



Conceptual Framework for
Eco-Development
including
Community Based Eco-Tourism
& Its Application in Satkosia Gorge Sanctuary



Orissa Forestry Sector Development Project
Forest & Environment Department
Government of Orissa

November 2009

**Conceptual Framework for Eco-Development
Including Community Based Eco-Tourism
& its application in Satkosia Gorge Sanctuary**



Orissa Forestry Sector Development Project
(Assisted by Japan International Cooperation Agency)

Forest & Environment Department
Government of Orissa
SFTRI Campus, Ghatikia, Bhubaneswar-751003, Orissa, India

November, 2009

Published by



Orissa Forestry Sector Development Society

SFTRI Campus, At-PO, Ghatikia,

Bhubaneswar - 751 003, Orissa, India

Ph.: 0674-2384016, Fax: 0674-2384085

© **Orissa Forestry Sector Development Project**

Prepared by

H.S. Pawar,

Michael JB Green,

and

Manoj Kumar Mishra

General Consultants

OFSDP

Edited by

Arun K. Bansal, IFS

PCCF & Project Director, OFSDP

Madhav G. Gogate, IFS (Retd.)

Team Leader, General Consultant to OFSDP

Printed at

Jyoti Graphics, 0674-2544209

November 2009, 100 Copies



Naveen Patnaik
Chief Minister, Orissa



सत्यमेव जयते

ORISSA STATE

Telephone : (0674) 2531100 (Off.)
(0674) 2591099 (Res.)
Fax : (0674) 2535100 (Off.)
(0674) 2590833 (Res.)

E-mail : cmo@ori.nic.in
D.O. No. 1339
Bhubaneswar

Dated : 27.10.09

Message

I am glad to know that the Orissa Forestry Sector Development Project has prepared Guidelines for Eco-Development, including Community Based Eco-Tourism.

The guidelines have been prepared in consultation with the Eco-Development Committees constituted in Satkosia Gorge Sanctuary, and it is expected that they would be useful in implementing Eco-Development activities in protected areas with active participation of the people living in around such areas.

I hope these guidelines will pave the way for sustainable eco-tourism.

(Naveen Patnaik)



U.N. Behera, IAS



Principal Secretary
Forest & Environment Deptt.
Govt. of Orissa

November 10, 2009

Message

I am delighted to note that “Orissa Forestry Sector Development Project” is publishing a “Conceptual Framework for Eco-Development including community based Eco-tourism and its application in Satkosia Gorge Sanctuary”. This is the result of several rounds of consultations with the villagers by the experts and forest Officials of Satkosia (WL) Division. Adoption of these guidelines by the concerned Eco-development Committees will start a new era in protection and development of protected areas.

These guidelines are unique in nature and the first attempt in Orissa for Conservation of Biodiversity in protected areas with community participation. I hope it will go a long way and will be adopted in other protected areas.

A handwritten signature in black ink, appearing to be 'U.N. Behera'.

(U.N. Behera)

Foreword

One of the basic characteristic of development is that, it should be sustainable. The word 'sustainable development' first appeared as a key word in the report titled 'Our Common Future' (the Brundt Land Report, 1987). It connotes the idea of development that meets the needs of the present without comprising the ability of the future generations to meet their own needs. The word development may therefore be defined as a process by which the natural resources are judiciously put to use so as to improve the quality of life as well as the living standards by rational use of resources in general and the natural resources in particular.

Development and Environment are both sides of a coin. They should march hand in hand, if one wishes to achieve progress and development without jeopardizing the surrounding environs. The answer lies in coinage of the word 'Eco-development', which speaks about an integrated, sustainable approach to environment and development.

Eco-development in protected areas is one of the subcomponent of Bio-diversity conservation component outlined in Orissa Forest Sector Development Project (OFSDP). Similar to the idea of creating Vana Samrakhsyan Samities (VSS) in forest fringe villages, as one of the instrument where people's participation and active co-operation is sought in protecting the forest resources, creation Eco-development Committees (EDC) are mooted inside Protected Areas in Joint Forest Management Resolution, 2008. These committees are expected to take up activities under eco-development that would include eco-tourism and will provide specific alternatives to local biomass dependencies in protected areas.

The present book which throws light on 'Eco-development' subcomponent is in two parts.

Part-I deals with nuances of eco-development, such as guidelines for preparation of Micro Plans, identification of eco-tourism sites, establishment of eco-lodges and proposed mitigation measures to deal with man-animal conflict.

Part-II deals with exclusively on how to pilot the eco-development approach in Satkosia Gorge Sanctuary, situated in one of the Project districts, i.e Angul.

Satkosia Gorge Sanctuary located within OFSDP area is chosen on pilot basis for implementing the Bio-diversity component of the project. Four sites /cluster of sites, i.e., Tikarpada, Purunakote - Chhotkei - Hatigiriya, Labangi and Balliput - Badmal have been identified as potential eco-tourism sites that could be developed so as to provide income generating activity and livelihood support to local people. The socio-economic survey profile of the identified villages will serve as an operating field manual for the forest staff working in the area. The guidelines incorporated in the book will be quite helpful while implementing the Bio-diversity component of the Project in right perspective.

September 30, 2009

Bijay Ketan Patnaik, IFS
PCCF (Wildlife) & CWLW, Orissa

Preface

Orissa Forestry Sector Development Project, being implemented in Orissa with assistance from Japan International Cooperation Agency, has twin objectives namely to restore degraded forests following JFM approach and Community/Tribal Development for improving livelihoods of participating communities (VSS/EDC) with larger goals of improving environment & alleviating poverty. “Biodiversity Management” is an important component of the Project. Rapidly dwindling biodiversity & day to day man-animal conflicts, particularly in and around the Protected Areas (national parks and Sanctuaries) necessitate well thought out management strategies for the Protected Areas with active and real participation of the communities during planning and execution.

The “Conceptual Framework for Eco-development, including Community-based Ecotourism & its application in Satkosia Gorge Sanctuary” has been prepared by Mr H. S. Panwar, Mr. Michael J. B. Green & Mr Manoj Kumar Mishra working with General Consultants of the Project. The Framework is the result of extended input from the officers of the Project Management Unit of the Project, officers of the State Wild Life Organisation, field officers of Satkosia WL Division, and the potential participating communities in Satkosia WL Division. The involvement of the potential participating communities in the evolution of the framework which makes this unique deserves special mention.

I am sure this document will provide a solid foundation & have synergistic effect in eco-development & eco-tourism in protected areas, thereby enriching biodiversity & the livelihoods of those closest to it. Readers’ input for further improvement of the Framework for Eco-development will be highly appreciated.



Arun Kumar Bansal, IFS
Principal Chief Conservator of Forests
& Project Director

ACKNOWLEDGEMENTS

This document is the product of an ongoing participatory process involving a wide range of stakeholders and supported by many experts, whose interests, commitments and contributions are very much appreciated. Hopefully, it will provide a foundation and catalyst for some successful outcomes in eco-development in and around some of Orissa's protected areas, thereby enriching biodiversity and the livelihoods of those closest to it.

In particular, we wish to thank the people of Chhutkei and other nearby villages (Badakheta, Gopalpur, Purnakote and Salor) in the Purnakote cluster of Satkosia Gorge Sanctuary for their patience, interest and willingness to share freely their time, knowledge and aspirations, enabling us to successfully pilot micro-planning in their villages. This work was facilitated by a very enthusiastic and dedicated team of facilitators (listed below), ably mentored and technically assisted by Omprakash Routray (Field Level Expert, General Consultants). Active support in the field was provided by S.K. Poplei (CF Angul), Raghu Prasad (DFO Satkosia Wildlife Division), H.B. Udgata (ACF Satkosia Wildlife Division) and S.P. Behera (Range Officer, Purnakote Wildlife Range), all of whom were generous with their time and inputs to the process as it unfolded.

A significant amount of the ground work was undertaken by H.S. Panwar, Biodiversity Specialist during the early phase of this Biodiversity Conservation Component of OFSDP. The work has also benefited greatly from the guidance of A.K. Bansal (Project Director, OFSDP) and M.G. Gogate (Team Leader, General Consultants). B.K. Patnaik (PCCF Wildlife), S.S. Srivastava (CCF Wildlife), S.K. Popli and Raghu Prasad provided helpful feedback on various drafts of the document.

Thanks are also due to our colleagues at the Office of the General Consultants, Aniva Chand for logistic arrangements, Sangram Parida for his formatting skills, and drivers SK Siddique and Prabas Panda for their cheerful conduct and willing assistance.

Michael Green and Manoj Misra
Bio-diversity Experts
General Consultant
Orissa Forestry Sector Development Project

Facilitation Team – Satkosia Wildlife Division

Mr S.P. Behera	Range Officer, Purnakote Wildlife Range
Mr Jogindranath Beja	Senior Forest Extension Officer, Purnakote Wildlife Range
Mr Pranabandhu Jena	Senior Forest Extension Officer, Jilinda Wildlife Range
Mr Purnachandra Pattnaik	Senior Forest Extension Officer, Purnakote Wildlife Range
Mr Kedar Kumar Sahoo	Forester, Purnakote Wildlife Range
Mr Ghanashyam Nayak	Forester, Purnakote Wildlife Range
Mr Basant Kumar Pradhan	Forester, Purnakote Wildlife Range
Mr Kritan Pradhan	Forester, Tikarapada Wildlife Range
Mr Chatyan Jena	Forester, Tikarapada Wildlife Range
Ms Anupama Sahoo	Forester, Tikarapada Wildlife Range
Ms Anita Sahoo	Forester, Tikarapada Wildlife Range

ABBREVIATIONS

CIG	Common Interest Group
DFO	Divisional Forest Officer
DMU	Divisional Management Unit
EDC	Eco Development Committee
EC	Executive Committee
EPA	Entry Point Activity
FD	Forest Department
FMU	Field Management Unit
GB	General Body
GC	General Consultants (to OFSDP)
GP	Gram Panchayat
HH	House Hold
IGA	Income Generating Activity
INR	Indian Rupees
IUCN	International Union for Conservation of Nature
JFM	Joint Forest Management
JPY	Japanese Yen
KW	Kilo Watt
KF	Khesra Forest
NGO	Non Governmental Organization
NTFP	Non Timber Forest Produce
OBC	Other Backward Caste
OFD	Orissa Forest Department
OFSDP	Orissa Forestry Sector Development Project
OFSDS	Orissa Forestry Sector Development Society
PF	Protected Forest
PHC	Primary Health Centre
PRA	Participatory Rural Appraisal
RF	Reserve Forest
RO	Range Officer
SAPROF	Special Assistance for Project Formulation
SC	Scheduled Caste
SHG	Self Help Group
ST	Scheduled Tribe
VF	Village Forest
VFW	Village Forest Worker
VSS	Vana Samrakshyana Samiti

CONTENTS

ACKNOWLEDGEMENTS	i
PART 1: ECO-DEVELOPMENT	
1. INTRODUCTION	
1.1 Orissa Forestry Sector Development Project	1
1.2 Biodiversity conservation component	1
1.3 Forest Research component	2
1.4 Strategic approach	2
1.5 Purpose of guidelines	4
2. CONCEPTUALISING ECO-DEVELOPMENT	
2.1 Defining eco-development	5
2.2 Eco-development and ecotourism	5
2.3 Micro-planning for purposes of eco-development	6
3. GUIDANCE ON MICRO-PLANNING	
3.1 Develop a common vision among protected area staff	9
3.2 Identify a conceptual model for eco-development	10
3.3 Build a facilitation team	10
3.4 Develop village micro-plans	11
3.5 Define resources for micro-plan activities	14
3.6 Establish mechanisms for sustainability and sharing of benefits	20
3.7 Coordinate implementation of village micro-plans at cluster level	21
4. ECOTOURISM	
4.1 Definitions and components of ecotourism	25
4.2 Principles of ecotourism	26
4.3 Community-based ecotourism	27
4.4 Ecotourism destinations and lodges	27
4.5 Ecotourism markets and consumer demands	29
4.6 Ecotourism web sites	31
5. ECOTOURISM OPPORTUNITIES IN ORISSA'S FOREST SECTOR	
5.1 Status of ecotourism in Orissa	33
5.2 Ecotourism and the role of the forest sector	33
5.3 Ecotourism policy and strategy	34
5.4 Demonstrating good practice	34
5.5 Community-based ecotourism and the sharing of benefits	35
5.6 Ecotourism web site	37
PART 2: PILOTING ECO-DEVELOPMENT IN SATKOSIA	
6. FRAMEWORK FOR ECO-DEVELOPMENT IN SATKOSIA	
6.1 Satkosia Gorge Sanctuary	39
6.2 Satkosia Tiger Reserve	40

6.3	Conceptual model for eco-development in Satkosia	42
6.4	Applying eco-development in Satkosia	42
7.	CHHOTKEI VILLAGE MICRO-PLAN	
7.1	Physical profile of village (Proforma I)	45
7.2	Forests in and around the village (Proforma II)	50
7.3	Socio-economic profile of village (Proforma III)	51
7.4	Eco-development plan (Proforma IV)	53
7.5	Project activities, budget and annual planning (Proforma V)	57
7.6	Annual monitoring of micro-plan implementation (Proforma VI)	60
8.	ECOTOURISM IN SATKOSIA	
8.1	Current status of tourism and facilities	79
8.2	Review of existing ecotourism ventures at Tikarapada and Purnakote	80
8.3	Analysis of tourism	84
8.4	Towards an ecotourism strategy	84
8.5	Action plan for implementing community-based ecotourism	86
	REFERENCES	92
	Annex 1	
	Key facts relating to sanctuaries visited in the Project area	99
	Annex 2	
	Satkosia Gorge Sanctuary: a participatory visioning exercise	100
	Annex 3	
	Micro-planning proforma	102
	Annex 4	
	How to improve the effectiveness of tourism destination websites	124
	Annex 5	
	Satkosia Gorge Sanctuary: details of village clusters for eco-development	129
	Annex 6	
	Tourism and ecotourism facilities in pilot area for eco-development	131

1. INTRODUCTION

1.1 Orissa Forestry Sector Development Project

Biodiversity conservation is one of 14 components within the Orissa Forestry Sector Development Project (OFSDP), operational during the period 2006/07-2012/13. The total budget for the Project is JPY 16,429 million (INR 6,589 million), of which 1.9% (JPY 315 million; INR 126.5 million) is allocated to the Biodiversity Conservation component. There is also a Forest Research component that includes a sub-component for biodiversity and wildlife studies/surveys. This component has no specific budget allocation but it is referred to in the Project Formation document (SAPROF, 2005) as comprising 0.5% of the total budget.

The Project covers 11 territorial forest divisions and three wildlife divisions (including two coastal divisions), mostly contiguous with each other and encompassing much of the Eastern Ghats to the south-west of the Mahanadi River and the Garjhat Hills to the north.

The **goals** or **objectives** of OFSDP are:

- To restore degraded forest and
 - To improve income levels of villagers
- by promoting sustainable forest management.

Full details about OFSDP can be found in the Project Memorandum (OFSDP, 2006).

1.2 Biodiversity conservation component

The Biodiversity Conservation Component, as described in the Project Memorandum, comprises of four sub-components and a series of measures related to each (Table 1.1).

Table 1.1 Biodiversity Conservation sub-components and measures

Sub-component	Measures
1. Eco-tourism development	1.1 Destination development 1.2 Training of locals from community 1.3 Building links to markets
2. Mitigation of human-wildlife conflict	2.1 Habitat management 2.2 Fire protection in protected areas and fringe forests 2.3 Corridors for elephant movements 2.4 Physical barriers for corridors 2.5 Anti-depredation squads
3. Eco-development in periphery of PAs	3.1 Capacity Building of the VSS 3.2 Community/Tribal Development through creation of SHGs, sericulture, bee keeping, poultry, small business enterprises and building links to market.
4. Establishment of community reserves and heritage sites	4.1 Develop site selection criteria 4.2 Identify and demarcate areas 4.3 Declare sites 4.4 Develop management plan and manual 4.5 Manage sites

There are four sanctuaries within the Project area: Kotagarh, Kuldiha, Lakhari Valley, Satkosia Gorge. Satkosia Gorge and Baisipalli sanctuaries (Mahanadi Wild Life Division) comprise the core area and critical tiger habitat of Satkosia Tiger Reserve, notified on 31 December 2007. Some key facts about four of these are summarised in Annex 1 (page 102).

1.3 Forest research component

There is also a Forest Research Component that includes one sub-component which relates to the Biodiversity Conservation Component, details of which are given in Table 1.2.

Table 1.2 Forest research measures for the biodiversity/wildlife study sub-component

Sub-component	Measures
1. Biodiversity and wildlife study	a) Elephant movement and habitat requirements b) Assessment of biodiversity at local level c) Feasibility of potential ecotourism sites d) Ecosystem assessment at pre-/post Project e) Pilot study to assess impact of PA declaration on nature and level of livelihood

1.4 Strategic approach

The approach developed for implementing the Biodiversity Component has been informed by an initial assessment of key threats to biodiversity and related issues in four sanctuaries within the Project area. The assessment was undertaken independently by two means using a three-star scale:

- i. Biodiversity Specialists (consultants), based on their field visits; and
- ii. Forest Officers responsible for managing these sanctuaries during a workshop held on 3 May 2008 and facilitated by one of the consultants.

The results of this assessment, in which there is broad agreement between the Biodiversity Specialists and Forest Officers, show that all four sanctuaries are impacted in major ways over extensive areas by a number of key threats, as identified in Table 3. Further details, including the proceedings of the workshop, can be found in Green and Panwar (2008).

The overriding inferences from this initial assessment are as follows:

- The core of Orissa's biodiversity, as represented in its protected areas, is under huge threat from a plethora of largely inter-related pressures that will continue to increase because current levels of resource use and disturbance are unsustainable.
- These threats are not adequately addressed in current management plans for sanctuaries located in the Project area.
- This situation continues to be exacerbated by the absence of settlement of rights within sanctuaries since the sanctuaries have not yet been finally notified, despite their establishment as far back as the 1970s and 1980s.

Given the large scale impacts of these threats on biodiversity within the existing sanctuaries, and elsewhere within the Project area, there is a need for the Biodiversity Component to be focused on eco-development (including eco-tourism) within the four sanctuaries. This focus should be directed towards enabling local communities to improve their livelihoods, reduce their dependencies on forest resources and, thereby, provide a means of integrating biodiversity conservation requirements with the livelihood needs of communities within these sanctuaries and surrounding buffer areas. It has also been advocated that this strategy will pave a way for settlement of rights through its participatory, consensus building approach.

Table 1.3 Key threats to biodiversity, as identified by Forest Officers at the workshop and previously by consultants (biodiversity specialists) during their brief field visits

KEY THREATS TO BIODIVERSITY	Kotagarh	Kuldiha	LakhariValley Gorge	Satkosia
Forest fires				
GC Experts	***	*	***	***
Forest Officers	***	*	***	***
Podu (slash-and-burn agriculture)				
GC Experts	***	-	*	-
Forest Officers	***	-	***	-
Livestock grazing				
GC Experts	**	**	**	**
Forest Officers	**	**	*	***
Unregulated collection natural resources				
GC Experts	***	*	***	***
Forest Officers	***	*	***	***
Unregulated collection fuel wood				
GC Experts	not identified	not identified	not identified	not identified
Forest Officers	***	***	***	***
Illegal timber collection				
GC Experts	*	**	***	***
Forest Officers	*	***	*	**
Wildlife poaching				
GC Experts	**	*	**	**
Forest Officers	*	**	**	*
Water-stress for wildlife in dry season				
GC Experts	not identified	not identified	not identified	not identified
Forest Officers	*	*	*	*
OTHER ISSUES				
Human-wildlife conflicts				
GC Experts	*	*	*	**
Forest Officers	*	-	**	**
KEY	xxx Extensive, major impact	xx Some areas, moderate impact	x Few areas, minor impact	- Absent

This holistic, integrated approach is in line with the overall approach of the Project (Project memorandum OFSDP 2006 & SAPROF, 2005). Moreover, it provides an 'experiential' opportunity to develop capacity within the Forestry sector to address the spectrum of threats and related issues through conflict resolution processes and other mechanisms, and the fact that significant at time (4-5 years) and resources (funds, expertise) are available to undertake this task.

This strategic approach was agreed with the Wildlife Wing of the Forest and Environment Department in June 2008. More specifically, the Wildlife Wing has indicated that the Biodiversity Conservation component

should initially pilot a package of eco-development initiatives (including eco-tourism) in Satkosia Gorge and Kuldiha sanctuaries (Green and Panwar, 2008).

1.5 Purpose of guidelines

This document addresses three of the four Biodiversity Conservation Components in terms of providing policy and methodological guidance on eco-development, including ecotourism, and mitigation of human-wildlife conflicts (Part 1). This is complemented by a conceptual framework and action plan for their practical application in Satkosia Gorge, the sanctuary where participatory micro-planning processes for eco-development at the village level have been initiated on priority under the OFSDP (Part 2).

Specifically, **Part 1** provides:

- an introduction to the OFSDP and its Biodiversity Component;
- background information on the concepts of eco-development and ecotourism so that they may be promoted and applied in a consistent and integral manner under the Biodiversity Component of OFSDP;
- a methodology for micro-planning for eco-development in villages in and peripheral to protected areas, focused on reducing unsustainable levels of dependency on biological resources within protected areas and improving livelihoods by means of alternative income-generating activities; and
- a policy framework for the development of community-based ecotourism within protected areas in Orissa.

Part 2 provides:

- an overarching framework or conceptual model for eco-development (including eco-tourism) within part of Satkosia Gorge Sanctuary;
- an example of how micro-planning has been implemented in one of the villages (Chhotkei) in Satkosia Gorge Sanctuary with respect to the process adopted and outputs achieved (micro-plan); and
- a strategic plan for the development of community-based ecotourism within Satkosia Gorge Sanctuary as an important income-generating activity under the overall eco-development strategy.

Thus, these guidelines can be used as a practical guide to initiate eco-development in other Protected Areas covered by the Project, and generally for any protected area.

2. CONCEPTUALISING ECO-DEVELOPMENT

2.1 Defining eco-development

The term **eco-development** is used to describe an integrated, sustainable approach to environment and development. It is defined in the United Nations (1997) *Glossary of Environmental Statistics* as:

. . . development at regional and local levels, consistent with the potentials of the area involved, with attention given to the adequate and rational use of natural resources, technological styles and organizational forms that respect the natural ecosystems and local social and cultural patterns.

Within the context of India's protected areas, eco-development as a strategy recognises the traditional dependence of people on forest resources for domestic use as well as supplementing livelihoods, and seeks to rationalise the demands of communities by facilitating alternatives for resources and livelihoods. A multi-pronged approach is advocated that is based on rational zoning of protected areas and their surrounds so that the full range of biodiversity and ecosystem services is secured. Moreover, a way is paved for ameliorating productivity and utilisation of resources by the people in a responsible, sustainable manner. The approach involves designing and implementing a package of measures that enhance the productivity of rural ecosystems, including the agricultural areas and the "use zones" within the protected area. This entails promoting the adoption of alternative energy sources and other resources for livelihoods, thereby reducing forest dependence. In essence, eco-development aims to strengthen nature conservation through participatory processes that empower local people to take responsibility for their socio-economic wellbeing in ways that do not reduce the biodiversity capital maintained within protected areas (Sharma *et al*, 2004).

Eco-development is a strategy for securing support from local communities and other stakeholders for protected areas management. Activities taken up under eco-development should provide a strong linkage between conservation and development; and they may include ecotourism and off-farm activities, as well as providing specific alternatives to local biomass dependencies on protected areas (Joint Forest Management Resolution, 2008¹).

Micro-planning at the village level is the participatory process aimed at an inclusive identification and assessment of potential activities, including ecotourism, for promoting under the eco-development strategy. Such activities need to reflect a balance between conservation measures and income-generating initiatives. Often conservation measures can be realised in ways that also generate income and vice versa. For example, villagers may be hired by the protected area management authority to augment fire control and anti-poaching patrols. The output of micro-planning is a plan, popularly called a 'Micro-Plan', which explains in simple, plain language the physical, biological, socio-economic and cultural context of the village and its surrounds, together with the various activities proposed for addressing the threats to biodiversity and improving local livelihoods. The outcome of micro-planning is likely to be most effective, if those members of a community most dependent on forest resources can be identified through an inclusive, transparent participatory process and prioritised for support in adopting alternative, income-generating activities.

2.2 Eco-development and ecotourism

Within the context of eco-development in and around Orissa's protected areas, ecotourism is another potential income-generating opportunity that, by definition, is designed to benefit local communities as well as biodiversity conservation. It should also contribute to protected area revenues through visitor entrance fees

¹ Government of Orissa, Forest & Environment Department, Resolution No. IF-Affin. 17/2008- 17454 / F&E, 22 October 2008.

and it can be tapped as a source to support a wide range of conservation management activities, such as litter disposal, biodiversity monitoring, fire watching and anti-poaching patrols etc. it provides the wildlife experts, enthusiasts or adventurers with an unrivalled opportunity to enhance their experience. Ecotourism is introduced in Section 4 and considered in further detail within the Orissa context in Section 5.

2.3 Micro-planning for purposes of eco-development

Micro-planning is a term used to describe the inclusive process of engaging stakeholders in planning at a local level, usually at the smallest unit of community organisation, namely the village². It provides an effective participatory mechanism for planning eco-development within the context of protected areas management. A micro-plan is the product of this process.

Box 2.1

KEY PRINCIPLES OF MICRO-PLANNING

- **Micro-planning is not a one-off exercise:** Proper assessment of felt needs can evolve only in full consultation with all the stakeholders and that too through a multi-stage process (Section 3).
- **Micro-planning requires patience:** Since villagers have their own prioritisation of time and little initial understanding of the tools used during micro-planning, it is necessary for the facilitator to be very patient throughout the process.
- **Micro-planning requires ingenuity:** Sensitive situations may arise that require a great deal of ingenuity to address, usually best resolved by one-to-one mediation or in a small group. Often discussions revolve around long standing needs or demands of the village that have not been met by the authorities despite past assurances. This may result in heated exchanges among the group or with an individual (often the person responsible for the lapse). The facilitator must keep in mind that, as this is the planning phase, it is best to put to one side issues relating to timely and efficient implementation to avoid getting bogged down in charges and counter charges. The fact that a truly participatory micro-planning as being undertaken may be used to convince the villagers that this time round mechanisms can be put in place to help ensure accountability. It is also possible that intra village/*sahi* politics become manifest either during the dialogue or process of electing the EDC Executive Committee. This is best addressed by ensuring that clear criteria for election of candidates are identified, agreed and followed.
- **Micro-planning is by nature specific to the local context and cannot be replicated:** It must be understood that each village is unique, with its own set of socio-economic and environmental influences. While the micro-planning approach and tools used may be fairly standard, the product (micro-plan) will differ between villages, capturing the identity and distinctiveness of each village.
- **Micro-planning is inclusive:** The strength of a micro-plan is its inclusive, grass roots nature. It should represent the sum of the combined wisdom and aspirations of the entire village. Thus, the process of micro-planning should reach out to each household to elicit relevant information.
- **Micro-planning is never ‘in your face’:** A micro-plan is the result of an outreach exercise in which the facilitator is enabling the individual to share information with other villagers in order to generate consensus about future priorities and directions. Thus, it is essential that the facilitator is humble, respectful and mindful of the value of the time, privacy and life style of the villagers.

² A village may comprise several hamlets, each identifiable as a distinct group of households but having a spatial and ethnic affinity to the whole settlement. In Orissa, a hamlet is known as a *sahi*.

The need for micro-planning has arisen from a realisation that planning carried out away from the village tends to reflect planners' personal experiences, impressions and assumptions rather than realities on the ground. Hence, the move towards true developmental planning based on the 'felt needs' of the village, as enumerated by the villagers themselves, through a participatory process.

Another rationale is the need to involve the primary stakeholder (villagers) from the outset in order to ensure ownership of the process and, therefore, the output (i.e. micro-plan) which, in turn, ensures support in the implementation and monitoring of the micro-plan.

Some key principles that underpin the micro-planning process are summarised in Box 2.1. The main stages of micro-planning for purposes of eco-development, based on experience gained from piloting the process in the Purnakote cluster of villages in Satkosia Gorge Sanctuary, are as follows:

1. Develop a common vision for the protected area³ (if not already done in a participatory manner as part of the management planning process) among the protected area staff responsible for its management to ensure that a consistent message is delivered to other stakeholders, particularly those subject to eco-development.
2. Identify a conceptual model for eco-development within the local, geographic context.
3. Identify and develop the capacity of members of a Facilitation Team that will be responsible for developing micro-plans for individual villages.
4. Develop micro-plans in accordance with established micro-planning principles and practices for each village within a cluster, taking care to focus on identifying dependencies on forest resources and their alleviation through a range of income-generating activities. This stage includes the establishment, re-institution or re-vitalisation of the Eco-Development Committee (EDC) and its Executive Committee in line with the provisions of the Joint Forest Management Resolution of the Orissa Government, 2008.
5. Develop a set of agreed strategic interventions, which will provide appropriate levels of resourcing the implementation of priority activities
6. Identify reciprocal contributions and commitments from village communities and establish mechanisms for sharing the benefits of income-generating activities
7. Establish a mechanism for prioritising and coordinating village micro-plan activities, including the development of Eco-development Action Plan, at the cluster level.
8. Develop mechanisms for monitoring implementation of village micro-plans and cluster Eco-development Action Plans.

Each of these stages is described in more detail in Chapter 3 and an example of a micro-plan formulated by Chhotkei Villagers in Satkosia Gorge Sanctuary is provided in Chapter 7 (Part 2).

³ This has necessarily to be consistent with the broad objectives of the Approved Management Plans, if there is one, or in line with the overall Government Policy for Management of Protected Areas.

3. FACILITATING MICRO-PLANNING

This chapter describes the processes, mechanisms and tools used to plan for eco-development, based on experience gained from the Purnakote cluster of villages in Satkosia Gorge Sanctuary. It provides a blueprint for the application, modification and further development of micro-planning, as appropriate, in other sanctuaries to become the focus of eco-development under the OFSDP Biodiversity Conservation Component.

The key tools used in the context of micro-planning for eco-development are summarised in Box 3.1. Further information about some of these tools can be found in WORLP (2008). These are used in various stages of micro-planning, as identified in Section 2.3 and described in more detail below in the respective sections of this chapter on micro-planning guidance.

Box 3.1

MICRO-PLANNING TOOLS

- a) **Social Mapping** is a group exercise which provides the physical, social and infrastructure information about the village as whole. It is taken up in a participatory manner and gives a rudimentary sketch of the village as an entity, with each household marked on the map. The purpose of the map is to gain an insight into the existing resources of the village, as well to understand its social complexity.
- b) **Forest dependency ranking is meant for** group identifying a set of levels of dependency on forest resources (timber, bamboo, fuel wood, fodder, and collection of NTFPs), based on specific criteria, and allocating each household in the village to one of these levels. The purpose of this tool is to identify which households are most dependent on forests resources adjacent/near to the village, in order to be able to target/prioritise intervention measures to reduce such dependencies.
- c) **Wellness ranking** exercise is similar to forest dependency ranking, whereby a group of villagers allocates each household to a wellness or relative prosperity category that is predefined by a set of criteria. Its purpose is to identify candidate households that merit prioritising for income generating activities.
- d) **Visioning exercise** is a group activity in which villagers share their dreams and aspirations for the future, then identify the main challenges and constraints to achieving their vision, and finally identify measures for removing the impediments to achieving their vision. Prioritisation of the solutions is also part of the exercise. The purpose of this tool is to generate consensus within the community on priority issues that might be addressed by Project interventions by way of Entry Point Activities.
- e) **Household interviews** are essentially one-to-one exercise in which the facilitator visits each household to gather basic household-level information in an informal manner that is based on structured line of enquiry. This exercise serves several purposes: additional socio-economic information can be gathered, which can also be used to validate the forest dependency and wellness ranking; establishment of a one-to-one dialogue builds greater trust and understanding between the facilitator and villager; and it provides a direct opportunity for the more reticent or socially excluded members of the community to express their views.

There are two main steps in the process of preparation of EDC Micro Plans as mentioned below along with activities:

Step 1 - Orientating the facilitating team

- Developing a common vision among the Protected Area staff.
- Identifying a conceptual model for Eco development
- Build the (Micro Plan) facilitating Team

Step 2 - Developing Micro Plan

- Making Contact/breaking the ice with the community
- Reaching out to each hemlet

Visioing with the entire village
Assessing forest dependency & wellness
Socio-economic profiling of the village
Forming EDC Executive Committee
Writing the Micro Plan

3.1 Develop a common vision among Protected Area staff

Note: While development of a common vision for a protected area is a desirable first step in team building, it may not be necessary in the case of sites having an existing management plan in which a common vision has been formulated in a participatory manner with key stakeholders.

It is essential that staff responsible for managing a protected area have a clear understanding of what they are trying to achieve for the site in the long term. This is particularly important when it comes to eco-development to ensure that the vision does not become clouded or confused with the many other aspirations of local communities during the participatory processes.

While such a vision may be spelt out in the management plan, it is good practice to facilitate a workshop to capture the ideas and aspirations of field staff because, firstly, it is more than likely that the majority were never involved in preparing the management plan and, secondly, it helps to build a common vision and understanding (Figure 3.1). In the context of a project (OFSDP in this instance) such an exercise helps build a greater and wider understanding about the project objectives, its components and its relevance to protected area management.

Framework for vision

A simple framework for developing a vision among a representative group of protected area staff (DFO, Range Officers, Foresters, Forest Guards) is as follows:

- Identify the values (natural, cultural and other) of the protected area.
- Identify threats to these values (identified in the preceding step).
- Identify how those threats can be addressed or mitigated.
- Formulate what will have been achieved over the longer term (10 or 20 years is a useful timeframe) to conserve and enhance the values – the vision.

Achievement of the vision will then provide the basis for defining a set of objectives and activities for the management plan of the protected area, to which village micro-plans can contribute at a local scale.

The following illustrates the development of a common vision for Satkosia Gorge Sanctuary, based on what is documented in the management plan and what emerged from a visioning exercise independently facilitated by the consultant Biodiversity Specialists and Field Level Expert.

Biodiversity and cultural values and threats

The Sanctuary was established in 1984 originally to protect the habitat of the gharial and mugger within the Satkosia Gorge ecosystem and because of its genetic and ecological importance within the wet portion of the Deccan Zone. Its **biodiversity significance**, as identified in the current Management Plan (Misra, 2006), includes:

- transition zone for two biotic provinces within the Deccan Penninsular biogeographic zone (6), namely the Chhotnagpur Plateau (6B), north of the Mahanadi River, and the Eastern Ghats (6C) to south of this river;
- occurrence of two species of freshwater crocodile, of which the gharial is now globally listed as Critically Endangered with fewer than 200 estimated to remain in the wild (IUCN, 2007);
- populations of tiger, leopard, elephant, gaur, sambar and barking deer;

- diversity of fish and birds; and
- a unique gorge ecosystem, associated riverine forest and bamboo brakes, comprising two species uniquely found in the Sanctuary.

The significance of Satkosia, as identified by sanctuary staff responsible for its management is shown in Figure 3.1 (see Annex 2 for full details). An important and insightful value, additional to what is highlighted in the Management Plan, is the beauty of the landscape where agricultural settlements, with their thatched mud houses and paddy, merge with the surrounding natural forest. **This captures the synergy or added value of the natural and cultural heritage found in pockets in Satkosia.**

The main **threats to biodiversity** within the Sanctuary identified by sanctuary staff are forest fires, unregulated collection of non timber forest products and fuel wood, and to a lesser extent livestock grazing, wildlife poaching and illegal collection of timber, as previously identified by the consultant Biodiversity Specialists and senior Forest Officers (see Table 1.3). This view, with the addition of fishing (especially by nets), was reinforced by sanctuary staff at the above mentioned workshop (see Annex 2).

3.2 Identify a conceptual model for eco-development

It is important to consider the strategic context within which eco-development can be most effectively applied to a given protected area, in terms of prevailing legislation and policies, the existing management plan, and spatial and temporal pressures on the natural resources that result from the local communities. Eco-development activities will need to be prioritised, certainly at the outset when financial resources will be in greatest demand, towards reducing these dependencies in core areas of biodiversity and buffering them by areas in which local communities are able to meet their needs sustainably, in ways that no longer reduce biodiversity.

An example of a conceptual model is that developed for the first tranche of eco-development activities in the four clusters of villages that surround part of the core zone of the Satkosia Tiger Reserve. This model is described in Section 6.3 but it should not be regarded as prescriptive for other situations.

3.3 Build a facilitation team

The micro-planning process needs to be facilitated by a team trained in participatory processes and skilled in facilitation techniques. Members of the team should be available to see the entire process through to ensure consistency in approach and, for purposes of building trust, continuity. In the case of Satkosia Gorge Sanctuary, it was fortuitous that there was a complement of experienced Forest Extension Officers and Village Forest Workers in place to lead the micro-planning process in the villages. It was fundamentally important, however, to train them in facilitation techniques and build them into a functional, harmonious and confident team fit for the purpose.

Following the initial visioning exercise with Sanctuary officers and other staff that included members of the Micro-planning Team, a number of preparatory, review and feedback meetings with the Facilitation Team members were held either to plan before the team started out for the village or to feedback and review after the team returned from the field (Figure 3.2). In addition to using these meeting to review progress, much emphasis was given to prompting Team members to critically review each others facilitation skills during meetings and workshops with villagers. Team members were also encouraged to take turns in either facilitating village meetings or recording the proceedings of such events on flip chart sheets.

It was observed that gradually the Team members were able to facilitate the process with ease and good results, as their understanding of the process and confidence developed. So much so that the final steps in the formation of the Chhotkei Eco-development Committee (EDC) and its Executive Committee (EC) were entirely facilitated by the Team members themselves, with the consultant remaining no more than an observer.

It was found that providing the Team with defined tasks (home work) and leaving them on their own for short periods proved to be a useful method of enabling members to gel well and develop their skills in brainstorming.

Crucially important, the Facilitation Team should be supported by an independent mentor to guide and support them through the process. In case of Satkosia, this role was ably provided by Sri Omprakash Rautray, OFSDP Field Level Expert and ‘participatory tools’ professional, and this contributed significantly to the success of the micro-planning process.

3.4 Develop village micro-plans

Phase 1: Making contact / breaking the ice with the village community

Entry into a village or a household should always be undertaken in a spirit of humility, respect and patience, in small groups (no more than five persons) and preferably including a lady. Remember the facilitator is initially a stranger. If he/she is a government servant (e.g. Forest Department) then it is better to wear civilian clothes to avoid potential initial negative vibes due to uniforms being seen as a sign of authority.

The selection of a place in which to congregate in the village is also important in eliciting a positive response to initial contacts. If weather permits, somewhere outside for all to observe and anyone to ‘drop by’ is ideal. Also seek permission before sitting down or seeking a household’s indulgence.

Once having been admitted into a gathering or a household, never come straight to the point as regards the information that is sought. This will make the people unduly suspicious of the facilitator’s motives. Thus, it is important to explain the purpose of the visit and the Project.

Introduce yourself and your colleagues fully. Inform the villagers that you (being an outsider) are part of a team that is trying to understand the village better, as a first step in help them to develop a planning document that will result in Project support, for the well being of the village.

As a strategy the facilitator may begin with appreciating the village’s location, architecture of the houses, beauty of stream running by the side of the village etc. This will help to initiate a dialogue. Then proceed to talk in general terms about the village, for example: how old is it; which are the founding families; do villagers all belong to the same tribe/caste/community? Try to elicit any interesting information about the village that people may wish to share.

An initial focus on the historical time-line of the village can provide a useful means of moving on to developing a basic social map of the village in a participatory manner (see Box 3.1a). A villager or small group can be encouraged to begin to draw a very rudimentary map in response to such questions as: where is the temple/school/well; where are the hamlets; can you mark the households in the different hamlets?

It is likely that not many people will initially show much interest in what you are trying to do. Do not be put off with low numbers or wait for more people to gather (as those present will lose interest). Instead, engage with those in attendance and others will be attracted to find out what is being discussed and join in, particularly if mapping has begun.

Do not proceed beyond this initial ‘toe in the door’ step on day one of micro-planning. Time is needed for the villagers to talk among themselves about the visit and, now that a dialogue has been established, the villagers’ curiosity will be sufficient for them to welcome the facilitators on the next occasion.

On departure, the community/household should be thanked for their time and informed when the facilitator proposes to return for further interactions.

Phase 2: Reaching out to each hamlet separately

The Facilitation Team can split into small groups of two or three persons, each group of 2-3 persons covering a different hamlet in the village.

Identify the oldest participant and ask him/her as to how the village has changed over time. This will provide a first insight into problems faced by villagers, as changes are likely to be first expressed in terms of what they have lost rather than gained, the latter emerging later.

Subsequently, through a focused group discussion find out about basic ‘well being’ characteristics, such as access to water (for drinking and irrigation), location of streams, wells, tube wells, roads / communication, educational facilities (schools, colleges etc), electricity, medical facilities, markets, sources of loans (in case of need), forest resources, employment opportunities and so on.

This can be lead into social mapping (including resources mapping) and should include general information (e.g. location of various facilities) as well as the location of every household in the hamlet, each of which should be numbered on the map. This number will remain the identity of the household throughout the duration of the micro-planning exercise.

Once the households are numbered, specific household-level information can gradually be assembled during this and subsequent visits (along the side of the map), such as the name of the owner of the household, whether the householder owns land or is landless, his/her principal occupation/source of income, etc. (Figure 3.2).

During these discussions it will be possible to identify a few natural leaders/interested participants from the *sahi* (hamlet), who would be nurtured and encouraged to help support the facilitator throughout the process.

During this visit, take a walk though the village and become acquainted with people socially, as well as its physical and geographic features, in order to begin to establish some credibility among the villagers.

Phase 3: Visioning with the entire village

It is now time to engage the entire village in a meeting, which should be held at a location that is accessible socially, to all (Figure 3.3). A village school or community hall is ideal for such purposes. Meeting together in this way will help to build confidence in the process.

The meeting should focus on enabling villagers to develop their vision of the future. The same framework of identifying values, threats to the values and means of addressing the threats, as described in Section 3.1, can be adopted. The results of such an exercise with Chhotkei villagers are summarised in Box 3.2.

Box 3.2	
RESULTS OF A VISIONING EXERCISE WITH CHHOTKEI VILLAGERS	
Values	Problems/threats
<ol style="list-style-type: none"> 1. Our birth place and our own land 2. No scarcity of resources 3. Fuel wood and Bamboo availability 4. Climate is good 5. Forest provides food, fuel, NTFP 6. Forest provides fodder for livestock 	<ol style="list-style-type: none"> 1. Crop damage by wild life (elephant, wild boar and deer) 2. No wage employment available in the village 3. Restriction on plucking tendu/kendu leaf and sal leaf 4. Low level of education 5. No health services 6. No electricity 7. Irrigation structure is old and damaged
Solutions	
<ol style="list-style-type: none"> 1. Power fencing to keep out wildlife, with close spacing and provision of 4 openings/gates 2. Labour employment through plantation and other works 3. Repair of old WHS/check dam 4. Establish High School 5. Permission for tendu/kendu leaf and sal leaf to be plucked from reserve forest/sanctuary 6. Eco-tourism 7. Gobar Gas 8. Mango grooves (on government-owned land) need to be rejuvenated 9. Land to be provided to landless 	

Phase 4: Village meeting to assess relative ‘forest dependency’ and ‘wellness’

The facilitators must first explain the purpose of this meeting to the villagers, particularly with respect to the fact that the ultimate objective is to be able to target the most forest-dependent and poorest households in the village for assistance under the Project. Clear explanation will ensure that participants fully engage in a responsible manner in the exercise.

Next, participants are asked to define criteria for classifying households into three categories of forest dependency and four categories of wellness. The criteria identified by Chhotkei villagers are shown in Table 3.1 by way of an example. Having defined the criteria, villagers communally allocate each household to a forest dependent and wellness category. This may take several hours of discussion to achieve consensus but the exercise works well because it is objective, transparent and accountable. Moreover, the process of triangulation, whereby everybody cross-checks each other’s assessment of a household, ensures that the results are reliable.

Table 3.1 Examples of criteria for defining categories of forest dependency and wellness

Categories	Criteria
Forest dependency	
High	Graze livestock, collect NTFPs/bamboo (commercially), collect fire wood and thatching materials for own use.
Medium	Graze livestock, collect fire wood and thatching materials for own use.
Low	Collect fire wood and thatching materials for own use.
Wellness	
Very poor	Landless; no regular source of income (head male of household deceased); widow; separated woman; orphaned children.
Poor	Marginal land holder; day-to-day (hand-to-mouth) living.
Manageable	Less land; barely enough for the year, with no savings.
Well off	Enough land; well established; government service or pensioner; running a good business; surplus food and money during the year.

The meeting is then informed that households under the High forest dependency category and the Poor and Very Poor wellness categories will qualify for priority support from the Project for income generation activities. Participants are also reminded that everyone will benefit from certain interventions by the Project that the village considers to be a priority for the village as a whole too (Section 3.5).

Note: *It is possible that Phase 4 may require more than one village meeting but it is advisable to ensure that the ranking of forest dependence and wellness are each completed in a single session to ensure consistency in ranking (i.e. the composition of the meeting is likely to change between sessions due to participants being available one day but not on another). Also, it may be necessary to undertake this exercise at the hamlet (sahi or tola) level for large-sized villages (100 or more households) and then invite the entire community to review and confirm the outputs at a village-level meeting.*

Phase 5: Collecting socio-economic information from households

Members of the Facilitation Team split into small groups to visit each household in the village and elicit information on predefined parameters. Such visits also provide an important opportunity to engage directly with the entire village at an individual level and, therefore, gain a deeper insight into the livelihood concerns and issues of household members, while also accessing information that can help to consolidate the village’s Social Map and validate the assessment of the forest dependency and wellness ranking of households.

Collection of household-level information is time consuming, both for the investigator as well as households members. Hence, it is important that only relevant information is sought that assists the identification and targeting of households for support from the Project for income generation activity, using indicators such as forest dependency and wellness ranking, loss of crops to wild animals, debt and emigration of family members in search of better livelihoods.

Based on experience gained from developing a micro-plan for Chhotkei Village, the following information is considered to be sufficient for purposes of identifying households for income generation support by the Project:

1. Basic household information (name, caste, age of household owner)
2. Land holding (extent)
3. Source(s) of livelihood, livelihood skills, emigration for livelihood purposes
4. Level of forest dependency
5. Vulnerability of crops to damage by wild animals
6. Energy needs and sources
7. Monetary debt
8. Health-related issues
9. Membership of existing self-help group(s)

Phase 6: *Forming the EDC and electing the Executive Committee*

The establishment of the EDC and election its Executive Committee must be undertaken in accordance with the provisions of the new Joint Forest Management Resolution, issued by the Government of Orissa on 22 October 2008.

Experience from Chhotkei Village indicates that a great deal of interest and enthusiasm is shown by villagers in the nomination and election of Executive Committee members when this is conducted in a transparent, participatory and consensus-building manner. This is evident from the pictures in Figure 3.3, which show a large turn-out for the election of the Executive Committee, which is well representative of various sections of the community including women.

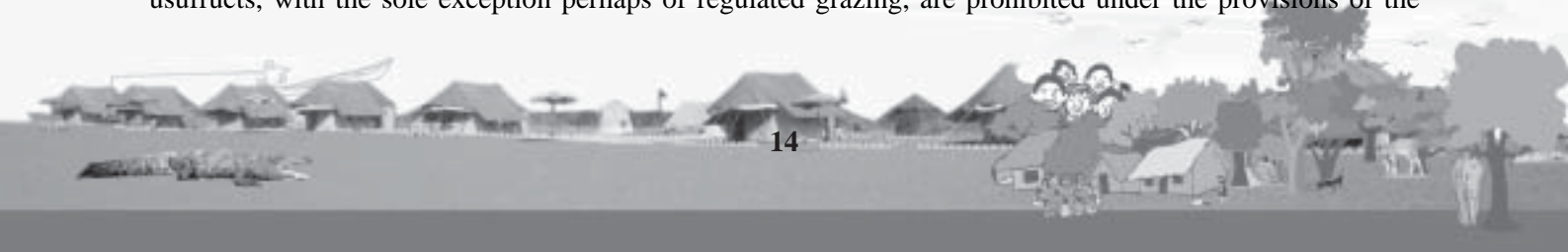
Phase 7: *Preparing the micro-plan document with the EDC Executive Committee*

The Facilitation Team should work closely with the EDC Executive Committee throughout the preparation of the village micro-plan. Once drafted (in English), it must be translated into local language (Oriya) and shared with the relevant EDC and Executive Committee members to ensure full ownership of the document and the activities therein.

Based on experience gained from Chhotkei Village, a set of six proforma have been developed for purposes of preparing a micro-plan. Details of these are provided in Annex 3.

3.5 Define resources for micro-plan activities

The Joint Forest Management Resolution of the Government of Orissa gives formal recognition to the establishment of EDCs along the lines of VSSs (Vana Samrakshyana Samitis) but there is a fundamental difference between the types of activity in which members may engage. There is provision for VSS members to benefit from usufructs, such as fuel wood, fodder, bamboo and a share in the timber produced from forests (including plantations) 'assigned' to the community, in return for active protection and management operations carried out by the members. The same cannot apply to forests assigned to EDC members because such usufructs, with the sole exception perhaps of regulated grazing, are prohibited under the provisions of the



Wildlife (Protection) Act. It is within this context that the concept of eco-development (including ecotourism) is intended to address the basic ‘felt needs’ of EDC members.

The Project Memorandum provides specifically for the following activities under the Biodiversity Conservation component with respect to EDC areas:

- a) ecotourism development,
- b) mitigating human-wildlife conflicts, and
- c) eco-development on peripheries or inside protected areas.

In practice, both ecotourism and mitigation of human-animal conflicts are treated as forms of eco-development. The following range of interventions are advocated for eco-development under the OFSDP, based on experience gained from the participatory micro-planning process piloted in the Purnakote cluster of villages. Levels of resourcing identified below for micro-plan activities have also been agreed by OFSDP in the light of this experience, with the exception of ecotourism (see Table 3.8).

Mitigation of human-wildlife conflict

Human-wildlife conflict is often a major issue for villages lying within or peripheral to protected areas and, quite apart from risks of injury and fatalities, crop-raiding can account for huge losses in livelihood.

Table 3.2 Guidance on OFSDP provisions for mitigation of human-wildlife conflict

Micro-plan activity
<p>4-strand solar-powered fence, preferably with treated wooden poles and two strands of barbed wire / wire mesh at the bottom (to keep out wild boar)</p> <ul style="list-style-type: none"> ■ Cost of erection per km (with energiser and maintenance costs for one year) to be worked out.
<p>Anti-depredation squad - 5 persons per day for a small village and 10 persons per day for a large village, preferably from target households who currently stand to lose most from depredation</p> <ul style="list-style-type: none"> ■ Wages per person per day (or as provided in the Project) ■ Equipment per person: (a) dress, long coat, hunter shoes (initially supplied by park (Project), subsequently by EDC member as reciprocal contribution), (b) lathi, and (c) torch and, per squad, (d) hand-held walkie talkie.*

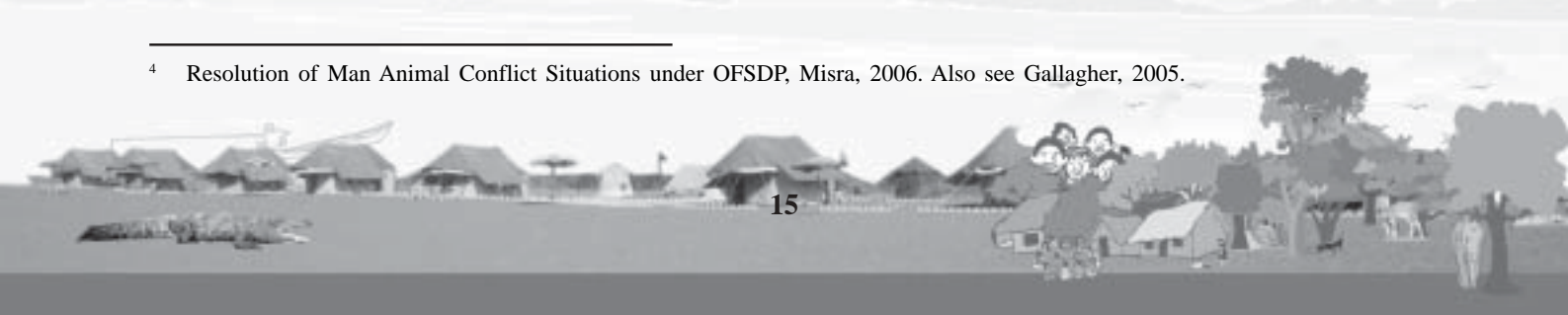
*These items could be centrally procured and supplied as and when required.

Installation of electric fencing, as documented elsewhere⁴, is considered to be the most appropriate measure for addressing such risks and costs but it must be emphasised that the routine checking and maintenance of such fencing is critical to its efficacy. This measure can be reinforced by provision of anti-depredation squads, who may be given the responsibility of ensuring that the fencing is always in an adequate state of repair. Guidance on levels of investment required for such measures are given in Table 3.2.

Entry point and common interest activities

Entry point activities are intended to generate good will between the executing agency, in this case OFSDP, and the village community, demonstrating that the agency has the funds and commitment to enable the EDC to address at least some of the challenges and issues that it faces. It is crucial, therefore, that entry point activities are identified and prioritised by villagers during micro-planning in order to ensure consensus and ownership among the community. Examples of such activities that may benefit the entire community include:

⁴ Resolution of Man Animal Conflict Situations under OFSDP, Misra, 2006. Also see Gallagher, 2005.



- creation/repair of school building, completion of incomplete community hall building;
- creation/repair of water harvesting structure (e.g. anicut, check dam, canal, well, tank);
- creation/repair of village link road;
- solar lantern, solar street light, community solar water heater;
- provision of cooking/eating utensils to EDC for public gatherings/community events;
- repair of village temple/church/mosque and other religious or cultural features; and
- provision of musical instruments for village cultural team.

Guidance on the levels of funding to be provided for entry point activities are shown in Table 3.3. These funds may be released to the EDC at the discretion of the Divisional Management Unit in accordance with the felt needs and resulting activities identified by the community.

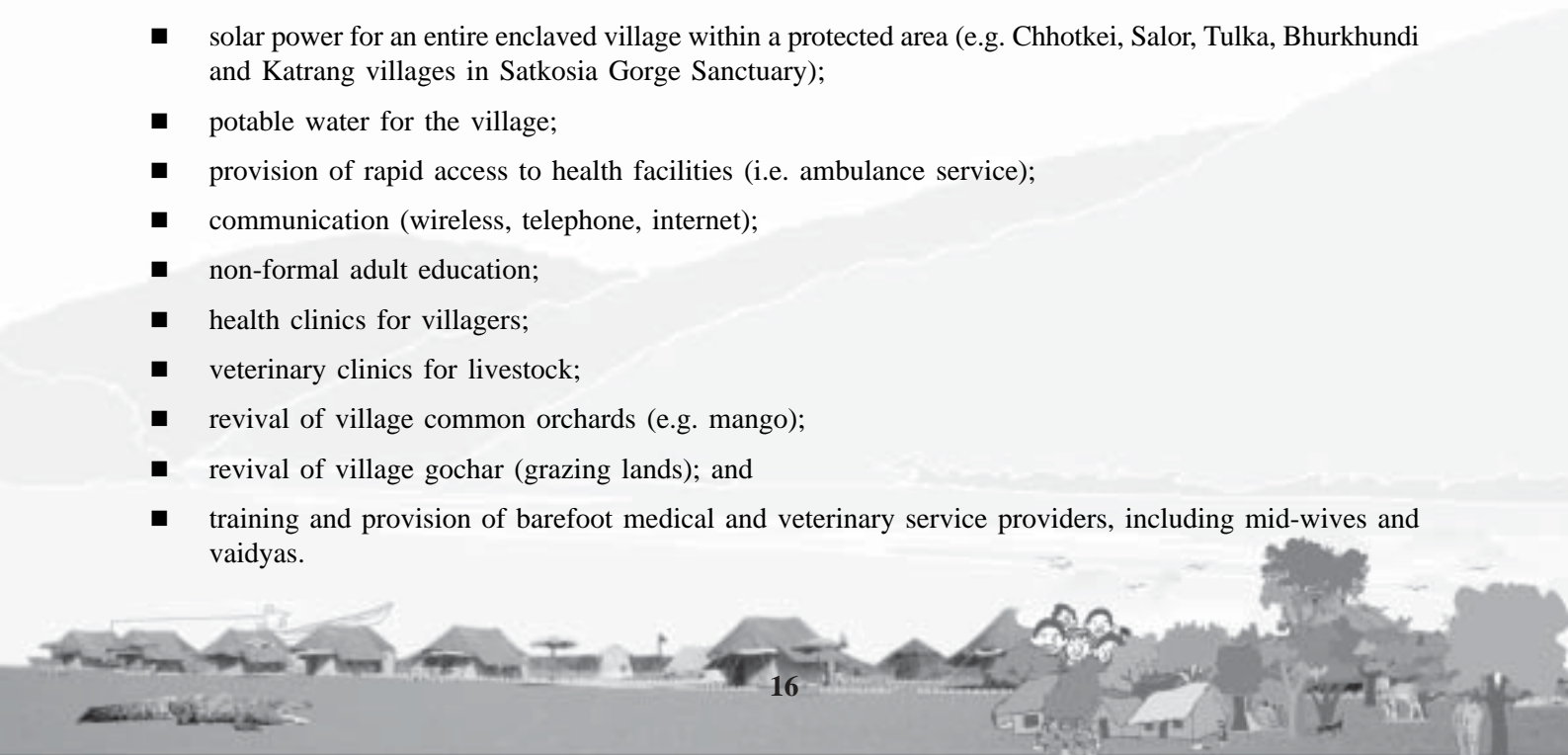
Table 3.3

Micro-plan activity
<p>Entry point activity(ies)</p> <ul style="list-style-type: none"> ■ financial provision, under OFSDP, per EDC, based on an average assigned forest of 150 ha per EDC @ Rs 1567 per ha
<p>Common interest activity</p> <ul style="list-style-type: none"> ■ EDC office-cum-meeting hall (under OFSDP-office room 150 sq. ft, along with covered meeting place 200 sq. ft.)

Common interest activities may cover a wide range of other priorities identified during the micro-planning process, additional to entry point activities, that are of relevance to the entire village but either require levels of investment beyond the means of OFSDP and/or lie beyond its remit and fall within the purview of another government agency.

These should be included in village micro-plans and clearly identified as common interest activities beyond the eco-development framework for addressing through a process of convergence with other agencies. This ensures that the village's needs and aspirations are documented in their entirety and avoids any need for further participatory processes by other potential funding agencies. Examples of potential common interest activities include:

- solar power for an entire enclaved village within a protected area (e.g. Chhotkei, Salor, Tulka, Bhurkhundi and Katrang villages in Satkosia Gorge Sanctuary);
- potable water for the village;
- provision of rapid access to health facilities (i.e. ambulance service);
- communication (wireless, telephone, internet);
- non-formal adult education;
- health clinics for villagers;
- veterinary clinics for livestock;
- revival of village common orchards (e.g. mango);
- revival of village gochar (grazing lands); and
- training and provision of barefoot medical and veterinary service providers, including mid-wives and vaidyas.



In addition, it is advocated that provision of an **EDC meeting hall cum office**, a common interest activity, be considered as eligible for OFSDP funding, *subject to the architecture of such a building being designed in keeping with the traditional architecture and materials of village buildings and in harmony with the surrounding landscape*⁵. If a community building already exists, this may be enhanced in preference to constructing a new facility and OFSDP funds can be used for any necessary repairs and/or provision of additional space (e.g. EDC office) and equipment.

Income generation activities

The micro-planning process is designed to identify potential income generation activities (IGAs) and target households that stand most to benefit from them in ways that reduce their dependencies on forest resources and, hence, result in improved biodiversity and ecosystem functioning. Examples of possible IGAs (excluding community-based ecotourism activities which are considered separately below) are:

- cultivation of vegetables and/or fruit trees (e.g. lemon, guava);
- fishery in village or private pond;
- bee keeping for honey production;
- poultry;
- nurseries - flowers (oil bearing or ornamental), bamboo, medicinal plants, trees;
- handicrafts; and
- household provisions shop and/or repair shop for bicycles and agricultural tools.

Increasingly villages have a number of women Self-Help Groups (SHGs), which often represent most or all of the households in a village. It is advocated that IGAs be routed through these existing informal, grassroots mechanisms as they can be readily accessed, enabled and monitored, while providing a direct route to address the felt needs of their member households. The fact that SHGs are women’s groups, is also advantageous, as funds are less likely to be frittered away.

Under OFSDP, funds for IGAs are provided on a one-off basis to the EDC (as revolving fund) from which EDC is to provide loans to the SHGs. It is also possible for a number of households to form a Common Interest Group in order to work together on an IGA. Guidance on the amount of funds to be granted by OFSDP is provided in Table 3.4.

Table 3.4 Guidance on OFSDP provisions to Self-Help Groups for income generation activities

Micro-plan activity
<ul style="list-style-type: none"> ■ IGA support to EDC for providing loans to Self-Help Group/CIGs financial provision per EDC under OFSDP is Rs. One lakh as revolving fund.

⁵ Concrete structures are generally inappropriate in a rural setting which, in the case of EDC villages, usually comprises a backdrop of natural forests in which RCC buildings with flat roofs diminish the quality of the landscape and, hence also the potential for ecotourism. Moreover, the argument that maintenance costs of RCC buildings are lower may be fallacious when compared with the very much lower costs of constructing traditionally mud-walled/thatched village houses, even taking into account the more frequent maintenance requirements of the latter. (Engineers tend to work on the principle that maintenance costs are directly proportional to construction costs.)

Plantations

As an objective of the Project is to reduce household dependencies on protected areas for fuel, fodder and bamboo, resources are to be made available for plantations to be enriched or established in village commons (not in reserved or protected forests) to help address these issues. Guidance on funding support is given in Table 3.5. Prior to the establishment of plantations, EDC members will need to agree responsibilities (based on the forest dependency mapping) for managing the plantations and develop a mechanism to share the produce. In the case of bamboo, target households (with high forest dependency) might also be encouraged to grow bamboo in their backyards, using seedlings granted by the EDC.

Table 3.5 Guidance on OFSDP provisions for plantations to reduce dependencies on forest for fuel wood, bamboo and livestock fodder

Micro-plan activity	Area
Plantations* in village forest to reduce dependencies on surrounding forests <ul style="list-style-type: none"> ■ fuel wood and fodder ■ bamboo 	Up to 5 ha. Up to 2 ha.

* Species to be native and selected by villagers, with technical advice from Forest & Environment Department/ Wildlife Wing to ensure that such species will not impact on surrounding natural forests.

Livelihood improvement activities

The following provisions are available under the OFSDP to EDCs for the improvement of livelihoods, commensurate with similar provisions for VSSs:

- Health camps organised by EDCs every six months for distributing medicines free of cost in Years 1-2 and with 50% of the cost borne by the Project in Year 3.
- Innovative, non-formal education services for 30 months in EDCs where there is no government literacy education programme and literacy levels are among the lowest.
- Provision of fuel-efficient stoves or similar devices for 75 households in every village.

Table 3.6 Guidance on OFSDP provisions for livelihood improvement activities

Micro-plan activity	
Health camps <ul style="list-style-type: none"> ■ with financial provision for medicines Non-formal education <ul style="list-style-type: none"> with financial provision for musical instruments, stationary, books etc., and honorarium for local, educated youth instructor. Promotion of reduction in fuel wood consumption <ul style="list-style-type: none"> ■ financial provision per household for provision/construction and maintenance of fuel-efficient devices, such as <i>fuel efficient chulha</i>. 	Once in six months As may be required in all the House Holds, preferably with contribution from each HH.

Guidance on financial support for livelihood improvements is given in Table 3.6.

Enhancing the capacity of EDC Executive Committee members

Guidance on levels of funding support is provided in Table 3.7. Training modules for EDC Executive Members would need to include the following:

- a) A component akin to that for VSS members, which develops the skills required to effectively manage EDCs (e.g. planning, chairing and minuting meetings, accounting).

- b) A component to specifically address biodiversity conservation interests, including biodiversity conservation principles, protected areas management, forest fires, human-wildlife conflict resolution, ecotourism and People’s Biodiversity Registers.

Table 3.7 Guidance on OFSDP provisions for EDC Executive Committee capacity building

Micro-plan activity	frequency
<p>Enhancing capacity of EDC Executive Committee members</p> <ul style="list-style-type: none"> ■ exposure visits to EDCs and VSSs in other areas ■ training in management skills (e.g. managing and minuting meetings, consensus building, maintaining accounts, preparing project proposals, managing projects) ■ sensitisation in biodiversity conservation and protected area management, preparation of People’s Biodiversity Registers, etc 	<p>At least once a year</p> <p>At the beginning, & repeated at least once a year.</p>

Ecotourism

It is envisaged that ecotourism will be promoted in accordance with an overall strategy for the individual protected area, as exemplified in Section 8 (Figure 8.4) for part of Satkosia Gorge Sanctuary, and in an integrated, coordinated manner within individual clusters of villages. Thus, while it important to select the most appropriate village for the location of a community-run ecolodge facility based on criteria (see, for example, Table 8.2), it is equally important that other facilities and opportunities for visitors are distributed throughout the cluster so that all villages may benefit from ecotourism, albeit to varying extents. Guidance on levels of funding support is suggested in Table 3.8.

Table 3.8 Guidance on provisions for development of ecotourism

Micro-plan activity
<p>Establishment of eco-lodge with up to 10 cottages, including common facilities such as dining hall, kitchen, stores etc, and provision of water supply (e.g. tube-well), kuccha road access, and environmentally safe sewerage/waste disposal.</p> <ul style="list-style-type: none"> ■ Cost per cottage unit (each unit with double room, with space for an additional two young children and ensuite bathroom) ■ Solar power for lighting and water heating (1 KW) ■ Wireless facility for communication purposes ■ All purpose vehicle (station wagon) for ecolodge (and other EDC purposes) ■ Establishment of nature trails, signage and interpretation materials (per cottage) ■ Training in catering, housekeeping, visitor management, guiding in interpretation of nature/cultural heritage (per cottage)
<p>Activities in other non-eco-lodge villages</p> <ul style="list-style-type: none"> ■ Incentive subsidy for provision of home-stay (double room and bathroom facilities), per interested household ■ Lump sum provision to EDC for sensitisation/training of its members in ecotourism, provision of signage and development of interpretation materials

3.6 Establish mechanisms for sustainability and sharing of benefits

Long-term sustainability of eco-development activities will only be achieved if social, economic and biodiversity (environmental) interests can be met through appropriate management regimes and benefit sharing mechanisms.

Reciprocal contributions

Mechanisms for reciprocal financial contributions and commitments in kind are fundamental to ensuring long-term sustainability, beyond the life of the Project, and ownership of income generation and other activities among EDC members. Such mechanisms also enhance the sustainability of the EDC corpus through strengthening and developing its institutional capacity.

Reciprocal contributions may include cash or in kind contributions, such as voluntary labour or donations of materials. They can be considered in accordance with OFSDP inputs, which can be classified into two categories:

- a) Non-income generation activities, such as erecting solar powered fencing to keep wildlife from damaging crops and environmental protection duties (e.g. fire-fighting patrols). Raising plantations in village forests can also be included with this category, such activities does not provide a regular income to the beneficiary households, but does reduces dependence on forests or indirectly enhance their income from other activities.
- b) Income generation activities, including ecotourism provide a regular source of income to the beneficiary households.

In the case of activities in category a, it is advocated that all EDC members contribute 1-5% of the total cost of the input in cash or in kind. Cash contributions could be phased as instalments, spread over one or more years, to avoid any financial burdens. Contributions may be waived for very poor households or the executive Committee may decide to defer contributions until the household has developed it the financial capacity to make a contribution.

In the case of income generation activities in category b, the above policy can be applied similarly but for ecotourism and other activities that are likely to generate significant profits, a proportion of the profits (maybe 5-10%) should be ploughed back into the EDC fund. More details about the proposed allocation of income for ecotourism lodges is provided in Section 5.5 (Box 5.2).

Reciprocal commitments

In return for support received from the Project, which is in line with promoting sustainable livelihoods and conserving biodiversity, EDC members must reciprocate by way of various commitments that will help to ensure that biodiversity is protected and conserved. These commitments should extend beyond village forests to other forests within the buffer and core zones of protected areas that may be assigned to the EDC for protection duties to complement the enforcement work of sanctuary wildlife staff. Such commitments should include the following, for which the Executive Committee has responsibility for implementing:

- i. No fire in village forests or any other forests assigned to the village for use (e.g. grazing purposes) or protection.
- ii. No poaching or illegal felling in village forests or any other forests assigned to the village for protection.
- iii. No grazing by goats in plantations within village forests or any other assigned forests.
- iv. No encroachment in village forests or any other forests assigned to the village for protection.
- v. Provision of intelligence, information and other assistance in the prevention and investigation of offences and offenders.

- vi. Ensuring 100% immunisation of village livestock (to be carried out in year one with Project funds and subsequently sustained by the EDC).
- vii. Facilitating registration of all fire arms in the village.

Eligible benefits

It is advocated that, in return for successfully protecting forests assigned to an EDC, on a *quid pro quo* basis, village members should be granted the following benefits within their village forests and ‘assigned’ forest areas in sanctuaries:

- Rotational grazing by cattle in ‘assigned’ forest areas within sanctuaries. The rotation cycle may be defined by the EDC, in agreement with the sanctuary authorities. It will also be important to build in monitoring procedures to ensure that grazing is sustainable and not jeopardising forest regeneration.

Note: *Grazing, as proposed above is permissible in accordance with provision under Section 29 (Destruction etc. in a Sanctuary prohibited without a permit) and Section 33 (d) (Control of Sanctuaries) of the Wildlife (Protection) Act, 1972.*

- Rotational collection of fuel wood from village revenue forests.
- Regulated collection of non-timber forest products from village revenue forests, for personal consumption purposes only.
- Regulated collection of bamboo from village revenue forests. Bamboo plantations to be raised in the village revenue forests (see above in Section 3.6).

The EDC may levy a nominal fee, other than perhaps from very poor households, in the case of all of the above benefits to augment its resources, with the exception of rotational grazing in assigned forests where the grazing levy, as determined by the Forest Department, would be government revenue.

3.7 Coordinate implementation of village micro-plans at cluster level

While the participatory micro-planning exercises in each village provide the basis for identifying eco-development inputs to each village, they need to be considered within the context of the conservation-development needs of the village cluster as a whole. Thus, having completed micro-plans for all villages within a cluster, they need to be coordinated and their implementation monitored regularly with respect to the following points:

- Ecotourism activities should conform with an ecotourism strategy planned for the sanctuary, or parts of it, as a whole. They must be fully integrated with the overall vision for ecotourism and not consist of a series of independent, isolated initiatives because this will not meet the needs of the visitor.
- Mitigation of human-wildlife conflict must be addressed in a manner that pressures from wildlife on one village do not get transferred to another village in the cluster.
- Income generation activities identified by all EDCs should be first reviewed and endorsed at the cluster level, ahead of being implemented, to ensure cooperation in the case of similar activities being pursued in different villages with respect to marketing and other support.
- Opportunities for convergence between non-Project activities that are common to a number of villages within a cluster and development agency programmes (government and non-government) may also be better coordinated and facilitated at the cluster level.

In order to coordinate and monitor the implementation of micro-plans it is appropriate to establish informal institutional mechanisms at the cluster level along the lines suggested below in Box 3.3.



Box 3.3**INSTITUTIONAL MECHANISM FOR COORDINATING MICRO-PLANS AT CLUSTER LEVEL****Cluster Coordination Committee Membership:**

- President and Vice President of all EDCs in the Cluster (One of them in each Executive Committee would necessarily be a lady, in line with the Orissa Joint Forest Management Resolution, 2008, and hence would ensure good representation of women in the Committee.)
- Member Secretaries of the EDCs in the Cluster
- Panchayat Sarapanch

Invited members: Two relevant officers from departments other than Forest & Environment to be invited as members for purposes of information exchange and promotion of convergence.

Chairman: to be elected by the non-ex-officio members (Presidents and Vice-President of the concerned EDCs).

Convenor cum Member Secretary: Range Forest Officer

Patron: ACF to act as Patron and to provide necessary clout to the Committee.

Meetings: every three months.

Role:

- Review and facilitation of observance of reciprocal commitment by the various EDCs
- Review of progress and facilitation of departmental convergence (wherever feasible) in micro-plan activities relating to resolution of a) man-animal conflicts; b) health facilities; c) educational facilities; d) travel and communication; e) water and minor irrigation.
- Coordination of ecotourism activities.
- Cross-learning and replication of good practices amongst the EDCs
- Coordination of common marketing of produce originating from cluster villages.
- Conflict resolution / management amongst the EDCs



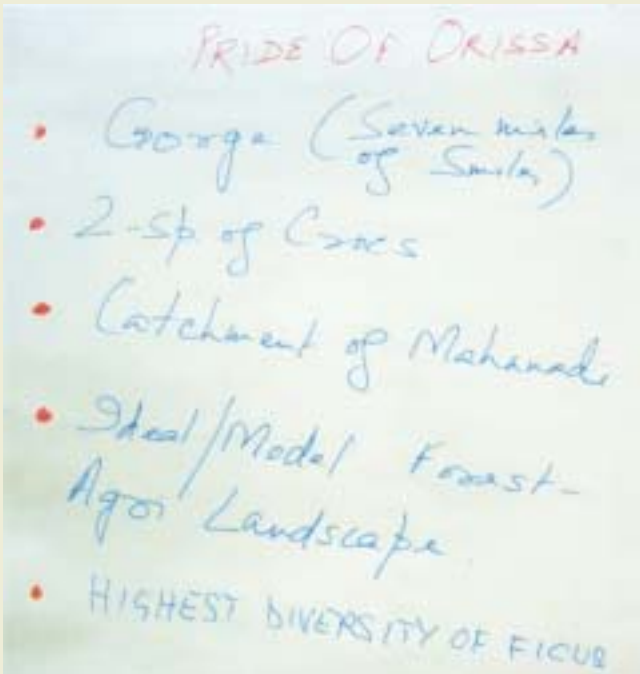


Figure 3.1 Workshop with sanctuary staff held on 25 November 2008 to develop a vision for Satkosia, in which the first exercise was to justify why Satkosia Gorge Sanctuary is branded as the *Pride of Orissa* at the main Pampasar entrance gate.



Figure 3.2 Planning meeting with Facilitation Team (left), ahead of a wellness (wealth) ranking exercise with Chhotkei villagers.



Figure 3.2 Small group of villagers map their hamlet, Gate Sahi, in Chhotkei village (26.11.2008). Households are numbered and listed with the owners' names (bottom left).



Figure 3.3 Visioning exercise with Chhotkei villagers in the school grounds (2-5pm, 27.11.2008)



Figure 3.3 Election of EDC Executive Committee underway at Chhotkei Village (left); and newly elected members taking the Oath of Office (right) on 28.12.2008.

4. ECOTOURISM

4.1 Definitions and components of ecotourism

There is much confused and liberal usage of the term ‘ecotourism’, particularly within the tourism industry which tends to label any nature-based activity or destination as ecotourism for marketing purposes. Ecotourism is not just about ‘green’ destinations, it is much more about ‘green’ behaviour in reaching and exploring such destinations.

The International Ecotourism Society (1991), the world’s largest and oldest ecotourism organisation established in 1990, defines ecotourism as:

Responsible travel to natural areas that conserves the environment and improves the welfare of local people.

The IUCN-World Conservation Union (1996) definition of ecotourism, albeit less succinct, makes specific reference to the appreciation of cultural, as well as natural, heritage and to low visitor impact:

Environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples.

Table 4.1 Typology of tourism, highlighting the importance conceptual differences between ecotourism and some other types of tourism that do not necessarily accommodate environmental or local community needs (adapted from Chafe, 2005).

Category	Definition
Adventure tourism	Nature-based tourism that incorporates an element of risk, higher levels of physical exertion and need for specialised skill.
Ecotourism	Responsible travel to natural areas that conserves the environment and improves the welfare of local people.
Geotourism	Tourism that sustains or enhances the geographical character of a place: its environment, heritage, aesthetics, culture, and well-being of its residents.
Mass tourism	Large-scale tourism, typically associated with ‘sea, sand, sun’ resorts and characteristics such as transnational ownership, minimal direct benefit to destination communities, seasonality, and package tours.
Nature-based tourism	Tourism that relies primarily on the natural environment for its attractions and settings.
Pro-poor tourism	Tourism that results in increased net benefit for the poor people.
Responsible tourism	Tourism that maximises the benefits to local communities, minimises negative social or environmental impacts, and helps local people conserve fragile cultures, habitats and species.
Sustainable tourism	Tourism that meets the needs of present tourist and host regions while protecting and enhancing opportunities for the future.

Thus, many of the nature-based forms of tourism promoted by government agencies, the private sector and NGOs, alike, that claim to be ‘ecotourism’ do not fall within the above definitions of ecotourism, as shown by the definitions of different categories of tourism in Table 4.1. Nature-based forms of tourism, including adventure tourism, are neither necessarily ecologically sustainable (low impact) nor focused on improving the welfare of local communities to help reduce their direct dependencies on biodiversity. Essentially,

ecotourism is a sub-component of sustainable tourism and a sustainable version of nature-based tourism that includes rural and cultural tourism elements.

The **key components of ecotourism** are considered to be as follows (Wood, 2002):

- Contributes to conservation of biodiversity.
- Sustains the well being of local people.
- Includes an interpretation/learning experience.
- Involves responsible action on the part of tourists and the tourism industry.
- Is delivered primarily to small groups by small-scale businesses.
- Requires lowest possible consumption of non-renewable resources.
- Stresses local participation, ownership and business opportunities, particularly for rural people.

Unlike many other forms of sustainable tourism, **ecotourism must be rigorously planned and managed to successfully deliver its key ecological and social objectives**. This requires:

- Specialised marketing to attract travellers primarily interested in visiting natural areas.
- Management skills, particularly related to handling visitors in protected areas.
- Guiding and interpretation services, preferably provided and managed by local inhabitants, which focus on natural history and sustainable development issues.
- Government policies that earmark fees from tourism to generate funds for both conservation of wild lands and sustainable development of local communities and indigenous people.
- Focused attention on local peoples, who must be given the right of prior informed consent, full participation and, if they so decide, the opportunity and training to engage in this sustainable development option.

4.2 Principles of ecotourism

Table 4.2 Examples of ecotourism principles adopted by leading proponents of ecotourism

Ecotourism principles
<p>The International Ecotourism Society (http://www.ecotourism.org/webmodules/webarticlesnet/templates/eco_template.aspx?articleid=95&zoneid=2)</p> <ul style="list-style-type: none"> ■ minimize impact ■ build environmental and cultural awareness and respect ■ provide positive experiences for both visitors and hosts ■ provide direct financial benefits for conservation ■ provide financial benefits and empowerment for local people ■ raise sensitivity to host countries' political, environmental, and social climate <p>The Nature Conservancy (http://www.nature.org/aboutus/travel/ecotourism/about/art667.html)</p> <ul style="list-style-type: none"> ■ conscientious, low-impact visitor behaviour ■ sensitivity towards, and appreciation of, local cultures and biodiversity ■ support for local conservation efforts ■ sustainable benefits to local communities ■ local participation in decision-making ■ educational components for both the traveller and local communities

The International Ecotourism Society is among the first to have identified a set of principles to be followed by those implementing and engaged in ecotourism activities (Table 4.2). Other conservation-oriented

organisations have followed suit. Notable are the principles adopted by The Nature Conservancy, which include provisions for local participation in decision-making and education of both visitors and local people (Table 4.2).

4.3 Community-based ecotourism

Community-based ecotourism is a growing phenomenon, particularly in the developing world (Wood, 2002). The concept is based on the premise that:

- the community has substantial control and involvement in the ecotourism initiative; and
- the majority of benefits accrue directly to the community.

Three main types of community-based ecotourism have emerged, as follows (Wood, 2002):

- the community owns and manages the enterprise (considered to be the purest model);
- all community members are employed by the enterprise on a rotational basis, with profits allocated to community projects; and
- the enterprise is a joint venture between a family or community and an outside business partner⁶.

A visitor's perspective or vision of community-based ecotourism is elaborated in Box 4.1. Further information and guidance on ecotourism and its implementation at state and community levels can be found in Wood (2002).

Box 4.1

A TRAVELLER'S PERSPECTIVE ON A COMMUNITY-BASED ECOTOURISM EXPERIENCE

Visitors are greeted by community leaders and stay in village guest houses that are simple in design and similar to other houses in the community. Villagers take visitors for hikes to natural and cultural sites, informing them about their traditional use of resources and customs in the area. Visitors are given a chance to learn about how the local community perceives its natural setting, wildlife and wild lands, and its cultural heritage. After a full day outdoors, visitors are treated to local cooking and have an opportunity to buy local handicrafts from villagers. Evening gatherings take place in community houses or centres, where world views are exchanged between hosts and guests. This can lead to long lasting bonds between community members and their visitors.

(adapted from Wood, 2002)

4.4 Ecotourism destinations and lodges

Ecotourists typically look for experiences that provide a sense of closeness to the natural features and local communities that attracted them to visit the destination. Any destination, therefore, must protect its resources while facilitating a sense of integration with the local community. Ecotourism destinations have certain characteristics, as summarised in Box 4.2.

An important ingredient of any tourism destination is the accommodation, which is often a decisive factor in the choice of destination. Ecotourist expectations are rather different to those of an average visitor, as experienced in Lao PDR (Fischer-Zernin et al., 2005):

“What the typical international tourist and a growing number of Lao people that live in cities prefer is a clean, well managed small hotel or guesthouse located in a quiet natural area that is built of wood and

⁶ Some of the ecotourism ventures established by Orissa's Forest & Environment Department in partnership with village communities are arguably community-based initiatives of this third type. In this case the business partner is not from the private sector, where the motive is profit, but from the Government sector within which the public interest is vested (see Section 5.5).

bamboo. They prefer to eat local food and sleep in a room decorated with Lao handicrafts and furnishings. Also, most international tourists are very environmentally conscious and want to stay in a place that does not negatively affect the environment.”

Box 4.2**ECO-DESTINATION CHARACTERISTICS**

- Natural features conserved within a protected landscape.
- Low density development, where natural areas are abundant and the built landscape does not dominate.
- Evidence that tourism is not harming natural systems such as waterways, coastal areas, wetlands and wildlife areas.
- Small, thriving community businesses, including food stands and other types of craft enterprises owned by local people.
- Plenty of designated outdoor recreation zones that are designed protect fragile resources, including bike paths, trails or boardwalks that are shared by locals and visitors alike.
- Thriving, locally owned lodges, hotels, restaurants and businesses that provide genuine hospitality with friendly, motivated staff.
- A variety of local festivals and events that demonstrate an on-going sense of pride in the local community’s natural environment and cultural heritage.
- Clean and basic public facilities for tourists and locals to share, such as public showers and toilets.
- Friendly interaction between local people and visitors in natural meeting places, such as local shops, or benches by the sea.

(adapted from Wood, 2002)

This type of accommodation is commonly referred to as an ecolodge, simply defined as:

A small hotel or guesthouse that incorporates local architectural, cultural and natural characteristics, promotes environmental conservation, and produces social and economic benefits for local communities (Fischer-Zernin et al., 2005).

Apani Dhani, in Rajasthan, exemplifies such characteristics (Figure 4.1) and meets all of the criteria commonly ascribed to an ecolodge, as defined in Box 4.3. Further guidance on the development of ecolodges is provided in Box 4.4, based on experience in Laos.

Box 4.3**DEFINITION OF AN ECOLODGE**

An ecolodge is a tourism accommodation facility that meets the following criteria:

- It conserves the surrounding environment, both natural and cultural.
- It has minimal impact on the natural surroundings during construction.
- It fits into its specific physical and cultural contexts through careful attention to form, landscape and colour, as well as the use of localised architecture.
- It uses alternative, sustainable means of water acquisition and reduces water consumption.
- It provides careful handling and disposal of solid waste and sewage.
- It meets its energy needs through passive design and combines these with their modern counterparts for greater sustainability.
- It endeavours to work together with the local community.
- It offers interpretative programmes to educate both its employees and tourists about the surrounding natural and cultural environments.
- It contributes to sustainable local development through research programmes.

(adapted from Mehta *et al.*, 2002)

Box 4.4**GUIDELINES FOR ECOLOGES IN LAOS**

Use local architecture and building materials: Build the lodge to look like a traditional home or house. Construction materials should be local, such as bamboo, rattan, wood, locally made bricks or stone. This is often the cheapest and most common way to build a house in many rural areas, so most carpenters know very well how to do it in this fashion.

Minimise the use of energy: Avoid air conditioning and other electric devices that use too much electricity. Install solar energy to meet some power needs, such as lighting and hot water.

Use local products and minimise the use of chemicals in daily operations: Use local food products (not canned imported products), locally produced bed sheets, table cloths and other items in the lodge. Do not buy chemical bug sprays, poisons or toxic cleaning fluids when there is a suitable substitute. Install screens to keep out the bugs, use non-toxic rat poison (or have housecats) and use simple soap and water for cleaning. All of these ideas will save money and the environment.

Minimise and manage waste: Do not use things that make a lot of waste, such as disposable water bottles, canned foods, or foods wrapped in plastic. Recycle and reuse items when possible, especially glass and plastic.

Employ local people and support their community: Lodges should give work opportunities to nearby villagers. Also support the community by helping with activities at a nearby school.

Minimise negative impacts on nearby villages; Provide information to tourists on cultural do's and don'ts. Speak with local villagers regularly to learn how to can help them and to learn if there are any problems created by tourists that stay at the lodge.

Support conservation of nature: Provide information to guests about nature tourism in the area. Also help by not selling wildlife products and by supporting the conservation activities in a protected area nearby. Another simple way is to protect the trees around the lodge and prohibit hunting on the property.(adapted from Fischer-Zernin et al., 2005)

4.5 Ecotourism markets and consumer demands

Travel and tourism is the largest business sector in the global economy and comprises 10% of GDP worldwide. International tourism was estimated in 2006 to be growing at 4.6% per year globally and 9.5% in the case of developing nations (TIES, 2006).

Beginning in the 1990s, ecotourism has been growing 20-34% per year and by 2004 ecotourism/ nature tourism was growing globally three times faster than the tourism industry as a whole. Most of tourism's expansion is occurring in and around the world's remaining natural areas. Sustainable tourism could grow to 25% of the world's travel and tourism market within six years. Analysts were predicting a growth in eco-resorts and hotels, and a boom in nature tourism, with 'experiential' tourism (eco-, nature, cultural, adventure tourism) expected to grow quickest over next 20 years (TIES, 2006). Admittedly, that was prior to the recent global recession but it does indicate that there are market gains to be won by early converts to sustainable tourism as economies recover.

While there appears to be very little information available about the scale and growth of ecotourism within India, much of which undoubtedly is nature-based and not necessarily 'eco-'tourism, and the expectations of the Indian ecotourist, information available for North American and European ecotourists provides some insights to the expectations of international tourists and their profiles, as summarised in Boxes 4.5 and 4.6, respectively.



Box 4.5**CONSUMER DEMANDS**

- More than two-thirds of U.S. and Australian travelers, and 90% of British tourists, consider active protection of the environment and support of local communities to be part of a hotel's responsibility.
- In Europe:
 - 20-30% of travellers are aware of needs and values of sustainable tourism.
 - 10-20% of travellers look for 'green' options.
 - 5-10% of travellers demand 'green' holidays.
- In Germany:
 - 65% (39 million) of travellers expect environmental quality; and
 - 42% (25 million) "think that it is particularly important to find environmentally-friendly accommodation.
- Nearly half of those surveyed in Britain said they would be more likely to go with a "company that had a written code to guarantee good working conditions, protect the environment and support local charities in the tourist destination. Ethical tourism will rightly be a big issue in the new millennium."
- A survey of U.S., British, and Australian travellers revealed that 70% would pay up to \$150 more for a two-week stay in a hotel with a "responsible environmental attitude.
- In a U.K. survey, 87% of travellers said their holiday should not damage the environment; 39% said they were prepared to pay 5% extra for ethical guarantees.
- 53% of American travellers say their travel experience is enhanced when they learn as much as possible about local customs and culture.
- 95% of Swiss tourists consider respect for local culture to be highly important when choosing a holiday.
- Nearly a third (46 million) of U.S. travellers buy specifically from companies that donate part of their proceeds to charities. In Europe, where there is a strong and growing sustainable tourism movement, these figures are even higher.

(TIES, 2006)

Box 4.6**MARKET PROFILE OF A NORTH-AMERICAN ECOTOURIST***

*Ecotourist is defined in this study as nature/adventure/culture-oriented traveller.

- Age: 35-54 years old but varies with activity, cost and other factors.
- Gender: 50% female and 50% male but clear differences according to activity.
- Education: 82% college graduates.
- Party composition: 60% prefer to travel as a couple, 15% with their families and 13% alone.
- Trip duration: Largest group (50%) preferred trips of 8-14 days.
- Expenditure: Willing to spend more than the general tourist. Largest group (26%) prepared to spend US\$1,00-1,500 per trip.
- Important elements of trip: Top three responses: (1) a wilderness setting, (2) wildlife viewing, and (3) hiking/trekking.
- Motivation for the next trip: Top two responses: (1) to enjoy scenery/nature and (2) new experiences/ places.

(ARA Consulting Group Inc. and HLA Consultants (1994); Wight (1996a, 1996b))

PROFILE OF AN EUROPEAN ECOTOURIST

- Experienced travellers
- Higher education bracket
- Higher income bracket
- Middle-age to elderly
- Opinion leaders
- Ask and tell their friends about trip
- Are most important source of trip information

(TIES, 2006)

4.6 Ecotourism web sites

Much information on ecotourism is readily accessible from the World Wide Web, including the following that are considered to provide authoritative information and good examples of best-practice.

<http://www.ecotourism.org/> As the world's oldest and largest ecotourism organization, The International Ecotourism Society is committed to promoting the principles of ecotourism and responsible travel. With the goal of uniting conservation, communities and sustainable travel, TIES serves its members in over 90 countries, as the global source of knowledge and advocacy in ecotourism.

<http://www.responsibletravel.com/> The first business in the world to talk about responsible travel & tourism, and the first business dedicated to promoting 'eco, green or responsible' holidays on one site. Publishes warts and all traveller's reviews on their experiences and responsible travel. Among the first to offer carbon offset schemes in tourism. Introduced *The Responsible Tourism Awards*.

<http://www.sustainabletravelinternational.org/> Promotes responsible travel and ecotourism, supporting sustainable development, and helping travellers and travel providers protect the cultures and environments they visit.

<http://www.conservation.org/learn/ecotourism/Pages/ecotourism.aspx> Conservation International, among the world's leading conservation non-governmental organisations, documents how it is promoting ecotourism through a wide range of projects that bring visitors and the travel industry together in key locations to develop nature-based tourism strategies that are community-driven and conservation focused.

<http://www.nature.org/aboutus/travel/ecotourism> The Nature Conservancy, another leading international conservation non-governmental organisation, provided information on how ecotourism can generate funds for conservation, reduce threats to wildlife, and benefit communities.

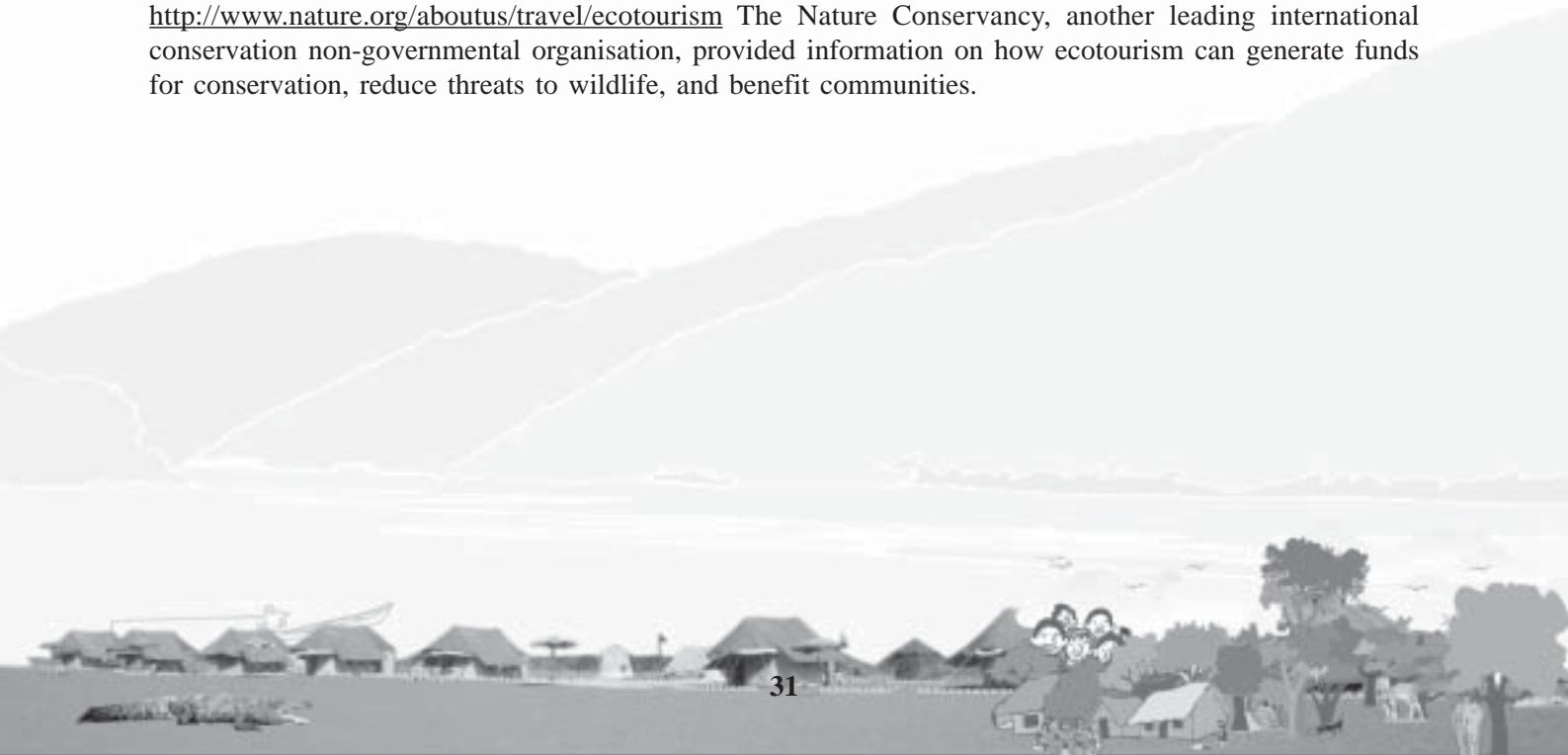




Figure 4.1 Apani Dani is socially responsible, providing employment and marketing opportunities for the local community, and environmentally conscientious in its design and construction, use of solar energy, composting of all organic waste, recycling of other waste and policy of not using plastic materials. [<http://www.apanidhani.com>]

5. ECOTOURISM OPPORTUNITIES IN ORISSA'S FOREST SECTOR

5.1 Status of ecotourism in Orissa

To date, tourism in Orissa has been developed primarily in coastal regions and just a handful of inland locations. As for ecotourism, it is not properly understood and yet to be developed in a meaningful way that benefits nature conservation and local communities. The increasing numbers of destinations marketed as ecotourism are predominantly nature-based ventures that do not:

- promote conscientious low impact visitor behaviours;
- provide support for local conservation efforts; or
- provide benefits to local communities.

Some examples of such nature-based enterprises in Orissa that fall short of a number of ecotourism principles are shown in Figures 5.1 to 5-3.

Orissa has considerable potential for the development of ecotourism, given its wealth of tribal communities, natural beauty and wildlife. In a recent review of the potential for ecotourism in Orissa, Panigrahi (2005) concludes that State Government has not given due regard to the enrichment of tourism from an ecological or cultural point of view and makes a number of recommendations of direct relevance to the Forest sector:

- “Attempts should be made to conserve the physical ecology as well as the cultural ecology of the ethnic tribal communities by empowering them through a **participatory protected area management approach.**”
- “The ethnic communities should be encouraged to enrich their ethnic heritage and skills so as to make their traditions more attractive rather than less in the face of change. Eco-tourism (inclusive of its ethno component) should provide an opportunity for these tribal communities to generate more income from the tourism business in a dignified manner.”
- “The whole approach of cultural integrity of the tribal communities and tourism should be honoured on the basis of right perspective for the tribal communities, not merely on income generation perspective for the State. The fabric of native culture reflected through folklore, folk music, folk dance, and customs should be promoted through required value addition.” Studies should be conducted to establish the possible effects of eco-tourism on the tribal people and their cultural life.”
- “Overall, the eco-tourism of the State should effectively protect indigenous people and cultures from external threats; recognise their traditional rights on land and water; recognise their rights to control and co-manage these resources; allow participation of traditional institutions in the management of natural resources; and recognise the rights of these people to determine their own development priorities.”

5.2 Ecotourism and the role of the forestry sector

Given the potential benefits to nature conservation and forest-dependent communities living in and around protected areas that are potentially realised through ecotourism, there is a strong case for the Forest and Environment Department/Wildlife Wing to take a lead in promoting ecotourism within the State by:

- i) developing and adopting policy based on international definition(s), principles and standards;
- ii) demonstrating good practice, with a focus on protected area destinations;
- iii) fostering community-based ecotourism within and adjacent to protected areas, as part of eco-development; and
- iv) hosting a web site to promote understanding of ecotourism, market destinations and encourage best practice by applying a set of ecotourism criteria to such destinations for the benefit of the visitor seeking an ecotourism experience.

Lessons can be learned and experience shared among these and other enterprises, enabling them to realise their ecotourism potential to the full. Some of these lessons are identified in Box 5.1 and, together with ecotourism principles and guidance on best practice in the development of ecotourism destinations and enterprises outlined previously in Chapter 4, the Forest sector should use the lessons learned from their experience to date to inform the design and development of future ventures as, for example, in the case of ecolodges planned for Chhotkei and Tikarapada in Satkosia Gorge Sanctuary (see Section 8.5).

Box 5.1**LESSONS TO LEARN FROM RECENT ECOLOGDE DEVELOPMENTS
IN SOME OF ORISSA'S PROTECTED AREAS**

- Criteria to consider in selecting best suited location for an ecolodge:
 - tranquil, scenic location away from thoroughfares (forest roads etc), with fine views of landscape;
 - proximity to village for opportunities of engagement between visitors and community;
 - natural shade, as provided by trees (e.g. mango grove);
 - nearby access to a perennial river or stream, providing for relaxation and coolness; and
 - potential for wildlife depredation and the need for protection from marauding elephants and other potentially dangerous animals (e.g. crocodile, tiger, sloth bear).
- Location of ecolodge should have minimal impacts on biodiversity and comply with existing regulations (e.g. no construction within high flood level).
- Lodges to be wood, brick, other natural materials in harmony with local architecture. Concrete is inappropriate: impacts on natural/rural surroundings, costly to build and maintain/renovate, unsuitable for climate.

[see http://www.ecotourismlaos.com/directory/publications/designing_and_operating_an_ecolodge_in_the_lao_pdr_english.pdf]

- Design to respect local climate conditions to minimise energy consumption and avoid need for air-conditioning etc.
- Solar, hydro and/or wind to be harnessed for generation of power (electricity etc).
- Lodges to be run by EDC members, based on formal agreement between EDC and Forest and Environment Department in which terms and conditions clearly laid out, including allocation of net income (see Section 5.5).
- EDC members to input to site selection, design and construction of ecolodge from outset.
- Comprehensive training programme in hospitality/catering/management for EDC members, with regular inputs spread over several years.
- Package of optional activities (e.g. walking, mountain biking/bicycling, elephant safaris, boating in traditional local craft, angling, game viewing) to be available to visitors, with well-trained local naturalists available as guides.
- Interpreted materials and nature trails to be available to visitors.
- Flexible, easily accessible booking system via internet and telephone.
- Lodge rules to be accepted at time of booking and reinforced by signs etc on arrival.
- Manage visitor expectations by raising awareness of ecotourism principles, site facilities (e.g. no TV), local conditions and necessary precautions (e.g. insect repellent) ahead of visit.

5.5 Community-based ecotourism and the sharing of benefits

The Forest sector is already beginning to pursue a policy of establishing community-based ecotourism in some of its protected areas, albeit in a somewhat *ad hoc* manner (see Section 5.4). Fundamental to the community-based management of ecolodges or similar is the establishment of a Memorandum of Understanding between the protected area management authority and the local community (i.e. EDC) that defines the relationship between the parties, in terms of their respective responsibilities and the distribution of financial benefits accruing from the venture.

It is particularly important to ensure that the revenue benefits those running the venture, the wider local community and the conservation of the resource (biodiversity) upon which it is dependent. Thus, financial mechanisms need to be instituted whereby varying proportions of the revenue are distributed between those running the ecolodge (usually a society established for such purposes), the local EDC and the protected area management authority.

A variety of benefit-sharing models have been developed in Periyar National Park/Tiger Reserve, for example, which is internationally acknowledged for its successful development of community-based ecotourism. In general, some 30% of income is divided equally between the Government, park welfare fund and an honorarium for the EDC member(s) hosting the visitor(s), while the remaining 70% is used to pay the salaries of the EDC members involved in the venture. Salaries are based on minimum wages for 26 days per month. Any surplus from the 70% remains in the Community Development Fund for allocation to other initiatives⁸.

Guidance on the key elements of any agreement between a protected area management authority and a community-based ecolodge venture is given in Box 5.2. It provides the basis of a Memorandum of Understanding between the two parties.

Box 5.2**MEMORANDUM OF UNDERSTANDING BETWEEN
FOREST & ENVIRONMENT DEPARTMENT AND EDC FOR COMMUNITY-RUN ECOLOGES**

- A Memorandum of Understanding defines the relationship between the FD and EDC whereby ownership and/or management of an ecolodge is entrusted to the EDC in return for providing certain facilities and services to agreed standards and principles of ecotourism.
- It may be complemented by a Service Level Agreement in which services are outlined (quantified) in more detail and reviewed annually.
- Both parties are partners sharing a common interest: to protect the natural resource base upon which ecosystem services and, therefore, local livelihoods depend.
- The responsibilities of each partner are defined, the role of the FD being advisory and facilitative, while that of the Executive Committee of the EDC is to oversee the management of the ecolodge by a society or cooperative of EDC members and to take executive decisions.
- Gross income generated from the ecolodge and ancillary facilities and services, or net income after deduction of running costs (e.g. food, fuel, cleaning materials etc)⁹, may be allocated according to the following guidelines:
 - 20% lodge maintenance, development and staff training fund;
 - 10% protected area welfare/development fund administered by DFO Wildlife;
 - 10% EDC fund for redistribution among EDC members for development of other income-generating activities; and
 - 60% for wages of ecolodge employees. Where wages exceed Rs 2,500¹⁰ per employee in a month, the balance may be shared equally (33.33%) between the protected area welfare/development fund, EDC fund, and Employees.
- The accounts should be professionally audited.
- Provisions should include certain reciprocal conservation management commitments on the part of the EDC, which might include recording/monitoring wildlife encountered while guiding nature walks, reporting incidences of poaching and fire, and protecting an area adjacent to the facility from encroachment and fire.
- Services provided by the EDC additional to running the ecolodge should include guided trips (by boat, non-mechanised vehicle, on foot or elephant) with interpretation of the local history, culture and biodiversity.

⁸ See: [www.responsibletravel.com/presentation/Session%20V/Padma%20Mahanty/Kerala%](http://www.responsibletravel.com/presentation/Session%20V/Padma%20Mahanty/Kerala%20.pdf)

⁹ Net income is practicable if there is a high degree of integrity among those managing the ecolodge.

¹⁰ The basic wage should be comfortably above the minimum wage.

5.6 Ecotourism web site

The establishment of an ecotourism web site by the Forest sector is likely to be a most cost effective way of promoting ecotourism and marketing its own direct interests in establishing financially viable and environmentally sustainable community-run ecolodges in and around its protected areas.

Increasingly, especially among more independent travellers, people are using the internet to research and book destinations. The internet is a powerful tool for reaching out to potential visitors from overseas, as well as Indian nationals from neighbouring states, through development of a carefully designed and well-informed eco-tourism website.

The overall aim of such a web site should be to promote ecotourism by:

- Explaining the concept of ecotourism and its principles.
- Providing information about or links to ecotourism destinations, ecolodges and other facilities in Orissa, including on-line booking.
- Providing a transparent and objective audit of ecotourism enterprises that indicates the extent to which ecolodges and other venture meet a predefined set of best practice criteria, as illustrated, for example, in Table 5.1. This would enable the environmentally responsible traveller to make an informed choice of destination/accommodation facility, while also encouraging enterprises to adopt and develop best practice.

Work has commenced in designing such a web site under the auspices of OFSPD. In planning the design, it is important to appreciate that many potential visitors from overseas may have never heard about Orissa, let alone be aware of the great diversity of its cultural and natural heritage. Thus, the home page of the web site must achieve dual objectives in one hit by:

- raising the interest of the surfer in Orissa's special features, thereby encouraging them to explore the website (and its links) further for potential destinations; and
- demonstrating to the surfer that information on ecotourism is authoritative, objective and grounded in ecotourism principles and best practice.

Some good-practice guidance on designing tourism destination websites is given in Annexure-4.





Figure 5.1 ‘Ecotourism’ complex at Barakhandia, Debrigarh Sanctuary, is equipped with six cottages, watch tower and large communal dining hall, all constructed in concrete in stark contrast to the surrounding forest. It is managed by Debrigarh Eco-Tourism & Eco-Development Society, established by the local community.



Figure 5.2 Tourism Department’s ‘ecotourism’ complex at Taptapani, where the sumptuous air-conditioned bungalow, complete with plunge pools in each of the two suites that are capable of draining the nearby temple of its hot spring waters, stands in marked contrast to adjacent wooden lodges in the trees. The local community benefits from some employment in managing the facility.

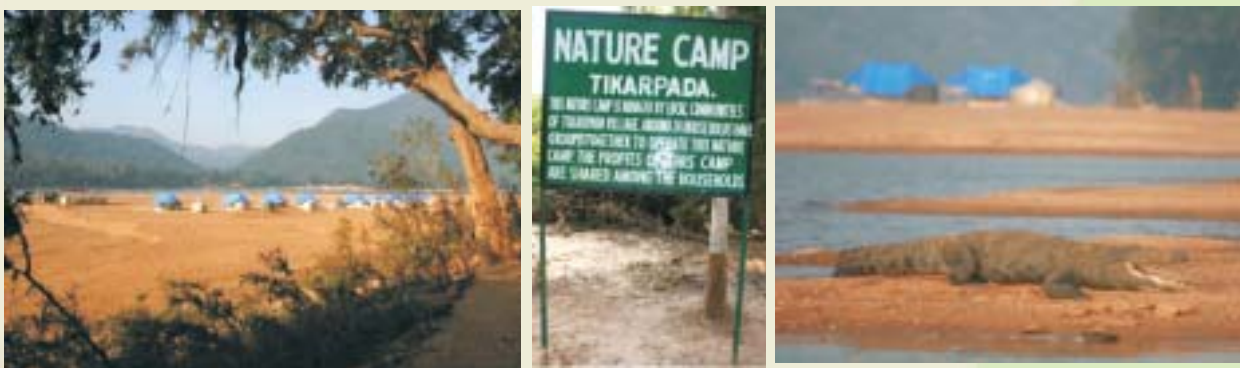


Figure 5.3 ‘Ecotourism’ complex at Tikarpada, Satkosia Gorge Sanctuary, where the magnificent location on a sand bar by the Mahanadi is shared with a declining population of mugger and previously gharial. The camp is run by a local community based organization.

6. FRAMEWORK FOR ECO-DEVELOPMENT IN SATKOSIA

6.1 Satkosia Gorge Sanctuary

Satkosia Gorge, occupying an area of 795.52 km² that encompasses the Mahanadi Gorge, was initially notified as a Sanctuary on 19 May 1976 under Section 18 (1) of the Wildlife (Protection) Act 1972 vide Government of Orissa, Forest, Fisheries and Animal Husbandry Department Notification 12727/FFAH to protect its depleted freshwater crocodile populations of gharial and mugger within the Mahanadi Gorge ecosystem. Subsequently, the Sanctuary's potential for conserving other flagship species, notably tiger and elephant, was recognised and their interests were included within conservation strategies.

The northern (530.01 km²) and southern (265.51 km²) parts of the Sanctuary are bisected by the Mahanadi River, itself covering an area of 30.1 km². They are managed by Satkosia Wildlife Division, based at Angul, and Mahanadi Wildlife Division, based at Nayagarh, respectively (Figure 6.1).

The legal procedure for final notification under Section 26-A of the Wildlife (Protection) Act 1972 has yet to be completed due to the lengthy procedure of settlement of rights involving 102 villages within the notified boundary, including 92 revenue villages and three forest villages spread across four districts. Enquiries have been completed by the Collectors of three of the four districts (Nayagarh District is outstanding) and, based on their recommendations, it is proposed to re-align the boundary of the Sanctuary in such a way as to excise all villages on the periphery of the notified boundary from the Sanctuary and include four adjacent reserved forests in the north-east, as shown in Figure 6.1. These reserve forests are free from any settlements or exercise of rights.

There are 11 villages in Angul District located within the heart of the Sanctuary that are considered to be too large to relocate, so they will become enclaves demarcated as being legally outside its boundary. Ten other smaller villages within the Sanctuary will be treated initially as enclaves, with a view to their potential relocation in the long-term, subject to villagers' willingness to move out and availability of land and funds for them to do so. Details are summarised in Table 6.1.

Table 6.1 Villages within the heart of Satkosia due to be excluded from the Sanctuary and others tentatively identified for relocation at some future date (Misra, 2006).

District	Village	Area (ha)	No. households	Population	Eco-development cluster
Villages to remain as enclaves within Sanctuary					
Angul	Purnakote	358	171	766	Purnakote
Angul	Goralpur	141	83	316	Purnakote
Angul	Chhotkei	235	93	434	Purnakote
Angul	Tulka	204	94	455	Tulka
Angul	Majhipada	386	37	170	Tikarapada
Angul	Behera Sahi	238	37	177	Tikarapada
Angul	Gaindi	83	66	308	Tikarapada
Angul	Karadapada	149	98	415	not included in initial tranche
Angul	Hatibari	282	92	443	not included in initial tranche
Angul	Tikarapada	152	180	684	Tikarapada
Angul	Katrang	317	69	276	Baliput
Totals	11 villages	2,545	1,020	4,444	

District	Village	Area (ha)	No. households	Population	Eco-development cluster
Villages for potential relocation					
Angul	Badakaheta	90	24	100	Purnakote
Angul	Salor	124	19	90	Purnakote
Angul	Raigoda*	172	31	185	not included in initial tranche
Boudh	Marada	30	14	57	not included in initial tranche
Nayagarh	Kuturi	119	20	89	not included in initial tranche
Nayagarh	Bahali	37	-	-	not included in initial tranche
Nayagarh	Badmul	288	13	53	not included in initial tranche
Nayagarh	Salapaganda	11	7	41	not included in initial tranche
Nayagarh	Musugurha	13	5	25	not included in initial tranche
Nayagarh	Malisahi	-	-	-	not included in initial tranche
Totals	10 villages	884	133	640	

*Village due to be relocated.

The three village forests (Asanabahali, Bhurkundi and Tarava, established in 1933, 1914 and 1909, respectively, and possessing a total land area of 270 ha in Angul District) have been recommended by the Collector for conversion into Revenue Villages.

In practice, the *status quo* seems likely to prevail with respect to villages located within the heart of the Sanctuary (Table 6.1), with the exception of Raigoda which has been recommended for relocation by the Collector. Villagers have given their written consent to move out from Raigoda, subject to being given suitable cultivatable land and attractive financial package. Relocation packages are available under the Government of India's *Beneficiary Oriented Scheme for Tribal Villages of Project Tiger Area, National Park and Sanctuary (Centrally Sponsored)* and rehabilitation will follow the norms of the State Government's Water Resources Rehabilitation and Resettlement Plan. As for the other nine small villages, there are no immediate plans for any of them to be relocated, nor have any applications been submitted by the Wildlife Wing for relocation funds.

6.2 Satkosia Tiger Reserve

Satkosia Gorge Sanctuary, together with Baisipali Sanctuary abutting its southern boundary, was notified as Satkosia Tiger Reserve vide Notification No. 8F(S)-32/'2006/20807/F&E on 31 December 2007. The Tiger Reserve extends over a total area of 963.87 km², of which 523.61 km² is delineated as core zone, considered to be critical habitat for tiger (Figure 6.2).

The buffer zone, while comprising some areas of dense forest, has been delineated in such a way as to include as much revenue land as possible, as can be seen by comparing Figures 6.1 and 6.2. The five exceptions that lie in the core zone are listed in Table 6.2.

Table 6.2 Villages located in the core zone of Satkosia Tiger Reserve (Popli *et al.*, 2008).

District	Village	Area (ha)	No. households	Population	Eco-development cluster
Angul	Raigoda*	172	31	185	not included in initial tranche
Boudh	Marada	30	14	57	not included in initial tranche
Nayagarh	Kuturi	119	20	89	not included in initial tranche
Nayagarh	Salapaganda	11	7	41	not included in initial tranche
Nayagarh	Musugurha	13	5	25	not included in initial tranche
Totals	5 villages	345	77	397	

*Village due to be relocated.

The main management implications for eco-development activities, including eco-tourism, that arise from the designation of Satkosia as a Tiger Reserve relate to zonation for management purposes and they are as follows:

- Eco-development activities should be designed to reduce pressures on biodiversity within core zones and not significantly disturb or result in other impacts on such zones.
- Eco-development activities, including ecotourism, should be restricted to buffer zones, except for those intended to support the park authority in managing and protecting the core zone (e.g. research, monitoring, fire control and anti-poaching).
- Many income-generating activities, with the exception of ecotourism and, for example, regulated collection of minor forest products, should be confined to revenue lands (e.g. fuel wood collection, livestock grazing).

Such policies for eco-development activities are consistent with Project Tiger Guidelines on reducing the dependencies of local people on forests within buffer zones, while fostering ecotourism within these zones, as shown in Box 6.1.

Box 6.1**EXTRACTS FROM PROJECT TIGER REVISED GUIDELINES
RELEVANT TO ECO-DEVELOPMENT, INCLUDING ECOTOURISM****4.5 Co-existence agenda in buffer/fringe areas (landscape approach/sectoral integration/ecologically sustainable development programme/livelihood options/eco-tourism)**

The fringe areas around Tiger Reserve have corridor value, and their ecological sustainability is important to prevent the area from becoming ecological sinks on account of over use of resources and unwise land use. This calls for delineation of buffer zone around a tiger reserve to incorporate such fringe areas so that it can fulfil the following objectives:

- Providing ecologically viable livelihood options to local stakeholders for reducing their dependency on forests.
- Conserving the forest area through restorative inputs involving local people for providing habitat supplement to wild animals moving out of core areas.

4.17 Fostering Eco-Tourism in Tiger Reserves 'Ecotourism' in the context of Tiger Reserves is proposed to be fostered with financial support to the host community through 'soft loans' from Eco Development Committees, in accordance with site-specific 'Ecotourism plan' and carrying capacity of Tiger Reserves in the buffer areas. The core/critical tiger habitats would not be used for any form of tourism, and the ongoing tourism activities in such areas should be phased out in the fringe/buffer areas, without affecting its corridor value. The development of tourism related facilities within the buffer zones of Tiger Reserves would continue with inputs under Project Tiger. The opportunities for stakeholders would include management of low cost accommodation for tourists, providing guide services, providing sale outlets, managing excursions, organizing ethnic dances and the like.

(Source: National Tiger Conservation Authority, 2008)

Local villagers have a right of way through the core zone along traditionally used forest tracks and roads but not visitors. The principal access for visitors is via the metal road that runs from the main entrance at Pampasar through buffer to Tikarapada on the banks of the Mahanadi. There is also an unmetalled forest road that runs from Tikarapada along the north bank of the Mahanadi to Baliput, all of which lies in the core zone. This forest road has been open to the public in the past but it is planned to close it to vehicles. It is important to take this limited access into account when planning for ecotourism.

It should also be noted that a 7 kosa¹¹ stretch of the Mahanadi River, which equates to 14 miles or 22 km, passes through the core zone. Local villagers have traditional rights of access along the River and, currently,

¹¹ It is this stretch of the Mahanadi River passing through the Satkosia Gorge that is referred to. *Kosa* is a traditional measure of distance that equates to two miles and *sata* means seven, after which Satkosia takes its name.

are licensed to fish using rod and line but not with nets. A total of 126 licences are issued to Tikarapada fisherman.

6.3 Conceptual model for eco-development in Satkosia

A generic model for eco-development in and around protected areas is conceived as follows:

- Clusters of villages that surround or encircle core zones (or critical habitats) within protected areas are prioritised for piloting eco-development. Their strategic location in relation to core zones maximises opportunities for reducing their dependencies on forest resources, while also protecting those resources from being exploited by others. Eco-development provides the mechanism for alleviating pressures on biodiversity within the core zone through a range of income-generating activities, including ecotourism, in the buffer zone and revenue land. Such activities should include anti-poaching and anti-fire patrolling in collaboration with the protected area management authority. Opportunities may also be provided to visitors wishing to contribute to and experience such protection work at a financial premium, thereby contributing to community and park revenues.
- Reduction of pressures on biodiversity should initially focus on reducing the incidences of fire and poaching in the core zone. Pressures from livestock will take longer to address, as alternative sources of fodder will first need to be grown within revenue lands or sourced externally.
- The effectiveness of eco-development activities in reducing pressures on biodiversity should be monitored via outcomes in the core zone, as well as inputs to the buffer zone. Baseline surveys of biodiversity of key wildlife indicator species should be undertaken in the core zone, using ecologists, wildlife staff, local villagers and appropriately skilled volunteers. Incidences of fire can be monitored remotely by satellite, as currently undertaken annually for the entire country by the Forest Survey of India.
- Ecotourism can become an important ingredient of eco-development, providing alternative sources of income for communities. The presence of visitors can also act as a deterrent to poachers. This is described in more detail in Chapter 8.

6.4 Applying eco-development in Satkosia

Satkosia Gorge is one of four sanctuaries located within the OFSDP area that has been identified for inclusion in the Project's Biodiversity Component to address threats to biodiversity through eco-development (Green & Panwar, 2008). Targeting the selection of villages in which to pilot eco-development has been based on the identified priority need to protect the integrity of the central part of the core zone.

Reference to Figure 6.2 shows that the central part of the core zone is flanked to the north-west and south-east by buffer zones in which there are a significant number of villages. Thus, this central core is essentially a corridor between a large expanse of core zone in Baisipalli Sanctuary to the south-west (beyond the Mahanadi River) and uninhabited Reserve Forest to the north-east. Its integrity can only be maintained and enhanced by alleviating pressures exerted by villagers residing in the surrounding buffer zones, particularly with respect to forest fires, poaching and livestock grazing. Concomitantly, pressures from wildlife on revenues lands within these buffer zones (damage to crops from elephant and wild boar) need to be addressed, along with a range of income-generating activities to improve local livelihoods. As originally proposed in the framework for the Biodiversity Component (Green & Panwar, 2008) and agreed with the Wildlife Wing through an iterative consultation process, a strategy has been developed to pilot a package of eco-development initiatives (including ecotourism) in four clusters (Tikarapada, Purnakote, Tulka and Baliput), comprising 16 revenue villages, that occupy these surrounding buffer zones. The inclusion of Tikarapada and Baliput village clusters in this pilot initiative is also based on the urgent need to address threats to gharial and mugger crocodile populations from current unauthorised fishing practices along the core section of the Mahanadi between Tikarapada and Baliput that is zoned for their special protection. The four clusters are shown in Figure 6.3 and the locations of individual villages within each cluster are shown in greater detail in Annexure-5.



Figure 6.1 Map of Satkosia Gorge Sanctuary showing its notified boundary (dark green), forest boundaries (green), village revenue lands (buff) and administrative divisions. Rationalisation of the boundary, as proposed in the Management Plan, is based on exclusion of peripheral revenue lands from the Sanctuary and mitigation of their excision by the inclusion of four adjacent reserved forests in the north-east.



Figure 6.2 Map of Satkosia Tiger Reserve, showing core and buffer zones. Most revenue villages are located with the buffer zones (exceptions are listed in Table 6.2).

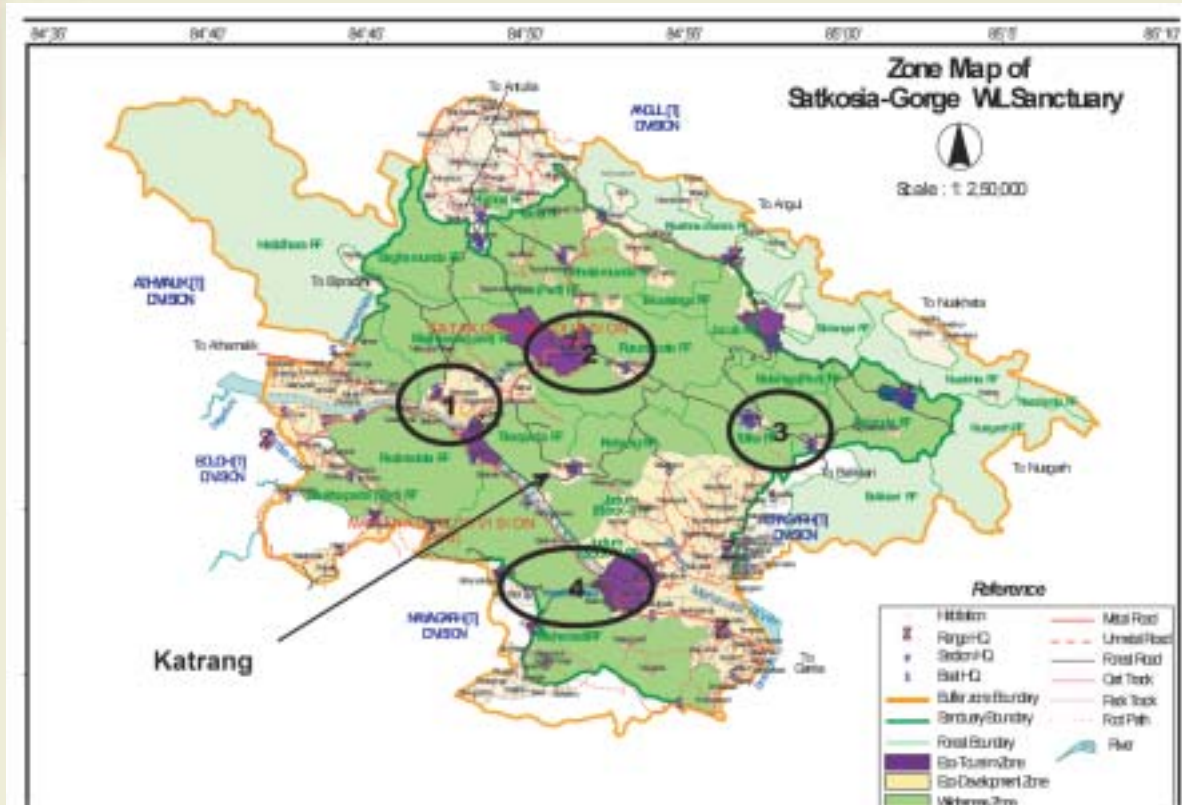


Figure 6.3 Location of clusters of villages for eco-development (including ecotourism) in Satkosia Gorge Sanctuary (1 Tikipapada, 2 Purnakote, 3 Tulka, and 4 Baliput). Katrang Village is included within the Baliput cluster.

7. CHHOTKEI VILLAGE MICRO-PLAN

7.1 Physical profile of village (Proforma I)

1. *History*

Chhotkei Village lies between Purnakote (GP headquarters) and Tulka villages, some 5 km from the former. It falls within Angul C.D Block, Tehsil of Angul District. The village is an enclave within Satkosia Tiger Reserve and, hence, is surrounded on by forests (Figure 7.1).

The village has a temple dedicated to Maa Kalapat, which is the famous Goddess of Angul region. Its origins can be traced back to the establishment of the said temple by Raja Saheb of *Krushna Chakragarh* (Angul) who asked two families of Dehuri to reside in the village for the worship of the Goddess and to look after the temple. Gradually more families settled here (some during the period when bamboo was harvested by a private company) and the village expanded to its present complement of 96 families.

Chhotkei lies in a valley and is surrounded by compartment numbers 5,6,7,13,14,16 of Purnakote Reserve Forest. Two streams flow north-west and south-west of the village, which later combine into the *Domuha Nala* that flows towards Purnakote Village. The village is dominated by a distinctive hillock (Figure 7.1).

An Eco-development Committee (EDC) was formed in the village during 2003-04 under the Forest Development Agency programme of the Government of India. Activities under this programme have since been completed.

2. *Location, administration, facilities*

1	Name of Village	Chhotkei
2	Name of EDC	Maa Kalapat EDC
3	Name of sahi(s) / tola(s) in village	Gate sahi, Gauda sahi
4	Forest Beat	Chhotkei
5	Forest Section	Purnakote
6	Forest Compartment(s) adjacent to village	East: Purnakote RF compartment no16 North: Purnakote RF compartment no 5 and 6 South: Purnakote RF compartment no13,14 West: Purnakote RF compartment no7
7	Forest Range	Purnakote WL Range Office (5 km)
8	Forest Division	Satkosia WL Division Office, Angul (55 km)
9	Panchayat	Purnakote (5 km)
10	C.D. Block	Angul (55 km away)
11	Police Station	Purnakote (5 km)
12	Nearest primary health centre	Purnakote (5 km)
13	Nearest school, college	Primary school (TRW) in Chuttkei High School (Govt-aided) at Purnakote (5km) Intermediate & Graduate College: Angul (55 km)
14	Nearest village haat (local market)	Purnakote
15	Nearest bank	Nilachala Gramya Bank, Jagannathpur (17 km)
16	Nearest town with urban services (e.g. electricity, buses, market, post office)	Purnakote (5km)
17	Number of households:	96
18	Human population (see Table 7.1)	437
19	Livestock population (see Table 7.2)	497

Table 7.1 Details of human population

Category	Total	Households	Pop ⁿ	Adults		< 18 years		Literate	
		Household number	Total	M	F	M	F	M	F
General		-	0	0	0	0	0	0	0
SC	7	7,8,31,32,40,41,42	31	6	7	8	10	9	8
ST	36	1,4,5,6,9,10,11,12,13,16,17,18,19,20,21,34,35,45,46,47,67,68,69,70,71,72,73,74,75,76,77, 79, 80, 81, 82, 83	192	61	55	45	31	48	27
OBC	53	2,3,14,15,22,23,24,25,26,27,28,29,30,33,36,37,38,39,43,44,48,49,50,51,52,53,54-66,78,84-96	214	54	56	49	55	57	41
Total	96		437	121	118	102	96	114	76

SC: Schedule Caste; ST: Schedule Tribe; OBC: Other Backward Classes

Table 7.2 Details of livestock population

Type of livestock	Household numbers having livestock	Total	Stall fed	Open Grazing
Cattle	5,6-10, 14,16,19-2,26,28,30-32,37-40,43,45, 46,49,50,56-59,61,63,69,71,75,76,79,83,89	112	0	112
Buffalos	2,70,79,80,43,45,52,56,57,60,61,66,76	84	0	84
Goats	1,3-10,12,13,16,17,19-21,28-313,37-40,42,43, 45,47,48,60,65,66,71,73,75,76,77,68-69	268	0	268
Pigs	0	0	0	0
Others (Poultry, local birds)	78,79,86,87,45,44,47,66,71,73,76,77	33	0	33
Total		497	0	497

3. Land in the village

a)	Total land	232.31 ha
b)	Community land	2.60 ha
c)	Private Crop (Patta) land	115.65 ha
d)	Gochar	13.18 ha
e)	Gramya Jungle (Village Forest)	67.36 ha
f)	Village farm land prone to frequent crop raiding by wild animals	31 ha

4. Irrigated Land

a)	Irrigated by River/Canal: (canal)	22 ha
b)	Lift pump: (Diesel pump set)	5 ha
c)	Any other source: (Tenda*)	1 ha

5. *Current land use (during the last year)*

a)	Agriculture (Single Cropped)	115.65 ha
b)	Agriculture (> 1 Crops in a year)	4.00 ha
c)	Agriculture (Fallow/no crop)	7.00 ha
d)	Orchard/Fruit plantation	2.00 ha
e)	Forestry plantation:	34.00 ha
	• Jagannath Vana Prakalpa in 2002-03	15 ha
	• Jagannath Vana Prakalpa in 2003-04	10 ha
	• ANR under FDA in 2003-04	7 ha
	• Silivipasture under FDA in 2003-04	2 ha

 6. *Village resources (infrastructure)*

Type of infrastructure/amenity	Available in the village	Condition and status of present use
Primary school	Yes	Roof of one building needs repair
Secondary school	No	n/a
High School	No	n/a
Junior college	No	n/a
Degree college	No	n/a
Primary Health Centre	No	n/a
Hospital	No	n/a
Anganwadi centre	No	n/a
Veterinary hospital / Livestock Inspection Centre	No	n/a
Gram Panchayat Office	No	n/a
Revenue Office	No	n/a
Police Station	No	n/a
Fire Station	No	n/a
Forest Office (Range/Section/Beat)	Yes (Beat)	In good condition
Post Office	No	
Bank/MFI	No	
LAMPS /Cooperatives	No	
Bus facility	No	
Railway Station	No	
Weekly Market	No	
Rice Hauler	No	
Drinking Water:	Tube wells Open wells Public Water Supply	8 4 No
Tank	4	3 defunct 1 defunct
Stream	1	
Others (please specify):	Water Harvest Structure Water channel Community Hall Temple Pandal	1 1 2 1 2
		Dries by October Needs repair

6. *EDC assets*

None

7. *Fodder availability*

Types	1-3 months	3-6 months	6-9 months	Round the year
Crop residue		✓		
Trees	✓			
Grasses	✓			
Green fodder	✓			
Grazing in Village Forests			✓	
Grazing in protected forest area			✓	

Note: It is estimated that 1500 quintals of fodder is grazed by livestock in Village Forests and 4500 quintals in Reserved Forests. Estimates are based on the following:

- known numbers of livestock;
- average daily fodder requirements of 5kg, 2.5kg and 7.5kg for cow, goat and buffalo, respectively; and
- consensus from a group discussion with villagers that livestock depend on Village Forests for 25% of their grazing needs and Reserve Forests for 75% for such needs.

8A. *Market facility for purchases*

Nature of facility (Purchase)	Location(Name of Sahi)	Distance from village if located in another village
Grocery shop	Gate Sahi (2)Gauda Sahi (1)	Located within the village
PDS centre	Purnakote	5 km
Weekly market	Purnakote (Wed)Tikarapada (Tue)	5 km15 Km
Major market	Purnakote	5 km
Other/s (specify)	District headquarters market (Angul)	55 km

8B. *Market facility for sale of products*

Nature of facility (Sale)	Nearby Shop	Village haat/ weekly haat	Local town	Season of selling
Agricultural produce	Yes	Yes	Yes	Winter
Fuel wood	-	-	-	
Vegetables	Yes	Yes	Yes	Winter and Summer
Poles / Bamboo	-	-	-	
Non-Timber Forest Products	-	Yes	-	Winter and Summer
Milk, Poultry	-	-	-	
Oil, other processed products	-	-	-	
Other products				
Mango pickle	Yes	Yes	Yes	Summer
Mango juice cake (amaba sara)	Yes	Yes	Yes	Summer

9. *Water sources*

Water Source	Number	Water Availability (adequate/ seasonal)	Uses*				Functional (Y/N)
Check dam	1	Seasonal			I		Partly
Pond	4	Seasonal (winter)	B			L	3 dry in summer
Tube well	8	5 (adequate)	B	D		L	3 defunct
Dug well	4	3 (adequate)	B	D	I	L	1 defunct
River/nala	1 (nala)	Seasonal (winter)	B	D		L	Yes
Spring	1	Adequate	B			L	Yes
Canal	1 (from check dam)	Seasonal	B		I	L	Yes (winter)

*Key: **B**athing, **D**rinking, **I**rrigation, **L**ivestock

9. *Energy requirements*

Type of Fuel	Applicable or available	Number of dependent households	Number of months /year of major dependency	Source (local village, village forest, others)
Fuel wood	Yes	46 50	6 6	Village Forest Reserved Forest
Crop Residues	No			
LPG	No			
Electric heater	No			
Gobar /Bio gas	No			
Kerosene stove	No			

Note: It is estimated that villagers take approximately 876 quintals of fuel wood from Village Forest and 900 quintals from Reserved Forest for their household consumption. This estimate is based on an average daily consumption of 10 kg per household.

11. *Electrification*

There is none. The village is proposed for main lines electrification under Government of India's Rajiv Gandhi Rural Electrification Scheme.

12. *Institutions in the village*

Institutions	Number	Number of member households
EDC	1	96
SHG	8	81
Cooperative Society	0	
Youth Club	0	
Mahila Samiti	0	
Cultural Institutions	2 (Sankritan teams)	31
Others (specify)	1 (Kisan Club)	9

13. Health security

Facility	(Yes/No)	Remarks (functional)
Primary Health Centre	No	
Hospital	No	
Traditional health support. Specify (Vaidya, traditional medicine man etc)	Yes (Traditional medicine man)	Naba Dehury, Khageswar Behera
Health support provided/run by NGO	No	
Veterinary health facility	No	
Any other	No	

7.2 Forests in and around the village (Proforma II)

14. Status of village forest and the forest area assigned to the EDC

Name of Forest Division	Name of Range and Compartment No.	Legal status (RF/PF/VF/KF)*	Area (ha)	Distance(km) from village (in case of assigned forests)	Topography (hilly, undulating, plain)	Condition of forest (well stocked/ degraded / bushy, few trees)	Evidence of wildlife in forest (Present/ absent of. key species)	Incidence of forest fire(annual, often, rare)	Purpose and frequency of use by villagers (2-3, 3-6, 6-9m, 12 months)
Satkosia Wildlife Division	Purnakote N: 5-6 W: 7 S: 13-14 E: 16	RF	540.00	0.5 – 2	hilly	Well stocked	Present	rare	3-6
	East and North	VF	67.36	0.5	undulating	degraded	Present (elephant, deer, wild boar)	rare	3-6

***RF**: Reserve Forest; **PF**: Protected Forest; **VF**: Village Forest; **KF**: Khesra Forest (Revenue Department)

15. Forest protection issues

Type of Injuries	(Yes / No)	Significant/ Insignificant (according to frequency / volume)
SMUGGLING		
Smuggling of timber	Yes	Insignificant
Smuggling of bamboo	Yes	Significant
Smuggling of firewood through head loads for selling to others	No	
Smuggling of Non-Timber Forest Products	Yes	Significant
Smuggling of sand, precious stones etc.	No	
Smuggling by head loads	No	
Smuggling by bicycles	No	
Smuggling by carts	No	
Smuggling by fast moving vehicles	No	
POACHING OF WILD ANIMALS		
Wild Elephants	No	
Tiger / Leopard	No	
Deer	No	
Others (Specify)		

Type of Injuries	(Yes / No)	Significant/ Insignificant (according to frequency / volume)
GRAZING		
Grazing by local animals	Yes	Significant
Grazing by animals from other areas	No	
FIRE		
Fire-incidence	Yes	Insignificant
Fire connected with Mohua collection	Yes	Insignificant
Fire connected with Salap tapping	No	
Fire connected with Beedi leaf collection	No	
ENCROACHMENT		
Encroachments in forest areas Government Forest Village Forest	NoYes	Insignificant
OTHERS (specify)		
Gochar and Bagayat	Yes	Insignificant

16. Household dependence on forest products (average per household)

Level of dependency*	Total	Households
		Household numbers (as mapped in Annex 3)
High	5	7,8,40,41,42
Medium	45	2,3,16,29,30,31,43,44,45,47,49,50,54,57,58,59,60,61,62, 63,64,66,67,69, 70,72,73,74,75,77,80-94
Low	46	1,4,5,6,9-15,17-28,32-39,46,48,51-53,55, 56,65,68, 71,76, 78,79,95,96

*The EDC shall define the basis of the categorization of the household dependencies on forests

Chhotkei villagers defined forest dependency in the following way:

- Low dependency is collection of firewood and thatching materials for domestic use.
- Medium dependency is collection of firewood and thatching materials for domestic use, as well as grazing livestock.
- High dependency is collection of firewood and thatching materials for domestic use, grazing livestock, and collection of non-timber forest products and bamboo for commercial use.

7.3 Socio-economic profile of village (Proforma III)

17. Agricultural land holdings

Nature of land holdings	Number of households
Large (>4 ha.)	-
Medium (2 - 4 ha.)	1
Small (1 - <2 ha.)	20
Marginal (< 1ha.)	46
Landless	29

18. *Economic status*

Category of house	Nature of House	Number of households
Kuchcha house (mud plaster /un-burnt bricks)	Thatched roof	90
	Country tiled roof	
	Asbestos / tin roof	
Pucca house (bricks in cement mortar)	RCC roof	2
	Asbestos/ Manglore tile / tin roof	4
Electrified	No	0
Owning livestock	Yes	69
Owning tractor/s	No	0
Owning mechanized farm implements	Yes	(pump) 9

 19. *Current income generating activities*

Main Source of livelihood	Number of households
Farm land	67
Vegetable production	22
Livestock (milk, goat, sheep, poultry)	69
Fishery	2
Small trading	2
Shop keeping	3
Traditional artisan work	23
Collection and sale of forest products (fuel wood/NTFP)	(NTFP) 5
Others (please specify)	

 20. *Wellness status of households*

Wellness status	Total	Households
		Household numbers (as mapped in Chhotkei Micro Plan Annex 4)
Well off	3	28,43,69
Manageable	26	2,3,7,8,21,22,23,26,37,38,39,49,53,54,55,57,58,59,60,61,62,63,66,67,68,76
Poor	41	4,5,9,10,12,13,16,17,18,19,20,24,25,26,31,32,33,34,36,40,45,50,51,52,56,64,65,70,72,73,80,81,82,83,84,85,86,87,89,91,92
Very Poor	26	1,6,11,14,15,29,30,35,41,42,44,46,47,48,71,74,75,77,78,79,88,90,93,94,95,96

Chhotkei villagers defined wellness in the following way:

- *Very Poor* - Either the head or key bread earner of the household is dead; or there is no able person in the household to generate regular income; or household is landless with no other regular income source.
- *Poor* - Household owns marginal land of low productivity and hence main occupation is as a daily wage earner.
- *Manageable* - Household has productive land, sufficient to sustain it for the entire year in terms of food security and other needs.
- *Well-off* - Household owns a significant amount of land; has surplus food grain for the market; gives loan to others; has a fixed job; owns a business and is educated.

Further details about the village practices, routines and individual households upon which this socio-economic profile is based are provided in Annexes 1-8 of this micro-plan.

7.4 Eco-development plan (Proforma IV)

NOTE: The information in this proforma shall specify the various activities proposed by the village under eco-development, including ecotourism. These shall include information on the beneficiary households as identified by the Executive Committee of the EDC. The Income Generating Activities shall be promoted through the Self-Help Groups already active and working in the village.

A. MITIGATION OF MAN ANIMAL CONFLICTS

21. Crop raiding by wild animals

Name of animal	Frequency of crop raid (high, medium, low)	Seasons (months)	Number killed/injured by villagers in last 5 years
Elephant	High	Rainy and winter (July-January)	
Wild boar	High	Rainy and winter (July-January)	
Deer	Medium	Winter (November - January)	

22. Households impacted by crop raiding wild animals

HLevel of crop damage over last 1 year	Households	
	Total	Household numbers (as mapped in Chhotkei Micro Plan Annex 3)
High (> 70 % crop damage)	9	19,20,26,33,34,36,87,88,89
Medium (> 50-70 %)	8	7,8,55,56,80,81,82,83
Low (d" 50 %)	50	2,3,5,9,14,15,18, 21-25,27,28,31,32,37,38,39,43,45,46,49-54, 57-63, 65-72,76,77, 84,85,86,91,95

23. Raising of physical barrier along village boundary with forests

Physical barrier	Length of village boundary in m / km
Elephant-proof trench	None
Solar-powered fence	7.1 km (exclusive of 0.9 km cable)
Other (specify)	Engagement of anti depredation squad

24. Anti-depredation / protection squad

Households for priority inclusion in squad*	Households	
	Total	Household numbers (as mapped in Chhotkei Micro Plan Annex 3 and 4)
High impact households	1	34
Poor households	5	4,31,32,83,86
Very poor households	3	6,30,75
Others (specify): Well off	1	28

* Priority inclusion based on combination of high impact from depredation, high forest dependency and wellness of household.

Note: The roles and responsibilities of the anti-depredation / protection squad shall include prevention of man-animal conflicts; maintenance of physical barriers (e.g. solar-powered fence); regular patrolling in the adjoining forests to keep track of potential crop raiding animals especially wild elephants; assistance to forest department staff in assessment of crop damage for timely payment of compensation to the impacted household; and other assistance to forest department staff and researchers as appropriate.

B. VILLAGE DEVELOPMENT

25. Entry point activities

The micro-plan Facilitation Team should consult the General Body of the EDC for identifying and prioritising entry point activities. The interests of the entire community, especially the forest dependent households, should be prioritised. Identified activities should not adversely impact on the biodiversity of forests within or around the village. Since funds for entry point activities are limited, emphasis should be on affordable activities that can be completed from the available resources. However, if EDC members are able to contribute cash or volunteer their labour to augment OFSDP support, a bigger initiative or more activities can be taken up.

Entry point activities may include renovation of a school, temple or community hall; cement platform under a tree for meetings; water harvesting pond; cement platform/soak pit around a well; community fish pond; tube well; bathing ghat (steps to a pond); solar lighting, petromax, gas lights etc.

Priority list of entry point activities

Ref. No.	Name of activity	Priority ranking	Technical support required	Total amount required (lakhs)	Contribution from EDC if any (cash / labour)	Funds required from OFSDP	Implementation time/schedule
1.	Repair of check dam and lead canal	1	JE for design, estimate and lay out	3.25	0.25	3.00	March – 15 June 2009

26. Income generation activities

Income generation activities may or may not relate to farming. They should focus on activities that do-not impact adversely on the biodiversity of the area. They may be either group or individual activities.

26A. *Self Help Group activities*

Ref. number	Activity	Name of Self Help Group (number of members)	Year of Implementation	Nature of support required	Total amount required (lakhs)	Cost sharing by member	Amount required from OFSDP	Other source of support (Govt. / bank schemes etc.)	Marketing Marrangement
1	Fishery	Singhabahini SHG(10) Maa Kalapat SHG(11)	2009-10	1.100	Training, technical hand holding and financial	0.100	1.000	0	Local market at Purnakote & Tikarapada
2	Honey and vegetable cultivation	Mahalaxmi SHG (11)	2009-10	0.550		0.050	0.500	0	
3	Vegetable cultivation	Subhashree SHG (10)	2009-10	0.550		0.050	0.500	0	
4	Honey and vegetable cultivation	Rajashree SHG (10)	2009-10	0.550		0.050	0.500	0	
5	Rice vending	Santoshi SHG (13)	2009-10	0.550		0.050	0.500	0	
6	Poultry	Maa Bhabani SHG(10)	2009-10	0.550		0.050	0.500	0	
7	All purpose vehicle service for village, including ecolodge*	Maa Sibam SHG (10)	2009-10	0.500		0	0.500	0	

*Includes support to start a seed fund and running costs

Note: The above activities have been identified by the Self Help Groups. On average Rs 0.5 lakh is earmarked for each Group from a revolving fund. The funds will be released by the EDC to the SHG on an actual cost basis, after a Business Plan has been developed for each activity.

26B. *Individual activities for target households not covered by any Self Help Group*

Ref. number	Activity	Beneficiary household numbers (total number)	Year of Implementation	Nature of support required	Total amount required (lakhs)	Cost sharing by members	Amount required from OFSDP	Other source of support (Govt/ bank schemes etc.)	Marketing arrangement
1	Individual IGA support	40,41,42,70(N=4)	2009-10	Technical and Financial	0.660	0.060	0.600	0	Local weekly market

Note: The above four households are not part of any existing Self Help Group in the village and have been identified as targets for support through the micro-planning process (i.e. all are poor or very poor households that are highly dependent on forest resource, or having medium dependency in the case of Household 70).

C. *COMMUNITY-BASED ECOTOURISM*

Promotion of ecotourism as an income generation activity in the village shall be based on the principles defined in Chapters 4 and 5 of these *Guidelines for Eco-development, including Ecotourism*. Ecotourism should not be perceived as any tourism activity taking place in the area. Strict do's and don'ts should guide the development and operation of tourism in the village, as well as the regulation of visits by visitors into the adjoining forest areas.

27. Importance and suitability of the area / village for promotion of ecotourism

The attractiveness of the site for a visitor, including availability of accommodation and eating facilities at the village, if any, should be highlighted here.

28. Development of ecotourism accommodation facilities

The EDC Executive Committee shall decide on the location, basic architecture and management of accommodation facilities for visitors, as well as the identification of the beneficiary households to be involved in the running of any ecolodge and home stays. In the case of an ecolodge, some form of Memorandum of Understanding needs to be established between the Forest & Environment Department and EDC, based on these *Guidelines for Eco-development including Ecotourism* (see Section 5.5, Box 5.2). This Memorandum should specify how the benefits will be shared between those managing the facility, the rest of the community and the protected area management authority.

The following considerations shall guide the selection of the site for an ecolodge:

- The site should have a good view from it.
- The site should be easily accessible from a road, while not located next to the road.
- The site should ensure good privacy and security for the visitors.
- The site should have clear ground available both for lodges, as well as support facilities including vehicle parking space (out of site from the lodge).
- The site should have good provision for water (preferably next to a perennial source of water or a major stream in the village).



A suitable site for an ecolodge is located on Matha Hillock, further details of which can be found in Section 8.5 (Table 8.2) of these *Guidelines for Eco-development including Ecotourism*.

Households identified for managing accommodation facilities

Type of accommodation facility	Number of cottages	Beneficiary households
Ecolodge	10	5,8,15,21,41,44,68,78,93,96
Home-stays	0	
Any other (specify)	0	

29. *Laying of nature trails*

Nature Trail	Length (km)	Compartment nos.
Existing (name)	2km (2 numbers)	to be identified
Proposed (specify)		

30. *Transport facilities for movement of tourists in the forest*

Facility	Number
Motor (TATA Winger 4 Wheeler)	1
Bicycle (mountain bike)	
Elephants	2
Any other (Specify)	-

31. *Nature interpretation and guide services*

Guides	Beneficiary household numbers
Field guides	29,51,56,67,68,69,78
Ecolodge nature interpretation service	29,51,56,67,68,69,78
Traditional arts and culture	45 two Sankritan music groups (comprise members from 31 households in Gouda Sahi and Gate Sahi)
Any other (specify)	

32. *Income generation activities from ecotourism*

Income generation activity	Beneficiary household numbers
Construction of ecolodge and other facilities	Poor and Very Poor categories of households will be prioritised for employment as labour.
Catering	5,8,15,21,41,44,68,78,93,96
Supply of rations	52 (NB local rice and dahl to be purchased from farmers in village)
Supply of fresh vegetables	Subhashree, Mahalaxmi and Rajashree SHGs will grow vegetables.
Housekeeping	5,8,15,21,41,44,68,78,93,96
Waste management	5,8,15,21,41,44,68,78,93,96
Landscape management	5,8,15,21,41,44,68,78,93,96
Any other (specify): Security	One person from the ecolodge beneficiaries

33. Training for household beneficiaries

Training	Beneficiary households
Visitor management	5,8,15,21,41,44,68,78,93,96
Catering	5,8,15,21,41,44,68,78,93,96
Housekeeping	5,8,15,21,41,44,68,78,93,96
Waste management	5,8,15,21,41,44,68,78,93,96
Any other (specify)	-

7.5 Project activities, budget and annual planning (Proforma V)

The micro-plan will prescribe various development activities, and provide approximate estimate of funds and period for implementation. The activities listed here would be on the basis of data collected and prioritized as per the previous sections. The fund requirement would be met from OFSDP and other sources to be tapped by EDC. This will include eco-development including ecotourism, natural resource development (plantations of fuel, fodder and bamboo in the village forest areas) and human resource development (training, skill development and exposure visits).

34. Four-year micro-plan and budget

Activity	Yr 1 (2008-09)		Yr 2 (2009-10)		Yr 3 (2010-11)		Yr 4 (2011-12)		Total (lakhs)	
	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost	Unit	Cost
A. MAN-ANIMAL CONFLICT MITIGATION										
Solar power fencing	(km)7.1	7.10							(km)7.1	7.100
Anti-poaching squads (labour cost per 10 persons)	(mths)1	0.21	(mths)12	2.555	(mths)12	2.555	(mths)12	2.555	(mths)37	7.875
Equipment for squads	persons10	0.6			replacement	0.6			10	1.200
Total cost for Man-Animal Conflict		7.910		2.555		3.155		2.555		16.175
B. VILLAGE DEVELOPMENT										
Entry point activity										
Repair of check dam and lead canal	1	3.000							1	3.000
Entry point subtotal		3.000		0.000		0.000		0.000		3.000
Plantation										
Bamboo plantation			(ha) 2	0.180		0.120		0.100	(ha) 2	0.400
Fuel and fodder plantation in reserve forest			(ha) 5	0.600		0.350		0.300	(ha) 5	1.250
Lemon plantation (2 acres) in community land (degraded mango grove)	(ha)0.8	0.200		0.100		0.100		0.100	(ha) 0.8	0.500
Plantation subtotal		0.200		0.880		0.570		0.500		2.150
Common Interest Activity										
Rejuvenation of village pond and fish culture	1	1.000		0.250					1	1.250
Community phone	1	0.030							1	0.030
Rejuvenation of gochar land to met the fodder demand			(ha) 2	0.200		0.100		0.100	(ha) 2	0.400
Common interest subtotal		1.030		0.450		0.100		0.100		1.680

Livelihood improvement										
Human health camp, with common medicine kit	1	0.050	2	0.100	2	0.100	2no	0.100	7	0.350
Animal health camp and breed improvement through artificial insemination	1	0.100	1	0.100	1	0.100	1no	0.100	4	0.400
Non-formal adult education for women			centre 1	0.100		0.100		0.100	centre 1	0.300
Drinking water facilities - repair tube wells/dug wells, soakage pits for sanitation			5	0.800					5	0.800
Fuel efficient chulla			(hh) 90	0.270					(hh) 90	0.270
Livelihood subtotal		0.150		1.370		0.300		0.300		2.120
Income Generation Activity										
Fishery by Singhabahini and Maa Kalapat SHGs			SHG 2	1.000					SHG 2	1.000
Honey cultivation and vegetable cultivation by Mahalaxmi SHG			SHG 1	0.500					SHG 1	0.500
Vegetable cultivation by Subhashree SHG			SHG 1	0.500					SHG 1	0.500
Honey cultivation and vegetable cultivation by Rajashree SHG			SHG 1	0.500					SHG 1	0.500
Rice vending by Santoshi SHG			SHG 1	0.500					SHG 1	0.500
Poultry by Maa Bhabani SHG			SHG 1	0.500					SHG 1	0.500
Management of all purpose vehicle for village/eco lodge by Maa Sibam SHG			SHG 1	0.500					SHG 1	0.500
IGA support to 4 households (nos. 74,41 40,42)			(hh) 4	0.600					(hh) 4	0.600
Income generation subtotal			4.600					SHG 8	4.600	
Total cost for Village Development		4.380		7.300		4.200		4.200		13.550
B1. CAPACITY BUILDING PROGRAM										
Awareness creation										
Rejuvenation/strengthening of EDC	1	0.025							1	0.025
Management guideline formation of EDC	1	0.010							1	0.010
Training										
Coaching, information dissemination	2	0.050	4	0.100	4	0.100			10	0.250
SHG skill development (IGA)	0	0.000	4	0.200	4	0.200			8	0.400
Exposure visit for selected EDC members	0	0.000	4	0.400	4	0.400	0	0.000	8	0.800
Total cost for Capacity Building		0.085		0.700		0.700		0.000		1.485

C. ECO TOURISM										
10 cottages, with tube well, road access, landscaping, safety measures, waste disposal etc.			10	30.000					10	30.000
Solar power			(kw) 1	10.000					(kw) 1	10.000
Wireless facility (1 basaset, 2 handsets)			3	0.500					3	0.500
All purpose vehicle			1	10.000					1	10.000
Development of nature interpretation materials			50	0.500					50	0.500
Interpretation centre			1	1.500					1	1.500
Training of nature guides and catering staff			(group)1	0.200					(group)1	0.200
Information brochures			100	0.100					100	0.100
Signage			50	1.000					50	1.000
Laying of nature trails (1km)			2	0.400					2	0.400
Total cost for Ecotourism		0.000		54.200		0.000		0.000		54.200

34. Annual Action Plan and budget

Every year the General Body of the EDC will meet in December to decide on the various activities to be implemented during the succeeding financial year and, accordingly, will prepare an Annual Action Plan and budget, in line with the four-year micro-plan and budget. The Annual Plan will be submitted to FMU who will scrutinize and recommend it to DMU. On the basis of the Annual Plan, DMU will release funds to the EDC. The progress in the implementation of OFSDP activities in a year will be monitored on the basis of the Annual Plan. The EDC will submit the Annual Action Plan in the following format.

ANNUAL ACTION PLAN AND BUDGET FOR ECO-DEVELOPMENT (Year 20 . .)					
Component	Activity	Period of work (year/month)	Target (physical)	Fund required from OFSDP	Implementation responsibility
Mitigation of man-animal conflict					
Village Development					
Capacity building					
Ecotourism					
Other expenses (office etc)					

Decisions resulting from discussions concerning the revision the micro-plan and agreement on the Annual Action Plan will be recorded by the Member Secretary. Revisions to be incorporated to be recorded using the following format.

Existing nature and type of work	Need for revision	Type and nature of changes to be made	New physical target	Funds required

7.6 Annual monitoring of micro-plan implementation (Proforma VI)

Annual monitoring should be based on recording the activities undertaken using Proforma VI, as provided in Annex 3 of the *Guidelines for Eco-development, including Ecotourism*. No example is provided here because monitoring has not yet commenced at Chhotkei.

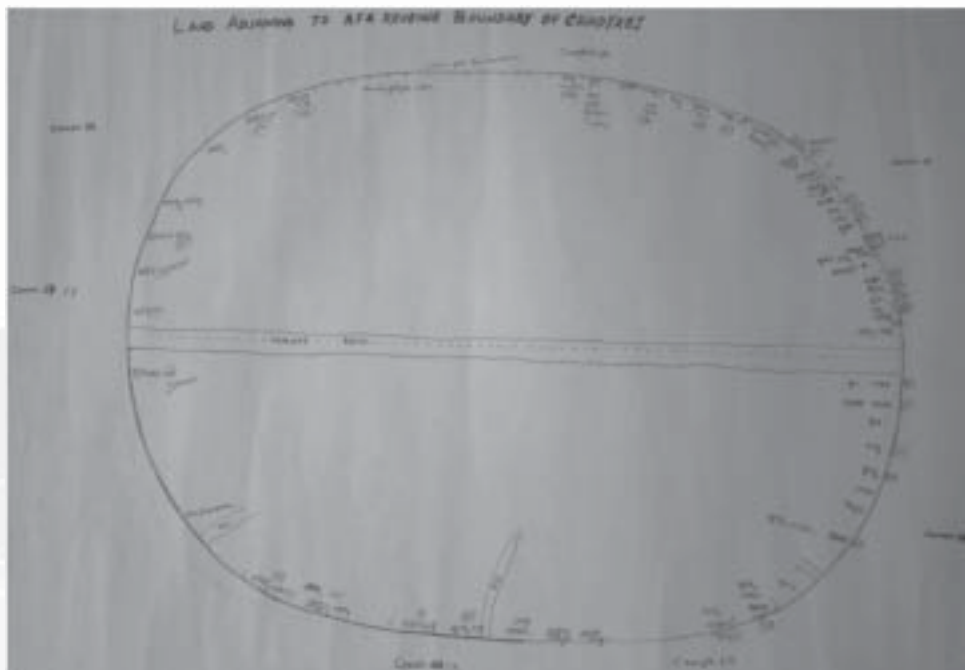
Chhotkei Micro-Plan Annex 1

Social map of Chhotkei, including resources and areas of crop depredation by wildlife



Chhotkei Micro-Plan Annex 2

Map of Chhotkei showing agricultural fields vulnerable to crop raiding by wildlife



Chhotkei Micro-Plan Annex 3

Chhotkei households ranked for forest dependency (Column 3) and wellness (Column 4)

କ୍ରମ	ନାମ	ନିର୍ବାହ କାର୍ଯ୍ୟକ୍ରମ/ସମ୍ପର୍କ	ଆର୍ଥିକ ସ୍ୱଚ୍ଛତା ସୂଚକ
୧	୨	୩	୪
୧	ବୀରୁ ବି	✓	■■■■
୨	ପ୍ରମୁକୁରା କୋର	✓ ✓	■■■■
୩	କେତୁ କୋର	✓ ✓	■■■■
୪	ବିନୋୟା ହାଜାଡ	✓	■■■■
୫	ନିର ଦେମୁରୀ	✓	■■■■
୬	ଶିବୁ ଦେମୁରୀ	✓	■■■■
୭	ଦୁର୍ଗେଶ ଦେମୁରୀ	✓ ✓ ✓	■■■■
୮	ଏକାମୁରୀଆ ଦେମୁରୀ	✓ ✓ ✓	■■■■
୯	ସୁଧା ବିରଥୁ ହାଜାଡ	✓	■■■■
୧୦	ସୁଧା ବିରଥୁ	✓	■■■■
୧୧	ବସନ୍ତ ବିରଥୁ	✓	■■■■
୧୨	ପ୍ରକାଶ ବିରଥୁ	✓	■■■■
୧୩	ଦୁର୍ଗେଶ ଦେମୁରୀ	✓	■■■■
୧୪	ବିନୁ କର୍ଣ୍ଣ	✓	■■■■
୧୫	ବିନୁ କର୍ଣ୍ଣ	✓	■■■■
୧୬	ଗୋପାଳ ପାଟିଲ	✓ ✓	■■■■
୧୭	ଅନୁରାଧ ପାଟିଲ	✓	■■■■
୧୮	ଗାଧାଧର ପାଟିଲ	✓	■■■■
୧୯	ସୁଧା ପାଟିଲ	✓	■■■■
୨୦	ବିନୁରଥୁ ପାଟିଲ	✓	■■■■
୨୧	ଦୁର୍ଗେଶ ପାଟିଲ	✓	■■■■
୨୨	ବିନୁ କର୍ଣ୍ଣ	✓	■■■■
୨୩	ବିନୁରଥୁ କର୍ଣ୍ଣ	✓	■■■■
୨୪	ବିନୁ ନାୟକ	✓	■■■■
୨୫	ସୁଧା ନାୟକ	✓	■■■■
୨୬	ବିନୁ ନାୟକ	✓	■■■■
୨୭	ବିନୁରଥୁ ନାୟକ	✓	■■■■
୨୮	ଅନୁରାଧ ପାଟିଲ	✓	■■■■
୨୯	ବିନୁରଥୁ ପାଟିଲ	✓ ✓	■■■■
୩୦	ସୁଧା ଦେମୁ	✓	■■■■

■ Very Poor
 ■ Poor
 ■ Middle
 ■ Rich

R4



କ୍ର. ସଂଖ୍ୟା	ନାମ	ପ୍ରକାର	ପରିମାଣ	ପ୍ରାଥମିକ ମୂଲ୍ୟ
୧୭	କାଞ୍ଚି ନାମୁନା	✓	✓	
୧୮	ନୂଆଁ ନାମୁନା	✓	✓	
୧୯	ମିଠୁନା ନାମୁନା	✓	✓	
୨୦	ଭାଜିଆଳୀ ନାମୁନା	✓	✓	
୨୧	କଞ୍ଚି ଜାମି	✓	✓	
୨୨	କାଞ୍ଚି ନାମୁନା	✓	✓	
୨୩	ଦୁଗାଧାନ ଦେହୁରୀ	✓	✓	
୨୪	ମୁମ୍ପା ପଦାର୍ଥ	✓	✓	
୨୫	ପିତ୍ତୋଳା ପଦାର୍ଥ	✓	✓	
୨୬	ନିମ୍ବୁଳ ଦେହୁରୀ	✓	✓	
୨୭	ପାଣି ଜାମି	✓	✓	
୨୮	ସୁନାମବନ୍ଦୁ ଦେହୁରୀ	✓	✓	
୨୯	କଞ୍ଚୁରୁ ନାମୁନା	✓	✓	
୩୦	ଫୁଲୁ ନାମୁନା	✓	✓	
୩୧	ଚିକି ନାମୁନା	✓	✓	
୩୨	କୃଷକ ନାମୁନା	✓	✓	
୩୩	ପଞ୍ଜି ନାମୁନା	✓	✓	
୩୪	କୃଷ୍ଣ ନାମୁନା	✓	✓	
୩୫	ନିମ୍ବୁଳ ନାମୁନା	✓	✓	
୩୬	ସୁନାମବନ୍ଦୁ ନାମୁନା	✓	✓	
୩୭	କଞ୍ଚୁରୁ ଚୋର	✓	✓	
୩୮	କାଞ୍ଚୁ ଚୋର	✓	✓	
୩୯	ନିମ୍ବୁଳ ଚୋର	✓	✓	
୪୦	ସୁନା ଚୋର	✓	✓	
୪୧	ନାହାମୁଣ୍ଡ କେହେରୀ	✓	✓	
୪୨	ନିମ୍ବୁଳ ନାମୁନା	✓	✓	
୪୩	ସାହୋଦର କେହେରୀ	✓	✓	
୪୪	କଞ୍ଚୁରୁ କେହେରୀ	✓	✓	
୪୫	କଞ୍ଚୁରୁ ଚୋର	✓	✓	
୪୬	କଞ୍ଚୁରୁ ଚୋର	✓	✓	
୪୭	କଞ୍ଚୁରୁ ଚୋର	✓	✓	
୪୮	କଞ୍ଚୁରୁ ଚୋର	✓	✓	
୪୯	କଞ୍ଚୁରୁ ଚୋର	✓	✓	
୫୦	କଞ୍ଚୁରୁ ଚୋର	✓	✓	

ନିମ୍ନ - ନିମ୍ନାଞ୍ଚି ମେରୁ, କର୍ମପାତ୍ର ବହୁତ ସଫୁରୁ
 କଞ୍ଚୁରୁ, ଚୋର, ଚୋର, ନିମ୍ନ

Chhotkei Micro-Plan Annex 4
Chhotkei household information

Household no.	Name of the head of the household	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans >10000/-	Extent and source of loans >5000/-	Extent and source of loans <10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					Main N.T.F.P.	% annual income	% of annual HH requirement met						
1	Bira Singh	S.T	Service	Live stock	Tile	0			Literate				Santosi Maa Rupali Singh (Wife)			Nala					Co-op society			Winter Malaria	yes	
2	Prafulla Kohar	OBC	Live stock	Cultivation	Thatch	1				50	1.0	Paddy	Wild boar Elephant	Rajshree Ranju Kohar (Sister in law)	100	7.5	Tube Well	Mahua	2	1	Co-op society			Winter Malaria	No	
3	Neera Kohar	OBC	Live stock	Cultivation	Thatch	1				50	1.0	Paddy	Wild boar Elephant	Mahalaxmi Debaki Kohar (Wife)	100	7.5	Tube Well	Mahua	2	1	Co-op society			Winter Malaria	yes	
4	Ramesh Jhankar	OBC	daily labourer	Cultivation	Thatch	0	Driver							Mahua Karanja Jhuna Honey			Tube Well	Mahua Karanja Jhuna Honey	20	1	Co-op society			Winter Malaria	yes	
5	Naba Dehuri	S.T	Cultivation	Herbal quack daily labour	Thatch	1	Herbal quack		Literate	50	0.5	Paddy	Wild boar	Rajshree Saila Dehuri (Wife)	100	7.5	Tube Well	Mahua Karanja Jhuna Honey	3	0.5	Co-op society			Winter Malaria	yes	
6	Siba Dehuri	ST	Cultivation (Tenant)	Herbal quack daily labour	Thatch	0			Literate					Subhashree Askara Dehuri (Wife)			Tube Well	Mahua, Karanja, Jhuna, Honey	2	0.6	Co Op society			Winter Malaria	yes	
7	Nirmala Behera	SC	Cultivation	Grama rakhi	Thatch	1	Bamboo artisan		Literate	60	2.5	Paddy	Wild boar Elephant	Subhashree Jayanti Behera (Wife)	100	20	Tube Well	Mahua, Karanja, Jhuna, Honey	1	0.3			N.G.B J.N Pur	Winter Malaria	yes	
8	Ekadusia Behera	SC	Cultivation	daily labourer	Thatch	1	Bamboo artisan		Literate	65	1.25	Paddy	Wild boar Elephant	Subhashree Tulasi Behera (Wife)	100	20	Tube Well	Mahua, Karanja, Jhuna, Honey	1.5	0.4			N.G.B J.N Pur	Winter Malaria	No	
9	Biranchi Jhankada	OBC	Cultivation	daily labourer	Thatch	1			Literate	50	0.75	Paddy	Wild boar elephant	Santosi Maa Panchali Jhankar (Wife)	50		Tube Well	Mahua, Karanja, Jhuna, Honey	2	0.5	Co Op society			Malaria, Winter and rain	yes	
10	Saiya Singh	ST	daily labourer	Cultivation (Tenant)	Thatch	0								Subhashree Bhama Singh (wife)			Tube Well	Mahua, Karanja, Jhuna, Honey	2	0.6	Co Op society			Winter Malaria	yes	
11	Basanta Singh	ST	daily labourer		Thatch	0								Rajshree Leema Singh (Wife)			Tube Well	Mahua, Karanja, Jhuna, Honey	1	0.3				Winter Malaria	yes	
12	Prasan Singh	ST	labourer	Cultivation (tenant)	Thatch	0								Subhashree Nayana Singh (Wife)			Tube Well	Mahua, Karanja, Jhuna, Honey	1	0.3			N.G.B J.N Pur	Winter Malaria	No	

Household no.	Name of the head	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans > 5000/-	Extent and source of loans < 10000/-	Extent and source of loans < 10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					% annual income	Main N.T.F.P	% annual HH requirement met						
13	Ugrasan Singh	ST	Cultivation (Tenant)	daily labourer	Thatch	0	Carpenter		Literate							Tube Well	2.5	0.5	Summer				Winter Malaria	yes		
14	Guni Karna	OBC	labourer	Cultivation	Thatch	1			Primary	50	1.5	Paddy	Wild boar Elephant	100	16	Tube Well	5	3	Summer	NGB			No	No		
15	Laxmi Karna	OBC	Mudhi Bhaja	Labourer	Thatch	0			Illiterate	50						Tube Well			Summer					No		
16	Mohan Palei	ST	labourer	Cultivation, Live stock (Tenant)	Thatch	0	Khajuri mat weaven		Primary							Tube Well	leaf	3	2	Summer	Summer				No	
17	Anrudha Pradhan	ST	labourer	Cultivation (tenant)	Thatch	1			Primary	3.0	3.0	Paddy	Wild boar Elephant	100		Tube Well	5	2		NGB				yes		
18	Gadadhar Pradhan	ST	labourer	Cultivation	Thatch	1			Primary	50	0.5	Paddy	Wild boar Elephant	100		Tube Well	4	2	Summer	NGB				No		
19	Suresh Palei	ST	labourer	Cultivation	Thatch & Pacca half build	1			Primary	75	0.25	Paddy	Wild boar	100	15	Tube Well	4	3	Summer					yes		
20	Jayarathi Palei	ST	labourer	Cultivation	Tile	1			Primary	75	0.25	Paddy	Wild boar	100	15	Tube Well	4	3	Summer					yes		
21	Upendra Pradhan	ST	Cultivation	Labourer	Thatch & Tile	1	Carpenter		Primary	25	3.0	Paddy	Wild boar Elephant	100		Tube Well	1	1				N.G.B J.N Pur		No		
22	Bimba Karna	OBC	Service	Cultivation	Thatch	1	Tratching		Primary	50	1.5	Paddy	Wild boar Elephant	100	20	Tube Well				Co.Op society				yes		
23	Biswanath Karna	OBC	Cultivation	Labourer	Thatch	1				50	1.5	Paddy	Wild boar Elephant	100	20	Tube Well			whole year			N.G.B J.N Pur		No		
24	Megha Nayak	OBC	Cultivation	Labourer	Thatch	1	Carpenter		Primary	30	1.5	Paddy	Wild boar Elephant & deer	80	15	Tube Well	2	1	spring					yes		
25	Pratulla Nayak	OBC	Cultivation	Labourer	Thatch	1			Primary	30	1.5	Paddy	Wild boar Elephant	80	15	Tube Well	2	1	Summer				N.G.B J.N Pur		No	
26	Sankhali Nayak	OBC	Cultivation	Live stock	Thatch	1			Primary	75	5.0	Paddy	Wild boar Elephant & deer	50	20	Tube Well			Summer				N.G.B J.N Pur		No	

Household no.	Name of the head	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans > 5000/-	Extent and source of loans < 10000/-	Extent and source of loans < 10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					Main N.T.F.P	% annual income	% of annual HH requirement met						
27	Nityanada Sahoo	OBC	Cultivation		Thatch	1		Primary	40	5.0	Paddy & Brinjal	Wild boar Elephant & deer		40	10	Tube Well				Summer		Co-Op		No	No	
28	Aharyami Pradhan	OBC	Cultivation		Thatch	1		Hindi & English	30	4.0	Vegetable & Paddy	Wild boar Elephant & deer	Santosi Maa Jhuruna Pradhan(daughter)	100	30	Tube Well				Summer		Co-Op		No	No	
29	Nabaghan Dhala	OBC	labourer	Live stock	Thatch	0		Primary					Santosi Maa Nabati Dhala (Wife)			Tube Well		5	1	whole year				No	No	
30	Dandua Bhoi	OBC	labourer	Live stock	Thatch	0	Catering	Primary			Paddy & Arhar, Greens & Blackgram		Subhashree Dalimba Bhoi (Wife)			Tube Well		5	2	whole year				yes	yes	
31	Basista Behera	SC	Cultivation	Live stock	Thatch	1			50	1.5	Paddy, greens & Blackgram	Wild boar Elephant & deer	Santosi Maa Rama Behera (Wife)	50	30	Tube Well		2	1	Summer		N.G.B J.N Pur		yes	yes	
32	Ganesh Behera	SC	Cultivation	Live stock	Thatch	1	Confictio ner		50	1.5	Paddy, greens & Blackgram	Wild boar Elephant & deer	Santosi Maa Kadali Behera (Wife)	50	30	Tube Well		1	5	Summer				yes	yes	
33	Rasananda Bhoi	OBC	Business	Live stock	Thatch	1			100	4.0	Paddy	Wild boar Elephant & deer	Santosi Maa Phula Bhoi (Wife)		15	Tube Well		1	1	Summer	Co-Op society			No	No	
34	Susanta Jhankara	ST	labourer	Cultivation (Tenant)	Thatch	1			90	1.25	Paddy horsegram & til	Deer & Wildboar	Subhashree Raibani Jhankara (Wife)		15	Tube Well		2	1	Summer				yes	yes	
35	Ekadusia Palai	OBC	labourer	Cultivation (Tenant)	Thatch	0		Primary								Tube Well			1	0.5	Summer	Co-Op society		Winter Malaria	yes	
36	Kausalya Dehuri	OBC	Cultivation	Labourer	Thatch	1		Primary	75	5.0	Paddy, horsegram & til	Wild boar Elephant & Deer	Santosi Maa Kausalya Dehuri (Self)	50	30	Tube Well		3	2	Summer	Co-Op society			No	No	
37	Debarchan Dehuri	OBC	Cultivation Bamboo	Labourer	Thatch	1		Primary	50	14.0	Paddy, Arhar & til	Wild boar Elephant & Deer	Singhabahini Susama Dehuri(Wife)	30	100	Tube Well		3	5			N.G.B J.N Pur		yes	yes	
38	Dukhaban-dhu Dehuri	OBC	Cultivation	Labourer	Thatch	1		Primary	50	14.0	Paddy, Arhar & til	Wild boar Elephant & Deer	Sibama Labanya Dehuri(Wife)	30	100	Tube Well		3	2			N.G.B J.N Pur		yes	yes	
39	Santosa Dehuri	OBC	Cultivation	Labourer	Thatch	1			50	14.0	Paddy, Arhar & til	Wild boar Elephant & Deer	Sibama Manju Dehuri (Wife)	30	80	Tube Well		2.5	1.5		Co-Op society			yes	yes	
40	Karuna Behera	SC	Artisan	Labourer	Thatch	0	Bamboo artisan	Primary					Sibama Saila Behera (Wife)			Tube Well		3	2.5	Summer				yes	yes	

Household no.	Name of the head of the household	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans > 5000/-	Extent and source of loans > 10000/-	Extent and source of loans > 10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					Main N.T.F.P	% annual income	% of annual HH requirement met						
41	Budhia Behera	SC	Bamboo Artisan	Labourer	Thatch	0	Bamboo artisan						Sibma Uma Behera (Wife)		Tube Well		4	2						yes		
42	Niladi Behera	SC	Bamboo Artisan	Labourer	Thatch	0	Bamboo artisan		Primary				Sibam Kumudin Behera (Wife)		Tube Well		3	2.5						yes		
43	Sadananda Adabar	OBC	Live stock	Cultivation	Thatch	1	Leadership		Primary	25	4.0	Paddy greengram & Blackgram	Elephant & Wildboar	Kalapata Bachana Adabar	75	200	Open well		1	0.5			N.G.B J.N Pur	yes		
44	Gauri Pattnaik	OBC	Live stock	daily labourer	Thatch	0							Mahalaxmi Gauri Pattnaik (Self)		Open well		2	1		SHG				No		
45	Rasananda Nayak	ST	Live stock	Cultivation	Thatch	1	Sankritan			25	0.5	Paddy, Greengram, Arhar	Wild boar, Elephain & Deer	Kalapata Sabita Nayak (Wife)	50		Open well		2	1					No	
46	Kalandi Nayak	ST	labourer	Cultivation	Thatch	1	Catering			30	3.0	Paddy, Horsegram	Wild boar, Elephain & Deer		15	100	Open well & Nala		2	1	Co.Op society				yes	
47	Bhramara Pradhan	ST	labourer		Thatch	0							Mahalaxmi Bijuli Pradhan (Wife)		Open well		1	0.5		SHG				No		
48	Suresh Baghar	OBC	Live stock	Bamboo artisa	Thatch	0	Bamboo artisan		Primary				Kalapata Sumira Bagha (d.l.i.)		Open well		2	1	Summer	Co.Op society				No		
49	Babuli Baghar	OBC	Live stock	Cultivation	Thatch	1	Tailoring & Water pump		Primary	30	2.0	paddy, greengram & Blackgram	Wild boar, Elephain & Deer		50	30	Open well		1	0.5			N.G.B J.N Pur	yes		
50	Ganesh Bagma	OBC	Live stock	Cultivation	Thatch	1	Bamboo artisan & Thatching		Primary	50	0.3	paddy, greengram & Blackgram	Wild boar, Elephain & Deer	Kalapata Arali Bagha		Open well		2	1	Summer	Co.Op society			No		
51	Anlaryami Adabar	OBC	Live stock	Cultivation	Thatch	1	Bamboo artisan & Thatching	English	Primary	50	1.0	paddy, greengram & Blackgram	Wild boar, Elephain & Deer	Kalapata Golap Adabar	50	30	Open well		1	0.5	Summer		N.G.B J.N Pur	No		
52	Aswasthama Adabar	OBC	Live stock	Cultivation	Thatch	1	Business		HSC	40	1.0	paddy, greengram & Blackgram	Wild boar, Elephain & Deer		45	20	Open well		1	0.5	Summer		N.G.B J.N Pur	No		
53	Upendra Adabar	OBC	Live stock	Cultivation	Thatch	1	Catering		Primary	50	1.5	paddy, greengram & Blackgram	Wild boar, Elephain & Deer		30		Open well		1	0.5	Summer			yes		
54	Jasoda Bewa (Adabar)	OBC	Live stock	Cultivation	Thatch	1				50	4.0	paddy, greengram & Blackgram	Wild boar, Elephain & Deer	Kalapata Jasoda Bewa	40	30	Open well		1	0.5				No		
55	Bibhuti Adabar	OBC	Service	Cultivation	Thatch	1			Primary	60	2.5	paddy, greengram & Blackgram	Wild boar, Elephain & Deer		30	18	Open well							yes		

Household no.	Name of the head	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans >10000/-	Extent and source of loans <10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					Main N.T.F.P	% annual income	% of annual HH requirement met					
56	Aju Adabar (Anadi)	OBC	Cultivation		Thatch	1		Hindi & English	Primary	60	2.5	paddy, greengram & Blackgram	Wild boar, Elephant & Deer		20	Open well	1	0.5	Co.Op society				No		
57	Chakra Adabar	OBC	Live stock	Cultivation	Thatch	1	Thatching		Primary	50	5.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer	Kalapala Salia Adabar (Wife)	30	Open well	1	0.5	Summer	N.G.B J.N Pur			No		
58	Bhimsen Adabar	OBC	Live stock	Cultivation	Thatch	1	All rounder & carpenter		Primary	50	2.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer	Mahalaxmi Pabai Adabar (Wife)	40	Open well	1	0.6	Summer	N.G.B J.N Pur			No		
59	Utama Adabar	OBC	Live stock	Cultivation	Thatch	1			Primary	50	2.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer		16	Open well	1	0.6	Summer	Co.Op society			yes		
60	Basania Adabar	OBC	Live stock	Cultivation	Thatch	1			Primary	40	4.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer		17	Open well	1	0.7	Summer	Co.Op society			yes		
61	Sudarson Adabar	OBC	Live stock	Cultivation	Thatch	1			Primary	40	4.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer	Sadabani Adabar	40	Open well	1	0.6	Summer	Co.Op society			yes		
62	Prasan Adabar	OBC	Live stock	Cultivation	Thatch	1			Primary	40	1.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer		17	Open well	1	0.7	Summer	Co.Op society			yes		
63	Akhaya Adabar	OBC	Live stock	Cultivation	Thatch	1			Primary	40	1.0	paddy, greengram & Blackgram	Wild boar, Elephant & Deer		17	Open well	1	0.6	Summer	Co.Op society			yes		
64	Mahendra Bagha	OBC	daily labourer		Thatch	0										Open well	1	1	Summer				yes		
65	Nabin Adabar	OBC	Live stock	Cultivation	Thatch	1				50	2.0	Paddy, greengram & Blackgram	Wild boar, Elephant & Deer	Kalapat Paluni Adabar	30	Open well			Summer	Co.Op society			yes		
66	Bira Dala-behera	OBC	Live stock	Cultivation	Thatch	1	Driver		Primary	35	2.0	Paddy, greengram & Blackgram	Wild boar, Elephant & Deer			Open well							No		
67	Laxmana Naik	ST	Cultivation		Thatch	1		Hindi & English	Primary	25	4.0	Paddy, greengram & Blackgram	Wild boar, Elephant & Deer	Singhabahini Sambari Naik (D.I.L)	25	Open well	1	0.5	Summer				yes		
68	Narasingh Naik	ST	Service	Cultivation	Thatch	1		Hindi & English	Primary	25	1.0	Paddy, greengram & Blackgram	Wild boar, Elephant & Deer		20	Open well	2	1	Summer				yes		
69	Satrughana Naik	ST	Live stock	Cultivation	Thatch	1	Ex-F.G	Hindi & English	HSC	25	4.0	Paddy, greengram, Blackgra Mustard	Wild boar, Elephant & Deer	Singhabahini Srimati Naik	25	Open well							yes		
70	Bhabagrahi Naik	ST	Cultivation		Thatch	1			Primary	25	2.0	Paddy, greengram Blackgra Mustard	Wild boar, Elephant & Deer	Singhabahini Pramila Naik	25	Open well	2	0.5					yes		

Household no.	Name of the head of the household	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans > 5000/-	Extent and source of loans < 10000/-	Extent and source of loans > 10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					Main N.T.F.P	% annual income	% of annual HH requirement met						
71	Nira Jani	ST	Cultivation		Thatch	1				50	0.3	Paddy	Wild boar	Singhabahini Jhataka Jani	15	Nala	1	1	0.5					yes		
72	Bauri Naik	ST	Live stock	Cultivation	Thatch	1				25	1.0	Paddy	Wildboar & Elephant	Singhabahini Sufalla Naik	8	Open well	1	1	0.5					yes		
73	Dusasan Dehury	ST	Cultivation	daily labourer	Thatch	1					0.3	Paddy		Singha Bahini Susama Dehury	8	Open well	1	1	0.5					yes		
74	Mamata Palai	OBC	labourer	Cultivation	Thatch	0			Primary					Mamata Palai SHG		Open well	1	1	0.5	Co.Op society				Winter Malaria		
75	Trailokya Palei	ST	Live stock		Thatch	0			Primary					Singhabahini Banita Palei		Open well	1	1	0.5					yes		
76	Niranjan Dehuri	ST	Cultivation		Thatch	1			Literate	50	6.0	Paddy, Greengram, horse gram	Wildboar & Elephant	Singhabahini Nalini dehuri (D.I.L)		Nala	1	1	0.5					yes		
77	Panchu Jani	ST	Cultivation		Thatch	1	Bamboo artisan		HSC	25	0.3	Paddy	Wildboar & Elephant	Singha Bahini Golapa Jani	8	Nala	1	1	0.5					yes		
78	Subash Ch Dehuri	OBC	Business		Thatch	0		Hindi & English	Primary					Sibam Nirupama Dehuri		Tube Well	1	1	1					No		
79	Kanduru Naik	ST	daily labourer		Thatch	0			Primary							Tube Well	1	1	1					No		
80	Pratula Naik	ST	Cultivation	Live stock	Thatch	1	Carpenter Bamboo artisan		Primary	65	2.0	Paddy, Arhar & Blackgram	Wildboar & Elephant	Maa Bhabani Kumari Naik	16	Tube Well	1	1	1	Summer				yes		
81	Chakra Naik	ST	Cultivation	Live stock	Thatch	1	Bamboo artisan		Primary	65	2.0	Paddy, Arhar & Blackgram	Wildboar & Elephant	Maa Bhabani Panchali Naik	16	Tube Well	1	1	1	Summer				yes		
82	Upendra Naik	ST	Cultivation	Live stock	Thatch	1	Bamboo artisan		Primary	65	2.0	Paddy, Arhar & Blackgram	Wildboar & Elephant	Maa Bhabani Lata Naik	16	Tube Well	1	1	1	Summer				yes		
83	Pabitra Naik	ST	Cultivation	Live stock	Thatch	1	Bamboo artisan		Primary	65	2.0	Paddy, Arhar & Blackgram	Wildboar & Elephant	Maa Bhabani Anita Naik	16	Tube Well	1	1	1	Rainy				yes		
84	Krushna Naik	OBC	Cultivation		Thatch	1				50	1.5	Paddy	Wildboar & Elephant			Tube Well	1	1	0.5	Summer				yes		
85	Nakula Naik	OBC	Cultivation		Thatch	1				50	1.5	Paddy	Wildboar & Elephant			Tube Well	1	1	0.5	Summer				yes		
86	Gurubari Naik	OBC	Cultivation		Thatch	1				50	3.0	Paddy, itti & Arhar	Wildboar & Elephant	Maa Bhabani Gurubari Naik (self)	50	Tube Well	1	1	0.5					No		
87	Biranchi Bhoi	OBC	Cultivation		Thatch	1	Artist		Primary	100	1.0	Paddy	Wildboar & Elephant	Maa Bhabani Maharagi Bhoi (Mother)	17	Tube Well	1	1	0.5	Rainy				yes		
88	Kanhu Bhoi	OBC	Cultivation		Thatch	1				100	1.0	Paddy	Wildboar & Elephant			Tube Well	1	1	0.5					No		

Household no.	Name of the head of the household	Caste	Occupation		House type	Land	Skills	Other language	Education	Crop damage by wildlife				SHG membership	% land irrigated	Length of land along Forest / Revenue boundary (m)	Main source of household water	Non Timber Forest Produce			Seasonal migration for work	Extent and source of loans > 5000/-	Extent and source of loans > 10000/-	Extent and source of loans < 10000/-	Seasonal illness	Liquor problem?
			Main	Other						% Crop damage	Total crop area (Ac)	Crop type	Animal causing crop damage					Main N.T.F.P	% annual income	% of annual HH requirement met						
89	Mehendra Bhoi	OBC	Cultivation	daily labourer	Thatch	1	Bamboo artisan				100	1.0	Paddy	Wildboar & Elephant	Sibam Rina Bhoi	100	30	Tube Well	1	1	Summer				No	
90	Salya Dhala	OBC	daily labourer		Thatch	0							Maa Bhabani Lata Dhala				Tube Well	1	0.5	Summer				yes		
91	Narayan Behera	OBC	Cultivation	Village quack (Herbal)	Thatch	1	Herbal quack				20	3.2	Paddy	Wildboar	Maa Bhabani Salia Behera	50	30	Tube Well	1	0.5					No	
92	Narendra Nayak	OBC	Cultivation		Thatch	1		Primary			20	20.0	Paddy	Wildboar	*****	50	20	Tube Well	1	0.5	Summer	Co.Op society			yes	
93	Khagaswar Behera	OBC	Cultivation		Thatch	0							Maa Bhabani Pramila Behera				Tube Well	1	0.5					Winter Malaria		
94	Baikuntha Dhala	OBC	Cultivation		Thatch	0							Maa Bhabani *****				Tube Well	1	0.5						yes	
95	Ranjan Bhoi	OBC	Cultivation		Thatch	0							*****				Tube Well	1	0.5						yes	
96	Saphala Adabar	OBC	Cultivation		Thatch	0							*****				Tube Well	1	0.5						No	

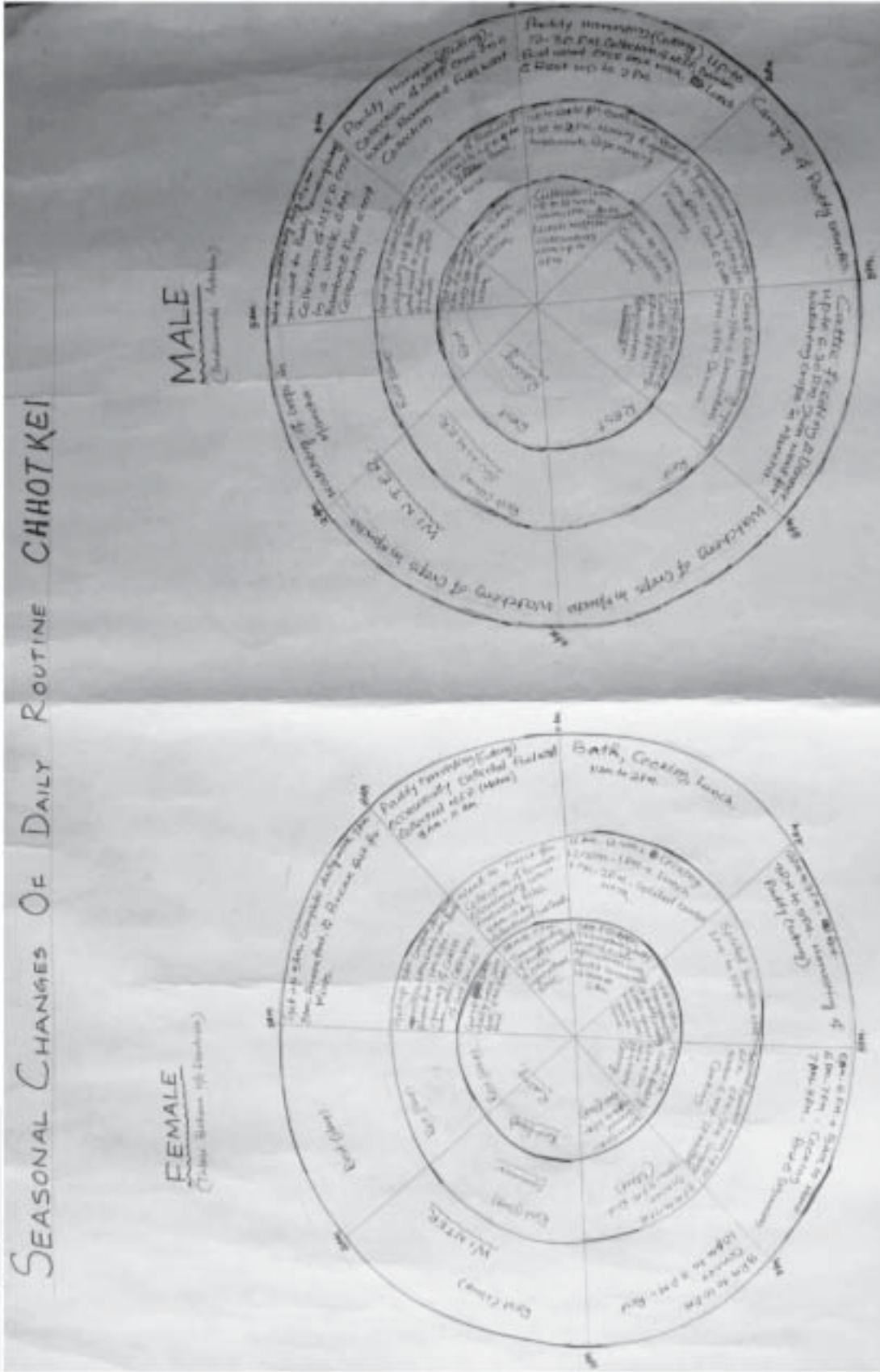
Chhotkei Micro-Plan Annex 5

Seasonal patterns of work activity at Chhotkei

Activities	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Cultivation	Plough	-	-	-	Ploughing	Ploughing sowing of paddy	Ploughing Transplanting of Paddy	Ploughing Transplanting of Paddy	Ploughing, sowing of Horse gram, Black gram, Till	Plough		Harvesting of Paddy Vegetable
Fuel wood	Less	More	More	Less	Less	As required	As required	As required	As required	As required	As required	As required
Bamboo	-	-	-	-	-More	More	-	-	-	-	Less	Less
Non Timber Forest Products	Amla.	Mahua.	Harida Bahada	Jhuna Kendu leaf	Jhuna Honey Karanja seed	Sal sees Honey	-	-	-	-	-	-
Migration	Less	Less	More	More	More	-	-	Less	Less	-	-	-
Fruits	-	Kendu	Kendu	Chara	Chara Jamu	Jamu	-	-	-	-	-	-
Roots	-	-	-	-	-	-	Tunga,Kada ba Pita Alu	Tunga Kada ba Pita alu	-	Panialu	-	-

Chhotkei Micro-Plan Annex 6

Diagram of daily routine of men and women



Chhotkei Micro-Plan Annex 7

Basic information on Self Help Groups (see Chhotkei Micro-Plan Annex 8 for details of membership and proposed income generation activities)

Name of SHG	Date established	Membership cost (Rs/month)	Internal loans	External loans (Rs)	Use of loan	Meeting frequency	Previous business	Skill / strength	Leadership change	Present constraints	Lesson learnt	Formed by	Managed by
Maa Kalapat	10.11. 2001	10/- then 20/- from 5.4.07; CB is 2675/- as on 13.11.08, no deposit thereafter	Yes	Nil	withdrew Rs. 3000/- and distribute equally	Irregular	Only saving and credit	vegetable cultivation	No	Financial and managerial capacity	Own consumption more	NGO (SSS)	NGO (SSS)
Maa Bhabani	28.10. 2008	20/-, CB 900/- as on 31.12.08	No	No	NA	Regular	Nil	vegetable cultivation	NA	Financial and managerial capacity	NA	NGO (SSS)	NGO (SSS)
Sibam	27.10. 2008	20/- pm, CB 1200/- as on 31.12.08	No	No	NA	Regular	Nil	vegetable cultivation	NA	Financial and managerial capacity	NA	NGO (SSS)	NGO (SSS)
Santoshima	25.05. 2002	20/- pm, CB 19489/- as on 31.12.08	Yes	30,000 from bank	for own consumption	Irregular and credit	Only saving cultivation	potato	No managerial	Financial and failed due to capacity	Potatoes lack of water	AWC	AWC
Rajashree	27.10. 2008	50/- pm, 2500/- as on 31.12.08	Nil	Nil	Nil	Regular	Only saving and credit	Onion, garlic and potato cultivation	No	Financial and managerial capacity	NA	AWC	AWC
Subhashree	03.01. 2003	10/-, then 20/-	Yes	RS. 60,000/- from NGBJ on 4.3.08, paid back 30,000/-	Internal loan among themselves with unequal proportion	Irregular	Only saving and credit	Onion, garlic and potato cultivation	No	Non-co-operation Non payment of loan, lack of managerial skill	Own consumption more	AWC	AWC
Mahalaxmi	23.5. 2002	20/-, CB 2666/- as on 26.4.07	Yes	Nil	withdrew Rs. 2000/- and distribute equally	Irregular	Only saving and credit	Vegetable cultivation	Yes	Financial and managerial capacity	Own consumption more	NGO (SSS)	NGO (SSS)
Singha Bahini	1.11.08	20/-, CB is 600/- as on 31.12.2008	NA	NA	NA	Regular	Only saving	Vegetable cultivation	No	Financial and managerial capacity	NA	AWC	AWC

Chhotkei Micro-Plan Annex 8

Summary of forest dependency, wellness and Self Help Group membership among households, and proposed income generation activities

HH No	Name of the SHG	Name of SHG member	Name Head of the household	Forest Dependence ranking	Wellness ranking	Age Years	ST/SC /OBC	Date of Establishment	Bank Account	Preferred activity
1	Santoshimaa	Rupeli Sing	Bira Singh	1	1	32	ST	25/03/2005	SB 1663	Rice Vending
2	Rajashree	Ranju Kothar	Pratulla Kothar	2	3	27	OBC	27/10/2008	SB 2565	Honey and Vegetable Cultivation
3	Mahalaxmi	Debaki Kothar	Netra Kothar	2	3	36	OBC	23/05/2002	SB 1655	Honey and Vegetable Cultivation
4	Santoshimaa	Rekha Jhankada	Ramesh Jhankar	1	2	60	OBC	25/03/2005	SB 1663	Rice Vending
5	Rajashree	Salla Dehuri	Naba Dehuri	1	2	34	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
6	Subhashree	Askara Dehuri	Siba Dehuri	1	1	60	ST	3/1/2003	SB 1735	Vegetable Cultivation
7	Subhashree	Jayantil Behera	Nirmala Behera	3	3	28	SC	3/1/2003	SB 1735	Vegetable Cultivation
8	Subhashree	Banila Behera	Ekadusia Behera	3	3	20	SC	3/1/2003	SB 1735	Vegetable Cultivation
9	Santoshimaa	Panchali Jhankada	Biranchi Jhankada	1	2	45	ST	25/03/2005	SB 1663	Rice Vending
10	Subhashree	Bhama Sing	Satya Singh	1	2	30	ST	3/1/2003	SB 1735	Vegetable Cultivation
11	Rajashree	Lima Sing	Basanta Singh	1	1	22	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
12	Subhashree	Nai Singh	Prasan Singh	1	2	45	ST	3/1/2003	SB 1735	Vegetable Cultivation
13	Subhashree	Kuni Singh (Secretary)	Ugrasan Singh	1	2	30	ST	3/1/2003	SB 1735	Vegetable Cultivation
14	Rajashree	Kuni Karna (Secretary)	Kuni Karna	1	1	30	OBC	27/10/2008	SB 2565	Honey and Vegetable Cultivation
15	Rajashree	Laxmi Karna	Laxmi Karna	1	1	28	OBC	27/10/2008	SB 2565	Honey and Vegetable Cultivation
16	Rajashree	Tara Pallai	Mohan Palei	2	2	38	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
17	Rajashree	Gouri Pradhan	Anirudha Pradhan	1	2	36	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
18	Rajashree	Laxmi Pradhan	Gadadhar Pradhan	1	2	28	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
19	Rajashree	Lata Pallai	Suresh Palei	1	2	34	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
20	Singhabahini	Basanti Pallai	Jayarathi Palei	1	2	28	ST	1/11/2008	SB 2566	Fishery
21	Rajashree	Samabari Pradhan (President)	Upendra Pradhan	1	3	25	ST	27/10/2008	SB 2565	Honey and Vegetable Cultivation
22	Santoshimaa	Sashi karna	Bimba Karna	1	3	35	OBC	25/03/2005	SB 1663	Rice Vending
23	Subhashree	Sobha Karna (President)	Biswanath Karna	1	3	42	OBC	3/1/2003	SB 1735	Vegetable Cultivation
24			Megha Nayak	1	2					
25	Santoshimaa	Bilasha Nayak	Pratulla Nayak	1	2	35	OBC	25/03/2005	SB 1663	Rice Vending
26	Subhashree	Sulochana Nayak	Sankhali Nayak	1	2	60	OBC	3/1/2003	SB 1735	Vegetable Cultivation
27			Nityanada Sahoo	1	3					
28	Santoshimaa	Jhununa Pradhan (President)	Antaryami Pradhan	1	WR	25	OBC	25/03/2005	SB 1663	Rice Vending

HH No	Name of the SHG	Name of SHG member	Name Head of the household	Forest Dependence ranking	Wellness ranking	Age Years	ST/SC /OBC	Date of Establishment	Bank Account	Preferred activity
28	Santoshimaa	Dharitree Pradhan		1	4	30	OBC	25/03/2005	SB 1663	Rice Vending
29	Santoshimaa	Nabati Dhal	Nabaghan Dhala	2	1	55	OBC	25/03/2005	SB 1663	Rice Vending
30	Subhashrre	Dalimba Bhoi	Dandua Bhoi	2	1	43	OBC	3/1/2003	SB 1735	Vegetable Cultivation
31	Santoshimaa	Rama Behera	Basista Behera	2	2	42	SC	25/03/2005	SB 1663	Rice Vending
32	Santoshimaa	Kadali Behera	Ganesh Behera	1	2	35	SC	25/03/2005	SB 1663	Rice Vending
33	Santoshimaa	Phull Bhoi (Secretary)	Rasananda Bhoi	1	2	30	OBC	25/03/2005	SB 1663	Rice Vending
34	Subhashrre	Rabibari Jhankada	Susantia Jhankara	1	2	50	ST	3/1/2003	SB 1735	Vegetable Cultivation
35			Ekadusia Palai	1	1					
36	Santoshimaa	Kaushalya Dehuri	Kaushalya Dehuri	1	2	42	OBC	25/03/2005	SB 1663	Rice Vending
36	Sibam	Susama Dehuri (Secretary)	Debarchan Dehuri	1	3	32	OBC	27/10/2008	SB 2563	Management of all purpose vehicle
37	Sibam	Labanya Dehuri	Dukhabandhu Dehuri	1	3	26	OBC	27/10/2008	SB 2563	Management of all purpose vehicle
39	Sibam	Manju Dehuri	Santosia Dehuri	1	3	25	OBC	27/10/2008	SB 2563	Management of all purpose vehicle
40	Sibam	Saila Behera	Karuana Behera	3	2	40	SC	27/10/2008	SB 2563	Management of all purpose vehicle
41	Sibam	Uma Behera	Budhia Behera	3	1	25	SC	27/10/2008	SB 2563	Management of all purpose vehicle
42	Sibam	Kumudini Behera	Niladri Behera	3	1	34	SC	27/10/2008	SB 2563	Management of all purpose vehicle
43	Maa Kalapat	Bachana Adabar	Sadananda Adabar	2	4	57	OBC	23/05/2002	SB 1657	Fishery
44	Mahalaxmi	Gouri Pattanaik (President)	Gauri Pattanaik	2	1	48	OBC	23/05/2002	SB 1655	Honey & Vegetable Cultivation
45	Mahalaxmi	Rama Nayak	Rasananda Nayak	2	2	26	ST	23/05/2002	SB 1655	Honey & Vegetable Cultivation
46			Kalandi Nayak	1	1					
47	Mahalaxmi	Bijuli Adabar	Bhramara Pradhan	2	1	35	ST	23/05/2002	SB 1655	Honey & Vegetable Cultivation
48	Maa Kalapat		Sumitra Bagha	1	2	56	OBC	23/05/2002	SB 1657	Fishery
49			Babuli Baghar	2	3					
50	Maa kalapat	Arati Bagha	Ganesh Bagha	2	2	28	OBC	23/05/2002	SB 1657	Fishery
51	Maa Kalapat	Golap Jhankada (Secretary)	Antaryami Adabar	1	2	43	OBC	23/05/2002	SB 1657	Fishery
52			Aswasithama Adabar	1	2					
53			Upendra Adabar	1	3					
54	Maa Kalapat	Janaki Kata	Jasoda Bewa(Adabar)	2	3	36	OBC	23/05/2002	SB 1657	Fishery
54	Maa Kalapat	Jasoda Bewa	Jasoda Bewa(Adabar)	2	3	63	OBC	23/05/2002	SB 1657	Fishery
55			Bibhuti Adabar	1	3					
56	Subhashrre	Beena Adabar	Aju Adabar(Anadi)	1	2	35	OBC	23/05/2002	SB 1655	Honey & Vegetable Cultivation
57	Maa Kalapat	Saila Adabar (President)	Chakra Adabar	2	3	40	OBC	23/05/2002	SB 1657	Fishery
58	Subhashrre	Padmini Adabar	Bhimsen Adabar	2	3	35	OBC	23/05/2002	SB 1655	Honey & Vegetable Cultivation

HH No	Name of the SHG	Name of SHG member	Name Head of the household	Forest Dependence ranking	Wellness ranking	Age Years	ST/SC /OBC	Date of Establishment	Bank Account	Preferred activity
59			Utama Adabar	2	3					
60			Basanita Adabar	2	3					
61	Maa Kalapat	Sahebani Adabar	Sudarsan Adabar	2	3	56	OBC	23/05/2002	SB 1657	Fishery
62			Prasan Adabar	2	3					
63			Akhaya Adabar	2	3					
64			Mahendra Bagha	2	2					
65	Subhashrre	Pramila Monahira	Nabin Adabar	1	2	28	OBC	23/05/2002	SB 1655	Honey & Vegetable Cultivation
66	Subhashrre	Amuruti Adabar	Bira Dalabehera	2	3	40	OBC	23/05/2002	SB 1655	Honey & Vegetable Cultivation
67	Singhabahini	Sambaria Nayak	Laxmana Naik	2	3	30	ST	1/11/2008	SB 2566	Fishery
68	Subhashrre	Bijuli Nayak	Narasingh Naik	1	3	55	ST	23/05/2002	SB 1655	Honey & Vegetable Cultivation
69	Singhabahini	Srimati Nayak	Satughana Naik	2	4	44	ST	1/11/2008	SB 2566	Fishery
70	Singhabahini	Pramila Nayak (Secretary)	Bhabagrahi Naik	2	2	25	ST	1/11/2008	SB 2566	Fishery
71	Singhabahini	Jataka Jani	Nira Jani	1	1	40	ST	1/11/2008	SB 2566	Fishery
72	Singhabahini	Saphala Nayak	Bauri Naik	2	2	34	ST	1/11/2008	SB 2566	Fishery
73	Singhabahini	Susama Dehuri	Dusasan Dehuri	2	2	34	ST	1/11/2008	SB 2566	Fishery
74	Singhabahini	Mamata Pallai	Mamata Palai	2	1	25	ST	1/11/2008	SB 2566	Fishery
75	Singhabahini	Banita Pallai (President)	Trailokya Palei	2	1	23	ST	1/11/2008	SB 2566	Fishery
76	Singhabahini	Nalini Dehuri	Niranjan Dehuri	2	3	28	ST	1/11/2008	SB 2566	Fishery
77	Singhabahini	Gopal Jani	Panchu Jani	1	1	30	ST	1/11/2008	SB 2566	Fishery
78	Sibam	Nirupama Dehuri(President)	Subash Ch Dehuri	1	1	37	OBC	27/10/2008	SB 2563	Management of all purpose vehicle
79	Mahalaxmi	Sebati Nayak	Kanduru Naik	1	1	65	ST	23/05/2002	SB 1655	Honey & Vegetable Cultivation
80	Maa Bhabani	Kumari Nayak (Secretary)	Prafulla Naik	2	2	42	ST	28/10/2008	SB 2564	Poultry
81	Maa Bhabani	Panchali Nayak	Chakra Naik	2	2	38	ST	28/10/2008	SB 2564	Poultry
82	Maa Bhabani	Lata Nayak	Upendra Naik	2	2	25	ST	28/10/2008	SB 2564	Poultry
83	Maa Bhabani	Anita Nayak	Pabitra Naik	2	2	24	ST	28/10/2008	SB 2564	Poultry
84			Krushna Naik	2	2					
85			Nakula Naik	2	2					
86	Maa Bhabani	Gurubari Nayak	Gurubari Naik	2	2	41	OBC	28/10/2008	SB 2564	Poultry
87	Maa Bhabani	Maharagi Bhoi	Bitranchi Bhoi	2	2	60	OBC	28/10/2008	SB 2564	Poultry
88			Kanhu Bhoi	2	1					
89	Sibam	Rina Bhoi	Mehendra Bhoi	2	2	34	OBC	27/10/2008	SB 2563	Management of all purpose vehicle
90	Maa Bhabani	Lata Dhal (President)	Satya Dhal	2	1	36	OBC	28/10/2008	SB 2564	Poultry

HH No	Name of the SHG	Name of SHG member	Name Head of the household	Forest Dependence ranking	Wellness ranking	Age Years	ST/SC /OBC	Date of Establishment	Bank Account	Preferred activity
91	Maa Bhabani	Salla Behera	Narayan Behera	2	2	45	OBC	28/10/2008	SB 2564	Poultry
92			Narendra Nayak	2	2					
93	Maa Bhabani	Pramila Behera	Khagaswar Behera	2	1	56	OBC	28/10/2008	SB 2564	Poultry
94			Baikuntha Dhala	2	1					
95	Sibam	Asanti Bhoi	Ranjan Bhoi	1	1	22	SC	27/10/2008	SB 2563	Management of all purpose vehicle
96	Mahalaxmi	Saphala Adabar (Secretary)	Saphala Adabar	1	1	30	OBC	23/05/2002	SB 1655	Honey & Vegetable Cultivation



Figure 7.1 Google images of Tikarpara, Purnakote, Chhotkei, Tulka and Katrang villages (top left) and Chhotkei Village (top right). Close-up of Chhotkei Village (bottom)

8. ECOTOURISM IN SATKOSIA

8.1 Current status of tourism and facilities

The number of visitors to Satkosia has doubled since 2001 to more than 40,000 per year in the last two years (2005-06 and 2006-07). Many of these visitors are local, mostly coming for the day on picnics. Bengalis and also Marwaris constitute the bulk of visitors from other states (Popli *et al.* 2008). No figures are readily available with respect to foreign nationals but the number is low.

The carrying capacity has been estimated as 50 vehicles per day¹², with 40 entering via Pampasar and 5 via Baliput in Satkosia Gorge Sanctuary and 5 via Chhamundia in Baisipalli Sanctuary (Popli *et al.* 2008).

Four areas have been identified in the Satkosia Gorge Sanctuary Management Plan for development of tourism, as follows:

- **Tikarapada** - located on the bank of the Mahanadi River, with an ecotourism tented camp, Forest Rest House complex, Gharial/mugger breeding centre and planned location for a new interpretation centre.
- **Purnakote-Chhotkei-Hatigiriga** - located in the middle of the Sanctuary, with a Forest Rest House and PWD Inspection Bungalow, and ecotourism tented camp at Purnakote; and various watch towers and water holes for viewing wildlife.
- **Labangi** - located on the north-eastern perimeter of the Sanctuary, with a Forest Rest House equipped with solar power.
- **Baliput-Badamul** - located on the north and south banks of the Mahanadi River, with Forest Rest Houses in both villages and the nearby shrine of the Goddess Baigani located on the top of a steep hill overlooking Satkosia Gorge.

8.1.1 Tikarapada

Tikarapada is a honey pot for many visitors to Satkosia because of its location on the banks of Mahanadi River, with spectacular views of Satkosia Gorge, Crocodile Breeding Centre, elephant rides and some basic food and accommodation facilities. It is a favourite spot for picnics, attracting car loads of local visitors over weekends and public holidays (Figure 8.1). Tourist vehicles, however, are no longer allowed to travel along the forest track between Tikarapada and Baliput because this impacts on the quiet enjoyment of this stretch of riverine forest.

Plans to establish an **Interpretation Centre** here, designed by the Centre for Environment Education, CEE, Ahmedabad, have been approved and funded. The Centre will have a restaurant facility, and sell souvenirs - these should be local produce and handicrafts. The **Crocodile Breeding Centre**, currently rather forlorn and neglected, is due to have an injection of capital to revamp the facility and breeding programme. Thus, the visitor experience will be greatly enhanced by these new or improved facilities.

The choice of Tikarapada for the Interpretation Centre is considered to be entirely appropriate, given that this is the major destination for visitors. The small plateau that sits above the existing complex of buildings is ideal for either the Interpretation Centre or an ecolodge because of its fine view overlooking the Satkosia Gorge. It is crucially important that any building enhance the site, in terms of its architectural design and 'green' credentials, and contribute to the 'wow' factor experienced by visitors as they take in the beauty of the surrounding land and waterscape.

¹² This estimate is taken from 2002 *Ecotourism Policy Guideline: Appendix 2* but its basis is unclear.

It is also emphasised, as illustrated in Figure 8.2, that:

- Tikarapada lends itself to outdoor interpretation of the Gorge, riverine forest, giant squirrels (readily seen) and other wildlife (e.g. birds, butterflies, lizards); and
- The Crocodile Breeding Centre should be included in the interpretation efforts.

Understandably, in view of the scenery of the Mahanadi River flowing through Satkosia Gorge and the shade provided by the riverine forest, picnicking is very popular at Tikarapada and along the forest road to Ram Nala, with its perennial rock pools, and beyond towards Baliput. The large number of picnickers with their vehicles during weekends and public holidays requires effective management, as does the litter left by visitors (Figure 8.1).

The Forest and Environment Department (Wildlife Wing) is considering relocating the picnic site to Goindi, further upstream where there is an extensive grove of mangos alongside the Mahanadi River. This site could be managed by the local community, bringing in revenue by charging picnickers a modest entrance fee. This site is excellent for such purposes and can accommodate many more persons than at Tikarapada but the large number of vehicles passing right through two villages, Kararaparha and Naya Goindi (as shown in Tikarapada cluster map, Annex 5), to reach this spot would be a significant source of disturbance and pollution in terms of noise, dust and vehicle emissions. Potentially, at least 100 vehicles would pass through these villages daily during a busy weekend or public holiday in the peak tourist seasons.

Ecotourism

A community-run nature camp (Gorge Retreat) was initiated downstream from Tikarapada at the instigation of the Forest and Environment Department in 2006. It is a joint venture between the Department, which grant-aided its establishment, and TIPPS (Tikarapada Parivesh Paryatan Samiti), a registered society (Udgata, 2008). Key features of this venture include:

- Members of TIPPS who run the camp are young men from Tikarapada, who were either unemployed or involved in traditional fishing.
- The campsite is located on a sand bar beside the Mahanadi River, providing a magnificent setting during the winter season when the river is low and conditions are cool. It comprises 10 tents for visitors, each comfortably accommodating two persons and having a separate latrine and washing facilities also under canvas, and an additional tent reserved for Forest and Environment Department use.
- Water is pumped from the river and each tent is provided with solar lighting.
- Meals are served in a large mess tent.
- Activities available to visitors include boat trips (mugger crocodile may occasionally be seen) and walks along the forest road or nearby Ram Nala.
- Visitors are currently charged Rs 1,100¹³ per day. This package covers overnight accommodation for two persons in a tent, meals and a boat ride.

Average occupancy during the peak four-month tourist period from 2/11/2008 to 28/02/2009 was 51%, based on records in the camp register. A total of 142 groups, comprising a total of 867 adult persons (i.e. excluding children), stayed for a total of 200 nights, which equates to an average of 1.4 nights per group. Only 12 groups stayed for more than two nights, 11 for three nights and one for four nights. Average group size is

¹³ US \$1 = Rs 45

6.1 adults. While this level of occupancy is modest, it is not enough to sustain members of the TIPPS for the entire year.

There is a second, smaller tented camp (two tents) located behind the Forest Rest House in Purnakote. This is managed by PETS (Purnakote Ecotourism Society), which is not yet registered as a society, despite having been established at approximately the same time as TIPPS. This camp has been running since September 2007 but it is seldom used by visitors, operating at just 7% of its capacity in terms of beds occupied. A total of 61 groups have used the facility to date (September 2007 - June 2009); none of the tents was occupied on 85% of nights. Originally, there were 10 members of PETS but now there are five. The gross income generated during this period is approximately Rs 100 per day, of which one-third is spent on maintenance and repairs. Clearly, the venture is not viable in its present state.

8.2 Review of existing ecotourism ventures at Tikarapada and Purnakote

A SWOT analysis of the two ecotourism ventures established in 2006 at Tikarapada and Purnakote is provided in Table 8.1. Further considerations are given below.

Gorge Retreat, TIPPS

While the TIPPS venture is a very exciting initiative with much potential, it currently falls well short of meeting a number of ecotourism principles, especially with respect to impacts on wildlife, conservation education and direct financial benefits to nature conservation (see Table 4.2). It has a long way to go with respect to meeting criteria and standards expected of an ecolodge (Box 4.3), such as conserving the natural and cultural environment, environmentally sensitive disposal of sewage, working with other members of its own local community, and interpretative and research programmes.



STRENGTHS	WEAKNESSES	OPPORTUNITIES	THREATS
TIPPS - Tikarapada			
<ul style="list-style-type: none"> ■ Pioneering 'ecotourism' effort managed by registered Society of local community members from Tikarapada. ■ Scenic, isolated location in Satkosia Gorge. ■ Well laid out camp, with perimeter secured by fence to deter crocodiles and non-staying visitors. ■ Staff trained in hospitality management. ■ Financial accountability, with profits shared among Society members. ■ Popular destination for local visitors and often full at weekends in peak holiday season (51% occupancy in 2008-09 winter). ■ Boat trip, food and accommodation packaged. ■ Good value and affordable for middle income groups (Rs 1,000 per double tent). 	<ul style="list-style-type: none"> ■ Camp is in Core Zone and located on sand bar used by crocodiles. ■ Camp is temporary (November-March), so does not provide full time employment. ■ Occupancy nil or very low Monday-Thursday outside peak holiday season. ■ Tikarapada EDC does not benefit from venture. ■ Profits not equitably shared among staff. ■ Minimal reciprocal commitment to conservation /management of Sanctuary. ■ Staff not trained or experienced in nature or culture interpretation and limited in their ability to converse with foreigners. ■ Camp currently attracts inappropriate behaviour from visitors, many of whom have little genuine interest in ecotourism. This is due to limited awareness-raising prior to booking and at entrance to site, coupled by lack of enforcement of policies by staff to maintain free of litter, loud noise ect. ■ Moderate quality and poor diversity of food. ■ No effort/policy to source food and other camp provisions locally. 	<ul style="list-style-type: none"> ■ TIPPS is first community-based ecotourism of its kind in Orissa, providing critical opportunity to demonstrate how such tourism can benefit both local communities and biodiversity conservation in Satkosia and other protected areas. ■ Unprecedented chance in Orissa to demonstrate how to establish an eco-lodge, based on internationally defined criteria. ■ Unprecedented opportunity in Orissa's protected areas to develop institutional mechanisms involving EDC to ensure that benefits flow to other members of Tikarapada community, as well as to nature conservation via the management authority (i.e. Forest & Environment Department). ■ Relocation of the camp to the riverine forest along the north bank of the Mahanadi River would extend its season by four months and remove its potential impact on crocodiles using the sand bar (Figure 8.3). 	<ul style="list-style-type: none"> ■ Failure to develop truly community-based ecotourism venture undermines the promotion of ecotourism elsewhere in Satkosia and more widely in Orissa. ■ Camp is becoming liability for Forest and Environment Department, due to institutional or legal issues, mismanagement, impacts on wildlife (i.e. crocodiles) etc, so may have to be closed down if not addressed. ■ Unexpected flood during dry, winter season. ■ Vested interests undermine integrity of TIPPS (e.g. locals fishing illegally in view of camp). ■ Competition from new, more attractive or better managed ecolodges elsewhere in Satkosia.
PETS - Purnakote			
<ul style="list-style-type: none"> ■ Easy access from main Tikarapada road. ■ Benefits from overflow of visitors wishing to stay at Gorge Retreat when full. 	<ul style="list-style-type: none"> ■ Very poor, unimaginative location behind FRH without any view. ■ No privacy – tent entrances face each other, 1.5m apart. ■ More of an extension to the FRH, rather than a camp (only 2 tents). ■ Low morale among staff due to declining visitor numbers, resulting in poor and unhygienic standards of board and lodging. ■ No evidence of any training in visitor hospitality. ■ PETS currently not registered as society. 	<ul style="list-style-type: none"> ■ While location and tented arrangements are unsuitable for tourists, the site and facilities are adequate and suitable for nature camps. It could provide the basis for establishing a nature conservation and education programme with schools and colleges. 	<ul style="list-style-type: none"> ■ Venture is not economically viable. ■ Competition from new nearby ventures (e.g. Chhotkei) likely to result in its demise.

More detail on some of the issues identified in the SWOT analysis is as follows:

- There are two important reasons for seeking an alternative location for Gorge Retreat:
 - The sandbar on which the camp is located used to be regularly used by gharial according to local reports and is still used by the occasional mugger. Numbers of crocodiles (both species) have declined drastically since the 1950s when groups of up to 10 gharial could be seen basking on the sand bars at Tikarapada; by the mid-1970s only 4 gharial and 1 mugger were recorded in Satkosia Gorge (Singh, 1991). Currently, the gharial (a critically endangered species with an estimated global population of some 200 adults¹⁴) is all but locally extinct in the Mahanadi, with only 2 adults estimated in 2006¹⁵, and numbers of mugger are very low. Historically, mugger used to be fewer than gharial and it may be important to restore this ecological balance in order to maintain a viable population of gharial.
 - The camp can only remain on the sand bar for about 4 months of the winter season, between November and February, after which it becomes unbearably hot for visitors by midday and, subsequently, during the monsoon the sand bar becomes inundated. Thus, from a business perspective the venture has limited financial viability until a more permanent camp can be established.
- The camp continues to attract persons (mainly local from Angul) who have no real desire to experience and explore nature and local culture but rather celebrate noisily among themselves, sometimes drunkenly (alcohol is not allowed on the premises), litter profusely, have their car radios turned on loudly at the parking area, and some prefer to bring their own kitchen to cook their food. To date, much of this behaviour has been tolerated by TIPPS for reasons of expedience (members of groups may be friends of senior government officials) and economics (the camp is rarely full, other than sometimes at weekends and in peak holiday seasons) but entirely inappropriate precedents are being established that could be very damaging to the development of ecotourism in Satkosia and other protected areas. Much more needs to be done to ensure that the visitor is informed about what to expect prior to booking.
- The camp continues to be grossly under-occupied during the week (Monday-Thursday), despite its magnificent location, good though basic facilities and modest price. Currently, less than 50% of bookings are confirmed by advance payment; those who do not pay in advance often fail to show up. Much more needs to be done to market this ecotourism destination more widely and this can probably be achieved most effectively, quickly and relatively cheaply via the World Wide Web.
- Bookings are currently taken by the DFO Satkosia and his staff, who are not always readily available to receive calls and have more important tasks to which to attend.
- The institutional relationships between the Forest and Environment Department, TIPPS and Tikarapada EDC (Eco-development Committee) need to be reviewed and developed in accordance with community-based ecotourism principles. Currently, expectations on the part of TIPPS and the Department are not aligned, nor formally agreed, and the EDC plays no part in the relationship.

Purnakote Ecotourism Society

The two-tents located behind the Forest Rest House in Purnakote appear to be very much an extension of the existing Forest and Environment Department facilities there, rather than an ecotourism venture in its own right. It is very much perceived as a poor relation to Gorge Retreat. Moreover, the Society has dwindled from

¹⁴ http://www.flmnh.ufl.edu/cnhc/csp_ggan.htm. According to WWF India, 2009, "Estimates indicate that 1400 individuals survive in the wild" but presumably these estimates included juveniles (see http://www.wfindia.org/news_facts/?_3060/WWF-India-Reintroduces-131-Ghariales-into-River-Ganges).

¹⁵ http://www.iucnredlist.org/documents/attach/8966_v1223422179.pdf

10 members to five since its establishment in 2007 and, currently, visitor numbers are extremely low to the extent of the venture no longer being economically viable.

8.3 Analysis of tourism

The following is a brief assessment of the prevailing status of tourism in the Sanctuary:

- Satkosia Gorge Sanctuary is a reasonably accessible tourism destination, being a one hour drive from Angul (which is connected by rail) or 4 hours from Bhubaneswar.
- As a destination, its principle features are its location within the Eastern Ghats and the passage of the Mahanadi River through the Satkosia Gorge. Its biodiversity is undoubtedly an attraction and there is much for forest/plant and bird enthusiasts to readily appreciate but, in reality, for the wildlife enthusiast the chances of encountering large mammals are low. Less well appreciated is the beauty of the landscape, with its natural forests and enclaves of village settlements surrounded by traditionally farmed agricultural lands. There is tremendous potential to access this heritage in ecologically and culturally sensitive ways that will bring revenue to local communities and, thereby, contribute to reducing pressures on biodiversity.
- The majority of visitors are local and come for the day to Tikaparada to picnic on the banks of the Mahanadi. This in itself requires effective management as most leave their litter behind. Revelling and blaring car radios from vehicles travelling through the Sanctuary are a further source of disturbance to its tranquillity and wildlife.
- There is keen interest in developing tourism in the Sanctuary (and Tiger Reserve), focusing in particular on ecotourism since 2006 with the TIPPS initiative.
- Initiatives to date have been *ad hoc*, in the absence of any overall tourism/ecotourism policies and strategies for the Sanctuary. Furthermore, ecotourism is developing in a vacuum as, in the absence of policies at state or even departmental level there is no common understanding of its concept, principles and practice.
- The nature camp managed by TIPPS is the first community-based ecotourism venture of its kind in Orissa. The initiative is to be applauded and has tremendous potential but many issues need to be addressed, as evident from Table 8.1.
- The camp managed by PETS is a failure for a number of fairly obvious reasons, as evident from Table 8.1, and requires a different approach. It is considered to be much better suited for development as a camp for nature conservation and education activities for school and youth groups, for whom privacy and magnificent settings are less of a priority.

8.4 Towards an ecotourism strategy

Rationale for a community-based approach to ecotourism

Ecotourism in Satkosia Gorge Sanctuary (and the much larger Satkosia Tiger Reserve) should be community-based for the following reasons:

- Community-based ecotourism is considered to be the most appropriate model for developing tourism within protected areas, as evidenced by its increasing adoption in protected area around the world
- A community-based model complements other eco-development income-generating activities that are being developed by revenue villages located as enclaves inside the Sanctuary or within the peripheral buffer zone of the Tiger Reserve.
- Such a model will have a competitive advantage in the market place over other forms of nature-/eco-based tourism in Orissa and more widely in the subcontinent, particularly among potential European visitors, because of its strong community basis.

- This model is consistent with the approach that has already been initiated at Tikarapada (TIPPS) and Purnakote (PETS), where further nurturing and development are required to address the emerging constraints and issues considered in Section 8.2.

This approach should be developed in accordance with the concept and principles of ecotourism outlined in Sections 4.2 and 4.3, taking account of visitor expectations (Box 4.1).

Vision for community-based ecotourism in pilot area

Community-based ecotourism should initially be developed in and around the four village clusters identified for piloting eco-development, as previously described in Section 6.4 and shown in Figure 6.3. Key elements of a vision for this pilot area are illustrated graphically in Figure 8.4 and described below:

- A variety of destinations, types of eco-lodge and activities are available to visitors, sufficient for at least a week's duration that can be filled with different experiences.
- The pilot area is kept free of visitors' vehicles in order to enhance the visitor experience of quiet enjoyment of the landscape, avoid disturbance to wildlife and villagers, and minimise the 'carbon footprint'. This policy also provides local employment for those engaged in portering.
- **Overnight visitors** enter the Sanctuary by vehicle and alight at Purnakote, Tikarapada or Baliput where accommodation is available in eco-lodges. Those wishing to visit other parts of the Sanctuary may travel between overnight destinations by non-polluting, quiet forms of transport. Options available for travel, developed as part of the ecotourism experience, are by foot, bicycle, trishaw, traditional fishing boat, elephant and bullock cart. Personal luggage is carried in backpacks, using locally hired porters if required, in the case of travel on foot or in panniers if cycling (mountain bikes).
- A variety of accommodation is available, notably ecolodges, local guest houses and home-stays, all of which are run by members of local communities. It may be booked and paid for via a centralised on-line system that is managed by a federation of EDCs, with internet access available at Baliput, Purnakote, Tikarapada and Tulka to ensure that bookings are communicated daily from these ecotourism nodes to outlier villages. [Such facilities are also made available via internet cafés to members of the local community at low cost, subsidised by the higher charges paid by visitors.]
- Tea/curio shops, providing drinks, snacks, picture postcards and prints of the local natural/cultural heritage, maps, guide books and local handicrafts, are to be found in villages, especially those located strategically between overnight destinations.
- A range of activities in and around overnight destinations are available to visitors, including: guided nature walks/treks on foot or by elephant, guided visits to sites of cultural interest, cycling, traditional angling by boat with local fisherman, paddling/travelling with fisherman in their traditional boats, learning local handicrafts, teaching skills to villagers, sitting up at night with villagers in machans to see wildlife or scare off elephant and wild boar from raiding their crops, and being received as guests in village homes.
- Ecotourism facilities are run by EDCs in accordance with a Memorandum of Understanding with the Forest and Environment Department that incorporates standards and criteria to be met, in conformity with ecotourism principles and the policies and regulations pertaining to the Sanctuary. Ecotourism, as a component of eco-development, is coordinated by a federation of EDCs that works in partnership with the management authority.
- Local guides are knowledgeable in natural history and local culture, trained in interpreting such knowledge, accredited and licensed; and they are able to converse with visitors in Hindi or English.



- Visitors are made aware on entering the Sanctuary that it is a special place where littering, use of vehicle horns (emergencies apart) and excessively noisy behaviour out-of-doors are prohibited and enforced by effective measures. Forest and Environment Department staff and villagers are exemplary in their own behaviour.
- **Day visitors** similarly access the Sanctuary via the two metal roads that terminate at Baliput and Tikarapada, respectively. They may picnic in designated areas along/adjacent to these routes and on the banks of the Mahanadi River. Quiet walks or cycle rides may be enjoyed along the forest road (unmetalled) between Baliput and Tikarapada, which is closed to motor vehicles.

Development of ecolodges and home-stays

It is proposed that ecolodges be established in appropriate locations by the village communities of Tikarapada (Tikarapada cluster), Chhotkei (Purnakote cluster) and Baliput or Ranibhuin (Baliput cluster), subject to their interest, enthusiasm and commitment to undertake such ventures. Policy guidance for the development and management of ecolodges is provided in Section 4.4, along with lessons to apply from experience gained in Orissa (Section 5.4) and guidance on the distribution of revenue generated from ecolodges to benefit both the local community and biodiversity conservation (Box 5.2 in Section 5.5).

In order to provide the visitor with as wide a geographical range of overnight accommodation as practicable and to spread the economic benefits of ecotourism throughout the revenue villages in the buffer zones surrounding the central core zone, there is provision for home-stays in outlier villages as illustrated in Figure 8.1. Existing tourism and ecotourism accommodation facilities currently provide for some 34 persons per night in the pilot eco-development area. It is proposed that provision be made for up to an additional 110 persons, based on the scheme illustrated in Figure 8.4 and tentatively quantified in Annex 6.

8.5 Action plan for implementing community-based ecotourism

8.5.1 General policies and other provisions

- i. **Implement community-based ecotourism** in a coherent, consistent and synergistic manner that is based on the strategy outlined in Section 8.5 so that there is good connectivity between the various destinations, each affording a different set of activities that contribute uniquely to the overall visitor experience. [Note: This strategy is in accord with Project Tiger guidance on reducing the dependencies of local people on forests within buffer zones, as reviewed in Section 6.2.]
- ii. Area within which ecotourism is developed to be maintained **free from litter and tourist vehicles**. [Note: Visitors will continue to be able to travel by private vehicles between Pampasar and Tikarapada.]
- iii. **Commission an architect-led team** to design and oversee construction and initial maintenance (1-3 years minimum) of ecolodges, ensuring that it is genuinely committed to use and develop the technical knowledge and skills of EDC members.
- iv. **Location and construction of ecolodges** to conform to policy guidance in Sections 4.4 and 5.4 (see Box 5.1 for ecolodge location criteria).
- v. **Management of ecolodges** to conform to principles outlined in Section 4.4 (Box 4.4), based on a Memorandum of Understanding between EDC and Department of Forests and Environment in accordance with policy guidance in Section 5.5.
- vi. **Identify and/or develop appropriate training programmes** in hospitality, 'hotel' management and languages (Hindi and English) for ecolodge employees.
- vii. **Ecolodge employees to include guides** knowledgeable about the local culture and natural history, skilled in their interpretation, and trained in biodiversity conservation, protected area management, biodiversity survey and monitoring, and plant and animal identification.

- viii. **Accreditation schemes** to be developed for ecolodge employees and guides.
- ix. **Biodiversity officer** recently appointed within Satkosia Wildlife Division to be trained/supported by experienced naturalist, expert in interpretation of nature trails and production of accompanying guides. Role of officer to include training of ecolodge guides and engaging them in routine biodiversity monitoring.
- x. **Confirmation of ecolodge/camp bookings** to be subject to both receipt of advance payment and, importantly, signed acknowledgement that the ecolodge/camp regulations have been read and awareness that failure to adhere to them may result in all members of the group being asked to leave the camp without any refund of their payment. Once on-line booking is established, such acknowledgement can precede payment by means of a tick box (as often done on the internet for licence agreements etc).
- xi. **Community-based enterprises for hiring mountain bikes to visitors** to be established in Purnakote, Tikarapada and Baliput, using loans provided by respective EDCs.

8.5.2 Tikarapada cluster

- i. **Revitalise and enhance the visitor facilities at Tikarapada** in line with existing plans, which include:
- renovation of existing **accommodation facilities**, including the Forest Rest House.
 - construction of a new **Interpretation Centre** for visitors, with restaurant and shop (selling nature education materials and local handicrafts).
 - renovation of the **Crocodile Breeding Centre**, with provision of interpretation.
 - Additionally, the following should be included/addressed:
 - Tikarapada lends itself to **outdoor interpretation** of the Gorge, riverine forest, giant squirrels (readily seen) and other wildlife (e.g. birds, butterflies, lizards).
 - Interpretation efforts should be extended to the **Crocodile Breeding Centre**, which should be accessible to visitors but under proper supervision to ensure that visitors behave appropriately.
 - The elephant rides along the forest road on the north bank of the Mahanadi should be revamped into **authentic elephant safaris**. [This necessitates shifting this activity to elsewhere because the Mahanadi Gorge, with its steep hills rising above the forest track, is not ideal for elephant safaris. Purnakote, for example, would be a much more appropriate location.]
 - While there are plans to relocate picnicking to Goindi (Section 8.1), there should be some **continued provision for visitors to eat packed lunches and other food/drinks** out of doors in designated areas around the visitor complex. This should not extend to setting up kitchens in order to cook meals as presently practiced.
- ii. Renegotiate the current agreement between TIPPS and the Department of Forests and Environment for the management of Gorge Retreat, as part of the micro-planning process currently underway, and **bring TIPPS under the purview of Tikarapada EDC** in accordance with a Memorandum of Understanding that is based on policy guidance in Section 5.5.
- iii. **Relocating the nature camp** (Gorge Retreat) for the reasons mentioned in Section 8.2. One option (under consideration) is to relocate the campsite to the northern river bank, just back from the forest track than runs from Tikarapada to Baliput. There is adequate space on level ground in among the trees, just back from (north of) the forest track in three adjacent bays that would accommodate 4, 4 and >2

tents, respectively from west to east (Figure 8.3). This option would enable the camp to operate from the beginning of the tourist season in October to the pre-monsoon period of May-June, extending its operation from 4-5 to 8-9 months of the year. Key points to address include the following:

- These sites are shaded and afford a **view of the Mahanadi River and Gorge** but the view needs to be enhanced by some sensitive clearing of scrub/bushes on the south side of the forest track and lowering the 1 m high bund of soil/river gravel that has accumulated alongside the road.
 - Tents should be set at least 10 m back from the forest track, which in places has a deep layer of **fine dust** that spreads easily by wind or passing livestock (and vehicles), covering nearby vegetation (and therefore tents). Ideally, this section of the forest track should be re-graded and covered with river gravel, as should the campsite.
 - **Vehicles must not be allowed to use the forest track**, which runs from Tikarapada to Baliput, because it would be a significant source of disturbance/intrusion to this otherwise secluded location. This policy is due to be introduced as part of its management policies for Tikarapada visitor complex.
 - The camp site will need to be made **secure from disturbance by elephant** (electric fencing, or possibly solar lighting might be adequate).
 - Consideration will need to be given to the **location of solar panels for lighting**, since the entire site lies in forest and it would be inappropriate to fell any trees for this purpose. Canopy cover does not exceed 50% in places, so this may not be a major constraint.
 - If considered necessary, tents can be pitched on raised wooden platforms in order to be above the High Flood Level. Such platform should be supported by wooden poles (and trees), not concrete pillars.
- iv. The elevated site some 100 m above the Tikarapada Forest Rest House (Figure 8.5), and overlooking the shrine is a premier site for locating either the Interpretation Centre or the Ecolodge with its magnificent view of the Mahanadi River and Satkosia Gorge. But it is not suitable for co-location of both facilities, given the conflicting objectives of maximising use of the Interpretation Centre by visitors and having a quite, secluded location for the Ecolodge. This site is a **premier location** on account of:
- Its stunning panoramic view of the Mahanadi River and Gorge from quiet, secluded, forest surroundings.
 - Its convenient location, near to the Visitor Complex (where facilities include the Crocodile Breeding Centre, boat trips, walks along the Mahanadi River bank and the planned interpretation centre) and to Tikarapada Village, from which a cooperative can be established to run the lodge.
 - Its good access via a winding forest track and its potential for year-round use, subject to road access to Tikarapada during the monsoon.
 - Potentially more visitors would benefit from access to this view by locating the Interpretation Centre, rather than the Ecolodge, on this ridge top. But this will only work if visitors are enticed to walk the short distance, involving a 200 ft (?) climb, by also having a decent restaurant facility (and shop selling local handicrafts) located alongside the Interpretation Centre. **If there are no such provisions, few visitors will make the effort to visit the Interpretation Centre.**
 - **The magnificent scenic view of the river and gorge from this location must be enhanced by buildings that also have a ‘wow’ factor** in terms of their design, use of appropriate materials (not concrete) and blending in with the landscape. The present design does not do meet these expectations, nor do justice to its privileged setting.

- Ecologically sensitive/sustainable principles should also be taken into account in the design and management of these interpretation and eating facilities as part of raising the awareness of the visiting public.
 - Visitors should walk to the Interpretation, rather than allowed to use vehicles via the forest road (un-metalled track). The only exception should be those physically unable to walk. (Consideration should be given to using bullock carts rather than vehicles for this purpose?)
- v. There are plans to **relocate the picnic site at Tikarapada to Goindi**, less than 1 km upstream of Tikarapada (Section 8.1). Potential **impacts from vehicles** travelling through Kararaparha and Naya Goindi villages, en route to Goindi picnic site, should be anticipated and alleviated by ensuring that:
- Roads passing through these villages are concrete/metal throughout their entirety.
 - Speed limits of 20 kmph through villages are imposed and enforced.
 - A manned one-way-at-a-time system is imposed during weekends and other peak holiday periods (a solar-powered traffic signals system might be an alternative).
 - Ideally, the forest road should be re-aligned to bypass these two villages.

8.5.3 Purnakote cluster

- i. Restrict tourist vehicles in the vicinity of the Purnakote cluster of villages to the main Pampasar-Purnakote-Tikarapada road. **All travel by visitors between Purnakote and other villages in this cluster should be on foot, bicycle and other non-motorised forms of transport, such as elephant and bullock cart.** This is socially, economically and environmentally sustainable: avoiding impacts of vehicles on the social fabric of village life, providing sources of income generation for local communities; and reduces the carbon footprint of visitors. It requires marketing as part of the visitor experience.
- ii. Commensurate with such a policy must be the provision of a range of non-motorised forms of transport for visitors, such as mountain bicycles and bullock-cart rides, as well as secure parking facilities. Village EDCs, in cooperation with the Sanctuary authority, can make such provisions, all of which will generate income.
- iii. Develop the PETS tented facility behind the Forest Rest House into a **nature conservation and education camp** for school and youth groups. This will require provision of additional pitches for tents. Prior to investing in further development, a feasibility study should be undertaken to determine the level of interest and commitment among educational establishments and youth groups towards such a facility. If such an initiative does not prove to be feasible, the tented camp should be disbanded as it is not a suitable accommodation facility for ecotourists in this location (see Section 8.2, Table 8.1).
- iv. Develop a **community-run ecolodge at Chhotkei**, based on the following guidance:
 - Following a review of potential sites in relation to a set of criteria summarised in Table 8.2 and based on the initial recommendation of Chhotkei villagers, the ecolodge should be located on Matha Hillock¹⁶ (Figure 8.6).
 - The site can easily provide for 10 cottages, which should be the maximum from an ecotourism perspective. Initial plans should be limited to five cottages, with potential for expansion once the potential of the site has been realised.

¹⁶ Further details about Matha Hillock and its justification for the location of an ecolodge can be found in *Trip Report - Satkosia Gorge Sanctuary* (Michael Green, 28.02-02.03.2009) and *Trip Report - 18 March 2009* (Manoj Misra and Michael Green).

- Cottages should be built in traditional style (mud walls with thatched roof in keeping with the village), each comprising a double room, with en suite bathroom, that is spacious enough to easily accommodate one or two young children.
- A main disadvantage of this site is the absence of shade. It can be addressed but it will take several years for saplings to mature. Thus, large sapling specimens of native species should be planted strategically as soon as the site plan is finalised.

Table 8.2 Summary of assessment of potential sites for location of an ecolodge in Chhotkei Village, based on pre-defined criteria

Criteria - based on 5 cottages	Definitions	Site 1 Matha Hillock	Site 2 Stream - west end	Site 3 Mango orchard	Site 4 School	Site 5 Dumuhani Nala	Site 6 Kathar Sahi
Revenue land		✓	private-local	private-outside	private-outside	private-local	private-local
Scenic landscape	View of hills	✓✓✓	✓	✓	✓✓	✓✓	✓
Proximity to village	>100 <500 m	✓	✓	✓	✓	✗	✓
Water available	<200 m	✓	✓	✓	✓	✓	✓
Away from main road	>50 <200 m	✓	✓	✓	✓	✓	✓
Access to site		✓	✓	✓	via paddy	via paddy	via paddy
Shade available		✗	✗	✓	✓	Poor	✓
Stream for relaxation	<100 m	✗	✓	✗	✗	✓	✓
Space for expansion		✓	✓	✓	✗	✓	✓
Safety from elephants		moderate	✗	✗	✗	✗	✗
Other requirements							
Electric fence-to keep out elephants		Solar light may be adequate deterrent		✓	✓	✓	✓
Electricity Water		Solar tubewell required	solar tubewell required	solar tubewell required	solar tubewell required	Solar tubewell required	solar tubewell required

Site 1 lies at eastern extremity of village, about 150 m north of main forest road and backs onto two small clusters of houses.

Site 2 lies at western edge of village, about 50-100 m north of forest road and backs on to Nala and lemon orchard beyond.

Site 3 lies at eastern extremity of village, just north of main forest road in a mango orchard on the side of a hill.

Site 4 lies in shade of three mango trees behind school, south of main forest road.

Site 5 lies towards southern extremity of paddy, south of forest road and beyond Kathar Sahi hamlet, overlooking Nala.

Site 6 lies within shade of several individually isolated mango trees near Kathar Sahi hamlet, at western edge of village.

- v. In conjunction with the development of an ecolodge at Chhotkei, the following are recommended in order to provide a suite of activities for visitors, enough to encourage them to stay for 2-3 nights:
- Examine the feasibility of introducing elephant safaris at Chhotkei. This would provide Chhotkei with a unique selling point and undoubtedly attract a lot of visitors, helping to make the ecolodge initiative a financial success from the outset and providing an additional income-generating activity for the community. Villagers, once trained and experienced as mahouts, could also use domesticated elephants for anti-depredation work if needed to complement the electric fencing due to be installed around the perimeter of the revenue land.
 - The Dumuhani Nala is a perennial stream that is regularly used by wildlife during the dry season, reputedly being the only source of water north of the Mahanadi River. Thus, there is significant potential for viewing elephant and other wildlife (including tiger which frequents the area). The recently appointed Satkosia biodiversity officer should commence regular early morning and evening monitoring of wildlife that use the stream, especially during the dry season, so that a strategy can be developed for viewing wildlife from appropriately located hides and other vantage points.
 - Develop interpretative material (e.g. a short, illustrated guide to the plants and animals, including their signs) for the nature trail that runs through the buffer zone from Purnakote to Chhotkei (further details are provided in Trip Report, 4-6 December 2008). This task can be undertaken by the Satkosia biodiversity officer.

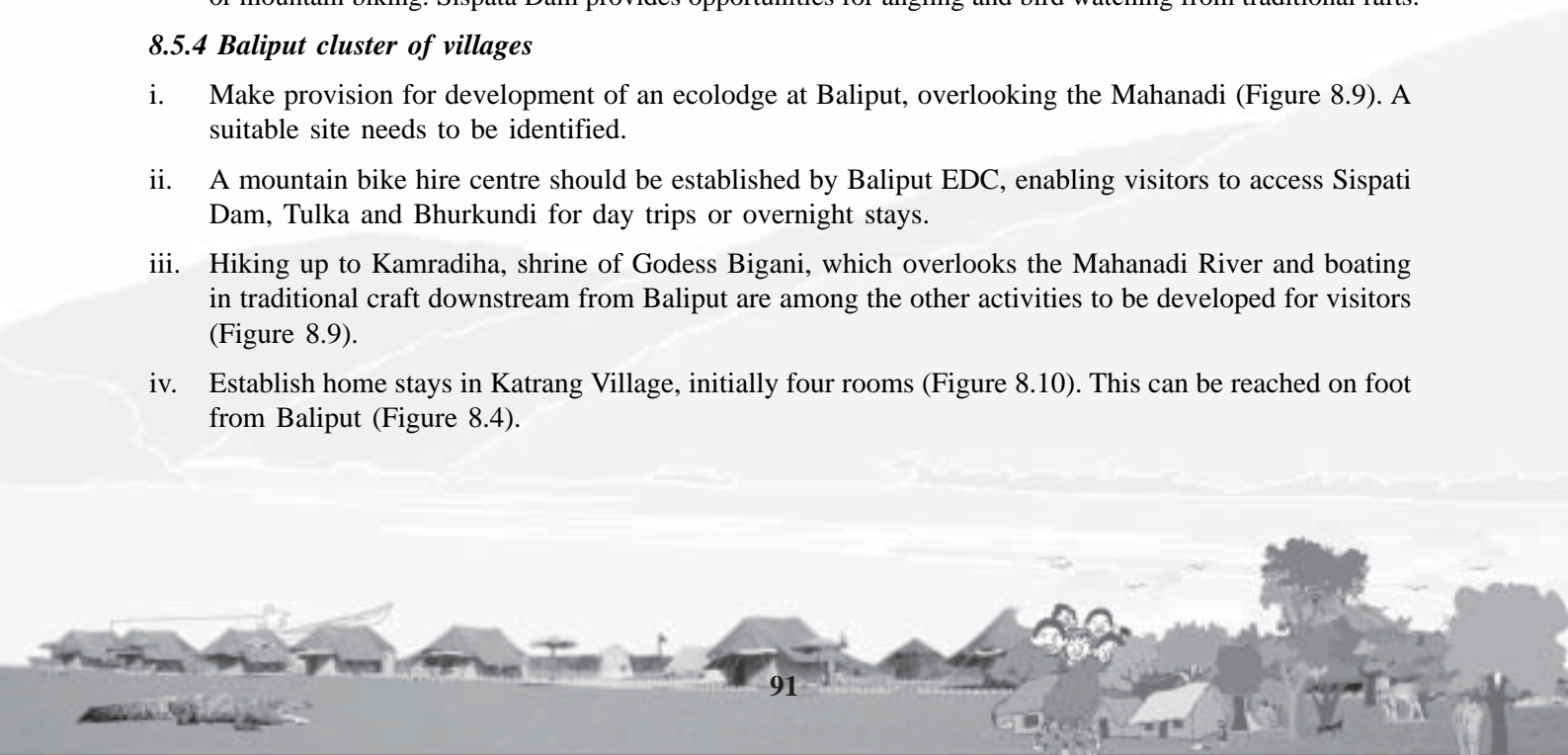
8.5.3 *Tulka cluster*

Tulka and Bhurkundi are more remotely located villages, potentially of interest to the more intrepid visitor who values an opportunity to reach them by cycling for a day from Baliput over some fairly rough terrain (Figure 8.4). Interest features include the villages passed en route, Sispata Dam (for the ornithologist) and the waterfall nearby Tulka (Figure 8.8).

- i. Establish home stays in Tulka and Bhurkundi, initially four rooms for each village.
- ii. Explore the feasibility using the traditional bamboo rafts on Sispata Dam for angling and bird watching. Most likely, this could generate more income for the local fisherman than currently gained from their fishing.
- iii. About 7 km long tracking road between Tulka and Sispata is unsuitable for vehicles but ideal for walking or mountain biking. Sispata Dam provides opportunities for angling and bird watching from traditional rafts.

8.5.4 *Baliput cluster of villages*

- i. Make provision for development of an ecolodge at Baliput, overlooking the Mahanadi (Figure 8.9). A suitable site needs to be identified.
- ii. A mountain bike hire centre should be established by Baliput EDC, enabling visitors to access Sispata Dam, Tulka and Bhurkundi for day trips or overnight stays.
- iii. Hiking up to Kamradiha, shrine of Goddess Bigani, which overlooks the Mahanadi River and boating in traditional craft downstream from Baliput are among the other activities to be developed for visitors (Figure 8.9).
- iv. Establish home stays in Katrang Village, initially four rooms (Figure 8.10). This can be reached on foot from Baliput (Figure 8.4).



REFERENCES

- ARA Consulting Group Inc. and HLA Consultants (1994). *Ecotourism-nature adventure/culture: Alberta and British Colombia market demand assessment*. Vancouver, British Colombia, Canada.
- Chafe, Zoe (2005). Interest in Responsible Travel Grows. In: *Vital Signs 2005*. The Worldwatch Institute, Washington DC. 101 p.
- Champion, H. G. and Seth S. K. (1968). *A revised survey of the forest types of India*. Publication Division, Government of India, Delhi.
- Gallagher, W.M. (2005). *Power Fence Systems Manual*. 12th Edition. Gallagher Power Fence Inc. (USA), North Kansas City, Montana. 46 p. <http://www.gallagherusa.com/pf.how.aspx>
- Green, M.J.B. and Panwar, H.S. (2008). OFSDP - Biodiversity Conservation: Framework, Programme and Schedule of Works. Report prepared for Orissa Forestry Sector Development Project by General Consultants to OFSDP, Bhubaneswar. 37 p. (unpublished)
- Fischer-Zernin, Vincent and Steven Schipani (2005). Designing and operating an ecolodge in the Lao PDR: suggestions for local and international investors. Mekong Tourism Development Project, Lao National Tourism Administration / Asian Development Bank, Vientiane. 29 pp. http://www.ecotourismlaos.com/directory/publications/designing_and_operating_an_ecolodge_in_the_lao_pdr_english.pdf
- Mehta, Hitesh, Baez, Ana L. and O'Loughlin, Paul eds (2002). *International Ecolodge Guidelines*. The International Ecotourism Society, Burlington, Vermont, USA. 192 p.
- Mishra, P.C. (2006). Management plan for Satkosia Gorge Sanctuary, 2006-2015. Satkosia Wildlife Division, Angul.
- OFSDP (2006). Orissa Forestry Sector Development Project. Project Memorandum. Forest and Environment Department, Government of Orissa, Bhubaneswar. 88 p.
- National Tiger Conservation Authority (2008). *Revised guidelines for the ongoing centrally sponsored scheme of Project Tiger*. F. No. 3-1/2003-PT. Ministry of Environment & Forests, Government Of India. 22 p.
- Nilakantha Panigrahi (2005). Development of eco-tourism in tribal regions of Orissa: potential and recommendations. *Centre for East-West Cultural and Economic Studies, Bond University (Australia), Research Paper No. 11, February 2005*. 15 p.
- Popli, S.K., Prasad, R.R. and Udgata, H.B. (2008). Tiger Conservation Plan for Satkosia Tiger Reserve (2008-2009 to 2012-2013). Centrally Sponsored Plan Scheme. Forest and Environment Department, Government of Orissa. 202 p.
- SAPROF (2005). JBIC (2005). Special Assistance for Project Formation for Orissa Forestry Sector Development Project. Final Report. 2 volumes. SAPROF Team for Japan Bank for International Cooperation / Forest & Environment Department, Government of Orissa.
- Sharma, A., Kabra, A., Kinhal, G.A., Panwar, H.S., Misra, M. K., Upadhyay, S., Mohan S. and Upadhyay V. (2004). *Lessons Learned from Eco-Development Experiences in India: A Study*. PEACE, ELDF and SAMRAKSHAN, Mayur Vihar Phase - 1, New Delhi 110091. 312 p.
- Singh, L.A.K. (1991). Non-survival of gharial *Gavialis gangeticus* (Gmelin) (Reptilia, Crocodylia, Gavialidae) in River Mahanadi, Orissa. (An analysis of evolutionary and other factors acting against gharial conservation programme with proposals of remedial measures to manage gharial as an endangered species in Orissa.) *Technical Report*. Wildlife Wing, Forest And Environment Department, Government of Orissa. 72 p.

- TIES (2006). Fact sheet: global ecotourism. Update edition, September 2006. The International Ecotourism Society, Washington DC. 5 p. http://www.ecotourism.org/webmodules/webarticlesnet/templates/eco_template.aspx?articleid=351.
- Udgata, H.B. (2008). Eco-tourism in Satkosia – a means of livelihood. *Orissa Review* June 2008: 74-77.
- United Nations (1997). *Glossary of Environment Statistics, Studies in Methods*. Series F, No. 67. United Nations, New York.
- Wight, Pam A. (1996a). North American ecotourists: market profile and trip characteristics. *Journal of Travel Research* Spring 24 (4): 2-10.
- Wight, Pam A. (1996b). North American ecotourism markets: motivations, preferences and destinations. *Journal of Travel Research* 25:3-10.
- Wood, Megan Eplar (2002). *Ecotourism: principles, practices and policies for sustainable development*. United Nations Environment Programme and The International Ecotourism Society, Paris, France and Burlington, Vermont, USA. 64 p.
- WORLP (2008). *User manual on micro level planning*. Western Orissa Rural Livelihoods Project. Orissa Watershed Development Mission, Government of Orissa, Bhubaneswar. 42 p.





Figure 8.1 Tikarapada is a popular destination for picnics and official workshops, bringing with it litter problems. Signage needs to be reinforced with stronger management measures.

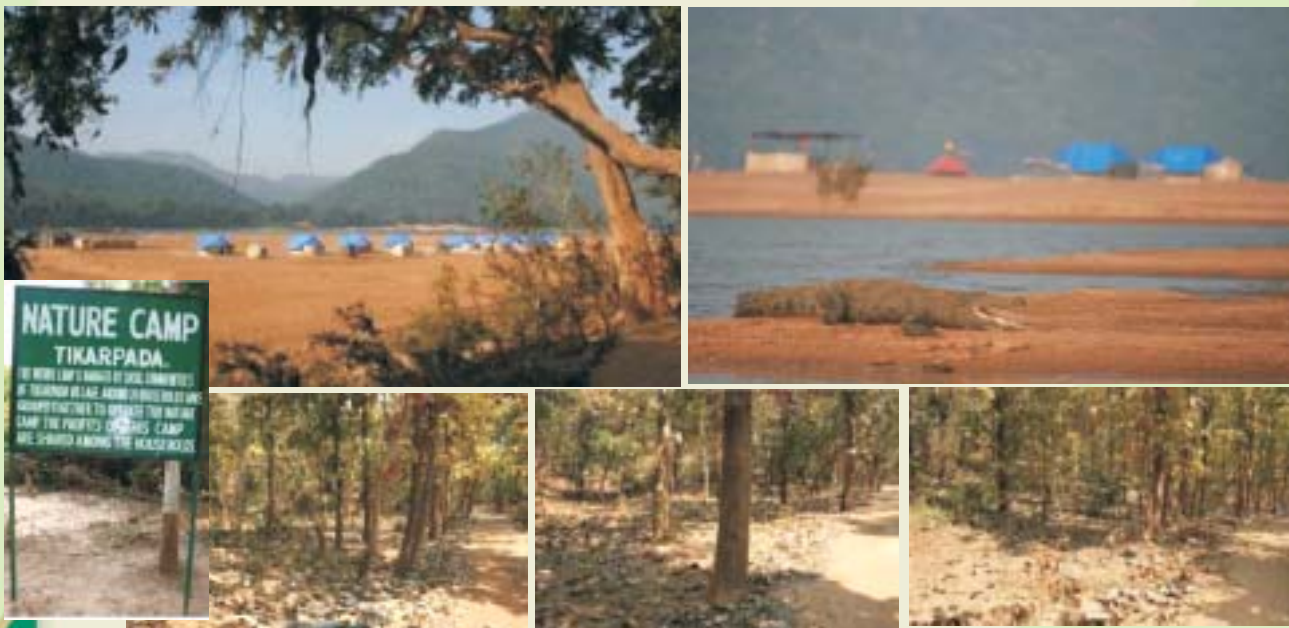


Figure 8.3 Gorge Retreat, nearby Tikarapada, is a magnificent setting for this nature camp but the season is limited to 4 months and its impact on the few remaining crocodiles (particularly gharial) in this stretch of the Mahanadi River has not been objectively assessed. Three shady bays in close proximity to each other (pictured from west, left, to east, right) on the north bank of the Mahanadi River could accommodate the camp (with room for 4, 4 and at least tents, respectively) and enable operations to be extended to 8 months. River gravel spread liberally over the site and along the road can be used to suppress the dust and also reduce risks of forest fires.



Figure 8.2 A variety of wildlife, including giant squirrel, birds, lizards and butterflies, is readily seen in the riverine forest at Tikarapada, as well as captive gharial and mugger crocodiles, and warrants well designed and discretely located interpretation panels.



Figure 8.4 Vision for piloting ecotourism within eco-development area, showing planned Visitor Centre at Tikarapada, proposed provision of community-run accommodation (ecolodges and home-stays) and potential routes for visitors to move between overnight facilities using socially and environmentally sustainable forms of transport.

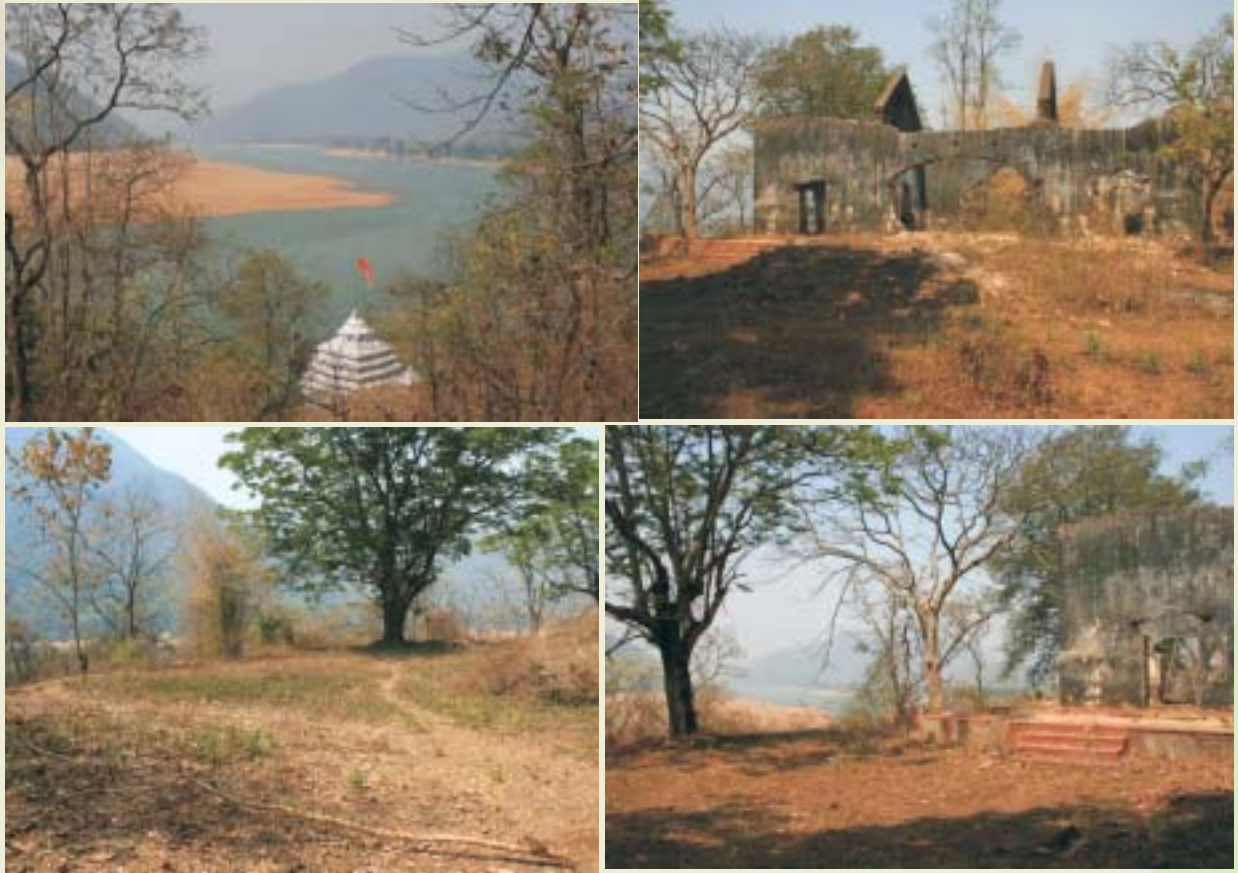


Figure 8.5 This elevated site just above Tikarapada overlooking the Mahanadi River and Gorge is a premier location for an ecolodge or an interpretation centre.

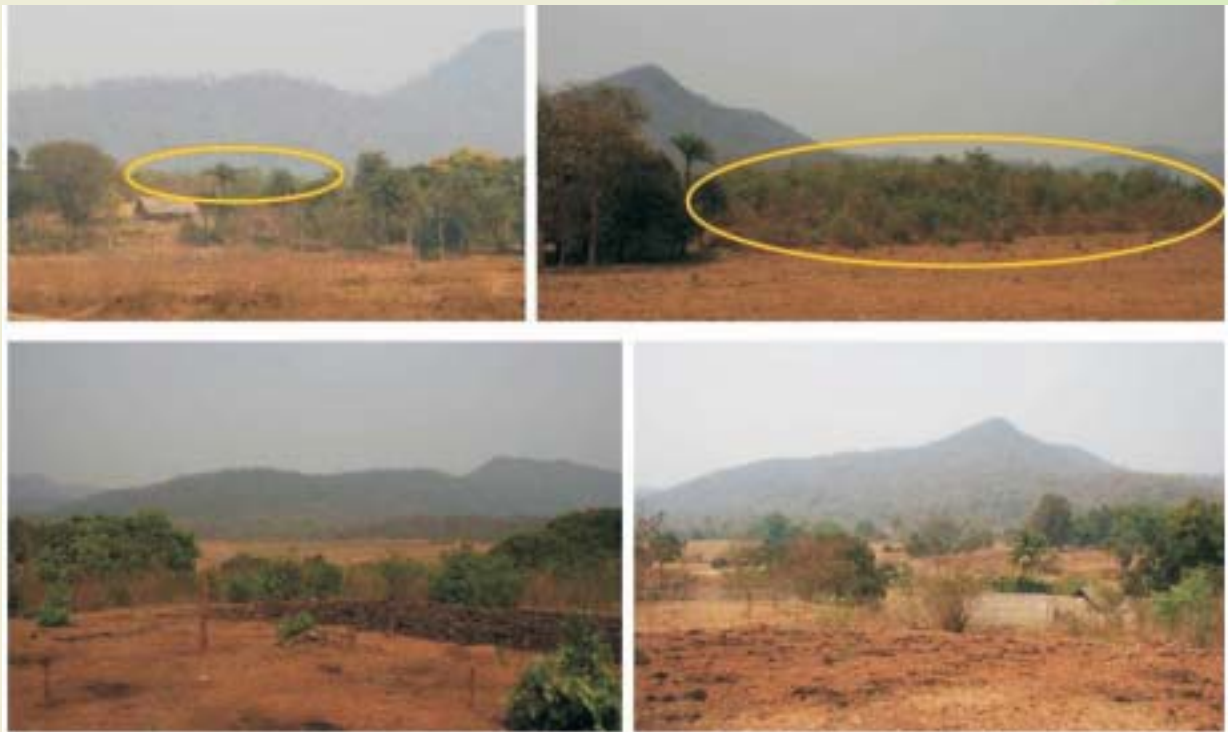


Figure 8.6 Matha Hillock (top row) is the preferred location for an ecolodge in Chhotkei Village, with good views of the surrounding agricultural lands and forested hills (bottom row).



Figure 8.7 Dumuhani Nala, towards the southern periphery of paddy in Chhotkei Village, is an importance source of water for wildlife during the dry season, providing potential opportunities for viewing elephant, tiger, wild boar and deer species.



Figure 8.8 Tulka Village and vicinity (left block) and Sispata Dam, with traditional bamboo rafts used for fishing (right block).



Figure 8.9 Mahanadi River as seen from Baliput, with traditional fishing boats (left) and as seen from Kamradiha, shrine of Godess Bigani (right).



Figure 8.10 Katrang Village and the trail to Kaintara, en route to Baliput

KEY FACTS RELATING TO SANCTUARIES VISITED IN THE PROJECT AREA Annex 1

KEY FACTS*	Kotagarh	Kuldiha	Lakhari Valley	Satkosia Gorge
Period (and date) of management plan	2007/08 - 2016/17 (2007)		2006/07 - 2015/16 (26.11.2007)	2006/07 - 2015/16 (31.03.2006)
Date of notification as sanctuary	03.12.1981	04.01.1984	08.02.1985	19.05.1976
Final notification of sanctuary	pending	pending	pending	pending
Area of sanctuary (km ²)	400	273	175	796
Biogeography	Lies in Eastern Ghats biotic province (6D) of Deccan Peninsular biogeographic zone (6).	Lies in Eastern Ghats biotic province (6D) of Deccan Peninsular biogeographic zone (6).	Lies in Eastern Ghats biotic province (6C) of Deccan Peninsular biogeographic zone (6).	Meeting point of 2 biotic provinces within Deccan Peninsular biogeographic zone (6): Chhotanagpur Plateau (6B), north of Mahanadi, and Eastern Ghats (6C) to south of this river.
Forest types (after Champion & Seth, 1968)	Moist Peninsular Sal Forest - 3C/C/2e Moist Sal Savanna - 3CDS Terminali tomentosa Forest - 3/E1 Dry Bamboo Brakes - 3/2 S1	Tropical Semi-Evergreen Forest Northern Tropical Semi-Evergreen Forest Semi-Evergreen Forest Peninsular Coastal Sal Forest Moist Mixed Deciduous Forest	Moist Peninsular Sal Forest - 3C/C/2e	Moist Peninsular Sal Forest - 3C/C/2e Dry Peninsular Sal bearing forests - 5B/C1c Northern Dry Mixed Deciduous Forest - 5B/C2 Dry Deciduous & Scrub Forest - 5/DS1 Dry Bamboo Brakes - 5/E9 Dry Tropical Riverine Forest - 5/S1
Important wildlife (scarce)	(Tiger), wolf, hyaena, wild dog, elephant, sloth bear	Tiger, hyaena, wild dog, gaur, sloth bear, elephant	Hyaena, elephant, Leopard	Tiger, wolf, hyaena, (wild dog), chousingha, gaur, elephant, sloth bear, (gharial), mugger
No. villages in sanctuary	65	1	36	102
No. households in sanctuary	3,274	375		
Human population residing in sanctuary	16,073	2,500		
Livestock population residing in sanctuary	11,119	1,200	10,025	35,235
Area of buffer zone (km ²)	1,254			
Area of forest land in buffer zone (km ²)	840			
Area of revenue land in buffer zone (km ²)	415			
No. villages in buffer zone	266		162	180

* Based on information available in current management plans.

SATKOSIA GORGE SANCTUARY: A PARTICIPATORY VISIONING EXERCISE

25.11.2008 (2-6 pm), Purnakote FRH

Participants

15 staff members of Satkosia Gorge Sanctuary, including DFO Sri Raghu Prasad, as below.

SI No	Name	Designation	Place / Range / FMU
1	Sri Raghu Prasad	DFO	Satkosia
2	Sri S.K. Behera	RFO	Purnakote
3	Sri Dilip Jena	RFO	Tikarapada
4	Purnachandra Pattnaik	FEO	Purnakote
5	Kedar Kumar Sahoo	VFE	Purnakote
6	Ghanashyam Nayak	VFW	Purnakote
7	Basanti Kumar Pradhan	VFW	Purnakote
8	Kritan Pradhan	VFW	Tikarapada
9	Chatyana Jena	VFW	Tikarapada
10	Ms. Anupama Sahoo	FG	Tikarapada
11	Ms. Anita Sahoo	GF	Tikarapada
12	Jagindranath Beja	FEO	DMU
13	Pranabandhu Jena	FEO	Jilinda
14	Ramankanta Dash	VFW	Jilinda
15	Sadananda Dash	FG	Purnakote

Facilitators: GC Experts Mr. Manoj Misra, & Dr. Michael JB Green, Field Expert Mr. O.P. Routray

Purpose

The purpose of the exercise was to try and arrive at a joint vision of the values, threats, opportunities available to the management at Satkosia Gorge Sanctuary with an ultimate objective of mainstreaming the role for the Orissa Forest Sector Development Project (OFSDP) in the context of the vision so arrived at in a participatory manner.

Process

The exercise was facilitated jointly by Manoj Misra, Michael Green and Omprakash Routray.

Participants were requested to provide three reasons on cards as per their own understanding for the following:

1. Why is Satkosia Gorge Sanctuary called the Pride of Orissa?
2. What are the threats / challenges that need to be met to ensure that Satkosia continues to remain the pride of Orissa?
3. What steps are necessary for management to take in the context of 1 and 2 above?

The facilitators then grouped the responses from the participants with similar messages under broad headings to arrive at a consensus scenario.

The broad elements of the Biodiversity Conservation sub-component under the OFSDP were then highlighted to indicate the issues / areas of the 'Vision' that the OFSDP would be able to address.

Result

It was understood that while OFSDP shall address major issues raised during the Visioning Exercise, it may be seen more as project inputs that would support / strengthen ongoing programs and activities of the Sanctuary management. A consensus 'Vision' for Satkosia Gorge Sanctuary emerged along the following lines:

TOPICS	CONSENSUS	RESPONSES
Values	22 km long Gorge with distinctive, impressive scenery and biodiversity	Such a geological feature does not occur anywhere else in Orissa (perhaps in the country)
	Fascinating, scenic landscape with rich forests, valleys and hills interspersed with few openings in form of human settlements and their farmlands.	Currently the landuse in the Sanctuary (with few valleys under farms and thickly vegetated hills) is in a state of welcome stability with no attempt on the part of the villagers to encroach into forest lands.
	High biodiversity	1. Highest number (anywhere in Orissa) of <i>Ficus</i> species (c.15) reputedly found in the Sanctuary 2. Two of India's three crocodilians (Gharial and Muggar) occur in Sanctuary's River Mahanadi 3. Butterflies 4. Giant squirrel
	Key catchment of river Mahanadi	The dense forests and the numerous streams originating within and draining into the river
	Recognition	Sanctuary forms part of a Tiger Reserve and an Elephant Reserve
	Eco-tourism opportunities	'Seven miles of Smiles' along Mahanadi River
	Local people	Friendly and laborious
Challenges / Threats	Man-animal Conflict	Key species of concern: wild elephants and wild boar
	Timber smuggling	Teak (plantations) the target species (areas)
	Fishing	Gorge stretch of river Mahanadi
	Fire	Often intentional by local people
	Poaching	Mainly large herbivores
	Poverty of local people	Leads to increased forest dependency
	Lack of resources	Lack of adequate funds and human resource compromises management capacity / capability
	Lack of communication / dialogue between managers and other stakeholders (Inadequate engagement with various stakeholders)	Timely and adequate communication can prevent miscommunication and misunderstanding
Insurgency	Sporadic instances (Naxalites etc)	
Solutions / suggestions	Improved Management capacity and capability (Augmented funds and human resource)	Addressed by OFSDP (New funds, Specialists, training etc)
	Man-animal conflict resolution	Addressed by OFSDP (Physical barriers, Anti-depredation squads etc)
	Eco-development (Augmented incomes and well being of local people)	Addressed by OFSDP (Microplanning to be the basis)
	Greater awareness and motivation (staff, local people and tourists)	Addressed by OFSDP (Eco-tourism)
	Control of Fire, fishing, poaching and timber thefts	Addressed (indirectly) by OFSDP
	Improved prosecution and convictions of offences	-

MICRO PLAN (FORMAT)

Simplicity, ease of use, practicability, avoidance of over load of information and preparation of a document that is not too technical and yet captures the felt need of the village as well as securing the conservation of biodiversity in and around the village, is proposed to be the basis of micro-planning in the project villages in Protected Areas (P.A. s) under the OFSDP.

The objective of the project under ecocodevelopment is as under:

- a) Improvement and enhancement (within legal confines of a PA) of the well being through ecocodevelopment of the local people resident within and close to the Protected Areas without in any manner compromising on the biodiversity values of the PA
- b) Ecotourism as one of the key income generation activity for the local people is promoted

The Micro-plan therefore would lead to eco development inputs including ecotourism programs for the identified villages where both individual and groups can benefit in a secure environment. The important and integral components of the plan shall be;

- Proforma I Village (Physical) Profile
- Proforma II Forests (in and around the village)
- Proforma III Village (Socioeconomic) Profile
- Proforma IV Eco Development Plan
 - A. Mitigation of man-animal conflicts
 - B. Village development (including target HH livelihood improvement activities)
 - C. Ecotourism
- Proforma V Project Activities and Budget & Annual Planning
- Proforma VI Record of Activities

Note : Superscripted number in the items/tables refer the following senses of information for filling up the formats / tables.

1. Village level Focus Group Discussion
2. Social Map, Reference Map
3. Hosue Hold level Information
4. EDC level Information
5. Willness Ranking
6. Forest Dependancy Ranking
7. Man animal conflict Ranking

PROFORMA – I

VILLAGE (Physical) PROFILE

(NOTE: The information in this proforma shall describe the village in terms of its physical assets including its history).

1. History¹

A brief description of the village’s history shall be carried here. The description shall specifically highlight the village’s uniqueness, if any, in terms of its founding, culture, heritage value, notable historical event etc.

2. Location, administration, facilities^{1,2,3}

- a. Name of Village:
- b. Name of EDC:
- c. Name of sahi/s / tola in the village:
- d. Forest Beat:
- e. Forest section:
- f. Forest Compt/s surrounding or next to the village:
- g. Forest Range:
- h. Forest Division:
- i. Panchayat:
- j. C.D. Block:
- k. Police Station:
- l. Tahasil:
- m. Nearest primary health centre & its distance:
- n. Nearest school, college & its distance of not in village:
- o. Nearest village hat & its distance:
- p. Nearest bank & its distance:
- q. Nearest town (with urbanized services like electricity, regular bus service, market place, post office, etc) & its distance :
- r. Number of Households:
- s. Total Human Population (Details in Table 1):

Table 1³

Category	Households (HH)	Adults		< 18 years		Literate	
		M	F	M	F	M	F
General							
SC							
ST							
OBC							
Total							

SC: Schedule Caste; ST: Schedule Tribe; OBC: Other Backward Classes

t. EDC Membership⁴

Table 2

Category	No. of Households	EDC Members	
		M	F
General			
SC			
ST			
OBC			

3. Land in the village¹

- a. Total land: ha
- b. Community land : ha
- c. Private Crop (Patta) land :
 - i) Upland: ha
 - ii) Medium land: ha
 - iii) Low land: ha
- d. Gochar: ha
- e. Gramya Jungle (Village Forest) : ha
- f. Village farm land prone to frequent crop raiding by wild animals ha

4. Irrigated Land^{1,3}

- a) Irrigated by River/Canal: ha
- b) Lift pump : ha
- c) Any other source ha

5. Current Landuse^{1,3} (For last year)

- a) Agriculture (Single Cropped): ha
- b) Agriculture (> 1 Crops in a year) : ha
- c) Agriculture (Fallow/no crop): ha
- d) Orchard/Fruit plantation: ha
- e) Forestry plantation: ha

6. Village Resources^{1,2} (Infrastructure)

Table 3

Type ofInfrastructure/amenity	Available in the Village (Y/N)	Condition and Status of present use
Primary school		
Secondary school		
High School		
Junior college		
Degree college		
Primary Health Centre		

Hospital		
Anganwadi centre		
Veterinary hospital/ LI Center		
Gram Panchayat Office		
Revenue Office		
Police Station		
Fire Station		
Forest Office (Range/section/Beat)		
Post Office		
Bank/MFI		
LAMPS /Cooperatives		
Bus facility		
Railway Station		
Weekly Market		
Rice Hauler		
Drinking Water- Borewells		
- Public Water Supply		
- Tank		
- Stream		
Others (please specify)		

EDC assets

Community hall, petromax, utensils etc, if any		
1		
2		

7. Livestock population of the village (Details in Table 2)

Table 4

Type of livestock	HH number having livestock	Number	Stall fed	Open Grazing
Cow				
Buffalo				
Goat				
Pigs				
Others				
Total				

8. Fodder^{1,3}

Table 5 Fodder availability (put ✓ marks in appropriate box)

Types	1-3 months	3-6 months	6 months	Year round
Crop residue				
Trees				
Grasses				
Green fodder				
Grazing in Village Forests				
Grazing in assigned forest area				



9. Market facility ^{1,2}
Table 6 A

Nature of facility (Purchase)	Location (Name of Sahi)	Distance from village if located in another village
Grocery Shop		
PDS centre		
Weekly Market		
Major market		
Other/s (specify)		

Table 6B

Nature of facility (Sale)*	Nearby Shop	Village haat	Local town	Season of selling
Agricultural produce				
Fuel wood				
Vegetables				
Poles / Bamboo				
NTFP				
Milk, Poultry				
Oil, other processed products				
Other products				

* Tick mark

10. Water Source ²
Table 7

Water Source	Number	Water Availability (Adequate/ seasonal)	Uses (a) drinking, b) irrigation, c) livestock, d) bathing)	Functional (Y/N)
Check dam				
Pond				
Tube well				
Dug well				
River/ Nala				
Spring				
Canal				

11. Energy requirement ³

Table 8

Type of Fuel	Applicable or available (Y/N)	Number of dependent households (HH)	Number of months of major dependency in a year	Source (local village, village forest, others)
Fuel wood				
Crop Residues				
LPG				
Electric Heater				
Gobar /Bio gas				
Kerosene stove				

12. Electrification ^{2,3}

Table 9 (Only for Electrified villages)

Category	Yes / No	No. of HH
Domestic use		
Street lights		
Agriculture purpose		

NA - Not Applicable

13. Institutions in the Village ²

Table 10

Institutions	Number	Number of member HHs
EDC		
SHG		
Cooperative Society		
Youth Club		
Mahila Samiti		
Cultural Institutions		
Others (specify)		

14. Health security ²(if any)

Table 11

Facility	(Y/N)	Remarks (Functional)
Primary Health Centre		
Hospital		
Traditional health support Specify (Vaidya, traditional medicine men etc)		
Health support provided/run by NGO		
Veterinary health facility		
Any other		

PROFORMA II – FORESTS (IN AND AROUND THE VILLAGE)

(NOTE: This proforma shall provide information on the extent, threats and dependencies on the village forests as well as the forest areas assigned to the EDC for protection purposes.)

1. A) Status of village forest and the forest area assigned to the EDC ^{1,2}

Table 11

Name of Range	
Legal status (RF/PF/VF/KF) & compartment number	
Area in HA.	
Peripheral length	
No of Boundary pillars in the assigned area	
Distance from village (in case of assigned forests)	
Topography (Hilly, Undulating, plain)	
Condition of forest (well stock/ degraded/ bushy, few trees)	
Evidence of wildlife in the forest (Present/ absent). Key species seen.	
Incidence of forest fire (Annual, often, rare)	
Purpose and Frequency of use by villagers (2-3m/3-6m/6-9m/12m)	

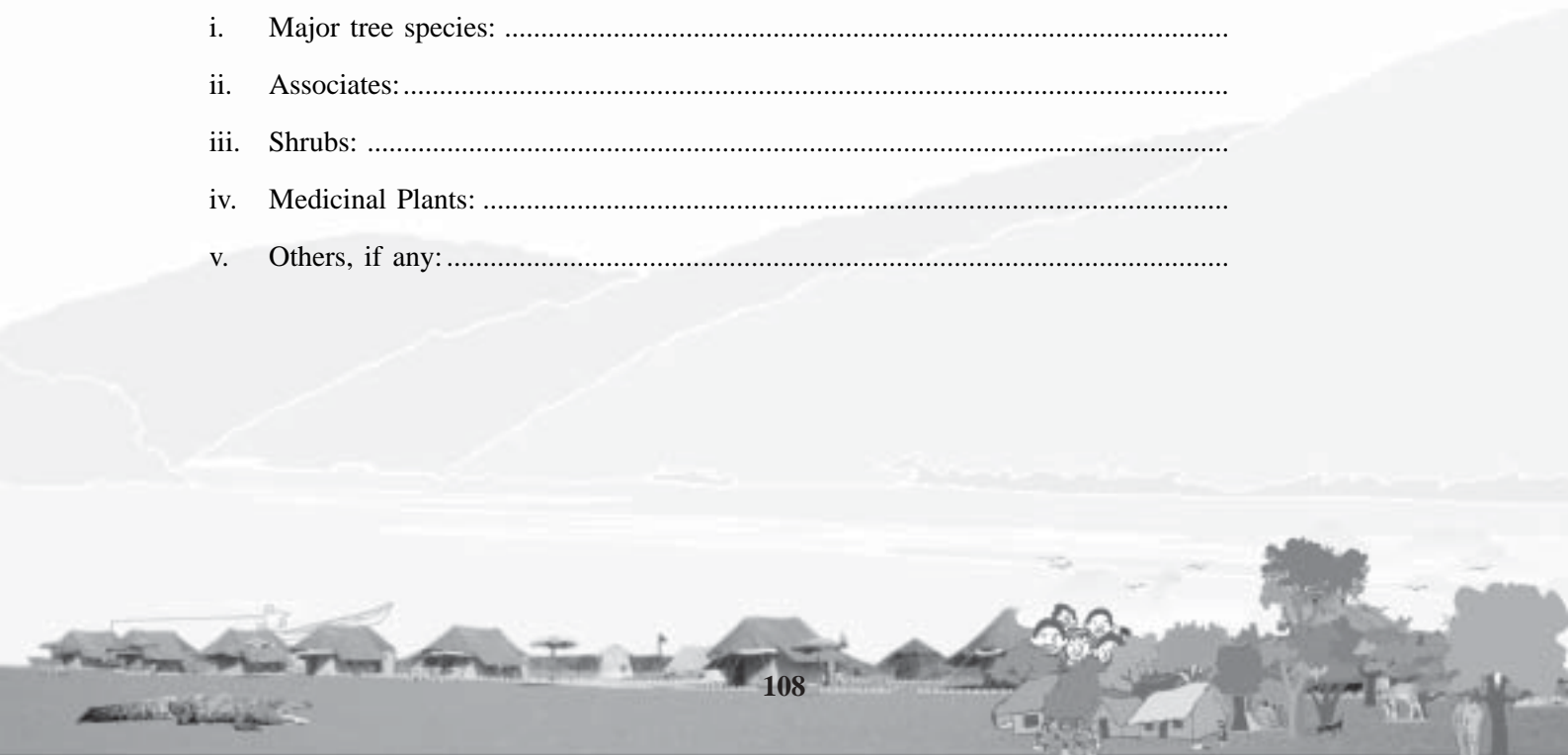
RF: Reserve Forest; VF: Village Forest; KF: Khesra Forest (Revenue deptt)

B. Forest Soil type:

- i. Fertility level
- ii. Soil erosion status of the forest.....

C. Composition of existing fauna and flora: (use local as well as botanical names)

- i. Major tree species:
- ii. Associates:.....
- iii. Shrubs:
- iv. Medicinal Plants:
- v. Others, if any:.....



2. **Forest Protection issues** ^{1,2}

A) **Protection Problem**

Table 12

Type of Injuries	(Y / N)	Significant/ Insignificant (According to Frequency / volume)
SMUGGLING		
Smuggling of Timber		
Smuggling of Bamboo		
Smuggling of firewood through head loads for selling to others		
Smuggling of NTFP		
Smuggling of sand, precious stones etc.		
Smuggling by head loads		
Smuggling by bicycles		
Smuggling by carts		
Smuggling by fast moving vehicles		
POACHING		
Poaching of wild animals		
Wild Elephants		
Tiger / Leopard		
Deer		
Others (Specify)		
GRAZING		
Grazing by local animals		
Grazing by animals from other areas		
FIRE		
Fire-incidence		
Fire connected with Mohua collection		
Fire connected with salap tapping		
Fire connected with Beedi leaf collection		
ENCROACHMENT		
Encroachments in forest areas: - Govt Forest - Village Forest		
OTHERS		
Other (specify)		

B. **Reasons of degradation of forests:**

Table 13

1
2
3
4
5
6

C. Protection Mechanism

During the PRA exercise the protection mechanism would be discussed and detail procedure/modalities being/to be followed will be recorded to ensure effective protection. Year in which the operations are to be carried out would be mentioned in the micro plan.

Table 14

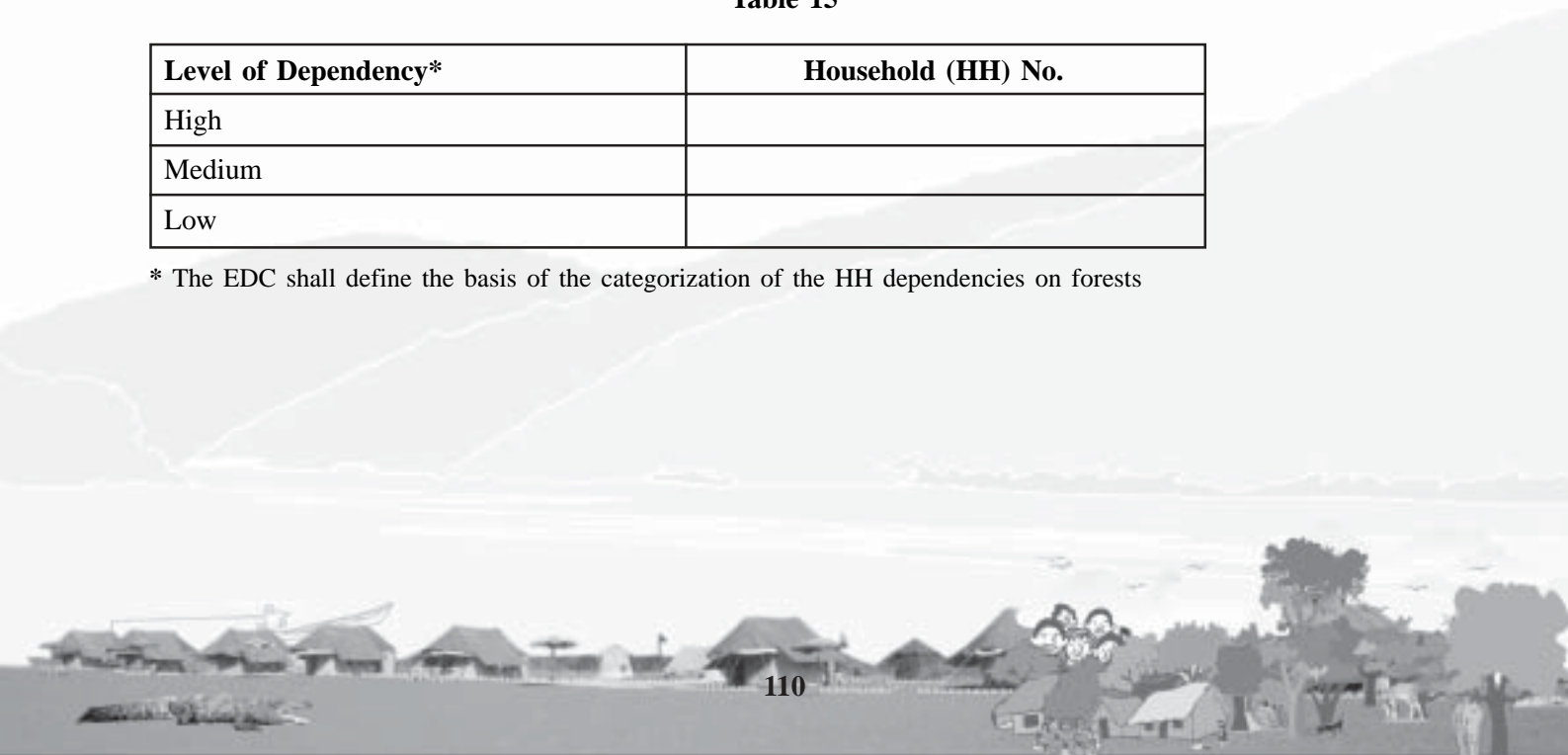
GRAZING CONTROL/REGULATION	
Area (Location, extent,...)	
Type of work to be done	
Mechanism	
Year of operation	
Other measure	
FIRE CONTROL	
Area (Location, extent,...)	
Type of work to be done	
Mechanism	
Fire control	
Year of operation	
WATCH AND WARD	
Area (Location, extent,...)	
Type of work to be done	
Mechanism	
Year of operation	
Other measure	

3. Household dependence on forest produce ^{1,3,6} (average per household)

Table 15

Level of Dependency*	Household (HH) No.
High	
Medium	
Low	

* The EDC shall define the basis of the categorization of the HH dependencies on forests



PROFORMA III - VILLAGE (SOCIOECONOMIC) PROFILE

(NOTE: The information in this proforma shall map the socio-economic parameters in the village as well as provide the relative assessment of the well-ness in the village).

1. Agricultural land holding ^{2,3}

Table 16

Nature of land holdings	No of HH
Large (> 4 ha)	
Medium (2 – 4 ha)	
Small (1 and < 2 ha)	
Marginal (< 1 ha)	
Landless	

2. Economic Status ^{2,3}

Table 17

Category of house	Nature of House	No of HHs
Kuchcha house (mud plaster /unburnt bricks)		
Pucca house (Bricks in cement mortar)		
Electrified		
Owning livestock		
Owning tractor/s		
Owning mechanized farm implements		

3. Current Income Generating Activities ^{2,3}

Table 18

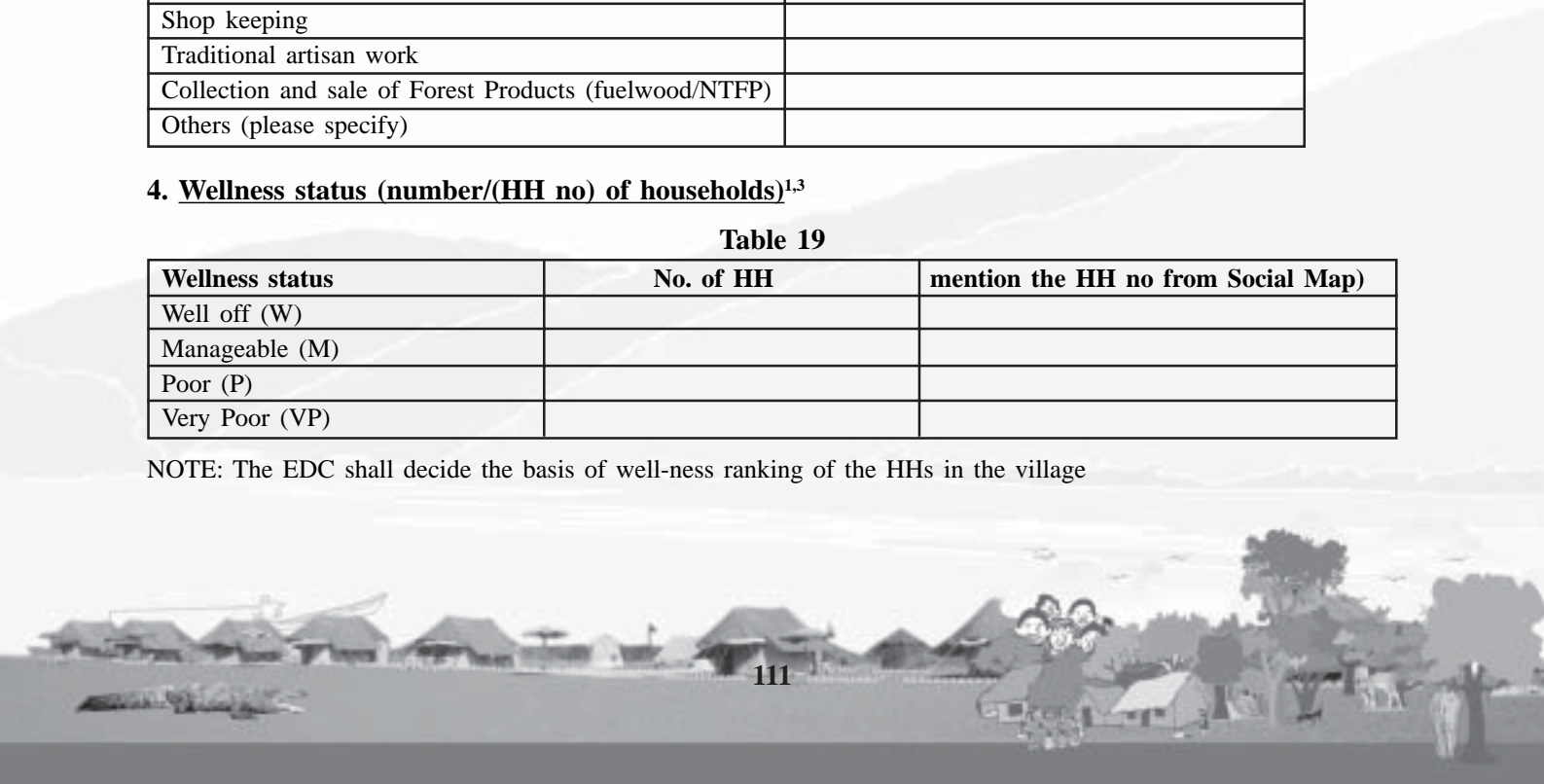
Main Source of livelihood	No of HH
Farm land	
Vegetable production	
Livestock (milk, goat, sheep, poultry)	
Fishery	
Small trading	
Shop keeping	
Traditional artisan work	
Collection and sale of Forest Products (fuelwood/NTFP)	
Others (please specify)	

4. Wellness status (number/(HH no) of households)^{1,3}

Table 19

Wellness status	No. of HH	mention the HH no from Social Map)
Well off (W)		
Manageable (M)		
Poor (P)		
Very Poor (VP)		

NOTE: The EDC shall decide the basis of well-ness ranking of the HHs in the village



Insert the Sheets containing PRA results:

1. Village Social Map & Village resource map and Man-animal conflict scenario mapping
 1. Map showing the agricultural crop field vulnerable to crop raiding
 2. Village Forest Dependency Mapping
 3. Village Wellness Ranking
 4. Village HH level information Table
 5. Seasonal activity Mapping
 6. Daily routine diagram of Male / female
 7. Basic Information on SHG
8. Targeted house hold list falling under different IGA (IGA of SHG / CIG / Eco lodge) with HH numbers and wellness ranking and Forest Dependency Ranking

PROFORMA - IV (ECODEVELOPMENT INCLUDING ECOTOURISM PLAN)

NOTE: The information in this proforma shall specify the various activities proposed under Ecodevelopment including Ecotourism at the village. These shall include information on the beneficiary HHs as identified by the EC of the EDC. The IGAs shall be promoted through the SHGs already active and working in the village.

A. MITIGATION OF MAN ANIMAL CONFLICTS

Introduction: The history and reasons including notable human disturbance to the wild life, if any, resulting in increasing instances of man-animal conflicts in the village shall be enumerated here. The steps already taken by the villagers to keep the wild animals away from their farm lands like construction of trenches, machans etc and their effectiveness if any shall be described.

1. Crop raiding by wild animals ^{1,2,6}

Table 20

Name of animal	Frequency of crop raid (High, Medium, Low)	(Seasons (months)	Number killed / injured by the villagers during the last 5 years

2. Households impacted by crop raiding wild animals ^{3,7} (Over the last year)

Table 21

Impact	No of HH and HH number
High (> 70 % crop damage in a year)	
Medium (>50 - 70 % crop damage in a year)	
Low (upto 50 % crop damage in a year)	

Table-22 Effect of Human Disturbances

Sl. No.	Type of disturbance	Damage caused to habitat			Remarks
		Area (ha.)	Quantity	No. of death	
1.	Illicit felling				
2.	Forest fire				
3.	Encroachment				
4.	Hunting				
5.	Water course diversified & its effect				
6.	Noise pollution				

Table-23 Methods adopted to check the entry of W.L.¹

Name of animal	Prevailing methods	Period of maximum damage	Remarks
Bear			
Wild Boar			
Wild Elephant			
Porcupine			
Deer, Sambhar			
Black Bucks etc.			

Table – 24 No. of existing Machans in villages¹

Name of villages	No. of Machans

Table – 25 Animals killed/injured in last 5 yrs.¹

Year	Name of animal	Place of occurrence	No. of animals killed	No. of animals injured

3. Raising of physical barrier on village boundary with forests^{1,2,6}

Table 26

Physical barrier	Length of village boundary in m / km
Elephant Proof Trench	
Solar Power Fence	
Other (Specify)	

4. Anti-depredation Squad ^{1,3,5,7}

Table 27

Households deserving priority inclusion in the Squad	HH number (From Social Map)
High impact HH	
Poor HH	
Very poor HH	
Others (High Forest Dependency HH)	

NB: The roles and responsibilities of the Anti-depredation Squad shall included prevention of man animal conflicts; maintenance of physical barriers like the power fence etc; regular patrolling in the adjoining forests to keep track of potential crop raiding animals specially wild elephants; assistance to forest department staff in assessment of crop damage for timely payment of compensation to the impacted HH; assistance to forest department staff and researchers.

B. VILLAGE DEVELOPMENT

1. Entry point activities ^{1,2,4}

The Micro Plan planning team would consult the GB of EDC for identifying the need and prioritization of entry point activities in the village. Interests of the entire community and the forest dependent people shall be given high priority, and be taken up on priority. Since the fund for EPA is limited, emphasis would be on activity (ies) that can be fully completed from the available fund, instead of taking up part construction of several works. However, if EDC members agree to contribute cash, free labour to augment project support more projects can be taken up. It has to be kept in mind that the identified EPA should not adversely impact the biodiversity and forests within or around the village.

Priority list of Entry point Activity:

Table 28

Sl. No.	Name of activity	Priority Ranking	Technical support required	Total amount required	Contribution by member if any (cash / labour)	Funds required from OFSDP	Time /duration for implementation
1.							
2.							
3.							
4.							

EPA may include renovation of school/temple/community hall; cement platform under a tree for meeting; water harvesting pond; cement platform/soak pit around a well; community fish pond; tube well; bathing ghat (staircase for a pond); solar light, petromax, gas light etc.

2. Income Generation Activities ^{1,2}

IGAs which could be farm / non farm based should focus on activities that do-not impact adversely on the biodiversity of the area. These could be either group or individual activities.

A. Group Activities: These should be on farm/off-farm based with focus on value addition.



Table 29

Sl. No.	Type of activity	No. of groups (SHG) and members	Year of Implementation	Nature of Support required	Total amount required	Cost sharing by member	Amount required from OFSDP	Other source of support (Govt/bank schemes etc.)	Marketing Arrangement

B. Individual Activities (Target HHs if not covered in any relevant SHG):

Table 30

Type of activity	No. of beneficiaries (HH No.)	Year of implementation	Type and nature of support required	Total amount required	Cost sharing by member	Other source of support (Govt/bank schemes etc.)	Amount required from OFSDP	Marketing Arrangement

C. Livelihood (basic needs) Support:

Table 31

Type of activity	No. of beneficiaries	Year of implementation	Total amount required	Cost sharing by member	Balance amount required

3. Human Resources Development/Capacity Building Plan

A. Awareness creation:

Table 32

Type of Programme	Year	Frequency	Targeted no of participants	Amount
a. Awareness				
b. Village meeting				
c. Others Pl specify				

B. Capacity building/Skill development wrt Potential IGA

Table 33

Target groups	Name of Activity	Year of training	Targeted no of participants	Place of training/ training institution	Amount
a. SHG					
b. EDC Members					
c. EC Members					
d. Animator					
e. Treasurer					

C. Field or exposure visits:

Table 34

Type of Programme	Proposed places	Frequency	Targeted no of participants	Duration	Amount

C. ECOTOURISM

Promotion of Ecotourism as an income generation activity (IGA) in the village shall be based on the principles defined in the Ecodevelopment (including Ecotourism) Framework Guidelines Document. Ecotourism shall not be seen as any tourism activity taking place in the area. Strict do's and don'ts shall guide the operation of the tourist destination developed in the village, as well as the regulation of visitation by the tourists into the adjoining forest areas.

1. Importance and suitability of the area / village for promotion of ecotourism

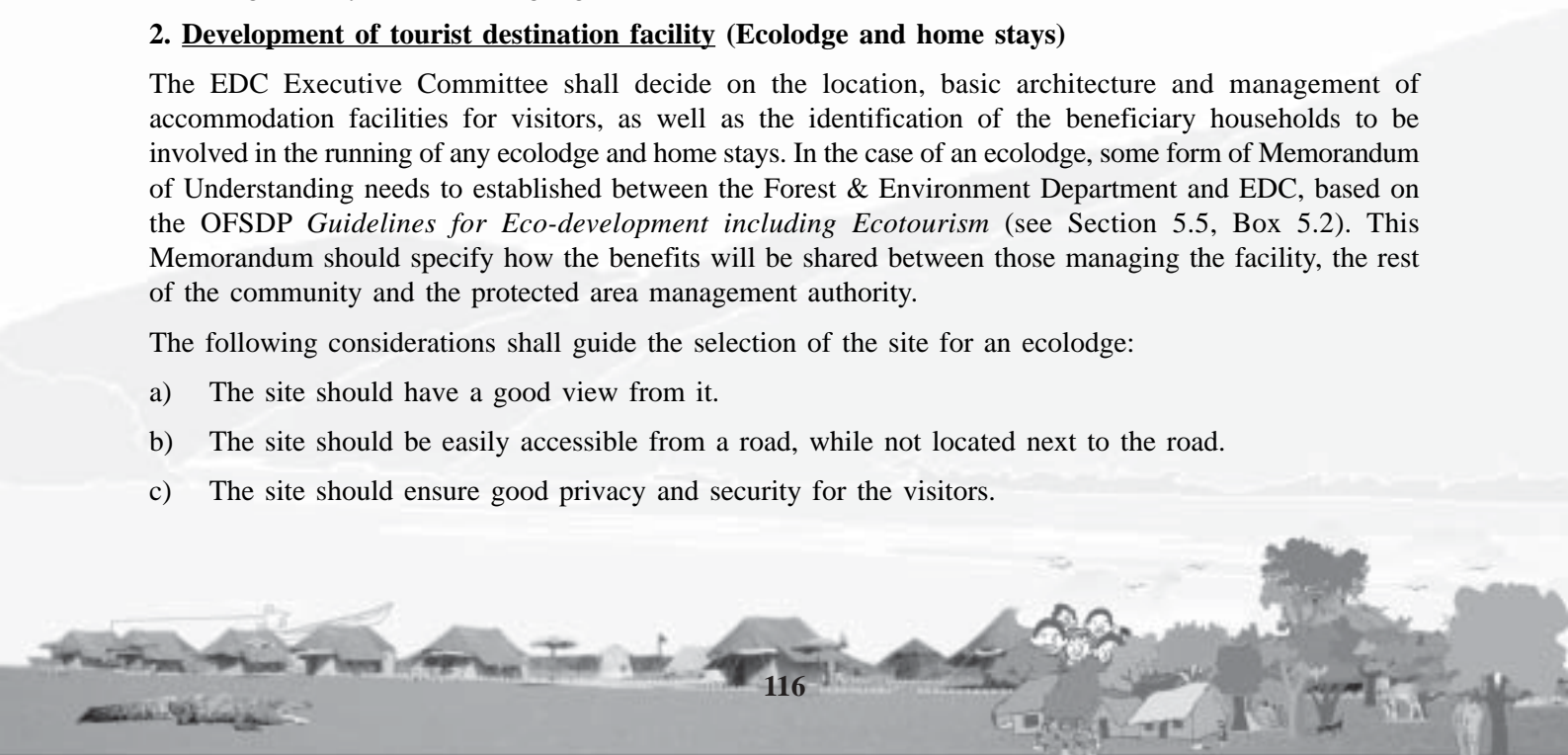
The attractiveness of the site for a visitor, including availability of accommodation and eating facilities at the village, if any, should be highlighted here.

2. Development of tourist destination facility (Ecolodge and home stays)

The EDC Executive Committee shall decide on the location, basic architecture and management of accommodation facilities for visitors, as well as the identification of the beneficiary households to be involved in the running of any ecolodge and home stays. In the case of an ecolodge, some form of Memorandum of Understanding needs to be established between the Forest & Environment Department and EDC, based on the OFSDP *Guidelines for Eco-development including Ecotourism* (see Section 5.5, Box 5.2). This Memorandum should specify how the benefits will be shared between those managing the facility, the rest of the community and the protected area management authority.

The following considerations shall guide the selection of the site for an ecolodge:

- a) The site should have a good view from it.
- b) The site should be easily accessible from a road, while not located next to the road.
- c) The site should ensure good privacy and security for the visitors.



- d) The site should have clear ground available both for lodges, as well as support facilities including vehicle parking space (out of site from the lodge).
- e) The site should have good provision for water (preferably next to a perennial source of water or a major stream in the village).

Table 35

Type of Lodge	Number of Hutments	Beneficiary HHs
Eco-Lodge		
Home-stays		
Any other (Specify)		

2. Laying of nature trails

Table 36

Nature Trail	Length (Km)	Comptt No.
Existing (Name)		
Proposed (specify)		

3. Transport facilities for movement of tourists in the forests

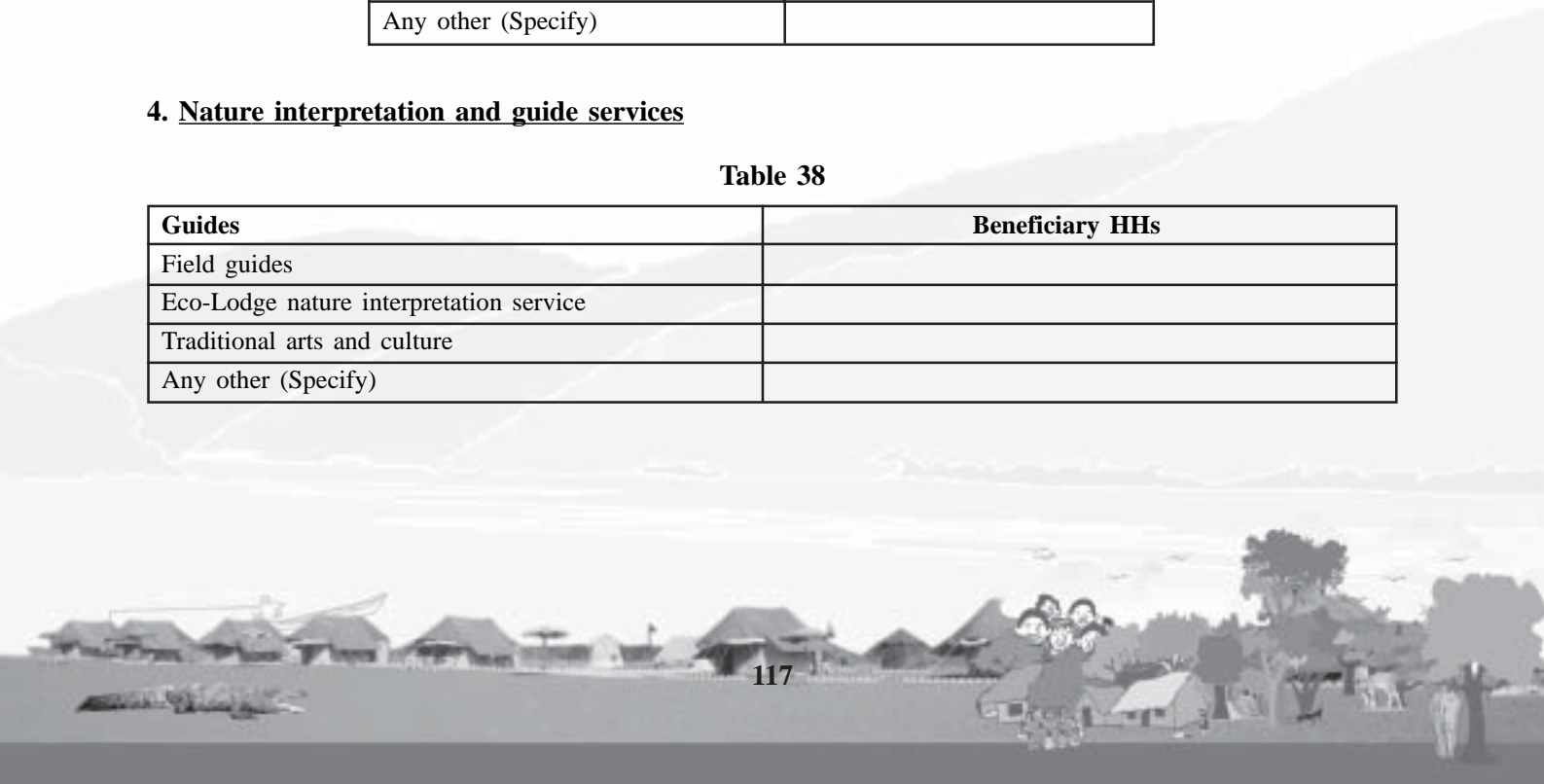
Table 37

Facility	Number
Motor	
Bicycle	
Elephants	
Any other (Specify)	

4. Nature interpretation and guide services

Table 38

Guides	Beneficiary HHs
Field guides	
Eco-Lodge nature interpretation service	
Traditional arts and culture	
Any other (Specify)	



5. IGA activities (Ecotourism)

Table 39

IGA	Beneficiary HHs
Construction of the lodges and other facilities	
Catering	
Supply of ration	
Supply of fresh vegetables	
House keeping	
Waste management	
Landscape management	
Any other (Specify)	

6. Training of HHs (beneficiaries) ecotourism

Table 40

Training	Beneficiary HHs
Visitor Management	
Catering	
House keeping	
Waste Management	
Any other (Specify)	



PROFORMA – V

A. PROJECT ACTIVITIES AND BUDGET

The Micro-Plan will prescribe various development activities, and provide approximate estimate of funds and period for implementation. The activities listed here would be on the basis of data collected and prioritized as per the previous sections. The fund requirement would be met from OFSDP and other sources to be tapped by EDC. This will include eco-development including ecotourism, natural resource development (plantations of fuel, fodder and bamboo in the village forest areas) and human resource development (Training, skill development and exposure visits).

YEAR WISE ACTION PLAN

Table 41

Sl. No	Name of Activity	Physical / Financial				
		Year-I	Year-II	Year-III	Year-IV	Year-V
1	Eco-Development including Eco tourism a. Resolution of Man-Animal Conflict b. Village Development c. Eco-tourism					
2	Human Resource development a. Awareness generation b. Skill development c. Exposure visits					
3	Any other (Specify)					

PROPOSED ACTIVITIES (DETAILS)

A. ECODEVELOPMENT

Table 42

Activity	Sub Activity	Physical	Financial (Unit rate)	Total cost
a. Mitigation of Man Animal conflict	Erection of Solar Power Fence and two strands of barbed wire under the lowest strand			
	Construction of Elephant proof trench, if any			
	Any other physical barrier (Specify)			
	Anti-depredation squad			
	Provisioning of anti-depredation squad			
b. Village Development	Entry Point Activity (EPA)			
	Common Interest Activity			
	Income Generation Activity (IGA)			
	Plantation of fuelwood and fodder in village forest (5 ha)			
	Plantation of Bamboo in village forest (2 ha)			
c. Eco-tourism	Construction of Eco-Lodge / home stays, if any			
	Provision of solar power (1 KW) for 10 hutments			
	Provision of wireless Communication facilities			
	Provision of all purpose vehicle			
	Development of nature interpretation material, signages, laying of nature trails			
	Training and skill upgradation of target beneficiary HHs			

B. HUMAN RESOURCES DEVELOPMENT / CAPACITY BUILDING PLAN

Capacity building/skill development

Table 43

Activity	Target groups	Name of training	Year of training	Targeted no participants	Amount
Training/ skill enhancement	a. SHG b. Individual c. EDC Members d. EC Members e. (President / Vice President / Treasurer)				
Field / Exposure visits					

B. SCOPE FOR REVISION / MODIFICATION OF ANNUAL ACTION PLAN

Every year the EDC in its GB meeting to be held in December would decide various activities to be implemented during the succeeding financial year, and accordingly will prepare an annual action plan and budget, following the projected perspective activity/budget plan. The annual plan will be submitted to FMU who will scrutinize and recommend it to DMU. On the basis of the annual plan DMU will release funds to EDC. The progress in the implementation of OFSDP activities in a year would be monitored on the basis of the annual plan. The EDC would submit the annual action plan in the following format

1. ANNUAL ACTION PLAN AND BUDGET FOR ECO-DEVELOPMENT:

Table 44

Component	Work items (lists suggested below are prescriptive only)	Period of work (year/month)	Target (physical)	Fund required from OFSDP	Responsibility of Implementation
Mitigation of Man-Animal Conflict					
Village Development					
Eco-tourism					
Capacity enhancement					
Other expenses (office running etc)					

Plan Revision Discussion Outcome (Member Secretary will record the decisions)

- 1.
- 2.
- 3.

Revision to be incorporated:

Table 45

Existing nature and type of work	Need for revision	Type and nature of changes to be made	New physical target	Funds required

**PROFORMA VI RECORD OF ACTIVITIES UNDERTAKEN
(Monitoring of Annual Progress)**

1. EDC Status

- Year of beginning of protection of forests by the community (if applicable):.....
- Year of formation of EDC:
- Number of EDC members:
- Number of ST members in EDC:.....
- Number of Women members in EDC:
- **Forest Protection** measures taken by EDC in past (if applicable): (number of people, household engaged, any formal mechanism)

--

- **Improvement observed in forests** after EDC protection

--

1. EDC MEETING

Table 46

Date of meeting	Presided by	Member Participated		Main Decisions
		Men	Women	

2. EDC Trainings:

Table 47

Sl.No.	Name of Training	Number of Participants	Organized by and main facilitator	Venue

3. Village Development Works:

Table 48

Sl.No.	Item of Work	Quantity	Date of starting	Date of Completion	Amount Spent

4. Mitigation of Man-animal conflict activities

Table 49

Sl.No.	Item of Work	Quantity	Date of starting	Date of Completion	Amount Spent

5. Income Generation Activity (one table for each activity)

Table 50

Sl.No.	Activity & Date	Name of SHG	SHG President	Trg Assistance	Loan Amount with date	Refund

6. Plantation Activity

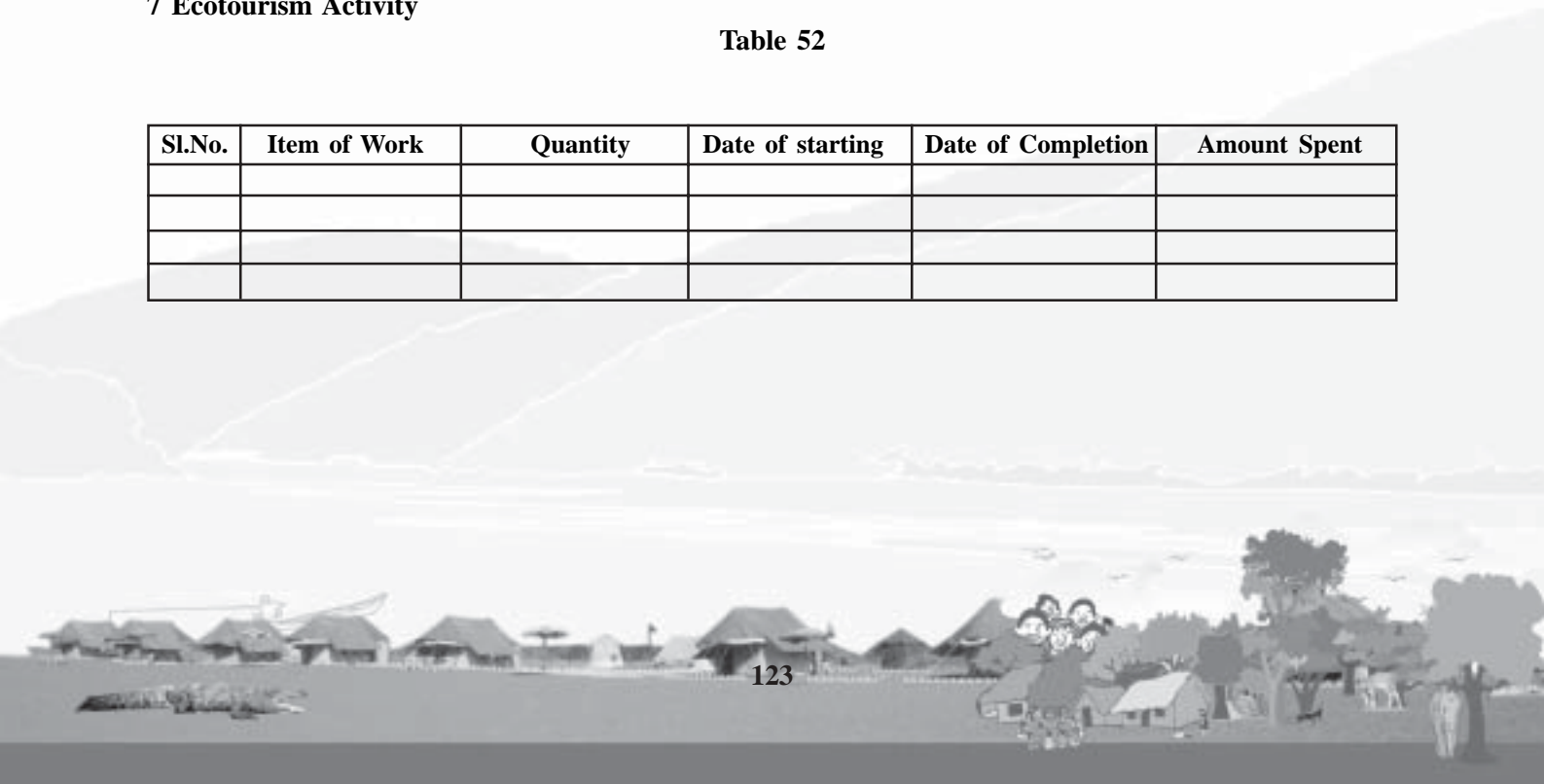
Table 51

Sl.No.	Item of Work	Quantity	Date of starting	Date of Completion	Amount Spent

7 Ecotourism Activity

Table 52

Sl.No.	Item of Work	Quantity	Date of starting	Date of Completion	Amount Spent





How to improve the effectiveness of tourism destination websites

Accommodation listings - hints and tips for tourism destination websites

First, some facts and figures.....

Accommodation searches are a key role of destination websites but should your site include the ability to book accommodation online?

If you look simply at the market trends, the answer would probably have to be yes. For instance, figures from UKTS illustrate the rapid rise in internet bookings for domestic holidays and short breaks. The survey shows that use of the internet as a booking method has risen from 4% in 2000 to 40% in 2005. Even higher rates of internet booking are reported in the BDRC British Hotel Guest Survey which found that 64% of leisure travellers use the internet to make hotel reservations.

However, for destination websites, the issue of whether or not to provide online accommodation booking functionality is a little more complex for the following reasons:

- There are many commercial sites through which to book online. To what extent should public money be spent creating an online booking system when there are already many commercial players in the market?
- Not all destinations have large amounts of accommodation stock and therefore it doesn't necessarily make sense to provide this functionality.
- The main markets for some destinations are local residents and day trippers rather than those requiring overnight accommodation.
- Hotels and other forms of accommodation may enjoy good levels of occupancy. If this is the case in your destination, this means that accommodation providers are therefore not necessarily looking for additional ways to market such as that offered by a destination website.

Ultimately, only you will be able to decide whether or not your site should include online booking of accommodation.

Tips and hints

Some suggested actions to improve the effectiveness of accommodation-based content on your website:

1. **Include a link to accommodation from your homepage.** Accommodation should form part of your main navigation. Use action words such as "Find accommodation", "Find a Place to Stay" or "Book Accommodation".
2. **Don't just provide list of accommodation as PDFs or Word documents.** Although it can be useful to provide a downloadable list of accommodation, you should also provide web pages that contain accommodation information.

[http : // www.thetourismcompany.com](http://www.thetourismcompany.com)

3. **Include more than an address and phone number.** Users on your site are looking for more than the sort of information they could find in a telephone or online directory such as Yell. Include a brief description of the accommodation and include photographs as well as a website and email address.
4. **Communicate the benefits to users of choosing assessed only accommodation.** One of the Unique Selling Points (USP's) of official sites such as yours is the confidence it should instil that the bookable accommodation is quality assessed. It makes sense to sell the benefits of this policy to users.
5. **If online booking is available, promote it strongly.** Where on-line booking is not provided on your site consider flagging up where users can book online either directly through the accommodation provider or a third party.
6. **Offer ways to sort and filter results.** The ability to narrow results by filtering or sorting the accommodation database should be provided both for users searching and those that are browsing.

Design Tips for Tourism Destination Websites

Many destination websites are built using content management systems and page design templates which offer you, the user, little control over how individual pages look. So why are we offering you advice and tips on design? Well, there are a number of design-related issues that you, as content provider for your tourism or leisure web pages, can affect and improve. These include:

- Where and how you place content on a page
- Sorting and filtering
- Writing style
- Use of images

Where and how to place content

- **Keep important items “above the fold”.** In web design circles there is on-going debate about the extent to which requiring users to scroll vertically to read your web pages is a problem. However, what is clear from studies into the reading habits of users online is that people will often decide whether to stay or leave a website on what they see without scrolling. So, its important that you include key content in the window that is viewable before people have to scroll.
- **Top left is the most read area of websites.** Placing your most important text in this area of the website will ensure that it has the best chance of being read. This text should be dedicated to giving users answers to the following questions – ‘What is the site about?’, ‘What can I do here?’ and ‘Is it relevant to me?’. Unless users can find the answers these questions fast, they may soon give up and leave your site.
- **Enable key tasks to be completed from the homepage.** Experience from travel web sites shows that people like to transact from the home page. Users should be able to do such things as see a selection of forthcoming events and/or look for accommodation from the homepage.
- **Ensure PDFs are usable.** If your site includes downloadable PDF documents, make sure that they print out in a font that’s large enough to read. Also, if the download is in colour, make sure that it prints out OK in black and white (B&W). If not, provide a specific B&W version.



Sorting and filtering

What is it?

- Many users of your site are seeking to complete tasks such as looking for accommodation, seeking forthcoming events or browsing attractions. They can access this information in two main ways – by searching and browsing. Searching involves using the site search or specific search form provided whilst browsing involves drilling down through the categories provided by the website.

What are the benefits?

- Regardless of which method is used, users may well be presented with listings that contain dozens or hundreds of results. This can cause frustration and difficulties for users.
- Offering users the chance to sort or filter is a good way to help users find what they want more quickly. This will translate into higher satisfaction ratings and more likelihood of repeat visits.
- Sorting allows users to change the order of listings based on a number of pre-selected criteria. This might be price, quality grading, distance from a certain attraction. Filtering is a way of reducing the number of accommodation or event listings, for instance. Below are some suggested ways in which you might want to consider offering filtering and sorting.

Ways to sort and Filter results		
Events	<ul style="list-style-type: none"> Alphabetical Date of event Type of event (e.g. theatre, music, dance) 	<ul style="list-style-type: none"> Today's events Events this weekend Events in the next 7 days Time (e.g. daytime, evening) Type of event (e.g. festivals, theatre, music) Free events
Accommodation	<ul style="list-style-type: none"> Alphabetical Quality grading (High to Low, Low to high) Price (High to Low, Low to High) Distance from... 	<ul style="list-style-type: none"> Quality grading Online booking availability Accommodation type (e.g. hotel, guest house etc) By facilities (e.g. child-friendly, disabled access)
Attractions	<ul style="list-style-type: none"> Alphabetical Venue type (e.g. zoo, historic property) 	<ul style="list-style-type: none"> Venue type Free entry Whether bookable online

Presenting ‘sort by’ options

If you have four or less ‘sort by’ options

- **Utilise a dropdown menu.** This minimises the screen space used and is a format familiar to users.

If you have more than four ‘sort by’ options

- **Use radio buttons.** The main advantage of using radio buttons is that all ‘sort by’ options are visible to users at one glance.

Writing style

- **Use sub headings.** People scan website text rather than read it word for word. Using headings and sub headings can help guide users through your content. Use descriptive sub-headings that help users (and search engines) rather than creative ones (e.g. Parks and gardens in Hammersmith and Fulham not Breathing spaces).
- **Use bulleted lists.** As with sub headings, bulleted lists can help create scan-able text.
- **Include links within text.** We already know from the Usability chapter that providing contextual links within text is a very effective way of creating intuitive navigation around a site.
- **Avoid hyperbole.** Although you are in the business of destination marketing, research into web reading styles suggests that people dislike sales-guff full of adjective-laden text . Instead people are looking for factual information. The desire for factual information is probably higher for borough leisure and tourism pages than many other types of website because they are expected to be official and impartial sources of information. If you need to “sell” a destination, attraction or particular tourism product, a picture can do the talking for you.
- **Don’t replicate printed brochure/ leaflet copy.** The user’s tendency to scan websites means that simply replicating paragraphs of text from brochures is unlikely to prove effective. Instead you should be looking at copy which has half the word count (or less) than conventional writing.

Use of images

- **Use good quality images, but sparingly.** For many years, photography has been a mainstay of promoting destinations, attractions and accommodation. Market testing of printed brochures and leaflets invariably shows those with good quality distinctive images are more effective at shaping perceptions and motivating visits than those without. On tourism and leisure related websites, photography still has the power to entice and sell, but its use has to be tempered because of potential impacts on website usability. In short, it takes time for images to download onto a user’s computer. This can frustrate users and send them off your site. The answer is to use a limited number of good quality images at the optimum file size for speedy downloading. A photo gallery function can be added if more visual content is warranted.
- **Don’t use images that look like adverts.** Eye tracking studies have found that users avoid looking at content that they perceive to be an advert or looks like an advert. Hence it is important that any images you use on your site are captioned and accompanied by relevant text.

Visitor Information (e.g. Maps, guides and travel info)



Research into visitors' use of 'official' tourism destination websites suggests that providing information for those that have already made the decision to visit may be the main purpose of such websites.

Maps, guides and travel information are just three key types of information likely to fall into this category. Here are some ways to strengthen the way that this visitor information is included in your website:

1. **Make sure visitor information is easy to find on your site.** Don't bury visitor information deep in your site. Make sure that there is a clear link from your homepage.
2. **Make sure you include maps.** Maps are an extremely important resource for potential visitors. At a minimum, you should have a map of the main areas within your destination. If your tourism pages are part of a larger local authority website, there may well be a range of maps available on your site. However, don't expect users to search for these maps across the site. Bring them all together in one place.
3. **Provide travel information on your site, not just links.** It can be time-consuming to keep travel information content up to date. Because of this there can be a temptation to provide a series of links to travel information located on external websites. However, in order to retain the visitor on your site, you should aim to provide at least some content of your own on key travel topics such as how to get here, travelling around the destination etc. If more detail is needed, then provide links once you have provided some basic information. Also make it clear that the link leads to an external site.
4. **Make the most of walks information.** Information on walks in your area is likely to be very popular amongst residents and visitors alike. Make sure that you provide both good quality online information and links to downloadable versions.



SATKOSIA GORGE SANCTUARY: Details of village clusters for eco-development

1. Tikarapada cluster [Tikarapada, Majhipada, Beharhasahi, Goindi].



2. Purnakote cluster [Purnakote, Gopalpur, Salor, Badakheta and Chhotkei]

3. Tulka cluster [Tulka and Bhurkundi]



4. **Baliput cluster** [Baliput, Kamaladiha, Kaintara, Ranibhuin and Katrang]



Table Statistics for villages within each cluster (Source: Mishra, 2006)

Cluster no.	Cluster name	No.	Village name	Area ha	No. households	Population size
1	Tikarapada	1	Majhipada	386	37	170
		2	Behera Sahi	238	37	177
		3	Gaindi	83	66	308
		4	Tikarpada	152	180	684
2	Purnakote	5	Purnakote	358	171	766
		6	Gopalpur	141	83	316
		7	Chhotkei	235	93	434
		8	Salor	124	19	90
		9	Badakheta	90	24	100
3	Tulka	10	Tulka	204	94	455
		11	Bhurkundi*	not available	not available	not available
4	Baliput	12	Baliput	199	not available	not available
		13	Kamaladiha	220	not available	not available
		14	Kaintara	170	not available	not available
		15	Ranibhuin	189	not available	not available
		16	Katrang	317	69	276

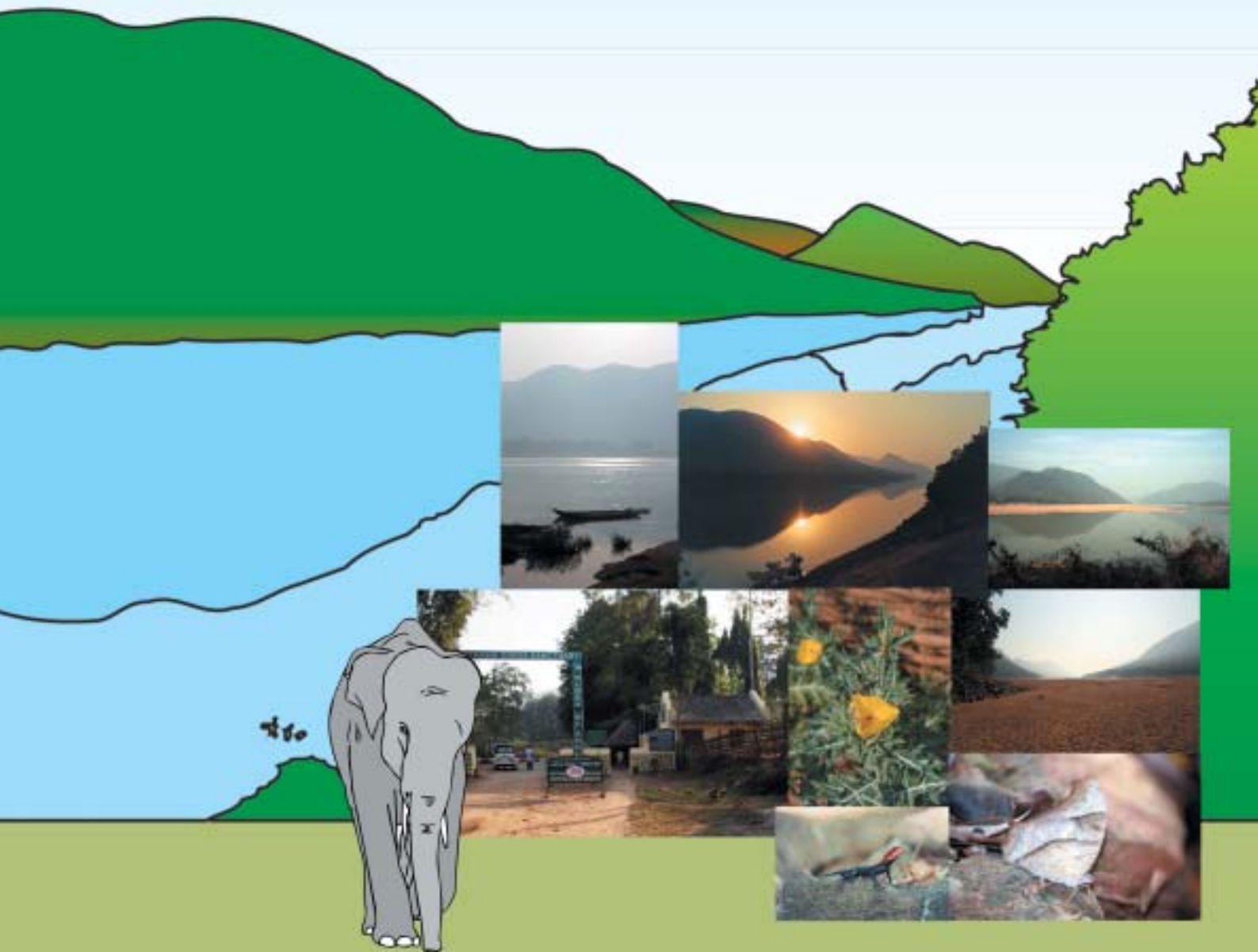
* Forest Village

TOURISM AND ECOTOURISM FACILITIES IN PILOT AREA FOR ECO-DEVELOPMENT: EXISTING AND PROPOSED

CLUSTER	VILLAGE	TOURISM FACILITIES				ECOTOURISM FACILITIES				ACCOMMODATION				Occupancy during the yr.
		Existing accommodation		Other existing facilities	Other planned facilities	Existing accommodation		Other proposed facilities	Existing	No. persons		Total		
		Type	No. rooms			No. persons	No. rooms			No. persons	Proposed			
Balliput	Balliput			0				Ecology	10	20	0	20	20	
Balliput	Katrang			0				Home stay	4	8	0	8	8	
Balliput	Kaintara			0						0	0	0	0	
Balliput	Kamaladiha			0				Tea shop	0	0	0	0	0	
Balliput	Ranibhujin			0				Tea shop	0	0	0	0	0	
Purnakote	Badakhetla			0				Home stay	4	8	0	8	8	
Purnakote	Chholkei			0				Ecology	5	10	0	10	10	
Purnakote	Gopalpur			0				Home stay	4	8	0	8	8	
Purnakote	Purnakote	Forest Rest House	2	4	Camp	2	4	Home stay	4	8	8	8	16	
Purnakote	Salor			0					4	8	0	8	8	
Tikarapada	Beharasahi			0						0	0	0	0	
Tikarapada	Goindi			0						0	0	0	0	
Tikarapada	Majhipada			0				Home stay	4	8	0	8	8	
Tikarapada	Tikarapada	Forest Rest House	2	4	Nature camp*	10	20	Ecology	8	16	24	16	40	
Tulka	Bhurkundi			0				Home stay	4	8	0	8	8	
Tulka	Tulka	Forest Rest House	1	2			0	Home stay	4	8	2	8	10	
Totals	16 villages		5	10		12	24		55	110	34	110	144	

* Seasonal, tented nature camp to be either replaced by permanent ec lodge or relocated to north bank of Mahanadi in order to benefit from a longer season and avoid disturbance to crocodile habitat (sand bars).

Eco-node village within cluster



Published by

Orissa Forestry Sector Development Society

SFTRI Campus, At-PO, Ghatikia, Bhubaneswar - 751 003

Ph. : 0674-2384016, Fax : 0674 - 2384085

E-mail : webmail@ofsdp.org

www.ofsdp.org