful in increasing the awareness level of stakeholders.
<b>a(ii) Community mobilization</b>		
Are EDC villages more aware regarding their reciprocal commitments?	Yes. For example, helping in identifying smugglers in villages, participating in fire control, joint patrolling, reduction in fire wood collection and grazing	Although villagers are aware of their reciprocal commitments, they are meeting it partially. At present, the fuelwood and grazing pressure on the PA have reduced.
Whether IEP has resulted in improved relations with peripheral villages?	Yes. Relationship between the PA staff and village communities has improved significantly.	There has been a significant change in people's attitude towards PA staff, which has been quite useful in participatory management of

Question	Response of FD	Our View
		forest.
<b>a (iii) Consultative/participatory process</b>		
Are there new institutional mechanisms for encouraging participatory PA management, including PA protection?	Yes. Like joint patrolling, information sharing network, fire-controlling activities through EDCs participation, stoppage of illegal felling and poaching.	Level of participation in joint patrolling and PA protection is inadequate and met partially. However, communities willingly participate in controlling fire and providing information on forest offence related activities.
Are the project beneficiaries adequately participating in IEP implementation?	Yes. Beneficiaries are participating every time as need arises and is brought to their notice by the Forest Department.	Participation by project beneficiaries has increased in last one year but not to the expected level.
Is the process of microplan revision participatory in nature?	Yes. Microplan revision is done through resolutions passed by EDC.	Yes. Revision of microplan is participatory involving beneficiaries.
<b>a (iv) Learning &amp; mid-course correction</b>		
What are the institutional shortcomings in implementing the new management plan prescriptions?	Inadequacy of staff, shortage of budget, and late release of LoC are the main shortcomings.	Inadequacies of staff at junior level (such as forest guard, watchers, etc.) have constrained effective PA management. At present, among others, 56 posts of forest guards, 18 posts of forest watchers and 5 foresters are lying vacant and need to be filled urgently.
<b>a (v) Outreach strategies</b>		
Is the PA more equipped for organizing environmental education and awareness campaigns/workshops for stakeholders?	Yes. Educational training and workshops were conducted at NIC in Nagarhole, which is equipped with audiovisual facilities.	Recently constructed NIC at Nagarhole has been useful for organizing workshops and environmental education and awareness programmes for stakeholders. Construction of NIC at Veeranahosally is completed but yet to be functional.
Whether the PA is now institutionally more strengthened for raising stakeholder awareness through Nature interpretation Center?	Yes. It can be strengthened by providing adequate budget.	NIC at Nagarhole is functional and equipped with audiovisual facilities. Recently constructed second NIC at Veeranahosally needs adequate funds to make it functional.
<b>b. Administrative arrangements</b>		
Does the PA have a full staff compliment?	No. More staff is required as per the existing staff plan.	The PA has shortage of staff, which has constrained effective PA management. The state government should fill up all the vacant posts and

Question	Response of FD	Our View
		other required posts.
Is there a workload distribution mechanism?	Yes. Whenever the burden of workload arises, it is distributed among available staff.	There is sufficient flexibility, and power with PA authorities to deal with workload distribution among available staff members.
Are the roles and responsibilities of staff defined at all levels?	Yes.	Yes. The role and responsibilities of staff are generally well defined at all levels.
Can EDCs be considered as village level institutions with legal validity?	Yes. EDCs need legal validity through registration of Societies Acts. There is proposal under consideration for EDC registration in future.	The PA authorities should ensure all help to EDCs to become legal entities.
What is the extent of flexibility in revising microplan targets and can the PA undertake microplan revision?	Microplans are need-based programmes involving villagers through PRA.	Revision of microplan is participatory and decided by beneficiaries. FD is the authority for its approval.
What is the time frame for approval of revised microplan targets?	Usually it takes 20 - 30 days for approval after receiving EDC's resolution.	The timeframe of 20-30 days is on higher side. It should be brought down to 10-15 days.
<b>c. Budgeting &amp; Finance</b>		
Are financial resource realities considered while setting microplan targets?	Yes. Microplans are targeted as per the requirement of beneficiaries and implementation is done within available budget.	Microplan targets should be realistic and achievable within available budget.
Is there a dedicated budget for human resource capacity building?	Yes. Sufficient budget is allocated for capacity building.	The PA has been allocated funds for capacity building. Recently a computer-training programme for students of EDC villages has started which is still in progress. However, there should be adequate budget for human resource capacity building.
Has any new system developed for streamlining financial budgeting procedures?	No. For smooth running of funds a new approach is required.	No new system has been developed. Late release of LoC from state government and other budgetary constraints needs to be improved.
Is any skill building training provided to staff on financial/accounting procedures?	Yes. All the EDC Secretaries are provided departmental training to learn accounting procedures.	Training programmes should be conducted for all EDC Secretaries on financial and accounting procedures, which are important for post project

Question	Response of FD	Our View
		sustainability.
Are there any institutional shortcomings or inadequacies in dealing with financial aspects of project implementation?	Yes. Like allocation of budget, late release of LoC and timely sanction of works.	Late releases of LoC from state government and other budgetary constraints have affected the progress of work under implementation.
Is the financial resource allocation adequate for managing the PA?	Yes. At present, resource allocations are adequate, but in future more funds will be required to manage and implement park activities.	As per PA authorities, resource allocation is adequate. However, delayed release of allocated funds needs to be corrected.
Is the fund flow a constraint?	Yes.	Yes. Delayed release of funds is a constraint.
If yes, are there any institutional arrangements/mechanisms to address this shortcoming?	Not yet.	The state government should ensure smooth flow of funds to the PA.
<b>d. Networking</b>		
Has the PA contracted/awarded research projects to outside agencies?	Yes.	Research projects and consultancies have been awarded to various agencies.
Is there any new institutional mechanism for awarding research projects to outside agencies?	No.	Tendering procedures are followed as per World Bank and state government rules.
If not, does the PA feel that there should be an institutional mechanism for the above?	Yes. It is required.	Limited financial autonomy would be beneficial for addressing research needs.
Are their mechanisms to contract specialized NGO/consultant services for microplanning?	Yes. NGOs are awarded such contracts / projects through tendering, etc.	All procedures and rules are followed.
<b>e. Skill development</b>		
Is the staff adequately trained for handling specialized nature of project?	No. Trained staff is required for specialized jobs and should be retained.	Most staff has learnt through experience and exposure. Training was also provided to some staff for better functioning.
Is the trained staff transferred or assigned roles with no relevance to training received?	Yes. Mostly, the assignments are transferable where one may not get the assignment or work related to training received.	Usually, staff deployment is as per the training provided. However, sometimes the staff is transferred to take up tasks with no relation to training received.
What has been the most effective PA capacity building intervention regarding improved PA management (for example	Communication system (wireless sets and hand sets), vehicles, arms and ammunitions, staff amenities.	The PA has improved management system through improving communication, staff amenities, purchase of vehicle for better mobility of

Question	Response of FD	Our View
improved communication system, purchase of vehicles etc)?		staff, etc.
Is the PA now adequately strengthened for undertaking village microplanning?	Yes.	The PA staff is now experienced to take up village microplanning.
<b>3. Sustainability</b>		
Has IEP benefited in enhancing data collection through award of research projects?	Yes.	Data collection through research projects will help in improving PA management and bridging the information gap.
Are all critical areas, where scientific information was lacking/inadequate, covered by awarding research projects?	No. All critical areas are not covered.	Critical areas like biodiversity conservation research are yet to be addressed adequately.
Has the PA used recommendations/ findings of the completed research projects in improving PA management?	Findings of research projects are used partially.	Most of the research studies awarded by PA authorities are completed. However, results of their findings are yet to be implemented.
Are there institutional procedures/protocols to sustain PA-Village relationships?	Yes.	The PA has initiated various employment generation activities such as tailoring, petty shops, driving and computer training, etc. to village communities, which help in strengthening the relationship between villagers and PA authorities.
Are village EDCs financially sustainable with systems, such as corpus funds or revolving funds?	Yes.	Corpus fund could be planned by placing 50% of VDF in fixed deposits. Some of the EDCs have recycled the VDF by providing and recovering loans.
Can village EDCs sustain themselves as institutions beyond the project period?	Yes.	Proper use of VDF and awareness of EDC beneficiaries about sustainability issues may be useful in sustaining EDCs beyond the project period.
Have linkages been established with other development programs?	Yes.	EDCs are likely to have linkages with other organizations like Social Welfare Department, Village Panchayat, Taluq Panchayat, Zilla Parishad, etc.

On the positive side the following institutional features, among others, were noticeable:

- The micro plan is perceived as peoples' plan, and the authorities concerned with its implementation have adequate degree of freedom to adopt changes, if any required, in response to communities' needs. There is, thus, some amount of flexibility in implementation of micro plans including goal and target setting, which can be modified at the level of the PCCF.
- Use of occasional workshops as a forum for communicating decisions to forest staff. The decisions filter down to the EDC Chairmen either through the RFOs or when the EDC Chairmen participate in such workshops.
- Field staff makes regular visits to EDC villages and thus the decisions taken by higher authorities regarding micro plan implementation reach the beneficiaries. Regular visits also help in cementing the cordial relationship between the Forest Department and the project beneficiaries that currently exists.

Some of the institutional inadequacies, among others, requiring redressal are:

- The timeframe involved for approval of goals is often long and takes 3-4 months in certain cases. It would be appropriate to reduce the timeframe for modifying micro plan activities.
- Administrative delays arising due to the absence of a designated Field Director have hampered project implementation at the institutional level.
- Vacancies at the level of field staff, despite the presence of a staff plan. The full complement of staff is not posted.

Some of the noteworthy financial features, among others, are:

- Data relating to financial aspects is now maintained in computers, which makes it easier to retrieve the required data, as and when needed.
- The implementation of the project by the PA has generated economic benefits for the community as well as individuals.
- During the project period, the PA management developed high absorptive capacity for funds utilization, which has improved their financial performance.

Some of the financial inadequacies, among others, requiring redressal are:

- **Lack of smooth flow of funds.** The progress of the IEP at NNP is still constrained due to lack of smooth fund flow.
- **Monofunctionality of the institutional framework related to financial aspects.** The financial framework is focused on activities related to the forestry sector alone and places little or no emphasis on sustainability issues. Once the project is over, a large number of activities would require budgetary allocations for sustaining the gains derived out of IEP. The existing financial mechanism is largely silent on this.
- **Absence of mechanisms to integrate financial planning with plans and related strategies for NNP.** Financial realities and availability of funds are often not considered while setting targets and goals.

## 6. LESSONS LEARNT

- Fund flow during project implementation should be smooth lest project's progress is constrained..
- Staff capacity building and specialized training should be completed in the first year of the project and the trained staff should not be transferred.
- All documents related to villages, such as micro plans, should be available in local language from the project start and adequate copies should be made available to village communities.
- Staff strength should be adequate for implementing a specialized project like IEP.
- Support from NGO and individual consultants proved beneficial not only for reducing the workload on the PA staff, but also for addressing project tasks requiring specialized professional inputs.
- Project should have in-built mechanisms for monitoring and auditing of accounts, ensuring financial accountability, and fiscal and operational transparency.
- There should be limited financial autonomy at the PA level for engaging professionals for conducting research, as required, for improving PA management.

## 7. INNOVATIVE PRACTICES

The unique approach and concept of IEP and its implementation resulted in introduction of innovative practices during Phase I, which were continued during the extended phase in view of their demonstrated positive impact on project deliverables including beneficiary participation. Some new innovative practices were added during the extended phase of IEP. Some of the noteworthy innovations at Nagarhole, which we have shared with beneficiaries through Transfer of Knowledge Workshops, are:

- **NGO support in micro plan implementation:** In the first phase, four noted NGOs were awarded contracts for assisting the PA authorities in micro plan preparation and implementation. Services of two of them were retained during extended phase of IEP. This proved useful, as the PA staff was initially inexperienced to handle the specialized nature of IEP.
- **Project funds and Hadies.** Hundred percent financial assistance for acquisition of project related assets was provided to tribals residing in Hadies, which are located inside the PA forests. The tribals did not provide their 25% share for the benefits that accrued to them from project funds.
- **Resettlement strategy.** Utilizing the funds of Centrally Sponsored Beneficiary Oriented Tribal Development Scheme, over 250 tribal families from the Hadies were resettled by the PA authorities in the Nagapura resettlement colony. Each family that relocated was provided with two hectares of agriculture land and one house, in addition to cash support, which was proposed at Rs one lakh. The living conditions in the resettlement colony were much superior than the Hadies, and were well appreciated by the resettled tribals.
- **Engagement of NGO for awareness building:** The PA authorities successfully engaged a local NGO for undertaking a variety of awareness programs and campaigns targeting various stakeholders.

## **8. RECOMMENDATIONS**

The recommendations given below are based on observations, interactions with stakeholders, review of data and documents, carried out during field visits. The recommendations are subdivided into three sections, namely, Environment Management Strengthening, Monitoring Procedures and Other Recommendations.

### **8.1 Environmental Management Strengthening**

1. Weed removal works that yielded good results should be monitored closely and selective weed removal should be undertaken to prevent re-emergence. Other critically weed-infested areas should be identified, and if the project gets extension, then these areas should also be subjected to weed removal.
2. The PA authorities should provide skill development training to field staff in areas, such as, vegetation sampling, for monitoring the improvement of PA habitats through interventions implemented under the Improved PA Management component.
3. Inadequacy of staff, hampers effective implementation of approved management plan. Staff shortage needs to be addressed as early as possible by the State Government. Beside others, vacant posts of forest guards/beat guards should be filled up on a priority basis to ensure improvement in PA Management.
4. The results of completed research projects were not factored in the Management Plan as many research studies were completed after the finalization and approval of the PA Management Plan. Accordingly, the PA authorities should compile the recommendations emanating from various research projects and share those with field functionaries, EDC, and others concerned with IEP implementation in order to further improve PA management,
5. Forest staff on duty should be provided some fuel saving devices. They should be provided LPG facilities at anti-poaching camps, where at present locally collected wood is being used for cooking purposes.

### **8.2 Monitoring Procedures**

1. Village EDCs should be motivated and encouraged to restart regular EDC meetings for monitoring physical and financial progress, and discussing future/planned activities to be undertaken. EDC meetings in the post-project period would be critical for EDC sustainability.
2. Guidelines for effective utilization of Village Development Fund should be evolved and provided to all EDCs. Most villagers are keen to utilize the VDF in some form or the other. Availability of guidelines would facilitate easy monitoring of VDF.
3. Out-of-state exposure trips for EDC Presidents and Member-Secretaries should be planned in advance so that these could be undertaken and are not constrained due to other factors, such as non-availability of Member-Secretaries during the fire season.
4. The PA authorities should appoint a suitable Woman Development Officer to provide guidance to SHGs to enable them to acquire skills and capacities required for their long-term sustainability. The appointed officer should also tie up with other state agencies to provide necessary training to the SHG members for undertaking income generating activities.

5. Women SHG members are eagerly waiting for a policy decision on utilization of a portion of VDF amount (25% contribution deposited in EDC funds), for providing loans for income-generating activities. Since most of the SHGs had recovered all outstanding dues from their members, some SHGs (showing good performance) may be given small loans by the EDCs on an experimental basis,.
6. To make the SHGs viable and sustainable, a Confederation of SHGs may be set up with vertical linkages with local banks, NABARD and marketing agencies. For the present, the NGOs engaged for implementation support should be asked to provide necessary support and cooperation to the SHG executives, who are enthusiastic and sincere, but lack experience and skill.
7. Microplan activities should be clearly displayed in a prominent place indicating total cost of the microplan, main activities, total anticipated expenditure and total number of beneficiaries. Walls of school buildings, balawadi centres, health centres etc can be suitably utilized to avoid damage/removal of the display boards, by the miscreants.
8. The PA authorities should attempt to generate local employment by way of using local labour force for undertaking tendered works such as construction of community halls. For this they may have to seek cooperation of contractors who are awarded construction contracts.
9. NGOs that are providing micro plan implementation support should meet regularly among themselves and with PA staff (Member-Secretaries, ACF, Ecodevelopment etc) to tackle any challenges that may arise during the course of the remaining project period. They should be provided with copies of the revised microplans, statement of accounts, available funds with CDF and VDF accounts, and latest decision of the PA authorities regarding utilization of VDF. Unless they are supplied with relevant information and given clear guidelines, they cannot be made accountable for failure or lapses in IEP implementation.
10. The NGOs should play a more critical role in identifying and popularizing local success stories that have emerged out of the IEP. For this, they should actively arrange inter-village visits by different members of EDCs.
11. The NGO implementing the education and awareness campaigns should be asked to develop a small capsule on dissemination of the new management plan of NNP and include the same on its campaigns in various EDC villages.
12. The EDC Presidents, Executives and Member Secretaries should be taken to other PAs for exposure trips to learn how other EDCs overcome constraints. The EDCs which are functioning most effectively should be considered for proper recognition; this will motivate the members to perform better.

### **8.3 Other Recommendations**

1. Activities, such as construction of community halls and erection of solar fence should be completed well within the project period, so that the villages can start using the assets while the project is still continuing.
2. The community halls should be used for some income generating activities (tailoring units, processing of spices, renting out for marriage, etc.) to ensure that some earning is generated, which can be used for its maintenance and recreational activities of the community.
3. The PA authorities should ensure that local labour force engaged in community oriented works to enable them pay 25 percent contribution and avail assets like pressure cooker, LPG, etc. For this, they may have to

seek cooperation of contractors who are awarded the construction contracts.

4. A Confederation of EDCs may be set up for regular supply of LPG cylinders to beneficiaries at a reasonable price. Such an agency will be able to earn profit for its members, provide employment to few unemployed youths, and develop sense of community participation. The concerned NGOs may be advised to monitor the use of LPG and other assets provided to EDC members