

NBSAP Simlipal Sub-state Draft Plan Comments by Shruti

Dear Deepak,

I hope our discussions at the eastern region workshop, including my comments on your summary of the sub-state draft BSAP proved to be useful. We are now awaiting a complete version of your first draft after the incorporation of our suggestions.

Please note, once again, the suggestions that I had made to you during the eastern region workshop:

1. Please specify the sources of information provided, for example, the statistics pertaining to the Status of Biodiversity in Simlipal.
2. Under the heading, Proposal for Action, please note that at present, you have provided 19 points, most of which can more or less be described as strategies. It would be necessary to chalk out more detailed actions for each or most of these points, including project proposals as and where relevant. This would form the main part of your BSAP, so kindly ensure that it is dealt with in detail.
3. Some parts of the Introduction and Scope of the SAP could be deleted, as there appear to be some contradictory statements, and also in the light of the fact that we would like to keep the language simple, with short sentences which can be easily comprehended by a large audience. SUGGESTED DELETIONS are: INTRO: 1st sentence of para 2 (biodiv. or the richness...), last 2 sentences of para 4 (erosion in biodiv...), 1st sentence of para 5 (understanding of...) SCOPE OF SAP: from para 2 (the areas are considered from economical...) till middle of para 3 (...an interesting observation in the SAP), and also paras. 4, 5 and 6 could be deleted.
4. Under the heading of Objectives of the SAP, which includes 9 points, please elaborate or delete point no. 2.
5. Under Contents, para 2 regarding Ch.1, please delete the last sentence (...emic and etic perceptions...) I would like to repeat that many of these changes are in the interest of keeping the language simple. Para 5 which deals with Ch.3, you have mentioned that the chapter attempts to study the species and varieties that have become rare. Please note that the scope of this report does not include primary research. Please restrict your study to available data, though you could articulate the need for data collection as an action plan if you find this to be a need. Please explain the last sentence of this para (it is attempted to understand how far the cultural meaning of biodiversity limits the human interference on biodiversity and ecosystems.) Para 7 (just before the section on Ch.5 begins) which reads "Considering the economic level of the people...." is unclear.
6. Under the section on Methodology, the Questionnaires section talks of the collection of information. Was this information only data collection, or was there some analysis done by the people in the course of answering these questionnaires? If yes, please specify.
7. Is there any particular reason for Agricultural Ecosystem not being classified as Domesticated Ecosystem?
8. The section on Panchayat Raj Institutions needs to be clarified further. Perhaps a chart or diagram would help, including the structure for the Administration of the Panchayat system.
9. Please mention the source the Historical Profile.
10. The Mayurbhanj Forest Manual sounds most interesting- could I have a copy?!
11. Ongoing Initiatives: Is Wildlife research the name of a project or is this a general reference to research?
12. Regarding Proposals for Action, I have specified the main concern at the beginning. In addition to this, please explain point 1. Point 3: Is this for protection or establishing anew? Point5: Only publicise? Perhaps this is to with creating awareness regarding existing facilities/rights? Point7: Problematic to say that the traditional view is that forest resources are primarily meant for meeting firewood needs. Point 8 sounds controversial, but we await details. Point 12: We will have to formulate a "policy" even to achieve this! Thus, we should perhaps say appropriate policies required rather than saying policy management should not interfere in the religious management of forests. Point 15: Ecotourism promotion: In the light of there being a number of controversies surrounding eco-tourism, please prepare detailed plans for achieving the intended

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are badly affected by mechanised fishing and intensive aquaculture. It is necessary to strengthen and encourage traditional methods of fishing, aquaculture, farming, and forest use, which would give people a stake in conservation. The example of the biodiverse, organic, and productive farming of Dalit women in the Medak district, is a classic case of the superiority of such systems vs. the chemical-based agriculture of the Green Revolution" the workshop said.

*The District Collector of Medak Mr Pemachandra Reddy who inaugurated the workshop accepted in principle to adopt the Biodiversity Strategy and Action Plan prepared by the Deccan Development for the Medak District would be adopted by the District as its agrobiodiversity plan. This Action Plan describes how farmers will use a diversity of crops, through organic farming, to enhance livelihoods, generate employment, link to the Public Distribution System, and strengthen people's own knowledge and rights.*

Three specific recommendations suggesting actions for conservation and livelihood security across the region, made by the workshop were :

- ◆ Creation of an agro-biodiversity corridor for the Deccan region, across Marathwada in Maharashtra, Telangana in Andhra Pradesh, and northern Karnataka.
- ◆ Setting up of legally notified biodiversity boards for the entire East Coast, West Coast, Eastern Ghats, and Western Ghats, with decisive participation of local communities, government officials from all relevant states, scientists, NGOs, and activists.
- ◆ Harmonising of wildlife conservation, fisheries, and other laws/policies and strategies across the states of the region.

While analysing the possible strategies and actions needed to plug the gaps, the participants of the workshop stressed on the need to sensitise various government departments towards issues of biodiversity conservation and people's livelihoods. It was highlighted that communities dependent on biodiversity have to be empowered and their role in conservation recognised.

### THE NBSAP PROCESS

The NBSAP is a Ministry of Environment and Forests (Government of India) project, funded by the Global Environment Facility through UNDP. Its technical execution is being done by a 22 year old NGO, Kalpavriksh (based in Delhi and Pune), which has set up a 15-member Technical and Policy Core Group for the overall co-ordination of the process. Its administrative coordination is by the Biotech Consortium India Ltd. The process aims to create a series of implementable action plans at local, state, regional, thematic, and national levels, for conservation of biodiversity, sustainable use of biological resources, and achievement of equity in such conservation and sustainable use. Each of these is being carried out by a co-ordinating agency/ individual with the help of a working group/ committee comprising of community members, scientists, government officials, NGOs, and others.

The process has been going on since early 2000, and is expected to end in mid-2002. In its 18 months of existence, it has so far involved several tens of thousands of people through workshops, yatras, festivals, meetings, public hearings, media outreach, and other means. Its unique feature is that every relevant section of society (adivasis, fisherfolk, farmers, scientists,

effects of eco-tourism if you are recommending it for the sub-state, or if it is seen as a required reaction to ongoing tourist activities in Simlipal.

13. How does the SAP plan to link up with the Simlipal BR Board? This is important.

That's all for now!

shruti.

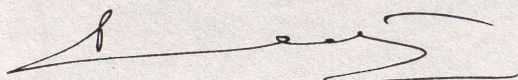
government officials, artists, armed forces personnel, mediapersons, academics, and so on) has been involved, and the diverse voices from the grassroots are being given first priority while building a national picture.

The meeting in Didgi was organised to bring together the representatives of the co-ordinating agencies/ individuals of the southern region, which includes the states of Andhra Pradesh, Tamil Nadu, Kerala, Karnataka, Lakshadweep, and the Andaman and Nicobar Islands. It also encompasses the ecoregions of West Coast, East Coast, Western Ghats and the Eastern Ghats. The NBSAP has also identified certain substate sites for special focus, which includes Deccan Andhra and North Coastal Andhra in Andhra Pradesh, as well as Uttara Kannada in Karnataka.

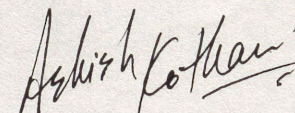
The workshop was hosted by Deccan Development Society, a prominent NGO in the region, which is also co-ordinating the substate Biodiversity Strategy and Action Plan for Deccan Andhra region. Apart from presentations of the participants, the sessions of the workshop dealt with:

- orientation and discussion on gender & equity issues, people's participation and empowerment, use of indigenous knowledge and practices;
- the need and mechanisms for intersectoral co-ordination between various departments and sectors, towards addressing biodiversity and livelihood concerns; and
- identification of linkages between various co-ordinating agencies (states, ecoregions, and substate sites).

Participants also went on field visits, including to meet Gangwar Anjamma, a woman farmer who is preserving and propagating several dozen varieties of crops; to Algole village where 60 women have grown and protected a large patch of forest; to Dalit women's Sangam in Bidakanne growing a diversity of crops; and to the school and media centre of the Deccan Development Society. All the participants were inspired and humbled by these visits, recognising the enormous contributions that ordinary villagers were making towards biodiversity conservation. They were also concerned about the lack of support by government in some cases, for instance in Algole village where women want to convert the predominantly eucalyptus plantation into a more diverse one with fruit and other useful trees, but which is not being supported by the Forest Department.



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8 January, 2002

1. AE. Simlipal 5.2 (them doc) Draft Action plan.

DRAFT

BIODIVERSITY STRATEGY AND ACTION PLAN

OF

SIMILIPAL SUB-STATE SITE

DISTRICT : MAYURBHANJ

STATE : ORISSA

NATIONAL BIODIVERSITY STRATEGY AND ACTION PLAN

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## CHAPTER - 1

### INTRODUCTION

#### 1.1 BACKGROUND

The whole world is made up of living communities as well as non-living factors. The living kingdoms comprise of human beings, plants and animals. There are many kinds of species in the plant world; starting from grass to trees and microorganisms that are not visible to the naked eye. On the other hand the animal world is also made of innumerable animals. However, in general for our convenience we call it Biodiversity that shows the difference or diversity among the plants and animals. Every human being differs from one another in some way. Similarly, plants and animals exhibit intra specific and inter specific variations. All the leaves in a tree are not all alike. Like this, there exists variation among all plants and animals in this world and altogetherly we call them Biodiversity. Biodiversity is understood at three different levels. They are (1) *level of species and varieties*, (2) *genetic level*, (3) *environment or ecosystem level*.

Conservation of Biodiversity has assumed global significance from the point of view of ecological security and for ensuring a secured livelihood as well as food security for the people. This is particularly true for the developing countries located in the tropical / subtropical belt and which have much of the Biodiversity relevant to human kind. In the Indian scenario, with its wide ecogeographic, climatic and biological diversity, the Indian subcontinent is enormously endowed with one of the most indigenous knowledge base of Biodiversity, which play a vital role in the existence of community. Such knowledge based system and resources need to be nurtured, revitalized and effectively taped with proper scientific base to cater to the need of the masses. Not only a number of flora and fauna have become vulnerable to extinction due to indiscriminate collection and deforestation, but also indigenous population and their knowledge are threatened with destruction.

Homogenous policy formulations and its thorough uniform applications could not produce substantive impact on conservation issues, as many local issues are ignored during the policy formulation and its implementation. There is dire need for preparation of locally heterogeneous policy framework in which local people can have say on the matter. With the progressive desertification and deforestation in forest rich areas the Biodiversity is at stake. In ensuring a sound 'conservation processes' and 'practice of Biodiversity' the local people and their knowledge would matter a lot in the near future. Local people's knowledge is phenomenological and has developed through their interaction with Biodiversity in the locality and is therefore relevant to the context of SAP.

The National Biodiversity Strategy and Action Plan (NBSAP) is an exercise initiated by the Ministry of Environment and Forests, Government of India, and funded by the United Nations Development Programme (UNDP). It aims to formulate local, regional, state and national strategies and action plans for conservation and sustainable use of biological resources, and achieving equity and fair benefit-sharing in such use. The NBSAP is proposed to be developed through a participatory planning process involving all major stakeholders.

Similipal and Mayurbhanj are very rich in its biological resources; varying of natural Eco-system, species and lifestyles exist in this part of the world. These biological resources are the main components to provide livelihood support to the local people.

MOEF included Similipal in this process after getting response through the leaflet "Call for Participation" from MASS. As a part of the process Govt. of India decided to select Similipal as a Sub-State Site. The technical and Policy Core Group provided regularly clear guideline. These guidelines were basically followed with local modifications to prepare the strategy action plan at local level.

## 1.2 SCOPE OF SAP

The present Strategy Action Plan document process covers the geographical area of Mayurbhanj district. It focuses on status of Biodiversity in Similipal and proximate causes of the loss of the Biodiversity. It emphasises the role of different stakeholders. Major attention was given to find out the people perception regarding loss and conservation of Biodiversity. Major focus of this document is to give to draw a clear-cut strategy and action plan for Biodiversity conservation.

The SAP at Similipal Sub-State Site discusses a member of thematic areas and issues in the local context. The thematic areas are considered from economical, ecological and cultural point of view. Similipal is an asylum of wild flora and fauna. Lots of which, have been endangered needs better attention. The SAP finds the way to their conservation. Mayurbhanj people played a very significant role by conserving natural resources more particularly forest areas. In this document community conservation initiatives is dealt with due attention. The institutional based which are working for Biodiversity conservation is also discussed in this chapter.

Considering all the aspects this document suggests strategy and action plan for Biodiversity conservation in Similipal biosphere reserve and its surrounding Mayurbhanj district.

### 1.3 OBJECTIVES OF THE SAP

- ⇒ To sensitize people on Biodiversity, its degradation and importance of conservation.
- ⇒ To identify thrust issues and find strategies, chalk out action plans for effective measures towards Biodiversity management and conservation.
- ⇒ To substantiate factors of culture, ethics, ecology and economy prevalent in the area for good governance and local acceptability of programmes in relation to Biodiversity management in the sub-state site.
- ⇒ To find local level solutions to thrust problems by acknowledging, recognising, promoting individual and institutional initiatives in the local level.
- ⇒ To identify major gaps in coverage and to delineate strategies needed to plug gaps and enhance efficacy of on going initiatives.
- ⇒ To suggest strategies and prepare action plan for ecosystem management and Biodiversity conservation.
- ⇒ To create a platform for advocacy and lobbying for development of Biodiversity in Mayurbhanj district.

### 1.4 CONTENT OF THE SAP

The BSAP contents profile of the Mayurbhanj district. It describes the present status of Biodiversity different state of natural Eco-system. It describes these causes of Biodiversity loss. It contains role of different stakeholders and ongoing initiatives by different institutions for Biodiversity conservation. Finally it contains a member of strategies and proposal for plan of action for Biodiversity conservation.

### 1.5 METHODOLOGY

The methodology involved in the SAP is broadly participatory, interactive and investigative that involved adequate fieldwork, PRA and participatory observation. The following methods and instruments were used in collection of data to substantiate the SAP. The informants were grouped under three categories; local community, government functionaries and intellectuals from various walks of life including those from NGOs.

#### 1.5.1 Workshop on Biodiversity

An orientation workshop was organised in the beginning that involved the local community resource persons, NGO workers and intellectuals. In the workshop the Biodiversity issues and SAP were discussed from multiple dimensions for a smooth assessment of Biodiversity issues under the SAP. Individual perception on Biodiversity was discussed in the workshop.

### **1.5.2 Training on SAP**

An orientation training was conducted for community leaders, women, NGO functionaries and intellectuals in order to address specific issues of Biodiversity under a standard format for SAP. Orientation was given on the dissemination and sharing procedures, on relevance of local knowledge in the context of Biodiversity, on the appropriateness of assessment methods and on how to address the issues systematically. The participants are the primary stakeholders of Biodiversity erosion and hence their perception would make a standard database for SAP was emphasized. Eminent personalities addressed the various issues relating to Biodiversity and sought suggestions from all quarters for development in this regard. Model questionnaires were discussed and how to incorporate local perceptions for creating logical base of SAP was discussed and demonstrated.

### **1.5.3 Biodiversity campaign: Life 2001**

In order to generate mass consensus on collective efforts for Biodiversity management towards sustainability, a Biodiversity campaign was conducted in the name of LIFE – 2001. In the campaign the SAP process was discussed in popular language and tribal language seeking their participation in SAP. It was emphasised that 'illiterates know more about their environment', and hence their perceptions and ideas would make significant contribution to the output of SAP. The gender dimension of knowledge on Biodiversity was discussed there and women resource persons were empowered to disseminate their vision, idea perceptions and knowledge for incorporation in the SAP process. The campaign covered people from about 400 villages.

### **1.5.4 Questionnaires**

Two sets of structured questionnaires were prepared for low literate and intellectuals in order to collect adequate information to substantiate SAP. The questionnaires were sent to village level resource persons and intellectual mass who have first hand interaction with the local Biodiversity. The questionnaires were framed in a way so that maximum information can be elicited on minor to major changes in components of Biodiversity, ecosystems, standards of exploitation of priority species of plants and animals in the locality. About 600 questionnaires were distributed to identified stakeholders out of which 140 questionnaires contained useful information on the SAP.

### **1.5.5 Village Meetings**

The responses availed from questionnaires were cross-checked through village meetings which involved men and women, elite and community leaders. Resource persons and persons having good perception of Biodiversity were identified. The local issues were discussed at length and

the locally acceptable and feasible aspects of a strategy were thoroughly investigated. The local level institutional and traditional management systems were taken note of and the potential social, cultural, economic and political hindrances were duly considered. The cultural and religious basis of Biodiversity management was given a special consideration.

#### **1.5.6 Group Discussion**

To sharpen the inquiry into the Biodiversity management strategy, group discussions were conducted among the stakeholders and the ecosystem people. The group discussions produced substantial information on how the local initiatives can be combined or congregated for sustainable Biodiversity management. Group discussions were conducted in various sets by taking participants from different ecosystem areas, participants from various sectors of livelihood earning, participants having varied level of interaction with local ecosystems, women who have first hand linkage with Biodiversity etc. From the group discussions authenticated, reliable first hand informations were gathered that paved the way for prioritisation of fields within the area of Biodiversity.

#### **1.5.7 Focus group Discussions**

Focus group discussions were conducted in separate sets involving people from various occupational trends, community, leaders, JFM / CFM committee members, NGO functionaries, elite, forest department functionaries teachers, youth, functionaries from the department of agriculture, horticulture pisciculture, sericulture, academicians, researchers, media persons etc.

#### **1.5.8 Interview**

A number of interviews have been taken with students, scholars, researchers and academicians about how do they think the Biodiversity of Similipal could be revived. Suggestions were sought from such scholars and academicians for effective and strategic planning intended to management of Biodiversity.

#### **1.5.9 Interaction & Interface**

Lots of feedback could be availed from interaction and interface with experts, local advisory committee members (biosphere management), apex level functionaries of forest department and line department for an overall assessment of the status of Biodiversity and ecosystems in Mayurbhanj. The findings revealed a bird – eye evaluation of the status of flora, fauna, and man-environment dynamics in various ecosystems in the area. This interaction also helped in a quick stock checking of the Biodiversity-related information.

#### 1.5.10 Secondary sources

Adequate information have been gathered from secondary sources such as books, journals, periodicals, newspapers, seminar proceedings, research reports and dissertations that suitably guided the intellectual inquiry into the Biodiversity issues. Government policies, draft policies and white papers have been reviewed to prioritise the Biodiversity-related issues and methodologies. In the local level, the proceeding registers of JFM/ CFM committees have been reviewed to understand and with reasonable certainty acknowledge the local level initiatives.

#### 1.5.11 Data Analysis

Informations from survey schedules were taken to prepare master data sheets and descriptive tables. The data were further categorised under thematic titles for analysis. Each analysis was shared among the participant data collectors in the SAP for accuracy and authenticity.

#### 1.5.12 Draft Report preparation

Available data have been brought under a chapter scheme and the chapters are being prepared for the draft report. The draft report both in English and Oriya shall be shared among the expert committee and common mass for final review. The changed suggestions and additions shall be incorporated in the draft report to produce the final report.

## CHAPTER - 2

### PROFILE OF MAYURBHANJ & SIMILIPAL

#### 2.1 ORIGIN OF THE NAME OF THE DISTRICT

The district is called Mayurbhanj after the name of the ex-state which on its merger with Orissa in January 1949 constituted the entire district. The name Mayurbhanj indicates that the state was named after two medieval ruling families: *Mayuras* and *Bhanjas*. The *Mayuras* known of their records were ruling over *Bonai Mandal* (*bono=forest; mandal=area*) contemporaneous with the *Bhanjas* of *Khitching mandal*. There were close social and cultural relations between these two ruling families. An inscription of *Khitching* (*old Khiching kota; kota=area*) reveals that one *Dharani Baraha*, a prince of *Mayura* family together with his wife *Kirtti* installed an image of *Avalokiteswar* at *Khitching kota* during the rule of *Raya Bhanj*, a *Bhanj* King. The headquarters *Khitching Kota* was destroyed by sultan *Firoz Saha Toglug* in 1361 A.D. and the capital was transformed from *Khitching Kota* to *Haripur* about 1400 A.D. By that time the *Bhanjs* appear to have culturally influenced by the *Mayuras*. They had substituted their own royal insignia of the *Mayuras*. After shifting of the capital to *Haripur* it was probably not sound proper to name the Kingdom after the deserted capital. So the name of the Kingdom was changed to *Mayurbhanj* in commemoration of the traditional relation of the two ruling families.

#### 2.2 LOCATION, GENERAL BOUNDARY, TOTAL AREA & POPULATION

The district lies between 21°17" north latitude and between 85°40" and 87°10" east longitude. Mayurbhanj district is bounded on the north by Singbhum district of Jharkhand State and Midnapur district of West Bengal. On the south by the districts of Balasore and Keonjhar, on the east by Midnapur dist of West Bengal and Balasore. On the West Keonjhar dist. And Singbhum of Jharkhand.

Total area	:10,416.6 square kilometer. (Largest district in Orissa as per geographical area)
Population	:22,21,782 (Twenty two lakh twenty one thousand and seven hundred eighty two)
Tribal Population	: 57%
Schedule cast population	: 07%
Total Forest Area	:44.86%

#### 2.3 CLIMATE

The climate of the massif is warm and humid. Three distinct seasons are felt during the year. Rainy season starts from middle of June till October with rain fall of about 1250 mm in the monsoonic leeward valleys, over

2000 mm is the general spread of the rainfall in the plateau. Frequent annual receipt of 2500 mm is experienced in some pockets and more in higher elevations inside Similipal. Winter creeps in gradually from mid October and becomes severe in December lowering temperature to 5 degree Celsius in many parts of the hill, with frost in valleys and open grass lands. The spring is pleasant. The Southern and Western aspects are cooler and North Eastern aspects are warmer in Similipal. This geophysical condition influences floral and faunal distribution for microclimatic condition prevailing in this locality.

## 2.4 ECO-SYSTEM:

Broadly the following Eco-systems are found in the district.

### 2.4.1 Hill Eco-system

The central portion of the district is covered by a group of hills known as the Similipal Hills, the *Meghasani* Hill (literally the seat of the clouds) which rises to a height of 3824 feet is situated in the southern extremity of this group. Sir William Hunter describes them in 1872 as "the *hithehrto* almost unexpected mountains of Mayurbhanj heaped upon each other in noble masses of rock from 3300 feet to nearly 4,000 feet high, sending count for tributaries to the *Baitarani* in the south, and pouring down the *Budhabalanga* (*budha=old; balanga = water line*) with the figures of the *Subanarekha* (*Subarna=gold; rekha=line*) on the north. The peaks are densely wooded to the summit, and except to the regular passes are inaccessible to the beasts of burden. The mountainous regions of Mayurbhanj are however becoming more and more accessible as their forest which being progressively subjected to exploitation. The other important hills are the *Dhudruchampa* (*dhudru=hill(Santal); champa=flower*) (3,310ft) *Gorumahisani* (2,964ft), *Badampahar* (*badam=inner colour of ground nut, pahar=hill*) (2,730ft), *Chahala* (=which is moving) (2,541 ft), *Baldiha* (*bal=small; diha=place*) (2,044 ft). The whole of central groups of hill ranges and the plains slopping to the east and west of those hills are covered by sal belt and dense forest.

### 2.4.2 River (Aquatic Eco-system)

The district is mainly watered by the *Budhabalaga*, *Khadkei* ( sound of stones?), *Salandi* ( *Sal =sal-tree;andi=river*) and numerous other tributaries rising from the similipal hills which fall into the *Baitarani* and *Subaranrekha* ( gold line) . Names of the rivers; 1.*Budhabalaga* 2.*Gangahar* 3. *Sone* 4. *Jambhira* 5.*Kharkei* 6.*Salandi* 7. *Deo* 8. *Khairibhandan* ( *khairi=name of the tigress, that was found on this river bank*. Beside these rivers there one many water reservoirs and small ponds.

### 2.4.3 Forest Eco- System

The forest Eco- System of the District classified into the following types. The floristic composition in the district has been collected and classified into 1) North Tropical Deciduous Sal forest. This type occurs all over Similipal in the height zone below 2800 feet except in deep and moist valley and the southern and eastern faces where other types of forests are found. The area under this type of forest covers approximately 60 square miles. The predominate species in this type is Sal (*Shorea robusta*) which forms 50 to 90 percent of this crop. Other trees commonly associated with Sal are *Terminalia Tomentosa* (Asan .Sahaj) , *Piasal*, *Biji*, *Dhaw*, *Dharva*( *Kaim*, *Kurumo*) and *Kusum* 2)Northern Tropical Semi evergreen forest . The type is confined only to the deep and damp valleys of the numerous perennial streams and *nalas* (waterhole) of the south and east Similipal Hills and to a limited extent in the rest of it. The area is covers may be 30sq. miles. It is a type, which is frequently met with, and a few of the species characteristic of the type are found spreading into the adjoining moist Sal forest already described. A few of the species of the top canopy and most of the under story and ground flora are evergreen and occur intimately mixed with each other 3) Milled deciduous hill forest. This type is seen on the more exposed and steep south and east Similipal Hill and a few more of it is steep slopes elsewhere. It is interesting to note that although this reason gets the maximum rain, being first the intercept the monsoon winds. It supports a very dry milled type of forest. With many of its species. Tending to be xerophytic. It is an example of the effect of the poor moisture retention power of the soil on dry exposed aspects. The approximate area will be 100 square miles scattered, stunted sal from 25% or more of the open crop. 4. High level Sal. This type occurs on the hilltops. The approximate area of this type will be less than 100 square miles. 5. Dry deciduous Sal forest. This type includes Satkosia, Nato, Badampahar and Gorumohisani forest. The rainfall is considerable lower than is Similipal Hills. Poorer quality Sal from 40 to 60% of this crop. 6. Plain Sal forest. The characteristic of this type is that Sal occurs in it is remarkable pure crop. It occurs mostly in very flat pains and in some places slightly undulating areas. It occurs scattered all over the District, round the central high lands, in patches varying from a fraction of an acre to quite big bloc. The underlying rock is latrite and the soil is sandy loam or red loam and rarely clay. 7. Grassland and savannas. This type occurs on tops of hill above 3000 feet dry hill sloped and higher valleys in the Similipal Hills.

### 2.4.4 Agriculture Eco-system

The agriculture Eco-system is categorised into three major categories-

- a. High land agriculture field
- b. Middle land agriculture field
- c. Low land agriculture field.

#### 2.4.5 Domesticated Eco-system

This Eco-system consists of mainly domesticated animals, birds and household trees. As agriculture and forest is the main source of livelihood people are used to keep animals for agriculture purpose. Some animals are meant for food also. Trees like Papaya, Sajana, Banana is found in maximum household.

#### 2.5 PEOPLE IN MAYURBHANJ

The bulk of the people inside and in the periphery of Similipal is of aboriginal status. Some are in their autochthonal primitiveness as in the case of Eranga Kharias, the *Mankidias* and the *Sabharas* who mainly live in the forest. The eranga Kharias consider Similipal as their primordial home and they live in the forest and depend entirely on it. Most of the minor forest produce like – honey, wax, resin, arrowroot etc. are collected by *Kharias*. *Bhagatas*, *Bhumija*, *Dals*, *Desua Bhumija*, *Dharuas*, *Kisans*, *Kondhs*, *Matyas*, *Omantyas*, *Orangs*, *Parajas*, *Prengas*, *Rajuars*, and *Sauras* are not many and do not have any influence on Similipal. The Santals who constitute more than half the population of tribal of the district are the most advance among them. They are hard working, cleanly dressed agriculturists – with high *sensivity* to environmental aesthetics. the *Bhumijas*, *Bhuiyans*, *Hos* and *Gonds* are major groups, settled as agriculturists and are advanced. The *Pauri Bhuiyans* live near the forest and collect food from forest. The *Mahalis* are basket makers and the *Sounties* are mostly landless labourers live on wage earning. *Mankidias* lead nomadic life, collect *siali fibre*, make ropes, keep monkey as pets, hence called *Mankidias*. The *Shaharas* collect fire wood, herbal plants, roots, fruits, leaves, gums, resin and flowers and sell those in the local market to earn living. (*Mishra, 1973-74; Bose, 1973-74*).

#### 2.6 ECOLOGY OF SIMILIPAL HILL FOREST

The Biodiversity of Similipal reserve forests with its typical ecosystems, is the benevolent gift of nature to living beings. The regulatory and functionary role of the massif in maintaining the ecological balance and regulating the ecosystems suffer from temporary sent back and dislinks caused by the biotic factors specially fire, grazing, poaching, clear felling and frost. The lofty massif covered by forest growth stands as a barrier on the Tropics of Cancer on the North Eastern edge of the Deccan Plateau. The South-West monsoon wind passing over the Bay of Bengal in Motherly direction hits the hill range and gets deflected inducing rain in coastal areas and interiors of South-West of Orissa. The pressure cyclonic storms created in the Bay of Bengal when passes over the sea coast near Balasore gets obstruction from the massif causing heavy rain. The vegetation cover influence and regulates the rainfall, modulates atmospheric temperature, checks the velocity of wind flow, holds up water by root system at high altitudes, provides, shelter and food to birds and animals, and enriches atmosphere with moisture by transpiration.

Besides the above, the forest cover of the Similipal hill generates pure air, reduces the velocity of the rain drops and speed of the run off, water prevents erosion of soil, reduces flood intensity, charges the ground water reserve by optimum percolation of rain water which later serves as perennial water supply source of nalas and streams through out the year. The mode of perennial water flow is the part of typical ecosystems of the Similipal-hill-forests, which is sending down the following river-systems in all directions.

Form different parts of the Similipal hills three rivers rise and flow through wooded and inhabited regions and fall into the Bay of Bengal, in the East. The *Budhabalanga* which forms itself into a river, flows in the North, *Gangahar* in the middle and the *Sone* flows in the South. But the *Kharkai*, the *Salandi* and numerous other tributaries rising from the Similipal hills fall into *Baitarani* and *Subarnarekha*. Other rivers originate from Similipal are *Deo*, *Khairi*, *Bhandan* and *Jamira*. These waterways meet the requirement of the plains encircling the massif and central plains. The storms and cyclones cause immense damage to the forest cover, besides, occurrence of dust storm in summer. It is strongly presumed by the ecologists that due to heavy storm in the past, the vast stretches of forest cover were damaged and such patches have given rise to grass lands in higher altitudes, slopes and valleys of the massif, embracing a typical ecosystem with varied flora and fauna of Savanna forest. The Similipal gets good precipitation from dews, frost, mist etc., and over and above it receives from rains. The edaphic conditions are favourable to the soil organism namely soil bacteria, fungi, actinomycetes, protozoa, soil arthropoda etc. for moist and humid condition suitable for them to grow and act. Thus the condition has catalytic action to accelerate the process of conversion of leaf litters to soil by these soil organisms, with others present, to complete the process. The healthy condition of the soil is apparent from the fact that the biomass, of about 12 (twelve) tones/hectare/annum, is actively decomposed by the organisms to prepare the top soil layer and supplementing the nutrients to maintain the fertility gradient. This ecosystem is more rapid and juvenile in the moist valleys of the Similipal hill forest. The moist and humid condition enables the Similipal to proudly embrace the leaches as the ecological parameter of tropical evergreen forest. In this ecosystem about 97 species of epiphytic and terrestrial orchid flora with several varieties of edible fungi inside the valley which is collected by the people and supplement their protein requirement. Similipal produces tones of edible variety of it, which is delicious and nutritious and has good demand. Further, this ecosystem bears the major honey production area in Similipal. The inhabitants at and around the mass if depend very much on this hill reserve to collect several kinds of roots, tubers, flowers, fruits, leaves, barks, gums, resins, honey, wax, lac, cocoons etc. to earn livelihood, which the ecosystem provides

from time immemorial. The tender structure and function of natural systems are very fine and delicate which get interrupted if the interaction among the living and non-living organisms is disturbed which takes time for restoration. (S. Das and B.P. Das, Similipal Biosphere Reserve: Genesis of a Historical reality, Orissa environmental society 1997).

## 2.7 GOVERNANCE

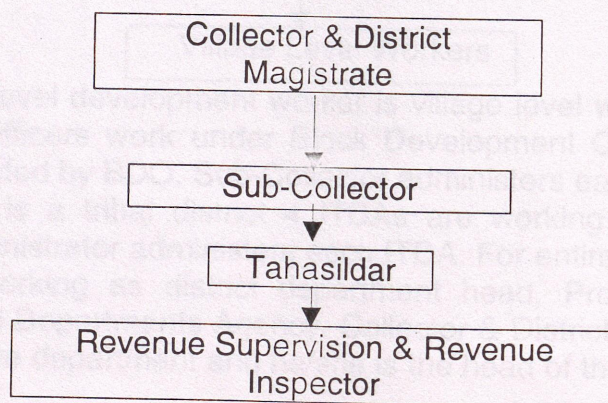
### 2.7.1 History

Mayurbhanj had the distinction of being administered by a single family continuously forever a thousand years. After Independence it remained as one state before it's merger with the state of Orissa in 1949. After merger the administration of Govt. of Orissa was introduced.

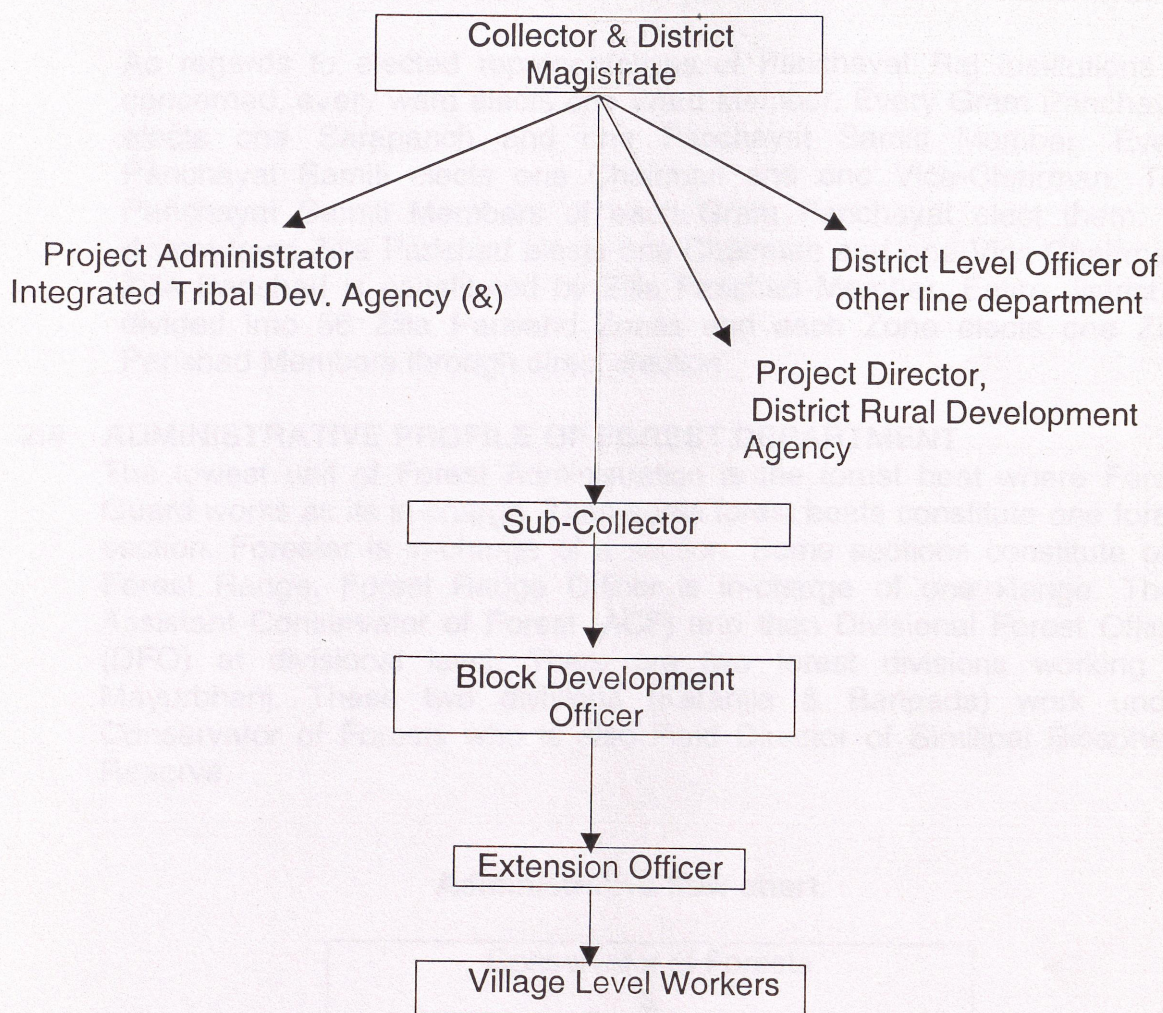
### 2.7.2 Current Administrative profile

Total No. of Villages	: 3945
Gram Panchayat	: 382
Block	: 26
Sub-Division	: 4
Towns	: 4
Tahasils	: 7

### Administrative flow chart of Revenue Department



### Administrative flow chart of Line Department



The lowest level development worker is village level workers. Then many Extension Officers work under Block Development Officer (BDO). Each Block is headed by BDO. Sub-Collector administers each Sub-Division. As Mayurbhanj is a tribal district 4 ITDAs are working in 4 Sub-Division. Project Administrator administers each ITDA. For entire district one District Officer is working as district department head. Project Director head District Rural Departments Agency. Collector & District Magistrate is head of these entire department and he/she is the head of the district.

#### 2.7.3 Panchyat Raj Institutions

A group of villages constitute one Gram Panchayat. A group of Gram Panchayats constitutes one Panchayat Samiti or CD Block. The entire district of Mayurbhanj is divided into 26 Panchayat Samities.

Palli Sabha is constituted at village level by all electorates in the village. The all members of Palli Sabhas in each village constitute Gram Sabha at

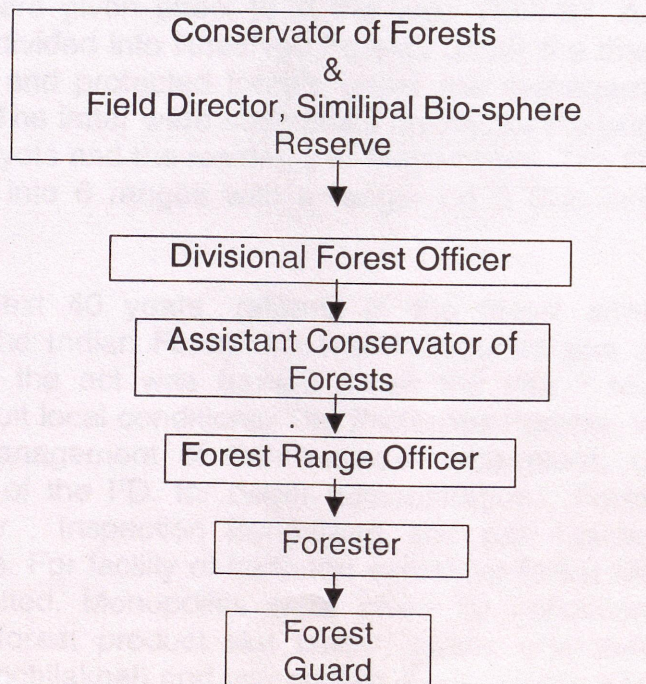
Gram Panchayat level. So Gram Sabha is a congregation of all the members of all Palli Sabhas under the jurisdiction of a Gram Panchayat.

As regards to elected representatives of Panchayat Raj Institutions is concerned, every ward elects one Ward Member. Every Gram Panchayat elects one Sarapanch and one Panchayat Samiti Member. Every Panchayat Samiti elects one Chairman and one Vice-Chairman. The Panchayat Samiti Members of each Gram Panchayat elect them. At district level Zilla Parishad elects one Chairman and one Vice-Chairman. Zilla Parishad is constituted by Zilla Parishad Member. Entire district is divided into 56 Zilla Parishad Zones and each Zone elects one Zilla Parishad Members through direct election.

## 2.8 ADMINISTRATIVE PROFILE OF FOREST DEPARTMENT

The lowest unit of Forest Administration is the forest beat where Forest Guard works as its in-charge. Then some forest beats constitute one forest section. Forester is in-charge of a section. Some sections constitute one Forest Range. Forest Range Officer is in-charge of one Range. Then Assistant Conservator of Forest (ACF) and then Divisional Forest Officer (DFO) at divisional level. There are two forest divisions working in Mayurbhanj. These two divisions (Karanja & Baripada) work under Conservator of Forests who is also Field Director of Similipal Biosphere Reserve.

### Administrative flow chart.



## 2.9 HISTORICAL PROFILE OF FOREST RESOURCE ADMINISTRATION AND PEOPLE'S RIGHTS OVER FOREST

Originally Mayurbhanj was found by the East-India company a 'Jungle mahal' which meant that the area was predominantly a forest area. But it is also a fact that no revenue was being derived from the forests. The tenants were free to use forest products in any way they could. When however, the State was under court of wards administration during the minority of Maharaja *Sri Ram Chandra Bhanjdeo (1882-91)* attention was paid to the important sources of forest revenue through its proper preservation. There was however no forest acts in force nor was any separate department established. The revenue officers were releasing a nominal fuel cess at some flat rates. Some revenue was being released from lac and *tassar*. Each reared of *tassar* cocoons was paying a fee of Rs 0.10 and a fee of Rs 1 was levied on each *kusum* tree on which lac was cultivated. Besides the license fee on cocoon rears the dealers were being charged a fee of Rs 0.50 each along with a duty at the rate of Rs 0.40 anna per *kahan* of *tassar* (*Rs 1 = 16 anna: one gonda = 4:20 gonda = 1 kahan = 80 cocoon*).

In the year 1895 the FD was separated from revenue department. Before the establishment of separate FD. The forest were under the control and management of the revenue department and the matter of privileges and concession granted to the *ryots* (landholder) was settled on an annual payment of 4 Annas per *ryots* as *Kath - Kar* (fuel cells) which entitled them to remove unnecessary timber for building and agricultural purposes, tree and grass for thatching and free grazing. The working plan outlined by C.C. Hatt were given effect to in the year 1896-97. According to this, forests were divided into Reserved Forests under the management of the forest officer and protected forests under the management of Revenue Department. The latter were maintained chiefly for the purpose of meeting the wants of *ryots* and the residents of Mayurbhanj. The Reserved Forests were divided into 6 ranges with a ranger on 5 Sub-range in charge of each.

During the next 40 years, reforms in the forest administration were introduced. The Indian Forest Act was introduced and a set of rules in pursuance of the act was framed under the title "Mayurbhanj forest manual" to suit local conditions. The Protected Forests, which were once under the management of the revenue department, came under the management of the FD. for better administration, Forest Beat officer, Range Officer, Inspection Bungalows and rest houses were built at various places. For facility of transport extensive forest roads and bridges were constructed. Monopolies were given for collection and export of some minor forest product like *tassar*, hides, charcoals, sabai grass, *nuxvomica* (*Kochilakhai*) and *mynabolan*. Experiments were undertaken to establish plantation of teak, sisam, Mahogany, Ceara rubber (*Syria*?)

Eucalyptus, Indian rubber. Sandal, Pinus longifolia, tea, Atropa becadoman, Digitilas purpurea, Dyoseyamers nigeers etc. Quarries of potstones were leased out. Ivory used to be sold and kendu leaves were also exported. An Ascu plant was installed for treatment of timbers with a view to increasing strength and durability and preserving timbers against destructive agents.

The Reserved Forests are free from any rights. Only annual permits are issued for grazing in recognised grazing grounds. Mainly in Karanja Divisions (*Banku and Genabil Blocks*) classified under the forest type VI (grassland and savannas). In the plain forests, although no definite rights have been defined, it is generally accepted by usage that practically all timbers and firewood are opened for sale at concession rates to the local residents of Mayurbhanj. For that purpose the annual coupes in the plain forests are kept open for exploitation and extraction of the tenants requirements for a complete calendar year after which the surplus if any, is sold by auction. The tenants fell and extract timber and firewood on payment of concession royalty, Grazing is free in the plain reserves for the tenants' cattle. In protected Forests the tenant get free of royalty unreserved species up to 4 girth and over on payments of concession royalty. Grazing is free for the cattle of local residents. According to Rule 62 of Mayurbhanj Forest Manual, Bonafide residents of Mayurbhanj may collect or gather without payment of royalty within the limits of the protected forests, and subject to such restriction and as the forest officer may impose, within the Reserved Forest, all edible roots, flowers, fruits leaves and other Minor forest Produce free of charges for their own use only.

Rule 68 of the Mayurbhanj forest manual provides that in lieu of the various concessions granted to the Bonafide residents of Mayurbhanj, they have to help in detection of cases and apprehension of offenders. They have to help the officials in preventing and extinguishing forest fires. Under Rule 89 para VI, the villagers who live adjacent to the forests and get better facilities and concessions in the forest, have to help the forest officials in survey and demarcation and they have also to keep the permanent and temporary lines in the forest clear of bushes. Failure to comply with the above provisions may lead to temporary withdrawal of concession.

#### 2.10 MANAGEMENT HISTORY

The Similipal hills and the adjoining area of the then Mayurbhanj State were under the patronage of the ex-ruler of the Mayurbhanj State. The chronology of certain major events in the history of management of the region is as follows: -

1949 : Merger of Mayurbhanj into Orissa state.

- 1957 : Creation of a National Park Forest Division with head quarters at Jashipur.
- 1973- 1995 : Establishment and management of 'Similipal Tiger Reserve' under the aegis of 'Project Tiger Reserve' under the aegis of 'Project Tiger' of Govt. of India. The project continues its programmes with headquarters at Baripada.
- 1977 : 'Mugger Crocodile Scheme' was started at Ramatirtha, Jashipur under the national programme of 'Crocodile Breeding and Management Project'.
- 1979 : Declaration of Similipal Sanctuary over 2200 sq. km. Area by the Notification No. 30467/FFAH, dt. 03 Dec. 1979 of Govt. of Orissa.
- 1980 : Declaration of intention of Govt. of Orissa vide no. 8F(T)-44/80-18703/FFAH, dt. 06 Aug. 1980 to finally notify 303 sq. km. Area of Similipal Sanctuary as National Park.
- 1986 : Declaration of the intention of Govt. of Orissa vide no. 8F(T) / 8/85-19525/FFAH. Dt. 11 June 1986, to extend the limits of the proposed national park to 845.7 sq. km.
- 1989-1995 : Development of a 'Project Elephant Scheme' for the state of Orissa including the areas adjoining the Similipal Tiger Reserve. The scheme is in early stages of its implementation, pending final acceptance of the activities envisaged.
- 1990-1995 : Formulation of an 'Eco-development Scheme' for the area peripheral to Similipal Tiger Reserve in order to address at development and management of 'human components' in consonance with objectives of environmental conservation pending finalisation of the scheme, this plan has been implemented only. In piece meal on experimental basis.

During the period 1957 to 1995 two important courses have taken place. These are, (a) recognition and legal protection to the Biodiversity significance of Similipal forests and its adjoining areas, and (b) discrete development of four management strategies which now combinedly attract the purview of the concept of a 'Similipal Biosphere reserve' under 'Man and the Biosphere' programme.

The legal protections are under the provisions of wildlife (Protection) Act, 1972, and the management strategies are that of the 'Project Tiger', 'Crocodile Project', 'Project Elephant' and the 'Ecodevelopment Project'.

The Similipal Forest Development Corporation (SFDC) functioned during 1980-1990. Because of this there were at least two long term changes in management approaches in Similipal. Firstly, a large number of forest staff was posted to the area. Secondly, the major and minor forestry practices were handled entirely by the corporation. Later on, there was a total moratorium on tree felling in the district of Mayurbhanj for reasons of forest conservation.

With the merger of SFDC with the Orissa Forest Development Corporation (OFDC) in 1990, the areas were transferred back to the territorial forest divisions of Baripada and Karanjia. In January 1994, for the purpose of better protection and management of Similipal Tiger Reserve, the two forest divisions were transferred from Angul Forest Circle to the control of Field Director, Similipal Tiger Reserve (*B.C. Prusty, Management of Similipal Forest, Orissa environment society, 1997*).

## 2.11 ZONATION OF SIMILIPAL BIOSPHERE RESERVE AND BIOSPHERE MANAGEMENT

In 1994 Govt. of India declared Similipal as one Biosphere Reserve for preserving the biological diversity with the following broad objectives :

- Conservation of representative samples of ecosystem,
- Provision of long-term conservation of genetic diversity in-situ,
- Promotion of basic and applied research work and its monitoring; and
- Dissemination of experience for education and training.

### 2.11.1 Zonation

Similipal biosphere has been divided into 3 zones-

Zone	Area
1. Core Zone	845 sq. Km.
2. Buffer Zone has three parts	
(a) Buffer Zone of Similipal Tiger Reserve	1950 sq. Km.
(b) NATO Reserve Forest	77 sq. Km.
(c) Satkosia Reserve Forest	147 sq. Km.
3. Transitional Zone that encircles buffer area by 10 Km.	2559 sq. Km.
<hr/>	
Total	5578 sq. Km.

### 2.11.2 Biosphere Management

Three other plans have been included in the biosphere management practice.

1. Tiger Project.
2. Peripheral development plan for buffer area and its outskirts.
3. Crocodile Conservation Plan.

## CHAPTER – 3 STATUS OF BIODIVERSITY

### 3.1 FLORAL DIVERSITY OF SIMILIPAL

Similipal is a virgin sub-tropical forest and is a repository of large flora, which are a mixture of South Indian, North Indian, and Andamans species. Very few plants are endemic. The range of flora existing and evolving are the elements evergreen forest of deep valleys, moist and dry deciduous forests of medium to high table lands, chiefly represented by Sal, as well as alpine and savannah elements. The data of enumerations by taxonomists gives a total of 3000 species of plants, ferns, orchids, and mosses. The topographic variation, as described earlier, harbours many diverse species and ecotypes of species of plants. Saxena and Brahmam (1989) have reported 1076 species of plants representing 168 families. The density of species per family is one of highest, as compared to the distribution of Himalayan species. The larger genera are Acacia (with 11 species), Aneilema (with 6 species), Anthraxon (with 6 species), Bauhinia (with 6 species), Blumea (with 14 species), Butea (with 5 species), Carex (with 4 species), Cassia (with 5 species), Cheilanthes (with 4 species), Dendrobium (with 13 species), Cyperus (with 24 species), Desmodium (with 23 species), Ficus (with 11 species), Indigofera (with 12 species), Leea (with 10 species), Lindernia (with 9 species), Terminalia (with 5 species) etc. (with 6 species), Bauhinia (with 6 species), Blumea (with 14 species), Butea (with 5 species), Carex (with 4 species), Cassia (with 5 species), Cheilanthes (with 4 species), Dendrobium (with 13 species), Cyperus (with 24 species), Desmodium (with 23 species), Ficus (with 11 species), Indigofera (with 12 species), Leea (with 10 species), Lindernia (with 9 species), Terminalia (with 5 species) etc.

Mishra (1986) has reported 93 species of orchid flora of Similipal, out of which 4 species are new reports for India. In a biomass study of plants in selected areas of Similipal it was tested how the number of species on each plot affected the growth of plants as well as their use of nutrients. It was found that in two years the more the species a plot had, the greater the biomass of plants and the more nutrients were utilized in their growth. Thus the increased productivity of an ecosystem and use of nutrients indicates rich trends of plant Biodiversity (Anonymous, 1994).

Further, Similipal rears many rare species of plants. Besides the more economic species of trees such as Sal, Silk cotton, *Arjun*, *Asan*, *Champa*, *Eugenia*, *Dispyros*, *Madhucam*, Bija etc. it also contains about 200 species of medicinal plants, many species of economic plants and plants yielding alkaloids, resins, lac, myrobalan, arrowroot, and species as feed for tassar. Some common medicinal plants are the species of *Achyranthes*, *Andrographis*, *Cassia*, *Cissampelos*, *Cyperus*, *Eclipta*, *Emblica*, *Holarrhena*, *Hygrophila*, *Phyllanthus*, *Rauwolfia*, *Saraca*,

Solanum, Strychnos, Swertia, Terminalia, and Vitex. Besides, Saxena and Brahma (1989) reported 52 timber yielding species, 12 fuel wood species, 8 species used for plywood manufacture, 13 species used for paper pulp, 10 species used for match industries, 17 species for fibres, 7 species for dyes, 5 species for oil seeds, and 8 species for gums and resins. Thus combining the gene pool of the natural resources as described the Similipal is one of the greatest centres of Biodiversity of plants which requires to be conserved.

### 3.2 FAUNA OF SIMILIPAL

One can easily imagine that, such diverse topography and soil conditions coupled with climatic variation and rich diversity of autotrophs is sure to support a fascinating faunal composition. The primary heterotrophs among the mammals (herbivores) are represented by sambar, elephant, gaur or Indian bison, cheetal, barking deer, mouse deer, chousinga or fourhorned antelope, common langur, rhesus monkey, porcupine, Malabar giant squirrel, flying squirrel, Indian pangolin and rufus tailed hare, etc.

Among the secondary heterotrophs are tiger, leopard, jackal, wild dog, Indian wolf, ratel, jungle cat, civet cat and common mongoose.

These scavenging animals are hyena, jackal, jungle cat and ratel.

While different animals are adopted to different vegetation covers like dense forest, open forest, scrub and grassland, there is considerable overlapping in their distribution.

Due to its topographical and climatic variation, besides the avifauna common to peninsular India some Himalayan birds have been found by Salim Ali. Some common birds are peafowl, painted spurfowl, black partridge, grey partridge, doves, crested serpent eagle, shahin falcon, fly catcher, hawk, malabar pied hornbill and grey hornbill, owl, hill myna, golden oriole, parakeets, pigeons, sun birds, common snipe, crow pheasant and red jungle fowl etc. Besides them, water birds like white ibis, spoon bill, herons, egrets, red wattled lapwing, teal, plover, terns, sand piper and king fishers are seen in artificial and natural water bodies in and around Similipal.

Mugger, python, cobra, king cobra, land tortoise and monitor lizard are among the common reptiles found in the forest. Besides them large varieties of fishes, aquatic fauna and insects are found in this forest. Mahasheer fish though much depleted in number is notable among the rare fishes of Similipal. Honey bee is a very important insect of economic importance to the tribals particularly, the 'Khadia' tribes (S.K. Pattnaik, CCF, *Wildlife 1997 Conservation and Management Wildlife in Similipal*).

### 3.3 COMMONLY KNOWN MEDICINAL PLANTS IN MAYURBHANJ

SL	LOCAL NAME	FAMILY	LATIN NAME
01	Guduchi	Menispermaceae	Tinospora Cordifolia (willd)
02	Ritha	Sapindaceae	Sapindus trifoliatus Linn
03	Arjuna	Combaetaceae	Terminatia arjuna (Roxb)
04	Asthisrunkhala	Vitaceae	Cussus quadrangularis Linn
05	Ankota (Ankola)	Alangiaceae	Alangium Salvifolium
06	Ashoka	Leguminasae	Saraca asoca (Roxbj De wilde)
07	Sal	Dipterocarpeae	(Shorea robusta Gaertn)
08	Amalaki	Ecephorbiaceae	(Emblica officinaltis Gaertn)
09	Bibhitaki		
10	Haritaki	Combretaceae	Terminalia Chebula Retz
11	Bhallataka	Anacardiaceae	Semecarpus anacardium
12	Kutaja	Apocynaceae	Holarrherna antidysenterica
13	Kupilu	Loganiaceae	Strychnos nuxvomica (Linn)
14	Kanchanar	Leguminosae	Caesalpinioideae
15	Sobhanjan	Moringaceae	Moringa oleifera Lam
16	Bilwa		
17	Neem	Meliaceae	Azadirachta indica A. Juss
18	Ashan	Leguminosae	Papilionatae
19	Shirisa	Leguminosae	Albizza Lebbeck Benth
20	Ambra	Anacardiaceae	Mangifera indica Linn
21	Tintidika		
22	Spta Parni, Spta Parna	Apocynaceae	Alstonia Scholaris
23	Tinduka	Ebenaceae	Diospyras Peregrina (Gaertn)
24	Muchukunda	Sterculiaceae	Pterospermun acerifolium
25	Bata	Moraceae	Ficus bengalensis Linn
26	Aswatha	Moraceae	Ficus religiosa Linn
27	Udumbar	Moraceae	Ficus glomerata Roxb
28	Parisha	Malvoceae	Thespesia Populnea

			Soland
29	Plakshya	Moraceae	Ficus locor Buch - Ham
30	Mohaneem	Meliaceae	Melia azedarach Linn
31	Nirgundi	Verbenaceae	Vitex negundo Linn
32	Basa	Acanthaceae	Aothatoda vasica Nees
33	Kanchnar	Leguminosae	Caeslpinioideae
34	Jambu	Myrtaceae	Syzygiam camini Linn
35	Palasa	Leguminosae	Butea monosperma Lam
36	Babbula	Leguminosae	Acacia arabica wild
37	Gambhari	Verbenaceae	Gmelina arborea Linn
38	Patala	Bignoniaceae	Stereaspermum suaveolens
39	Shyenan	Bignoniaceae	Oroxylum indicum Vent
40	Chandan	Santalaceae	Santalum album Linn
41	Debadarce	Pinaceae	(Cedrus deodora) Roxb
42	Ambratak		
43	Hijjala	Lecythidacease	Barringtonia acutangula Gaertn
44	Slesmantak		
45	Aragwadha		
46	Kadamba	Rubiacease	Anthocephalus indicus Mig
47	Nilagilli		
48	Tamraparni		
49	Tulasi	Labiatae	Ocimum sanctum Linn
50	Bacha	Araceae	Acorus calamus Linn
51	Surana	Aracease	Amorphaphallus
52	Langati	Liliacease	Gloriosa Superba Linn
53	Dhataki	Lytheraceae	Woodfordia fruticosa kunz
54	Eranda		
55	Sariba	Asclepiadaceae	Nemidesmus indicus R. Br.
56	Manakanda	Araceae	Alocasia indica (Roxb) schott
57	Snuhi	Euphorbiaceae	Euphorbiaceae
58	Salapurni		
59	Prushiparni		
60	Brahmi		
61	Arka	Asclepiadaceae	Calatropis Procera Ait
62	Mustaka	Cyperaceae	Cyperus rotundus Linn
63	Bala	Malvaceae	Sida cordifolia Linn
64	Antibala	Malvaceae	Abutilon indicum Linn
65	Kantarani	Solanaceae	Solanum surattense

			Burm.
66	Kakamachi	Solanaceae	Solanum nigrum Linn
67	Pippali	Piperaceae	Piper longum Linn
68	Musali	Liliaceae	Asparagus adscendens Roxb
69	Safed Musali		
70	Satavari	Liliaceae	Asparagus racemosus
71	Aswagandha	Solanaceae	Withania somnifra
72	Sarpagandha	Apocynaceae	Rauwolfia serpentina Benth ex.kurz
73	Gunja		
74	Ghritakumari		
75	Sarapunkha		
76	Gudamari		
77	Gandha Prasarani	Rubiaceae	Paederia foetida Linn
78	Parijata	Oleaceae	Nyctanthes, arbortristis Linn
79	Haladi		
80	Paribhadra	Leguminosae	Erythrina variegata Linn
81	Tabakshira	Zingiberaceae	Curcuma angustifolia Roxb
82	Madayantika	Lythraceae	Lawsonia inermis Linn
83	Abartani	Sterculiaceae	Helicteres isora Linn
84	Karpasa	Malvaceae	Gossypium herbaecum Linn
85	Nirmuli		
86	Rasna	Liliaceae	Allium sativum Linn
87	Swannakshiri	Papaveraceae	Argemone mexicana Linn
88	Kokilakshya	Acanteaceae	Asteracantha longifolia Ness
89	Dugdika	Euphorbiaceae	Euphorbia thymifolia
90	Madhuka		
91	Lajjalu	Leguminosae	Mimosa Pudica Linn
92	Badara		
93	Chitraka	Plumbaginaceae	Plumbago Zeylanica Linn
94	Mustaka	Cyperaceae	Cyperus rotundos Linn
95	Pudina	Labiatae	Mentha spicata Linn. Emend
96	Bakula	Sapotaceae	Mimusops elengi Linn
97	Durba	Graminae	Cynodon dactylon Pers.
98	Bhumikusmanda		
99	Kalmegh	Acanthaceae	Andrographia Paniculata

100	Kasamarda	Leguminasac	Cassia occidentalis linn.
101	Chakramarda	Leguminasae	Cassia tora Linn
102	Priyala	Anacardiaceae	Buchanania lanzan
103	Kupilu	Loganiaceae	Strychnos nuxvomica Linn
104	Kapikachhu		
105	Ardraaka		
106	Pasanabheda		
107	Bhringaraj		
108	Sugandhibala		
109	Dronapushpi	Labiatae	Leucas cephalotes spreng
110	Punarnaba	Nyctaginaceae	Boerhavia diffusa Linn.
111	Apamargo	Amamanthaceae	Achyranthes aspera Linn
112	Dhattura	Solanaceae	Datura metel Linn.
113	Salmali		
114	Bharngi		
115	Karabellak	Cucurbitaceae	Momordia Charantia Linn.
116	Japa	Malvaceae	Hibiscus rosa-sinensis Linn
117	Byaghra Eranda		

(**Compiled by:** Dr. Biplab Mohanta, Principal Ayurveda Medical College,  
Mayurbhanj, Baripada)

### 3.4 CENSUS OF WILD ANIMALS

Royal Bengal Tiger	:	99
Tiger (Leopard)	:	119
Elephants	:	402
Bison	:	850-950
Wild boar	:	10000
Sambar	:	7000-9000
Deer	:	2500-3500
Kutra	:	4000-5000
Gurandi	:	1500-1800

(Director, Similipal Biosphere Reserve)

### 3.5 MAYURBHANJ DISTRICT LIVESTOCK POPULATION (2001)

Cattle	:	8,79,210
Buffalo	:	26,390
Sheep	:	1,63,550
Goat	:	6,01,587
Pig	:	8,492
Poultry	:	22,94,378

## CHAPTER – 4 CROSS CUTTING THEMES

- Biodiversity & culture
- Biodiversity & livelihood
- Biodiversity & traditional health practices
- Biodiversity & wild flora
- Biodiversity & wild fauna
- Biodiversity & tourism
- Biodiversity, customary rights and equity
- Biodiversity, institutions and law
- Biodiversity & community conservation initiatives
- Biodiversity & sericulture

## CHAPTER – 5

### STATEMENT OF THE PROBLEM RELATING TO BIODIVERSITY

- 5.1 Over exploitation of natural resources without consideration of the interdependence between plants and animals is a cause leading to fast depletion of Biodiversity. Biodiversity all over the world is endangered today. Human communities are greatly responsible for the endangered state of Biodiversity. In past Biodiversity was bountiful in comparison to the population for which human needs did not put unbearable pressure on Biodiversity. Nature was able to maintain its balance and counter balance human pressure on Biodiversity by natural regeneration. But as pressure increased manifold the regeneration and renewability power of the gradually decreased. Amongst these human created pressures, over-exploitation of nature is the foremost one. Industrial development, fast urbanisation, dependence on nature for aesthetic and lavish life style is factors that have endangered the Biodiversity.

The creation of Earth and birth of plants and animal are natural. In course of time many plants and animals have gone extinct by natural process. Apart from that, many species of Biodiversity have been extinct due to human activities. Similarly many species of Biodiversity are endangered. If proper attention is not given towards their conservation they may go extinct after sometime. For example local varieties of seeds, species of feeds and agricultural feeds, some important medicinal plant and many other species of plants and animals.

In this chapter the activity and factors which are responsible for Biodiversity loss discussed peoples perception and intellectual view point are recorded during various meeting and discussion which are as follows.

#### 5.1.1 **Smuggling of Timber & Other Products**

Mayurbhanj is surrounded by high density populated areas of Balasore, Bhadrak district of Orissa and Midnapure district in West Bengal within 200 KM periphery. There are four big cities and many more towns. Rapid urbanisation has created lot of pressure on Similipal forest. There is a vast market of Timber around Similipal and Mayurbhanj. It is very difficult to guard more than Six hundred KM periphery of Similipal. This situation has led to large scale smuggling of timber across Orissa, West Bengal & Jharkhand. The result has been total elimination of source of the rich forest patches and numbers of species of plants are endangered, which is leading to extinction of same animal species.

#### 5.1.2 **Forest Fire**

The forest fires are common and frequent every year during February to June. Mostly fire spread during harvesting of Mahua flower as the villagers set fire to clean the floor. For hunting also the poachers set fire to corner

the wild animal. The people who are entering into the forest regularly for timber smuggling & NTFP collection set fire in the forest. Forest fire spreads very fast and is destroyed lot of species just on the floor. Number of medicinal plants is wiped out and the wild life is seriously damaged.

### **5.1.3 Grazing**

Though village people are not ready to accept that, forest is not affected by grazing but other view point explains that, by grazing in some places exceeds the carrying capacity of the forest and is one of the major factors for degradation of forest specially near villages.

### **5.1.4 Habitat destruction & land diversion**

Over the period of time many wetlands which were very rich pockets of Biodiversity converted into paddy fields by local inhabitants. This land conversion resulted into destruction of habitat and Biodiversity loss.

### **5.1.5 Hunting**

Since past times the local tribal of Mayurbhanj have habituated to hunting of wild animal. They are engaged of this kind of practice for meat and also some do it as their hobby. During the month of April the tribal of Mayurbhanj go to the forest for mass hunting which is locally known as Akhanda Shikar. During Akhanda Shikar the hunters set fire in the forest. So, Akhanda Shikar has very serious adverse implication on wild animals.

### **5.1.6 Unsustainable Harvesting**

A large number of medicinal products and other non timber forest produces are collected by the local people in the form of leaf, fruits, roots, bark etc. etc. Over harvesting of Sal leaves and toothbrush tings cause serious Biodiversity loss. There are practices, in which, people cut the trees to collect bark and fruits of some species. The collection of medicinal plants, hubs, shrubs are not compensated neither by plantation nor by creating opportunity for natural regeneration.

### **5.1.7 Over use of Chemical pesticides and fertilisers**

In appropriate use of chemical pesticides and fertilisers in agricultural field resulting severe damage of Agriculture Eco-system Diversity. Earthworm, small fishes and other insects, which are very beneficial for farming, are no more available in the agricultural fields. This causes imbalance in soil nutrients and affects the fertility of the soil.

### **5.1.8 Poisoning and pollution**

By various factors the land water is becoming poisonous and polluted. Due to this factor, availability of fish declining day by day. This poisoning not only affecting the fish population but it kills many organisms in aquatic system.

### 5.1.9 Population, unemployment & poverty

Within 10 KM periphery of Similipal 5-6 lakh people reside in 1200 villages. Maximum portions of these populations are tribal and are poor. Mainly they are small and marginal farmers. Major portions of their livelihood support derived from forest. Knowingly and unknowingly they put pressure on forest, which cause Biodiversity loss. Number of educated youth increases parallaly with the increased number of unemployment. They target forest resource as their means of earning. In fact the existing resources are over exploited. The people have hardly any alternative means of livelihood.

### 5.1.10 Soil condition and introduction of exotic species

Twenty years back, people of Mayurbhanj were cultivating local varieties of seeds. Pospalam seorbiculatum is one example. Gradually these species are vanishing. Because of irregular rainfall and soil condition these wild species are not much productive. At the same time, because of increase demand of food grains high yielding varieties are introduced. This introduction discouraged propagation of local varieties. The indigenous varieties have greater acceptance to the climate; they can overcome adverse climatic condition. Govt. officials promote exotic varieties of seeds, which causes extinction of local varieties.

### 5.1.11 Breaking of Food Chain

As Biodiversity exists in a food chain, Existence of species is interdependent. When one species of food chain is eliminated than existence of one species is at stake. For example there is a bird "*Kochilakhai*" eats the fruits of '*Kochila*'. The *Kochila* plant germinates only after the seed come out as excrete of *Kochilakhai* bind. So *Kochila* plant and *Kochilakhai* Bind are very much dependant to each other for survival. Similarly many species are facing extinction when the food chain breaks at certain point.

### 5.1.12 Erosion of traditional knowledge system

For conservation of biological resources there are many rich knowledge and the local community is practising skill. The traditional knowledge is utilized in the area of health services, farming, water conservation, forest and wild life conservation etc. etc. Because of changing life style and invasion of so called modern technology. Resulted in rapid erosion of traditional knowledge base. Which is ultimately leading to Biodiversity loss.

## 5.2 HOW LOCAL PEOPLE PERCEIVE BIODIVERSITY LOSS

The local people perceive the following consequences due to loss of biological diversity.

- ⇒ Summer heat getting intense, winter season getting shorter and winter chill getting less intense.

- ⇒ Population of various flora and fauna decreasing.
- ⇒ Natural beauty losing charm.
- ⇒ Forest dependent household economy is at stake.
- ⇒ Unpredictable disasters occurring.
- ⇒ Fuel wood crisis.
- ⇒ Food insecurity.
- ⇒ Decrease in ground water level.
- ⇒ Scanty availability of medicinal plants.
- ⇒ Unlimited access to forests increasing due to decrease in number of carnivores.
- ⇒ Biological clock is changing. Certain birds are not singing to indicate dawn and dusk.
- ⇒ Weather has become unpredictable.
- ⇒ Indiscriminate tree felling going on due to erosion in traditional control mechanism.

## CHAPTER – 6

### MAJOR ACTORS AND THEIR CURRENT ROLES RELATING TO BIODIVERSITY

6.1 There are number of Action playing very important role in Biodiversity related activities. Perception on Biodiversity among many actors differs from one to another. There are agencies, which never thought of “Biodiversity” but their activities affects positively or negatively to Biodiversity. Description on major actors as follows.

#### 6.2 GOVT. AGENCIES

A number of Govt. departments are involved in activities that affect the Biodiversity status.

- Forest & Environment dept.
- Agriculture dept.
- Horticulture dept.
- Fisheries dept.
- Soil conservation dept.
- Sericulture dept.
- Panchayat Raj Dept.
- Animal husbandry dept.

#### 6.3 LOCAL COMMUNITIES

Local communities are the major players in Biodiversity conservation, utilization and destruction. Village communities are being the Biological resources to meet their daily requirement and to earn the livelihood. Large numbers of village communities are conserving Biodiversity in a big way. Village communities are the most successful actors in Biodiversity conservation. In more than 700 villages village community has formed village level institution to conserve forest. There are many apex level organisations are formed by the representative of village level institutions. In many places local communities are the main instruments for Biodiversity loss.

The urban communities very rarely show their concern to Biodiversity in their action.

#### 6.4 NGOs

There are number of NGOs working in the field of Biodiversity. Mainly NGOs are involved in awareness generation, training, and documentation. Some NGOs are working for conservation of traditional health practices. Groups of NGOs under Banner of MASS are working to strengthen community conservation institutions across the district.

## CHAPTER – 7

### ONGOING BIODIVERSITY RELATED INITIATIVES

7.1 Several Biodiversity related initiatives are in operation in the Similipal Biosphere Reserve and in the district by Government and Non-Government agencies. Apart from that a number of community conservation designs and initiatives have been identified that assume positive and negative results. However, it is beyond the scope of this paper to place the assessment reports of such ongoing initiatives. For reference, the following are the major initiatives related to Biodiversity are in operation in Mayurbhanj.

- ⇒ Similipal biosphere reserve programme.
- ⇒ Eco development programme.
- ⇒ Project Tiger.
- ⇒ Crocodile research Project.
- ⇒ Wildlife research.
- ⇒ Sericulture research programme.
- ⇒ Maize research programme by OUAT.
- ⇒ Establishment of medicinal plant gardens.
- ⇒ Popularisation of organic cultivation by agriculture department.
- ⇒ Integrated Tribal Development Agency initiatives.
- ⇒ Community level forest conservation.
- ⇒ Joint Forest Management.
- ⇒ Strengthening of community institutions for Biodiversity management.

## CHAPTER – 8

### GAP ANALYSIS

#### 8.1 GAPS IN INFORMATION

- Local communities are not aware about forest and wildlife protection acts and various notification of the Government Issues from time to time and renewed.
- Institutions, individuals and local communities are not aware about the specific activities being undertaken by various departments and other organisation for Biodiversity conservation and socio-economic development.
- Lower level staffs of various departments are not well conversant about the Govt. policies for people's involvement in Biodiversity conservation.
- A systematic information base is not created for flora and fauna of the district.
- Informations regarding traditional health practices, medicine plants are not properly recorded.
- Information regarding modern techniques for organic farming, seed conservation, processing of NTFPs is not sufficiently transmitted to common man.
- Insufficient information and case studies on community initiatives for Biodiversity conservation.
- Large quantity of chemical fertilizers and pesticides are used in agriculture feed. Though harmful affects of these chemicals are well know but no systematic studies have been conducted.
- Information regarding causes of wild plant of animal loss is not adequate.

#### 8.2 GAPS IN VISION

- Conservation efforts must have full involvement of local communities from the stage of conceptualisation to planning and implementation. This vision lacks in the Govt. vision.
- The local community using the Biodiversity since generations. They have a fundamental right over the resources necessary for living and livelihood support. They have also responsibilities for conservation and sustainable management of the resources. Communities and Govt. functionaries do not always practise this vision.
- Due weightage has not been given by different Govt. departments to Biodiversity conservation while planning and implementing development programmes.

- Local traditions, culture and livelihood support system is over looked by Govt. agencies during planning and implementation of the development programmes.

### **8.3 GAPS IN POLICY AND LEGAL STRUCTURE**

- Under forest and wildlife conservation act, the forest department personnel realized that, their the owners of the forest resources and forest can be protected by them only. This indifferent attitude creates mistrust between community and forest department personnels, which adversely affect Biodiversity conservation.
- The community institutions like village forest protection committee, village forest management committee, women committee; VSSs are not suitably emphasized under forest act. for Biodiversity conservation.
- As Mayurbhanj comes under Panchayat Raj extension to schedule area the role of Panchayat Raj Institutions is very important. Policies regarding management of biological resources needs to be linked with units of self-governance.

### **8.4 GAPS IN INSTITUTIONAL & HUMAN CAPACITY**

- There is a need of one responsible and accountable institution being represented by the people from all sectors at district level. Govt. of Orissa should form this institution and fulfilling all formalities.
- Biodiversity education is lacking among functionaries of different Govt. departments and local institutions.
- Lacking of scientific knowledge about the proper use of fertilizer and pesticides and their affect on Biodiversity among farmers and common man.

## CHAPTER – 9

### STRATEGY

#### 9.1 BASIC PRINCIPLE

As discussed in the previous chapters regarding status of Biodiversity loss of Biodiversity and conservation initiatives. Some following points are emerging. Which we may consider these as the basic principles to draw the strategy for Biodiversity conservation and management.

- The present situation on Biodiversity needs rethinking and reconsideration on strategy and action plan.
- The quality of life of common men is at the central stage of Biodiversity conservation. So, attention should be given in an integrated way by which, quality of life will be improved and Biodiversity will be conserved.
- The communities who are living near various ecosystems are mainly responsible for conservation and degradation as well. We have got enough examples of communities success and failure. It is impossible to get desired result of any action without involving communities from planning to implementation.
- It is very important to empower communities as if they will treat Biodiversity as their own property.
- Biodiversity conservation is not possible by one institution or some individuals. An integrated approach could be the best way for conservation of Biological resources. Village community and village level organisations are the most potential instrument for Biodiversity conservation.

Considering these basic principles we can draw some of the broad strategy for conservation of biological resources in Similipal and surrounding Mayurbhanj.

##### 9.1.1 Involvement of local communities

To organise communities near Eco-system and strengthening their institution by providing information, skill, knowledge and legal back up. To make the communities' role more effective and meaningful voluntary organisations and community based organisations can plan a very significant role. So, the functional mechanism could be derived to involve these institutions.

In many villages of Mayurbhanj district community based organisation / village level organisation have succeeded in conserving the forest attached to their village. There are several examples of success stories. These successful cases could be utilised as role models for the other villages where such organisation does not work. This existing institution at village level needs recognition and legal back up by the state.

**9.1.2 Securing livelihood**

For livelihood security the communities needs full accessibility to the natural resources. For equitable share of the resources the community based institution / village level organisation needs to be empowered.

**9.1.3 Proper care has to be taken to involve marginalised group**

Women groups need to be organised and strengthened by providing resources to take up Income Generation activities. The women group will also be trained. So that, they can take a part in decision making.

**9.1.4 Making concern everybody for Biodiversity conservation**

People from every sector would be made aware and realise the worth of Biodiversity and its present status. The rich knowledge system would be documented and forums will be created to share every body's knowledge and concern. Students and young people would be made educated regarding Biodiversity conservation. Provisions in the form of scholarships of some incentives would be made so that, student and young people will be encouraged to take part in Biodiversity conservation.

**9.1.5 Capacity Building of Govt. Functionaries**

The word "Biodiversity" is not so popular among the common people and Govt. officials as well. Govt. functionaries need to be trained in different aspects of Biodiversity. Steps would be taken to sensitize Govt. officials on Biodiversity.

**9.1.6 Reviewing existing policies and operational modalities on Biodiversity Conservation**

A detailed review would be conducted by a team of experts and social activists to incorporate suggestions on various Govt. level policies and functional modalities of different institutions working for Biodiversity Conservation.

**9.1.7 Linking Panchayat Raj Institution**

So, far Panchayat Raj Institution has not taken very active part in Biodiversity conservation. As Mayurbhanj is a schedule area and "Panchayat Raj laws extension to schedule area (PESA)" envisages very effective role of PRIs in Natural resources management. Biodiversity conservation would be linked with PRIs from planning to implementation process.

**9.1.8 Popularising, documenting indigenous knowledge and linking with modern technology**

A systematic documentation of rich indigenous knowledge will be documented and propagated. Modern technology would be linked with traditional technology for achieving better result. Traditional composting,

seed preservation, traditional health practices, Bio pesticide etc. etc. will be major component of this strategy.

#### **9.1.9 Inter Departmental Coordination**

Coordination will be established among different Govt. departments and their active cooperation and support will be taken for Biodiversity conservation and management.

All departments working in the district will be involved in planning and implementation of different programmes. These departments are-

- Forest & Environment Dept.
- Agriculture Dept.
- Horticulture Dept.
- Animal Husbandry Dept.
- Health Dept.
- Fisheries Dept.
- Soil Conservation Dept.
- District Rural Development Agency.
- Integrated Tribal Development Agency.
- Panchayat Raj Dept.
- Revenue Dept.
- Tourism Dept.

#### **9.1.10 Research and study**

Research and study process will be strengthened by involving local University and Colleges. Resources will be arranged for systematic research on Flora, fauna and policy.

#### **9.1.11 Fire wood and Timber Management**

Even for local consumption the extraction of firewood and timber will increasingly become an issue of sustainability. The rural people should not suffer from a shortage of firewood and timber nor should the nearby forest areas be degraded. Thus a firewood management strategy would be developed on cost sharing basis. Before preparing any action plan in this regard it is very important to collect detail information on forest patches (both good and degraded) and location of villages.

#### **9.1.12 Local Committee for Biosphere Management**

One local advisory committee is existing for management of Similipal Biosphere Reserve. Conservator of forest is the Chairman. The local advisory committee needs to be made more representatives. Representatives from Panchayat Raj Institutions, Community based Organisation, Voluntary Organisation, Research Organisation / University, DRDA, ITDAs, Welfare and Tourism Dept. to be put on the local advisory committee. It is proposed that, this committee should meet in regular short

intervals and take responsibilities of planning, implementation and monitoring of Biodiversity Conservation Programme.

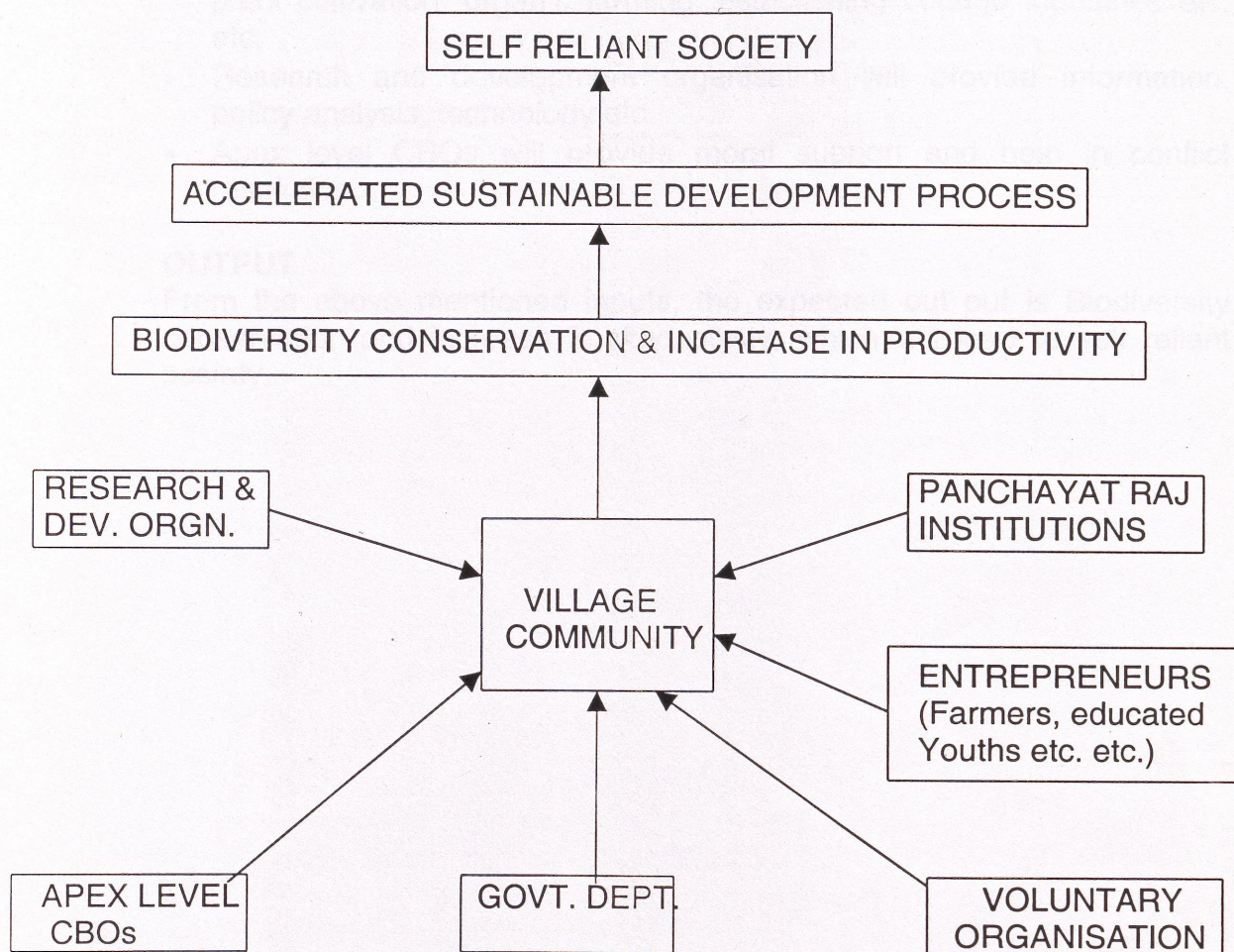
#### **9.1.13 Alternative Income Support System**

To minimise dependence on forest for livelihood earning alternative income support programmes are being carried out in Similipal periphery villages. These programmes are not sufficient as the pressure on forest is gradually increasing. So, more activities in this regard would be undertaken after village level planning. These activities would be kept flexible to meet the aspiration and need of the people.

#### **9.1.14 Restoration of degraded habitats outside National Park**

More than ¾th of the total forest area spreads across the Mayurbhanj district outside National Park. Restoration of these forest areas are very important and many activities would be undertaken.

## BIODIVERSITY CONSERVATION: AN INTEGRATED INITIATIVE



### INPUTS

- Panchayat Raj institutions will empower the village communities through established laws and policies.
- Different departments of Govt. of Orissa and Govt. and Govt. of India will provide inputs as follows.
  - Recognition to community conservation institutions.
  - Legal back up
  - Partnership
  - Skill and knowledge
  - Information
  - Create avenues for income generation
  - Development activities
  - Welfare activities
  - Enforcement of laws etc. etc.

- Voluntary organisation will provide facilitation, information, conflict resolution, skill, knowledge, coordination, capacity building.
- Entrepreneurs will create opportunities for NTFP processing, medicinal plant cultivation, organic farming, establishing cottage industries etc. etc.
- Research and development organisation will provide information, policy analysis, technology etc.
- Apex level CBOs will provide moral support and help in conflict resolution.

### **OUTPUT**

From the above mentioned inputs, the expected out put is Biodiversity conservation and increase in productivity, which will lead to self reliant society.

## CHAPTER – 10 PLAN OF ACTION

### ACTION – 1 PROMOTING AND STRENGTHENING COMMUNITY INSTITUTIONS IN FOREST AND WILDLIFE CONSERVAION

#### RATIONALE & OBJECTIVES

Since some generations the people of Mayurbhanj have all along been traditionally dependent upon the forest resources for their subsistence, income generation and socio-cultural well being. Various factors let to degradation of forest resources, which adversely affected the people, as well as the status of Biodiversity.

It is now well recognised fact that, after degradation of forest resources the local people again put their effort very hard to protect the patch of forests near to their villages. Now in the entire district more than 700 villages people are protecting the forests. Responses to these community initiatives by state by way of Joint Forest Management have been inadequate in scale and varying in the quality of genuine stakeholder participation. Furthermore, enforcement strategies in Similipal Biosphere area management. Resulted alienation of people and loss of their support. In this circumstances local stakeholders based genuine participation in conservation of forest is very essential.

Initiatives promoting and strengthening community initiatives will help in mitigating peoples alienation. This process will also help in reviving their stake in natural resources. Strengthening community initiatives will be helpful to both the Biodiversity and people by responsible use on a reciprocal basis.

#### ACTIVITIES

- ⇒ Providing formal legal authority to the village level institutions whose initiatives have brought significant change in forest Eco-system. As in Mayurbhanj communities conserving forest in more than 700 villages. These are going on both inside and out side Similipal.
- ⇒ Organising communities to form institutions for forest and natural resource conservation, formulating norms for reciprocal use of Biodiversity.
- ⇒ Capacity building of these institutions by providing information, skill and knowledge.
- ⇒ Facilitating for formation of apex level organisations of village level institutions.
- ⇒ Involving community representatives in decision making process.

- ⇒ Providing more resources to village level institutions involved in conservation activities..
- ⇒ Establishing link between Biodiversity conservation and Panchayat Raj Institutions.
- ⇒ Formation of women group and facilitating their role in decision making process.
- ⇒ Documentation of successful cases and failure cases and to utilise these documents for other places.

**RESPONSIBILITY** - Govt. of Orissa, Forest Department to fulfill relevant formalities required for legal status within one year.

Other responsibilities- NGOs with continuous backup support from forest department and local administration.

**TIME DURATION** - Ongoing.

## **ACTION – 2**

### **RESTORATION OF DEGRADED FOREST AREA OUT SIDE NATIONAL PARK**

#### **RATIONALE AND OBJECTIVES**

The regeneration and management of forest area out side National Park will be helpful for spatial movement for spill over species and to prevent communities depending on the resources of Similipal. These forest areas could be linked with wildlife corridors for easy movement of wildlife. Regeneration of these forests would be helpful for protection of Soil and water conservation.

#### **ACTIVITIES**

- ⇒ Identification of areas, which are under community management and strengthening community initiatives through the activities as proposed in Action-1.
- ⇒ Identification of potential areas which can be restored by natural regeneration.
- ⇒ Handing over these potential areas to the local communities and developing a time-bound recovery plan.
- ⇒ Restoration of completely degraded areas by plantation of local species and other means through community participation.

## **ACTION – 3**

### **CONTROL OF TIMBER SMUGGLING AND ILICIT FELLING**

#### **RATIONALE & OBJECTIVES**

Despite serious efforts by forest department illicit felling of trees and timber smuggling is still continuing in Similipal. It is well understood fact that, forest department alone can not protect Similipal. It is very essential now to conserve habitats inside Similipal in collaboration with local communities and other agencies. The objective of habitat conservation would involve a combination of protection, soil and water conservation and protection of wild life. Habitat protection would lead to the productivity potential of Biodiversity.

#### **ACTIVITIES TO BE UNDERTAKEN**

- ⇒ Confidence building measures to gain support of the local people.
- ⇒ Joint patrolling of forest by forest department personnel and community institution representatives.
- ⇒ Incentives to villagers in the form of prize and other developmental activities.
- ⇒ Identifying smuggling chain and appropriate enforcement of law.
- ⇒ Identifying transporting routes by cyclists, vehicles etc. and establishment of temporary check gates and joint operation with forest department.
- ⇒ Identifying inter-state issues and joint meeting of functionaries of the state of Jharkhand and West Bengal. As substantial portion of the smuggled timber marketed in West Bengal and Jharkhand.
- ⇒ Insurance coverage to community representatives accompanying patrolling team.
- ⇒ Deployment of Reserve Police Force in sensitive points. But this should be done in consultation with local community with a participatory attitude. The operational modalities would be finalised in a decentralised way.
- ⇒ Task force would be formed at forest section level, range level and district level. Representatives from police dept., forest dept., PRIs, community Institutions, NGOs would constitute the task force.

**RESPONSIBILITIES** - Forest Department and Communities Institutions.

**TIME DURATION**- To start as soon as possible and process should continue.

## **ACTION – 4**

### **CONTROLLING OF HUNTING AND ILLEGAL TRADE IN WILD ANIMAL AND THEIR PART.**

#### **RATIONALE & OBJECTIVES**

Hunting and illegal trade in wild animals and their parts has emerged as one of the most serious threats to wildlife in Similipal. Around Similipal forest 5-6 lakhs people live and most of them are tribal. Tribal go into the forest for hunting as it is a part of their hobby and also for meat, which they eat and sell. During March to June the tribal enter into the forest in big groups for hunting. This is known as "Akhand Shikar". During Akhand Shikar they put fire to corner the wild animals so that, it will be easier for them for hunting. Tribal (Not all) claims Akhand Shikar as part of their cultural activity. Besides this, commercially valuable animals are more vulnerable to poaching. As lucrative price is offered for skin, bones and other parts of the wild animals. Sometimes the local people connive with poachers.

Very sincere arrangements are made by forest department to control Akhand Shikar resulting decline of hunting cases. It is very difficult to guard every movement of hunting round the year.

So, some activities are proposed to control hunting in Similipal. The objectives of these activities are to involve local community in wildlife protection. Wildlife protection needs to be addressed simultaneously from social perspective and law enforcement.

#### **ACTIVITIES**

- ⇒ Identifying cultural leaders and priests (Dehuri) of Tribal community and organising meeting and discussions on wildlife protection and follow up.
- ⇒ Identifying people who are concerned for wildlife amongst the tribal community and organising discussions and meetings. Providing training to them on wildlife conservation.
- ⇒ Door to door awareness campaign with a cluster approach to create love for wildlife. Making people conversant about the consequences of wildlife loss.
- ⇒ Incentives to the informant of wildlife casualties.

**RESPONSIBILITIES** - Village community, NGOs, forest department

**TIME DURATION** – To start in 2002 and ongoing.

## ACTION – 5

### PARTICIPATORY RESOURCE MAPPING, VILLAGE LEVEL PARTICIPATORY PLANNING AND IMPLEMENTATION

#### RATIONALE AND OBJECTIVES

In Mayurbhanj by and large resource awareness is lacking. There are many resources, which are lying untapped, and there are resources, which are over exploited. In earlier days the resources were matching to the populations need. Over the periods of time resources are becoming insufficient and local population find their survival difficult. This is leading to multiplication of over-exploitation of forest resources.

Though resources are under control of state in maximum cases but people are the ultimate users. Hardly any exercises conducted to assess the resource available being used at micro level. So, it is very essential to prepare resource map at a micro level, which will sensitize people to use the resources judiciously in a long-term basis. A number of Biodiversity related development programmes have been designed and implemented by Govt. agencies. The main objectives of these programmes are for socio-economic development of the down trodden by creating new opportunities for income generation. The expected results of these programmes are to minimize dependence on forest. Maximum emphasis are given to targets without looking into the local needs and values. Mostly these are packaged programmes and are very structured under the prescribed format. In these cases even if target is achieved the objectives remain unattained.

Therefore, it is very essential to start with a new approach. Which are people centred, need oriented, realistic. It will lead to empowerment of people and sustainable management of Biodiversity.

#### The justifications for proposing these action are as follows: -

- ⇒ Necessary assessment by the people themselves would be more reliable and accurate.
- ⇒ Full transparency in every stage of the process yields mutual trust and effective cooperation amongst the target group and officials.
- ⇒ Greater chances of utilising local resources judiciously and sustainable management of Biodiversity.
- ⇒ The process will serve as a training ground of people through knowledge gathering, experience sharing, responsibility training, decision making, confidence building etc. etc.
- ⇒ As the people are very much involved from the very beginning, people develop concern and tend to put in collective efforts to steer the programme towards success.
- ⇒ As the people will own the process their tradition, culture will find required position.

### **ACTIVITIES**

- Criteria fixation and selection of villages to undertake the programme.
- Discussion at village for environment building.
- Resource map preparation through PRA.
- Preparation of long term village development plan by the villagers with facilitation from out side.
- Setting priority action.
- Establishing village fund by villagers' contribution and provision of external funds to carry out planned activities.
- Implementation of plan by support from forest and other development department.
- Linking JRY, EAS, Horticulture activities, watershed programmes with the village development plan.

**RESPONSIBILITIES** - NGOs, Village Community with back up support of forest department and other development agencies.

**TIME DURATION** - Ten years to start in 2002.

### **ACTION – 6**

#### **SUSTAINABLE HARVESTING OF NON TIMBER FOREST PRODUCTS (NTFPs), PROCESSING AND MARKETING**

Broadly Non Timber Forest Products means all Biological products of forest Eco-system other than timber. NTFPs available inside Mayurbhanj could classified as-

(1) Fibre and flosses, (2) Grass, Bamboo, (3) Edible items, (4) Oil seeds, (5) Medicinal plants, (6) Bark and dyes, (7) Gums and resins, (8) leaves, fruits and seeds.

These NTFPs are very useful to the local population for meeting their subsistence consumption. NTFPs provide more than half of the total man-days employment per household in the tribal families. Nearly 40% total income of the tribal households comes from NTFPs. So, NTFPs play a very important role in the life of local people.

High commercialisation of some NTFPs encourages over exploitation. Sal leaf collection and leaf plate making is a cottage industry in Mayurbhanj. Harvesting of Sal leaves is increasing very rapidly and more and more people are entering into this business. This puts the question mark on the sustainability of the forest. Collection of bark is also putting question mark; *Paja* trees are at the verge of extinction in Similipal because of bark collection. There are some other products, during collection people does

not hesitate to eliminate the tree for collection of some fruits or leaves. Honey collection by *Khadia* tribal is also not sustainable.

The resolution of Govt. of Orissa brought in 1998, in respect to NTFP business is made decentralised. Panchayats are responsible to control the business of NTFPs. NTFP collection in protected areas are banned. But it is a fact that, NTFPs are collected from protected areas.

So, it is essential to go for some actions on NTFP collection, processing and marketing. This programme will create awareness on NTFPs and their utility. Processing of NTFPs will bring better income from small quantity. Sustainable harvesting ultimately help in Biodiversity conservation.

#### **ACTION**

- ⇒ Research on harvesting, marketing channels and peoples benefit will be conducted.
- ⇒ Exclusive research on Sal leaf harvesting and business.
- ⇒ Training to NTFP collectors for sustainable harvesting.
- ⇒ Training to NTFP collectors for processing and start micro enterprises.
- ⇒ Preparation of NTFP resource inventory at village level.
- ⇒ Monitoring of NTFP availability in some selected patches.
- ⇒ Wide publicity of rates fixed by Govt. every year.
- ⇒ Training to *Khadia* tribal on Honey collection technology. (Developed by different institutions)
- ⇒ Creating better marketing opportunities.

**RESPONSIBILITIES** - Forest department, NGOs, District Administration, Community Based Institutions.

**TIME DURATION** – To start in 2002 and ongoing.

### **ACTION – 7**

## **PROMOTION OF ORGANIC FARMING AND CONSERVATION OF LOCAL SEEDS**

#### **OVERVIEW AND OBJECTIVES**

For more than two decades now, the Green Revolution has brought us food security and self-sufficiency in food production. On the other side, over use of chemical fertilisers and pesticides resulted in severe Biodiversity loss in Agriculture Eco-system. The diversity of plants and animals inside Agriculture Eco-system is declining which effects the soil

fertility. The diversity of seeds are also declining by the introduction of high yielding varieties.

The call of the hour is change over from chemical based agriculture to sustainable agriculture. Organic farming is the best way of sustainability. Sustainable agriculture is possible when the farmers identify themselves with nature, keeping Biodiversity concerns in mind.

#### **ACTIVITIES**

- ⇒ Training to farmers for preparation of organic fertilisers.
- ⇒ Identifying local knowledge and introducing farmers to the new technology of organic pesticides.
- ⇒ Collection and storing of local varieties seeds.
- ⇒ Encouraging farmers for multiplication of local seeds.
- ⇒ Training to extension workers on organic farming.
- ⇒ Opening sale centres for organic fertilizers and pesticides.
- ⇒ Adopting some villages for sustainable agriculture.
- ⇒ To establish organic agriculture farms.

**RESPONSIBILITIES-** Agriculture Department.

**TIME DURATION** – To start in 2002 and ongoing.

### **ACTION – 8 ESTABLISHING MEDICINAL PLANT GARDEN**

Mayurbhanj is very rich of medicinal plants. Varieties of medicinal plants are available in Similipal. Over exploitation, unsustainable harvesting of products, forest fire and for other many factors some medicinal plants are becoming endangered some are at the verge of extinction.

Establishment of medicinal plant would be helpful in conserving endangered species. It would also provide opportunity to students, for exposure visit.

#### **ACTIVITIES**

- Reorganising herbal garden established at Meru Matha, Shirsa.
- Encouraging farmers, tribal, herbal practitioners educated youths for establishing herbal garden.
- Creating some incentives by Bank, DRDA to establish herbal garden.
- Information sharing on role of different Govt. agencies for establishing herbal garden.

**RESPONSIBILITIES** - Ayurveda wing of Health Department, Ayurveda Medical College & Forest Department.

**TIME DURATION** – To start in 2003 and ongoing.

### **ACTION – 9**

#### **OPENING CENTRE FOR BIODIVERSITY STUDIES AT NORTH ORISSA UNIVERSITY, BARIPADA**

North Orissa University is proposing to establish one centre for Biodiversity studies at Baripada. The objective of the centre is to impart Biodiversity education course curriculum. To strengthen research field and to create database.

#### **ACTIVITIES**

- Post Graduate Course on Biotechnology.
- Inventorization of flora and fauna.
- Many other activities related to Biodiversity Research and Education.

**RESPONSIBILITIES** - North Orissa University, Baripada.

**TIME DURATION** - To start in 2002 and ongoing.

### **ACTION – 10**

#### **DOCUMENTATION OF INDIGENOUS KNOWLEDGE AND TRANSFER OF TECHNOLOGY**

#### **OVERVIEW & OBJECTIVES**

Indigenous knowledge system is an important instrument to preserve diversities of Biological resources and society. Indigenous knowledge refers to the unique, traditional, local knowledge existing within and developed around the specific conditions of women and man, indigenous to a particular geographic area (Grenier 1998). Indigenous knowledge normally stored in memories of people and it is expressed in activities and practices. There is no such compiled document of indigenous knowledge. Because of gap between older and younger generation the indigenous knowledge system is vanishing. One compiled document would mitigate the generation gap and could be utilised for improving quality of life.

On the other hand, many institutions, individuals are developing technologies, which needs to be utilised for development and Biodiversity conservation. A wide gap exists between laboratory and common man.

The gap is vice versa between indigenous knowledge and modern technology.

So, documentation of indigenous knowledge and transfer of technology would be utilised for maintaining diversities of Biological resources and society.

#### **ACTIVITIES**

- Discussion with all group of people of all communities regarding indigenous knowledge.
- Documentation of I.K. in the field of Agriculture, Health, Belief system, Machinery and Tools etc. etc.
- Transfer of technology through leaflets, meetings, training and demonstration programme.
- Establishing link between laboratories and common man.

**RESPONSIBILITIES** - NGOs in collaboration with various research and development organisation.

**TIME DURATION** - Ten years. To start in 2002.

### **ACTION- 11 BIODIVERSITY CONSERVATION CAMPAIGN**

#### **OBJECTIVES**

- To make all section of people understand Biodiversity and related problems.
- To provide Biodiversity education opportunities at school level.
- To provide Biodiversity awareness at youth club and college level.
- To sensitize people regarding forest fire and encouraging people to fight spreading of forest fire.

#### **ACTIVITIES**

- ⇒ Organise meetings, seminars at different level.
- ⇒ Printing of leaflets, brochures, containing message of Biodiversity conservation and distributing among all.
- ⇒ Organising lectures, popular talks at school, more specifically at Eco-club of schools.
- ⇒ Training to school level Eco-club members to document Biodiversity.

## ACTION – 16

### CONSERVATION OF LOCAL AND WILD VARIETIES OF SPECIES

#### RATIONALE AND OBJECTIVES

There are certain species of plants and animals, which are endemic to Similipal. There are some species, which are found in this region. Common examples are Mahaseer fish, Assel Cock (Fighting Cock), modal ecorace and many other species. Most of these species are endangered and are at the verge of extinction. So, the conservation of this species is proposed.

#### ACTIVITIES

- To identify all endangered species of flora and fauna, study their needs.
- Identifying the causes of their threat and survey of their habitats.
- Special attention to conserve the habitats that harbour highly endangered species.
- Provision of in-situ conservation measures.

**RESPONSIBILITIES** – Research Organisations, Concerned departments like Forest, Fisheries, Animal husbandry, Agriculture, Horticulture and sericulture.

**TIME DURATION** – To starts in 2003 and ongoing.

## ACTION – 17

### REVIEW OF EXISTING GOVERNMENT POLICIES, LAWS AND OPERATIONAL MODALITIES

#### OBJECTIVES

- To find out a clear picture about the applicability of different Govt. policies and laws.
- To assess the relevance of all policies being applicable in Mayurbhanj.
- To get peoples input regarding alternative framework for meeting their aspirations.

#### ACTIVITIES

- Organising different meetings, workshops, seminars with different stakeholders for inviting their understanding about the policies and functional modalities for Biodiversity Conservation.

### **ACTION – 13**

#### **REVIEW OF TOURISM PATTERN AND EXPLORING TOURISM POTENTIALS**

Conservationists are not happy, as Similipal is over crowded during tourist season. Tourists are claiming for more comfort inside forest. Political activists are demanding for pucca road inside Similipal. The poor common man of Similipal is just looking into the procession of vehicles going in and coming out of forest passed through their villages. The wild animals very patiently waiting for the actions which could make their life more safe and comfortable.

It is a fact that, Similipal is the one among some beautiful places in eastern India. The peace loving community, beautiful greenery and scenic spots will attract more and move tourist in coming days.

Therefore, tourism patterns needs to be reviewed. There is enough potential, if explored will provide space for both tourism and Biodiversity conservation.

#### **ACTIVITIES**

- Formation of expert committee.
- Review of tourism pattern.
- Exploring possibilities in consultation with local community.
- Giving suggestive measures for further development of tourism and Biodiversity conservation.

**RESPONSIBILITIES** - Govt. of Orissa, Forest & Environment Department, Tourism Department.

**TIME DURATION** - One year, To start in 2002.

### **ACTION – 14**

#### **INCREASING PARTICIPATION IN EXISTING LOCAL COMMITTEE FOR MANAGEMENT OF SIMILIPAL BIOSPHER RESERVE**

To make the local committee more proactive, pro people and progressive inclusion of some more people is proposed. Presently there is no representation from DRDA, Tourism Department, Welfare Department and ITDAs. There are also no representations from Panchayat Raj Institutions. Representation from NGOs and community based organisation is confused. Presently there are two members from NGOs. Basically they

are community representatives. As per provision their tenure is for only one year. It is proposed that community representation should be included with longer tenure. At the same time representation of NGOs is also important. In a development process NGOs normally play the role of facilitator and community based organisation play the role of organiser. There is clear-cut distinction between NGOs and Community Based Institutions. In this context following activities are proposed.

#### **ACTIVITIES**

- Inclusion of Project Director, DRDA and Project Administrator of four ITDAs.
- Inclusion of representatives from Tourism, Welfare Department.
- Inclusion of Sarapanch of Panchayats inside Buffer Zone.
- Inclusion of more community representatives with longer tenure.
- Inclusion of representatives of NGOs/Voluntary Organisation with longer tenure.

**RESPONSIBILITY-** Govt. of Orissa.

**TIME DURATION-** Within One Year.

### **ACTION – 15**

#### **HYGENIC DISPOSAL OF CARCASS AND OPHALS**

##### **RATIONALE AND OBJECTIVE**

Hygienic disposal of dead animals is required to control contamination of disease to other animals. Inside Similipal large number of domestic animals live. There are chances of spreading communicable diseases to wild animals after death. The ophals are non-edible parts of the animals. Ophals are good carrier of diseases. So disposals of ophals is necessary in slaughterhouses.

##### **ACTIVITIES**

- ⇒ Awareness generation in side Similipal villages and out side villages for hygienic disposal of dead animals.
- ⇒ Awareness generation and enforcement of law for hygienic disposal of ophals.

**RESPONSIBILITY-** Animal husbandry department, Community Institutions, NGOs, Municipal authority.

**TIME DURATION –** To start on 2002 and ongoing.

## **ACTION – 16**

### **CONSERVATION OF LOCAL AND WILD VARIETIES OF SPECIES**

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- Provision of in-situ conservation measures.

**RESPONSIBILITIES** – Research Organisations, Concerned departments like Forest, Fisheries, Animal husbandry, Agriculture, Horticulture and sericulture.

**TIME DURATION** – To starts in 2003 and ongoing.

## **ACTION – 17**

### **REVIEW OF EXISTING GOVERNMENT POLICIES, LAWS AND OPERATIONAL MODALITIES**

#### **OBJECTIVES**

- To find out a clear picture about the applicability of different Govt. policies and laws.
- To assess the relevance of all policies being applicable in Mayurbhanj.
- To get peoples input regarding alternative framework for meeting their aspirations.

#### **ACTIVITIES**

- Organising different meetings, workshops, seminars with different stakeholders for inviting their understanding about the policies and functional modalities for Biodiversity Conservation.

- Analysis of the policies with regard to ground realities.
- Giving suggestion to make alternative arrangement in case of necessity.
- Review the operational modalities of different institutions and identifying the gaps and suggestions for better arrangement.

**RESPONSIBILITIES** – NGOs, Research Organisation in collaboration with Govt. of Orissa and Govt. of India.

**TIME DURATION** – Two years.

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