

# Ecodevelopment Planning for Biodiversity Conservation

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A G u i d e l i n e

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A Guideline

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भारतीय वन्यजीव संस्थान  
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## FOREWORD

There has been a growing realization that the long-term success of Biodiversity Conservation in Wildlife Protected Areas (PAs) cannot be ensured unless the pressures arising due to the needs of the surrounding communities are reconciled with the productivity of the resources. Ecodevelopment, a strategy evolved in response to such a need, is presently being widely used by PA managers in India. Promoting eco-development for local communities is a highly complex and challenging task for the PA managers, as it involves the integration of many complex factors for striking a balance between the conservation values of the PAs and development needs of the local communities. The present volume, *Ecodevelopment Planning for Biodiversity Conservation – A Guideline*, contains a wealth of information on the evolving concept of eco-development and the range of complex issues involved in effective planning of such a multi-disciplinary and multi-stakeholder driven program.

This work has its origin in the first set of Guideline for Ecodevelopment Planning developed in 1995 under the aegis of GOI-UNDP collaborative project "Strengthening Wildlife Management and Ecodevelopment Planning Capabilities for Protected Area Management". This document is an important attempt to build upon the earlier effort, by incorporating the lessons learnt from the implementation of eco-development projects in different parts of the country in the last one decade.

I hope that this evocative and beautifully written document would stimulate the PA managers, development planners and those involved in integrated land-use planning to formulate effective ecodevelopment plans for achieving the broader objectives of biodiversity conservation.

Bhopal  
Dated: March 21, 2002

**H.S. Pabla**  
*Chief Conservator of Forests*  
*Madhya Pradesh*

## PREFACE

The importance of involving local people in Protected Area (PA) management was realized as early as in the 1970s when the UNESCO's Man and Biosphere Reserve Program began to promote the creation of buffer zones between strictly preserved areas and human settlements in order to meet the needs and aspirations of local people (Batisse, 1986). The World Conservation Strategy (IUCN/WWF/UNEP, 1980) also emphasized on the need of linking PA management with economic activities of the local people living in and around these PAs. The World Congress on National Parks in Bali (1982) gave a further impetus to this by advocating "the implementation of joint management between societies which have traditionally managed resources, and PA authorities". With this background and the subsequent recommendations of the Special Task Force set up by the Indian Board for Wildlife (1982) and pronouncement of the Indian Forest Policy, 1988, the ecodevelopment program was initiated for selected PAs in 1991, through a Centrally Sponsored Scheme of Government of India. It was at this time that a strong need for systematic planning of the program was felt. The initiative in this direction was undertaken by the Wildlife Institute of India under the aegis of its GOI-UNDP collaborative project "Strengthening Wildlife Management and Ecodevelopment Planning Capabilities for Protected Area Management"

The first set of guideline for ecodevelopment planning (Pabla *et al.*, 1995) which emerged out of the above project, was made available for wider use. The guideline was well received and very much sought after by the field practitioners. This guideline was largely based on the experiences of participatory planning for areas other than PAs, since hardly any experience of actual planning and implementation of ecodevelopment in and around PAs was available at that time.

However, the last few years have seen a spurt of ecodevelopment activity largely due to scaling up of efforts driven by the additional funding through international donor agencies such as the World Bank and International Development Agency. The concept of ecodevelopment itself is still evolving and the last 5-6 years have witnessed a series of debates over the issues involved in and the nature and scope of ecodevelopment. Simultaneously, the results of the earlier initiatives in ecodevelopment and lessons learnt from the World Bank projects are also trickling in. In the backdrop of these dynamics, it is necessary that a fresh look is taken at the existing guideline. The present guideline attempts to address some of the changes that have taken place in understanding of the concept of ecodevelopment and also highlights some of the basic issues in planning as well as implementation of the ecodevelopment program. This guideline will help the PA managers in identifying and understanding the major issues in ecodevelopment, thereby enabling effective planning and implementation of the program. This will also help in initiating the larger processes required for the sustainability of the program. The guideline also provides a broad framework for preparation of the village level micro plans along with the understanding of some of the frequently used participatory planning tools required for ecodevelopment planning.

For the integration of wildlife management and human related issues, this guideline should be seen alongwith the Wildlife Management Planning document entitled "A Guide for Planning Wildlife Management in Protected Areas and Managed Landscapes" (Sawarkar, 2002). This is because the strategies of the ecodevelopment program for a PA will flow from the management plan itself.

Dehradun  
Dated: March 21, 2002

Ruchi Badola  
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This guideline is a continuation of the efforts initiated during the WII-UNDP project in 1995, when the first guideline for ecodevelopment planning was brought out. Shri S.K. Mukherjee, Director, Wildlife Institute of India, has been a source of constant encouragement and support in bringing out this guideline. We are highly indebted to him. Since ecodevelopment is an integral part of the Protected Area (PA) management planning process, lot of suggestions were provided by Shri V.B. Sawarkar, Dean, Faculty of Wildlife Sciences, Wildlife Institute of India. We are extremely thankful to him for his continuous guidance. Shri H. S Panwar, former Director of this institute, has been the inspiring force for preparation of this guideline. But for his encouragement and support this work would not have been possible. Comments on the earlier version of this document have been provided by Dr. H.S. Pabla, Chief Conservator of Forests, Madhya Pradesh. We thank him for his valuable contribution in bringing out this document.

At the Wildlife Institute of India, all the site co-ordinators of GEF- India Ecodevelopment Project assignment have been helpful in providing field examples cited in the text. We are extremely thankful to them. Our faculty colleagues helped in refining our ideas by constant discussions at various stages during the preparation of this guideline. We are thankful to all of them particularly Dr.(s) V.B. Mathur, P.K. Mathur and S.A. Hussain. We are particularly indebted to Dr. Asha Rajvanshi for her suggestions and support in finalizing this document. We are thankful to N. Gupta, M. Arora, A. Annathurai, J.S. Negi, C.S. Aswal and B.B. Thapa, for helping in various ways to bring out this document.

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Last but not the least we thank Director, Project Tiger, Ministry of Environment and Forests, Government of India, for providing us the impetus as well as the required funding support to bring out this document.

Dehradun  
Dated: March 21, 2002

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# Ecocodevelopment Planning for Biodiversity Conservation

## A Guideline

### USING THE GUIDELINE

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Ecocodevelopment, as a strategy for securing support of local communities and other stakeholders for Protected Area (PA) management, has rapidly gained ground over the last one decade. However, the understanding of the concept of ecocodevelopment has changed with time and experience. The initial investments in ecocodevelopment were in the form of sporadic and fragmented rural development type activities. These activities were low profile, based largely on inflexible annual plans. The stress was on compensating the local communities for the lost access to the resources inside the PAs, mostly through alternatives. This activity oriented program of the initial phase has gradually brought forth the realization of the importance of processes required for sound ecocodevelopment planning and implementation. The second generation of ecocodevelopment activities, currently being implemented in India, are more organized through a focus on micro planning as well as the processes involved in community participation, empowerment of the partners, institution building and collaborations with other stakeholders.

Ecocodevelopment as currently understood, is a mix of processes and activities. Now all the four components i.e., activities, skills, attitudes and right atmosphere, are understood to be crucial for the success of this program. Keeping in view the above critical components and the experiences gained so far, the current guideline provides information about the processes and steps required to be taken care of, while initiating ecocodevelopment planning and implementation.

The first chapter of the guideline discusses the concept and background of ecocodevelopment. It also throws light on how

the concept of ecodevelopment has evolved over a period of time. This chapter would help the readers in understanding the need of this approach in the present day context. It differentiates the concept of ecodevelopment from the traditional rural development and buffer zone management programs, as well as from the contemporary conservation oriented approaches like Joint Forest Management (JFM). It is mandatory that the planning officer/ PA manager be clear regarding the concept of ecodevelopment and is able to transfer this to the staff through a series of meetings and training workshops. The onus of clarifying the concept and its similarities and differences with other programs, to the local people, then lies on the staff.

The basic question on which depends the success of this program is of its sustainability. Ecodevelopment is a multi-stakeholder process and hence, it revolves around the power balance among the different stakeholders. The questions regarding the selection of areas as well as activities for undertaking ecodevelopment program are crucial. Similarly other aspects like institution building, capacity building and conflict resolution are also important. Therefore, there are a number of issues that have to be understood before the actual process of planning and implementation is taken up for a PA. The second chapter of the guideline provides an indepth understanding of some of the major issues as well as their incorporation into the overall planning process. Understanding of the issues is relevant to the planning officer and the staff who can then proceed with ecodevelopment planning without any ambiguity.

The basic unit of ecodevelopment is the village micro plan. Chapter three provides a tentative outline of the village level micro plan. This also discusses about the general processes which should be taken care of by the planning officer while undertaking village level micro planning.

Both at the level of PA as well as at the village level, the planning team will require the help of a number of participatory tools and techniques. Identification and

understanding of stakeholders, management of conflicts, indepth analysis of problems, selection of activities, etc. can be done more effectively by using these tools and techniques. Some of these have been discussed in detail in the annexures.

This guideline is not a rigid framework to be followed for ecocodevelopment planning. This can provide the planning team, broad processes and activities that should be kept in mind while initiating ecocodevelopment programs. Depending upon the local conditions, some processes will need more focus as compared to others. For example in Kalakad-Mundanthurai and Nagarjunsagar-Srisalem Tiger Reserves lot of effort has been made on capacity building of the NGOs and developing linkages with them, while this has been minimum in Dudhwa Tiger Reserve, because of the fact that hardly any prominent NGOs were working in the area. In Dudhwa, the focus has been on reducing resource dependency of local *Tharu* tribes on the PA. In Periyar, significant effort has gone into linking ecotourism with the local livelihoods, since the potential for this enterprise already existed in the area.

# CHAPTER 1

## INTRODUCTION

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### 1.1 BACKGROUND OF ECODEVELOPMENT

In India, as elsewhere, there is a move towards involving local people living in and around forests in biodiversity conservation. This is being seen as both a response to the legitimate demands of local people to be involved in activities that affect their lives and also a necessary precondition to the success of conservation efforts. Presently the network of Protected Areas (PAs) in India occupies an area of 8.1 million hectare encompassing about 14% of the country's forest area and 4.7% of the total landmass. From 6 National Parks and 59 Wildlife Sanctuaries in 1970, the number increased to 89 National Parks and 489 Sanctuaries in 2002 (WII database, 2002). The National Parks and Wildlife Sanctuaries correspond to category II and IV of IUCN respectively. The basic attitude underlying the management of these areas has been the conventional isolationist approach, wherein management activities seek to protect the park or reserve from the surrounding society (Gomez-Pompa and Kaus, 1992). The philosophy behind this approach is thus of 'preservation' or 'protection'. The role of the government in such an approach is to guard natural resources from uses that are not 'appropriate' in order to shield wildlife from exploitation (IIED, 1995), and this is achieved through strict enforcement of wildlife legislation, patrols to prevent illegal activities and required infrastructural maintenance for such protection activities.

However, in India, 64% of the rural population and 100 million tribals (Lynch, 1992) depend on the forests for their

sustenance. Nineteen percent of India's population still lives below the poverty line (TERI). The benefits of growth during the first three decades of planning, when GDP grew only at 3.6% a year, were clearly offset by a high growth rate of population of about 2% a year. The rural development programs, especially in the remote wilderness areas, lack the capacity to address the peculiar problems of degrading marginal farmlands and common property resources (Panwar, 1992). The result is an increasing resource dependence on forests. Due to increasing population, forest areas have been encroached upon for settlements and cultivation. In the domestic sector in rural India, non-commercial fuels (fuelwood, crop residues and animal wastes) meet 80-92% of the total energy needs of which the share of fuelwood ranges from 20-78% (TERI, 1998). Forests contribute about 32% of the fuelwood requirements of this country. Though India accounts for more than 13% of the world's livestock population, identified and managed pastures are virtually non-existent. Against a sustainable level of 31 million cow-units a year that might graze in forests, the actual figure is close to 100 million cow units, more than three times the desirable limit of carrying capacity (TERI, 1998). According to a survey carried out in mid eighties, over two third of the PAs had human settlements and resource use inside them (Kothari *et al.*, 1989).

In such a scenario, an attempt to protect the PAs from human intervention by coercion, has resulted in hostile attitudes of the people towards wildlife and forest staff. This has often fueled open conflicts between local communities and the PA managements. Hence, the viability of relying totally on traditional enforcement is increasingly being questioned as a long term solution to the protection of many critical ecosystems (Wells and Brandon, 1992). There has been a realization that people living near PAs, while deriving little benefits from conservation, have paid enormous costs in terms of lost access to their life support systems. It is also realized that the successful management of PAs ultimately depends on the cooperation of the local people. This has led to the conclusion that measures devised to conserve biodiversity must, therefore,

address the livelihood requirements of the local communities. A need has been felt for an approach that provides economic incentives to increase the net local benefits from conservation and sustainable resource use, and which is site-specific, culturally sensitive and participatory. This is the concept of ecodevelopment as it is referred to in India, or ICD (Integrated Conservation and Development) in many other countries.

The thinking underlying the new approach emerged in the 1970s when the UNESCO's Man and Biosphere Reserve program began to promote the creation of buffer zones between strictly preserved areas and human settlements in order to meet the needs and aspirations of local people (Batisse, 1986). In 1975, IUCN passed a resolution at its 12th General Assembly in Kinshasa, Zaire, recognizing the value and importance of "traditional ways of life and the skills of the people that enable them to live in harmony with their environment". The same resolution also recommended against displacement and stated "nor should reserves anywhere be proclaimed without adequate consultation" (Colchester, 1994). The World Conservation Strategy (IUCN/WWF/UNEP, 1980) emphasized the importance of linking PA management with economic activities of the local people. The World Congress on National Parks in Bali (1982) advocated "the implementation of joint management between societies which have traditionally managed resources, and PA authorities". In 1985, the WWF with the support of USAID and the Moriah Fund, launched the Wildlands and Human Needs Program through which about twenty PA projects in developing countries were planned, to give equal importance to conservation as well as development. In 1986, the World Bank adopted a policy on wildlands which required that wildland management be considered in the context of overall economic and sectoral planning. The post UNCED (1992) consensus on the implementation of sustainable development suggests that it should be based on local level solutions derived from community initiatives. Agenda 21 and the Desertification Convention, among other statements of intent on the issue of global environment change, have strongly advocated a

combination of government decentralization, devolution to the local communities of responsibility for natural resources held as commons, and community participation (Holmberg, 1992).

## 1.2 CONCEPT OF ECODEVELOPMENT

The term ecodevelopment has been in use in India since the 1980s. In its early uses there was no specific reference to wildlife PAs. The term was largely used in the context of agricultural systems or rural development in general. The Department of Environment created a Board for Ecodevelopment in 1982-83. This largely dealt with task forces for ecological restoration using territorial army battalions and school awareness programs. It was this Board, together with the Indian Board for Wildlife, which commissioned the key study on "Eliciting Public Support for Wildlife". The study recommended the identification of Special Areas for Ecodevelopment (SAEDs) around wildlife reserves. Such areas were supposed to get higher per capita inputs on ecodevelopment involving soil conservation, afforestation, forestry practices compatible with the needs of local people and wildlife, improved dry farming techniques, micro irrigation, pasture and fodder development, and improved but compatible animal husbandry, energy alternatives, etc. The Ministry of Environment and Forests vide the National Forest Policy 1988, declared that local communities were to be involved in conservation of natural resources<sup>1</sup>.

Subsequently, in 1990 the Ministry of Environment and Forests issued a circular for joint management and resource sharing from forests, thereby initiating the Joint Forest Management (JFM) program in the country. Further impetus to this declaration, particularly in the field of PA management, was

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<sup>1</sup> "Excessive concern for revenue, a disregard for peoples' needs and a lack of initiative in involving people in forest protection works need to be corrected." *Indian Forest Policy Statement, 1988.*

provided by the Government of India since 1991 by committing funds under the scheme "Ecodevelopment around National Parks and Sanctuaries including Project Tiger Reserves", with the basic objective of reducing anthropogenic pressures on the core areas of the PAs.

A number of definitions have been given for eco-development (Box 1). According to Rodgers (1992), in terms of the conservation of wildlife PAs, eco-development can be defined as activities leading to the protection and regeneration of biological resources through the economic development of local communities. Ecodevelopment is much wider in scope than the concept of buffer zone management, which in the Indian context refers specifically to activities at the periphery of PAs. Ecodevelopment also includes support to common and private property resources (Rodgers, 1992; Panwar, 1992). It seeks to move beyond the central dubious assumption of the buffer zone management concept, that limited benefits flowing to the people from PAs are sufficient to motivate them to change their resource use patterns, in accordance with the conservation values of the PA. The eco-development approach acknowledges instead, that the relationship of local people to the surrounding forests is an all encompassing one that permeates all aspects of their social, economic, cultural, religious and even political lives. It, therefore, attempts to link conservation to the broader process of development as well as to the existing socio-cultural milieu (Badola, 1995).

Ecodevelopment is not rural development, although some of the activities may be common to both. The fundamental difference between the two is, that while the main objective of rural development is poverty alleviation and improvement of the living standards of the people, the *sine qua non* of eco-development is the conservation of biodiversity in PAs (Badola, 1995). The PA manager may use selected activities of existing rural development programs operating in the area as a means to achieve this goal. In fact, the ability of the PA manager to link existing rural development programs with the aim of PA conservation is of crucial importance to avoid duplication of government efforts and to make the program

**Box 1**

**Definitions of ecodevelopment**

- \* Site specific package of measures, developed through peoples' participation, with the objective of promoting sustainable use of land and other resources, as well as on-farm and off-farm income generation activities which are not deleterious to PA values (Panwar, 1992).
- \* Limited rural development designed with the participation of local people, for the purpose of reconciling genuine human needs with the specific aim of PA management (Rodgers, 1992).
- \* Strategy for protecting ecologically valuable areas (PAs) from unsustainable or otherwise unacceptable pressures resulting from the needs and activities of the people living in and around such areas (Singh, 1998).
- \* To achieve PA conservation by promoting socio-economic development and providing local people with alternative income sources which do not threaten to deplete the plants and animals within the PA (Brandon and Wells, 1992).
- \* Ecodevelopment aims to conserve biodiversity by addressing both the impact of local people on the PAs and the PAs on the local people (World Bank, 1996).
- \* Ecodevelopment is a strategy to overcome unsustainable and incompatible resource use practices by the dependent communities for their livelihood in and around PAs through regulated (sustainable and compatible) use and alternatives through participation of various stakeholders (Ecodocumentation Workshop, Wildlife Institute of India, 1998).

self-sustaining in the long run. Furthermore, while many Indian Rural Development Programs are government led, top down schemes, ecodevelopment is a bottom up approach, planned and implemented with the participation of the local

people and based on their traditional knowledge and resource use patterns.

The scope for linking ecodevelopment with JFM is limited by the legal status of the areas where JFM is permissible. However the two programs can very well supplement each other if the boundaries of the PA are constituted by a territorial forest. Prior to the 1991 amendments to the Wildlife (Protection) Act, regularized resource use was allowed in the buffer zone of the PAs, while the core was totally sacrosanct. Most PAs and Project Tiger areas in India have a core/buffer zonation. The core zone has the status of National Park while the buffer could either be a Sanctuary, reserved forest or even a revenue area. These buffer zones were designed to reduce border conflicts by allowing regulated resource use. After the 1991 amendment of the Wildlife Protection Act, the resource use has been further curtailed even in the case of Sanctuaries. The Chief Wildlife Wardens have now to certify that the proposed manipulation of forests in the PAs is in the interest of wildlife, and this has to be approved by state governments. In areas where the buffer zones are Sanctuaries, JFM is not permissible. This reduces a potentially important way of utilizing these buffer zones to meet the resource requirements of the local people in a sustainable manner (Rodgers, 1992). As of recent past this clause (section 29) of the Wildlife Protection Act has been constructively used by some state governments to integrate the interests of conservation with that of livelihood concerns of the local communities.

### **1.3 EVOLUTION OF THE CONCEPT OF ECODEVELOPMENT**

The concept of ecodevelopment that emerged during the 1980s as a means for overcoming the unsustainable resource use practices of the local communities living in and around PAs, has evolved over the last few years. Experiences from the field have not indicated very bright results from the initial beneficiary oriented approach to participation under ecodevelopment. It is now realized that unless the local

communities are given definite roles, responsibilities and benefits from PAs, merely providing limited economic benefits to the local communities will not ensure the long term sustainability of such programs. Another lesson that emerged from these experiences is that in addressing the issues of local livelihoods and development, there is a need to develop linkages with other stakeholders as well as to set up mechanisms to institutionalize these linkages. This is important in view of the fact that threats to PAs most often emerge from outside. Further, while addressing the issue of people-forest interactions, we are actually seeking to change the local lifestyles (income and resource use patterns), attitudes and motivations. Hence the focus of ecodevelopment is now on people as resource managers, and collaborative partnerships with management and other stakeholders are being seen as answers to mitigate resource degradation. All this, points to the fact that there is no rigid agenda for ecodevelopment. The inputs and activities undertaken would be site specific and unique to a situation. The role of the forest department would be more of a facilitator and as an integrating agency for the entire process.

# CHAPTER 2

## ISSUES AND PLANNING PROCESS

### 2.1 Issues in ecodevelopment planning

Ecodevelopment planning is a complex and dynamic process involving several stakeholders. Therefore, a number of issues need to be properly understood before launching such program in a PA. Better understanding of these issues will provide better handling of planning as well as implementation of the program. These issues basically revolve around the four major questions of ecodevelopment i.e., why, where, how and who. Some of these major issues are discussed in the following sections.

#### 2.1.1 Where to do ecodevelopment

There can be a number of situations for PAs with respect to the location of the villages. A typical case can be of a PA with villages located inside the core zone. Taking up ecodevelopment activities in villages located inside the core zone of the PA involves a lot of uncertainty for the PA managers. What kind of activities are to be taken up in such villages, is an often asked question. Ideally, as per the existing legislation, the villages from the core zone should be relocated outside. In such villages, intermittent activities that minimize the impact of people on PA should be taken up. Care should be taken to see that no new or permanent structures are developed in such villages. Relocation itself is a process which requires a long dialogue and mutual trust between the PA management and the communities. Limited

ecodevelopment activities for such villages, as suggested above, will not only help in reducing the impact of the people on the PA but will also ensure a good communication between the villagers and the PA management. This will facilitate the process of relocation in the long run. This strategy is being adopted in Nagarhole National Park effectively where many tribals living in *haadis* have voluntarily shifted out due to good communication established with them through limited ecodevelopment program in *haadis* and attractive package of relocation outside the PA.

In the case of villages that have no resettlement options, facilities that attract other people to come to these areas should be avoided. In such villages, however, a strong focus has to be on activities that ensure strong linkages of the villagers with the PA conservation/protection. Effort should also be made to demarcate mini buffer areas around these village clusters so that the impact can be restricted to these and the rest of the core area remains undisturbed. Only minimum and those resource use activities should be permitted in such situations which are compatible with the management objectives. For example, grasses removed from fireline maintenance work, woody growth material removed for grassland management, material available from weed eradication work of the PA, etc. can be some of the biomass resources which can definitely be shared with the villagers. This is being done in Dudhwa Tiger Reserve as well as in Gir National Park and Sanctuary under their ongoing ecodevelopment initiatives. There are many other innovations which can be worked out as a part of the habitat management program. In the recent past, the Chief Wildlife Wardens have used their legal powers to allow some of these activities in the interest of wildlife management in few PAs (e.g. *Bhabar* grass extraction in Rajaji National Park, some NTFP collection for local communities in West Bengal). Such innovations can be made use of by the PA

managements in a controlled manner, both for the benefit of the wildlife as well as local communities residing within or on the fringe of the PAs. Income generating activities that have direct conservation linkages, employment opportunities within the forest department and encouraging involvement in ecotourism activities, as done in Periyar Tiger Reserve for local tribals, can go a long way in developing the stakes of people in PA conservation.

The second situation can be of villages located in the buffer zone whose status is of a territorial forest. In this situation a number of on-farm and off-farm activities can be taken up under ecodevelopment program and it can be linked even with the JFM activities, if it is currently being implemented in the buffer zone. Activities linked to ecotourism and PA protection can also be provided to such villages so as to ensure their long term linkages with the PA management. However, linkage of ecodevelopment and JFM programs has been weak in most of the PAs. One important reason for this is that most of the time the buffer zones are under the control of territorial divisions. This dual control and inadequate communication between the PA managements and the buffer zone managements has led to weak linkages between these two programs. However, in West Bengal some PAs, like Buxa Tiger Reserve and Jaldapara Wildlife Sanctuary, have been able to supplement the ecodevelopment activities with the ongoing JFM program of the surrounding buffer zone. Interestingly, both the JFM and the ecodevelopment programs in Buxa Tiger Reserve are under the control of the PA management.

In the third situation, the villages can be on the fringe of a PA which has practically no buffer zone in the form of territorial forests. This is comparatively a difficult situation. Here stress is to be given on alternatives. The manager should look for Panchayat

lands or community lands for biomass generation activities like fuelwood and fodder plantations which can cater to the minimum basic needs of the local communities. Making available fuelwood and fodder from other areas and decentralizing the distribution on nominal rates through the Ecodevelopment Committees (EDCs) can also be tried. Improvement in off-farm and on-farm income generation activities play a major role in this situation. One good opportunity in such areas can be the availability of development programs of the line agencies and the PA manager should look for linking these activities with the ecodevelopment program. Such a situation exists in the south-eastern part of the Rajaji National Park, where through WII's project "Building Partnerships for Biodiversity Conservation", attempts are being made to link the programs of other agencies with the on going ecodevelopment initiatives.

### **2.1.2 Identification of impact zones**

The villages on the fringe of the PA can have variety of impacts due to their resource dependencies. Similarly, the PA has impacts in the form of crop damage and other human wildlife conflicts on the people. These impacts vary from village to village outside the PA and from compartment to compartment inside the PA. Therefore, the first step for the initiation of the ecodevelopment program is to identify the mutual impact zone of the PA. Under GEF-India Ecodevelopment Program most of the sites have undertaken ecodevelopment activities for villages upto 2 km radius from the PA boundary, based on a general understanding. This practice of undertaking ecodevelopment activities within a fixed uniform peripheral distance of the PA boundary is unscientific, and that is why in most of these areas some priority villages have been excluded from the program. For

example, due to large size of the villages in Kerala, Periyar has constituted their EDCs based on human settlements. Because of inadequate understanding of the impact zones as well as the impacts, in many areas the EDCs have covered only part of the settlements and some households belonging to the same settlement and lying adjacent have been left out from the EDCs. This has left these villagers at loss as to why they have been left out. Similarly, villages located on the Tamil Nadu side have been left out of the ecodevelopment program because of lack of clarity regarding the impact zone, apart from this being an inter-state issue. Mutual impact zone assessment will help to identify which villages are impacting the PA and which parts of the PA are being impacted. It will also help in providing information about the qualitative and quantitative nature of these impacts as well as reasons for the same. Clear identification of impact zone and the impacts will help to prioritize villages for implementation of ecodevelopment. The study conducted in Panna Tiger Reserve (Bhardwaj *et al.*, 1999) revealed that the impact zone of the PA varied in different directions and it ranged between 2.6 kms and 26 kms from the PA boundary. The impacts were quantified and it was found that the intensive impacts came from about 39 villages out of the total of 144 villages. Such studies can be carried out by using the local staff and research teams and these can be useful even for monitoring the impact of the program.

### **2.1.3 Prioritization and selection of target villages**

All the villages cannot be treated simultaneously because of the constraints of staff, funds and other logistic problems. Infact, all the villages may not need equally urgent interventions too. Hence prioritization of target villages for undertaking ecodevelopment initiatives is required. Prioritization is based on some

criteria which are site specific (Box 2 lists the criteria evolved for Rajaji National Park). However, the principal criteria for the selection of a village depend on its impact on the PA and *vice versa*. Certain other factors such as the distance of the village from the PA, community structure of the village, distribution of workload among various administrative units, and staff numbers also have to be kept in mind. Moreover, as development funds are normally made available range/block-wise, it is useful to distribute target villages over as many administrative units as possible. The total number of villages selected ultimately depends upon an assessment of resources likely to be available and the administrative capabilities. Administrative capability does not mean only the capability to handle funds, it also includes the mobility of the staff, their existing workload, their capacity to undertake such works, communication facilities, etc. In the case of Panna and Pench Tiger Reserves, after identification of the impact zone, priority villages have been identified based upon parameters such as quantum of the impacts, availability of alternate forests, distance from PA boundary and prevailing socio-economic conditions of the people.

**Box 2**

**Criteria for village prioritization evolved by the staff of Rajaji National Park**

- Dependence on park resources
- Distance from the PA boundary
- Homogeneity of villages
- Relationship between various sub-groups in a village and presence of effective leadership
- Size of the village

*Source : Report of the training workshop held at Chilla, for the frontline staff of Rajaji National Park , July 2-8, 1998.*

## **2.1.4 Activities to be taken up under ecodevelopment**

### **2.1.4.1 Range of activities**

Various forms of ecodevelopment inputs can be envisaged to develop support for PA protection by ensuring that local people receive economic benefits from conservation of the PA. In the longer term, a greater security of access to forest resources could be an important factor in determining local interest in PA conservation (Rodgers, 1992; Leach, 1994). But under the present legislation in India, such resource extraction and sharing (except some grasses and woody material coming out from fire line clearance and habitat improvement works) is not permissible in PAs. It is, therefore, important to provide tangible benefits to local communities that can be linked to the existence of the PA. For example ecotourism activities can provide livelihood for local people as has been done in Corbett and Periyar Tiger Reserves. This can also be done by providing support for village development and helping local people gain access to social services. Such activities could be related to improved husbandry practices, education, health care, water, roads, etc. This serves the interest of PAs in two ways: (i) people who see these benefits as coming from the PA may find it easier to accept the restrictions on resource use imposed on them, and might in fact support the existence of the PA, and (ii) on the part of the PA manager, it is a way of compensating people for the lost access to resources. This approach has been tried in most of the ecodevelopment programs under trust building activities. Improvement and diversification of non-forest based activities help in improving economic status of the villagers and thereby reducing their economic dependence on the forest resources. This could be on-farm as well as off-farm activities including improvement and diversification of agriculture with different crop combinations and varieties, soil and moisture conservation practices and

the linkages from agriculture in terms of storage and marketing, sericulture, apiculture, fruit processing and cottage industries, etc. In the Nagarjunsagar-Srisailem Tiger Reserve, the PA management has been able to develop these income sources for the local communities thereby ensuring their support for the PA. Another set of ecodevelopment inputs could be providing specific alternatives to local biomass dependencies on the PA. Reduction in biomass dependencies can be achieved by (i) increasing supply of the resource from another source (the source could be private, communal or state property) as done in Gir National Park and Sanctuary and Ranthambore Tiger Reserve, through development of pastures on village common lands, (ii) reducing demand by introducing innovative techniques to use resources in a sustainable manner or encouraging the use of substitutes and (iii) augmenting the purchasing power of the local communities so that they can purchase the resources or substitutes from the market.

The bunch of activities described above aim to reduce pressure on the use of forest resources, as well as contribute directly to local development oriented benefits from the conservation program. This also involves changing the perceptions of the local people towards their landuse/resource use and management patterns in areas adjoining the PAs. Ecodevelopment thus includes a vast agenda, depending on the local situations and budgetary considerations.

#### **2.1.4.2 Conservation-development linkages**

So far the focus in ecodevelopment has been on activities rather than on the processes. The selection of activities is largely done through a basket approach, in which activities are selected through a referral list. This list can be quite comprehensive but does not always fulfil the ultimate objective of ecodevelopment. As a result

there are generally weak conservation-development (C-D) linkages. The menu of the forest department consisting of activities that have direct C-D linkages may not find favour with the local communities. They might prefer to articulate their aspirations in the micro plans through better roads, micro irrigation and other community assets. The field practitioners then struggle to prove that indirect linkages of the development activities with conservation have been well spelt out (Rathore *et al.*, 1998). Activities taken up under ecodevelopment, therefore, should preferably have strong C-D linkages. The ecotourism activities in Periyar or Corbett Tiger Reserves and water conservation initiatives in Ranthambore Tiger Reserve qualify for this category of activities. If such C-D linkages do not exist, then these have to be developed and strengthened. Under such circumstances the manager may have to carry out additional activities like awareness creation and mutual commitments to reinforce these linkages. The PA mangement in Nagarjunsagar-Srisalem Tiger Reserve while carrrying out activities such as land development and moisture conservation, has been able to link these with the conservation and well being of the forest (PA) through strong mutual commitments. Sometimes a development activity although serving the interests of the local people, may have certain adverse impacts on PA conservation. In such a case, additional activities will have to be taken up to nullify these negative impacts. For example, in the Nagarjunsagar-Srisalem Tiger Reserve, agriculture improvement activities have been used as part of ecodevelopment program. However to contain the ill effects of chemical fertilizers, the farmers are being encouraged to use organic manures. Details regarding the analysis of activities for C-D linkages have been given in Appendix 2.

#### **2.1.4.2 Sustainability of activities**

It is often seen that activities that are implemented under the ecodevelopment projects sustain only till the project period. The moment the focus of the department/planning team shifts, the activities fizzle out and people lose interest. Hence, while deciding activities under the ecodevelopment program, one must carry out a proper feasibility analysis. This feasibility analysis will have to be carried out for financial, social, legal, administrative as well as environmental parameters. Appendix 3 explains the details about carrying out such feasibility analysis. There are a number of examples where the proper feasibilities were not worked out while deciding the activities and therefore these activities could not succeed. For example, in Gir National Park and Sanctuary, LPG connections have been provided to the fringe area villagers to reduce fuelwood consumption. However, due to economic reasons these have not been made use of by certain sections of the community who are in fact more dependent on fuelwood. Another activity taken up in Gir is that of mango orchards. Although feasible on most accounts, this activity is now being suspected of causing serious dent in the groundwater situation in the area. Similarly, the provision of *Bhabar* grass from the Rajaji National Park to the adjoining villagers was welcomed as a step that improved the strained relations between the PA management and the local people and developed local stakes in PA resource conservation. However, since the last order of the Hon'ble Supreme Court of India, this activity had to be suspended since it is no longer legally feasible.

#### **2.1.5 Stakeholders identification and collaborations**

At a superficial level there are only two stakeholders involved in PA - people issues. These are the PA

management and the local resident population. Ecodevelopment is basically an arrangement of agreements between the PA management and the local population. But there are a number of institutions/organizations/interest groups around the PA that have an impact on such agreements and their involvement in the program is crucial. Therefore, it is important to identify these stakeholders and understand their strengths and weaknesses. After this only it will be possible to shortlist the stakeholders to be involved in the program and also work out the collaborations with different stakeholders. Appendix 4 describes the method of stakeholder identification and analysis. Successful collaborations will require equitable distribution of power among the different partners. To ensure this, the management will have to use a variety of empowerment strategies. This can be through creation of common funds with the EDCs for financial empowerments, institution building, capacity building of the EDC members and sharing of information with them for social empowerment. Similarly, capacity building of the frontline staff will be another strategy for their empowerment.

Even the term 'local community' is often used to imply that a community is a discrete social entity whose members reside within a bounded geographic space and have land management motivations and interests that are distinct from the people residing outside that space (McLain and Jones, 1997). Efforts to implement community based forestry in Africa and Asia suggest that equating local community with residential proximity to the natural resources can undermine well meant efforts to support sustainable resource management (Painter, 1993; Sivaramakrishnan, 1996; Sarin, 1996). The local communities have often, divergent interests by virtue of their different socio-economic and cultural backgrounds. Understanding about this is important for planning. While undertaking

micro planning in some of the fringe villages of Rajaji National Park, it appeared apparently that rope making families were the main stakeholders in these villages. However, later, it was realized that small farmers were another group of primary stakeholders important for the ecodevelopment program. While the interest of the first group was to have access to PA for collection of *Bhabar* grass, the other group wanted to create barriers on the PA boundary to check the entry of wild animals in their fields. Therefore, a balance had to be made in the micro plans to accommodate the concerns of both the stakeholders. It is now realized that in view of the frequently large number and diversity of interests of stakeholders, conflict management and arriving at common understanding remain as some of the important challenges for PA managers (Richards, 1996).

#### **2.1.6 Participation of local communities**

Participation of local communities is a very important issue in ecodevelopment. Whenever one talks about participation, it is understood differently by different people. Often there are questions like - when can one say that the participation has actually taken place and what should be the limit of participation. Participation is, in fact, a continuum of different levels (Box 3). On one side, the level of participation can be very low, limited up to only information giving and on the other side its level can be very high when the initiatives are totally controlled by communities. In spite of these different levels, there is no dividing line between different levels of participation. In fact, there can be situations where participation is between two levels. No participation level is bad to begin with as the level of participation in a PA will vary depending upon the local social, political and historical factors. One can start from any level and this can be improved by constant efforts over time. The effort should be to bring

Box 3

A typology of participation

Typology	Components of each type
Passive participation	People participate by being told what is going to happen or what has already happened. It is unilateral announcement by an administration or by project management. People's responses are not taken into account. The information being shared belongs only to external professionals.
Participation in information giving	People participate by answering questions posed by extractive researchers and project managers using questionnaire surveys or similar approaches. People do not have the opportunity to influence proceedings, as the findings of the research or project design are neither shared nor checked for accuracy.
Participation by consultation	People participate by being consulted, and external agents listen to views. These external agents define both problems and solutions, and may modify these in the light of people's responses. Such a consultative process does not concede any share in decision-making and professionals are under no obligation to take on board people's views.
Participation for material incentives	People participate by providing resources, for example labour, in return for food, cash or other material incentives. Much <i>in situ</i> research and bioprospecting falls in this category. Rural people provide the resources but are not involved in the experimentation or the process of learning. It is very common to see this kind of participation, yet people have no stake in prolonging activities when the incentives end.
Functional participation	People participate by forming groups to meet predetermined objectives related to the project which can involve the development or promotion of externally initiated social organizations. Such involvement does not tend to be at early stages of project cycle or planning, but rather after major decisions have been made. These institutions tend to be dependent on external initiators and facilitators, but may become self-dependent.
Interactive participation	People participate in joint analysis, which leads to action plans and the formation of new local groups or the strengthening of existing ones. It tends to involve inter-disciplinary methodologies that seek multiple perspectives and make use of systematic and structured learning processes. These groups take control over local decisions, and so people have a stake in maintaining structures or practices.
Self-mobilization	People participate by taking initiatives independent of external institutions to change systems. Such self-initiated mobilization and collective action may or may not challenge existing inequitable distributions of wealth and power.

Source: IIED, 1995.

up the level of participation to the maximum extent possible.

In a typical JFM or even codevelopment program, participation has been up to the level of material incentives. This type of participation may fizzle out once

the material incentives stop flowing to the community, after the program/project is over. Therefore, efforts should always be made to involve the local communities in decision making so as to bring their participation level up in the continuum. There are few examples even in the PAs under GEF-India Ecocodevelopment Project where participation has gone beyond the level of material incentives. The EDCs involved in ecotourism in Periyar and the women Self Help Groups in Buxa are examples of such participation where the members are actively involved in the PA conservation beyond the level of material incentives, although economic factors do remain a driving force of the program.

### **2.1.7 Tenurial issues**

Under the present tenurial arrangements, it is difficult to develop stakes of the local people in conservation as the concept of ecocodevelopment has evolved into one that focuses on excluding people from the PAs rather than integrating them. Most of the definitions of ecocodevelopment refer to reducing the negative impacts of people on PAs and PAs on people. In most of the cases, continued linkages of people with PAs in the form of access to biomass resources are merely incidental to the management practices (Kothari *et al.*, 1997). Few states like West Bengal and Kerala have made provisions for continued access to resources by the local communities in a limited manner. The Government Orders for ecocodevelopment of West Bengal provide for 25% sharing of the dead and dying wood and grasses from the PAs, with the local villagers. Similarly in Periyar Tiger Reserve access rules have been framed by the PA management for regulated collection of firewood from identified areas by the members of firewood collectors' EDCs.

The recent order of the Hon'ble Supreme Court of India prohibits the removal of any biomass material from

the PAs. But the Chief Wildlife Wardens, as per the provisions of the Wildlife (Protection) Act, can still allow removal of some of the material as a part of habitat management. This can be useful both from the point of view of the wildlife as well as the local communities. Such attempts have recently been made by the Chief Wildlife Wardens of West Bengal and Uttranchal by approaching the Hon'ble Supreme Court of India, for permission to collect NTFP and *Bhabar* grass respectively. These initiatives are likely to generate interest among the local communities in the conservation of the PA. Insecurity of tenure hinders people from making any investments/sacrifices for improving the quality of such lands. At the ecodocumentation workshop held at WII in November 1998, one of the recommendations was to promote such activities that foster the linkages between the local communities and the PA rather than delinking them. Keeping in mind such ground realities, amendments in the Wildlife Protection Act are already being proposed. This will provide for additional two categories of PAs i.e., Conservation Reserves and Community Reserves which will take care of the wildlife as well as the needs of the people.

In view of the frequently strained relations between the PA staff and the local communities in most PAs, it is essential to develop rapport with the local communities before initiating any ecocodevelopment program. The planning team has to have complete trust and participation of the concerned people in such a program. Trust building involves such actions/gestures on the part of the planners that promote mutual confidence between the PA staff and the people. Trust building must start as a clear understanding of the approach necessary for implementing the program. The actual actions involved in trust building normally begin with constant dialogue and transparency regarding the program. These could subsequently involve undertaking or facilitating few

village development/welfare activities as gestures of good will and anything else that can promote rapport.

## **2.1.8 Empowering the partners**

### **2.1.8.1 Role of training and capacity building**

The key actors in the forest department are the field staff who spend their greatest time and energy in translating the management policies into actions. They are competent in the subject of PA protection as well as habitat management to a great extent. But there is a need to improve their understanding about various issues related to ecodevelopment. Field staff may have some idea about the village communities, their resource dependencies as well as some of their values, beliefs and local traditional knowledge. However, they may need to develop sensitivity about these issues in their daily working. They may also need various new skills such as conflict management, institution building, gender analysis, etc. required for this new program. This all should be a combination of knowledge about the subject, attitudes and mental make up. Here comes the role of training based upon a thorough need assessment (Box 4 and 5). In PAs like Panna, Periyar, Rajaji and Jaldapara, an attempt has been made to train spearhead teams representing a vertical cross section of the staff to take care of further trainings and micro planning in the respective PAs. Training is required for the local communities and EDC members for sensitization as well as micro planning. They may also require skill based training to carry out activities listed in their respective micro plans. Of course, creation of awareness through local level meetings is a crucial part of the capacity building of the local communities. It may be possible to get a number of committed NGOs for this purpose, but in most cases their competencies are in the field of human welfare and development issues. There are

**Box 4**

**Training need assessment for staff of Panna Tiger Reserve**

*Ecodevelopment and related issues*

- Clarity of concept of eco-development.
- How to generate trust among the local people?
- How to communicate with and motivate the villagers?
- How to deal with the actual and traditional dependencies in the absence of alternatives?
- How to address community diversity particularly the in case of existing economic disparities?
- How to generate interest of the villagers in forest department's schemes when more beneficial schemes of other departments are available?
- How to deal with problems of crop damage?

*Staff motivation*

- How to balance the dual role of protection and eliciting peoples' participation?
- Difference in training received and the work required to be done.
- How to strike a balance between the orders from the top and ground realities?
- How to balance routine protection work with the extra work resulting from the eco-development project? Ways to compensate the staff for this extra work?
- Inadequate working facilities in wildlife postings

*Village level committees*

- Clarity regarding mutual roles, rights and responsibilities.
- Clarity about the constitution of the committees.
- Financial accountability of eco-development inputs.
- How to decide the activities to be undertaken for eco-development?

*Mechanism of monitoring and evaluation of eco-development works*

- How to decide the monitoring indicators ?
- Who should do monitoring ?
- What should be the monitoring interval ?

Source : Report of the training workshop held at Hinauta, for the staff of Panna Tiger Reserve, October 10-16, 1998.

**Box 5**

**Issues addressed during the staff training workshop in Panna Tiger Reserve**

- Concept of eco-development and related issues.
- Change and its importance in eco-development.
- Importance of community participation in conservation.
- Levels of participation in conservation.
- Local communities and their dependencies on natural resources.
- Local traditional beliefs and value systems in eco-development.
- Traditional institutions and their role in eco-development.
- Village level institutions in eco-development.
- Linkages between conservation and development.
- Stakeholders and their importance.
- Selection of villages for micro planning.
- Planning for eco-development.
- Components of a village level micro plan.
- Participatory tools to be used in eco-development planning.
- Future steps after the training workshop.

*Source : Report of the training workshop held at Hinauta, for the staff of Panna Tiger Reserve, October 10-16, 1998.*

comparatively few NGOs working in the area of PA conservation. The need, thus, is to get hold of such conservation oriented NGOs and build the capacities of other NGOs through them, for the eco-development program. Nagarjunsagar-Srisalem Tiger Reserve has been successful in involving a number of NGO partners after a long spell of awareness programs and the results are encouraging. Infact, sometimes the NGO motivators or community motivators have been found to be much more suitable for this task. This has been successfully tried in the Dudhwa Tiger Reserve, where the *Tharu* community motivators have played an important role in the program.

### **2.1.8.2 Staff welfare**

In most cases, the PAs are in remote areas and the staff have to work in tough conditions, alienated from the local communities. Most postings do not provide sufficient staff facilities. In the absence of sufficient incentives, the wildlife sector postings do not attract many staff. In fact, PAs are considered as punishment postings by most of them. With the focus on participatory approaches, staff workload has increased manifold and in the absence of any consideration of their problems, it is difficult to maintain their professional commitments. The fragile relationship between the field staff and the local people can be easily destroyed when participation built on trust is obstructed by the staff who fail to honour their commitments (Hobley, 1995). Therefore, developing some staff welfare mechanism in the form of welfare societies and other incentives will go a long way for their motivation. Kanha and Periyar Tiger Reserves and Gir National Park and Sanctuary are some of the PAs where such mechanisms have been initiated in the form of welfare funds and cooperative societies. In Periyar Tiger Reserve, an EDC of staff has also been constituted. Some staff in Periyar get small benefits as honoraria while participating in ecotourism ventures of local EDCs.

### **2.1.8.3 Setting up and strengthening local institutions**

To secure active and effective participation of the communities, the ecocodevelopment program must be able to restore the local institutions that are important for the environmental entitlements of various sections of the society (Badola, 1997). Women, particularly, must be able to fully participate in these processes as the incentives and opportunities in environmental management and protection facing men and women

differ due to variations in their access to and control over resources (Joekes *et al.*, 1995). Women Self Help Groups in many PAs have considerably empowered this section of the society both economically and socially. According to Cernea (1987), resource degradation in the developing countries, while incorrectly attributed to common property systems intrinsically, actually originates in the dissolution of local level institutional arrangements whose very purpose was to give rise to resource use patterns that were sustainable. Thus while forming the EDCs, the planning team should try to see if there are already existing traditional institutions. If these are available the committees should derive strength from such institutions by getting linked with them (e.g., the EDCs of Dudhwa Tiger Reserve have made use of the traditional institution of *Padana* in *Tharu* villages). Fresh committees should be initiated only if there are no traditional institutions available. Linkages with Panchayats should also be ensured for the EDCs, as in majority of the states the Panchayati Raj system has started functioning and lot of developmental activities are being implemented through Panchayats. The evaluation criteria for determining the effectiveness of the institutions can also be developed in a participatory way with the communities. The various steps for EDC formulation and criteria for evaluating the effectiveness of these committees were evolved for Rajaji and Great Himalaysn National Parks during their training workshops. These are given in Box 6 and 7 respectively.

#### **2.1.8.4 Accountability and conflict management mechanisms**

The failure by one party to comply, even partially, with the terms of the agreement may place the entire arrangement at risk. All parties must be accountable

**Box 6**

**Steps in formulation of village EDCs**

1. Contact meetings in the village and discussion on problems.
2. Identification of park dependent families and discussion with them.
3. Understanding the role of current village level institutions and identifying their values.
4. General meeting of the village which should have representation of different groups, PA dependent families and other under privileged groups like women, marginalized and poor families, etc.
5. Exploring the possibilities of setting up EDCs.
6. Agreement over the structure of village EDCs with other stakeholders.
7. General meeting of the village at a fixed time and place to discuss the issues related to objectives, membership, responsibilities and role of the committee. Also discussion regarding the role and responsibilities of the department. Agreement regarding the structure and membership of executive committee which should have representation of different sections of the village, particularly most dependent groups and women. Constitution of the committee and establishment of common fund.
8. Agreements over the issue of *Bhabar* grass and decision about the arrangements for *Bhabar* extraction.
9. Registration of the committee.
10. Undertaking activities and their monitoring.
11. Training of the staff and selected village representatives for micro planning (in the village).
12. Preparation of micro plan through participation of the villagers.
13. Seeking support of other agencies for micro planning.
14. Implementation of the micro plan and monitoring.

**On going activities**

- Creation of an atmosphere of mutual trust.
- Awareness creation about the program.
- Training of staff and EDC members in different areas/skills.
- Coordination with other departments.

Source : Report of the training workshop held at Chilla, for the frontline staff of Rajaji National Park, July 2-8, 1998.

**Box 7**

**Characteristics of a good village EDC**

- It should be representative of all sections of the village.
- The committee should be aware of the various social and economic issues of the village as well as aspirations of the people.
- There should be good coordination among the members.
- It should regularly inform the villagers various Conservation issues.
- There should be regular meetings of the EDC.
- It should have co-ordination with the PA staff.
- Villagers should be involved in all decisions and works.
- It should have honesty and dedication.
- It should have decision taking capability.

*Source : Report of the training workshop held at Largee, for the PA staff and village EDC members of Great Himalayan National Park, June 21-25, 1998.*

and there must be provisions for sanctions in case a partner does not comply with the agreed terms. Resource management is never static; conditions evolve, and it is always possible that conflicts will arise, among the partners in co-management agreements (Renard, 1997). Therefore, there must also be a conflict resolution mechanism (Appendix 5). A successful conflict resolution process is one in which the stakeholders have the opportunity to really understand each others' needs, develop a range of alternatives to address these, and reach a mutually agreeable solution (Lewis, 1997). Despite there being provisions in the micro plans, in most of the PAs such conflict management mechanisms are weak.

#### **2.1.8.5 Social and equity issues**

It is important to acknowledge that resource priorities and requirements of different sections within a community are different (Badola, 1998). People oriented conservation must address not vague societal goals but socially differentiated ones in which the differing perspectives and priorities of community members, and local communities and conservationists, must be accommodated (Fairhead and Leach, 1994). In addressing the issue of participation, successful people oriented conservation projects attempt to establish equitable partnerships, so that all sections of the community have an equal opportunity for control, management and benefit. They are given the chance to take part in joint analysis, development of action plans and their implementation.

#### **2.1.8.6 Institutional culture of the forest department**

The traditional institutional structure of forest department is hierarchial and this has its own advantages as far as policing approach is concerned. This approach is necessary for protection. But for a program like ecodevelopment, arrangements for effective communication from top to bottom and *vice versa* have to be made. This has been attempted in many PAs by creation of spearhead teams with members picked up from different levels of the staff. In all the GEF sites, managements have created coordination committees at PA and state level, involving different levels of the staff and other stakeholders. Similar arrangements can be easily made at the range and circle level, which can be very crucial for the success of the program.

#### **2.1.9 Landscape issues**

To be sustainable in the long run, the PA management must be able to control landuse on the fringes of PAs. Be it the development activities taking place next to the

Rajaji National Park, the proliferation of tourist resorts in the periphery of Periyar Tiger Reserve or the mushrooming of cement factories on the fringes of the Gir National Park and Sanctuary, coordination with other stakeholders has remained a weakness of the ecodevelopment program. PAs must become part and parcel of the overall landscapes. Therefore, the ecodevelopment program should also link up other programs at the landscape level. This will require identification of landscapes and the relevant government orders to facilitate the overall conservation and development programs in the identified landscapes. One can think of institutional arrangements to facilitate this concept in the lines of that followed by the Great Barrier Reef Management Authority, Australia; Annapurna Conservation Area, Nepal and Protected Area Management Boards of the Philippines, where the representatives of different stakeholder groups are on board to undertake decisions regarding the management of these areas. Even though this concept is just in the beginning stage in India, examples of Kanha Development Authority and Great Himalayan National Park Conservation Area Authority can provide some idea about how such mechanisms can be initiated for the PAs. Realizing the critical significance of including PAs in regional plans, the Staff Appraisal Report of the World Bank (1996) states, *"PAs can be successful in realizing their long-term conservation goals only to the extent that their priorities can become integrated into large-scale land use planning initiatives and regulations at the local and regional levels"*.

#### **2.1.10 Research, monitoring and process documentation**

To be able to take informed decisions, the PA managements need baseline information. Action research can be useful in project implementation because it provides a framework within which critical

planning, monitoring and evaluation can become a continuing basis for project implementation (Fisher and Jackson, 1998). Process documentation chronicles the processes as they unfold during the project implementation. It can be an asset to the management and other partners in initiating corrective actions based on analysis of activities and events. Participatory biodiversity assessment by involving various stakeholder groups in collection and analysis of data, will give them a sense of "ownership" towards the project and its progress. Project partners need to reach consensus on key indicators to be monitored and the level of precision needed (Larson *et al.*, 1998). Quantitative and qualitative monitoring and evaluation indices are required to measure progress towards the objectives, guide project management and assess progress towards sustainability, once external support is withdrawn. Documentation and research not only serve as yardsticks of success for the management of the PAs, but also empower the community and provide objective data for influencing policy. Nagarjunsagar-Srisalem Tiger Reserve is probably one of the few areas where extensive documentation has been carried out and used during project planning and implementation.

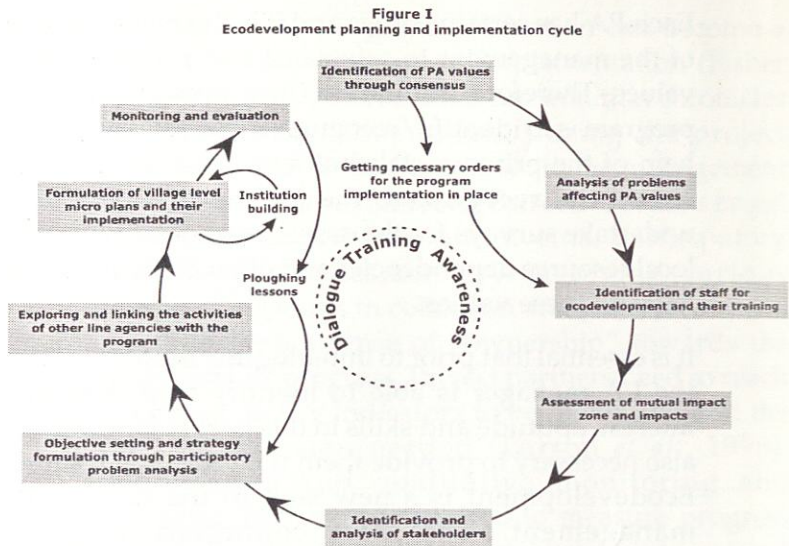
## **2.2 Ecodevelopment planning process for integration of the above concerns**

The process of eco-development planning is an on going one which involves a number of processes and activities, continuing simultaneously. There is lot of flexibility built in this program. Hence it may not be possible to give a very rigid framework of different steps of the program. However, a tentative sequencing of various activities for a typical PA can be as shown in the eco-development planning cycle (Figure I).

Each PA has certain values and it is the major concern of the management to safeguard and conserve these values. Therefore, the first step in any ecodevelopment program is to identify/recognize these values with the help of the primary stakeholders. Once these values have been recognized, the planning team has to undertake surveys for the assessment of impacts that local resource dependencies and other biotic pressures have on these values.

It is essential that prior to initiating any such programs, the PA manager is able to identify staff that have interest, aptitude and skills in this particular field. It is also necessary to provide them with relevant training. Ecodevelopment is a new step in the field of PA management. The staff connected with PA management are generally well versed with the strategies of protection and habitat management. However there is a need to strengthen their understanding about this new venture. They may have some idea of the local dependencies on park resources as well as the local values and traditions. But the sensitivity about these issues is one such area which needs to be addressed through training. In addition to this, they have to be acquainted with the skills for generating participation, initiating partnerships for co-management, identification of stakeholders, micro planning, institution building and conflict resolution.

Once this core team has been constituted and agreements with the village community have been arrived at, the task of identification of the mutual impact zone should be carried out by them. The mutual impact zone is the area of the PA impacted by the local communities and the area outside the PA (habitations/villages) that is impacted by the PA (Bhardwaj *et al.*, 1999). The assessment of impacts both in qualitative and quantitative terms is important to prioritize the villages to be taken up for



ecodevelopment implementation. This will also help in monitoring the impact of the program.

After delineating the impact zone, identification of the stakeholders has to be carried out. For details see Appendix 4. Stakeholders identification will have to be followed by stakeholders analysis so as to shortlist them for involvement in the program. This process helps the planners not only in deciding the main stakeholders but also their relative impacts and powers. SWOT analysis (Appendix 4) can then be undertaken for identified stakeholders to understand their strengths and weaknesses for conservation. Stakeholders identification and analysis should ideally be carried out at three levels-district (if the impact zone falls in more than one district), village and PA. The initiative to carry out stakeholders identification and analysis has to be taken up by spearhead team under the leadership of the ecocodevelopment officer. In this team, the PA management should try to involve the research team of the PA (if available), and some technical individuals from nearby institutions. It is

important that this particular activity be carried out at the initial stages of the program so that it can help in deciding the strategies for further collaborations with the stakeholders, besides inculcating a feeling of belongingness with the program.

Stakeholder identification and analysis has to be followed by a series of dialogues and training cum orientation programs for them, so as to sensitize them to the PA conservation issues. A joint analysis of the problems facing the PA has to be carried out along with the major stakeholders, based on which future strategy for dealing with these issues would be prepared on the basis of common understanding and wisdom of these stakeholders. Here it is important to explore the different schemes of the line agencies/institutions in the area and how these can be linked with the program. This can happen only if the representatives of these line agencies/institutions are also involved in problem analysis (Appendix 6), objective setting (Appendix 7) and formulation of strategies. From the impact zone, priority villages for undertaking the ecodevelopment program have to be selected.

To carry out the program effectively and to ensure its sustainability, a strong institutional base is needed. Therefore, identification and strengthening of existing traditional institutions and formulation of new ones if needed, is an important aspect of the ecodevelopment program. Along with this, enabling Government Orders are needed to facilitate the implementation of the program. Efforts in this direction have to be initiated at the beginning of the program so that the strategies prepared are within the purview of prevailing policy and law. After joint analysis of the problems, identification of objectives and finalization of the strategies with the involvement of stakeholders has to be completed.

The ultimate step of this process is the village level micro planning. For this, a series of meetings and dialogue with the identified villages have to be initiated. The spearhead/planning team should use this time for understanding the problems at the village level and also for making the village communities aware of the program and its objectives. Some of the trust building activities can also be taken up at this stage to win over the trust of the local communities. Infact, the prolonged initial phase does require some trust building activities to compensate the villagers for their time/efforts and to bring them together. Awareness creation about the project objectives and the benefits thereof, as well as the process of mutual learning and training for the villagers would be another important initiative to be undertaken simultaneously. This would ultimately lead to formulation of village EDCs and preparation of the village micro plan. In villages where the processes of dialogue, trust building and awareness are still in the initial stages or inadequate, the formulation of village level committees can be delayed. This is because the committee is not merely an instrument for micro plan preparation but a crucial institutional base, that determines the success and sustainability of the ecodevelopment initiatives. Formation of micro plans require time as it needs mutual agreements through frequent discussions, conflict resolution and consensus building. It is better to evolve such agreements depending on the local situations so that these are more agreeable and acceptable to all the parties concerned. Monitoring protocols have to be decided and included in the plan along with the mutual responsibilities for undertaking monitoring. The monitoring team should be formulated with representatives from the primary stakeholder groups. Local traditional knowledge has to be made use of while deciding these components.

The micro plans have to be prepared with the active participation of the villagers. It has to be preceded by an indepth appraisal of the resources in the surrounds of the PA and the village, problems of the village and possible solutions by using various participatory tools and techniques e.g., PRA and RRA (Appendix 1). While formulating the strategies for mitigating the problems, it is important to link these with the activities of line agencies operating in the area. This would ensure the long term sustainability of the program. The selection of activities has to be done carefully. It is easy for the staff to get carried away and agree to most activities proposed by the villagers. But the main goal of the program should be kept in view so that it does not become the usual rural development program. A participatory feasibility analysis (Appendix 3) of the proposed activities along with the villagers and other stakeholders, can clarify to everyone what is possible. In this process it is important to eliminate activities that have a negative impact on PA values and do not contribute much to the income of a large section of the people. Activities that hurt the social/religious sentiments of any section of the villagers, are technically difficult, or have political overtones can also be filtered out in this process. The activities identified should be prioritized for implementation based on availability of resources, the willingness of the target groups and their compatibility with PA conservation. Experiences so far indicate that the group based activities should be given priority as compared to individual beneficiary activities, for better results. Usually there is a tendency to spend large proportion of the micro plan funds for infrastructure development which undermines the other important activities of enterprise development and capacity building. Therefore, while deciding the activities, it should be kept in mind that the investments for infrastructure development be restricted to 30% to 40% by the EDCs.

The above steps can guide the PA manager in carrying out ecodevelopment program in an area. However the sequencing of the various processes and activities may sometimes be required to be altered depending on the specific situation of an area.

The onus for these efforts largely rests with the ecodevelopment officer and the concerned staff. A properly trained and motivated staff is a pre-requisite to a good planning process. Emphasis should, therefore, be placed on proper training of the staff, combined with study tours and refresher training programs. Preferably, there should be separate staff for ecodevelopment as is being followed in many areas e.g., Nagarjunsagar-Srisalem, Kalakad Mundanthurai and Periyar Tiger Reserves. Emphasis should be placed on the processes such as continuous dialogue, contact with other stakeholders, trust building and transparency in actions. An important role can be played by the grass root level NGOs in conservation awareness programs and for maintaining regular contact with the primary stakeholders.

Apart from all these factors it is the flexibility, adaptability and sensitivity of the ecodevelopment officer and the associated staff backed by an enabling departmental support that would lead to effective planning and implementation of the program.

## CHAPTER 3

### THE MICRO PLAN FORMAT

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Micro planning is the most critical and fundamental part of the entire process of ecodevelopment planning. Micro plans are site specific and vary from village to village. Writing a micro plan should be a joint effort of the planning team and the village EDC, along with the active participation of/consultation with other stakeholders. There should be a complete transparency of action while formulating the micro plans, particularly with respect to the problem analysis, objective setting, formulation of strategies and setting mutual responsibilities. Before the actual micro plan document is prepared, sufficient time should be spent in community consultations, resource inventorying, consensus building and deciding about the activities. Similarly the monitoring indicators should be decided in consultation and agreement with the communities and other important stakeholders. Role of NGOs or community motivators can be very crucial during this entire process.

The micro plan does not have to be a sophisticated, computerized booklet. It should be a simple, indicative document written preferably in the local language and in a plain, straight forward style, so that the villagers are able to relate to it. It should be readily understood by people who have no technical training. The emphasis here is not to produce a document, but rather a set of agreements, that are acceptable to and have commitment of all the parties concerned. This acceptance and commitment emerges from a constant interaction among the main stakeholders and a genuine effort to integrate their concerns into the micro plan. Village level micro plans should be full-fledged documents bound in

separate volumes and available in adequate numbers so that each concerned party has copies of these. Given below is a broad framework that can be used for micro plan preparation. This is an indicative outline and the users may modify/ simplify the micro plan structure as per site specific needs.

## *Chapter I*

### **Introduction**

- 1.1 **About the village:** This section would introduce the village briefly.
- 1.2 **What is ecodevelopment:** This would talk about the general understanding of the villagers about the ecodevelopment program.
- 1.3 **About the PA :** This should provide brief introduction about the main conservation values and the problems faced by the PA.
- 1.4 **Reason for selection of the village for ecodevelopment:** This section would narrate the reasons for selection of the village for program implementation. This information will be useful for making villagers understand the logic of selecting a particular village.
- 1.5 **Methodology:** A brief outline of the processes followed in the preparation of the micro plan would be provided in this section. It would also contain the sequencing of meetings/contacts/ consultations undertaken before embarking upon actual plan preparation.

## *Chapter II*

### **Description of the village**

This chapter would give a general introduction of the village. It will include its location, communication, history, available

facilities, demography, land use patterns, income and occupational structures and broad description of the resource use patterns.

- 2.1 **Location of the village:** This will include the location of the village with respect to the PA, its distance from PA boundary, and district, block and tehsil headquarters.
- 2.2 **Access and communication:** This will provide information regarding approach to the village and its access to facilities such as motor road, school, primary health center, veterinary center and market. If these facilities are not present in the village, distance of the village to the nearest such facilities should be mentioned.
- 2.3 **Historical background of the village:** This section will attempt to trace a brief history of the village.
- 2.4 **Village resources:** It will include adjoining forests, pasturelands, wastelands and village commons.
- 2.5 **Rainfall pattern and water sources:** This will include both the annual distribution of the rainfall as well as pattern of rainfall over the last few years. Water sources should cover both the natural and man made water bodies.
- 2.6 **Demographic details:** Population of male, female and children along with the trends of population growth will be included in this section.
- 2.7 **Community structure:** This section will include the caste and tribe structure of the village including number of families, population size and lifestyles of each group, specially focusing on those aspects which define their relationship with forests and natural resources.
- 2.8 **General economic conditions:** Following information in brief will be included in this section:

- 2.8.1 Occupational and income structure
- 2.8.2 Land holding and cropping pattern
- 2.8.3 Livestock holding pattern
- 2.9 **Housing pattern:** This will provide information regarding the type of construction and the building materials used.
- 2.10 **Social/political affiliations and leadership identification:** This section should identify the individuals and groups who can play a positive and leading role in this program.
- 2.11 **Availability of local traditional institutions and their current roles:** This information will be useful while undertaking the process of institution building.

### *Chapter III*

#### **Protected Area Mutual Impact Assessment**

- 3.1 **Impact of PA on villagers :** Here all outcomes of PA declaration and their impacts on local people should be mentioned. Following are the possible outcomes of PA declaration on people.
  - 3.1.1 **Positive impact of PA on the village:** This can include tangible benefits like employment, water, economic benefits due to tourism and resources from the buffer zone as well as intangible benefits like cultural values and religious linkages, soil and water conservation and the environment. It is important to bring forth the positive values of the existence of PA that can be effectively used for awareness creation to strengthen the linkages of PA conservation with local well being and prosperity.
  - 3.1.2 **Human-wildlife conflicts:** This section should discuss all aspects of the problems caused by

wildlife to local people. This would include the wild animal species involved, number of people or extent of area affected, history and seasonality of the problem, extent of damage or loss and compensation patterns. Sketch maps can be used to show highly, moderately and mildly impacted villages/areas. The discussion would generally include the following:

Crop-raiding

Cattle lifting

Death/injury to humans

Damage to property e.g., by elephants

**3.2 Impact of people on PA:** Here all forest dependencies/ uses, both for self consumption and sale, have to be discussed. This would cover both the qualitative and quantitative information about the following:

**3.2.1. Grazing/fodder collection**

**3.2.2. Fuelwood collection**

**3.2.3. Timber and small wood**

**3.2.4. Thatching /fencing materials**

**3.2.5. Collection of NTFPs**

**3.2.6. Other resources**

**3.3 Forest dependent occupations:** Here all the occupations based on raw materials drawn from the forests, the number of families involved, various castes/tribes involved, whether full time or part time, estimated incomes and seasonality of such occupations should be discussed.

**3.4 Offence and illegal activities:** This section should discuss the extent and seriousness of illegal activities going on in the PA and number of cases registered in

the recent past (say last 5 years). Effectiveness of protection arrangements, attitude of the local people towards offences, and extent of cooperation in detecting cases and apprehending offenders shall be part of this discussion.

- 3.5 **Summary of PA-people relations:** This section, summarizes the existing mutual relationship of the PA management and the local communities.

#### *Chapter IV*

### **Stakeholders in the village**

- 4.1 **Major stakeholders in the village:** This should give a description of the different community groups in the village as well as other developmental agencies/NGOs and individuals working in the area.

4.1.1 **Mutual relations between different stakeholders:** This section would be based on the stakeholder analysis as indicated in Appendix 4. This will provide information about the strengths and weaknesses of different stakeholders. Conflict mapping of the stakeholders can also be a part of this section (Appendix 5).

4.1.2 **Linkages between the stakeholders:** This section would try to find out the possible collaborations between different stakeholders depending upon their mutual strengths.

#### *Chapter-V*

### **Planning**

This chapter is an important component of the micro plan which would highlight different problems with respect to the conservation of PA and the village development. Based

on the problem analysis, objective setting would be done and strategies to achieve these objectives would be formulated. The strategies would give not only the activities and inputs but will also explain the possible processes being proposed. Though the plan will provide flexibility, this chapter should include the physical and financial targets of the activities and outputs.

- 5.1 **Problem analysis:** This section would include the major problems and identification of the root causes of these problems. This should be done after a joint problem analysis exercise (Appendix 6).
- 5.2 **Objectives of the plan:** This would include the long term objective or the goal as well as the immediate objectives with respect to specific problems. The objectives have to be focused, well defined and realistic so that these are achievable and can be measured easily (Appendix 7). Objectives should be decided jointly by the planning team and the villagers with complete transparency.
- 5.3 **Strategies and activities to achieve objectives:** This section should contain various strategies to achieve each objective. The strategies should also explain various other processes like generation of people's participation, ways to integrate the programs of other department/agencies, cost sharing between the people and the project authorities, fund raising mechanisms, awareness and environmental education, etc. From the strategies, should emerge different activities for each objective. Linkages with Panchayat should be made clear while deciding the strategies.
- 5.4 **Feasibility analysis of proposed activities:** The proposed activities have to be tested for various feasibilities. This includes environmental feasibility, social feasibility, financial/market feasibility, technical feasibility as well as administrative/ legal feasibility. A proper feasibility analysis (Appendix 3) would help in deciding the realistic list of activities for the micro

plan. The results of the feasibility analysis could be presented in the form of a table.

- 5.5 Agreed activities and their details:** This section would include the activities agreed upon after the feasibility analysis along with the man power requirement, intended beneficiaries and financial requirement for carrying out these activities (with unit costs). This section would also include cost sharing arrangements between the communities and project management/line agencies. Sometimes the contribution of the village communities may not be in financial terms, but in physical terms. This should also be clearly spelt out. The agreed responsibilities of the various line agencies if any, should also be laid down along with the activities and time frame. Ultimately, the entire micro plan can be presented in a simplified logical framework (Figure 6) so that all the objectives, outputs, activities, monitoring indicators and assumptions can be seen clearly along with the linkages of these components, by the villagers (one need not use the complex names like logical framework but this will be a useful tool to make people understand the entire plan).
- 5.6 Annual physical and financial targets:** This section would be the gist of year wise physical and financial targets for the micro plan period. This should also mention about the amount of common fund expected from these activities and the strategies to manage and enhance this common fund.
- 5.7 Monitoring and evaluation:** This will give details about different indicators which will be monitored to see if the program is going on in the right direction of achieving the objectives. This will also clearly mention who will be responsible for monitoring, what will be monitored, where it will be monitored and how frequently it will be monitored. The indicators will also cover the monitoring of processes of these initiatives in the village. Evaluation, however, will be an external process, carried out

generally by a team identified by the PA management. The EDC and the staff involved in implementation should form a part of the evaluation team.

## *Chapter VI*

### **Mutual rights and responsibilities**

- 6.1 **Benefit distribution and access to resources:** This section should explain how the expected benefits will be distributed. It should mention arrangements for access to resources and assets created (if any under the project) by various groups/sections in the village.
- 6.2 **Mutual obligations and responsibilities:** A written agreement between the EDC (representing the villagers) and the forest department clearly stating the obligations of both parties (e.g. to stop grazing, or community protection on the part of villagers, and prompt payment of livestock compensation and completing the proposed tasks within the agreed time frame on part of the forest department). Individuals and organizations should be identified, stating the extent of their responsibilities.
- 6.3 **Records to be maintained by EDC:** This section should list various records/registers to be maintained by the EDC and the persons responsible for this work.

### Annexures

The micro plan should have following annexures for various other information:

- Summary of the Government Orders and rules for ecodevelopment
- Maps of PA, mutual impact zone along with compartment numbers (wherever possible)
- Results of rapid habitat assessment
- Results of PRA exercises (actual maps and figures)
- Any other details regarding the village that have not been covered in chapter II
- Details of schemes of other line agencies included in planning
- Copy of the mutual agreements arrived at between the EDC and the PA management

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## ***Appendix-1***

### **PARTICIPATORY RURAL APPRAISAL (PRA)**

#### **INTRODUCTION**

Participatory Rural Appraisal (PRA) is a method which helps PRA practitioners and rural people to work together very closely to understand the key development problems of an area, needs and opportunities that can be addressed to tackle these problems, and to decide on an agreed set of systematic and site specific plan of action for alleviating these problems. It involves a set of principles, a process of communication and a bunch of techniques for collecting different kinds of data, identifying and mobilizing intended groups, eliciting their participation and also opening ways in which these groups can participate in decision making, project design, implementation, monitoring and evaluation. Using the theme of conservation and development linkages, PRA facilitates multi-sectoral, multi-disciplinary and multi-institutional collaboration to achieve its broader goal of socially acceptable, economically viable and ecologically sustainable development. Thus, PRA is a tool to instill community participation in rural development projects, and it offers a significant alternative to centrally planned and externally managed development efforts, many of which have proved difficult to sustain.

PRA, unlike its parent methodology of Rapid Rural Appraisal (RRA), is more participatory in nature. Here, behaviour and attitude of the PRA practitioners matter more than the method itself, which enables the environment for more active level of participation by the community members. RRA puts higher premium on collection of quality information. It encourages participation, but at a lower level, in order to assure that it meets its objective of information gathering. On the other hand, PRA puts high premium on the active participation of the local communities. A good PRA seeks to maximize this participation and the empowerment of the local people that goes along with this.

The duration of PRA may range from a few hours to a few days, depending on the purpose/objective of the project.

Usually a standard PRA for the preparation of village ecodevelopment micro plan takes about six to seven days. If the duration of PRA is short, the general tendency is to collect data by the outsiders for their own use. This may not help in initiating the process of understanding the problems and opportunities of the area and deciding on an agreed set of possibilities for alleviating these problems. Therefore, it is not advisable to conduct short duration PRAs that are of one-day duration or less, as they do not allow the participants sufficient time to interact and solve the problems.

Normally, a multi-disciplinary team of people comprising of community development and/or agriculture extension personnel, forestry personnel, socio-economist and veterinarian constitute the PRA team. The number of persons in such a team is usually not more than five to seven. While interacting with the villagers, care should be taken to keep the outsider-insider ratio at 1: 3. This gives the villagers confidence of strength apart from enabling them to participate actively. Locally available material such as rangoli/coloured powder, leaves and colour sand, match box, etc. are often used by the PRA members for various exercises. Camping in the village, taking food with the villagers and participating in day-to-day village activities reduces the gap between the villagers and the outsiders. The outsiders, who are usually qualified and expert in different fields, find that these simple every day tasks are after all not so simple! The villagers on their part begin to feel more confident with the realization that there are certain things that they can do better than the educated outsiders and teach them as well. This feeling gives them greater confidence and increases their willingness to participate in the exercises and tell the outsiders more about themselves and their situations.

Staying in the village for the duration of the PRA facilitates easy interactions between outsiders and the villagers. Many organizations have, therefore, made this an essential part of PRA training and practice. It provokes change in outsiders' attitude, allows for early morning and evening discussions

when people are less busy and is an explicit indication of commitment by outsiders to the village and village life.

## GETTING STARTED

A typical PRA has five clearly defined steps. These are: (i) preliminary site visit, (ii) data collection, (iii) data synthesis and analysis, (iv) problem identification and setting of opportunities to resolve them, and (v) ranking of opportunities and preparation of micro plan. The village micro plan preparation facilitates collaborations of different stakeholders for achieving the broader objective of socially acceptable and ecologically sustainable economic development of the village. However, on completion of the micro plan, it is up to the community to develop follow-ups for continuation of the process, adoption of the plan, implementation, monitoring and evaluation.

A preliminary site visit by the PRA team is the first step. The team introduces its approach to a broad representation of the community, including elders, leaders of religious institutions, and other community leaders. The team has to emphasize that the purpose of the PRA exercise is to gather information to help the community prepare micro plans, to improve management of local resources and to mobilize community efforts to implement the identified activities.

Several types of field data such as spatial, time related, social and institutional information, form the core data of the PRA study. Each set of data expands the information base on local problems, needs and opportunities. Principal findings are presented in a simple visual form for rapid communication and comprehension to encourage lively discussions and debate. A compilation of this forms the basis for preparing a village microplan. Unlike most conventional research methodologies, PRA uses a diversity of techniques and resources, including the assembled lore of the villagers, to ensure that comprehensive information is collected. Investigating the community situation through a variety of

means makes it possible to cross check the data and increase the accuracy of the analysis.

Maps and models, transects and farm sketches are powerful visual tools that provide at a glance, a sense of location and different relationships and encourage the PRA team and the villagers to view community problems and opportunities from a spatial perspective. Most of this spatial information is obtained through direct observation. Besides the data on spatial relationships, the PRA team collects information about changes over time. The team members also collect a range of socio-economic information from a cross section of households to gain an understanding of the wide range of variations between families. There are many important actors and institutions in every community. It is crucial to know which institutions in the village are the most important and have the respect and confidence of the community, so that they can be engaged in different village development activities. Therefore, analysis of institutional relationships is of paramount importance in a typical PRA. After collection of a variety of data, analysis and synthesis is done in a participatory manner. Problems are then identified and prioritized, and finally a micro plan of the village is prepared.

## **PRA EXERCISES**

Some common exercises that are usually carried out by the PRA teams to collect each type of information stated above include timelines, mapping and modeling, transect walk, pie charts, seasonal diagramming and ranking and scoring. Each exercise is designed to maximize local participation in data collection and analysis.

### **TIME LINE**

A history of major recalled events in a community with approximate dates is explored in this exercise and discussions are held on the subsequent changes that have occurred in the

village. The chronology of events is constructed in the form of a bar diagram. Thus, the timeline is prepared through discussions with small groups of local residents, with emphasis on community elders. Some PRA practitioners also prefer a time line exercise as a good equalizer between the outsiders and the village people.

## **MAPPING AND MODELING**

This exercise involves marking, drawing and coloring several types of maps of their village by the villagers with the minimum interference and instruction by the outsiders. Villagers use local materials such as sticks, stones, grasses, wood, cigarette packets, leaves and branches, colour sand and soil to make their village maps. Maps may be of several types such as social map or the map of the residential area of the village, resource map of the catchment area including crop fields, village forests, and grazing lands, etc., and a variety of topical maps. One map leads to another. Models are advancement over mapping and represent three-dimensional figures. Models are useful for land use and watershed development planning. As the maps and models take shape, more and more people get involved and thus, they contribute and if required make changes.

## **TRANSECT WALK**

A transect is a systematic walk through a cross section of the village to capture the greatest diversity of the ecosystems, land uses, etc. It helps the PRA team to organize and refine spatial data gathered through direct observation and summarizes the local conditions and the community's problems and opportunities. A large and highly variable community may require more than one transect walk. It has been observed that, many times, this exercise results in the outsiders discovering new local practices.

## **DAILY ROUTINE AND PIE CHARTS**

This exercise is done to find out different kind of activities which one does on a daily basis. Daily routine or activity profile diagram does not only show the time spent in different activities, but also the size of the work involved. Pie charts are prepared to indicate parts of a whole in proportional terms. This diagram can be used to show the land use, credit and patterns of income, production and consumption, and even sources of debt.

## **SEASONAL DIAGRAMMING**

This exercise attempts to establish regular cycles or patterns of activities and occurrences within a community over 12-18 months. A seasonal calendar helps to present large quantities of diverse information in a common time frame. It compares village activities month by month, across seasonal boundaries. It identifies cycles of activity that occur within the life span of a community on regular basis and helps to determine whether there are common periods of excessive environmental problems or opportunities over the course of a normal year. These yearly cycles are important in determining, for example, labour availability timing for project activities, potential absorptive capacity for new activities, times of diseases and food storage and variations in cash flow.

Thus, seasonal calendars explore seasonal constraints and opportunities by diagramming changes month by month throughout the year. Festivals are used to cross check the names of the months, which are agreed upon. The villagers are asked to break lengths of sticks, draw histograms in the dust or with chalk, or make piles of stones or seeds to represent relative quantity and pattern of rainfall, soil moisture, crops, livestock activities, income-expenditure and debt.

## **RANKING AND SCORING**

This exercise helps in understanding rural people's criteria for ranking as well as relative position of their priorities,

preferences and choice in matters of occupation, food, fuel, fodder, energy use, etc. Ranking and scoring can be used for easy comparisons. Ranking can be of many types such as preference ranking, pair-wise ranking, direct matrix ranking and wealth ranking. Preference ranking involves ranking of a set of problems/preferences/priorities by a group or an individual on the basis of their criteria or perceptions. Pair-wise ranking, which uses two items or attributes at a time for ranking, can be used to explore rural people's criteria for choosing one alternative over another. In this method, a villager or a group of villagers can compare one pair at a time and give reasons for the choice made. At the end, the most favoured choice is identified, if it is a question of choice, or the major problem is identified in case of problems being ranked. But in case of a matrix scoring exercise, different attributes and criteria are listed which are ranked either on the basis of fixed scoring or free scoring according to their relative importance. The matrix ranking and scoring is most appropriate when outsiders wish to obtain precise information on relationships amongst several different criteria and wish to rank only a few alternatives, related to uses, preferences or priorities.

Wealth ranking is a method of ranking or grouping of households on the basis of their relative income, wealth and other local measures of well being. This exercise can be useful for (i) leading into other discussions on livelihood and vulnerability, (ii) producing a baseline against which future interventions and impacts can be measured, (iii) providing a sample to cross check the relative wealth of informants who have been or will be interviewed, and (iv) providing key local indicators of welfare and well being.

## **VENN DIAGRAMMING**

There are many important actors and institutions in every community such as women Self-Help Groups, schools, village cooperatives, and religious bodies. It is crucial to know which institutions are the most important, have the respect and

confidence of the community and can be engaged in sustainable development activities. The venn diagramming exercise is done find out the role of individuals/institutions and the degree of their importance in decision making. In this exercise, circles (paper cut outs) of different sizes are used to represent people, groups and institutions. Villagers arrange these circles to represent degree of real overlaps. Innovations include drawing lines between circles, thickness of these lines representing strength of relationships.

### **ORGANIZATION AND SYNTHESIS OF DATA FOR MICRO PLAN PREPARATION**

A primary goal of any PRA exercise is to initiate an interactive process between the community and the PRA team so that a micro plan can be prepared. Once data is gathered, a structure for analysis must be established. It is usually recommended that the PRA team should meet alone or perhaps with one or two village leaders to review the information collected so far and draw up preliminary lists of problems and opportunities that are used as the basis for the village meetings. At this stage, data should only be organized, but no attempt should be made to weigh or rank the information. The community then does the ranking.

Ranking of problems and opportunities is one of the most important steps of PRA as it enables villagers and other stakeholders such as the local development agencies, representatives of key institutions, NGOs, donors, etc., to discuss and agree upon priorities. Ranking is based on locally accepted criteria, as well as such externally identified categories as environmental sustainability, stability, equity, and productivity or cost, time to benefit, and social and technical feasibility. The ranking process can be carried out by a variety of methods described earlier. Based on the rankings, the community recommends specific actions to accomplish the activity.

Technical advice may be sought on material inputs and estimated costs from the appropriate technical officer of the area. Villagers identify local resources and labour that can be mobilized within the community. A great deal of dialogue and consultations are, thus, made during this session. For each activity identified, duties are assigned to specific individuals or institutions. A schedule is usually prepared, linking duties and roles to a time frame that helps the villagers and others evaluate their performance to date. If any training is required for the capacity building of the villagers, it can also be specified in detail. If outside resources are needed, it can be clearly indicated which external institutions will provide them, whose responsibility it will be to ensure that these resources are secured and when they will be needed. The likely source or ways for obtaining support, including fund raising activities within the village, proposals to donor or NGO groups, religious institutions, etc. can be listed. When the donors or NGO groups are involved in this process, they may immediately accept certain responsibilities in implementation of the micro plan. When the initial micro planning activities have been completed, it will be up to the community to develop or ask for help to develop follow-ups for continuation of the progress.

## ***Appendix-2***

### **CONSERVATION DEVELOPMENT LINKAGES**

Ecodevelopment is basically aimed at improved conservation of natural resources in a PA. To achieve this objective, the planning officer must use a number of selective rural development activities. All rural development activities may not have strong linkages for PA conservation. Therefore, the planning officer should pick up only those activities which have direct and strong linkages for PA conservation. For example, the provision of alternate energy sources for the local communities will have direct and strong linkages for PA conservation in the sense that this will reduce dependency of local people upon the PA forest with respect to fuelwood requirement. Similarly, cattle breed improvement program alongwith stall feeding will reduce dependence of the local people upon the PA resources and hence will be beneficial for PA conservation. On the other hand, providing goats and sheep to villagers may lead to increased grazing in the PA and thereby will be counter productive to the PA conservation. This activity, therefore, has no linkage with PA conservation. Ecotourism by local communities will also ensure incomes to them and hence, local stakes in the PA conservation. Thus, this can also be an activity with direct and strong conservation and development (C-D) linkages.

In case of many arbitrarily chosen activities, the C-D linkages may not be very strong. This can be because of two reasons. Either the necessity of such an activity may not have been properly analyzed or its likely negative impact may not have been foreseen. Therefore, for such activities the linkages between conservation and development will have to be strengthened by providing additional activities. For example,

a manager may pick up the activity of intensive agriculture for the farmers staying on the fringe of the PA. This activity may have lot of 'ifs and thens' or assumptions in its ability to deliver the desired impact of PA conservation. Firstly, the farmers may not be aware and ready to go for such intensive agricultural practices. The improved system of agriculture by use of chemical manures and other insecticides may create environmental ill impact on the PA. In this situation, the manager can think of taking up additional activities like awareness program for the farmers and encouraging the farmers for the use of organic manure. This would help in strengthening the linkages of this activity for conservation. Therefore, the identified activities should be analyzed for C-D linkages thoroughly and then only included in the plan. Such an analysis should be carried out jointly by the concerned frontline staff of the area and the local people. An example of few such analysis is given in in Box 8.

**Box 8**

**Analysis of activities for conservation - development linkages**

Developmental activity	Preconditions /Assumptions	Supporting activity
Controlled harvest of <i>Bhabar</i> grass and its marketing.	<ul style="list-style-type: none"> <li>i. It will not adversely affect the habitat.</li> <li>ii. Enough quality grass is available.</li> <li>iii. People need ropes for their livelihood.</li> <li>iv. Department has necessary infrastructure to control the movement of people in the PA during harvest season.</li> <li>v. People are aware of the necessity of control on harvest.</li> <li>vi. There is no mechanism for ensuring proper prices to local people.</li> <li>vii. There is market for the ropes.</li> <li>viii. The profits will raise the economy of the local people, particularly women and others dependent on <i>Bhabar</i> grass.</li> </ul>	<ul style="list-style-type: none"> <li>i. Should have scientific research base and regular monitoring.</li> <li>ii. Survey the area.</li> <li>iii. PRA in the area.</li> <li>iv. Capacity building of staff and additional infrastructure for mobility of staff.</li> <li>v. Awareness campaigns.</li> <li>vi. Cooperative marketing system in place.</li> <li>vii. Market survey.</li> <li>viii. Necessary government orders for not allowing the transport of <i>Bhabar</i> grass outside local area and village institutions in place to ensure profits to the local people particularly those dependent on <i>Bhabar</i> and women.</li> </ul>
Establishment of drinking water facilities for villagers around the PA	<ul style="list-style-type: none"> <li>i. There is shortage of clean drinking water supply.</li> <li>ii. Villagers are going inside the PA for fetching water.</li> <li>iii. The water facilities created under the project will be maintained by the community.</li> </ul>	<ul style="list-style-type: none"> <li>i. Survey of the village and the area and interaction with villagers.</li> <li>ii. Agreements with the villagers for maintenance or linkages with water supply department.</li> <li>iii. Dialogue with community</li> </ul>

Source: Report of training workshop for Diploma Course Officers held in Wildlife Institute of India, Dehradun, 1999.

### ***Appendix-3***

#### **FEASIBILITY ANALYSIS OF LIVELIHOOD STRATEGIES**

The provision of alternate livelihood strategies under ecodevelopment program is a very critical component. Hence such activities will have to be selected with utmost care. The village atmosphere is complex, diverse and risk prone (CDR). Therefore, it is not necessary that all the activities will sustain for a long in such an atmosphere. The planning officer will have to analyze the proposed activities in a participatory manner with the village community against a number of feasibility criteria. This includes social, economic, technical, political, administrative or operational as well as environmental feasibility criteria. Only those activities should be included in the final micro plan which are possible and found suitable against the above mentioned feasibility criteria. For example, in village Brijpura of Panna Tiger Reserve the villagers proposed that the women folk should be provided with sewing machines. This activity though found to have social, administrative as well as environmental feasibility, was dropped because of inadequate operational feasibility of marketing. Feasibility analysis should be done with the local communities to make it a participatory process, so as to enhance the acceptability of the final set of activities. It is seen that the alternative successful in some villages, may not be successful in other villages nearby. This reinforces the importance of careful site specific and participatory planning while developing livelihood alternatives. An example of feasibility analysis of some livelihood strategies has been given in Box 9.

**Box 9**

**Feasibility analysis of some ecodevelopment activities**

Alternate livelihood	Causes of Success					
	Social	Traditional/Religious	Economic	Technical	Political	Conservation impact
Developing and propagating use of fuel wood saving devices	Improvement in lifestyle and time saving	Not against the traditional and religious values	50% cost was borne by the project.	Simple devices available locally	Politicians are supportive of the scheme	Positive impact on conservation 1. Decrease in the quantity of fuel wood consumed. 2. Positive attitude of the people towards the forest department.
Distribution of handlooms to the local people	Improvement in lifestyle	Already a part of the traditional lifestyle of the local people	Increase in income	Traditional knowledge already existing with the people.	-do-	Decrease in dependency on the forest.
Distribution of sewing machine to the women	-	-	People were interested an	Women know how to use it	-	Support conservation

*Source : Report of the workshop held at Largee for the PA staff and members of the village EDCs of Great Himalayan National Park, June 21-25, 1998.*

## **Appendix-4**

### **STAKEHOLDER IDENTIFICATION, MAPPING AND ANALYSIS**

In a participatory program like ecodevelopment, it is important to identify different stakeholders of the PA. Infact, it will have to be done time and again at the PA level as well as village level. Box 10 and 11 give detailed description regarding stakeholders and their types. Stakeholders will have to be short listed after their identification and analyzed with respect to their power and impacts. For example, the village communities and the field staff may have very high impact on the PA conservation but their power may be very less. On the other hand, judiciary may have very high power but their impact on the PA may be very low. For developing collaborations between different stakeholders of ecodevelopment program, this imbalance of power will have to be moderated. Therefore, it is necessary to empower the field staff as well as the local communities. This empowerment can be done by a variety of ways. Providing training to the local people and the staff is one way of their empowerment. Sharing legal powers, their awareness, creation of common funds, etc. can be other ways of legal, intellectual and economic empowerment.

Some stakeholders may have power but their impact on the PA may not be strong. Here comes the role of awareness. For example, awareness programs for groups like media and judiciary can enhance the positive impact of these stakeholders in PA conservation.

Different stakeholders have different strengths and it is important to use these strengths and minimize the weaknesses to encash upon all possible opportunities and ward off all possible threats. This can be done by using the tool of SWOT analysis, an example of which is given in Box 12 and 13.

**Box 10**

**Stakeholders**

**Who are stakeholders?**

*Stakeholders* are persons, groups, or organizations that are involved, interested, impacted (or they are impacted) by what you do.

*Stakeholders (like everyone else)* are motivated to take action on the basis of their values.

Therefore it is important to know your stakeholders and their values.

*Primary Stakeholders:* People like community members and project staff who are directly affected by the project.

*Secondary Stakeholders:* People like donor agencies and government officials who are interested in the overall outcomes of the project but are not so concerned with the details.

**Box 11**

**Criteria for prioritization of stakeholders**

- Existing rights for the usage of natural resources/land.
- History of use.
- Historical and cultural relations with resource.
- Degree of economic and social dependence on such resources.
- Unique knowledge and skills for the management.
- Degree of efforts and interest in management.
- Compatibility of the interests and activities of stakeholders with national conservation and development policies.
- Present or potential impacts of the activities of the stakeholders on resource base.

*Source : Borrini-Feyerabend, G.,1996.*

**Box 12**

**SWOT**

- Strength:** Any internal asset (Knowledge, skills, motivation, etc.) which will help to capitalize on opportunities or fight off threats.
- Weakness:** Any internal condition which hinders the organization/project from reaching its desired aims.
- Opportunity:** Any external circumstances which will help the organization/project to reach its goals and to succeed.
- Threats:** External challenges which unless acted upon, could cause the disintegration of the organization/project, or otherwise keep it away from meeting its aims and fulfilling its purpose.

**Box 13**

**SWOT Analysis of Yala National Park, Sri Lanka (for frontline staff)**

Strengths	Weaknesses	Opportunities	Threats
1. Wildlife Act 2. Strength of organized staff 3. Vehicles 4. Information 5. Funds 6. Staff experience	1. Lack of money 2. Inadequate staff 3. Poor knowledge 4. Poor connections with other departments 5. Low power of park staff 6. Poor education level 7. Administrative problems	1. External Aid 2. Training of staff 3. Research 4. Training of other stakeholders 5. Awareness of local people 6. Collaboration with other agencies	1. Poaching 2. Illicit felling 3. Gem mining 4. Fishing 5. Political interference

*Source : Report on training workshop for Diploma Course Officers held at Wildlife Institute of India, Dehradun, March 15 - April 9, 1999.*

## ***Appendix-5***

### **CONFLICT MAPPING**

Conflict is an integral part of the process of ecocodevelopment. It is not bad in itself but one must know how to manage the conflict. The planning team will have to use different conflict resolution strategies (Box 14) throughout the program. These strategies have their own advantages and disadvantages and selection of a strategy will depend upon the local situation.

#### **Box 14**

#### **Approaches to conflict management**

##### **Negotiation:**

Where the parties discuss their differences and attempt to reach a joint decision with or without the help of a facilitator. It is a voluntary process in which the parties meet to reach a mutually acceptable solution. If a facilitator is involved, it is only for guiding the process in a non-partisan manner.

##### **Mediation:**

Involves the assistance of a neutral third party in directing the process of clarifying positions, identifying interests and developing agreed solutions. This is also a voluntary process and a mediator has no power to render a decision.

##### **Arbitration:**

When each side is required to present its case to an independent person who has legal authority to impose a solution.

Three approaches of conflict resolution, as mentioned above, can be seen in the form of a continuum. As we move from negotiation to mediation, the power of the conflicting parties for conflict resolution decreases. In arbitration this power, in fact, goes out completely from the hands of parties under

conflict. Therefore, it is always advisable that the conflicting parties should try to resolve the conflicts by way of negotiations wherever possible. They should not allow the conflict to become so serious that they have to use the other approaches. But, in the real life situation, many times we may have to depend upon the strategy of mediation or even arbitration to resolve the conflicts and this will depend upon a specific situation.

At a particular time the conflicts between different stakeholders can also be mapped. Infact, the mapping of the conflicts can be very important tool while dealing with the community because of its visual and deep impact (Figure II). Conflict mapping can be used for a variety of purposes as given ahead:

1. It can tell us about the intensity of conflicts between major stakeholders.
2. It can guide the planning team about possible collaborations between stakeholders who have less conflicts.
3. It can help in devising the strategies to reduce the negative impact of some of the stakeholders on the PA.
4. This can act as an important tool for monitoring. If the conflicts are increasing it can suggest that the project is not going in the right direction.

**Figure II**  
**Conflict mapping for Periyar Tiger Reserve**

<i>Stakeholders</i>	Local tribals	Local villagers	Park management	Tourism corporation	Hindustan Newsprint Ltd.	Temple board
Local tribals						
Local villagers	⊕					
Park management	⊕	⊗				
Tourism corporation	⊗	⊕	⊗			
Hindustan Newsprint Ltd.	⊗	⊗	⊗	⊗		
Temple board	⊗	⊗	⊗	⊗	⊕	

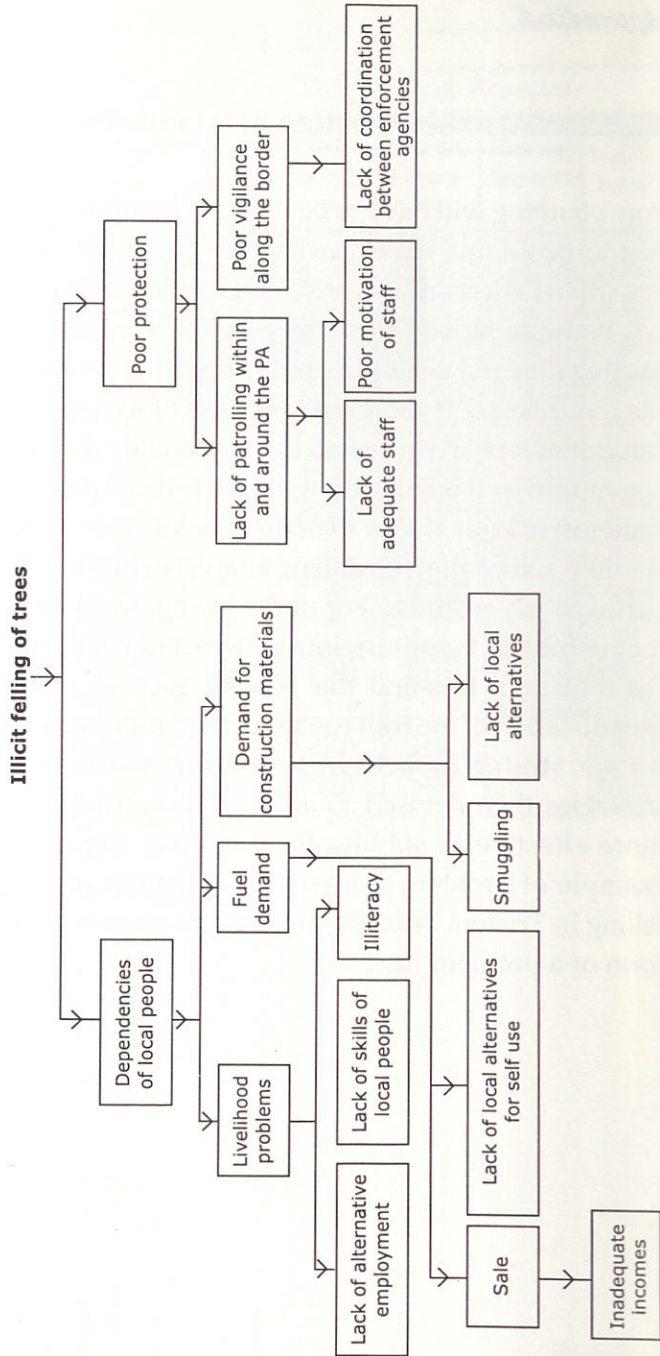
- 
Very intense conflict
- 
Intense conflict
- 
Medium conflict
- 
Low conflict

## ***Appendix-6***

### **PROBLEM ANALYSIS**

Any planning will have to be based on proper understanding of the problems involved. Many times we see only the superficial effects of the problems while the root causes may not be understood. For example, the common problem of grazing may not get addressed properly if we do not address the root causes. It can either because of excessive number of cattle or of lack of awareness or inadequate income of the rural communities. It is important to find out solutions for the root causes of grazing rather than only looking at the symptoms. To do this, a thorough problem analysis should be done in a participatory manner. For undertaking problem analysis the main problem is split up into causes and root causes just like the roots of a tree and this can be seen as a problem tree. Identification of the root causes of the problem helps to decide proper strategies/activities to address these causes. The strategies then devised to address these root causes will be more effective in solving the problem. Figure III gives an example of problem analysis in which the problem of illicit felling in Trishna Wildlife Sanctuary has been analyzed in the form of a problem tree.

**Figure III**  
**Problem tree - root cause analysis**  
**Illicit felling in Trishna Wildlife Sanctuary**



**Appendix-7**

**OBJECTIVE SETTING**

The most important part of a micro plan is the objective setting. Often the objectives are confused with goals. Therefore, one must understand the difference between goals and objectives. Goals are broad objectives and these may be sometimes hazy. But the objectives are very clear. Infact, the objectives have to be specific, measurable, achievable, realistic and time bound (Box 15). One must understand that the objectives can have

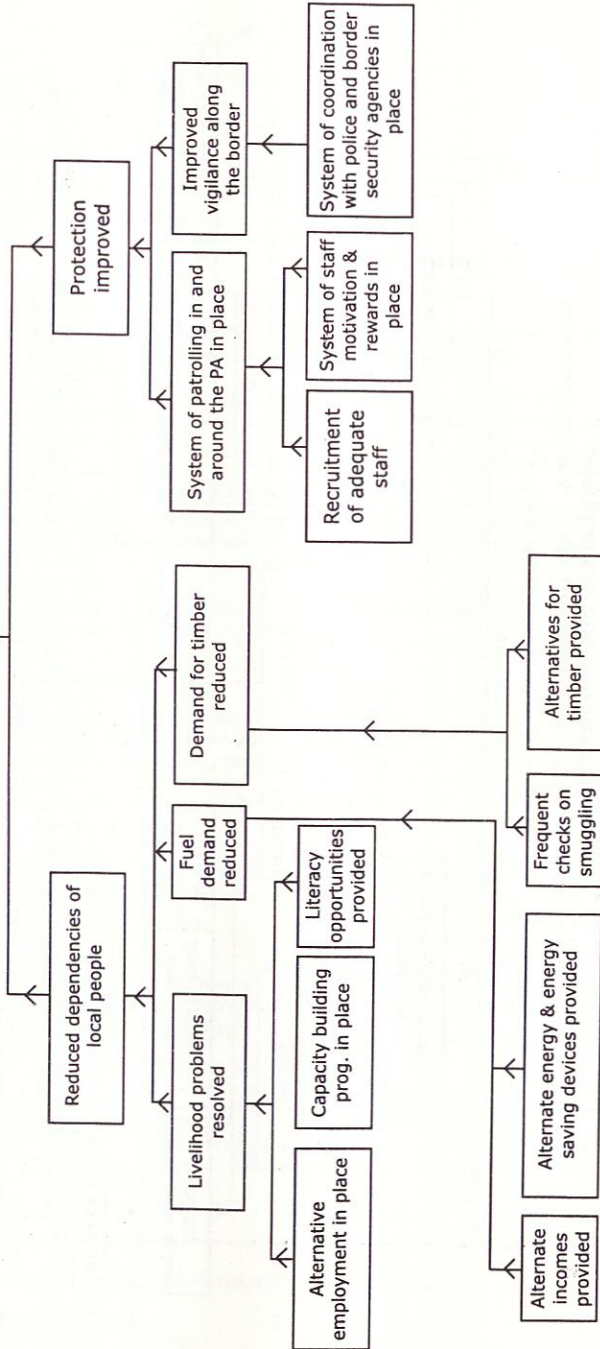
<b>Box 15</b>		
<b>What are SMART objectives?</b>		
S = Specific	M = Measurable	A = Achievable
R = Realistic	T = Time bound	

<b>Box 16</b>
<b>Hierarchy of objectives or intervention logic</b>
<b>GOALS</b> <ul style="list-style-type: none"><li>❖ Long term objective towards which the project will contribute</li><li>❖ Rationale/need for the project</li><li>❖ Also called overall objective or wider objective</li></ul>
<b>PURPOSE</b> <ul style="list-style-type: none"><li>❖ Effects or changes the project will bring about</li><li>❖ Also called immediate or project objectives</li></ul>
<b>OUTPUTS</b> <ul style="list-style-type: none"><li>❖ What the project will deliver</li><li>❖ Completed tasks as a result of activities being implemented</li><li>❖ Also called results</li></ul>
<b>ACTIVITIES</b> <ul style="list-style-type: none"><li>❖ What the project will actually carry out in order to achieve outputs</li></ul>

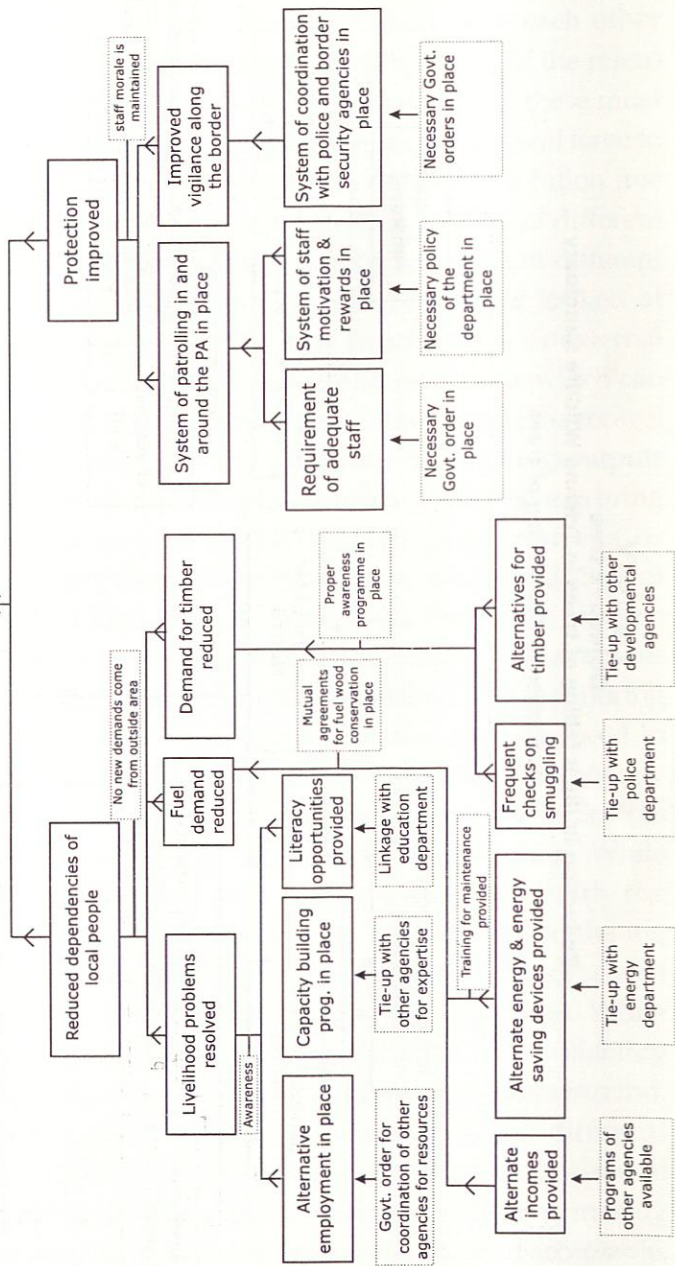
Source: Worah et al., 1998.

a hierarchy. Goals, objectives, outputs and activities of the plan are all objectives (Box 16). They are linked with each other vertically but are at different levels. The objectives of the micro plan have to be based upon the problem and hence these must flow from the problem analysis. The planning team will have to give solutions for every root cause and develop a solution tree as given in Figure IV. This can be done by looking at different steps of the problem tree and developing solutions at different levels. This solution tree will have to be further looked at minutely to find out if there are any assumptions or external conditions (externalities) involved at different levels which can influence the project. These conditions will be outside the control of the project authorities but they can influence the project outputs very seriously. Therefore, the planning team may have to bring in additional activities to address the assumptions or externalities, seeing their seriousness. Thus, the second stage of the solution tree ( Figure V) can be evolved. From this solution tree one can arrive at the goal, objectives, outputs and activities in the form of a logical framework or log frame. The monitoring indicators and means of verification can also be introduced in this log frame (Figure VI). Monitoring is very crucial part of any project planning and therefore, simple monitoring indicators relevant to different stakeholders should be picked up. While deciding the indicators, one must ensure that both the quantitative and qualitative indicators are included in the log frame. Many times one will have to depend upon direct as well as indirect indicators depending upon the objectives. While deciding the indicators the practical problems like availability of time, manpower, resources, etc. should always be kept in mind. Through log frame it will be possible to show different components of the micro plan at a glance along with horizontal and vertical linkages to the village communities, thereby, making the process of micro planning more transparent and acceptable.

**Figure IV**  
**Objective tree**  
**Reduction in illicit felling of trees in Trishna Wildlife Sanctuary**



**Figure V**  
**Objective tree with assumptions**  
**Reduction in illicit felling of trees in Trishna Wildlife Sanctuary**



**Figure VI**  
**Logical frame work**

		<b>OVI</b>	<b>MOV</b>	<b>Assumptions</b>
<b>Goal</b>	To reduce the illicit fellings in PA	No. of Offence cases Regeneration status	Offence register  Regeneration survey	
<b>Objectives</b>	1. To reduce the wood dependency of local people 2. To improve the protection network of the PA	No. of head loads of firewood coming from PA  Time spent by women in the forest  Offence cases	Survey of area  Interviews with women  Offence register	Institutions for patrolling are in place  No new demands for resources come from outside
<b>Outputs</b>	1.1 Alternative employments in place 1.2 Capacity building program for local communities in place 1.3 Alternate sources of energy and energy saving devices in place 2.1 System of patrolling in and around the PA in place. 2.2 System of coordination with other patrolling agencies in place	Income from alternate employment  Number of persons trained  Number of households using these devices  Number of cases recorded  Number of coordination meetings	Village survey  Office records  Village survey  Offence register  Office records	Mutual agreements between PA management and communities are in place  There is a proper awareness program  There is proper training of communities  Staff morale is maintained
<b>Activities</b>	Inputs for activities	Physical achievements	Office records	There is necessary mechanism of coordination and tie-up with other agencies

*OVI* : Objectively Verifiable Indicators

*MOV* : Means of Verification