

Activities for Irrigation, Soil Conservation and Increasing Productivity of Agriculture to increase water availability in the region for domestic use, agriculture, and other purposes, and also to increase agricultural productivity through specific interventions.

- Irrigation and soil conservation
- Improvement of agricultural land and technique

Activities for Biomass Generation to meet the requirements for fuel, fodder, small timber and minor forest produce, currently being met from the Reserve, and also to provide some wage labour, especially during the transitional period.

These include:

- Multi-tier cropping of fuel, fodder, small timber and fruit species as well as vegetables etc.
- Joint forest management

Activities for Income Generation to provide alternate sources of income, so as to replace the activities which are not environment-friendly.

These include:

- Poultry

- Piggery
- Dairy
- Beekeeping
- Lac culture
- Horticulture
- Handicraft (carpet making and bamboo/lantana works)
- Stitching
- Iron-smithy
- Carpentry
- Marketing
- Miscellaneous

Activities related to the Management of the Reserve aimed at involving the local people in the management of the Reserve, as also at providing employment opportunities.

These include:

- Wildlife management activities (wage labour and support staff)
- Crop protection
- Cattle compensation
- Tourism

Activities Related to Human Resource Development will comprise the training components of some of the activities mentioned above. These include:

- Training in poultry
- Training in piggery
- Training in animal husbandry (including dairy)
- Training in beekeeping
- Training in Chakriya Vikas Pranali of multi-tier cropping
- Training in stitching
- Training in carpentry
- Training in bamboo/lantana works
- Training in tourism
- Miscellaneous Training
- Setting up of training-cum-exhibition centres
- Health care and family welfare
- Drinking water facilities
- Adult education

Activities related to Energy Conservation

Activities related to Awareness Generation..

Activities for Development of Transport and Communication

1. Construction/Special repair of kuchcha fair weather roads
  - 1.1 Description: To construct or repair motorable fair weather kuchcha roads connecting scheduled villages to the back-topped roads.
  - 1.2 Specific Benefit: Access to markets, income generation, and getting the support, and cooperation of the local people.
  - 1.3 Basis of Selection: This was a requirement voiced by the people.
  - 1.4 Number and types of Beneficiaries: Indirectly, almost everybody will benefit due to easier access to markets, besides, the work will provide employment to the extent of 61,900 persondays.
  - 1.5 Constraints: These kuchcha roads will require regular maintenance.
  - 1.6 Costing: For the entire area a total of approximately 136 km of such roads is needed. The expected cost of this work is Rs.13,60,000.00 @ Rs. 10,000.00 per km. The constructed roads will be maintained annually @ Rs. 2,000.00 per km at a total cost of Rs. 7,04,000.00.

## 2. Construction of Culverts and Causeways

Attempts would be made to make the village fair weather kuchcha roads into all weather road as far possible by constructing about 136 culverts/cause ways. The cost would be app. Rs.27,20,000.00 and would generate about 36,300 persondays of work.

Activities for irrigation, soil conservation and increasing productivity of agriculture.

## 3. Irrigation and Soil Conservation Measures

3.1 Description: In order to enhance availability of water resources, two or three tube wells will have to be located in each village, in the fallow lands, preferably government or institutional lands. In addition checkdams, percolation tanks, contour bunding and gully plugging will also be under taken.

3.2 Specific Benefit: Presently, the shortage of water is a cause of low agricultural productivity. The availability of water will also take care of drinking and other domestic needs to some extent.

3.3 Basis of Selection: This was a requirement voiced by the people.

3.4 Number and Types of Beneficiaries: It is expected to generate 52,000 persondays of

work.

3.5 Institutional Structures Required: Actual planning and execution of these measures will be done in consultation with the concerned Government Departments. Modalities of using water for agricultural purpose will be worked out by the village ecodevelopment committees.

3.6 Pre-requisites and Constraints: A detailed study needs to be done for prospecting water availability in the region, using remote sensing and GIS capabilities.

3.7 Costing:

130 Wells @ Rs.30,000.00 per well	Rs.	32,00,000.00
150 Checkdam @ Rs. 1,00,000.00 per checkdam	Rs.	1,50,00,000.00
100 Anicuts @ Rs.25,000.00 per Anicut	Rs.	25,00,000.00
100 Percolation tanks, ponds, pynes @ Rs.25,000 per tank	Rs.	25,00,000.00
50 km. Contour bunding @ Rs. 1,00,000 per km total length	Rs.	50,00,000.00
Gully plugging and silt detention dams as and when required	Rs.	50,00,000.00
	TOTAL Rs.	3,39,00,000.00

4. Improvement of Agricultural Land and Technique

4.1 Description: To increase agricultural productivity by improving agricultural land and technological intervention.

4.2 Specific Benefit: Income generation through improved agricultural productivity.

4.3 Basis of Selection: In general, the villagers were keen to be helped to improve agricultural productivity.

4.4 Number and Types of Beneficiaries: An estimated 1,000 cultivators in the area will be direct beneficiaries of this activity. In addition, employment could also be generated for others since this will be a labour intensive activity. This would generate employment equivalent to 37,800 persondays.

4.5 Constraints: Only a part of agricultural land could be taken up for this development since such land is very large.

4.6 Costing: Improvement of  
 300 ha. of agricultural  
 land @ Rs. 4,000.00  
 per ha., Rs. 12,00,000.00  
 Loan (50%) and subsidy  
 (50%) for improved  
 suitable inputs like  
 pulses and oil seeds Rs. 10,00,000.00  
 Total Rs. 22,00,000.00

Activities for Biomass Generation

5. Multi-tier Cropping of Vegetables, and Tree  
 Species for Fuel, Fodder, Fruit and Small  
 Timber.

5.1 Description: Multi-tier cropping of  
 fuel, fodder, fruit and small timber species  
 will be taken up on the available common and  
 other culturable wasteland. Till the time  
 these species grow up annual crops,  
 preferably vegetables, will be cultivated by  
 the villagers. The technique of Chakriya  
 Vikas Pranali (CVP) developed by a local  
 voluntary organisation, Society of Hill  
 Resource Management School (SHRMS), will be  
 followed, primarily on culturable wasteland  
 available in the villages.

Also individuals will be provided with planting materials of suitable and useful species for planting them on their cultivated land bunds and around their houses.

- 5.2 **Specific Benefit:** Presently, these requirements are being met entirely from some buffer zone forests of the Reserve. These multi-tier cropping will help ease pressure on the Reserve, by giving people some employment and alternate sources of fuel, fodder, small timber etc.
- 5.3 **Basis of Selection:** The loss of access to existing natural resources of the Reserve necessitates optimum utilization of available land.
- 5.4 **Number and Types of Beneficiaries:** All the families of the villages participating in these activities.
- 5.5 **Institutional Structures Required:** The village ecocodevelopment committees will be required to identify common & other culturable wasteland and work out as well as ensure benefit sharing on long term basis.
- 5.6 **Prerequisites and Constraints:** Selection of suitable plots, deciding suitable species-mix, negotiating owners of the land, and

ensuring benefits sharing requires a strong villages ecodevelopment committees. For starting such works the committees will require seed money which would be provided under the ecodevelopment project.

5.7 Costing : Finance for 185 villages as seed money for starting multi-tier cropping on CVP lines @ Rs. 1,00,000.00 per village, Rs. 1,85,00,000.00

## 6. Joint Forest Management

6.1 Description: To jointly manage right-burdened degraded forests of the Reserve and progressively reducing their dependence on them, with the development of their own such resources under the project.

6.2 Specific Benefit: Rehabilitation of degraded right-burdened forests and their optimum scientific utilization till the time it is required.

6.3 Basis of Selection: There are vast right-burdened forests which are degraded due to haphazard utilization. They need to be rehabilitated and utilized scientifically till the individuals develop their own

resources for which they are at present dependent on these forests. Though ecodevelopment investments, in a sense, is to free such forests of the Reserve from human pressure, grazing is likely to continue even after the completion of the project in view of difficulties in drastically reducing the enormous size of cattle population in the area. Therefore, the fodder resources in these forests need to be developed and utilized in regulated and scientific manner.

6.4 **Number and Types of Beneficiaries:** Most people in the area will benefit from this activity both in terms of resources and employment opportunities. In addition, it will generate approximately 44,900 persondays of work.

6.5 **Institutions Required:** This work will be done by the Reserve authorities in association with the village ecodevelopment committees.

6.6 **Constraints:** Enormous size of cattle population in the area.

6.7 **Costing:** Rs. 1,50,00,000.00 for 3000 ha. of forests @ Rs. 5,000.00 per ha.

## Activities for Income Generation

### 7. Poultry Farming

- 7.1 **Description:** Poultry farming, of high yielding varieties as well as the local variety of chickens and hens, is one possible alternate income generation activity in the region.
- 7.2 **Specific Benefit:** Income generation.
- 7.3 **Basis of Selection:** This option was suggested by the people. The possibility of initiating this kind of an activity exists because the nearby towns are deficient in chicken and eggs and are catered at the moment from outside the state.
- 7.4 **Number and Types of Beneficiaries:** Women from 250 households would be supported for this activity.
- 7.5 **Constraints:** Such activities will be successful only if the end users can be assured of regular supplies. For this, an efficient transport system is needed. Linkage service too will be essential.
- 7.6 **Costing:** Rs.16,25,000.00 for 250 units of 250 birds each @ Rs. 6,500.00 per unit.

8. Piggery

8.1 Description: To distribute suitable varieties of pigs or piglets among willing villagers with barn facilities.

8.2 Specific Benefit: Income generation.

8.3 Basis of Selection: Many villagers are willing for the activity. At present, many are practising it. This activity needs to be promoted atleast on a limited scale exclusively with the Scheduled Castes and Scheduled Tribes.

8.4 Number & Types of Beneficiaries: 100 households are expected to benefit from this activity.

8.5 Institutional Structures Existing /  
Required:None

8.6 Pre-requisites and Constraints:None.

8.7 Costing: Rs.7,00,000.00 for 100 units of 5 pigs (one male and four female) with barn facilities @ Rs. 7,000.00 per unit.

9. Dairy Activity:

9.1 Description: The villages have large number of unprofitable cattle which need to be exchanged for profitable milch cattle and transported outside the area for sale. The exchanged superior cattle will provide milk for sale. This activity will increase progressively so as to allow time to villagers to see the benefits and compare it with their traditional cattle keeping.

9.2 Specific Benefit: Income generation.

9.3 Basis of Selection: The existence of large number of unprofitable cattle benefits neither its owner (except for cowdung manure and some plough-power) nor the Reserve. With them the area is unavoidably subjected to unprofitable consumption for its fodder resources. This activity will lead to reduction, howsoever small, in number such cattle through replacement with superior, suitable milch cattle and cash earning for their owners.

9.4 Number and Types of Beneficiaries: 1000 families will be provided with one or two

milch cattle each in exchange of their inferior cattle equivalent to 75% value of the milch cattle. Rest will be provided as subsidy.

9.5 **Constraints:** Large size of cattle population in the area.

9.6 **Costing:** Rs. 40,00,000.00 for subsidy to 100 families @ Rs. 4,000.00 approximately per family.

## 10. Beekeeping

10.1 **Description:** Beekeeping for honey and wax.

10.2 **Specific Benefits:** Income generation and reducing the incidence of forest fire.

10.3 **Basis of Selection:** There is unlimited nectar resources in the forest which can be utilized for promoting bee-keeping in the villages in and around the Reserve. At present, the villagers go into the forest to collect honey clandestinely and this activity is one of the cause forest fires.

10.4 **Number and Types of Beneficiaries:** People are proposed to be provided with bee-keeping units.

10.5 **Constraints :** None

10.6 Costing : Rs. 5,00,000.00 for 1000 units @  
Rs. 500.00 per unit.

## 11 Lac Culture

11.1 Description: To grow lac for earning extra cash income.

11.2 Specific Benefits: Income generation.

11.3 Basis of Selection: Most of the families have host trees, particularly *Butea frondosa*, on their land, which remain under-utilized due to the lack of brood for replacement at intervals or on failure. Support to this activity will ensure extra cash income for these families.

11.4 Number and Types of Beneficiaries: 1000 families.

11.5 Constraints: Marketing.

11.6 Costing : Rs. 5,00,000.00 for procuring and distributing brood lac among 1000 family (one family as a unit).

## 12. Horticulture:

12.1 Description: Growing of fruit trees of indigenous and superior, suitable varieties for generating cash income in the area.

12.2 Specific Benefit: Income generation.

12.3 Basis of Selection : This was suggested by the people in villages. Funding will be provided for securing plantation of the fruit species of villager's choice.

12.4 Number & Types of Beneficiaries : Majority of the households would benefit from this activity. It is proposed to provide a 100% subsidy on cost of planting and other materials.

12.5 Institutional Structures Existing/Required: Village ecodevelopment committee.

12.6 Constraints: None.

12.7 Costing: Rs. 15,00,000.00 @ Rs.3,000.00 per ha or its equivalent, i.e., 300 plants, for 500 ha. A 100% subsidy will be given on cost of planting and other materials.

13. Handicrafts (Carpet and Bamboo/Lantana based utility & fancy items).

13.1. Description: The activities of making carpets and items of bamboo and lantana, both utility

and fancy, will be encouraged and expanded in order to increase alternate source of employment and cash income for the local people. Also, to improve upon the technology and to diversify the items-mix, training will be imparted under human resource development activity of the project.

13.2. Specific Benefit: Employment and income generation.

13.3. Basis of Selection: There are pockets around the Reserve where these crafts are being practised for long, but the craftsmen are not getting due returns due to their inability to have raw materials, particularly in case of carpet making of their own and to market their products themselves. The carpet makers work for middlemen who provide them the necessary raw materials. Similarly, items made of bamboo are less diversified and inferior in quality and leaves great scope for improvement and consequent income augmentation. Also, abundance of unwanted lantana bushes can be utilized in making utility and fancy items to the benefit of villagers.

13.4. Beneficiaries: 100 families living in villages in and around the Reserve.

13.5. Institutional Structures Required: The beneficiaries will be identified and given technological & financial help in consultation with the village ecodevelopment committees.

13.6. Constraints: There is limitation in respect of supply of bamboo as far as activity based on it is concerned. It will remain so till the time the beneficiaries or other villagers develop their own bamboo clumps.

13.7. Costing:

Fund for purchasing equipments etc. (50% subsidy and 50% loan	Rs. 2,50,000.00
Fund for giving loans to beneficiaries for raw materials, marketing, etc.	Rs. 2,50,000.00
Total	Rs. 5,00,000.00

#### 14. Stitching

14.1 Description: There is scope for additional cash earning by females through stitching and making readymade garments for sale as well as own consumption.

14.2 Specific Benefit: Income generation

14.3 Basis of Selection: At present the people get their garments either stitched from elsewhere or readymade. This activity will save them some expenses and at the same time give opportunity for extra cash - earning to few women.

14.4 Number & Types of Beneficiaries: 100 women, one from one house-hold.

14.5 Constraints: None

14.6 Costing: Rs. 1,00,000.00 for 100 families @ 1,000.00 per sewing machine.

#### 15. Iron - Smithy

15.1 Description: There are many people mainly scheduled castes, who make iron implements used in people's house and farms. What they want is some improved tools to enable them to increase the quality and quantity of what

they produce.

15.2 Specific Benefit: Income generation for scheduled caste families.

15.3 Basis of Selection: This options was suggested by the people.

15.4 Number and Types of Beneficiaries: Traditionally, iron-smiths in the area of scheduled caste males. It is proposed to provide improved tool kits to 40 persons in the area.

15.5 Pre-requisites and Constraints: There is little scope for absorption of surplus products in the city market which has superior products. Again, fuel requirement is also high.

15.6 Costing: Rs. 80,000.00 for 40 tool kits @ Rs. 2,000.00 per tool kit.

## 16. Carpentry

16.1 Description: To make furnitures and other items of household and other uses from wood and earn cash income. In order to support the

efforts of the villagers, a carpentry centre, along with marketing and training facilities will be provided under the ecodevelopment project. It is proposed to provide training - cum - production centres at two suitable places. The trained carpenters will be provided with tools and other facilities to work in the production centre during slack periods. The timber that the villagers get as a part of their joint forest management agreement or from other sources would be crafted into furnitures and carvings and sent to the markets. The carpenters will be paid wages and after meeting the running cost of the centre the residual money will be spent on creating community assets.

16.2 **Specific Benefit:** Income generation.

16.3 **Basis of Selection:** Suggested by people, argument being that, at present, timber is exported out a part of which can be used to make wooden items by villagers to earn something. There is a little traditional skill of wood carving, which can be upgraded.

16.4 **Number & Types of Beneficiaries:** 20 persons are proposed to be adopted under this activity.

16.5 Pre-requisites and Constraints: The transportation of finished goods will be expensive.

16.6 Costing: Rs. 60,000.00 for 20 tool kits @ Rs. 3,000.00 per tool kit. In addition, Rs. 2,00,000.00 for two training centre-cum-workshops (200 sq ft. each). The total cost would be Rs.2,60,000.00.

## 17. Marketing Facilities

17.1.Description: The ecodevelopment project envisages to provide some shed facilities in five local markets, one in market at District Headquarters, Daltonganj, and ten roadside waiting sheds as measures to promote marketing of goods by producers themselves bypassing middlemen.

17.2.Specific Benefit: Removal of middlemen in the sale of goods produced by the villagers, thereby enhancing their profit margin.

17.3.Basis of Selection: Even today villagers are selling eggs, chickens, goats, pigs, bamboo items etc., but due to the presence of middlemen and also due to their inaccessibility to the market, they are not

getting due profit. The quantum and variety of products in these villages will increase as a result of various activities under the ecodevelopment project and it is essential to safeguard the potential profit of villages against middlemen's manipulations.

**17.4. Beneficiaries:** All the people engaged in income generating activities under the project or otherwise.

**17.5. Constraints:** Above measures can at best remove middlemen to some extent.

**17.6. Costing:**

-Construction of sheds in five local markets @ Rs. 1,40,000 each	Rs. 7,00,000.00
-Construction of ten road side waiting sheds @ Rs. 30,000.00 per shed	Rs. 3,00,000.00
-Construction of one shed in Daltonganj market	Rs. 2,00,000.00
Total	Rs. 12,00,000.00

18. Miscellaneous: Rs. 25,00,000.00 has been budgeted under this head for taking care of action priorities in addition to the above, which may be suggested by the people, or may come up during the process of micro-planning. Examples could be cycle repairing, shoe making, manufacturing off candle, agarbatti etc.

#### Activities related to Reserve Management

#### 19 Employment as wage labour and support staff

19.1 Description: All works related to the management of the Reserve under the regular budget is carried out primarily by engaging local people. However, the quantum of employment generated is not enough for the area and it needs to be enhanced greatly. There are several management works which need expansion and earliest execution, like eradication of weeds for fodder development and overall improvement in the habitat. Similarly there are other works like anti-fire, anti-poaching etc., which need further strengthening. These works have been included in the ecodevelopment project for augmenting employment opportunity in the area. Also, the support staff for ecodevelopment will be picked up from the local population.

19.2 Specific Benefit: Income generation, especially in the transitional period, and involvement of the local population in the management of the Reserve. Provision of institutional support for ecodevelopment activities and work force for park management will also be ensured .

19.3 Basis of Selection: This was a forceful demand of the people. It also has a lot of merit, since this will help in promoting a sense of the belongingness to the Reserve among them, and also enable them to participate in the management of the Reserve. According to the people, the level of protection of the Reserve will also go up if more and more local people are engaged in it.

19.4 Number & Types of Beneficiaries: 70,300 persondays of work will be available for the people.

19.5 Constraints: The said works proposed to be undertaken will not go on for very long.

19.6 Costing: Eradication of weeds:

Strengthening other wildlife management works:	Rs. 15,00,000.00
Support staff for Ecodevelopment:	Rs. 10,00,000.00
Total	Rs. 35,00,000.00

20 Crop Protection

20.1. Description: For the crop protection in the villages of the Reserve, at present crop watchers are engaged through Panchayats, consumable materials like kerosene oil, crackers and dry cells are distributed and elephant proof fencing of villages on a very small scale is being under taken. However, the quantum of these works are inadequate due to financial limitations and still crops are damaged for which compensation at the rate fixed by the State Government is paid.

Again there are many villages outside or far away from the limits of the Reserve where wild animals, particularly elephants, venture and damage standing crops. These villages are not covered under the crop protection and compensation measures of the Reserve and the concerned territorial Forest Divisions

generally do not have fund for the purpose. This is one of the most important causes of people's resentment towards the Reserve.

These measures need to be strengthened and expanded to cover the villages within 5 km range of the limits of the Reserve and this has been provided for in the ecodevelopment project.

20.2. **Specific Benefit:** To protect crops against the depredation by wild animals, particularly elephants, thereby enhancing income from agricultural activities and earning the goodwill and support of the local people. It will become increasingly essential as the agricultural production in the project area will go up as a result of ecodevelopment efforts.

20.3. **Basis of Selection:** Crop protection is one of the main demands of the villagers.

20.4. **Number and Types of Beneficiaries:** It will benefit all the affected villages and is expected to generate 1,83,200 persondays of works.

20.5. Institutional Structures Required: These measures will be undertaken through the village ecodevelopment committees and concerned revenue and territorial forest authorities..

20.6. Constraints: None.

20.7. Costing:

100 km Elephant proof fencing

(trench and electric)

@ Rs.55,000.00 per km. Rs.55,00,000.00

Crop watchers Rs. 5,00,000.00

Distribution materials for

warding off wild animals Rs. 2,50,000.00

Crop compensation Rs. 5,00,000.00

Total Rs.76,50,000.00  
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## 21 Cattle Compensation

21.1 Description: The cattle are killed by carnivores in great numbers every year in villages, both inside and outside the Reserve. Over the last ten years few tigers, particularly from Betla Range, have migrated outside the Reserve permanently to such areas where prey species are practically non-existent. They are now thriving mainly on village cattle there. Though the killing of cattle belonging to villages of the Reserve

are compensated under the Project Tiger Guidelines, it is not so in the case of villages outside the Reserve as the State Government has no such regulation so far. This is one of the causes of resentment and also due to this there remains a constant threat of poisoning of these carnivores. The ecodevelopment project envisages to provide for cattle compensation for villages outside the Reserve but within 5 km of its limits.

21.2 Specific Benefit: To compensate villagers for their loss on account of cattle killing by carnivores, particularly tigers and leopards, and also to protect the carnivores against poisoning by aggrieved villagers; earning the goodwill and support of the people around the Reserve.

21.3 Basis of Selection: Compensation for cattle killed by carnivores was one of the major demands of the villages outside the Reserve.

21.4 Number & Types of Beneficiaries: It will compensate the loss of villagers caused due to the killing of their cattle by carnivores.

21.5 Institutional Structures Required: This work will be done by the Reserve authorities in association with village ecodevelopment committees and the concerned territorial forest authorities.

21.6 Prerequisites & Constraints: None

21.7 Costing : Rs. 10,00,000.00; Rs. 2,00,000.00 per year for five years.

## 22.. Miscellaneous Compensation

Rs. 2,50,000.00 @ Rs. 50,000.00 per year would be required for compensating those losses to the villagers caused by wild animals which are not covered under any rule of the State Government. For example, whereas the loss of human life is compensated, cases of injuries and damage to properties, other than those mentioned above, are not covered.

## 23 Tourism

23.1 Description: There is a lot of potential in the area, mostly outside the Reserve, for development of tourism. There are various tourist spots which can be developed and few adventure activities like trekking, following nature trails etc., can be encouraged to

promote tourism. For adventure activities tourist will traverse the buffer zone but since only serious wildlifers and special groups of young men and women (organised by responsible organisation) who are willing to and able to trek, will pursue these adventures, they will be careful about not disturbing the environment and will serve as supporters of the Reserve.

23.2 Specific Benefit: Income generation

23.3 Basis of Selection: Tourism has a lot of multiplier effects and can have linkages with a number of sectors in the area. Its spin-off with increased tourist traffic will tremendously boost the economic activities in the area. Some people will be trained and assisted for taking up jobs of guides and running of stalls for tea etc., at tourist spots.

23.4 Number and Types of Beneficiaries: Forty persons will be given training as tourist guides, stall operators etc. under human resource development. In addition most of the people will benefit from the linkages and spin-off.

23.5 Constraints: Uncontrolled tourism can be destructive, both culturally as well as environmentally. However, since most of the tourist spots are undeveloped and adventure tourism non-existent, the actual potential is not clear.

23.6 Costing: Development of 16 tourist spots and facilities Rs. 80,00,000.00  
Equipments adventure tourism Rs. 20,00,000.00  
Total Rs.1,00,00,000.00  
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#### Human Resource Development Activities

#### 24. Training in poultry

24.1 Number and Sex of Trainees : 100, males and females.

24.2 Duration : 1 month

#### 24.3 Costing:

Expenditure on 100 trainees @ Rs.900.00 per month (Stipend @ Rs.300.00 plus cost of boarding and lodging @ Rs.600.00 month) Rs. 90,000.00

Honorarium for trainer @  
Rs. 2,000.00 per month  
for five months (five  
courses of one  
month each)

Rs. 10,000.00  
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Total Rs.1,00,000.00  
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25. Training in Piggery

25.1 Persons : 100, males and females

23.2 Duration: 1 month.

23.3 Costing:

Expenditure for 100  
trainees @ Rs.900.00 per  
month (Stipend @  
Rs.300.00 per month plus  
cost of boarding and  
lodging @ Rs. 600.00 per  
month)

Rs. 90,000.00

Honorarium for trainer @  
Rs. 2,000.00 per month  
for five months (five  
courses of one  
month each)

Rs. 10,000.00  
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Total Rs.1,00,000.00  
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26. Training in animal husbandry (Miscellaneous  
including dairy)

26.1 Persons : 100, males and females

26.2 Duration: 3 months

24.3 Costing :

Expenditure on 100	
trainees @ Rs.900.00 per	
month (Stipend @	
Rs.300.00 plus cost of	
boarding and	
lodging @ Rs. 600.00 month)	Rs.2,70,000.00
Honorarium for trainer @	
Rs. 2,000.00 per month	
for fifteen months (a	
total of five courses of	
three months	
each)	Rs. 30,000.00
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Total	Rs.3,00,000.00
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27. Training in bee-keeping

27.1 Persons : 160, males and females

27.2 Duration : 15 days

27.3 Costing :

Expenditure on 160	
trainees @ Rs.450.00 per	
month (Stipend @	
Rs.150.00 plus cost of	
boarding and lodging	
@ Rs. 300.00 per month)	Rs. 72,000.00
Honorarium for trainer @	

Rs. 2,000.00 per month for  
five months ( eight  
courses of

fifteen days each)

Rs. 8,000.00

Total Rs. 80,000.00

28. Training in Chakriya Vikas Pranali( Cyclic  
Development system) of multi-tier cropping

28.1 Number and sex of trainees: 300; 50 staff of  
the Reserve and rest villagers, males and  
females in approximately equal number

28.2 Duration: One month

28.3 Costing :

Expenditure on 250 village  
trainees @ Rs.900.00 per  
month (Stipend @ Rs.300.00  
plus cost of boarding and  
lodging @ Rs.600.00)

Rs.2,25,000.00

Honorarium for trainer @  
Rs. 2.000.00 per month(a  
total of

10 courses )

Rs. 20,000.00

Total Rs.2,45,000.00

29 Training In Stitching:

29.1 Number and Sex of Trainees: 100, mainly females.

29.2 Duration: 3 month

29.3 Costing :

Expenditure for 100  
Trainees @ Rs. 900.00  
(stipend @ Rs. 300.00 per  
month plus Cost of  
boarding and lodging @  
Rs.600.00) month Rs.2,70,000.00

Honorarium for trainer @  
2,000.00 per month for  
fifteen months (five  
courses  
of three month each) Rs. 30,000.00

Total Rs.3,00,000.00  
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30. Training in carpentry

30.1 Number and sex of Trainees: 20, males

30.2 Duration: 3 months

30.3 Costing :

Expenditure on 20  
trainees @ Rs.900.00 per  
month (Stipend @  
Rs.450.00 plus cost of  
boarding and lodging @

Rs. 600.00 )	Rs. 54,000.00
Honorarium for trainer @	
Rs. 2,000.00 per month	
(one courses of 3 months	
each)	Rs. 6,000.00
	-----
	Total Rs. 60,000.00
	-----

31 Training in Handicrafts of Bamboo/Lantana works

31.1. Number and types of trainees : 50, females

31.2. Duration : Three months

31.3 Costing:

Expenditure on trainees @

Rs. 900.00 per month

(Stipend @ Rs. 300.00 plus  
cost of boarding and  
lodging @ Rs.

600.00)

Rs. 1,35,000.00

Honorarium for trainer @

Rs. 2,000.00 per month (a

total of two courses of  
three months

each )

Rs. 12,000.00

Total Rs. 1,47,000.00

32. Training in Tourism

32.1 Number and sex of Trainees: 40, males

32.2 Duration: 3 months

32.3 Costing :

Expenditure on 40 trainees @ Rs.900.00 per month (Stipend @ Rs.300.00 plus cost of boarding and lodging @ Rs. 600.00 )	Rs. 1,08,000.00
Honorarium for trainer @ Rs. 2,000.00 per month (two courses of 3 months each)	Rs. 12,000.00 -----
	Total Rs.1,20,000.00 -----

33. Miscellaneous Training (including training in  
ecodevelopment micro planning)

Besides the above, an additional Rs. 10,00,000.00  
would be required for training requirements  
identified by the people during the course of  
micro-planning (including training in  
ecodevelopment micro planning) or expansion of  
preceding ones in view of increased need of  
ecodevelopment project.

34. Setting up Training - cum - exhibition Centre

34.1 Description: Training-cum-exhibition centres will be built at two suitable locations, to be utilized for running various training courses as per the requirement of the ecodevelopment project. A part of the centre will be utilized for display and sale of handicraft products etc., of the area.

34.2 Specific Benefit: Training of villagers in various professions who will adopt them for earning their livelihood.

34.3 Basis of Selection: Training in above-mentioned profession and others which will come up during micro-planning is essential for the successful implementation of the ecodevelopment project. Running of various training courses requires an equipped training centre and other facilities which are non-existent at present.

Also the people who are engaged in handicrafts need suitable places for display and sale of their produce for having appropriate returns.

34.4 Number and Types of Beneficiaries: Most of the villagers will benefit directly from this activity. In addition, approximately 14,150 persondays of work will be generated in construction works.

34.5 Institutional Structures Required: These centres will be run by the Reserve authorities in consultation with various village ecodevelopment committees. The local Non Governmental Organisations will be required to co-ordinate with trainers from other Government Departments and reputed professionals.

34.6 Constraints: None

34.7 Costing:

2 Training-cum- exhibition centres @ Rs. 5,00,000.00	
per centre	Rs. 10,00,000.00
Furnitures and fittings for 2 centres @ Rs. 1,00,000.00 per centre	Rs. 2,00,000.00
Seed money for 2 centres @ Rs. 1,00,000.00 per centre	Rs. 2,00,000.00
	-----
	Rs. 14,00,000.00

35. Health-care and family welfare

35.1 Description: The Reserve has a medical van which will be utilized for running medical camps in remote areas at regular intervals. At the same time, training courses for health workers in health care, sanitation, family welfare, etc., and for females attendants required at the time of childbirth will be trained for general improvement in human health in the area.

35.2 Specific Benefit: All the villagers will benefit from this activities and the status of health care and family welfare in the area will improve. It will help earn goodwill of the people instantaneously.

35.3 Basis of Selection: Existing facilities in health care and family welfare provided by the concerned Government Department is inadequate, particularly due to remoteness of villages. Past experience with medical camps, i.e. bringing dispensaries at doorsteps have been very encouraging and needs continuation and further extension for long duration treatment of diseases like tuberculosis, leprosy etc., and also the coverage of family welfare.

35.4 Beneficiaries: All the people of remote villages in the ecodevelopment project area.

35.5 Institutional Structures Required: These activities will be run through the local Non Governmental Organisations in consultation with various village ecodevelopment committees and the concerned departments.

35.6 Constraints: It can not cover the total population for all kinds of their medical and surgical needs and can at best be supplementary to the efforts of the concerned Government Departments.

35.7 Costing:

Recurring cost for  
operating medical van and  
running medical camps @  
Rs. 2,00,000.00 per year      Rs. 10,00,000.00  
Cost of Training 100  
health workers and 50  
female  
attendants; (stipend for  
trainees @ Rs. 300.00 and  
cost of boarding and  
lodging @ Rs. 600.00 ,

honorarium for trainer @	
Rs. 2,000.00 per	
month (7 courses of 3	
months duration)	Rs. 4,47,000.00
	-----
Total	Rs. 14,47,000.00
	-----

### 36. Drinking Water Facilities

36.1 **Description:** Provision for safe drinking water sources, wells or tubewells, for deficient villages or hamlets, decontamination of water in wells and imparting training to atleast one person in each village for minor repairs of tube wells.

36.2 **Specific Benefit:** Augmentation of availability of safe drinking water and reduce chances of water-borne diseases.

36.3 **Basis of Selection:** There are many villages or their tolas which don not have any source of safe drinking water and where villagers either trek long distance for water or depend on natural streams. Again, many existing tube wells remain unutilized for long periods in want of minor repairs, which can be taken care of by training atleast one person from each village for such repairs and by providing him with a kit. Also, the existing wells are not decontaminated. These

requirements were voiced by the villagers.

36.4 **Beneficiaries:** All the villagers of the ecodevelopment project area will benefit from this activity in terms of greater availability of safe drinking water and reduced incidence of water-borne diseases.

36.5 **Institutional Structures Required:** This work will be done by the Reserve authorities in consultation with the village ecodevelopment committees, the local Non Governmental Organisations and the concerned department.

36.6 **Constraints:** Such requirements of all villages can not be fully met under the project and will at best be to supplement the efforts of the concerned Government Department.

36.7 **Costing:**

Provision for 100 sources of safe drinking water @ Rs. 30,000.00 each	Rs. 30,00,000.00
Regular decontamination of water in existing wells (unspecified number)	Rs. 50,000.00
Training 150 villagers for minor repair of hand	

pumps; 6 courses of one week duration; Stipend for trainees @ Rs. 75.00 plus cost of lodging and boarding @ Rs.150.00; Honorarium for trainer @ Rs.500.00 per course ; Cost of providing repair kit @ Rs. 200/- each Rs. 66,750.00  
 -----  
 Total Rs.31,16,750.00  
 -----

37 Adult Education

37.1 Description: The ecodevelopment project envisages to take up adult education on a small scale and supplement the efforts of the concerned Government Department in the area.

37.2 Specific Benefit: Adult literacy will help proper functioning of the village ecodevelopment committees besides improving the quality of life.

37.3 Basis of Selection: Success of the project depends on the proper functioning of various village ecodevelopment committees which can be ensured with more and more literate and educated people on it

37.4 Beneficiaries: The adult villagers covered

under this activity will benefit directly from it, besides indirectly benefitting fellow villagers.

37.5 Institutional Structures Required: This work will be done by the Reserve authorities through the village ecocodevelopment committees, local Non Governmental Organisations and the concerned department.

37.6 Constraints: As already mentioned, it will be done only to supplement the efforts of the concerned Government Department in the Project area.

37.7 Costing:

One month training for 20 Adult Education Instructors (Stipend @ Rs.300 plus cost of boarding and lodging @ Rs.600.00 )Total Rs. 900 per month	Rs. 18,000.00
Honorarium for trainer @ Rs.2,000.00 (one course of one month duration)	Rs. 2,000.00

Remuneration of 20 trained instructors @ Rs.300 per month for five years	Rs.3,60,000.00
Cost of materials, equipments and misc. expenses	Rs.1,00,000.00
Total	Rs.4,80,000.00

ENERGY CONSERVATION

Rs. 10,00,000.00 would be provided for popularization of non-conventional and renewable sources of energy. Such appliances as well as energy efficient devices like improved oven would be distributed amongst the villagers of the Project Area.

MISCELLANEOUS EXPENDITURE

Rs.25,00,000.00 would be provided for miscellaneous expenditures which could not be anticipated at the stage of preliminary planning, but would be unavoidable in the course of Project implementation.

#### ECODEVELOPMENT PLANNING

Rs. 18,80,000.00 would be spent on village level ecodevelopment micro planning involving local Non Governmental Organisations and the villagers.

#### RESEARCH AND DEVELOPMENT

Research needs of the ecodevelopment project would be identified mainly in the process of micro-planning and discussions with the local people. At present needs like proper documentation of biological resources and biodiversity, development of biological and innovative crop-protection measures etc., have been identified. Total project allocation for Research and Development is Rs. 20,00,000.00

#### AWARENESS PROGRAMMES:

As has already been described, there has to be a sharing of information between the local villagers and outsiders. Whereas the local villagers would have much to tell about the ecology and culture of the area, they might benefit from discussion regarding sustainable development strategies and regional, national and even global environmental issues. It is proposed to organize educational and scientific expeditions to visit the villagers and both learn and communicate ideas of science, culture and environment.

However, the main focus of awareness programmes would be on school children through whom their parents & fellow non-school-going children would be sensitized on environmental issues. The schools of the area and local Non Governmental Organisations would play main role in it. The activities under these programmes would include organizing regular nature camps, nature trail walks, audio-visual shows, relevant lectures, nature libraries in few nodal schools, collection of local folklores, folksong, stories showing importance of wildlife in their lives, documentation of local biological resources, preparation and publication of relevant

literature, inter-school exchange visits, occasional tours of nearby villagers for studies on problems of resource utilization pertinent to environment conservation etc. All the schools of the area are proposed to be linked with each other under this programme. Each school would have an environment education teacher and each block a nodal school with a nodal environment education teacher. These nodal schools would be the custodians of equipments, libraries etc., but would be utilized by all schools. Total project allocation for awareness programme is Rs. 30,00,000.00.

#### MONITORING:

As already described, there would be an ongoing monitoring exercise from the first year, to ensure that the project is progressing properly. The findings of such monitoring would be used for future planning and to modify and improve the project activities. The total amount budgeted is Rs. 10,00,000.00.

## INSTITUTIONAL STRUCTURES

For greater participation of the people in, and decentralization of, micro-planning, execution and monitoring of ecocodevelopment project, village ecocodevelopment committee for each or a group of villages having jurisdiction corresponding to village limits will be constituted. Its general body will have on it one adult member from each family and this body will constitute an executive committee with a tenure of two years, for discharging its duties . The executive committee will have limited number of members, one elected president, one convenor-cum-member secretary who will invariably be a Beat officer of the Reserve, and eight others drawn from local Non Governmental Organisations , ladies, Scheduled Castes and Tribes and communities engaged in specific professions like bamboo workers (turis), carpet makers, headloaders and illicit cutters etc. The general body will meet once in six months, besides emergency meetings, whereas the executive committee will meet once in a month in course of discharge of its duties. For the purpose of implementation cooperatives like labour cooperatives, dairy cooperatives etc., will be formed.

#### OPTIONS FOR TRANSITION PERIOD

Various activities identified to be undertaken under the ecodevelopment project have long or short gestations and till the time these start bearing fruits, that is, during transition period, they would require resources from the forests as well as employment. In the interim period, they would continue to use the resources of the Reserve under the arrangement of Joint Forest Management. In addition, many activities like multi-tier cropping, irrigation and land development, crop protection and weed eradication works , all of which have greater wage component, would help the people to tide over the transition period.

D. PROJECT COSTS

1. CONSOLIDATED COSTS

The consolidated project costs \* are:

YEAR	Rs. (in crores)	US \$ ** (in million)
I	2.81	0.94
II	3.61	1.20
III	2.81	0.94
IV	1.81	0.60
V	1.62	0.54
	-----	-----
TOTAL	12.66	4.22
	-----	-----

For the purpose of calculating costs and coverage, a village unit of 110 households has been taken as a norm. The project area has, therefore, been divided into a total of 188 village units. The project attempts to cover approximately 30% of the total households, all poorest of the poor, in each village unit through sustainable income generation activities. As such, the project would cover over 6,100 households in the project area. In addition there would be wage labour provided for over 23.75 lakh person days. For detailed costing of activities, see the detailed table given in the next section.

\* Calculated costs have been rounded off.

\*\* Conversion rate used is Rs. 30/- = US \$ 1.

## 2. DETAILED TABLE

## DETAILED COSTING FOR ECODEVELOPMENT PROJECT IN PALAMAU TIGER RESERVE

Sl. No./Item/Activity	Rate per unit (in Rs.)	Total No. of units	Total cost (Rs. in lakhs)	Yearly break-up of cost (Rs. in lakhs)					
				Non-capital:	Capital	1	2	3	4
A. PLANNING	10000/vil.	188	18.800	12.000	6.800				
B. ECODEVELOPMENT									
Transport									
1 Kacha Roads									
Construction/Repair	10000/km	136	13.600	4.000	4.000	2.600	2.000	1.000	
Maintenance	2000/km		7.040		0.800	1.600	2.120	2.520	
2 Culv./cau.way	20000/culv	136	27.200	8.000	8.000	5.200	4.000	2.000	
Irrigation, Soil Conservation and Agriculture									
3 Irrigation and Soil Conservation.									
Well	30000/well	130	39.000	9.000	7.500	7.500	7.500	7.500	
Checkdam	100000/dam	150	150.000	20.000	30.000	40.000	30.000	30.000	
Anicuts	25000/anic	100	25.000	5.000	7.000	7.000	3.000	3.000	
Perco. tank	25000/tank	100	25.000	5.000	7.000	7.000	3.000	3.000	
Contour bunding	100000/km	50	50.000	10.000	15.000	15.000	5.000	5.000	
Silt det.dams									
gully plugging		50	50.000	10.000	15.000	15.000	5.000	5.000	
4 Agriculture									
Land Dev.	4000/ha	300	12.000	3.000	5.000	3.000	1.000		
Inputs;	1000/fam.		10.000	1.000	1.500	2.000	2.500	3.000	
Biomass									
5 Multi-tier cropping (CVP)	100000/vil	185	185.000	40.000	50.000	50.000	25.000	20.000	
6 Jt. Forest Mgt.	5000/ha	3000	150.000	20.000	35.000	35.000	30.000	30.000	
Income Generation									
7 Poultry	6500/unit of 250 birds	250	16.250	6.500	6.500	3.250			
8 Piggery	7000/unit of 5 pigs	100	7.000	3.500	3.500				
9 Dairy	4000/fam	1000	40.000	10.000	14.000	8.000	6.000	2.000	
10 Beekeeping	500/unit	2000	10.000	4.000	4.000	2.000			
11 Lac culture	500/fam	1000	5.000	1.000	1.000	1.000	1.000	1.000	

Sl. No./Item/Activity	Rate per unit (in Rs.)	Total No: of units	Total cost (Rs.in lakhs)		Yearly break-up of cost (Rs. in lakhs)					
			Non - capital:	Capital	1	2	3	4	5	
12 Horticulture	3000/ha	500	15.000	3.000	7.000	3.000	1.000	1.000		
13 Handicrafts		100	5.000	1.000	2.000	2.000				
14 Stitching		100	1.000	0.500	0.500					
15 Iron smithy	2000/kit	40	0.800	0.400	0.400					
16 Carpentry										
Tool kit	3000/kit	20	0.600	0.300	0.300					
Workshop	500/sq ft.	2	2.000	2.000						
17 Marketing										
Shed in										
local markets	140000/uni	5	7.000	2.800	4.200					
Waiting sheds	30000/unit	10	3.000	1.500	1.500					
Shed at Dist.										
Headquarters	200000/uni	1	2.000	1.000	1.000					
18 Miscellaneous			25.000	4.000	8.000	6.000	4.000	3.000		
Reserve Management										
19 Employment										
Wildlife Mgt.	30/per day		15.000	3.000	3.000	3.000	3.000	3.000		
Support staff	30/per day		10.000	2.000	2.000	2.000	2.000	2.000		
20 Crop protection										
Ele. pr. fen.	55000/km	100	55.000	11.000	22.000	11.000	5.500	5.500		
Crop watcher	30/per day		5.000	1.000	1.000	1.000	1.000	1.000		
Materials			2.500	0.500	0.500	0.500	0.500	0.500		
Crop compen.	250/ha		5.000	1.000	1.000	1.000	1.000	1.000		
21 Cattle compen.			10.000	2.000	2.000	2.000	2.000	2.000		
22 Misc. compen.			2.500	0.500	0.500	0.500	0.500	0.500		
23 Tourism										
Dev. of spots			35.000	45.000	20.000	30.000	15.000	10.000	5.000	
Equipment		16	20.000	5.000	8.000	4.000	2.000	1.000		
C. HUMAN RESOURCE DEV.										
24 Poultry										
- Stipend etc.	900/person	100	0.900	0.600	0.300					
- Trainer	2000/month	5	0.100	0.060	0.040					
25 Piggery										
- Stipend etc.	900/person	100	0.900	0.600	0.300					
- Trainer	2000/month	5	0.100	0.060	0.040					
26 Dairy etc.										
- Stipend etc.	2700/perso	100	2.700	1.620	1.080					
- Trainer	2000/month	15	0.300	0.180	0.120					
27 Beekeeping										
- Stipend etc.	450/person	160	0.720	0.540	0.180					
- Trainer	2000/month	4	0.080	0.060	0.020					

Sl. No./Item/Activity	Rate per unit (in Rs.)	Total No: of units	Total cost (Rs.in lakhs)		Yearly break-up of cost (Rs. in lakhs)					
			Non - capital:	Capital	1	2	3	4	5	
28 CVP Multi-crop.										
- Stipend etc.	900/person	250	2.250	1.350	0.900					
- Trainer	2000/month	10	0.200	0.120	0.080					
29 Stitching										
- Stipend etc.	2700/perso	100	2.700	1.620	1.080					
- Trainer	2000/month	15	0.300	0.180	0.120					
30 Carpentry										
- Stipend etc.	2700/perso	20	0.540	0.540						
- Trainer	2000/month	3	0.060	0.060						
31 Handicrafts										
- Stipend etc.	2700/perso	50	1.350	0.675	0.675					
- Trainer	2000/month	6	0.120	0.060	0.060					
32 Tourism										
- Stipend etc.	2700/perso	40	1.080	0.540	0.540					
- Trainer	2000/month	6	0.120	0.060	0.060					
33 Misc. Training			10.000	2.000	2.000	2.000	2.000	2.000		
34 Trg.-cum-exb. centre										
- Centre	500000/uni	2	10.000	5.000	5.000					
- Furnishing	100000/uni	2	2.000	1.000	1.000					
- Seed money	100000/uni	2	2.000	1.000	1.000					
35 Health care & Fmly.Welfare Medical camps Training			10.000	2.000	2.000	2.000	2.000	2.000	2.000	
- Stipend etc.	2700/perso	150	4.050	2.700	1.350					
- Trainer	2000/month	21	0.420	0.240	0.180					
36 Drinking Water Water Sources Decontamination Trg. in hand pump repair										
- Stipend etc.	225/person	150	0.338	0.338						
- Trainer	500/course	6	0.030	0.030						
- Tool kit	200/kit	150	0.300	0.300						
37 Adult Education Trg.for instructor										
- Stipend etc.	900/person	20	0.180	0.180						
- Trainer	2000/month	1	0.020	0.020						
Remuneration	300/month	60	3.600	0.720	0.720	0.720	0.720	0.720	0.720	
Materials			1.000	0.200	0.200	0.200	0.200	0.200	0.200	

Sl. No. Item/Activity	Rate per unit (in Rs.)	Total No: of units	Total cost (Rs. in lakhs)		Yearly break-up of cost (Rs. in lakhs)				
			Non - capital:	Capital	1	2	3	4	5
D ENERGY CONSERVATION			10.000	2.000	2.000	2.000	2.000	2.000	2.000
E. RESEARCH & DEV.			20.000	4.000	4.000	4.000	4.000	4.000	4.000
F. AWARENESS PROGRAME			30.000	8.000	12.000	6.000	2.000	2.000	2.000
G. MONITORING			10.000	2.000	2.000	2.000	2.000	2.000	2.000
H. MISCELLANEOUS			25.000	10.000	5.000	5.000	3.000	2.000	
Total			1197.248	69.000	281.253	361.645	281.170	180.640	161.540
Grand Total			1266.248		1266.248				

## E. ORGANISATION AND MANAGEMENT

### 1. INSTITUTIONAL ARRANGEMENTS

#### 1.1 Planning

Ecodevelopment planning is seen as a participatory and ongoing process. Essentially, micro-level site specific plans have to be evolved with the active participation of the local communities. In fact, the objective is to encourage the local communities to plan for themselves, with the availability of macro level data and other inputs that they might want from research institutions and the government.

Also, it is recognised that, given the experimental nature of the eco-development approach and the value of flexibility, the planning process should be an ongoing one where a minimum of long and medium term objectives and strategies are identified at the start, and the detailed planning is done as the activities develop.

There are two phases of planning. There is the preliminary, indicative, planning being carried out prior to and for project appraisal. This has been done jointly by the

State Forest Department and the Indian Institute of Public Administration, New Delhi. For indicative planning in Palamau Tiger Reserve, one local Non Governmental Organisation, Nature Conservation Society was also involved.

The second phase of ecodevelopment planning would be the detailed, ongoing planning, which will commence at the initiation of the project. This will be done by planning teams initially of representatives of the park authority (Range Officers), and representatives of Non Governmental Organisations. They would be trained in participatory and rapid rural appraisal techniques, in interpersonal communication skills and in elements of ecodevelopment and Wildlife management planning. It would be their responsibility to initiate the process of ecodevelopment planning by starting interactions with the local communities. These teams will in the process, identify village and community institutions which can increasingly take on the responsibility of ecodevelopment planning and implementation for their own area. The local Non Governmental

Organisations and the local Wildlife Officials will also be continuously involved in the process, in so far as they are required by the village community.

Efforts will be made to include those members of the local community who show an interest and penchant for the work. It is hoped that, within a year, the planning team would have many members of the local community who can continue the task of village interactions independently or with minimal help from the local Non Governmental Organisations.

The planning team would be supported by specialists, on call, who could be requested to give their inputs on specialised issues, like poultry development or water harvesting, etc.

Where a particular expertise is going to be in high demand (for example, vegetable and fruit farming and poultry development), the concerned expert can be taken on deputation or otherwise attached to the Reserve for the first year or two, depending on the requirement.

### 1.2 Human Resource Development

Ecodevelopment and management training would be organised by the Wildlife Institute of India and the Society for Promotion of Wastelands Development. State Government and Central Government extension services, as well as Non Governmental Organisations with the relevant expertise, will have to be identified for training in income generation skills.

Specialised Non Governmental Organisations would have to be identified to set up educational exchange activities.

### 1.3 Implementation

The Project will be implemented through the State Government, specifically through the Reserve authorities. The Field Director would be the over-all incharge of the project, and he would be assisted by appropriate staff exclusively for the project. The level and number of staff would be as per the existing norms of the State Forest Department.

The implementation of ecodevelopment activities has also to be on a local, site specific scale. Whereas some activities, like water management structures or training programmes, might cater to two or more villages or to a whole region, many of the other activities have to be village or even household specific. Consequently, institutional structures for the implementation of the programme must also be appropriately decentralised.

At the village level, there would be a village (ecodevelopment) committee which would be formed along the lines of village protection committees in Bihar. These committees would also have, as members, local forest or Wildlife Officials (Foresters ). For two or more very small or neighbouring villages, a single committee can be formed. These committees will manage the implementation of the ecodevelopment programmes and, wherever required, would enter into agreements with the Forest Department and the State Government for Joint Participatory Management or other such arrangements.

#### 1.4 Coordination

At District level there would be a District Co-ordination Committee chaired by the collector of the District and convened by the Field Director of the Reserve, having as other members, representatives from all the concerned line departments, a maximum of five representative of the local Non Governmental Organisations and concerned research institutions and ten nominated members drawn from Village Ecodevelopment Committees and serving on rotation for a fixed period. The committee will primarily discharge the functions of coordination between the different departments and the ecodevelopment project, liaison with the State and Central Government, periodic external assessment of the project, etc.

As has been mentioned earlier, at State and National levels there would be project co-ordination committees with appropriate and wider representation. The one at the State level would be the responsibility of the Chief Wildlife Warden and it would have the final say in case of any difference of opinion among participants or dispute in all aspects of this project.

## 2. MONITORING AND EVALUATION

Whereas the day to day monitoring would be the responsibility of the village committees, there would be a simultaneous, periodic, monitoring of the ecodevelopment activities by external, independent, agencies who would have the objectivity and ability to identify local administrative and political constraints to the success of the programme. Whereas the programme must be run the way the local people want it to run, the external monitoring agency would primarily monitor the efficient execution of the project and suggest improvement.

## 3. FINANCIAL ARRANGEMENTS

The project funds will be routed through the Chief Wildlife Warden, Bihar and spent through the Protected Area Director, who would be the Ecodevelopment Project Director. The procedures set up by the State Government for handling project funds must ensure:

1. That there is adequate delegation of financial powers to ensure that there is no delay in project implementation. Based on the approval of the budget by the Government, the Project

Director should have power to sanction all expenditure.

2. That the funds are released to the Project authorities in time each year so that the project activities are not disrupted or the funds do not lapse at the end of the year.
3. That there is enough flexibility built into the budget and government sanction to allow the Project Director to respond to the varying demands of the area.
4. That there is ability to release funds to Non Governmental Organisations and community organisations (like ecodevelopment committees) for implementing various project activities.

Needless to say, the ecodevelopment requirements, of the protected area, are too large, long term and varied to be met out of one source. Fortunately, there are various State and Central schemes, of various sectors, that can be tapped once ecodevelopment project has been initiated. In fact, one major function of the ecodevelopment project should be to channelise resources, of all types, from all sources.

Considering the dimensions of the problems, the sustainability of interventions becomes a serious problem. However, it is not clear that, when the

investment finally comes to an end or is significantly reduced, things will not deteriorate rapidly. Therefore, it is important to generate some surplus, during the project period, which can be put into trust funds, for the Protected Area, where the utilisation can be in the form of easy, loans to the local people. In some cases, where small amounts of money are needed, the interest rather than the capital of the trust funds can be used.

## F. IMPLEMENTATION SCHEDULE

### PALAMAU TIGER RESERVE; TIME PHASING FOR ECODEVELOPMENT

	PRE-INVESTMENT PERIOD		INVESTMENT PERIOD							
	Year : 1994 - 1995	1995 - 1996	1996 - 1997	1997 - 1998	1998 - 1999					
	Month: 01-06	07-12	13-18	19-24	25-30	31-36	37-42	43-48	49-54	55-60
Indicative Planning	-8	-7								
.....										
Ecodevelopment planning			1	-----24						
.....										
Transport & communication			3	-----60						
.....										
Irrigation & soil conservation			3	-----60						
.....										
Income generation activities			3	-----60						
.....										
Reserve management activities			3	-----60						
.....										
Human Resource Development			3	-----60						
.....										
Research and Development			1	-----60						
.....										
Awareness programmes			1	-----60						
.....										
Monitoring			6	-----60						
.....										

G. PROJECT BENEFITS

1. BIODIVERSITY AND THE ENVIRONMENT

Through the upgradation of management and the initiation of ecodevelopment, the project would lead to the better conservation of one of the most valuable biodiversity areas in the country.

The project, by upgrading the management and initiating ecodevelopment activities, is going to create a situation where headloading, collection of small wood, bamboo and minor forest produce, grazing and poaching pressures on the Reserve can be totally eliminated with the agreement and cooperation of the people.

Joint forest management in the project area would go a long way in regenerating the forest and grass cover of the region and this coupled with agro-forestry, plantation and soil and moisture conservation work will contribute significantly to the improvement of the environment.

Aspects of ecodevelopment project will also upgrade the management activities, increase the level of support and cooperation of the

local people for conservation, help prevent poaching and forest fires and provide an ability to monitor and study the area ecology.

## 2. SOCIO-ECONOMIC BENEFITS

The project will significantly improve the socio-economic lot of the people by developing their resources, wage labour, training in various income generation skills, seed money for setting up income generation activities, infrastructure like motorable kuchcha roads, market, training centre, irrigation facilities, etc. For details see table on socioeconomic benefits.

The possible invocation of laws and channelisation of other development schemes, for the benefit of the local people, and the greater levels of employment and involvement in the Protected Area planning and management, are other socio-economic benefits of the project.

Special schemes for women, Scheduled Castes and Tribes would ensure that the benefits of the project reach those segments of the society which are most deserving.

The involvement of the people in the micro level planning process, the involvement of Non Governmental Organisations in the planning and implementation, and the inbuilt flexibility in the project design will allow the interventions to be appropriate to the social, cultural and economic needs of the people.

At the completion of the project, there would be significant development of skills among the local people, many of whom would have got established with help from the project in sustainable income generation activities. They would be assisted by various networks (marketing, tourism) set up under the project but to continue subsequently.

### 3. SUSTAINABILITY

Great care has been taken in the project design to ensure that the suggested strategy and the specific activities suggested are socially, economically and environmentally sustainable. Even activities preferred by the local people which are found to be unsustainable environmentally, economically or socially like unprofitable cattle keeping etc., have not been recommended.

The project expenditure has been so distributed that the major expenditure is concentrated in the second and third year, significantly reducing in the fourth and almost disappearing by the fifth and last year. This is to ensure that by the time the project comes to its end, the various income generating activities get well established. The fifth year is seen as the period when corrective measures can be taken or spill overs handled.

## 4 DETAILED TABLE

## SOCIO-ECONOMIC BENEFITS IN PALAMAU TIGER RESERVE

Sl. No.	Item/Activity	Rate per unit (in Rs.)	Total no: of units	Total cost (Rs.in lakhs)		
				Non - capital:	Capital	Persondays Household @ Rs.30/-
A.	PLANNING	10000/vil.	188	18.800		
B.	ECODEVELOPMENT					
	Transport					
1	Kacha Roads					
	-Construction/Repair	10000/km	136	13.600		40800
	Maintenance	2000/km		7.040		21100
2	Culv./cau.way	20000/culv	136	27.200		36300
	Irrigation, Soil Conservation and Agriculture					
3	Irrigation and Soil Conservation.					
	Well	30000/well	130	39.000		52000
	Checkdam	100000/dam	150	150.000		350000
	Anicuts	25000/anic	100	25.000		26700
	Perco. tank	25000/tank	100	25.000		53500
	Contour bunding	100000/km	50	50.000		163300
	Silt det.dams					
	gully plugging		50	50.000		116700
4	Agriculture					
	Land Dev.	4000/ha	300	12.000		37800
	Inputs;	1000/fam.		10.000		1000
	Biomass					
5	Multi-tier cropping (CVP)	100000/vil	185	185.000		550000
6	Jt. Forest Mgt.	5000/ha	3000	150.000		449900
	Income Generation					
7	Poultry	6500/unit of 250 birds	250	16.250		250
8	Piggery	7000/unit of 5 pigs	100	7.000		100
9	Dairy	4000/fam	1000	40.000		1000
10	Beekeeping	500/unit	2000	10.000		2000
11	Lac culture	500/fam	1000	5.000		1000

Sl. No.	Item/Activity	Rate per unit (in Rs.)	Total no: of units	Total cost (Rs. in lakhs)		Persondays Household @ Rs.30/-
				Non-capital:	Capital	
12	Horticulture	3000/ha	500	15.000		500
13	Handicrafts		100	5.000		100
14	Stitching		100	1.000		100
15	Iron smithy	2000/kit	40	0.800		40
16	Carpentry					20
	Tool kit	3000/kit	20	0.600		
	Workshop	500/sq ft.	2	2.000		
17	Marketing					1300
	Shed in local markets	140000/unit	5	7.000		9330
	Waiting sheds	30000/unit	10	3.000		3400
	Shed at Dist. Headquarters	200000/unit	1	2.000		2700
18	Miscellaneous			25.000		
Reserve Management						
19	Employment					
	Wildlife Mgt.	30/per day		15.000		45000
	Support staff	30/per day		10.000		33300
20	Crop protection					
	Ele. pr. fen.	55000/km	100	55.000		166600
	Crop watcher	30/per day		5.000		16600
	Materials			2.500		
	Crop compen.	250/ha		5.000		
21	Cattle compen.			10.000		
22	Misc. compen.			2.500		
23	Tourism					
	Dev. of spots			35.000	45.000	106600
	Equipment		16	20.000		
C. HUMAN RESOURCE DEV.						
24	Poultry					
	- Stipend etc.	900/person	100	0.900		3000
	- Trainer	2000/month	5	0.100		
25	Piggery					
	- Stipend etc.	900/person	100	0.900		3000
	- Trainer	2000/month	5	0.100		
26	Dairy etc.					
	- Stipend etc.	2700/perso	100	2.700		9000
	- Trainer	2000/month	15	0.300		
27	Beekeeping					
	- Stipend etc.	450/person	160	0.720		2400
	- Trainer	2000/month	4	0.080		

Sl. No.	Item/Activity	Rate per unit (in Rs.)	Total no. of units	Total cost (Rs. in lakhs)		Persondays Household @ Rs.30/-
				Non-capital:	Capital	
28	CVP Multi-crop.					
	- Stipend etc.	900/person	250	2.250		7500
	- Trainer	2000/month	10	0.200		
29	Stitching					
	- Stipend etc.	2700/perso	100	2.700		9000
	- Trainer	2000/month	15	0.300		
30	Carpentry					
	- Stipend etc.	2700/perso	20	0.540		9000
	- Trainer	2000/month	3	0.060		
31	Handicrafts					
	- Stipend etc.	2700/perso	50	1.350		4500
	- Trainer	2000/month	6	0.120		
32	Tourism					
	- Stipend etc.	2700/perso	40	1.080		3600
	- Trainer	2000/month	6	0.120		
33	Misc. Training			10.000		
34	Trg.-cum-exb. centre					
	- Centre	500000/uni	2	10.000		13300
	- Furnishing	100000/uni	2	2.000		850
	- Seed money	100000/uni	2	2.000		
35	Health care & Pmly. Welfare					
	Medical camps			10.000		
	Training					
	- Stipend etc.	2700/perso	150	4.050		13500
	- Trainer	2000/month	21	0.420		
36	Drinking Water					
	Water Sources	30000/sour	100	30.000		
	Decontamination			0.500		
	Trg. in hand					
	pump repair					
	- Stipend etc.	225/person	150	0.338		1100
	- Trainer	500/course	6	0.030		
	- Tool kit	200/kit	150	0.300		
37	Adult Education					
	Trg. for instructor					
	- Stipend etc.	900/person	20	0.180		600
	- Trainer	2000/month	1	0.020		
	Remuneration	300/month	60	3.600		12000
	Materials			1.000		

Sl. No.	Item/Activity	Rate per unit (in Rs.)	Total no: of units	Total cost (Rs.in lakhs)		Persondays @ Rs.30/-	Household
				Non-capital:	Capital		
D	ENERGY CONSERVATION			10.000			
E	RESEARCH & DEV.			20.000			
F	AWARENESS PROGRAME			30.000			
G	MONITORING			10.000			
H	MISCELLANEOUS			25.000			
	Total			1197.248	69.000	2375280	6110
	Grand Total			1266.248			

V ISSUES AND FOLLOW-UP

A. POLICY ISSUES

1. The Wild Life (Protection) Act, as amended in 1991, allows the conditional recognition of rights and permits sustainable level of grazing inside a sanctuary. It also permits, in a sanctuary and a national park, activities related to the management of the park. Ecodevelopment must be seen as a strategy to help uphold the Act by providing viable alternative sources of biomass and income to the people using the protected area in violation of the Act.

Off the shelf, ready to implement, income generation schemes would be provided to tide over the loss of income during the transitional phase, before the various sustainable income generation activities get established and begin to give returns. Similarly, alternate arrangements will be made for any biomass requirement that is denied because of the application of the Act.

2. Appropriate provisions of the Environment (Protection) Act, 1986, would be invoked, along with provisions of other, relevant,

State Acts, to ensure that the surrounds of protected areas including the project area are not subjected to any unsustainable activities. The provisions of these Acts will also be invoked, where necessary, to assist in establishing a sustainable development model in the area and in ensuring that the economic benefits from the protected area and the ecodevelopment project (like earnings from tourism or employment in jobs and as wage labour) go first to the local communities who have suffered deprivations due to the setting up of the protected area.

**B. PROJECT IMPLEMENTATION ISSUES**

1. The State Government will allow the joint participatory management of forests in and around the project area in order to promote the protection of these forests and the sharing of benefits.
2. Management planning for the protected area, and management and ecodevelopment training for the concerned officers, will be ensured by the State Government.
3. The State Government will attempt to assist in providing a market for the products of

ecodevelopment income generation activities by ensuring, as far as possible, that government orders are made available to them.

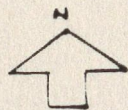
4. The State Government will try and recruit women forest guards and other women staff, for management and ecodevelopment work, both in order to provide an opportunity to the women to get employment and making interaction with women members of the community more effective.
5. The State Government will try and channelise other development schemes available to the project area in a way that these are complementary to the ecodevelopment project.
6. The State Government shall provide adequate compensation, for crop damage, other property damage or livestock and human injury or death, by wild animals, in the periphery of the protected area and in the project area. Whereas the State Government's rules governing compensation for the said crop damage and human death are there, the same to cover property damages cattle death and human injury shall have to be framed immediately.

C. FURTHER PREPARATION

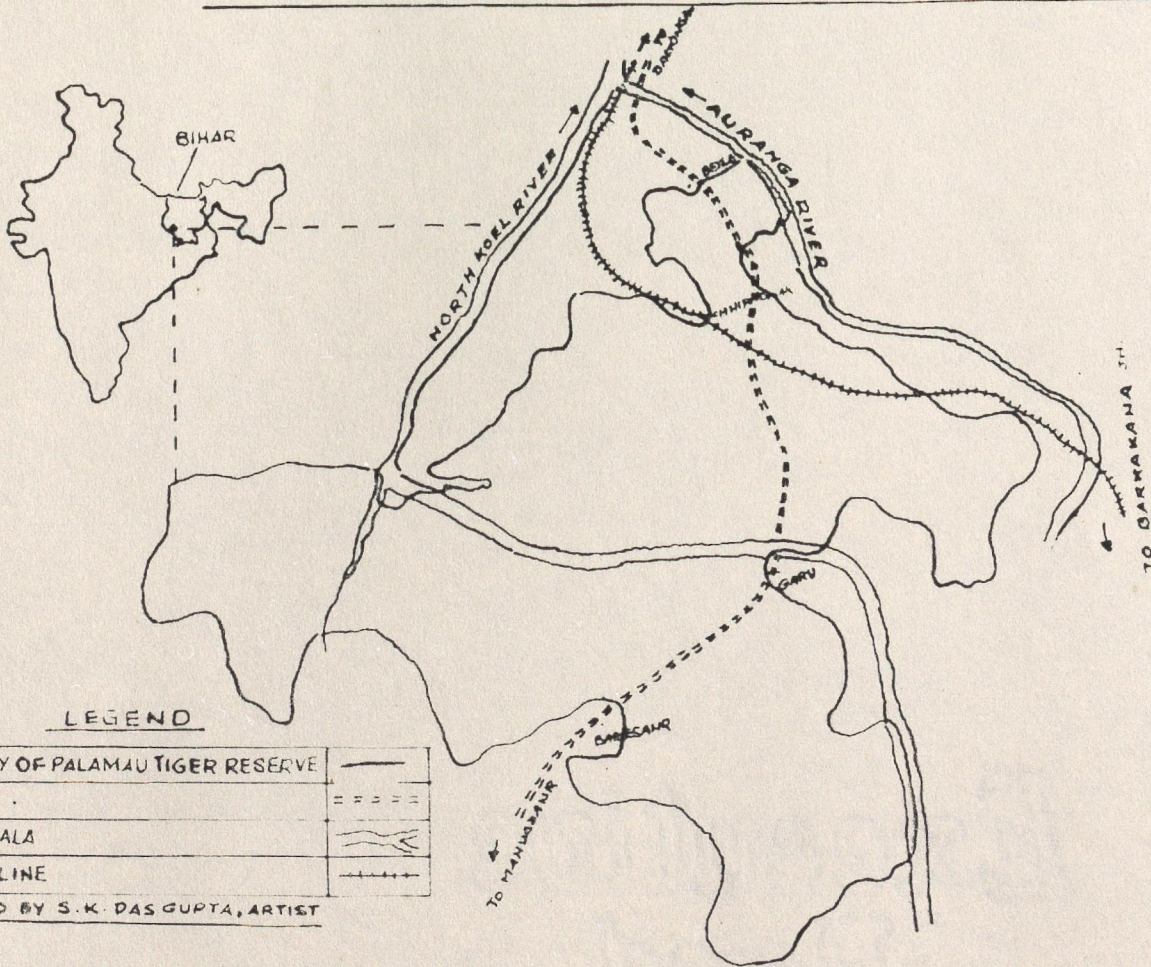
1. The State Government shall ensure a process of participatory planning, as specified in the project document, as a part of the project implementation.
2. The planning process could start as soon as the project is approved and even before official initiation of the project.
3. Identification of, and discussions with, regional institutions and local/regional Non Governmental Organisations, who would be assisting in the planning, implementation, monitoring, research, and education and awareness work could also be initiated before the project formally starts.
4. Planning for setting up appropriate institutional structures and for identifying the appropriate staff for project implementation should also be initiated as soon as the project is approved.
5. Collection of macro level data relevant for micro level planning should also be collected as soon as possible.

MAP FOR

PALAMAU TIGER RESERVE



# MAP 1: PALAMAU TIGER RESERVE: LOCATION MAP

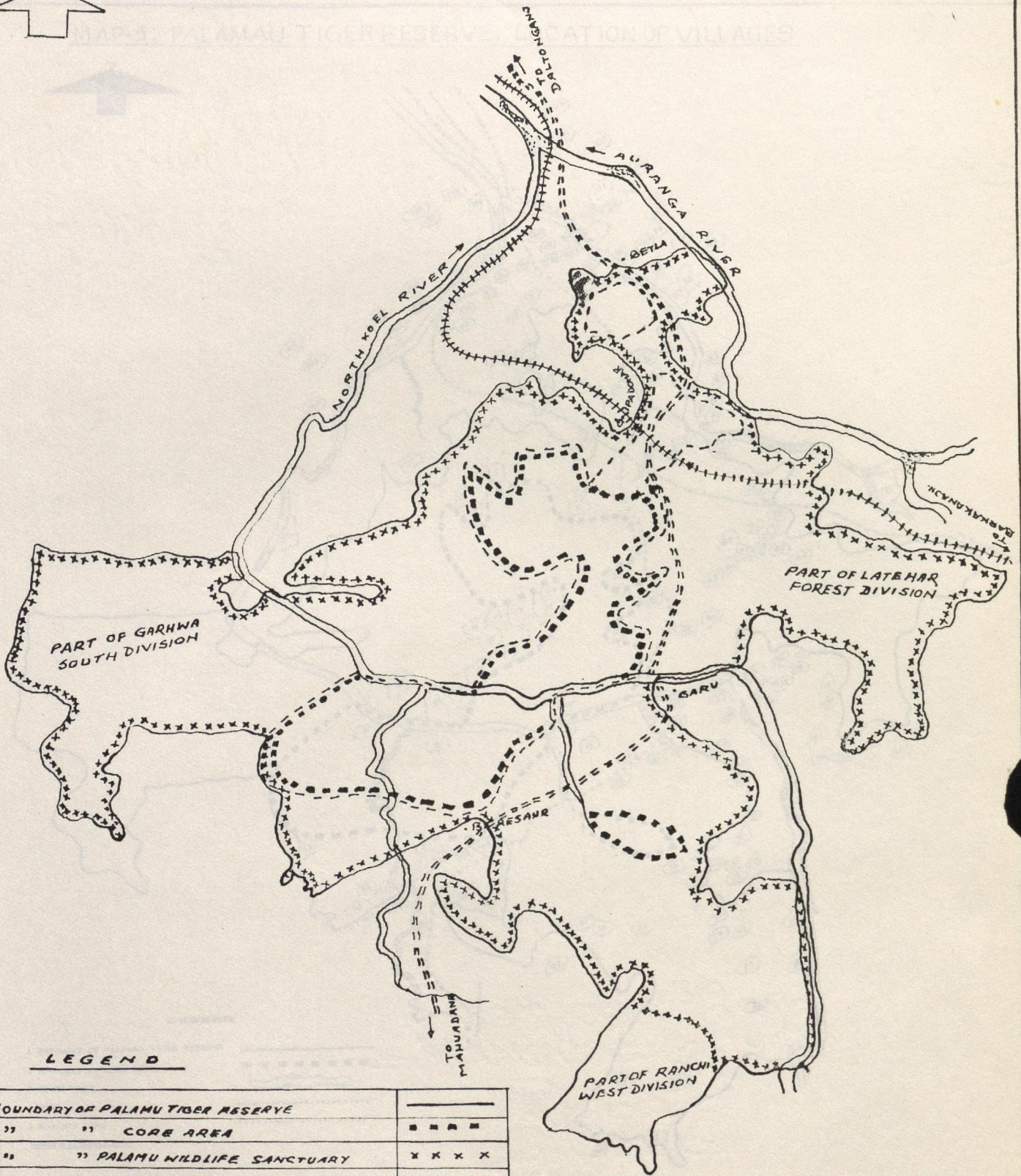
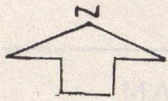


## LEGEND

BOUNDARY OF PALAMAU TIGER RESERVE	—
ROAD	- - - -
RIVER & NALA	~~~~~
RAILWAY LINE	—+—+—+—+—

PREPARED BY S. K. DAS GUPTA, ARTIST

# MAP-2: MANAGEMENT MAP OF PALAMU TIGER RESERVE



## LEGEND

BOUNDARY OF PALAMU TIGER RESERVE	—————
" " CORE AREA	■ ■ ■ ■
" " PALAMU WILDLIFE SANCTUARY	x x x x
" " PROPOSED PALAMU NATIONAL PARK	- - - -
RIVER-NALO	~~~~~
ROAD	= = = =
RAILWAY LINE	—+—+—+—+—

PREPARED BY S.K. DASGUPTA, ARTIST

LIST OF VILLAGES IN AND AROUND PALAMAU TIGER RESERVE  
( See Map-3)

CORE ZONE	41 Chiraiya	82 Koli	125 Mangra	168 Luhurtanr
1 Ramandag	42 Tati	83 Sheodhara	126 Paira	169 Karwai
2 Latoo	43 Mahuadabar	84 Kerh	127 Ledgain	170 Hethtola
3 Kujrum	44 Kante	85 Lukumkhar	128 Ukamar	171 Dorami
BUPPER	45 Baribandh	86 Rabdi	129 Kuchila	172 Korwadih
(INSIDE)	46 Jaigir	87 Ranki Kalan	130 Chhipadohar	173 Ganeshpur
4 Gari	47 Darichapar	88 Ranki Khurd	131 Morwai	174 Sukal Kath
5 Juruhar	48 Siram	89 Hurmur	132 Tataha	175 Manatu
6 Harnamanr	49 Goindi	90 Salaiya	133 Chando	176 Chatam
7 Barichatta	50 Lohargara	91 Pipra	134 Baigadiah	177 Kuku
8 Baridohar	51 Arnu Mirchaiya	92 Rabda	135 Duba	178 Selaritanr
9 Saidupe	52 Maromar	93 Them	136 Ausane	179 Piri
10 Jargar	53 Bhawarbandha	94 Thema	137 Khapiya	180 Mukundpur
11 Bere	54 Arnu	95 Gaura	138 Barhania	181 Chipru
12 Gasedag	55 Surkumi	96 Ledwakhaur	139 Bairia	182 Dabri
13 Lat	56 Heswa	97 Pochi	140 Chunga Bansdih	183 Murpa
14 Barkheta	57 Samodhtola	98 Gurha	141 Bansdih	184 Rol
15 Tongari	58 Ladi	99 Halumanr	142 Uter	185 Sarju
16 Harhe	59 Haratu	100 Tabar	143 Kankaru	186 Patratu
17 Serendag	60 Jobe Anwatikar	101 Manasoti	144 Ulman	187 Deobar
18 Patradih	61 Munda	102 Bari	145 Chitra	188 Hesalbar
19 Khamikhas	62 Labhar	103 Karma	146 Hutar	
20 Karandih	63 Kurumkheta	104 Polpol	147 Bandua	
21 Naurnago	64 Hatta	105 Chamo	148 Danrkocha	
22 Tanwai	65 Anwatikar	106 Kechki	149 Baresand	
23 Nawatoli	66 Antikheta	107 Kushahabathan	150 Parewatanr	
24 Tentanr	67 Jobla	108 Saraidih	151 Mayapur	
25 Tilaitanr	68 Barkadih (Kumandih)	109 Pokhri Khurd	152 Derhgaon	
26 Mangra	69 Lawagara	110 Pokhri Kalan	153 Ramseli	
27 Lalmatia	70 Putki	111 Kolpurwa	154 Chetma	
28 Jhumri	71 Wopag	112 Akhra	155 Dauna	
29 Tisia	72 Nawadih	113 Betla	156 Gope Khanr	
30 Paharkocha	73 Hosir	114 Harparwa	157 Hendehas	
31 Adhe	74 Gua	115 Kutuu	158 Kabri	
32 Korgi	75 Hehegara	116 Kachanpur	159 Chanpi	
33 Henar	BUPPER	117 Kalyanpur	160 Baigatoli	
34 Waina	(OUTSIDE)	118 Dorami	161 Kotam	
35 Sirsi	76 Bhatko	119 Muru	162 Salve	
36 Brijiatoli	77 Jagtu	120 Luhur	163 Hurdag	
37 Bijaipur	78 Jerua	121 Baheratanr	164 Daldalia	
38 Ghutua	79 Dumri	122 Amdiha	165 Hesag	
39 Pandra	80 Lanka	123 Murgidih	166 Dhangartola	
40 Rud	81 Kope	124 Hendehas	167 Garu	

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