

## **CHAPTER – 8**

### **ECODEVELOPMENT**

#### **8.1. Objectives.**

##### **GOAL:**

To reduce the adverse impact of villagers and their biodiversity depleting livelihood practices on the Satkosia Gorge Sanctuary through peoples participation.

##### **OBJECTIVES:**

1. To mitigate biotic pressure and to reduce the resource dependency of local communities on the forests of Satkosia Gorge Sanctuary.
2. To generate alternate livelihood options for the local communities.
3. To enhance water availability for micro irrigation in and around the Sanctuary to enhance the food security.
4. To build effective local institutions for proper implementation of eco-developmental activities.
5. Development marketing infrastructure to avoid middle man through formation of federations.

#### **8.2. Specific Issues (Problems).**

1. Illegal cattle grazing in Satkosia Gorge Sanctuary.
2. Scarcity of water in the villages.

3. Lack of alternative livelihood options.
4. Low agricultural productivity.
5. Lack of effective community institutions.
6. Man – animal conflict.
7. Over exploitation of fuel wood, bamboo and timber.
8. Inadequately trained and over burdened staff.
9. Inadequacy fund.
10. Poor health condition of the inhabitants and domestic animals.

### **8.3. Broad strategies.**

1. Raising Farm Forestry and grazing land on revenue and private land to get fuel wood and fodder.
2. Enhance irrigation potential for productive agriculture.
3. Supply of agricultural inputs on subsidy.
4. Promotion of eco-tourism.
5. Promotion of traditional knowledge on handicrafts, herbal medicine and pharmacy.
6. Supplying raw materials for traditional handicraft and artisans.
7. Improve marketing linkage.
8. Creation of employment opportunities.
9. Awareness education.
10. Capacity building.
11. Health camps for man and their domestic animals.

12. Building of effective local institutions.

13. Mitigation of Human – Wild animal conflict

#### **8.4. Area of Operation**

The area of operation constitutes all the Revenue villages coming within the boundary of the sanctuary excluding those covered under Tourism zone and Restoration Zone and includes villages in Buffer zone. Total area under this Ecodevelopment Zone is 263.016 Sq.Kms., i.e. 183.746 in core and 79.27 Sq.Kms in buffer.

Following Revenue villages / hamlets are coming within Core zone.

**Satkosia Wildlife Division:** Kunjabanapur, Mahigarh, Jayamangalpur, Chikan khandi, Sanagaon, Badagaon, Odasinga, , Regeda, Basantpur Hinjalkhan, Jaymangalpur, Jagannathpur, Marudi, Jillinda, Janisahi, Dhanadhip, Shyampur, , Siaribhundi, Luhasingha, Tentulipadar, Dolemunde, Talabijipur, Kutulusingha, Limbadihi, Nalimera, Kussingha, Kudasingha, Karadasingha, Jamudoli, Jharpada, Malisahi, Dudhinali, Nuagaon, Kaintara, Kamaladihi, Panchama, Paikregeda, Satyajajapur, Dhanurjayapur, Regeda, Talasahi, Mandania, Ranibhuin, Kaintara, Majhipada, Beherasahi, Ranimunda, Karadapada, Hatibari, Katarnga, Badakheta, Salor, Jagannathpur , Takarsingh, Nuabhuin, Kulangi, Hinsirida, Pampasar, Talasira, Jocub, Tarava, Asanabahali and Bhurkundi.

**Mahanadi Wildlife Division :** Kumari, Badanandagada, Atalagara, Bhabapur, Sankari, Hatigada, Ghungurupada, Bodhamba, Nuapada, Sunakhandi, Semigora, Sitakhanda, Kutibari, Hinjal, Geredisahi, Sriraju, Padmatola, Kuturi,

Sagadabhanga, Malasapadar, Bahali, Salaraganda, Musugoda, Kandha, Jillinda, Chhemundia, Bentapada, Haripur, Iswarpur, Raigadia, Maskajholi, Barapali, Kanipokhari, Ranikhola, Jasipur, Ranigaon, Dhobabarei, Kambhirakhani, Bhagamunda.

Name of the villages /hamlets with area and population and year of settlement of the villages of Satkosia Gorge Sanctuary.

SATKOSIA WILDLIFE DIVISION, ANGUL .  
ANGUL DISTRICT.

| Sl.No. | Name of the village/Hamlet village | District | Area in Ha. | Population | Year of settlement |
|--------|------------------------------------|----------|-------------|------------|--------------------|
| 1      | 2                                  | 3        | 4           | 5          | 6                  |
| 1      | Takarsinga                         | Angul    | 347.65      | 498        | 1962               |
| 2      | Kulangi                            | -do-     | 176.85      | 300        | 1962               |
| 3      | Jagannathapur                      | -do-     | 688.75      | 1171       | 1962               |
| 4      | Hinsirida                          | -do-     | 156.37      | 269        | 1962               |
| 5      | Kumbharabhuin (Hamlet)             | -do-     | -           | -          | 1962               |
| 6      | Ramimunda                          | -do-     | 517.00      | 138        | 1962               |
| 7      | Pampasar                           | -do-     | 172.49      | 171        | 1962               |
| 8      | Jocub                              | -do-     | 205.62      | 74         | 1962               |
| 9      | Badakheta                          | -do-     | 90.24       | 100        | 1962               |
| 10     | Salor                              | -do-     | 123.40      | 90         | 1962               |
| 11     | Purunakote                         | -do-     | 358.39      | 766        | 1962               |
| 12     | Chhotkei                           | -do-     | 234.61      | 434        | 1962               |
| 13     | Tulka                              | -do-     | 225.01      | 455        | 1962               |
| 14     | Majhipada                          | -do-     | 383.87      | 170        | 1962               |
| 15     | Beherasahi                         | -do-     | 237.87      | 177        | 1962               |
| 16     | Goindi                             | -do-     | 82.74       | 308        | 1962               |
| 17     | Karadapada                         | -do-     | 150.91      | 415        | 1962               |
| 18     | Hatibari                           | -do-     | 281.80      | 443        | 1962               |
| 19     | Tikarpada                          | -do-     | 152.07      | 684        | 1962               |
| 20     | Katrang                            | -do-     | 397.39      | 276        | 1962               |
| 21     | Gopalpur                           | -do-     | 140.66      | 316        | 1962               |
| 22     | Raigoda                            | -do-     | 172.43      | 185        | 1962               |
| 23     | Tarava (F.V.)                      | -do-     | 126.00      | 250        | 1910               |
| 24     | Asanbahal (F.V.)                   | -do-     | 32.00       | 114        | 1933               |
| 25     | Bhurkundi (F.V.)                   | -do-     | 111.00      | 189        | 1914               |
| 26     | Doruha                             | -do-     | 216.91      | 101        | 1962               |
| 27     | Malisahi                           | -do-     | 84.58       | 201        | 1962               |
| 28     | Jamudoli                           | -do-     | 242.81      | 640        | 1962               |

|    |                      |      |        |     |      |
|----|----------------------|------|--------|-----|------|
| 29 | Kudasinga            | -do- | 54.63  | 93  | 1962 |
| 30 | Nilamara             | -do- | 55.04  | 76  | 1962 |
| 31 | Limbadihi            | -do- | 162.68 | 488 | 1962 |
| 32 | Luhasinga            | -do- | 359.36 | 771 | 1962 |
| 33 | Dolamundi            | -do- | 89.44  | 191 | 1962 |
| 34 | Karadasinga          | -do- | 78.51  | 267 | 1962 |
| 35 | Ragudisahi ( Hamlet) | -do- | -      | -   | 1962 |

**CUTTACK DISTRICT .**

| 1  | 2                             | 3       | 4               | 5            | 6    |
|----|-------------------------------|---------|-----------------|--------------|------|
| 36 | Baliput                       | Cuttack | 199.36          | 284          | 1995 |
| 37 | Silati (Hamlet)               | -do-    | -               | -            | 1995 |
| 38 | Kamaladihi                    | -do-    | 220.08          | 2181         | 1995 |
| 39 | Ranibhuin                     | -do-    | 189.32          | 511          | 1995 |
| 40 | Panchama                      | -do-    | 901.89          | 713          | 1995 |
| 41 | Kaintara                      | -do-    | 170.65          | 215          | 1995 |
| 42 | Nuagaon                       | -do-    | 406.00          | 265          | 1995 |
| 43 | Paikaregeda                   | -do-    | 748.87          | 418          | 1995 |
| 44 | Satyajayapur                  | -do-    | 686.47          | 530          | 1995 |
| 45 | Dhanurjayapur                 | -do-    | 638.97          | 412          | 1995 |
| 46 | Sampur                        | -do-    | 221.42          | 130          | 1995 |
| 47 | Kunjabanapur                  | -do-    | 40.70           | 192          | 1995 |
| 48 | Janisahi                      | -do-    | 156.74          | 1149         | 1995 |
| 49 | Regeda                        | -do-    | 182.26          | 1512         | 1995 |
| 50 | Talasahi                      | -do-    | 138.53          | 786          | 1995 |
| 51 | Chikanakhandi                 | -do-    | 139.34          | 363          | 1995 |
| 52 | Sanagaon                      | -do-    | 217.16          | 991          | 1995 |
| 53 | Jillinda                      | -do-    | 327.00          | 1159         | 1995 |
| 54 | Mahigarh                      | -do-    | 100.36          | 692          | 1995 |
| 55 | Mandania                      | -do-    | 245.24          | 560          | 1995 |
| 56 | Ambakhola (Hamlet )           | -do-    | -               | -            | 1995 |
|    | <b>Total of Cuttack Dist.</b> |         | <b>5,830.36</b> | <b>13063</b> |      |

**MAHANADI WILDLIFE DIVISION, NAYAGARH ,BOUDH DISTRICT.**

|    |             |       |        |      |      |
|----|-------------|-------|--------|------|------|
| 57 | Ghungurpada | Boudh | 141.24 | 111  | 1989 |
| 58 | Hatigarh    | -do-  | 91.68  | 250  | 1989 |
| 59 | Nuapada     | -do-  | 95.54  | 132  | 1989 |
| 60 | Kumari      | -do-  | 755.39 | 1203 | 1989 |
| 61 | Bhapur      | -do-  | 399.65 | 389  | 1989 |

|    |                                |      |                 |              |      |
|----|--------------------------------|------|-----------------|--------------|------|
| 62 | Budhamba                       | -do- | 77.88           | 144          | 1988 |
| 63 | Semiguda                       | -do- | 59.03           | 14           | 1988 |
| 64 | Siripaju                       | -do- | 189.55          | 78           | 1988 |
| 65 | Geredisahi                     | -do- | 166.33          | 279          | 1989 |
| 66 | Nandagadu                      | -do- | 152.57          | 75           | 1989 |
| 67 | Satakhanda                     | -do- | 384.82          | 451          | 1990 |
| 68 | Hinjal                         | -do- | 109.74          | 206          | 1989 |
| 69 | Kutibari                       | -do- | 140.84          | 246          | 1989 |
| 70 | Marada                         | -do- | 29.94           | 57           | 1989 |
| 71 | Atalasara                      | -do- | 420.44          | 281          | 1990 |
| 72 | Sitalapani                     | -do- | 294.56          | 295          | 1989 |
| 73 | Sunakhania                     | -do- | -               | -            | 1988 |
| 74 | Ghatgaon                       | -do- | -               | -            | 1988 |
|    | <b>Total of Boudh District</b> |      | <b>5,530.15</b> | <b>3,916</b> |      |

#### NAYAGARH DISTRICT

|    |               |          |        |      |      |
|----|---------------|----------|--------|------|------|
| 75 | Kuturi        | Nayagarh | 117.36 | 107  | 1985 |
| 76 | Malisahi      | -do-     | 80.55  | 180  | 1985 |
| 77 | Badamul       | -do-     | 323.86 | 207  | 1985 |
| 78 | Bethiasahi    | -do-     | 66.48  | 247  | 1985 |
| 79 | Muduligadia   | -do-     |        | 97   | 1985 |
| 80 | Kandhajilinda | -do-     | 345.04 | 57   | 1985 |
| 81 | Chhamundia    | -do-     | 412.42 | 1069 | 1985 |
| 82 | Haripur       | -do-     | 156.82 | 414  | 1985 |
| 83 | Kanipokhari   | -do-     | 196.44 | 105  | 1985 |
| 84 | Khalisahi     | -do-     |        | 161  | 1985 |
| 85 | Bantapada     | -do-     | 216.32 | 391  | 1985 |
| 86 | Iswarpur      | -do-     | 202.85 | 526  | 1985 |
| 87 | Maskajholi    | -do-     | 46.39  | 96   | 1985 |
| 88 | Raigadia      | -do-     | 34.08  | 216  | 1985 |
| 89 | Mohanpada     | -do-     |        | 232  | 1985 |
| 90 | Dasipur       | -do-     |        | 48   | 1985 |
| 91 | Rajingi       | -do-     | 69.79  | 534  | 1985 |
| 92 | Dhobabarei    | -do-     | 50.30  | 170  | 1985 |
| 93 | Kumbhirakhani | -do-     | 117.04 | 565  | 1985 |
| 94 | Salapaganda   | -do-     | 9.31   | 35   | 1985 |
| 95 | Musuguda      | -do-     | 4.45   | 22   | 1985 |
| 96 | Malasapadar   | -do-     | 27.52  | 24   | 1985 |
| 97 | Sagadabhanga  | -do-     | 20.64  | 25   | 1985 |

|    |                                |      |                 |              |      |
|----|--------------------------------|------|-----------------|--------------|------|
| 98 | Bahali                         | -do- | 23.47           | -            | 1985 |
|    | <b>Total of Nayagarh Dist.</b> |      | <b>7,741.59</b> | <b>5,528</b> |      |

### **Areas coming within Buffer zone**

Satkosia Wildlife Division:- Hinjadoli, Nuapada, Olaberi, Kantabeda, Tainsi, Hinjagola, Baragot, Badathaila, Bhagatpur, Dandasinga, Lakshmanpur, Bhalumunda, Ganjada, Kadalibereni, Kothabhuin Sankrida, Dalki, Dalasinga, Thukuli, Kumuri, Baghmunda, Tentulipada, Nuakheta, Balanga, Talisira, Labangi, Pampasar, Hinsirida, Burti, Jagannathpur, Kulsar, Krushnachakra, Hidsing, Sinsaloi, Sorisapal, Karunakarpur, Hinjili, Dadar, Dhauragoth, Kuthbhuin, Jankartaila, Laimunda

Year of settlement of all above villages is 1962

Athagarh Division:- Barabhaya, Kusal, Balikiari, Chakamunda, Sisupathar, Mardamukha, Kharuani, and Marudiha.

Year of settlement of all above villages is 1995

Nayagarh Division: Dhipasahi, Kendudhipi, Purunapani, Gochhabari, Dhuapaju, Badasilinga, Sikhargochha, Jamjhula, Sakeni, Tulukutapia, Khalighati, Janisahi, Raimada, Khalisahi, Khajuridih, Siligardi, Champadali, Sansilinga, Dumuduma, Tailasahi, Parhasahi.

Year of settlement of all above villages is 1985.

Village wise areas have been given earlier in Chapter-6

### **8.5. Past Management :**

In the last plan the villages in core zone were covered in a buffer zone. Only 17 Eco Development Committees (EDC) have been formed in the villages namely, Raigoda, Pampasar, Labangi, Jocub, Jagannathpur, Chhotkei, Gopalpur, Salor, Purunakote, Tulka, Karadapada, Goindi, Jillinda, Paikregeda, Kaintara, Nuagaon and Siaribhundi. These EDCs have been constituted as part of Satkosia Forest Development Agency.

Following plantation activities have been undertaken under NAP through the EDCs.

|                               |    |              |
|-------------------------------|----|--------------|
| 1. Aided Natural Regeneration | .. | 230 ha       |
| 2. Artificial Regeneration    | .. | 25 ha        |
| 3. Pasture Development        | .. | 25 ha        |
| 4. Bamboo Plantation          | .. | 50 ha        |
| 5. Mixed Plantation           | .. | <u>53 ha</u> |
|                               |    | 383 ha       |

Activities like Construction of Community Halls, Village Tanks, Cross-dams, Dug wells, Village Roads etc have been taken up in these EDCs.

## 8.6. Prescription / Activities :

### 8.6. 1. Mitigation of Human-Wild animal conflict:

Human- wild animal conflict is a serious problem in the sanctuary, for which the relationship between people and park manager is becoming worse. Production of crops decreases due to depredation of crop by elephant and wild pigs. Though reports on human death and injury caused by wild animals are not common, some cattle are killed by wild animals. Following prescriptions are being given to reduce the conflict.

Dug wells, Village Roads etc have been taken up in these EDCs.

#### 8.6.1.1. Power fencing.

It is the only successful means to mitigate the conflict. A cluster of villages will be enclosed by solar operated power fencing to keep away wild animals from depredation.

|    | <b>Cluster of village</b>                    | <b>Boundary length (Appx. in Kms)</b> |
|----|--|---------------------------------------|
| 1. | Hatibari-Karadapada-Ramimunda<br>- Majhipada | 21.5 Km                               |
| 2. | Katrang village                              | 8.5 Km                                |
| 3. | Purunakote- Gopalpur                         | 10.5 Km                               |
| 4. | Jocub  | 8.0 Km                                |
| 5. | Badakheta                                    | 4.0 km.                               |
| 6. | Salor  | 4.5 km.                               |
| 7. | Chhotkei                                     | 6.5 km.                               |
| 8. | Pampasar                                     | 6.0 km.                               |

|    |         |          |
|----|---------|----------|
| 9. | Labangi | 6.5 km.  |
|    | TOTAL   | 76.0 km. |

The location and length of fence may change depending on severity of depredation at the time of installation with the discretion of the concerned D.F.O.

Maintenance of power fencing is to be done by the people benefited. They have to be motivated to generate a fund for its maintenance from among themselves. One in each village will be trained to do minimum repairing at the time of need. The villagers are to be educated how to handle the system. The EDC formed in these villages will furnish an undertaking to that effect before installation of the fencing.

#### **8.6.1.2. Alternate Cropping.**

The victimized villagers are to be asked to switch over to alternate crops from traditional paddy, ragi, sugar cane.

| List of crops not preferred by elephant or wild pig |  |
|---|--|
| Oil seed crops                                      | Sun flower, linseed, mustard, sesemum  |
| Pulses  | Green gram, Black gram, Cowpea,        |
| Horticultural                                       | Papaya, Chilly, Lemon, Litchi, Zinger, |
|   | Termeric, Onion, Brinjal               |

Subsidy for cultivation of the above crops will be given to the interested farmers. Technical knowledge will be given to them through a series of training camps to be organised in association with Agriculture / Horticulture experts.

#### **8.6.1.3. Payment of compassionate amount.**

The victim or his family should not feel that he is being harassed in getting his compassionate amount. The sanction of compassionate amount is to be made as quick as possible. It is better if payment is also made quickly.

It is proposed to constitute a Depredation fund of Rs 50,000/- with the DFOs so that some part of compassionate amount can be paid immediately to the victim as advance where it is believed that depredation has occurred. Rs. 30 lakh will be required during the plan period @ Rs. 3 lakh per year to make compassionate payment towards crop depredation, cattle kill, human kill and injury.

#### **8.6.1.4. Awareness.**

Awareness camps are to be organised during cropping period on how to drive away an elephant, how one should be careful during that time and what are the precautionary measures one should adopt during that time. Crackers, *mashals* with kerosene are to be supplied to them.

#### **8.6.2. Health Camps.**

The villagers living inside the sanctuary are suffering from common Malaria, Cerebral malaria, Gastro-enteritis and common Skin diseases. During a recent health camp at Beherasahi under Tikarpara range, incidence of Tuberculosis

was noticed with two villagers. Their health care is to be taken as a Trust Building Activity (TBA) as they are deprived of minimum medical facilities in dense forest areas of this sanctuary. All the villagers living inside the sanctuary will be identified and issued with a **Health Card** .This card will indicate their diseases and treatments.

Similarly the health of domestic livestock is more important as they spread diseases to wild animals in the sanctuary.

It is proposed to conduct 2 human health camps, 2 livestock health camps in a cluster of 5 villages annually. Care is to be taken to cover each and every village. There will be 30 such clusters where the above camps are to be held.

No. of Human health camp / year .. 30 x 2 = 60

No. of live stock health camp/ year .. 30 x 2 = 60

There will be free supply of medicines and medicated mosquito nets in the camps. The services of Doctors and Para Medical staff are to be taken from the District / Sub-division Hospitals or may be outsourced. Rs.5000/- per camp is proposed to be spent on an average per human being. Record is to be maintained regarding the treatment of human beings.

### **8.6.3. Immunisation.**

Unless the domestic cattle are immunized, the animal diseases if any will spread to the wild animals. It is important to see that all the village cattle in the sanctuary are vaccinated properly against the infectious diseases like

Rinderpest, FMD, BQ & HS. The immunization will be taken up with the help of Veterinary Department at proper time.

All such immunized cattle will be marked by a white ring mark on their horn. Anti helminthes tablets are to be given to the cattle regularly after proper stool examination. Rs.10,000/- per cattle camp is proposed to be spent and there will be minimum one camp per village per year. Record is to be maintained regarding the treatment of the livestock.

#### **8.6.4. Raising Farm Forestry.**

To reduce the dependency of villagers on sanctuary, farm forestry is the only way to meet their day today requirements of fuel wood, fodder, bamboo and house building materials and therefore these species will be planted to meet the above requirements.

#### **Location:**

Farm forestry will be taken up inside the revenue area, on private lands, farm bunds of villages located in and around the sanctuary. In each village 5 – 10 ha of such land will be identified. There are 102 villages inside the sanctuary and 73 villages in buffer zone. Plantation will be raised in 175 villages phase wise. Every year 75 ha of area in 15 - 20 villages will be taken up for farm forestry and will be maintained for subsequent 3 years, thereafter it will be handed over to the villagers by forming EDC / VSS.

#### **8.6.5. Pasture Land Development.**

There is a lot of fallow lands in the above villages full of Eupatorium and Ageratum weeds. If such lands can be developed in to pasture land, it will not meet the fodder requirement of domestic cattle but also that of wild herbivores.

The selected fallow lands will be ploughed twice by tractor to uproot the weeds. Then the land will be broadcasted with seeds of Stylo, MP Cherry, Cowpea, Horse gram in one portion and transplanted with slips of hybrid fodder grass like Para grass and Andropogon grass procuring from Veterinary fodder Farm at Angul. The plantation will be carried in July and August. Fertilizer and manure will be applied during planting. Then the area will be enclosed for one year by brush wood fence. The plantation will be maintained for subsequent 2 years, where weeding, soil working and urea top dressing will be undertaken.

One hectare of fallow land in each of 175 villages will be identified for this Pasture Land Development activity. Every year 15 -20 ha of land will be developed.

**Cost Norm.**

Rupees

|                      |                                   |               |
|----------------------|-----------------------------------|---------------|
| 1 <sup>st</sup> year | Weed eradication                  | 3,000         |
|                      | Grass planting                    | 8,000         |
|                      | Brush wood fencing                | 1,000         |
|                      |                                   | <b>12,000</b> |
| 2 <sup>nd</sup> year | Weed eradication                  | 1,000         |
|                      | Soil working, fertilizer applying | 1,000         |
|                      |                                   | <b>2,000</b>  |
| 3 <sup>rd</sup> year | Weed eradication                  | 1,000         |
|                      | Soil working, fertilizer applying | 1,000         |
|                      |                                   | <b>2,000</b>  |

**8.6.6. Green Fencing:-**

Fencing of crop fields along the PWD road by plants replacing the bamboo fence. The seeds of plants like custard apple, bamboo, Jatropha, Vitex etc. will be sown in rows after ploughing in 6 road side EDCs over 12 running kilometers.

#### **8.6.7. Construction of Water Harvesting Structures with Irrigation Channels.**

To increase the irrigation potential in the above villages at least 100 WHS or large water bodies will be created with irrigation channels to the crop fields.

Surplus spill way will also be there to let out the excess rain water. Estimate for each such WHS / Water body will be 2 – 3 lakhs. Every year 10 such structures

#### **8.6.8. Sinking Dug Wells.**

At low lying areas in the crop fields dug wells will be sunken to facilitate lift irrigation by traditional methods (Tenda) or by Peddle pumps. Irrigation channels will also be constructed with brick masonry. 30 such dug wells with channels will be constructed @ 3 in every year. Estimate for each dug well will be around Rs.30,000/-.

#### **8.6.9. Renovation of existing tank and dug well.**

About 30 nonfunctional village tanks, 20 dug wells and 30 tube wells in the above villages will be renovated to make them useful. That will help in providing drinking water to the villagers and domestic animals besides acting as source of irrigation.

|                                      |    |             |
|--------------------------------------|----|-------------|
| Estimate for renovation of each tank | .. | Rs.75,000/- |
| Renovation of each Dug well          | .. | Rs.20,000/- |
| Renovation of each Tube well         | .. | Rs.20,000/- |

### **8.6.1. Supply of Agricultural inputs and subsidy.**

1. The villagers will be motivated to go for cash crops, pulses, oil seeds, vegetables, fruits as alternate crops which will not be damaged by elephants or wild pigs instead of cultivating paddy as a traditional practice. In the areas close to water sources, the villagers may go for double cropping, but in uplands they should go for alternate crops.
2. The inputs like hybrid seeds and grafts of above crops will be supplied to the farmers on subsidised rate. The subsidy will be provided by the park authority.
3. Inputs like sprayer, diesel pumps, threshers, iron plough, agricultural implements will be supplied with nominal cost.
4. Fertilizers and pesticides will be provided free of cost to them, who go for alternate crops.
5. Use of vermin compost for organic farmers is essential. Vermi compost units in the village will be made training to farmers will be given.
6. The proper required training is organized for imparting correct techniques in farming.

### **8.6.11. Pisciculture and other livelihood activities.**

When there will be lot of water bodies in villages in and around the sanctuary, Pisciculture potential will increase which will be a good source of community income. The cost of tank preparation, fertilizer application, fish

fingerlings will be borne by the sanctuary authority. Two tanks are to be taken up every year.

Similarly Apiculture, mushroom cultivation vegetable cultivation will be encouraged in the villages under Ecodevelopment.

#### **8.6.12. Eco-Tourism.**

The villages coming within the eco-tourism zone will earn their livelihood from eco-tourism. They have to organise themselves by forming registered societies to provide services to the eco-tourists. They will collect fees from them. Detail possibilities are described in **Chapter-7**.

#### **8.6.13. Promotion of Traditional knowledge on Herbal Medicines & Pharmacy.**

A workshop on local Vaidyas was organised on 28.03.2006 at Tikarapara by the Conservator of Forests, Development Circle, Cuttack. It was noticed about 75 Vaidyas in and around the sanctuary have participated and shown their talent in curing diseases like blood pressure, arthritis, dysentery, delivery problems, poisoning of snake bite, diabetes etc. It is required to document their knowledge and skill to promote them.

Therefore it is suggested

1. To prepare a list of Vaidyas with their address.
2. To organise them by forming a registered society.
3. To conduct regular workshops among themselves and document their practices.
4. Documentation will include identification of medicinal plants and parts in use, quantity and proportion used for preparing medicines and the diseases cured by them.
5. They will be provided with small tools and equipments required for preparing, packing and storing the medicines.
6. They will be allowed to collect medicinal plant parts from the sanctuary to raise commercial plantation in their private land outside the sanctuary.

#### **8.6.14. Supplying raw materials to traditional artisans for handicraft making.**

There are bamboo artisans in villages like Takarasingha, Badakheta, Purunakote, Tulka who produce bamboo mats, baskets and many other useful articles to sell them in local 'Haats'. Their income can be increased if they produce more and sell them in towns or to industries for preparing hot pressed boards. Transportation and marketing are to be facilitated. Bamboo can be supplied from territorial divisions on nominal prices to the villagers outside the

sanctuary. The high stumps, broken bamboo obtained from clumps during SSO work will be supplied to the bamboo artisans of the sanctuary free of cost.

#### **8.6.15. Improvement marketing linkage.**

The economic status of the villagers will improve only when their produces are sold in markets of near by town or city. The agricultural produce, vegetables produced from their fields will be taken to Angul or Nayagarh market for sale. The transporters and whole sellers will be contacted to open their inlets. Green shopping with a vehicle will be introduced, who will collect produce from them for marketing and supply them desired commodities like rice etc. as barter.

The fish produced from village ponds will be kept in ice containers, and transported to nearest towns like Angul, Nayagarh or Narsinghpur. The fish whole sellers will be asked to contact the fish farmers at the time of harvesting. They will come with ice and ice box to carry fish to the sale point.

To dispose the bamboo mats, veneer industries of Cuttack, Bhubaneswar, Kolkata will be contacted to lift bamboo mats for preparation of hot pressed hard boards for use as table tops, partition walls etc. ORMAS may be contacted to market the bamboo articles and other handicrafts produced by the villagers.

#### **8.6.16. Creation of employment opportunities.**

All the departmental works will be executed by engaging the local labourers. Plantations, SSO works, soil and moisture conservation measures, road repairs, digging water bodies, dragging timber are the labour oriented works.

Local people can be engaged as daily waged labourers in fire watching, fire fighting squads, anti-smuggling squads, anti poaching squads, elephant trackers etc.

Other departmental works under the scheme viz. NREGS, NFFW, EGS, SGRY, Special SGRY, IWDP etc under Panchayati Raj and Rural Development Departments can be dragged to be implemented inside sanctuary, as Income Generation Activity (IGA).

#### **8.6.17. Asset creation.**

Certain trust building activities (TBA) will be undertaken in the name of E.P.A. To generate support of local people and their goodwill minor developmental, asset creating works will be undertaken in villages on their interest. Such activities may include addition of rooms in school, construction of community hall, ponds, sinking of tube wells, supply of generator sets, Solar home lighting or street lighting system, village road and some other infrastructural developments as desired by the villagers.

#### **8.6.18. Building effective local institutions.**

Forest Development Agency of Satkosia Wildlife Division and Mahanadi Wildlife Division are registered societies which already exist for Satkosia Gorge Sanctuary. There are 17 Eco- Development Committees (EDCs) in FDA, Satkosia Wildlife Division and . So EDCs in rest villages will be formed. Vana Samrakshyan Samiti (VSS) as per Government of Orissa, Joint Forest

Management Resolution will be formed in villages outside the sanctuary over the K.Fs and revenue forests & other Eco-Development activities will also be undertaken there.

Besides that, some independent registered societies will be formed like **TIPPS** and **PARIVESH** to render services to eco- tourists and take steps for protection and development of Satkosia Gorge Sanctuary. They will actively participate in awareness, training and extension activities.

SHGs (Self Help Groups) will be formed in the villages to encash traditional knowledge and practices to improve their economic status.

User groups will be formed like “Pani Panchayat” to generate funds for maintaining the assets created in eco-development so that they will function sustainably.

VFWs and FEOs of the sanctuary will be engaged to build such effective local institutions in and around the sanctuary.

#### **8.6.19. Awareness Creation.**

Awareness creation is a continuous activity to be taken up from very 1<sup>st</sup> day of the programme. Awareness among the people can be increased by way of conducting Pada yatra, cycle rally, cultural programmes, street plays, meetings, audio-visual aids, observing national days. NGOs and local educational and voluntary institutions will be involved in the programme. People of all sectors may be involved.

Publicity may be made through news letters, leaflets, brochures etc.

Every year there will be at least one such awareness campaign in each village. This programme will continue in first 3 years of the plan period. It may extend beyond 3 years if felt necessary.

#### **8.6.20. Capacity building.**

Eco-Development is a new arena for the staff of forest department. An attitudinal change is required to work with people. Trust building, transparency and commitment are the important attributes. So training and orientation to staff is more required. There should be at least 3 such trainings in a year to be given to the staff.

Training to the people is also required to build their capacity. Training on different skills of work will help them earning more from existing practices. Resource persons of different disciplines will be asked to act as trainers in the trainings to be conducted bi-monthly at suitable places.

#### **8.7. Village level site specific strategies.**

Eco-development activity may not commence simultaneously in all the villages. Priority will be given to the villages which are located in the interior pockets of the sanctuary. In 2<sup>nd</sup> phase the activity will concentrate in the villages located inside the sanctuary on either side of PWD road or main forest roads. 3<sup>rd</sup> priority will be given to the villages situated outside the sanctuary.

Development of sanctuary depends on active participation of all its stakeholders like local community, forest staff, politicians, industrialists, hotel

managers, tour managers, business men, NGOs, other line departments like DRDA, Education, Tribal Welfare, Rural Development, Health, Veterinary, Fishery etc.

All the Stakeholders will be asked to participate in planning, implementation, monitoring and evaluation of the activities of the management plan. Participatory Rural Appraisal (PRA) is a technique to identify the resources of the village, strength and weaknesses and need of the people. So before planning, PRA will be undertaken in every village in presence of all the stakeholders. Micro plans will be prepared in such a manner that the villages will accept its prescriptions. All the Eco-development activities may not be applicable for all the villages. So the village level site specific strategies will be prepared by the field staff only after conducting PRA. The physical and financial targets and year wise schedule of work will be written in the village wise micro plans.

### **8.8. Monitoring and Evaluation.**

Quantitative and qualitative monitoring and evaluation indices are required to measure progress towards the objectives, guide project management and assess progress towards sustainability, once external force is withdrawn.

All the activities executed in the field need proper monitoring to help evaluate their measures of success. Parameters need to be identified and the analytical approaches must be laid down.

The M&E will not serve its purpose unless each activity and programme is backed by follow up actions till such time as people are ready to take over the

maintenance and continuity of the programme on the basis of faith, conviction, and acquisition of skills and spirit of cooperation. The M&E must be an objective which should identify the parameters where status needs to be tracked in context of the project outputs. The evaluation should determine the measure of success, problems, and failures and suggest means of improving the programme in specific terms. People in the village should be able to appreciate the need for M&E, the process involved and the need for their constructive participation in the M&E activities.

M&E should be done for every village. Every time the results need to be compared with that of previous report or initial condition.

All data need to be maintained in a computer. A database need is to be created for each village to feed the periodic progress and to monitor the improvement of the project.

### **Monitoring.**

Monitoring will be both daily and periodical.

#### **Daily monitoring.**

It includes

- Day to day activities.
- Deployment of executive staff and superiors.
- Timely distribution of commodities.
- Purchase of materials from authorised dealers.

- Proper utilisation of funds and articles.
- Movement of staff to the sites.

### **Periodic monitoring.**

It includes

- Participation of people in planning and execution.
- Achieving the annual physical and Financial targets.
- Quality of work

Evaluation can be done annually by internal team and periodically after 3 years and 5 years by external agencies.

The internal team includes Assistant Conservator of Forests, Deputy Conservator of Forests and Conservator of Forests.

The external agencies may be any reputed NGO, University, Research organisation, Extension wings of Agriculture and Soil Conservation.

Certain parameters or indicators of success are to be followed and compared with previous reports.

The parameters maybe either Direct or Indirect.

### **Direct Parameters.**

Eco-development is evaluated as successful if

1. Less number of people are going to the forests
2. More number of hybrid cattle are seen in houses
3. More number of days cattle are fed at shed (stall feeding)

4. More people are doing fishery, poultry, horticulture and tailoring
5. Large number of peoples participate in village meetings
6. More collection of user fees / maintenance cost from the people
7. Less number of forest offence cases booked
8. Less poaching is seen
9. Less fire incidents occur in forests
10. More people use solar cooker, Gobar gas, LPG gas chulla and there is a persistent demand for them.

### **Indirect Parameters.**

Eco-development is evaluated as successful if

1. Increasing number of Pucca houses (RCC) are seen in village.
2. Increasing number of motorized vehicles, TV, radio available are seen in villages.
3. More number of literate persons / youths
4. More use of Iron and plastic furniture
5. Maintenance of community assets is done by themselves
6. Recycling of money seen in SHG pass books.
7. People selling agricultural / horticultural produces in nearest towns
8. Less infant mortality

9. Less malnutrition and disease
10. Less people migrating to outside
11. Availability of water in the dug wells
12. Less illicit stumps in forest