

Annexure 10 : Wildlife Conservation Plan

**Wildlife Conservation Plan for
Impact Area of
Chilai Dolomite Mine at village Chilai in Wani Tahsil of Yavatmal Distt; M. S.**

(November 2015)

Plan Period

5 Years

AUTHOR

Shripad Dorle, I. F. S. (Retd.)

Project:

**Chilai Dolomite Mine at Chilai,
Tahasil Wani, Distt. Yavatmal, M. S.**

Project Proponent:

**Mr. M. Abdul Kadir M. Hanif,
Prop. M/S Mohammadi Minerals,
Wani, M. S.**

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This **“Wildlife Conservation Plan for the Impact Area of Chilai Dolomite Mine at Village Chilai in Wani Tahsil of Yavatmal Distt; M. S.”** is formulated in compliance of the direction at Sr. No. (vi), given by the 36th “Experts Appraisal Committee”, through its meeting held on 30th July 2015 under ‘Agenda Item No. 2.33’, while assessing the “Environment Impact Assessment and Environment Management Plan Report” for the purpose of recommending to the Ministry of Environment, Forests & Climate Change the grant of “Environmental Clearance” for Chilai Dolomite Mine at village Chilai, Tahsil Wani, District Yavatmal of Maharashtra State falling in Pandharkawada Forest Dn.

Aforesaid direction reads as under:-

“(vi) – The Conservation Plan for Schedule I species shall be submitted”.

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The most important information of presence of Tigers in nearby forest area, which is a very recent development, was provided by all the four foresters mentioned above. Therefore more stress is given on conservation of Tiger.

Besides the Foresters, as above, I have also interacted with various Stake Holders during formulation of this plan. I express my sincere thanks to all of them.

Wildlife photographs used in this Plan are borrowed from my daughter, Ar. Radhika Pathak of Nagpur. I acknowledge my gratitude to Shri Anil Mahajan, Nature Conservationist of Nagpur for the designs of Artificial Nests for the Avifauna.

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Last but not the least, I also record my sincere gratitude to Shri Shrivallabh Kothe, Head, Sujlam Consultants, Nagpur, Shri Yogesh Sharma, Project Co-Ordinator, Shri Venkateswarlu, Project Manager both from M/S Mohammadi Minerals, Wani for providing various inputs and continued logistic support during the field visits and interactions with the forest officials and other Stake Holders.

PREFACE

The Mining Lease over an area of 61.91Ha; has been approved by the State of Maharashtra in favour of Shri M. Abdul Kadir M. Hanif, Prop. M/S Mohammadi Minerals, Wani, for opencast mining of Dolomite from the Chilai Dolomite Mine at village Chilai, Tahsil Wani, Dist. Yavatmal, M. S. The Lease Area is located in Pandharkawada Forest Dn.

The MoEF&CC was approached by the Project Proponent for the “Environmental Clearance” for Chilai Dolomite Mine. For this purpose the Environmental Impact Assessment / Environmental Management Plan Report was carried out as per the ToR approved and the same was considered by the Reconstituted 36th Experts Appraisal Committee in its meeting held during July 29th – 30th, 2015. It was directed by the EAC to submit the Conservation Plan for Schedule I species. Hence this **“Wildlife Conservation Plan for the Impact Area of Chilai Dolomite Mine at Village Chilai in Wani Tahsil of Yavatmal Distt; M. S.”** is formulated in compliance of Direction No. (vi) stipulated by the 36th EAC on 30th July 2015.

It was gathered during the inter action with the A. C. F. (Tendu), Dy. C. F; Pandharkawada Forest Dn; C. C. F; Yavatmal Forest Circle and also with the Chief Wildlife Warden, M. S; Nagpur that ‘Tigers’ are very recently noticed in the forests of Mukutban Range. Keeping this input in mind more stress is given on conservation of Tiger.

The Plan Period is 5 years with the financial outlay of **Rs. 28.22 lakhs**. Plan is to be implemented through the Deputy Conservator of Forests; Pandharkawada Forest Division, where as the activities proposed under Socio – Economic Development shall be carried out by the Project Proponent.

EXECUTIVE SUMMARY

1.0 Introduction:

The Mining Lease over an area of 61.91Ha; has been approved by the State of Maharashtra in favour of Shri M. Abdul Kadir M. Hanif, Prop. M/S Mohammadi Minerals, Wani, for opencast mining of Dolomite from the Chilai Dolomite Mine at village Chilai, Tahsil Wani, Dist. Yavatmal, M. S; with a Lease Period of 30 years. The Lease Area is located in Pandharkawada Forest Dn.

'Mining Scheme' for 'Open Cast' mechanized extraction of Dolomite has been approved on 5/11/2014 by the Director General of Mines, IBM, Nagpur for 'Ultimate Pit Depth' of 36 meters.

The Environmental Impact Assessment / Environmental Management Plan Report was carried out by the Project Proponent and submitted to the 36th Expert Appraisal Committee. Considering the same, EAC through its meeting held during July 29th – 30th, 2015 directed through its Direction at Sr. No. (vi) as under:-

“(vi) Conservation Plan for Schedule I species should be submitted”.

This 'Wildlife Conservation Plan' is formulated in compliance of above quoted Direction of the EAC and it consists of three parts viz :-

Part I - Information of resources on which the proposal is based,

Part II - Proposed Wildlife Conservation and

Part III - Appendices.

The Plan Period is of 5 years with the proposed Financial Outlay of **Rs. 28.22** Lacs and the same would be borne by the Project Proponent. The selection of the sites for the proposed works and implementation of the Plan is expected through the Dy. C. F;

Pandharkawada Forest Division or by any other authority, specified by the Competent Authority in this respect. The activities proposed under 'Socio – Economic Development' shall be carried out by the Project Proponent.

2.0 Objectives:

Following Objectives are set out for this Plan:

- (i) To formulate the "Conservation Plan for Schedule I species" in order to comply with the direction given by the 'Experts Appraisal Committee'.
- (ii) To preserve various segments of the habitats through need based site specific Habitat Improvement by way of Augmentation of Water Resources, Soil and Moisture Conservation Measures, Improving the Availability of Food / Fodder,
- (iii) To attain sustainable conservation of Life Support Systems in the forests,
- (iv) To determine the strategies for countering the perceived threats,
- (v) To suggest appropriate conservation / mitigating measures along with the financial estimates to conserve the Schedule I species in particular and wildlife in general and
- (vi) To promote the Conservation Awareness amongst the local populace.
- (vii) To reduce the dependency of adjoining villages on the forest.
- (viii) To enhance the Socio-Economic development of the villages surrounding the mine.

3.0 Modalities adopted for preparation of the Plan:

This Plan has been formulated after detailed field visits, profuse inter actions with the Chief Wildlife Warden; M. S. besides the concerned foresters and other stake holders and also keeping in view the present wildlife management practices and requirements of the Field Forest Officers. It has been an endeavor of the Author to formulate this Plan perfectly in tune with the prescriptions of the Working Plan for Pandharkawada Forest Dn. and the provisions of the prevailing relevant Acts, Rules and Policies of the Government of India and also the State of Maharashtra.

4.0 Fauna existing:

Schedule I Species:

Tiger, Panther, Wolf, Black Buck, Sloth Bear, Chinkara, Pea Fowl and Python.

Other Species:

(i) Carnivores: Hyaena, Wild Dog, Indian Forest Jackal, Indian Fox, Jungle Cat, Mongoose.

(ii) Herbivores: Spotted Deer, Blue Bull, Sambar, Chausingha, Wild Boar, Common Langur, Indian Hare, Barking Deer, Porcupine, Langur.

(iii) Birds: Jungle Fowl, Painted Partridge, Common Quail), Crow Pheasant, Spotted Owlet, Civet.

(iv) Reptiles: Red Sand Boa, Indian Cobra, Rat Snake.

5.0 Proposals for Wildlife Conservation:

More stress is given on the activity of Habitat Improvement, that is, 'Water Management' and 'Improvement of Food and Fodder Availability' followed by 'Protection' measures. Since the Forests falling in the Influence Area are honeycombed with habitations whose local populace is heavily dependent on the forests, efforts are made to reduce such dependence through the activities of 'Raising of Fuel Wood Plantations' and 'Pasture Development' etc. through "Village Eco – Development". Participation of local populace in conservation being need of the day, the same is proposed through 'Fostering the Conservation Awareness'. Being an entrepreneur, it is moral responsibility of the Project Proponent to help in the process of 'Socio – Economic Development' of the region to the extent economically possible for him. Hence such proposals are also included in the Plan which would not only help the local populace to achieve their development but would also help in conservation of Forests and the Wildlife therein.

Since 'Tigers' are existing in the vicinity, more stress is given on its conservation. However, apart from prescriptions for the conservation of 'Tiger', general Wildlife Conservation is also envisaged in this Plan since the wildlife other than Tiger is also very much part and parcel of the Bio-Diversity and it also needs conservation measures.

The Plan covers following sub-groups:

- (i) Proposals for Conservation of Tiger (Tiger Conservation Plan),
- (ii) Proposals for Conservation of other Wildlife,
 - (A) Proposals for Habitat Improvement and,
 - (B) Proposals for Forest Protection.
- (iii) Proposals for Village Eco –Development and
- (iv) Proposals for Socio – Economic Development of Local Populace.

6.0 Activities proposed for the Plan Period:

Following activities have been proposed in this “**Wildlife Conservation Plan for the Impact Area of Chilai Dolomite Mine at Village Chilai in Wani Tahsil of Yavatmal Distt; M. S.**” for the cost estimates of **Rs. 28.22 Lakhs** and for the Plan Period of 5 years.

(Rs. In lakhs)

Sr. No.	Proposed Activity And Implementing Agency	Phy. Target	Unit	Rate per Unit	Total amount for Plan Period
	Sub Plan I: Conservation of Tiger				
1	Monitoring the Movements of Tigers and Alert System				
	Pandharkawada Forest Dn.				
	(i) Supply of Rapid Rescue Van	1	No.	9.0	9.0
	(ii) Monitoring Team	5	No.	0.20	1.0

Sr. No.	Proposed Activity And Implementing Agency	Phy. Target	Unit	Rate per Unit	Total amount for Plan Period
2	Protection of Tiger Cubs				
	Pandharkawada Forest Dn.				
	(i) Protection Team	5	No.	0.15	0.75
3	Providing Equipments				
	Pandharkawada Forest Dn.				
	(i) Providing Trainquilising Gun	1	No.	2.60	2.60
	(ii) Providing Camera Traps	1	No.	0.12	0.12
	(iii) Providing Night Vision Binocular	1	No.	0.90	0.90
4	Training of Forest Staff				
	Pandharkawada Forest Dn.	5	No.	0.05	0.25
5	Intelligence Gathering				
	Pandharkawada Forest Dn.	5	No.	0.05	0.25
6	Fostering Conservation Awareness				

	Pandharkawada Forest Dn.	5	No.	0.05	0.25
7	Construction of Parapet Walls on Open Wells of Agricultural Fields				
	Pandharkawada Forest Dn.	2	No.	0.25	0.50
I	Total for Conservation of Tiger	31	No.	--	15.62
Sr. No.	Proposed Activity And Implementing Agency	Phy. Target	Unit	Rate per Unit	Total amount for Plan Period
II	Conservation of Other Wildlife				
	Habitat Improvement				
	Water Management				
1	Strengthening of Existing Waterholes				
	Pandharkawada Forest Dn.	10	No.	0.10	1.0
2	Construction of Dry Rubble Check Dams (Gabian Structures)				
	Pandharkawada Forest Dn.	3	No.	0.25	0.75
3	Digging of Continuous Contour Trenches (CCTs)				

	Pandharkawada Forest Dn.	3	No.	0.25	0.75
	Improvement of Food & Fodder Availability				
4	Pasture Development				
	Pandharkawada Forest Dn.	5	Ha.	0.25	1.25
5	Raising of Plantations				
	Pandharkawada Forest Dn.	3	Ha.	1.10	3.30
6	Providing Artificial Nests				
	Pandharkawada Forest Dn.	5	No.	0.05	0.25
7	Prophylactic Inoculation of Domestic Cattle				
	Pandharkawada Forest Dn.	5	No.	0.05	0.25
	Forest Protection				
8	Providing Bicycles				
	Pandharkawada Forest Dn.	3	No.	0.017	0.05

Sr. No.	Proposed Activity And Implementing Agency	Phy. Target	Unit	Rate per Unit	Total amount for Plan Period
9	Providing Motorcycle				
	Pandharkawada Forest Dn.	1	No.	0.50	0.50
10	Providing Personal Digital Assistant (PDA)				
	Pandharkawada Forest Dn.	3	No.	0.08	0.25
II	Total for Conservation of Other Wildlife				
	Pandharkawada Forest Dn.	41	Ha. / No.	--	8.35
III	Village Eco - Development				
1	Raising of Fuel Wood Plantations on Bunds				
	Pandharkawada Forest Dn.	5	No.	0.25	1.25
2	Pasture Development on Community Lands				
	Pandharkawada Forest Dn.	2	No.	0.25	0.50

M/s. Mohammadi Minerals, Chilai Dolomite Mining Project

3	Supply of Liquid Petroleum Gas (LPG)				
	Pandharkawada Forest Dn.	5	No.	0.10	0.50
4	Strengthening of FPCs/JFMCs/VEDCs				
	Pandharkawada Forest Dn.	5	No.	0.10	0.50
III	Total for Village Eco - Development				
	Pandharkawada Forest Dn.	17	No.	--	2.75

Sr. No.	Proposed Activity And Implementing Agency	Phy. Target	Unit	Rate per Unit	Total amount for Plan Period
IV	Socio-Economic Development				
1	Training for Lively Hood				
	Project Proponent	5	No.	0.05	0.25
2	Training in Computer Applications				
	Project Proponent	5	No.	0.05	0.25
3	Assistance to Primary Health Centers				
	Project Proponent	5	No.	0.05	0.25
4	Repairs to Primary School Buildings				
	Project Proponent	5	No.	0.05	0.25
5	Construction of Overhead Water Reservoir at Chilai				
	Project Proponent	1	No.	0.50	0.50
IV	Total for Socio-Economic Development				
	Project Proponent	21	No.	--	1.50

	Implementing Agency wise Total				
	Pandharkawada Forest Dn.	89	No./Ha.	--	26.72
	Project Proponent	21	No./Ha.	--	1.50
	Grand Total for the Plan	110	No./Ha.	--	28.22

7.0 Plan Period:

The Plan Period is proposed to be of 5 years.

8.0 Plan Jurisdiction:

The 'Impact Area' of the Chilai Dolomite Mine would be the jurisdiction of this Plan. The measures prescribed under this Plan can also be implemented in any forest area, at the discretion of the Implementing Agency or the Competent Authority, even if it is outside the Impact Area.

9.0 Financial Forecast:

Financial Forecast for the works proposed during the Plan Period under various activities is **Rs. 28.22 Lakhs**, its year wise phasing is as below:

Year	Financial Outlay (Rs. In Lakhs)	% To Total
Y 1	17.59	63
Y 2	3.82	13
Y 3	3.41	12
Y 4	1.70	6
Y 5	1.70	6
Total	28.22	100

10.0 Funding of the Plan:

Entire Financial Outlay of **Rs. 28.22 Lakhs** shall be borne by the Project Proponent ie M/S Mohammadi Minerals. Funds required for the year would be placed at the disposal of the Implementing Authority, in advance, at the beginning of the fiscal year, on year to year basis.

11.0 Implementation of the Plan:

The Deputy Conservator Forests, Pandharkawada Forest Dn; or any other Authority, specified by the State of Maharashtra or by the Competent Authority, shall be the Implementing Agency for this Plan. Works proposed under 'Socio – Economic Development' shall be carried out by the Project Proponent.

PART I

INFORMATION OF RESOURCES ON WHICH THE PROPOSAL IS BASED

CHAPTER 1

INTRODUCTION AND STATEMENT OF SIGNIFICANCE

1.1 Introduction

The Mining Lease over an area of 61.91Ha; has been approved by the State of Maharashtra in favour of Shri M. Abdul Kadir M. Hanif, Prop. M/S Mohammadi Minerals, Wani, for opencast mining of Dolomite from the Chilai Dolomite Mine at village Chilai, Tahsil Wani, Dist. Yavatmal, M. S; with a Lease Period of 30 years. The Lease Area is located in Pandharkawada Forest Dn.



Mining Lease Area

'Mining Scheme' for 'Open Cast' mechanized extraction of Dolomite at the rate of 15,00,000 tonnes per year has been approved by the Director General of Mines, IBM, Nagpur through his letter dated 5th

November 2014. Machinery such as Dumper, Loader, Grader, Water Tanker, Tractor, Water Pump, Compressor, Wagon Drill, Crusher and Shovel would be used for extraction of the mineral. 'Ultimate Pit Depth' would be limited to 36 meters.

The MoEF&CC was approached by the Project Proponent for the grant of "Environmental Clearance" for 'Chilai Dolomite Mine'. The 'Terms of Reference' (TOR) for carrying out the 'Environmental Impact Assessment' (EIA) of this project was prescribed by the 'Experts Appraisal Committee' (EAC) of MoEF&CC through its 21st meeting held on 8th and 9th July 2014 and the same was communicated through its letter dated 12th August 2014.

The Environmental Impact Assessment / Environmental Management Plan Report was carried out as per the ToR approved and the same was considered by the Reconstituted 36th Expert Appraisal Committee in its meeting held during July 29th – 30th, 2015. It was directed by the EAC to submit the "Conservation Plan for Schedule I species" since the Influence Area of Chilai Dolomite Mine is a habitat for some of the Schedule I species. Hence this **"Wildlife Conservation Plan for the Impact Area of Chilai Dolomite Mine at Village Chilai in Wani Tahsil of Yavatmal Distt; M. S."** is formulated in compliance of Direction No. (vi) stipulated by the 36th EAC on 30th July 2015.

Wildlife Conservation Plan consists of three parts viz ;

Part I - Information of resources on which the proposal is based,

Part II - Proposed Wildlife Conservation and

Part III – Appendices.

This Plan has been formulated after detailed field visits, profuse inter actions with the concerned foresters and other stake holders and also keeping in view the present management practices and requirements of the Field Forest Officers. It has been an endeavor of the Author to formulate this Plan perfectly in tune with the prescriptions of the Working Plan for Pandharkawada Forest Dn. and the provisions of the prevailing relevant Acts, Rules and Policies of the Government of India and also the State of Maharashtra.

The Plan Period is of 5 years with the Financial Outlay of **Rs. 28.22** Lacs and the same would be borne by the Project Proponent. The selection of the sites for the proposed works and implementation of the Plan is expected through the Dy. C. F; Pandharkawada Forest Division or by any other authority specified by the Competent Authority in this respect. The

activities proposed under Socio – Economic Development shall be carried out by the Project Proponent.

1.2 Statement of Significance

The Chilai Dolomite Mine is located in Yavatmal district of M. S; between latitude – N 19°-49'-39.4" to N 91°-50'-9.5" and longitude – E 78°-55'-32.6" to E 78°-56'-9.4" in Tahsil – Wani falling in Pandharkawada Forest Dn. The total Lease Area of the Chilai Dolomite Mine is 61.91 ha.

Floristically the **Impact Area** of the Chilai Dolomite Mine is a part of Bio-Geographic Zone 6 – Deccan Peninsular Central Highlands. It is situated on the southern up-lands of Payanghat of Berar and on the eastern portion of Ajanta hills. Its **Floral Diversity** consists of Teak (*Tectona grandis*) as a main dominant tree species having other associate tree species such as Ain (*Terminalia tomentosa*), Dhawada (*Anogeissus latifolia*), Tiwas (*Ougenia oojeinesis*), Lendia (*Lagerstroemia parviflora*), Tendu (*Diospyros melanoxylon*), Bhirra (*Chloroxylon swietenia*), Beheda (*Terminalia bellirica*), Bija (*Pterocarpus marsupium*), Bel (*Aegle marmelos*), Amaltas (*Cassia fistula*), Awala (*Emblica officinalis*), Char (*Buchanania lanzan*), Dudhi (*Wrightia tinctoria*), Ghoti (*Zizyphus xylocarpa*), Palas (*Butea monosperma*), Dhaman (*Grewia tiliaefolia*), Moyen (*Lannea grandis*), Bartondi (*Morinda tinctoria*), Lokhandi (*Ixora parviflora*), Kalam (*Mitragyna parviflora*), Rohan (*Soymida febrifuga*), Salai (*Boswellia serrata*), Semal (*Bombax ceiba*), Sisham (*Dalbergia latifolia*), Neem (*Azadiracta indica*), Bhokar (*Caridia Macleadii*).

CHAPTER 2

THE RESOURCE

(Source: Working Plan of Pandharkawada Forest Dn.)

2.1 Location and Area

The Influence Area is the 10 Km. radius area of Lease Area of Chilai Dolomite Mine.

(i) Location by Geographic Co-ordinates

Pandharkawada Forest Dn. is falling between following Geographic Co-ordinates:-

Latitude: N 19⁰ 49' 39.6" - N 19⁰ 50'09.5" and

Longitude: E 78⁰ 55' 32.6" - E 78⁰ 56' 09.4".

(ii) Location by other features

State: M. S.

District: Yavatmal.

Forest Circle: Yavatmal.

Forest Division: Pandharkawada Forest Dn.

(iii) Location by Bio Geographic Zone:

The area of the Plan falls under Indo Malayan Realm, Zone 6 – Deccan Peninsula, 6 A - Central Highlands Region.

2.2 Legal Status

Legal status of forest area falling within the jurisdiction of this Plan is a mix of mainly Reserve Forests and very few Protected Forests.

2.3 Geology, Rock and Soil

Geological formations in Pandharkawada Forest Dn. are Deccan trap, with greatly varying basalts. The Archean rocks are totally covered by Puranic rocks. The prevailing rock is basalt and these formations vary from homogeneous hard belts to soft and earthy belt. Soil produced varies from sand and clay loams to a hard reddish murrum, which is frequently found, mixed with boulders of various sizes. Two broad varieties of soil are noticed in this division – 1. Medium Black Soil and 2. Mixed Black Soil. Black Cotton Soil is also frequently met with and supports good quality forests.

2.4 Terrain

Most of the land consists of high level plateau with average elevation of 350 m to 400 m and gently sloping towards eastern portion. The highest point in the division is situated in Bhiwkund forest having an altitude of 442 meters above M.S.L.

2.5 Climate

There are 3 seasons namely summer, rainy and winter. In summer the climate is hot and dry, where as it is moderately cool during winter. The rainy season starts from 2nd week of June and continues up to September, whereas the winter season commences from November and continues till February.

During summer temperature varies from 40⁰ C to 46⁰ C and in winter the temperature ranges from 8⁰ C to 11⁰ C.

The precipitation is received through South-West monsoon, however little rainfall is also received through North-East monsoon. 90% of annual rainfall is received during the months of monsoon and the average rainfall is 1011 mm.

2.6 Drainage

The drainage is through two rivers namely Painganga and Vaidharbha.

2.7 Communication

Road connectivity: The Lease is accessible from three roads namely Kayar to Mukutban, Kayar to Chilai and Mukutban to Chilai.

The Mine Site is around 25 Kms. from Wani.

Rail connectivity: Nearest Railway Station is Kayar at a distance of 17 Kms.

Air Connectivity: Nearest Airport is Nagpur, M. S. at a distance of 150 Kms.

2.8 Water Supply

The main source of drinking water in the Influence Area is through Dug Wells, Hand Pumps, Tap, Tube Well and River. The water supply is satisfactory but in summer most of the area has acute water shortage.

2.9 Existing Flora

Source: Working Plan for Pandharkawada Forest Dn.

As per Champion and Seth's Classification the forest falls under **Group 5-** Tropical Dry Deciduous Forest, **Sub Group 5A -** Southern Tropical Dry Deciduous Forests, **Climax Type – (1) 5A/Cia -** Dry Teak Bearing Forests, **Local Sub type** Teak Forest and (2) 5A/Cib - Dry Teak Forest, **Local Sub type -** Degraded Scrub Forest

The important species are Teak (*Tectona grandis*), as a main dominant tree species and its associate tree species such as Ain (*Terminalia tomentosa*), Dhawada (*Anogeissus latifolia*), Tiwas (*Ougenia oajeinesis*), Lendia (*Lagerstroemia parviflora*), Tendu (*Diospyros melanoxylon*), Bhirra (*Chloroxylon swietenia*), Beheda (*Terminalia bellirica*), Bija (

Pterocarpus marsupium), Bel (*Aegle marmelos*), Amaltas (*Cassia fistula*), Awala (*Emblica officinalis*), Char (*Buchanania lanzan*), Dudhi (*Wrightia tinctoria*), Ghoti (*Zizyphus xylocarpa*), Palas (*Butea monosperma*), Dhaman (*Grewia tiliacifolia*), Moyen (*Lannea grandis*), Bartondi (*Morinda tinctoria*), Lokhandi (*Ixora parviflora*), Kalam (*Mitragyna parviflora*), Rohan (*Soymida febrifuga*), Salai (*Boswellia serrata*), Semal (*Bombax ceiba*), Sisham (*Dalbergia latifolia*), Neem (*Azadiracta indica*), Bhokar (*Caridia Macleadii*).

2.10 Existing Fauna

Source: Working Plan for Pandharkawada Forest Dn.

Fauna existing in the division is given below:

(i) Carnivores: Panther (*Panthera pardus*), Hyaena (*Hyaena hyaena*), Wild Dog (*Cuon alpinus*), Indian Forest Jackal (*Canis aureus*), Indian Fox (*Vulpes bengalensis*), Wolf (*Canis lupus pallipes*), Jungle Cat (*Felis chaus*), Mongoose (*Genus herpestes*).

(ii) Herbivores: Black Buck (*Antelope cervicapra*), Spotted Deer (*Axis axis*), Blue Bull (*Boselaphus tragocamelus*), Sambar (*Cervinus unicolor*), Chausingha (*Tetra Ceros quadricornis*), Sloth Bear (*Melursus ursinus*), Wild Boar (*Sus scrofa*), Common Langur (*Presbytis pileatus*), Indian Hare (*Lepus nigricollis*), Barking Deer (*Muntiacus muntjak*) chinkara (*Gazella beennetti*), Porcupine (*Hystrix indica*), Langur (*Presbytis entellus*).

(iii) Birds: Pea Fowl (*Pavo cristatus*), Jungle Fowl (*Gallus sonneratii*), Painted Partridge (*Francolinus pictus*), Common Quail (*Coturnix coturnix*), Crow Pheasant (*Centropus sinensis*), Spotted Owlet (*Athene brama*), Civet (*Viverridae*).

(iv) Reptiles: Red Sand Boa (*Eryx conicus*), Indian Cobra (*Naja naja*), Python (*Python molurus*), Rat Snake (*Ptyas mucosus*).

2.11 Status of Habitat

Habitat plays very important role in providing food, shelter and place for regeneration to the Wildlife. Vegetation, availability of food and water are its important parameters.

The 'Impact Area' is mostly plain having hillocks of gentle slopes. Teak is seen to be dominant in the area along with its usual associates. Ground flora is also noticed. There is no scarcity of water in the area. Although 'Impact Area' is honeycombed with the habitation, no illicit cutting is noticed even on the fringes. The habitat is fairly protected, well stocked and intact.



Status of Habitat in the 'Impact Area'



Status of Habitat in the 'Impact Area'



Status of Habitat in the 'Impact Area'

CHAPTER 3

THREATS TO WILDLIFE

3.1 Threats to wildlife from mining activities:

Generally Dust, Noise and Water Pollution, Habitat Loss, Illicit Cutting, Encroachments, Poaching are the threats for the forests and the Wildlife therein from the mining activities. However no threat to the wildlife and forests is anticipated from the Chilai Dolomite Mine for the following reasons and the factual position:-

(i) The proposed Chilai Dolomite Mine would be situated over 61.91 Ha. private (Non-Forest) land.

(ii) There would be no physical activity on the forest land, which is in possession of Forest Dept. of the State of M. S; what so ever, by the Project Proponent with respect to the proposed Project, The present management practices being implemented by the forest department will be unchanged.

(iii) The entire infrastructure of the proposed Project would be within above mentioned private land of 61.91 Ha.

(iv) The Project Proponent has prepared the 'Environment Management Plan' for the Project area, through which he is committed to take up the mitigation measures for the adverse impact on account of air / soil / water / sound pollution. Besides this, 100 saplings would be planted every year in addition to creation of Green Belt along roadside.

(v) The transportation of extracted mineral would be done through closed containers from mine site to the nearest railway siding at Kayar which is at a distance of 17 Kms. The transport route is outside the forest boundary.

(vi) 'Impact Area' comprises of 31400 Ha; of which 30483.25 Ha. is Agriculture land, 510.74 Ha. is a Forest Land and rest 406.01 Ha. is under Other Land Use. In its first place, the extent of forest land is very less compared to the total land in the Influence Area and it is honeycombed with the wider portions of agricultural and other land use lands, both these two types of lands are acting as a buffer between the forests and the mine.

(vii) Through this "Wildlife Conservation Plan" the Project Proponent is committed to undertake the measures which would be benefiting to the conservation of Wildlife and the forests in general and conservation of Schedule I species in particular.

In view of above situation and facts of the case, no threats to the forests or to the Wildlife therein, can be attributed to the proposed Chilai Dolomite Mine.

3.2 Threats perceived for the Wildlife and the forests:

Illicit cutting, encroachments, frequent fires, over grazing, un-sustainable removal of NTFP, Poaching and spread of contagious diseases by the domestic cattle are very common threats for the wildlife and the forest areas of Pandharkawada Forest Dn. Besides this, fragmentation of forest area due to various reasons, loss of habitat and draught are also other factors. Man-Animal conflict on account of crop raiding, human injury/death, cattle injury/kill are occasionally experienced on the fringe areas, resulting into apathy towards protection of forests and Wildlife therein amongst the local populace.

These threats result into degradation and / or loss of habitat besides fragmentation, which triggers the vicious circle of loss of habitat thereby straying of wild animals into habitations resulting into Man-Animal conflict and ending into uncalled for debate as to who should get the priority amongst man or wild animal in the forests. Of course, the wild animals must get the priority in the forests since it is their natural habitat. This being the need of the day, it has been an endeavor of the Author to ease out the threats being faced by the forests and the Wildlife therein through this Plan, so that the Wildlife and the Human Being, both, are safe and satisfied in their respective habitats.

CHAPTER 4

LIMITING FACTORS FOR WILDLIFE CONSERVATION

The limiting factors for Wildlife Conservation in the 'Influence Area', for that matter in the entire forest area of Pandharkawada Forest Dn; are as below:-

4.1 Demand and Carrying Capacity of Forests:

Population explosion has resulted into over exploitation, invariably illegal removal, of the forests. Same is the case with the domestic cattle. The forests nearby to the habitations cannot sustain the over grazing of the cattle resulting into repeated curbing down the natural regeneration through trampling. These anthropogenic pressures degrade the forests day by day since demands and carrying capacity of the forests for such demands is inversely proportional and the process of degradation is continuing over a very long period.

4.2 Over dependence of the local populace on forests:

The habitants adjoining to forests are heavily dependent on forests on account of their needs of fuel, fodder, small timber and also for day to day requirements. This over dependence on forests has come to such a level that invariably there is unsustainable harvesting of the NTFPs and other forest produce also, that too without making any efforts for its replenishment, development or rejuvenation.

4.3 Illicit cutting of trees:

Illicit cutting is being done by the greedy persons having no regards for the environment or the renewable national resource. Removal of trees, also result into degradation and / or loss of habitat, loss of food and fodder availability and loss of ground cover for many of the wild animals.

4.4 Forest Fires:

Forest fires, which are invariably man-made for their petty benefits, not only destroy the grass which is a food material for many of the wild animals but they also destroy their young ones, thereby affecting very adversely their natural reproduction process. The ground cover also gets destroyed.

Details of Forest Offences of Pandharkawada Forest Dn. for 5 years are given below.

Statement showing number of offence cases registered in Pandharkawada Forest Dn.

Sr. No.	No. of offence cases registered								
	Year	Illicit Felling	Encroachment	Grazing	Illegal Transport	Fire	Wildlife	Others	Total
1	2005-06	792	4	7	2	11	1	10	829
2	2006-07	630	7	26	9	18	1	20	705
3	2007-08	617	7	4	6	22	1	19	675
4	2008-09	536	166	3	3	03	1	39	780
5	2009-10	820	12	12	10	01	15	6	878

4.5 Sharing of palatable resources:

On one hand, palatable resources are getting diminished due to fire and illicit cutting and on the other hand, these resources are being shared by the domestic cattle which are grazing in the forest land and are much above in number than its carrying capacity. This is a very serious limiting factor for the Wildlife Conservation and needs to be attended on priority basis by controlling grazing in the forests and also by providing alternate sources of pasture to the adjoining villagers on their private lands.

4.6 Demographic Pressures:

Unemployment, absence of industrialisation, lack of other essential facilities and over all poverty in the area ultimately makes it difficult to drive home the message of Wildlife Conservation since dependency of villagers and their cattle on the forests is at its peak. Reducing dependency of the local populace on the forests is the need of the day.

CHAPTER 5

MAN – ANIMAL CONFLICT

Because of various reasons, such as, degradation / shrinkage of their natural habitat, sharing of palatable grass by the domestic animals and paucity of water in the pinch period the herbivore animals visit the agricultural fields of nearby villages and raid the agricultural crops. Illicit or regulated grazing and collection of NTFPs from forest by villagers is also another important reason of 'Man - Animal Conflict' in the form of attacks from the carnivore animals and Sloth Bear.

In order to minimise the Man – Animal conflict there is a policy of the State of Maharashtra to award the compensation for Human deaths / Injuries and / or Animal Kills caused by the specified species. Despite such measures many a times there is a hue and cry prompting to raise the questions as to whether 'Man' is important or 'Wild animal'. Occasionally the Foresters are '*Gheraoed*' for fulfillment of unreasonable demands which are not included in the policy of the State Government.

Reducing the dependency of local populace on the forests by raising the required vegetation on their lands and creating wildlife conservation awareness amongst them is the need of the day and the same is given due wattage in this Plan

CHAPTER 6

EXISTING WILDLIFE MANAGEMENT PRACTICES

6.1 Working Plan for Pandharkawada Forest Division:

The Working Plan for Pandharkawada Forest Dn. is written by Dr. R. N. Rai, I. F. S; Conservator of Forests, Working Plans, Yavatmal and the same is approved by the Competent Authority. The period of the plan is from 2013-14 to 2022-23.

Chapter XV of the Working Plan pertains to 'Wildlife Management' which is an 'Overlapping Working Circle' having an allotted area of 58,801.02 Ha. having mainly Teak forest which constitutes more than 60 % of the crop.

As per Working Plan of the Dn. Fauna is **Leopard** (*Panthera pardus*), **Barking Deer** (*Muntiacus muntjak*), **Blue Bull** (*Boselaphus tragocamelus*), **Sambar** (*Cervus unicolor*), **Chowsinga** (*Tetra ceros quadricornis*), **Wild Dog** (*Cuon alpinus*), **Indian Wolf** (*Canis lupus pallipes*), **Black Buck** (*Antelope cervicapra*), **Sloth Bear** (*Melursus ursinus*), **Wild Boar** (*Sus scrofa*), **Spotted Deer** (*Axis axis*), **Chinkara** (*Gazella gazella bennetti*), **Hyaena** (*Hyaena hyaena*), **Jackal** (*Canis aureus*), **Porcupine** (*Hystrix indica*), **Langur, Bandar, Monkey** (*Rhesus macaque*), **Jangle Cat** (*Felis chaus*), **Mongoose** (*Herpestes spp*), **Indian Hare** (*Lepus nigricollis*) etc. Commonly found birds are **Peafowl** (*Pavo cristatus*), **Ducks, Titar** (*Francolinus pondicerianus*), **Bater** (*Coturnix coromandelicus*), **Saras Crane** (*Antigone antigen*).

6.2 Special Objectives of Wildlife Management:

The special objectives of management are as follows:

- “(1) To protect and conserve wildlife in this area.
- (2) To ensure maintenance of viable population of wildlife

(3) To increase the population of wildlife by providing proper habitat management including shelter, water, food etc.

(4) To preserve area of biological importance for all times to come as natural heritage for the benefit of education, research and enjoyment of the people.

(5) To involve local people in wildlife conservation.

(6) To educate and motivate local people for protection and conservation of wild animals there by providing an environment of security to wild animals.

(7) To enhance the scope of employment potential and additional income generation by promoting eco-tourism.

(8) To control illegal trade and poaching in wildlife and their products.

(9) To reduce biotic interference affecting the growth of wildlife and regulate cattle grazing in wildlife rich area.”

6.3 Threats to Wildlife:

Threats to wild life are mainly Poaching, Forest Fire and scarcity of Water.

6.4 Provisions of Working Plan for Pandharkawada Forest Division:

The wild animal population is dwindling because of fragmentation of habitation, biotic interference, breaking of corridors, water scarcity, food scarcity, contagious diseases etc. Before taking up special measures for the management wildlife rich pockets, corridors for the movement of wildlife, riparian zones, waterholes available in the tract and their potential to provide water in all seasons, availability of meadows and other amenities for the betterment of viable population of wildlife shall be identified. In view of above mentioned reasons the following measures are prescribed:

- 1) Protection measures
- 2) Habitat improvement measures
- 3) Monitoring of wildlife health

4) Other activities.

6.4.1: Protection Measures:

Following protection measures have been prescribed:

- (i) Demarcation and maintenance of External and Internal Boundary.
- (ii) Restriction of entry to the public.
- (iii) Control of Illicit felling, poaching and fishing.
- (iv) Regulation of Grazing.
- (v) Fire Protection.
- (vi) Control on Encroachments.

6.4.2: Habitat improvement Measures:

(i) Preparation of compartment wise cover maps:

(ii) Water Management: Through maintenance and strengthening of all the existing waterholes, creation of new waterholes and artificial supply of water, cleaning of existing water holes, de-siltation of waterholes, construction of bandharas, artificial supply of water in summers, creation of saucer shaped cement ponds, arrangement of half cut Hume pipes sealed on one side and some places bore-wells with the hand pump.

(iii) Maintenance of Waterholes: Through following measures:

- (a) De-siltation and removal of debris in the month of December and January.
- (b) Removal of leaf litter from waterholes during April and May.
- (c) Providing rough surfaced and smooth sloped approach ways to waterholes.
- (d) Regular maintenance of bore-wells.
- (e) The springs or aquifers shall be tackled with a small trough constructed near such source of discharge, so that there is pool of water available to wildlife.

(iv) Soil conservation works: Through intensive works such as Loose boulder structures, Gabian structures, Gully plugging, Pitching, Inverted bandhara etc in nalas.

(v) Meadow development.

(vi) Management of wetlands and unique habitats: Through Identifying nesting sites, planting of suitable species. Unique habitats like caves, cliffs would be studied and protected.

6.4.3: Monitoring of Wildlife Health: Following measures would be adopted.

- (i) Assessment of cattle population in near forests.
- (ii) Vaccination of domestic cattle.
- (iii) Studies to be conducted on cattle and wild animal common diseases.
- (iv) Hot stamping of cattle permitted for grazing.
- (v) Proper hygienic conditions shall be maintained in the habitat of wild animals.
- (vi) The common waterholes used by both cattle and wildlife would be identified and disinfected, so that the communicable diseases are not transferred to wild animals.
- (vii) Mud bath shall be provided at suitable places.

6.4.4 Other Measures: Following measures have been prescribed:-

- (1) Keeping track of wild animal's movement.
- (2) Help of the local Forest Protection Committees.
- (3) Check on Illegal trade in wild animals.
- (4) Man- animal conflict: To minimise the Man-Animal Conflict following measures have been prescribed:-

- (a) Insurance against crop damage.
 - (b) Raising stonewall between fields and forest to prevent crop-damage.
 - (c) Hunting wild-pigs, if it is unavoidable.
- (5) Establishing control cell at circle level.
- (6) Monitoring of wildlife population.
- (7) Establishment of secret information network.
- (8) Periodical estimation of wildlife population.
- (9) Establishment of effective 'Network of Informers'.
- (10) Identification of areas by the Dy. C. F; Pandharkawada Forest Dn. and the C. C. F; Yavatmal Forest Circle where endangered and Schedule- I animals such as tiger, leopard, bear, wild dog are normally found and their shelter and breeding grounds and declaring them as "Sensitive area" where following special measures would be taken:

"(i) A critical report shall be prepared at divisional level for sensitive area regarding population of existing animals, their status and whether they are on the verge of extinction at local level.

(ii) The information gathered about the sensitive area to be shown on each range map depicting the animal's habitat, breeding ground, movements etc. the perceptible threats to their survival must be identified and measures to be implemented to overcome those problems.

(iii) The information about the availability of water fodder and measures must be implemented to overcome these problems."

(11) Apart from above mentioned measures, the following measures have also been prescribed:-

- (a) Periodical estimation or survey of wild animals.
- (b) Supply of water in pinch period.
- (c) Erection of Multipurpose watch towers.
- (d) Providing Dust and Mud Bath at suitable places.

- (e) Vaccination of the cattle grazing in the forest.
- (f) Prompt disposal of the cattle and human kill cases.

6.4.5: Integrated Development of Wildlife Habitat:

Dy. C. F; Pandharkawada Forest Dn. has made a proposal for the protection of wildlife outside the protected areas in Pandharkawada Forest Division under centrally sponsored scheme in the name of ***“Integrated development of wildlife habitat”***. Species such as Nilgai, Chital, Sambar, Blackbuck and Wild Boar have been identified for the improvement of wildlife and following measures are suggested in the above mentioned Plan:-

- a) Food and shelter improvement,
- b) Creation of waterholes
- c) Improvement of grass lands,
- d) Boundary demarcation
- e) Protection of flora and fauna

6.4.6: Rehabilitation Centre: Following measures are proposed in the Working Plan:-

- a) Providing at least one modern cage with all the facilities to trap the disturbed animal.
- b) Providing a tranquilising gun.
- c) Providing training to staff in Wildlife Institute of India, Dehara Dun, in the matter how to tranquilise a disturbed animal, how to trap it in a cage, how to administer drug, monitoring and how to release the trapped animal in its natural abode.

6.4.7: Providing Forest Custody:

6.4.8: Public Awareness and Eco-Tourism:

- Through Joint Forest Management Committees and by establishing the ‘Information Centre’ known as “Chetna Kendra”.

6.4.9 Involvement of Joint Forest Management Committees in Protection of Wildlife:

6.4.10: Eco-Tourism:

Following prescriptions have been made:-

(1) Cardinal Principles to develop the process of eco-tourism:

- a) Involvement of the local community.
- b) Identification of likely conflicts between resource use of tourism and livelihood of local inhabitants.
- c) The development of tourism should be compatible in environment and the socio-cultural aspects of local people.
- d) Focus on overall development strategy with better land use plan and expansion of public services.

(2) Special Objectives of Eco-Tourism:

- a) Development of eco-tourism without disturbing socio-cultural and ecological environment.
- b) Involvement of local people.
- c) Exposure to ethnic groups to the main stream of social, cultural life and involve them in harnessing potential of eco tourism for their development.
- d) Involvement of government and non-government organizations to create awareness for environment.

(3) Identification of Routes:

(4) Proposed Ecotourism activities:

- a) Identification of circuits suitable for vehicle movement, cycling, trekking etc.
- b) Development of existing camping facilities.
- c) Development of 'Traditional Camping,' Home Stay facilities.
- d) Development of Water Sports and Angling.
- e) Encouragement of Bird Watching.

(5) Community participation & employment generation:

(6) Eco-friendly activities:

(7) Natural Resources in Non-forest Area:

- a) Constructions of resorts and hotels and other commercial buildings should be prohibited close to Eco sensitive areas.
- b) Construction of any commercial building shall not be allowed within 500 meters of high flood line of any perennial water body or perennial river.
- c) Home stay facilities to be owned by Gram Panchayats / Eco-Development Committees or permanent resident (s) of the village.
- d) Permanent fencing (barbed wire fencing, chain-linked fencing or masonry / concrete wall fencing) shall not be allowed in the Eco Sensitive Zone area.
- e) The convergence of development programmes should be used for creating conducive environment for local communities.
- f) Mining activity shall not be allowed in Eco-Sensitive Zone area of the Tipeshwar Wild Life Sanctuary.

(8) Role of Forest Department:

- a) Development of centers of ecotourism.
- b) Determination and publication of Environmental, Physical and Social 'Carrying Capacity'.
- c) Preparation and distribution of 'Code of Conduct' to all visitors.
- d) Organizing training programme for forest personnel and general public and JFM Committees to enhance the eco-tourism.

(9) Code of Conduct for Visitors:

"Do's" and **"Don'ts"** published shall be observed by the Tourists.

(10) Role of Non-Government Organizations/ Scientific and Research Institutions:

(11) Role of Local Community:

(12) The Environmental Pledge:

(13) Precautions during Implementing Ecotourism Activities:

- a) Works shall be implemented only after obtaining permission on case to case basis under Forest (Conservation) Act 1980.
- b) The guidelines of National Tiger Conservation Authority shall be scrupulously followed.
- c) Efforts shall be made to create awareness among public on conservation and protection of forests and wildlife.
- d) Directions of Hon^{ble} Supreme Court and High Court shall be scrupulously followed.

(14) Identification of Eco-Tourism Sites:

Following Eco-Tourism sites have been identified in the Working Plan:-

- (i) Bridavan Eco Conservation and Interpretation Center, Pandharkawada:
- (ii) Bio Diversity Conservation Centre, Gopalpur.
- (iii) Hiwari Doh in Comp. No. 120.
- (iv) Tipeswar Wild Life Sanctuary.
- (v) Tiwasala Man Made Forest and Pandavdevi Temple, Comp.No. 73.
- (vi) Gurudwara Baghoud Saheb, Wai .
- (vii) Deodhari Dattatrya Temple.
- (viii) Devrai Sacred Grave, Dapora, Comp.No. 610.
- (ix) Ranganath Temple, Wani.
- (x) Wani Environment Conservation and Interpretation Center, Comp. No. C 13.
- (xi) Waghara Waterfall.

CHAPTER 7

SOCIO – ECONOMIC SCENARIO OF THE ‘INFLUENCE AREA’

The status of “Socio – Economic Development” of the ‘Influence Area’ is assessed by the Project Proponent through the agency which is competent for conducting the detailed Environmental Impact Assessment (EIA). The assessment was done by such agency through the survey carried out in 9 villages. Some, other type of information, was collected by the said agency from the secondary sources as well as taking the readings at stations at appropriate places and through conducted surveys. The ‘EIA / EMP Report’ has been prepared by that agency. The relevant findings of assessment and conclusions of the ‘EIA / EMP Report’, so far as Socio-Economic status is concerned, are as under:-

1. No. of villages and its population:

There are 17 villages in the ‘Influence Area’ having 5229 households. Total population is 21,711, of which 11117 (51.2 %) are male and 10594 (48.8 %) are female, thereby indicating the sex ratio, that is, females per thousand of males as 953. Scheduled Caste population is 1176 (5.41%), whereas, Tribal population is 3730 (17.18 %).

2. Cropping Pattern:

Main Crops are Paddy, Sugarcane, Banana etc. Dependency of farmers is mainly on monsoon. However, canal water facility is used by some farmers.

3. Other Information of the ‘Influence Area’:

(i) Literacy Details: Literacy in the Influence Area is 76 per cent (16422 souls). Male literacy is 55 per cent (8950 souls) and female is 45 per cent (7472 souls).

(ii) Occupation: It is predominantly agricultural activities. Out of total population, working population is 49 %, out of which 56 % are ‘main workers’, 3 per cent are ‘marginal workers’ and 41 per cent are of ‘non-workers’ category.

(iii) House pattern: Most of the houses are in semi pakka form; however, very few houses are in kaccha form.

(iv) Fuel: Firewood and kerosene is used as a main cooking fuel by most of the villagers for cooking purpose. However, LPG is also used as a cooking fuel by a few populations.

(v) Drinking Water Facility: Main source of drinking water are tap, hand pump, tube well and open well.

(vi) Communication and Transport Facilities:: Communication facility is good with mobile network and transportation facility. Villages are well connected with district head quarter. Internal roads of villages are satisfactory. Buses and private mini buses are mainly available for transportation purpose

(vii) Electrification: Villages in the Influence Area are electrified.

4. DEMOGRAPHIC DETAILS OF VILLAGES OF 'INFLUENCE AREA':

Village	No_HH	TOT_P	TOT_M	TOT_F	P_06	M_06	F_06	P_SC	M_SC	F_SC	P_ST	M_ST	F_ST
Chilai	34	549	282	267	54	31	23	17	9	8	149	76	73
Krishnanpur	256	1069	530	539	103	50	53	4	3	1	93	44	49
Kundra	194	767	371	396	85	40	45	25	12	13	312	150	162
Kurai	379	1567	778	789	189	93	96	42	16	26	263	131	132
Adegaon	880	3790	1917	1873	461	225	236	191	94	97	334	166	168
Babapur	221	906	471	435	111	58	53	13	7	6	119	59	60
Ganeshpur	452	1942	1019	923	204	111	93	38	18	20	242	126	116
Dhunki	130	502	246	256	58	27	31	23	10	13	369	180	189
Junoni	2	6	4	2	2	2	0	0	0	0	6	4	2
Tejapur	442	1876	957	919	188	97	91	145	76	69	86	39	47
Amlon	127	472	234	238	50	24	26	1	0	1	129	68	61
Deurwada	53	232	123	109	40	22	18	0	0	0	30	16	14
Welabai	407	1632	853	779	160	94	66	240	129	111	284	142	142

Mohada	498	2003	1092	911	237	131	106	111	66	45	770	405	365
Purad	226	1019	531	488	103	58	45	121	63	58	37	21	16
Kayar	673	2730	1380	1350	304	169	135	205	102	103	462	235	227
Nimbala Bk.	155	649	329	320	68	32	36	0	0	0	45	23	22
Total	5229	21711	11117	10594	2417	1264	1153	1176	605	571	3730	1885	1845

Note: No_HH: No of households, TOT_P: Total Population, TOT_M: Total Male, TOT_F: Total Female, P_06: Population o-6 age, M_06: Male o-6 age, F_06: Female 0-6 age, P_SC: population SC, M_SC: Male SC, F_SC: Female SC, P_ST: Population ST, M_ST: Male ST, F_ST: Female ST.

Source for EIA Report: Primary census abstract 2011, district Yavatmal, state Maharashtra.

Source for WLC Plan: EIA / EMP Report.

5. INFRASTRUCTURE DETAILS OF 'INFLUENCE AREA'.

VILLAGE	EDUCATION	MEDICAL	WATER	COMMUNI- CATION	TRANSPOR- TATION	BANK	ROAD	POWER
Chilai	P	NIL	TW, HP	PH	BS	NIL	PR	ED, EA
Krishnanpur	P, M	NIL	W, HP	NIL	NIL	NIL	PR	EA
Kundra	P, AC	NIL	HP, R	PH	NIL	NIL	PR	EA
Kurai	P, M, S	PHS, CHW	W, HP	PO, PH	BS	COB	PR	EA
Adegaon	P, M, S	PHS, CHW	T, HP	PO, PH	NIL	NIL	PR	EA
Babapur	P	NIL	TW, HP	NIL	NIL	NIL	MR	EA
Ganeshpur	P, M, S, AC	NIL	T, HP,R	NIL	BS	NIL	PR	EA
Dhunki	P, AC	NA	HP	NIL	NIL	NIL	PR	ED, EAG
Junoni	NA	NIL	NIL	NIL	NIL	NIL	NIL	NIL
Tejapur	P, M, AC	PHS, CHW	HP, R	NIL	BS	NIL	PR	EA
Amlon	P, AC	NIL	HP	NIL	NIL	NIL	PR	EA
Deurwada	P	NIL	HP, R	NIL	NIL	NIL	MR	EA
Welabai	P, M, S, AC	PHS	W, HP	PO	BS	NIL	PR	ED, EAG

Mohada	P, M	NA	W, HP	NIL	BS	NIL	PR	EA
Purad	P	CHW	TW, HP, R	NIL	BS	NIL	PR	ED
Kayar	P, M, S, AC	AYD, DH,CWC, PHS,FWC, CHW	T, W, TW, HP	PO, PH	BS	NIL	PR	EA
Nimbala Bk.	P, AC	NIL	T, W, TW	PH	NIL	NIL	PR	EA

Note: P:Primary School, M:Middle School, S:Secondary School, AC: Adult Literacy Centre, CHW: Child Welfare Centre, PHS: Primary Health Sub Centre, DH: Dispensary Homeopathic, AYD: Ayurvedic Dispensary, FWC: Family Welfare Centre, HP: Hand Pump, T: Tap, W:Well, TW: Tube Well, R: River, PO: Post Office, PH: Phone, BS: Bus, COB:Cooperative Bank, PR: Paved Road, MR: Mud Road.

EIA Report Source: Village directory 2001, district Yavatmal, state Maharashtra.

WLC Plan Source: EIA / EMP Report.

PART II

PROPOSED WILDLIFE CONSERVATION

CHAPTER 8

PRINCIPLES OF PROPOSED WILDLIFE CONSERVATION

8.1 Basis for Wildlife Conservation

Part - I of this Plan reveals the ecological significance and physical attributes including the resources of the 'Impact Area' along with problems and constraints of Wildlife conservation being faced by the Management. All that stated in the Part - I is the basis for proposed Wildlife Conservation. Besides this, existing legal provisions and policies such as The Indian Forest Act, 1927 and the Rules made there under, The Wildlife (Protection) Act, 1972 and the Rules made there under, Bio-Diversity Act, 2002 and the Rules made there under, The National Forest Policy, 1988, The National Wildlife Action Plan (2002 – 2016), Wildlife Conservation Strategy (2002), Guidelines of GoI for Eco-Tourism, M. S. Eco-Tourism & Nature Tourism Policy (2008) and Guidelines of GoI regarding formulation of "Tiger Conservation Plan" have also been kept in mind while formulating this Wildlife Conservation Plan (WLCP).

8.2 Wildlife Conservation Philosophy

The natural habitats and the Wildlife being supported by them are quite vulnerable now-a-days because of various anthropogenic pressures. It has been an endeavor of the Author to adopt such a philosophy which would help in attaining the conservation of forests and habitats of the Wildlife in general and fauna in particular considering the 'Tiger' as a "Flagship Species".

WLCP, inter-alia, includes Habitat Improvement, Water Management, Protection and Village Eco – Development besides the efforts for the Socio-Economic Development of the local populace including creation of awareness for Bio-Diversity conservation amongst them and also the measures to reduce their dependency on the forests.

CHAPTER 9

OBJECTIVES OF THE PLAN

9.1 Objectives:

This Plan is formulated in compliance of directives of the 36th EAC through its meeting held on 29th – 30th July 2015, stipulated at Sr. No. (vi), which is reading as “Conservation Plan for Schedule I species shall be submitted”. In view of this direction, following Objectives are set out for this Plan:

- (i) To formulate the “Conservation Plan for Schedule I species” in order to comply with the direction given by the ‘Experts Appraisal Committee’.
- (ii) To preserve various segments of the habitats through Habitat Improvement by way of Augmentation of Water Resources, Soil and Moisture Conservation Measures, Improving the Availability of Food / Fodder,
- (iii) To attain sustainable conservation of Life Support Systems in the forests,
- (iv) To determine the strategies for countering the perceived threats,
- (v) To suggest appropriate conservation / mitigating measures along with the financial estimates to conserve the Schedule I species in particular and wildlife in general and
- (vi) To promote the Conservation Awareness amongst the local populace.
- (vii) To reduce the dependency of adjoining villages on the forest.
- (viii) To enhance the Socio-Economic development of the villages surrounding the forests.

9.2 Modalities adopted for formulation of the Plan:

Basic information and data has been secured from the Working Plan of Pandharkawada Forest Dn. Besides this, information required is also collected from the field through field visits.

The Chief Wildlife Warden; M. S. and the concerned forest officers namely the Chief Conservator of Forests, Yavatmal Forest Circle, Deputy

Conservator of Forests, Pandharkawada Forest Dn; and Asstt. Conservator of Forests (Tendu) at Wani and their staff members were contacted at their respective offices. The inputs, especially regarding the bottlenecks of implementing the approved Working Plan were understood and suggestions to come over the same were obtained from them.

It was gathered during the inter action with the A. C. F. (Tendu), Dy. C. F; Pandharkawada Forest Dn; C. C. F; Yavatmal Forest Circle and also Chief Wildlife Warden, M. S; that 'Tigers' are very recently noticed in the forests of Mukutban Range, which is adjoining the Impact Area. Keeping this input in mind more stress is given on conservation of Tiger. Special measures are prescribed in this Plan for its conservation.



INTERACTION WITH FORESTERS

Besides the Forest Officials, interactions with other Stake Holders, including the villagers, were also held and their views / expectations were understood to arrive at the

appropriate and required measures for reducing the dependency of local populace on forests and also to enhance their Socio – Economic conditions.



Discussions with Chilai villagers.



Interaction with the Stake Holders

Based on the factual ecological situation, requirements for the conservation of wildlife in general and 'Tiger' in particular and the interactions with the Stake Holders, the physical and financial quantum of conservation measures were determined and suggested through this Plan.

CHAPTER 10

PROPOSALS FOR WILDLIFE CONSERVATION

10.1 Introduction:

As stated earlier, this 'Wildlife Conservation Plan' is formulated in order to comply with the directives given by the 'Experts Appraisal Committee' through its 36th meeting held on 29th – 30th July 2015, which is quoted below:-

“Sr. No. (vi): The Conservation Plan for Schedule I species shall be submitted”.

10.2 Basis of Proposals:

Part - I of this Plan reveals the ecological significance and physical attributes including the resources of the 'Influence Area' along with problems and constraints of Wildlife conservation being faced by the Management. All that stated in the Part - I is the basis for proposed Wildlife Conservation.

It was gathered during the interaction with the A. C. F. (Tendu), Dy. C. F; Pandharkawada Forest Dn; C. C. F; Yavatmal Forest Circle and also the Chief Wildlife Warden, M. S; Nagpur that 'Tigers' are very recently noticed in the forests of Mukutban Range. Keeping this input in mind more stress is given on its conservation.

. Besides this, the proposal is also commensurate with the provisions of the following Acts and the Policies of the Government of India and the State of Maharashtra:-

- (i) The Indian Forest Act, 1927 and the Rules made there under,
- (ii) The Wildlife (Protection) Act, 1972 and the Rules made there under,
- (iii) The Bio-Diversity Act, 2002 and the Rules made there under,
- (iv) The National Forest Policy, 1988,
- (v) The National Wildlife Action Plan (2002 – 2016),
- (vi) Wildlife Conservation Strategy (2002),
- (vii) Guidelines of GoI for Eco-Tourism,
- (viii) M. S. Eco-Tourism & Nature Tourism Policy (2008),

- (ix) Guidelines of GoI regarding formulation of “Tiger Conservation Plan” issued in the year 2014,
- (x) Working Plan for Pandharkawada Forest Dn.

10.3 Proposals for Wildlife Conservation:

Because of presence of ‘Tigers’ in the vicinity, more stress is given on its conservation. However, apart from prescriptions for the conservation of ‘Tiger’, general Wildlife Conservation is also envisaged in this Plan since the wildlife other than Tiger is also very much part and parcel of the Bio-Diversity and it also needs conservation measures.

The Plan covers following sub-groups:

(i) Proposals for Conservation of Tiger (Tiger Conservation Plan),

(ii) Proposals for Conservation of other Wildlife,

(A) Proposals for Habitat Improvement and,

(B) Proposals for Forest Protection.

(iii) Proposals for Village Eco –Development and

(iv) Proposals for Socio – Economic Development of Local Populace.

“Monitoring and research are tools for a better understanding of nature, its functions and to enable optimum or sustainable utilization of its resources, as well as to evaluate the conservation status of species and habitats and the extent of impact of conservation endeavors undertaken”.

From Chapter VI of National Wildlife Action Plan 2002-2016

CHAPTER 11

PROPOSALS FOR CONSERVATION OF TIGER

(TIGER CONSERVATION PLAN)

11.1 Introduction:

It was gathered during the inter action with the A. C. F. (Tendu), Dy. C. F; Pandharkawada Forest Dn; C. C. F; Yavatmal Forest Circle and also Chief Wildlife Warden, M. S; Nagpur that 'Tigers' are very recently noticed in the forests of Mukutban Range. Keeping this input in mind more stress is given on its conservation.

11.2 Strategy for Conservation of Tiger:

Extent of availability of prey base is a deciding factor for the existence of 'Tiger' in any particular area. Hence 'Tiger Conservation Plan' must include the measures leading to increasing the number of herbivore in that particular habitat of the Tiger. Measures to ensure sufficient prey base are proposed through Chapter 12 of this Plan titled as 'Proposals for Conservation of Other Wildlife' through Habitat Improvement and Protection etc.

The Guidelines issued by the GoI for formulation of 'Tiger Conservation Plan', inter alia, stipulates following 'Principles of Management' under its 'Part A':

- “2. Ensuring high prey productivity through protection.
3. Preventing depression of tiger density from poaching.
9. Promoting the process of populating promising tiger habitats in the landscape with the reproductive surplus (by habitat connectivity with core critical habitat or by active management)”.

Similarly, under the heading of “For The Buffer / Peripheral Area of A Tiger Reserve” in 'Part B' of the Guidelines, inter alia, following directives are given under the title of 'Scope of Managerial Interventions':

“(i) Providing ecologically sustainable livelihood options to local people in collaboration with various sectors/organizations.

(ii) Sensitizing local people for protecting forests and wildlife (PES, Ecotourism).

iv) Ensuring active management in areas where tiger / Co predators / wild ungulates co-occur with people to minimize human-wildlife interface conflicts.

(v) Ensuring monitoring of tiger / wildlife on a periodic basis in standardised manner, amenable to scientific inference.

(vi) Ensuring surveillance and protection of tiger and wildlife.

(vii) Building up the capacity of field staff and local people as a part of an adaptive management to ensure effective implementation.

4. Mitigation strategy for mining

(ii) site specific mitigation measures for tiger and other wild animals, inputs for providing ecologically sustainable livelihood options to locals, besides offsite ‘offsets’ to achieve more tiger conservation.

- Providing livelihood options to local people within the zone of influence”.

All the above quoted directives of the GoI have been incorporated in this Chapter and / or in next Chapter of this Plan.

During the course of interaction, specific suggestions were made by the A. C. F; (Tendu) at Wani, Dy. Conservator of Forests, Pandharkawada Forest Dn; Chief Conservator of Forests, Yavatmal Circle and the Chief Wildlife Warden, M. S; Nagpur specially as regards conservation of Tiger. Almost all such suggestions have been incorporated in this Plan.

11.3 Prescriptions for Monitoring the Movement of Tigers and Alert System:

Monitoring of movement of Tigers would be carried out with the help of Teams specially constituted for the purpose and also with the help of Rapid Rescue Van to be procured. In the process, the locations of Tigers would be understood so that their protection would be ensured and local populace can also be alerted regarding their presence which would minimise the Man – Animal Conflict.

The Team would constitute of 2 Persons to be engaged for 200 days in a year for monitoring with the help of existing forest staff and would also alert the local populace about presence of Tiger in the locality. In addition to this it is also proposed to provide 1 Rapid Rescue Van for quick mobility of the Team.

Outlay proposed for the Plan Period is **Rs. 10.0 Lacs**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.4 Prescriptions for Protection of Tiger Cubs:

Recently 4 Tigers were noticed through a Camera Trap in Mukutban range. It obviously indicates a mother Tigress and her 3 cubs. This shows a congenial habitat for giving births to cubs. The forest area is honeycombed with the habitations. It is proposed to constitute a special Team consisting of 3 Persons, who would be working for 25 days in a year, to locate the Tigress with her Cubs and to protect them from human beings and also from other carnivores. The local populace would be alerted about the presence of Tiger Family which would also minimise the Man – Animal Conflict resulting into apathy towards the conservation of Tiger.

Outlay proposed for the Plan Period is **Rs. 0.75 Lac**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.5 Prescriptions for Providing Equipments:

Use of modern equipments in the conservation of Tiger and for that matter all Wildlife is a need of the day. Camera Traps are available which are useful in locating the animals. The Tranquiliser Gun is a very effective tool in managing the strayed animal. Similarly use of a Night Vision Binocular comes very handy in locating the wild animals. It is proposed to procure all these equipments 1 each.

Outlay proposed for the Plan Period is **Rs. 3.62 Lacs**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.6 Prescriptions for Training of Forest Staff:

Training of the Forest Staff is a must for handelling the Tranquilising Gun, for bringing back the wild animal to consensus for its further management. Such training along with that of Crowd Management is proposed.

Outlay proposed for the Plan Period is **Rs. 0.25 Lac**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.7 Prescriptions for Intelligence Gathering:

An effective intelligence network is required to monitor, prevent and pre-empt illegal activities in the forests. The success of crime detection in Police administration mainly depends on the information gathered by them from the Informers of the network formed by them for the purpose. Lot of intelligence, as regards illegal activities in and around the forests is available at village level, cattle Sheppard, weekly markets and roadside eateries etc. On the same lines of Police Department, it is proposed to establish the "Informers' Network" in and around the vulnerable forest areas. The Informers would be paid suitable remuneration for the information supplied by them in respect of Forest Offences. Such a Scheme / Policy is in practice under the title of "Secret Fund" in case of funding for the Tiger Projects by the Central Government.

Outlay proposed for the Plan Period is **Rs. 0.25 Lac**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.8 Prescriptions for Fostering Conservation Awareness:

Total apathy towards the conservation of Biodiversity is noticed amongst the individuals of the society in general and the local populace residing adjoining to the forests in particular, although the latter are the most affected and / or benefitted Stake Holders of the forests.

The participation of local populace is essential for the conservation of forests and wildlife. It being need of the day, it has even been a policy of the Forest Department to seek the participation of local populace in protection of forests through the Forest Protection Committees (FPCs) / Joint Forest Management Committees (JFMCs) and the Village Eco-Development Committees (VEDCs) formed by the department for the purpose. Fostering of awareness for conservation of Bio-Diversity would enhance meaningful participation of local people in conservation of forests and the wildlife therein. The awareness would be created with the help of time tested means such as Pamphlets, Folders and Education Camps etc.

Outlay proposed for the Plan Period is **Rs. 0.25 Lac**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.9 Prescriptions for Construction of Parapet Walls on the Open Wells of the Agricultural Fields:

Construction of open wells without constructing a parapet wall is a very common strategy of the farmers in order to save money. Many a times, herbivore or a carnivore falls into such open wells and at times succumbs to death also. The life of precious wildlife can be saved if Parapet Walls are constructed over such wells. It is therefore proposed to construct the parapet walls over such open wells of the agricultural fields.

Outlay proposed for the Plan Period is **Rs. 0.50 Lac**. The physical and financial targets are given in **Appendix X** under **Part III**.

11.10 Financial Outlay for the Activity of Conservation of Tiger (TCP):

Outlay proposed under this activity is **Rs. 15.62 Lacs**, which is **55 %** of the **Total Outlay**. The break up is as under:-

Activity	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Monitoring the Movements of Tigers and Alert System	10.00	34
Protection of Tiger Cubs	0.75	3
Providing Equipments	3.62	13
Training of Forest Staff	0.25	1
Intelligence Gathering	0.25	1
Fostering Conservation Awareness	0.25	1
Construction of Parapet Walls on Open Wells of Agricultural Fields	0.50	2
Total	15.62	55

Implementing Agency wise Abstract:

Implementing Agency	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Pandharkawada Forest Dn.	15.62	55
TOTAL	15.62	55

“The restoration and management of degraded habitats outside Protected Areas is a vital objective, both to provide sufficient habitat for spatial movement of spill – over species outside Protected Areas and to provide biological resources needed by the local communities to prevent their dependency on Protected Area resources.

Degraded habitats outside PAs and their needs must urgently be identified for restoration, which would involve a combination of protection, soil and water conservation and planting of local species, coupled with the removal of exotics. The primary strategy for restoration should be through natural regeneration with the help of wild pollinations and seed dispersal. Grasslands, grazing lands, wetlands and common grazing lands are extremely valuable for wildlife conservation. Their productivity potential needs to be restored urgently. Incentives to promote wildlife conservation on private lands also need to be given.”

-- From Chapter IV of National Wildlife Action Plan 2002 – 2016.

CHAPTER 12

PROPOSALS FOR CONSERVATION OF OTHER WILDLIFE

Part (A) Proposals for Habitat Improvement

12.1 Introduction:

The process of degradation of forests is on the increase year after year because of various reasons and it very adversely affects the habitat of wildlife. Encroachment on habitat is a very common feature. Protection of various segments of the habitat and its improvement through meaningful measures such as augmentation of water resources and improvement of food and fodder availability through artificial means and interventions is very much desirable. Such an intervention needs to be simultaneously followed by protection measures for fauna and flora.

Habitat is very important from the point of view of providing food, shelter and space for reproduction for the Wildlife. Vegetation and geological features are important parameters. Appropriate and abundant nutrition, availability of water and vegetative and geological cover are basic needs of any wildlife for its Life Cycle and regeneration as well.

This Chapter deals with the prescriptions for Habitat Improvement through Augmentation of Water Resources, Improvement of Food and Fodder Availability, Artificial Nests for the avifauna, and meaningful Protection.

12.2 Strategy for Conservation of Other Wildlife:

The forests of the "Influence Area", being honeycombed with the habitation and the agricultural fields, have been degraded over the years because of burdens on it and tremendous biotic pressures. Other factors such as unsustainable harvesting of Minor Forest Produce, unemployment, human greed for securing easy money and apathy of local populace towards the conservation of forests have accelerated the degradation further. Various segments of the habitat require immediate remedial measures.

It is proposed to attain improvement in various segments of the habitat through measures such as augmentation of water resources, improvement of food / fodder availability, soil and moisture conservation measures, providing Artificial Nests and Forest Protection as indicated below.

Water Management:-

The National Wildlife Action Plan 2002-2016 has stipulated that “water must be recognized as a prime produce of natural forests. Further, forests must be managed to optimize and protect hydrological systems”.

Water is life for all the living creatures on the mother earth including flora and fauna. Many birds, infants and small sized wildlife die in the months of summer for want of water. They have to simply cross a long distances in search of water and in the process sometimes they may become victim to poachers. Hence management of water resources is an important aspect in the Wildlife conservation.

Strategies for Water Management:

Measures such as augmentation of water through maintenance of existing Water Holes, soil and moisture conservation structures would be undertaken in order to ensure the availability of water for a longer duration, especially in the pinch period.

12.3 Prescriptions for Strengthening of Existing Waterholes:

De-silting and deepening of existing promising Waterholes in the months of December and January would be done followed by removal of weeds / leaf litter from the *nala* bed in the months of April and May. It should be ensured that the approach to the Water Hole is rough with smooth slope. 2 existing Water Holes @ Rs. 0.10 Lacs / Water Hole would be strengthened every year during the Plan Period.

Outlay proposed for the Plan Period is **Rs. 1.00 Lac**. The physical and financial targets are given in **Appendix X** under **Part III**.

12.4 Prescriptions for Construction of Dry Rubble Check Dams (Gabiyan Structures):

The Soil and Moisture Conservation structures / measures would be undertaken in order to arrest the erosion of soil and also to increase the water availability for a longer period, especially in the pinch period. It would not only benefit the Forest Area falling within the Influence Area but would also benefit other non – forest areas downstream.

3 Gabiyan Structures at the cost of Rs. 25,000/- per structure would be undertaken in Year 1, Year 2 and Year 3 of the Plan Period, for the total cost of **Rs. 0.75 Lac.**

Design of the Gabiyan Structure and Physical and Financial phasing is given under **Appendix VI** and **X** respectively under **Part III.**

12.5 Prescriptions for Digging of Continuous Contour Trenches (CCTs):

In the years Y 1, Y 2 and Y 3, the Continuous Contour Trenches of size 0.6 M wide and 0.3 M high would be dug on gentle slope at the total cost of **Rs. 75,000/-** for the Plan Period.

Interval of the CCTs would be of 15 meters. Seeds of palatable grass / fodder species and fruit species would be sown on the mounds which are created out of the excavated soil.

Design of the CCTs is given in **Appendix VII** and phasing in **Appendix X** respectively under **Part III.**

Improvement of Food and Fodder Availability:

Floristic mix of shrubs, herbs and grasses is essential for getting abundant herbivores in a particular area. However, due to various reasons such as over grazing, frequent forest fires and lack of regeneration capability of the forests, the availability of Food / Fodder gets diminished. Availability of appropriate and sufficient nutrition plays vital role for the very existence of herbivores which ultimately is advantageous to the carnivores also.

Strategies for Improvement of Food and Fodder Availability:

Measures like Pasture Development, Raising of Plantations of fodder species, Providing Salt Licks have been proposed in the Plan to improve the Food / Fodder availability.

12.6 Prescriptions for Pasture Development:

Pasture Development, through preparation (loosening) of soil by end of summer, followed by sowing of seeds of palatable grasses and fodder species just before start of the monsoon, would be undertaken every year on 1 Ha. at the rate of Rs. 25,000/- per Ha; at the total cost of **Rs. 1.25 Lacs** for the Plan Period.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

12.7 Prescriptions for Raising of Plantations:

Plantations of **indigenous** fodder species would be raised over 1 Ha. in Year 1, Year 2 and Year 3 of the Plan Period, at a cost of Rs. 1.10 Lac per Ha. Total amount of **Rs. 3.30 Lacs** would be spent on this activity during the Plan Period.

The Estimate / Model for this Plantation and the Physical and Financial phasing is given in **Appendix VIII** and **X** respectively under **Part III**.

12.8 Prescriptions for Providing Artificial Nests:

Artificial Nests of Eco-Friendly materials are proposed to be provided at appropriate places on the standing trees. Requirement of size and design of Nests is different for different species of avifauna. Keeping this fact in view, Artificial Nests are specially designed for different species by Mr. Anil Mahajan, Nature Lover from Nagpur and the same are proposed to be provided during the Plan Period.

Artificial Nests would be provided at 5 localities at the cost of Rs. 0.05 Lacs per Locality during the Plan Period. Total amount of **Rs. 0.25 Lac** has been proposed for 5 localities for the Plan Period on this activity.

Design of Nests for different species and Physical and Financial phasing is given under **Appendix IX** and **Appendix X** respectively under **Part III**.

12.9 Prescriptions for Prophylactic Inoculation of Domestic Cattle:

Certain diseases get transmitted to Wildlife through the grazing of infested domestic cattle. It is very essential to curb down such possible eventuality. In order to curb down such a transmission of communicable diseases, Prophylactic Inoculation of domestic cattle would be undertaken throughout the Plan Period at the cost of Rs. 0.05 Lac per year, totaling to **Rs. 0.25 Lac** for the Plan Period.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

12.10 Financial Outlay for the activity of Habitat Improvement:

Outlay proposed under this activity is **Rs. 7.55 Lacs**, which is **27 %** of the **Total Outlay**, as under:-

Activity	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Strengthening of Existing Waterholes	1.00	4
Construction of Dry Rubble Check Dams (Gabiyan Structures)	0.75	3
Digging of Continuous Contour Trenches (CCTs):	0.75	3
Pasture Development	1.25	4
Raising of Plantations	3.30	11
Providing Artificial Nests	0.25	1
Prophylactic Inoculation of Domestic Cattle	0.25	1
TOTAL	7.55	27

Implementing Agency wise Abstract:

Implementing Agency	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Pandharkawada Forest Dn.	7.55	27
TOTAL	7.55	27

“Poaching and illegal trade in wild animals and plants and their parts and products has emerged as one of the most serious threats to wildlife in the country. If not controlled effectively, it has the potential to substantially nullify achievements in other fields of wildlife conservation. It may even result in extinction of some plants and animals and substantial decline in the wild prey populations leading to crop raiding by wild ungulates, increased instances of livestock predation and sometimes loss of human life by carnivores. Man-Animal conflict situations require urgent amelioration to avoid these being a source of retaliatory action against the animals in question by the affected people and later foci of illegal trade in animals’ parts and products. This trend has to be reversed”.

From Chapter V of National Wildlife Action Plan 2002-2016

CHAPTER 12 (Contd.)

PROPOSALS FOR CONSERVATION OF OTHER WILDLIFE

Part (B) Proposals for Forest Protection

12.11 Introduction:

The forests other than the Protected Areas have been degraded over the years due to various reasons such as gap in Demand and Supply, unemployment, human greed for securing easy money in short time. Moreover apathy of local populace towards conservation of forests, although they are the main source of their day to day requirements and lively hood, is generally observed. Unsustainable harvesting of Minor Forest Produce adds fuel to the fire. Because of these reasons various segments of the habitat are degrading very fast and therefore it requires immediate remedial measures.

12.12 Strategies for Forest Protection:

Habitat Protection would be ensured through meaningful and effective Forest Protection by extensive vehicular patrolling and better communication. In addition to these measures, the Forest Protection Committees would be involved in protection by providing them financial assistance besides the measures of Fostering Conservation Awareness, which is a need of the day.

12.13 Prescriptions for Providing Bicycles:

3 Bicycles would be provided in Year 1 of the Plan Period at the total cost of **Rs. 0.05 Lac.**

These Bicycles shall be used by the existing Forest Guards for thorough and regular patrolling in the “Critical Areas” identified by the concerned authorities as “Vulnerable Areas” prone for illicit hunting and tree felling.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

12.14 Prescriptions for Providing Motorcycles:

1 Motorcycle would be provided during the first year of the Plan Period at the cost of Rs. 0.5 Lac. The vehicle shall be managed by the existing staff of the respective Administrative Unit. Thorough and regular patrolling shall be carried out for the “Critical Areas” identified by the concerned authorities as “Vulnerable Areas” prone for illicit hunting and tree felling.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

12.15 Prescriptions for Providing Personal Digital Assistant (PDA):

The PDAs shall be provided to the field staff posted in the “Vulnerable Areas”. These sets would not only pass on the information to the concerned persons for arranging immediate necessary assistance to curb down and to control the illicit activities in the area, but would also provide the exact location of such field staff, using the sets, to their higher ups, so that their movements can be regularly monitored by them. Various useful apps can be uploaded on the PDAs.

This technology would also curb down the tendency of forest subordinates to manage their jurisdiction from the station convenient to them.

3 Digital Personal Assistant (PDAs) would be provided in Year 1 of the Plan Period at the total cost of **Rs. 0.25 Lac** during the Plan Period.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

12.16 Financial Outlay for the activity of Forest Protection:

Outlay proposed under this activity is **Rs. 0.80 Lac**, which is **3 %** of the **Total Outlay**, as under:-

Activity	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Providing Bicycles	0.05	0
Providing Motorcycle	0.50	2
Providing Personal Digital Assistant (PDA)	0.25	1
TOTAL	0.80	3

Implementing Agency wise Abstract:

Implementing Agency	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Pandharkawada Forest Dn.	0.80	3
TOTAL	0.80	3

Financial Outlay for the Activities Proposed under Conservation Plan for Other Wildlife

Activity	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Water Management	2.50	9
Improving Food and Fodder Availability	5.05	18
Forest Protection	0.80	3
GRAND TOTAL	8.35	30

Implementing Agency wise Abstract:

Implementing Agency	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Pandharkawada Forest Dn.	8.35	30
GRAND TOTAL	8.35	30

“Protecting interests of the poor and tribals living around Protected Areas should be handled with sensitivity and with maximum participation of the affected people. They should have access to the Minor Forest Produce, in the forest outside the National Parks and Sanctuaries. Employment and means generation for these people is crucial for maintaining symbiosis between the forests, wildlife and the people. People should be encouraged to take up Afforestation and conservation in new areas”.

Clause 4 of ‘Wildlife Conservation Strategy 2002’

CHAPTER 13

PROPOSALS FOR VILLAGE ECO-DEVELOPMENT

13.1 Introduction:

The dependency of the villagers living in and around the forests is mainly for 4 “F”s i.e. Fuel, Fodder, Fruits & Fibers, besides small timber, NTFP, bark, roots and tubers etc. Visits of the villagers to the forests to gather such forest produce damage the forests to a great extent year after year. It also practically stops the process of natural regeneration in the forests which is not only very harmful to the natural resource but also to those depending on it and also to the nation. Again, because of the gap between ‘Demand and Supply’, there is always unsustainable harvesting of the Forest Produce by the villagers. Frequent visits of the villagers to the forests also invite problems of Man – Animal conflict and the sympathy always goes to the villagers. Many a times it is experienced that the Administration / Government is pressurised to save the Human Being instead of Carnivore. One of the solutions to this situation is to minimize the dependency of fuel, fodder and small timber of the Local Populace on the forests.

13.2 Strategy for Village Eco-Development:

Proposed activities of Village Eco-Development would be undertaken only in the villages where in Forest Protection Committees (FPCs) / Joint Forest Management Committees (JFMCs) / Village Eco Development Committees (VEDCs) have been constituted by the competent authority.

In order to minimize the dependence of Local Populace of such villages on the forests, it is proposed to attain self-sufficiency in fuel, fodder, small timber and water through the measures such as Raising of Fuel Wood Plantations on the Bunds of the Farmers, Pasture Development on the Community Lands, Strengthening of such Committees and Supply of Liquid Petroleum Gas to the villagers.

13.3 Prescriptions for Raising of Fire Wood Plantations on Bunds:

In order to reduce the dependency of fuel wood of the Local Populace on the forests, Fuel Wood plantations would be raised on the Bunds of their cultivation fields so that the farmers can grow their regular agricultural crops and the fuel wood also. This would help in reducing their dependency on the forests, so far as firewood is concerned, besides earning an extra income for them.

Farmers, who are desirous of raising such plantations on the Bunds of their fields, would be selected. Each Farmer would be given aid of Rs. 0.25 Lac in kind to raise the Fuel Wood plantation on his Bund along with technical know-how from the concerned Foresters.

The Fuel Wood plantations would be raised at the total cost of **Rs. 1.25 Lacs** during the WLC Plan Period. This would reduce the dependency of Fuel Wood of the Local Populace on the Forests.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

13.4 Prescriptions for Pasture Development on Community Lands:

Majority of the Community Lands are meant for grazing of the cattle of that village. No efforts are made by the concerned authorities to rejuvenate the availability of palatable grasses in such grazing grounds. More over the population of live stock is also increasing year after year. These factors lead to over grazing in the adjoining forests than its 'Carrying Capacity'. Under the circumstances it is proposed to undertake 'Pasture Development on the Community Lands' with the consent of the concerned authorities through the concerned Social Forestry Officials.

The Pasture Development would be undertaken at 2 villages during the Plan Period at the cost of Rs. 0.25 Lac per village and at the total cost of **Rs. 0.50 Lac**. This would reduce the dependency of Fodder of the Local Populace on the Forests and save the latter from illicit cutting of trees and / or over grazing which would conserve and facilitate the process of natural regeneration of forests.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

13.5 Prescriptions for Supply of Liquid Petroleum Gas (LPG):

The Liquid Petroleum Gas (LPG) would be supplied to the villagers so that dependency on forests for firewood would be reduced.

Total cost of **Rs. 0.50 Lac** has been proposed during the Plan Period. Year wise physical and financial break up is given in **Appendix X** under **Part III**.

13.6 Prescriptions for Strengthening of Forest Protection Committees (FPCs) / Joint Forest Management Committees (JFMCs) / Village Eco – Development Committees (VEDCs) :

Forest Protection Committees (FPCs) or Joint Forest Management Committees (JFMCs) or Village Eco – Development Committees (VEDCs) have been established in Pandharkawada Forest Dn. The mandate for such FPCs or JFMCs or VEDCs is to protect the forests allocated to them for the purpose besides pursuing the villagers not to commit any Forest Offence and also to reduce the dependency of villagers on the forests as regards Fuel, Fodder, Fiber and Small Timber. Such Committees are seldomly self sufficient because of paucity of funds. It is proposed to strengthen such Committees by giving them the financial help so that they can perform more effectively and in better way in protecting the forest area allocated to them.

Total amount of **Rs. 0.50 Lac** would be spent for the purpose during the Plan Period.

Physical and Financial phasing is given in **Appendix X** under **Part III**.

13.7 Financial Outlay for the activity of Village-Eco Development:

Outlay proposed under this activity is **Rs. 2.75 Laces**, which is **10 %** of the **Total Outlay**, as under:-

Activity	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Raising of Fuel Wood Plantations on Bunds	1.25	4
Pasture Development on Community Lands	0.50	2
Supply of Liquid Petroleum Gas (LPG)	0.50	2
Strengthening of FPCs/JFMCs/VEDCs	0.50	2
TOTAL	2.75	10

Implementing Agency wise Abstract:

Implementing Agency	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Pandharkawada Forest Dn.	2.75	10
TOTAL	2.75	10

“Rural development for communities inhabiting forest lands and other wildness regions suffers both from inadequate resources and inappropriate measures. It has failed to address their strong dependence upon natural biomass resources vis-à-vis the shrinking and degrading resource base. Farm productivity has also declined due to lack of proper support, causing impoverishment and enhanced pressures upon natural areas. Resource impoverished communities have therefore begun to place even greater pressure on the biomass of our forests and has led to wide spread alienation of people from the goals of nature conservation efforts”.

-- From Preamble of ‘National Wildlife Action Plan 2002 – 2016’.

CHAPTER 14

PROPOSALS FOR SOCIO-ECONOMIC DEVELOPMENT OF LOCAL POPULACE (CORPORATE SOCIAL RESPONSIBILITY)

A study has revealed that undertaking the activities under ‘Corporate Social Responsibility’ (CSR) by Project Proponents improves the quality of their workers’ as well as local inhabitants.

14.1 Introduction:

Capacity Building is one of the important means for the Socio-Economic Development of local community. For starting the lively hood, it is necessary to acquire basic skills, knowledge of production / market and available opportunities besides the working capital. Usually local populace has no access or they are not aware of the opportunities available around them to earn their bread and butter. Therefore it is essential to expose the local promising youths to various skills and trades so that, after acquiring the skills or obtaining the knowledge, they may start earning their lively hood while contributing to the national economy.

14.2 Strategy for Socio – Economic Development:

The sectors like Public Health, Education, Supply of Water, Communication etc. are being attended by the Central / State Governments. However it is experienced that because of population explosion and other developmental activities, Governments face paucity of resources to attend to these sectors. In view of this fact, it is proposed that the Project Proponent shares part of this responsibility to the extent possible for him and expected from him by way of offering the financial support to such activities. The activities such as Repairs to Primary Health Centers, Repairs to Primary School Buildings and Capacity Building would be undertaken during the WLC Plan Period by the Project Proponent.

All these activities would be implemented by the Project Proponent as far as possible in the villages which are identified for the Village Eco-Development by the Forest

Department, so that, the villagers would come forward for conservation of forests and the wildlife therein. The Villagers would also feel that the Project Proponent is helping them in meeting their day to day needs and contributing for their Socio-Economic Development.

14.3 Prescriptions for Training for Lively Hood:

Promising local youths / women would be exposed to the training of various “Trades” of Industrial Training Institutes, which would earn bread and butter for them and bring self sufficiency apart from helping in Socio-Economic Development of the Influence Area.

Promising persons would be trained at the total cost of **Rs. 0.25 Lac** during the WLC Plan Period. Year wise physical and financial break up is given in **Appendix X** under **Part III**.

14.4 Prescriptions for Training in Computer Applications:

Information Technology is a gateway for one’s personal development. However one has to be a ‘Computer-Savvy’ for the purpose. The promising local youths / girls would be exposed to training in the Computer Applications, so that it would help them in earning them their bread and butter.

Promising persons would be trained at the total cost of **Rs. 0.25 Lac** during the WLC Plan Period. Year wise physical and financial break up is given in **Appendix X** under **Part III**.

14.5 Prescriptions for Assistance to Public Health Centers:

Assistance to the limit of **Rs. 0.25 Lac** would be given during the Plan Period to the Public Health Centers. Year wise physical and financial break up is given in **Appendix X** under **Part III**.

14.6 Prescriptions for Repairs to Primary School Buildings:

Assistance to the limit of **Rs. 0.25 Lac** would be given during the Plan Period for repairs of Primary Schools. Year wise physical and financial break up is given in **Appendix X** under **Part III**.

14.7 Prescriptions for Construction of Overhead Water Reservoir at Chilai:

One Tube Well with hand Pump is in operation at Chilai. The output is sufficient to cater the needs of the villagers but there is no Water Reservoir to store the water.

It is proposed to participate in the construction of Overhead Water Tank to the extent possible. Assistance to the limit of **Rs. 0.50 Lac** would be given during the Plan Period for construction of Overhead Water Reservoir at Chilai. Year wise physical and financial break up is given in **Appendix X** under **Part III**.

14.8 Financial Outlay for the activity of Socio – Economic Development of Local Populace:

Outlay proposed under this activity is **Rs. 1.50 Lacs**, which is **5 %** of the **Total Outlay**, as under:-

Activity	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Training for Lively Hood	0.25	1
Training in Computer Applications	0.25	1
Assistance to Primary Health Centers	0.25	1
Repairs to Primary School Buildings	0.25	1
Construction of Overhead Water Reservoir at Chilai	0.50	1
TOTAL	1.50	5

Implementing Agency wise Abstract:

Implementing Agency	Outlay Proposed During Plan Period (Rs. In Lacs)	% to Total Outlay
Project Proponent	1.50	5
TOTAL	1.50	5

CHAPTER 15

IMPLEMENTATION OF THE PLAN

The Dy. Conservator of Forests, Pandharkawada Forest Dn; Pandharkawada or any other Authority specified by the State of Maharashtra or by the 'Competent Authority' shall be the 'Implementing Agency' for implementation of the measures proposed through this Plan. Discretion of site selection for various works proposed under this Plan shall vest with the 'Implementing Agency'. Activities proposed under the 'Proposals for Socio-Economic Development of Local Populace' shall be carried out by the Project Proponent.

The Plan is expected to be implemented in the 'Influence Area' of Chilai Dolomite Mine falling in Pandharkawada Forest Dn. However, considering the exigencies, it may be implemented in any forest area of the Division at the sole discretion of the 'Implementing Agency' or the 'Competent Authority.'

Phasing of the works proposed under different activities and budget required for it is indicated in **Appendix X** under **Part III**.

CHAPTER 16

FINANCIAL FORECAST OF THE PLAN

Financial Forecast for the works proposed during the Plan Period under various activities is **Rs28.22 Lacs**, its phasing is as below.

(Rs. In Lacs)

Year	Financial Outlay	% To Total
Y 1	17.59	62
Y 2	3.82	14
Y 3	3.41	12
Y 4	1.70	6
Y 5	1.70	6
Total	28.22	100

CHAPTER 17

FUNDING OF THE PLAN

Financial Forecast is **Rs. 28.22 Lacs** for the Plan Period and it would be wholly funded by the Project Proponent i.e. Shri M. Abdul Kadir M. Hanif, Proprietor of. M/S Mohammadi Minerals of Wani.

Funds required for implementation of this Plan would be placed at the disposal of the 'Implementing Agency' (Dy. Conservator of Forests, Pandharkawada Forest Dn.), in advance, before the start of the fiscal year, on year to year basis.

PART III

APPENDICES

APPENDIX I

Summary Record Of 36th Meeting Of The Reconstituted Committee Of The Expert Appraisal Committee For Environmental Appraisal Of Mining Projects Constituted Under EIA Notification, 2006.

The 36th Meeting of the Reconstituted Expert Appraisal Committee for Environmental Appraisal of Mining Projects (Non-Coal) of the Ministry of Environment, Forest and Climate Change was held during **July 29-30, 2015**. The list of participants is annexed.

After welcoming the Committee Members, discussion on each of the Agenda Items was taken up ad-seriatim.

Item No. 1:

(1). Circulation of the Minutes of the 35th EAC Meeting

The Minutes of the 35th Meeting of EAC held during **June 24-26, 2015** were circulated.

Day 1: 29th July, 2015 (Wednesday)

Item No. 2:

Consideration of Environmental Clearance Proposals

“

“(2.33). J-11015/150/2014-IA.II (M) Chilai Dolomite mine of M/s Mohammadi Minerals located at village Chilai, tehsil Wani, District Yavatmal (MS), Maharashtra (61.91ha) (1.5 MTPA)

The proposal is of Chilai Dolomite mine of M/s Mohammadi Minerals located at village Chilai, tehsil Wani, District Yavatmal (MS), Maharashtra. The Proponent Mr. M. Abdul Kadir M. Hanif of M/s. Mohammadi Minerals proposes to mine dolomite from 61.91 ha of lease area. The lease is near village Chilai in Wani tehsil of Yavatmal district of Maharashtra. Dolomite deposits are 25km from Wani town. Latitude and longitude are respectively N 190 49’ 39.4” - N 190 50’ 9.5” & E 780 55’ 32.6” - E 780 56’ 9.4”. Proposed lease area comes within Survey of India Topo sheet no 56 I/13. It was informed by the PP that this is a new project. There is neither any litigation nor any directions by any court or statutory authority against proposed project.

The proposal was considered in the EAC meeting held during July, 8-9th, 2014. The Terms of reference were granted on 12.08.2014 vide letter no. J- 11015/150/2014-1A. II (M).

The Mining scheme for open cast mechanized extraction of dolomite @ 1.5 MT/year has been approved by DGM, Maharashtra vide letter no. STC- 852/part-4/2012/3023 dated 5th November 2014. The Ultimate pit depth will be 34 m and ground water table will not be intersected.

After detailed deliberations, the Committee desired that the Proponent shall furnish the following information/clarification for further consideration by the Committee:

- (i) The Environment Policy of the Mine shall be submitted.

- (ii) The Revised EIA/EMP report along with proper page numbering shall be submitted.

- (iii) The R&R plan shall be submitted along with socio-economic survey incorporating the public hearing issues.

(iv) The land use of the mine is not clear; therefore the land use details of the mine lease area shall be submitted.

(v) The details of the green belt shall be submitted.

(vi) The Conservation Plan for schedule-I species shall be submitted.

(vii) A detailed dust control plan, transportation route and evacuation plan shall be submitted.

The Committee decided that the Proposal be **deferred** till the aforesaid information is submitted.”

“ -----
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Location of Chilai Dolomite Mine



APPENDIX III

Impact Area of Chilai Dolomite Mine



Source: Final EIA / EMP Report.

APPENDIX IV

Flora of Pandharkawada Forest Dn.

Source: Working Plan of Pandharkawada Forest Dn.

Sr. No.	Common Name	Botanical Name	Family
	Tree Species		
1	Teak	<i>Tectona grandis</i>	Verbenaceae
2	Ain	<i>Terminalia tomentosa</i>	Combretaceae
3	Dhawada	<i>Anogeissus latifolia</i>	Combretaceae
4	Tiwas	<i>Ougenia oojeinesis</i>	Fabaceae
5	Lendia	<i>Lagerstroemia parviflora</i>	Lythraceae
6	Tendu	<i>Diospyros melanoxylon</i>	Ebnaceae
7	Satpudi	<i>Dalbergia paniculata</i>	Leguminaceae
8	Bhirra	<i>Chloroxylon swietenia</i>	Caesalpiniaceae
9	Kalam	<i>Mitragyna parviflora</i>	Rubiaceae
10	Rohan	<i>Soymida febrifuga</i>	Meliaceae
11	Salai	<i>Boswellia serrata</i>	Burserraceae
12	Semal	<i>Bombax ceiba</i>	Bombacaceae
13	Beheda	<i>Terminalia belliric</i>	Combretaceae
14	Sisham	<i>Dalbergia latifolia</i>	Leguminaceae
15	Bija	<i>Pterocarpus marsupium</i>	Papilionaceae
16	Bel	<i>Aegle marmelos</i>	Rutaceae
17	Amaltas	<i>Cassia fistula</i>	Cesalpiniaceae
18	Awala	<i>Emblica officinalis</i>	Anacardiaceae

19	Char	<i>Buchanania lanzan</i>	Anacardiaceae
20	Dudhi	<i>Wrightia tinctori</i>	Apocynaceae
21	Ghoti	<i>Zizyphus xylocarpa</i>	Rhamnaceae
22	Palas	<i>Butea monosperma</i>	Leguminosae
23	Dhaman	<i>Grewia tiliaefolia</i>	Tiliaceae
24	Moyen	<i>Lannea grandis</i>	Anacardiaceae
25	Bartondi	<i>Morinda tinctoria</i>	Rubiaceae

Sr. No.	Common Name	Botanical Name	Family
26	Lokhandi	<i>Ixora parviflora</i>	Rubiaceae
27	Bharati	<i>Gymnosporia Montana</i>	Celastreaceae
	Shrubs		
28	Parijatak	<i>Nyctanthes arbortristis</i>	
29	Morogphali	<i>Helicteres isora</i>	
30	Dhayati	<i>Woodfordia fruticosa</i>	Lythraceae
31	Raymuniya	<i>Lantana camara</i>	Verbenaceae
32	Bhurbhusi	<i>Eragrostis tenella</i>	Poaceae
33	Kodmor	<i>Apluda varia</i>	
34	Marvel	<i>Andropogon annulatus</i>	
35	Dub	<i>Cynodon dactylon</i>	Poaceae
36	Paonya	<i>Schima sulcatum</i>	
	Climbers		
37	Palasvel	<i>Butea superb</i>	Papilionaceae
38	Mahul	<i>Bauhinia vahlii</i>	Caesalpiniaceae
39	Pivervel	<i>Combretum ovalifolium</i>	Combretaceae
40	Chilati	<i>Acacia pinnata</i>	Leguminosae
41	Iruni	<i>Zizyphus oenoplia</i>	Rhamnaceae
42	Gunj	<i>Abrus precatorius</i>	Papilionaceae
43	Rankand	<i>Dioscorea bulbifera</i>	
44	Ran draksh	<i>Vitex tenuifolia</i>	

APPENDIX V

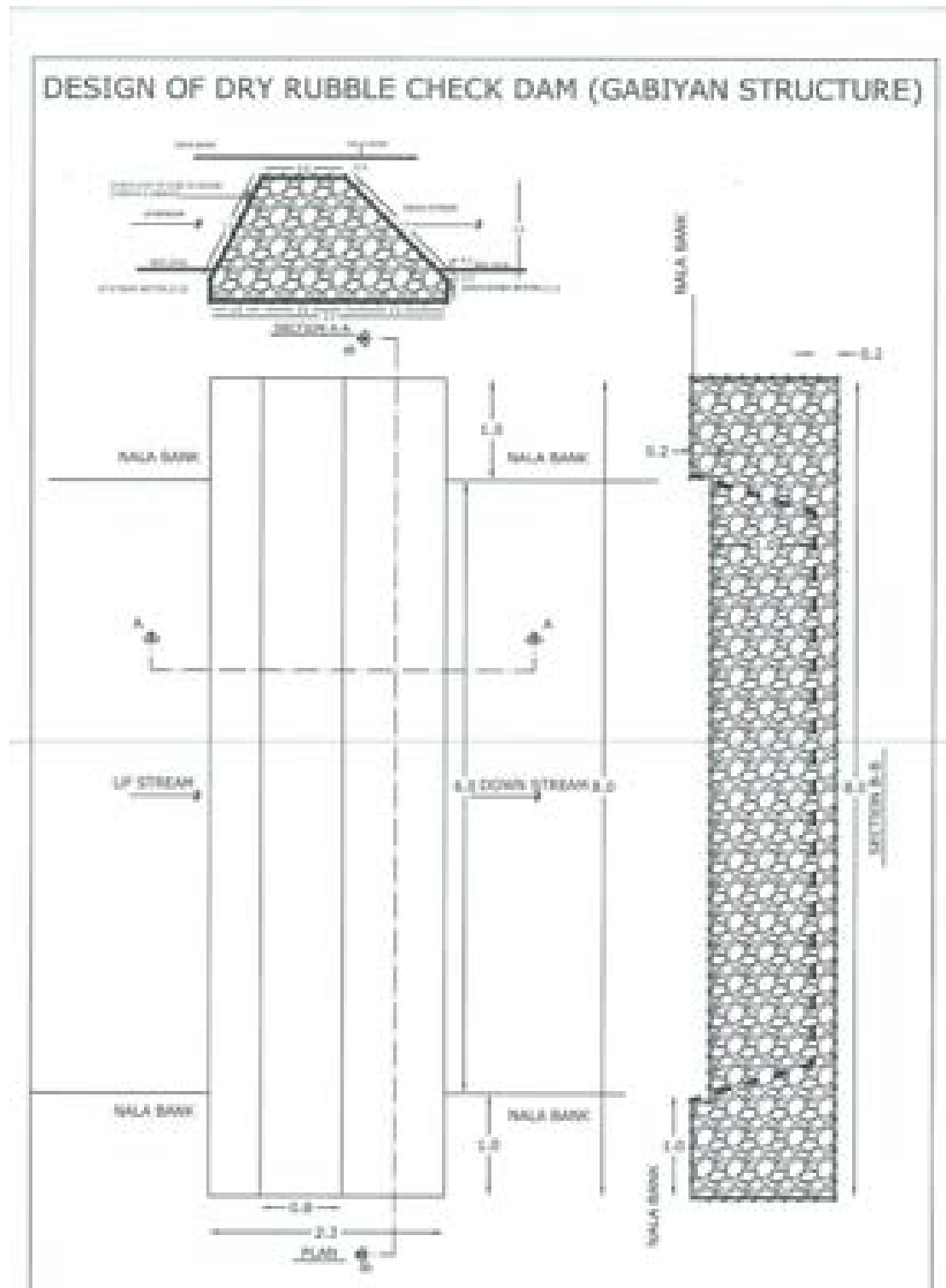
Fauna of Pandharkawada Forest Dn.

Source: Working Plan of Pandharkawada Forest Dn.

Sr. No.	Common Name	Scientific Name	Wildlife Act Schedule
	Carnivores		
1	Panther	<i>Panthera pardus</i>	I
2	Hyaena	<i>Hyaena hyaena</i>	III
3	Wild dog	<i>Cuon alpinus</i>	II
4	Indian Forest Jackal	<i>Canis aureus</i>	II
5	Indian Fox	<i>Vulpes bengalensis</i>	II
6	Wolf	<i>Canis lupus pallipes</i>	I
7	Jungle Cat	<i>Felis chaus</i>	
8	Mongoose	<i>Genus Herpestes</i>	IV
	Herbivores		
9	Black Buck	<i>Antelope cervicapra</i>	I
10	Spotted Deer	<i>Axis axis</i>	II
11	Blue Bull	<i>Boselaphus tragocamelus</i>	III
12	Sambar	<i>Cervinus unicolor</i>	III
13	Chausingha	<i>Tetra Ceros quadricornis</i>	II
14	Sloth Bear	<i>Melursus ursinus</i>	I
15	Wild Boar	<i>Sus scrofa</i>	III
16	Common Langur	<i>Presbytis pileatus</i>	IV

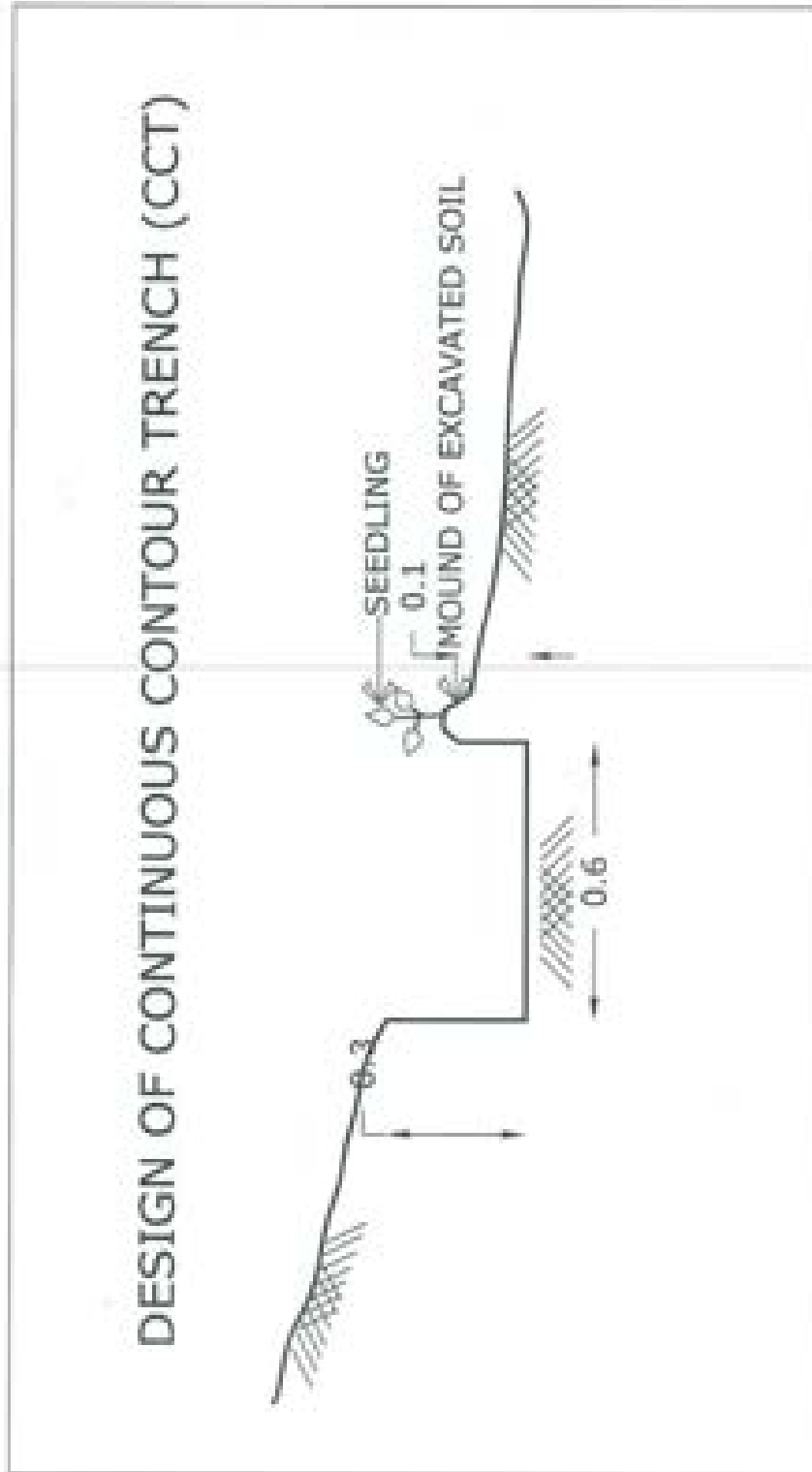
17	Indian Hare	<i>Lupus nigricollis</i>	IV
18	Barking Deer	Muntiacus Muntjak	III
19	Chinkara	Gazella Beennetti	I
20	Porcupine	Hystrix Indica	IV
21	Langur	Presbytis entellus	II
	Birds		
22	Pea Fowl	<i>Pavo cristatus</i>	I
23	Jungle Fowl	<i>Gallus sonneratii</i>	IV
24	Painted Partridge	<i>Francolinus pictus</i>	IV
Sr. No.	Common Name	Scientific Name	Wildlife Act Schedule
25	Common Quail	<i>Coturnix coturnix</i>	
26	Crow Pheasant	<i>Centropus sinensis</i>	IV
27	Spotted Owlet	Athene brama	IV
28	Civet	Viverridae	II
	Reptiles		
29	Red sand Boa	<i>Eryx conicus</i>	
30	Indian Cobra	Naja naja	II
31	Python	<i>Python molurus</i>	I
32	Rat Snake	<i>Ptyas mucosus</i>	II

APPENDIX VI



APPENDIX VII

Design for Continuous Contour Trench (CCT)



APPENDIX VIII

Estimate for raising Mixed Plantation with Cattle Proof Fencing

1400 Seedlings per Ha.

Rs. 203/- per Man Day

I. Preparatory & Pre Plantation Operation (PPO)

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
	(A) Wages for Man Days based works				
1	Survey and Demarcation	1 Ha.	0.54	0.54	
2	Clearance of bushes below 20 cm. (excepting Lantana) and its burning	0.5 Ha.	4.06	2.03	
3	Eradication of unwanted shrubs	0.5 Ha.	18	9	

4	Staking at 3 M by 2 M spacing	1400 No.	1.18/1000	1.652	
5	Digging of pits of size 30 M * 30 M * 30 M 45 M * 45 M * 45 M	1200 No. 200 No.	3/100 6/100	36 12	
6	Soil and Moisture Conservation Measures	1 Ha.	24.5	24.5	

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
7	Filling of pits with soil & application of fertilizers & insecticides	1400 No.	1.5/100	21	
	Total of Wages for man days oriented works			106.722	21665
	(B) Material & Supply related works				
8	Cost of Cow Dung manure including carting (Qty. = No. of pits * Area of pit*5%)	2.45 M ³	Rs. 1200	14.482	
9	Cost of fertile soil including carting (Qty. = 10 % of volume of pit)	4.89 M ³	Rs. 2445	12.044	
10	Cost of Neem cake @ 30 gms. / Pit	42 Kg.	Rs. 2310	11.379	
11	Other expenditure (Lime, String, Stationery etc.)	1 Ha.	Rs. 500	2.463	
	Total of Material & Supply oriented works			40.368	8195
	(C) Fencing of Plantation Area				

12	Cattle proof Trench – Cum – Mound (TCM) Fencing	1 Ha.	55	55	11165
13	Nursery Cost	1540 No.	Rs. 10/No.	75.86	15400
	Grand Total of Preparatory & Pre Plantation Operation (PPO)			278.76	56425

II. First Year Operation (FYO) (Planting Year)

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
	(A) Wages for Man Days based works				
1	Mapping of unwanted shrubs	0.5 Ha.	8	4	
2	Transportation of seedlings up to 50 Kms. distance	1540 No.	1.5 / 100	23.1	
3	Shifting of seedlings within plantation area	1540 No.	0.361 / 100	5.574	
4	Planting of seedlings in pits of size 45 M * 45 M * 45 M 30 M * 30 M * 30 M	200 No. 1200 No.	1.62/100 1.35 / 100	3.24 16.2	
5	Repairs & maintenance of Soil & Moisture Conservation Structures	1 Ha.	2	2	
6	Weeding including replacement of casualties I Weeding (1 M radius) II Weeding (1 M radius)	1400 No. 1400 No.	1.09 / 100 1 / 100	15.26 14	

7	Application of fertilisers & insecticides	1400 No.	0.6 / 100	8.4	
8	Protection	1 Ha.	12	12	
	Total of Wages for man days oriented works			103.774	21070

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
	(B) Material & Supply related works				
9	Cost of organic fertilizer & insecticides (@ 20 gms. DAP @ 756/Kg+ 20 gms. Urea @ 196/Kg+ 10 gms. Insecticide@ 1260/Kg / seedling)	DAP 28 Kg Urea 28 Kg Insec. 14 K.	Rs. 2212 per Ha.	10.896	
10	Cost of Vermicompost including transportation @ 0.5 Kg. / Seedling @ Rs. 6 / Kg.	700 Kg.	Rs. 4200 per Ha.	20.689	
11	Contingent expenditure	1 Ha.	Rs. 500	2.463	
	Total of Material & Supply oriented works			34.048	6900
	Grand Total of First Year Operation (FYO)			137.822	27980

III. Second Year Operation (SYO) (First Year of Maintenance)

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
	(A) Wages for Man Days based works				
1	Mapping of unwanted Shrubs	0.5 Ha.	8	4	
2	Repairs & maintenance of Soil & Moisture Conservation Structures	1 Ha.	2	2	
3	Weeding				
	I Weeding (1 M radius)	1400 No.	1.09 / 100	16.26	
	II Weeding (1 M radius)	1400 No.	1 / 100	14	
4	Application of fertilisers & insecticides	1400 No.	0.6 / 100	8.4	
5	Protection	1 Ha.	12	12	
	Total of Wages for man days oriented works			56.66	21070
	(B) Material & Supply related works				
6	Cost of organic fertilizer & insecticides	DAP 28 Kg	Rs. 2212 per	10.896	

	(@ 20 gms. DAP @ 756/Kg + 20 gms. Urea @ 196/Kg + 10 gms. Insecticide @ 1260/Kg per seedling)	Urea 28 Kg Insec. 14 K.	Ha.		
7	Contingent expenditure	1 Ha.	Rs. 500	2.463	
	Total of Material & Supply oriented works			13.359	2710
	Grand Total of Second Year Operation (SYO)			70.019	14210

IV. Third Year Operation (TYO) (Second Year of Maintenance)

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
	(A) Wages for Man Days based works				
1	Weeding - I Weeding (1 M radius)	1400 No.	1.09 / 100	15.26	
2	Protection	1 Ha.	12	12	
	Total of Wages for man days oriented works			27.26	
	(B) Material & Supply related works				
3	Contingent expenditure	1 Ha.	Rs. 500	2.463	
	Total of Material & Supply oriented works			2.463	
	Grand Total of Third Year Operation (TYO)			29.723	6040

V. Fourth Year Operation (IV Y O) (Third Year of Maintenance)

Sr. No.	Particulars	Unit	Man Days per Unit	Total Man Days	Amount/Ha. (Rs.)
	(A) Wages for Man Days based works				
1	Repairs to Fencing	1 Ha.	2	2	
2	Protection	1 Ha.	12	12	
	Total of Wages for man days oriented works			14	
	(B) Material & Supply related works				
3	Contingent expenditure	1 Ha.	Rs. 500	2.463	
	Total of Material & Supply oriented works			2.463	
	Grand Total of Fourth Year Operation (IV Y O)			16.463	3340

ABSTRACT OF PLANTATION WITH CATTLE PROOF TRENCH (TCM)

Total scheme is for 5 years which is inclusive of 3 years of maintenance.

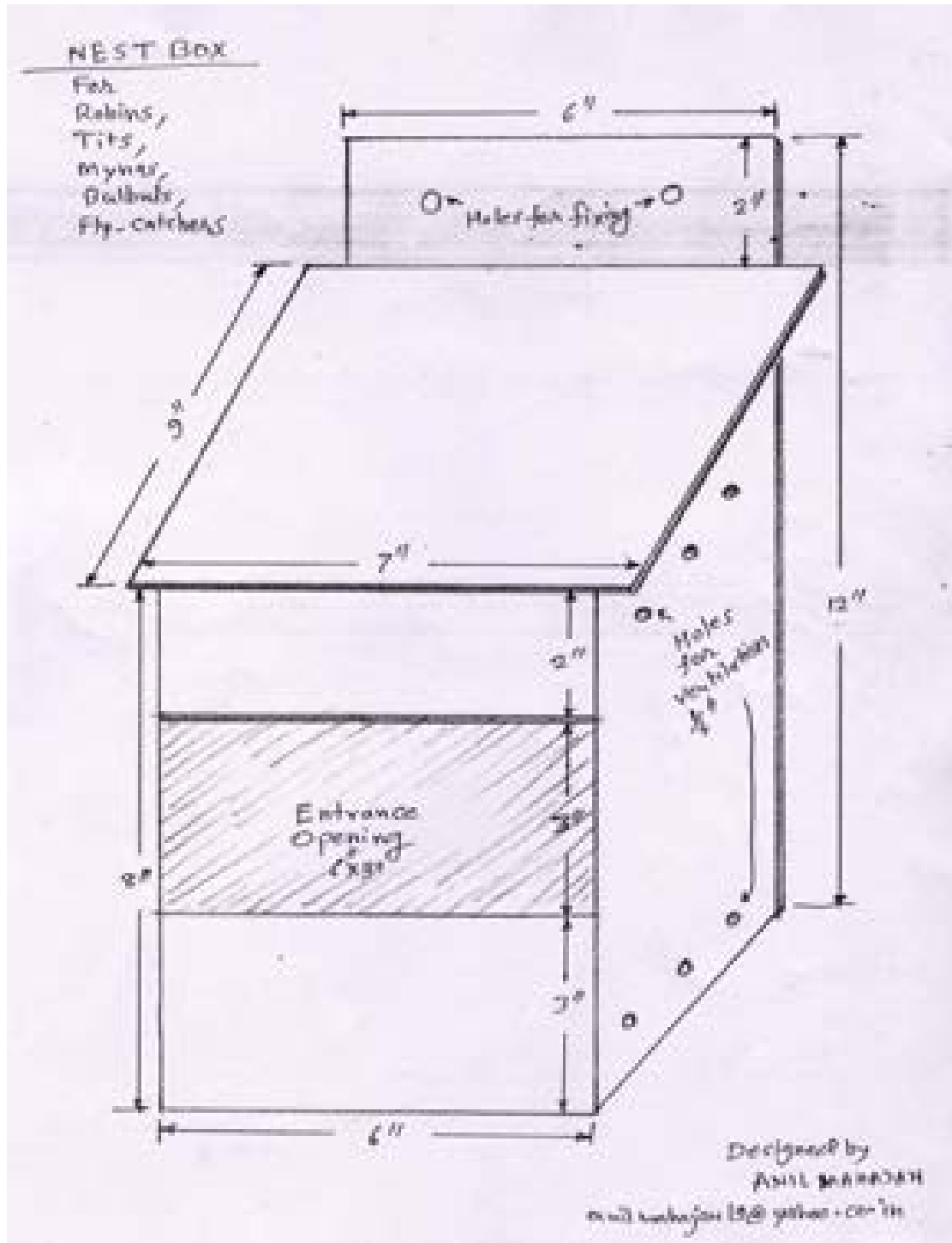
Sr. No.	Year of Plantation	Total Man Days	Amount/Ha. (Rs.)
1	Preparatory & Pre Plantation Operation (PPO)	278.76	56425
2	First Year Operation (FYO) (Planting Year)	137.822	27980
3	Second Year Operation (SYO) (First Year of Maintenance)	70.019	14210
4	Third Year Operation (TYO) (Second Year of Maintenance)	29.723	6040
5	Fourth Year Operation (IV Y O) (Third Year of Maintenance)	16.463	3340

	Total of Model of Plantation with Cattle Proof Trench	532.787	107995
	SAY		110000

APPENDIX IX

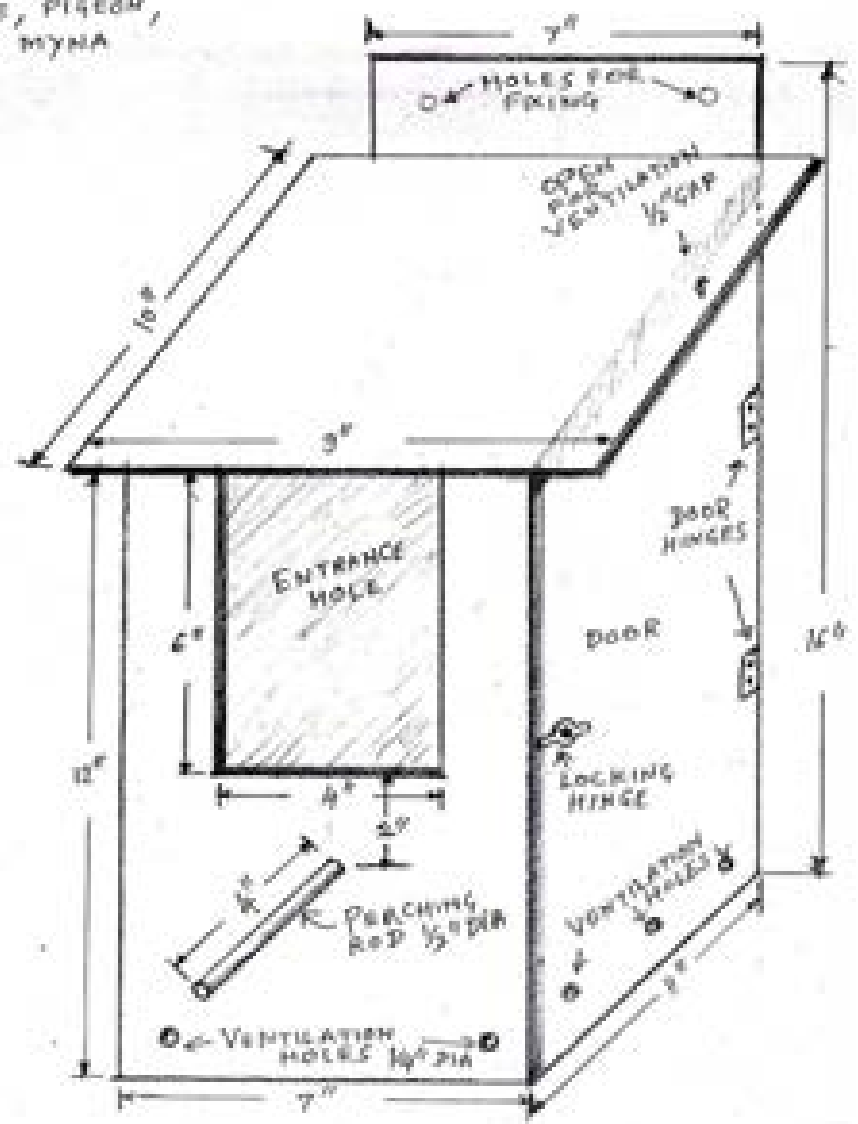
Designs for Artificial Nests

Designs for Artificial Nests for Robbings, Tits, Mynas, Bulbuls and Fly-Catchers



Design for Artificial Nests for Woodpecker, Dove, Jay, Hoopoe, Pigeon, Parakeet and Myna

NEST-BOX
 FOR
 WOODPECKER, DOVE,
 JAY, HOOPUE, PIGEON,
 PARAKEET, MYNA



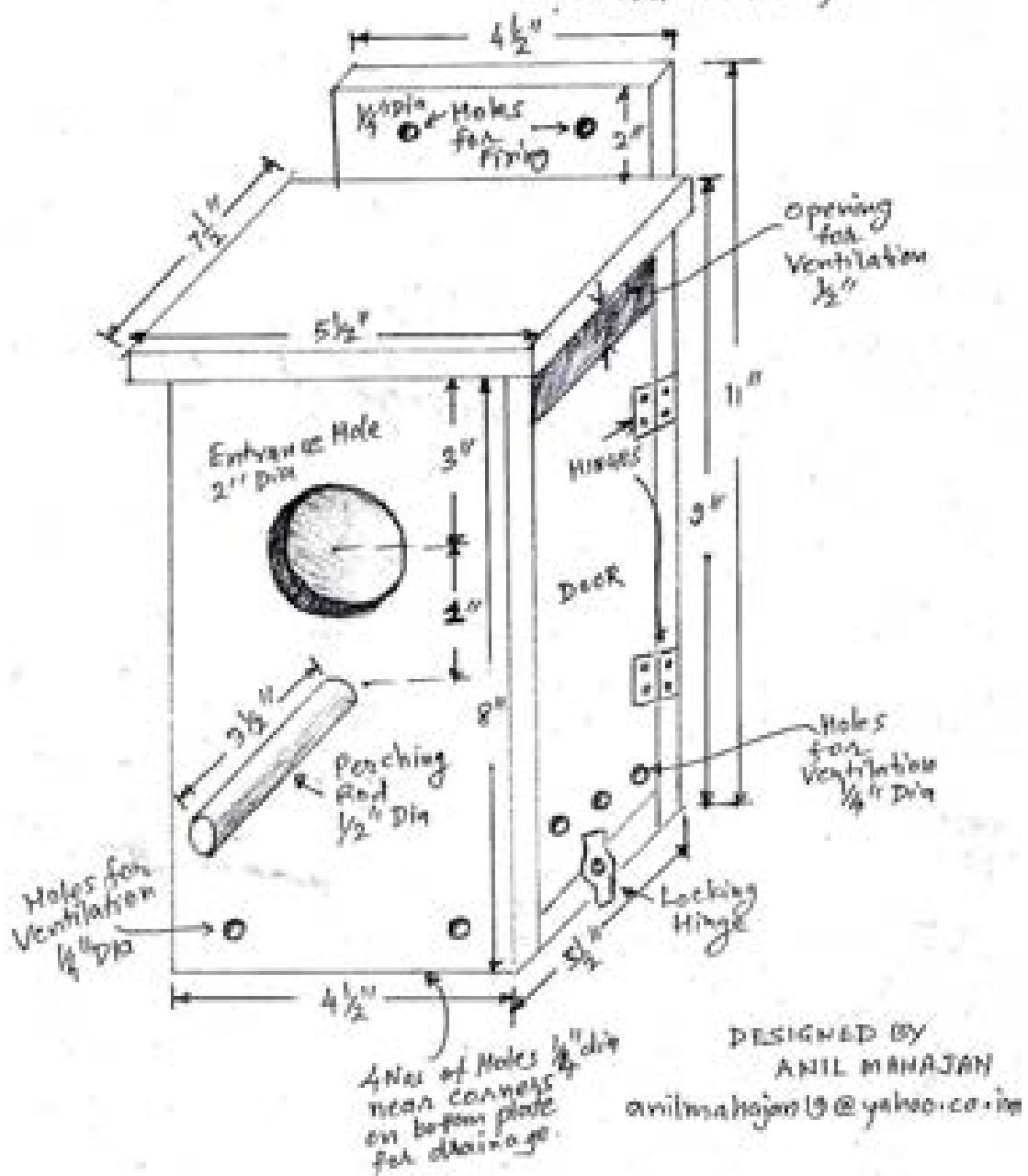
DESIGNED BY
 ANIL MAHAJAN
 anilmahajan15@yahoo.co.in

Design for Artificial Nests for Sparrow, Magpie Robin, Indian Robin and Bulbul

NEST-BOX

FOR
HOUSE-SPARROW,
MAGPIE ROBIN,
INDIAN ROBIN,
BULBUL

Made out of
15mm Marine Plywood.



Sparrow feeding at Artificial Nest



APPENDIX X

**Statement of Year wise Phasing of Physical Targets Proposed for the Plan Period and its
Financial Implications**

(Rs. In Lacs)

Sub Plan No.	Activity And Implementing Agency	Phy. Fin.	Target	Y 1	Y 2	Y 3	Y 4	Y 5	Total
I	Conservation of Tiger								
1	Monitoring the Movements of Tigers & Alert System								
	(i) Supply of Rapid Rescue Van								
	Pandharkawada F. Dn.	Phy.	1	1	-	-	-	-	1
		Fin.	9.0	9.0	-	-	-	-	9.0
	(ii) Monitoring Team								
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	1.0	0.20	0.20	0.20	0.20	0.20	1.0
2	Protection of Tiger Cubs								
	(i) Protection Team								

	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.75	0.15	0.15	0.15	0.15	0.15	0.75
	3	Providing Equipments							
		(i) Tranquilising Gun							
	Pandharkawada F. Dn.	Phy.	1	1	-	-	-	-	1
		Fin.	2.60	2.60	-	-	-	-	2.60
		(ii) Camera Trap							
	Pandharkawada F. Dn.	Phy.	1	1	-	-	-	-	1
		Fin.	0.12	0.12	-	-	-	-	0.12

Sr. No.	Activity And Implementing Agency	Phy. Fin.	Target	Y 1	Y 2	Y 3	Y 4	Y 5	Total
	(iv) Night Vision Binocular								
	Pandharkawada F. Dn.	Phy.	1	1	--	--	--	--	1
		Fin.	0.90	0.90	--	--	--	--	0.90
	4 Training of Forest Staff								
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25
	5 Intelligence Gathering								
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25
	6 Fostering Conservation Awareness								
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25
	7 Construction of Parapet Walls on Open Wells of Agricultural Fields								

	Pandharkawada F. Dn.	Phy.	2	1	1	-	-	-	2
		Fin.	0.50	0.25	0.25	-	-	-	0.50
	Total of Sub Plan I								
	Pandharkawada F. Dn.	Phy.	31	9	6	5	5	5	31
		Fin.	15.62	13.37	0.75	0.50	0.50	0.50	15.62
II	Conservation of Other Wildlife								
	Habitat Improvement								
	Water Management								
	1	Strengthening of Existing Waterholes							

Sr. No.	Activity And Implementing Agency	Phy. Fin.	Target	Y 1	Y 2	Y 3	Y 4	Y 5	Total	
	Pandharkawada F. Dn.	Phy.	10	2	2	2	2	2	10	
		Fin.	1.0	0.20	0.20	0.20	0.20	0.20	1.0	
2	Construction of Dry Rubble Check Dams (Gabiyan Structures)									
	Pandharkawada F. Dn.	Phy.	3	1	1	1	-	-	3	
		Fin.	0.75	0.25	0.25	0.25	-	-	0.75	
3	Digging of Continuous Contour Trenches (CCTs):									
	Pandharkawada F. Dn.	Phy.	3	1	1	1	-	-	3	
		Fin.	0.75	0.25	0.25	0.25	-	-	0.75	
	Improvement of Food & Fodder Availability									
4	Pasture Development									
	Pandharkawada F. Dn.	Phy.	5 Ha.	1	1	1	1	1	5 Ha.	
		Fin.	1.25	0.25	0.25	0.25	0.25	0.25	1.25	
5	Raising of Plantations									

	Pandharkawada F. Dn.	Phy.	3 Ha.	1	1	1	-	-	3 Ha.
		Fin.	3.30	1.10	1.10	1.10	-	-	3.30
	6	Providing Artificial Nests							
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25
	7	Prophylactic Inoculation of Domestic Cattle							
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25

Sr. No.	Activity And Implementing Agency	Phy. Fin.	Target	Y 1	Y 2	Y 3	Y 4	Y 5	Total
	Forest Protection								
8	Providing Bicycles								
	Pandharkawada F. Dn.	Phy.	3	1	1	1	-	-	3
		Fin.	0.05	0.017	0.017	0.016	-	-	0.05
9	Providing Motorcycle								
	Pandharkawada F. Dn.	Phy.	1	1	-	-	-	-	1
		Fin.	0.50	0.50	-	-	-	-	0.50
10	Providing Personal Digital Assistant (PDA)								
	Pandharkawada F. Dn.	Phy.	3	3	-	-	-	-	3
		Fin.	0.25	0.25	-	-	-	-	0.25
	Total of Conservation of Other Wildlife								
	Pandharkawada F. Dn.	Phy.	41	13	9	9	5	5	41
		Fin.	8.35	2.917	2.167	2.167	0.55	0.55	8.35

III	Village Eco-Development									
	1	Raising of Fuel Wood Plantations on Bunds								
		Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
			Fin.	1.25	0.25	0.25	0.25	0.25	0.25	1.25
	2	Pasture Development on Community Lands								
		Pandharkawada F. Dn.	Phy.	2	1	1	--	--	--	2
			Fin.	0.50	0.25	0.25	--	--	--	0.50
	3	Supply of Liquid Petroleum Gas (LPG)								
		Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
			Fin.	0.50	0.10	0.10	0.10	0.10	0.10	0.50

Sr. No.	Activity And Implementing Agency	Phy. Fin.	Target	Y 1	Y 2	Y 3	Y 4	Y 5	Total
4	Strengthening of FPCs/JFMCs/VEDCs								
	Pandharkawada F. Dn.	Phy.	5	1	1	1	1	1	5
		Fin.	0.50	0.10	0.10	0.10	0.10	0.10	0.50
	Total of Village Eco-Development								
	Pandharkawada F. Dn.	Phy.	17	4	4	3	3	3	17
		Fin.	2.75	0.70	0.70	0.45	0.45	0.45	2.75
IV	Socio – Economic Development								
1	Training for Lively Hood								
	Project Proponent	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25
2	Training in Computer Applications								
	Project Proponent	Phy.	5	1	1	1	1	1	5
		Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.25

	3	Assistance to Primary Health Centers									
		Project Proponent	Phy.	5	1	1	1	1	1	1	5
			Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.05	0.25
	4	Repairs to Primary School Buildings									
		Project Proponent	Phy.	5	1	1	1	1	1	1	5
			Fin.	0.25	0.05	0.05	0.05	0.05	0.05	0.05	0.25
	5	Construction of Overhead Water Reservoir at Chilai									
		Project Proponent	Phy.	1	1	--	--	--	--	--	1
			Fin.	0.50	0.50	--	--	--	--	--	0.50

Sr. No.	Activity And Implementing Agency	Phy. Fin.	Target	Y 1	Y 2	Y 3	Y 4	Y 5	Total
Total for Socio – Economic Development									
	Project Proponent	Phy.	21	5	4	4	4	4	21
		Fin.	1.50	0.70	0.20	0.20	0.20	0.20	1.50
Grand Total for the Plan Period									
	GRAND TOTAL	Phy.	110	32	23	21	17	17	110
		Fin.	28.22	17.68	3.82	3.32	1.70	1.70	28.22
	% To Total		100	62	14	12	6	6	100
Implementing Agency wise Total									
	Pandharkawada F. Dn.	Phy.	89	27	19	17	13	13	89
		Fin.	26.72	16.98	3.62	3.12	1.50	1.50	26.72
	% To Total		95	60	13	12	5	5	95
	Project Proponent	Phy.	21	5	4	4	4	4	21

			Fin.	1.50	0.70	0.20	0.20	0.20	0.20	1.50
		% To Total		5.41	2.53	0.72	0.72	0.72	0.72	5.41
		GRAND TOTAL	Phy.	110	32	23	21	17	17	110
			Fin.	28.22	17.68	3.82	3.32	1.70	1.70	28.22
		% To Total		100	62	14	12	6	6	100