GOVERNMENT OF MAHARASHTRA

TADOBA-ANDHARI TIGER RESERVE, CHANDRAPUR

TIGER CONSERVATION PLAN

(Plan Period 2016-17 to 2025-26)

VOLUME-I
(CORE)

Basic Plan (2008-09) by
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Chandrapur

Revised Plan by
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APPENDIX

PREFACE

This Tiger Conservation plan for TATR has been written as per chapter IV-B section 38 V of Wildlife (Protection) Act 1972 (a) amendment 2006. The earlier Management Plan of Shri. Mohan Karnat and K. N. Khawarey (1997 - 2007) was under revision. When the instructions to prepare Tiger Conservation Plan were received National Tiger Conservation Authority issued detailed Guidelines for preparation of Tiger Conservation Plan vide it technical document -NTCA/01/07.

This Tiger Conservation Plan has been based on the experiences of the earlier plan. The prescriptions are based on the discussions held in the meeting dated 7/3/2007 for this purpose. The meeting was attended by

Dr. Nand Kishore, Chief Conservator of Forests (Wildlife), Nagpur
Shri. Nitin Kakodkar, Conservator of Forests and Field Director, Melghat Tiger Reserve, Amravati
Shri. Mohan Karnat, Regional Manager, North Chandrapur Region, F.D.C.M.Ltd., Chandrapur
Ku. Ambika Paliwal, Researcher, Wildlife Institute of India, Dehradun
Shri. Girish Washishtha, Assistant Conservator of Forests, T.A.T.R., Chandrapur
Shri. B. P. Bramhane, Shri. P. K. Dayyamwar, Shri. G. N. Pise, Shri. G. P. Channe, R.F.O.

All these people have been involved in either formulation or implementation of the earlier plan.

A meeting of NGOs was also held at Chandrapur on 13/3/2007 to discuss and get some useful suggestions from the local N.G.O.s and individuals who are concerned about the happening in Tadoba-Andhari Tiger Reserve for years. The meeting was attended by

1) Shri. Uday Patel, Hon. Wildlife Warden, Chandrapur District
2) Shri. Bhaskar Bhat, Ex. Hon. Wildlife Chandrapur District
3) Smt. Poonam Dhanwatey, Secretary, TRACT, Nagpur

4) Shri. Giri Vyankateshan, Executive Director, Satpuda Foundation, Amravati

5) Shri. Atul Dhamankar, Wildlife Foundation, Chandrapur

6) Shri. Suresh Chopane, Green Planet Society

7) Shri. Ashish Ghume, Green Pigeon Nature Club, Chandrapur

8) Shri. Neeraj Potdar, Friends of Tadoba, Chandrapur

9) Shri. Sanjay Karkare, B.N.H.S., Tiger Cell

10) Shri. M.S.R. Shad, Wildlife Enthusiast

11) Shri. Milind Umare, Cranes Nature Club

12) Shri. Swapnil Dudhalkar, Wildlife Enthusiast

13) Shri. Mahendra Rale, Prithvimitra Nisarg Sanstha, Chandrapur

Useful suggestions given by the members also have been incorporated in the revised plan.

Furthermore inputs of all the field staff of Tadoba-Andhari Tiger Reserve have also been taken. As these people are working at grass root level for years they are aware of the local problems and they are knows the best solutions to the problems.

I am thankful to all for their contributions, which have helped us to prepare this plan.

I am thankful to Shri. K. D. Dhakate, Surveyor for compilation of area statements and preparation of maps.

I am thankful to Shri Girish Washishta, Asst. Conservator of Forests who have single handedly completed the plan to Buffer area and assisted in preparing core and adjoining area (Corridor) plan.

I am thankful to contributions of Conservator of Forests North Chandrapur Circle with all his DCFs, Conservator of Forests South Chandrapur Circle with all his DCFs, Regional Managers North and South FDCM Regions and DCF Wildlife Allapalli Division for their contributions in preparing adjoining area (Corridor) Plan

I am thankful to contributions of Wild Life Institute of India, Dehradun for providing maps.

I am thankful to Dr. Nand Kishore Chief Conservator of Forests, Nagpur for his able guidance from time to time.

Dr. S. H. Patil,
Conservator of Forests and Field Director,
Tadoba-Andhari Tiger Reserve, Chandrapur

PREFACE AS TO REVISION :-

Tiger Conservation Plan for Tadoba-Andhari Tiger Reserve Maharashtra was prepared by Dr. S.H. Patil, Conservator of Forests & Field Director for the period from 2008-09 to 2017-18 and submitted vide CF & FD TATR No. Desk-5/Survey/09-10/50, dated 21.04.2009 to Principal Chief Conservator of Forests (Wildlife), Maharashtra State, Nagpur. Principal Chief Conservator of Forests (Wildlife), Maharashtra State, Nagpur submitted the Tiger Conservation Plan (TCP) to Government of Maharashtra vide his No. Desk-22(8)/TCP/343/2009-10, dated 15.05.2009. Government of Maharashtra vide letter No. WLP-10.09/C.R.126/F-1, dated 16.10.2009 submitted it to National Tiger Conservation Authority, New Delhi.

National Tiger Conservation Authority constituted Committee to examine Tiger Conservation Plan vide their letter No. 1-20/2009-NTCA dated 25.08.2010. The meeting of committee was held on 26.08.2011. No official minute of meeting received by this office, but as per personal discussion with officers who attended the meeting, it came to know that following points were raised.

1) Since half of the plan period is over mid term review of plan should be carried out.
2) While revising the plan care of the issues highlighted in Monitoring Effectiveness Evaluation of Tiger Reserve (MEETR) report 2010 and All India Tiger Estimation Report 2010 should be taken in to consideration.
3) Proposal made for cutting of trees on existing fire lines should be deleted.

Official correspondence from Deputy Inspector General (NTCA) was first received vide No. 1-14/2011-NTCA dated 16th March 2012 for revision of TCP covering point No. 1 & 2 above. The work of revision of Tiger Conservation Plan was started from April 2012. As sea change have been taken place in administrative setup and other things of Tadoba-Andhari Tiger Reserve (viz. inclusion of Buffer area under administration of Field Director, formation of Core and Buffer independent Division, creation of STPF, many State Government resolutions for helping in Eco

Development and rehabilitation). The work of data collection for revision was huge so long time required for that.

The road map for revision was prepared and discussed in the meeting held on 17..07.2012 by Principal Chief Conservator of Forest (Wildlife) M.S. Nagpur. The road map was approved with some suggestion. It was decided in meeting that detail prescription for forestry works in Buffer Zone should not be included in Tiger Conservation Plan as the area is under forestry working and prescribing all forestry working circle scientifically is not possible by Field Director. So it is decided that independent Working Plan for Buffer Division including FDCM area which is brought under unified control of Field Director should be prepared by Working Plan officer Chandrapur in consultation with Field Director, Tadoba-Andhari Tiger Reserve. The Wildlife Management prescription (Wildlife Overlapping Working Circle) should not be included in Working Plan of Buffer Zone by Working Plan officer but will be governed by prescription given in Tiger Conservation Plan.

In the mean while, directives have been received from NTCA about preparation of Eco Tourism Plan as per guidelines dated 15.10.2012 and the Eco Tourism Plan being part of Tiger Conservation Plan. As per guidelines dated 15.10.2012 a Local Advisory Committee (LAC) was to be formed and Eco Tourism Plan was supposed to be approved by LAC. The focus of revising Tiger Conservation Plan then shifted to preparation of detailed Eco Tourism Plan and get it approved from LAC.

The work of preparation of Eco Tourism Plan was taken up at priority and was completed and discussed in meeting dated 29.11.2012 held by Principal Chief Conservator of Forests (Wildlife), M.S. Nagpur. The plan received in-principal approval in the said meeting. The plan was finalized and put before LAC in the meeting held on 10.01.2013. The LAC suggested a few modifications in the plan. The modifications were accordingly incorporated in the plan and revised plan was put for approval in the LAC meeting dated 11.02.2013. The plan was approved in that meeting.

The work of revising original Tiger Conservation Plan was again taken up. The details of data relating to adjoining area was collected from respective Division of Chandrapur district and incorporated.

The Tiger Conservation Plan was thus revised. Following are the highlight of revision.

- The proposal for cutting of trees on existing fire line has been deleted.
- The changed organization set up including STPF have been incorporated.
- Provision for Annual Security Plan have been made.
- Details of protection and habitat management activity incorporated in Buffer and adjoining area plan.
- Independent Eco Tourism Plan prepared and attached as Volume-IV of Tiger Conservation Plan.
- Details of Eco Development Activity have been provided in Buffer area plan.
- Adjoining area have been consolidated and whole Chandrapur District have been identified as adjoining area.
- Phase-IV monitoring protocol have been adopted for Core, Buffer and Adjoining Area.
- Issues highlighted in Monitoring Effectiveness Evaluation of Tiger Reserve (MEETR) report 2010 and All India Tiger Estimation Report 2010 have been suitably incorporated.
- The budget requirement from 2013-14 to 2017-18 have been suitably revised.

The work of revising the Tiger Conservation Plan in time would not have been possible without the help of my coligue from field and office, so may heartiest thanks to all of them.

The major work of mid-term review of the TCP and preparation of new Eco Tourism Plan is done single handedly by Shri. G.K. Washishtha, Divisional Forest Officer in office of TATR. Shri. G.K. Washishtha who has vast experience of wildlife

management, particularly in TATR and a well known figure in the State in the field of wildlife, was also contributor to the original TCP. It would not have been possible for the undersigned to carry out mid-term review of the TCP in the prescribed time frame without his support and I acknowledge his contribution on record.

I am thankful to Shri. K.D. Dhakate, Surveyor, Shri. Avinash B. Kumbhare, Computer Operator for their contribution in revising the plan.

I am thankful to Shri. P. Kalyankumar, Deputy Conservator of Forest, Chandrapur Division, Shri. S.L. Thavre Deputy Conservator of Forests, Bramhapuri Division, Shri. M.M. Kulkarni, Deputy Conservator of Forests, Central Chanda Division, Shri. B.T. Bhagat, Divisional Manager, West Chanda Project Division FDCM, Shri. P.B. Dhanke, Central Chandra Project Division FDCM, Shri. G.N. Dhapodkar, Divisional Manager, Bramhapuri Project Division FDCM for their valuable inputs for preparation of Adjoining Area Plan.

I am thankful to Shri. A.K. Saxena, Additional Principal Chief Conservator of Forests (WL) and Shri. Anil Mohan, Additional Principal Chief Conservator of Forests for their guidance.

I am also thankful to Shri. S.W.H. Naqvi, Principal Chief Conservator of Forests (WL), M.S. Nagpur for their valuable inputs in preparation of Eco-Tourism Plan and revision of Tiger Conservation Plan.

Last but not the least I am specially thankful to Shri. Praveen Pardeshi, Principal Secretary (Forest) Revenue and Forest Department M.S. for his valuable suggestion for Eco-Tourism Plan and Tiger Conservation Plan.

Place : Chandrapur
Dated : 28th March 2013

V.R. Tiwari, IFS
Chief Conservator of Forests & Field Director,
Tadoba-Andhari Tiger Reserve,
Chandrapur

1. INTRODUCTION OF THE AREA

1.0 Broad picture

- A good tiger source area in the Eastern part of Maharashtra, comprising of tropical dry deciduous forests.
- The Reserve has good tiger density with recurring human-tiger interface problems in the fringe area, which also have resident tiger populations.
- The Reserve in surrounded by tiger bearing forests dotted with human presence. At places (outside notified Buffer) ecologically unsustainable land uses like coal mining is also there. Further, there is demand for forest land in the fringes for various development works like irrigation, extension of coal mines etc.
- The Reserve is strategically located in Central India and is connected in South to the Indravati Tiger Reserve of Chattisgrah through the forest of Chandrapur and Gadchiroli district and in the North Eastern side to Kanha Tiger Reserve through Navegaon – Nagzira protected area of the state.
- The habitat of TATR is highly productive in context of tiger and due to a high turnover there is movement of tiger to outer areas with several "sink population" thriving in the adjoining forest of Brahmpuri, Chandrapur and Central Chanda divisions.
- Providing ecologically viable sustainable livelihood options to local population and fostering district level welfare schemes in the Buffer area is important, besides day to day monitoring of tiger, address human-tiger conflicts. There is also considerable tourism pressure with a scope for involving the local people in the same.
- Restoring the corridor connections with Nagzira – Nawegaon as well as Gadchiroli forest is important for the long term viability on the Tadoba tiger populations.

1.1 Description of the Tiger Conservation Unit/Landscape and significance of the area for tiger conservation.

The Project Tiger guidelines made it mandatory that every Tiger Reserve should be managed in accordance with a site specific Management Plan, which is the road map for managing a Tiger Reserve. Project Tiger thus became a role model for scientific management of Protected Areas in India. It laid down the concept of Core-Buffer zonation, prescribed interventions for protection, habitat improvement, field data collection relating to change in the composition of flora and fauna on account of protection, animal estimation and other aspects.

The existing Management Plan for Tadoba- Andhari Tiger Reserve (hereafter referred as TATR) covered only the area of Tadoba National Park (116.55 sq. km.) and Andhari Wildlife Sanctuary (508.85 sq. km.). Consequent to the amendment to Wildlife (Protection) Act, 1972 in 2006, the National Tiger Conservation Authority, Ministry of Environment and Forest, Govt. of India has issued detailed guidelines for preparation of Tiger Conservation Plan. Based on these guidelines, this Tiger Conservation Plan of Core covers an area of 625.4 sq. km. TATR is one of the major Protected Areas of the state consisting of sizeable number of Tigers. The whole area of National Parks and Wildlife Sanctuary has been declared as Core. The Tigers in this area would serve as 'source population', which needs to be consolidated and strengthened by suitable management intervention. The Buffer/peripheral areas are Tiger bearing forests, having potential for further consolidation. These areas are required to provide habitat supplement to the spill over population of Tiger and its prey from the Core area, to provide site specific, need based, participatory eco development inputs to local stakeholders for rationalizing their resource dependency on Tiger Reserve and mainstreaming of wildlife concerns in various production sectors in the area. The adjoining landscape is required to maintain connectivity to other Core areas for ensuring gene flow as an ecological requirement for long term survival of the species. Adjoining landscape may also act as smaller source population by facilitating breeding and movement of native wildlife population to colonize adjoining habitats.

1.2 The Map of landscape: - The whole Chandrapur district has been identified as Tadoba-Andhari Tiger Reserve Landscape. This landscape includes Core Division, Buffer Division, Bramhapuri Division, Chandrapur Division, Central Chanda Division, West Chanda FDCM Division, Central Chanda FDCM Division and Bramhapuri FDCM Division. The map is enclosed as Map No.1.

1.3 Legal provisions contained in the Wildlife (Protection) Act regarding Tiger Conservation Plan and brief description of their relevance in the Tiger Conservation Unit/ Landscape.

The Wildlife (Protection) Act, 1972 was amended in 2006, and a separate Chapter (IVB) has been added on the "National Tiger Conservation Authority", which has replaced Project Tiger. This Chapter, inter alia, has enabling provisions (Section 38V) for preparing a "Tiger Conservation Plan" for the proper management of a Tiger Reserve, which will also include staff development and deployment plan. The Core or Critical Tiger Habitat is required to be kept as inviolate for the purpose of Tiger Conservation. The Buffer or area peripheral to Critical Tiger Habitat is required to ensure the integrity of the Critical Tiger Habitat with adequate dispersal for Tiger species and to promote co-existence between wildlife and human activity with due recognition of the livelihood, developmental, social and cultural rights of the local people. The adjoining landscape is required to act as corridor for movements of wild animals between Core areas.

1.4 Delineation of Area into Core, Buffer and Adjoining Landscape.

The details of the area included in this plan are as follows.

A. Core area : The Core or Critical Tiger Habitat area consists of Tadoba National Park (116.55 sq. km.) and Andhari Wildlife Sanctuary (508.85 sq. km.), notified vide notification No. WLP 10-07/CR 297/F-1, dated 27.12.2007. This area is presently under the administrative control of Deputy Director (Core), Tadoba Andhari Tiger Reserve, Chandrapur from 1st October 2012. Chief Conservator of Forests & Field Director, Tadoba- Andhari Tiger Reserve, Chandrapur is the Supervisory Officer.

The details of the area are as follows.

Name of PA	Reserve Forest (sq km)	Protected Forest (sq km)	Other areas (sq km)	Total (sq km)
Tadoba National Park	116.08	-	00.47	116.55
Andhari Wildlife Sanctuary	461.88	32.51	14.46	508.85
Total	**577.96**	**32.51**	**14.93**	**625.40**

B. Buffer Area: The Buffer Area of Tadoba Andhari Tiger Reserve is duly notified under section 38V of Wildlife Protection Act, 1972; vide Government of Maharashtra notification No. WLP.1009/C.R.229/F-1, Mumbai dated 5th May 2010. The Core and the Buffer area of the TATR are brought under the unified control of Chief Conservator of Forest & Field Director, TATR; vide Government of Maharashtra Resolution No. WLP-2012 / CR-256/ F-1, dated 22nd August 2012. Further the buffer area of 125.51 Sq.km. in possession of the FDCM is also brought under unified control of Chief Conservator of Forest & Field Director, TATR vide letter government of Maharashtra Resolution No. FDC 2013/CN No. 63/F-5, dated 13th June 2014. The details of the notified Buffer area are as follows:-

Sr. No.	Particulars	R.F. (sq.km.)	P. F. (sq.km.)	Non Forest Area (sq.km.)	Total (sq.km.)
1	Chandrapur Dn.	430.13	110.95	359.01	900.09
2	Bramhapuri Dn.	31.60	2.09	42.48	76.17
3	F.D.C.M. West Chanda	125.51	0	0	125.51
	Total	**587.24**	**113.04**	**401.49**	**1101.77**

There are 79 villages included within this Buffer zone. The details of this area are given in the Buffer Plan.

C. Adjoining Landscape: The TATR has connectivity on the North-Eastern and Southern sides. The North-Eastern side connects it to Navegaon National Park in Gondia district. The Southern side connects it to Chaprala Wildlife Sanctuary in Gadchiroli district. The whole Chandrapur District being forested area has been included in the adjoining landscape. The Chandrapur, Bramhapuri, Central Chanda, West Chanda FDCM (Non buffer part), Bramhapuri FDCM and Central Chanda FDCM Divisions have been included as adjoining landscape. Details of these areas are given in the adjoining landscape plan.

TIGER CONSERVATION PLAN: CORE AREA
PART A: THE EXISTING SITUATION
CHAPTER - I: INTRODUCTION TO THE AREA

1.1 Name, Location, Constitution and Extent

1.1.1 Name :- The reserve is called as "Tadoba-Andhari Tiger Reserve". The area dealt with consists of Tadoba National Park (116.55 sq.km.) and Andhari Wildlife Sanctuary (508.85 sq.km.). The Government of India approved the composite area of 625.40 sq. km. as Tiger Reserve under Centrally Sponsored Scheme "Project Tiger", vide notification No. I-2/53-PT, dated 21/12/1993 (Enclosed as **Appendix-I).** Government of Maharashtra declared this composite area as "Tadoba-Andhari Tiger Reserve", vide notification No. WLP-1054/CR-225/F-1, dated 23/2/1995 (enclosed as **Appendix- II).** Tadoba- Andhari Tiger Reserve is second Tiger Reserve of the State under Project Tiger.

Tadoba-Andhari Tiger Reserve is the pristine and unique ecosystem situated in the Eastern part of the Maharashtra State. The reserve contains the best of our remaining forests blessed with the rich Biodiversity and is famous for its Natural Heritage.

1.1.2 Location

By Geographic Co-ordination :-

i) Longitude - $79^0$13'13"E and $79^0$33'34"E

ii) Latitude - $20^0$4'53"N and $20^0$25'51"N

Location by Other Features :-

i) State - Tadoba-Andhari Tiger Reserve is situated in the State of Maharashtra.

ii) District - Situated entirely in Chandrapur District.

iii) Taluka - Situated in Bhadrawati, Chandrapur, Chimur, Sindewahi and Warora taluka.

Location Biogeographic Zonation :-

As per the Bio-geographic classification of India by the Wildlife Institute of India, Dehra Dun, the Tiger Reserve is classified as -

(i) Bio-geographic Kingdom : Paleotropical

(ii) Sub kingdom : Indomalayan

(iii) Bio-geographic zone : 6 - Deccan peninsula

(iv) Biotic province : 6 - B Central Plateau.

1.1.3 Constitution :-

The area dealt with consists of Tadoba National Park (116.55 sq.km.) and Andhari Wildlife Sanctuary (508.85 sq.km.). The Tadoba National Park was declared along with Kanha National Park (by Act No. VII of 1955), under Madhya Pradesh National Parks Act on 9th of April 1955, **(Appendix-III).** Andhari Wildlife Sanctuary was notified by Government of Maharashtra on 25th February 1986 **(Appendix- IV)**. The Reserve Forests part of Andhari Wildlife Sanctuary has been finally notified under section 26A of Wildlife (Protection) Act 1972 by Government of Maharashtra on 9.2.2001 **(Appendix-V)**. The twin area of Tadoba National Park and Andhari Wildlife Sanctuary has been notified as Core or Critical Tiger Habitat, vide notification No. WLP-10-07/ CR-297/ F-1, dated 27.12.2007 **(Appendix-VI).**

1.1.4 Extent (Area Statement and Legal Status)

TATR cover following Area

Category	Legal status of the area included			
	Reserve Forest	**Protected Forest**	**Other area**	**Total**
Core	577.96	32.51	14.93	625.40
Buffer	590.57	104.59	403.67	1098.83
Total	**1168.53**	**137.10**	**418.60**	**1724.23**

The total area included in this plan is 625.40 sq. km.; of which 577.96 sq. km. is Reserve Forest, 32.51 sq. km. is Protected Forest and 14.93 sq. km. is Un-classed Forests, other Government lands Private lands and habitations (*Abadi*). All Reserve Forests are surveyed and are part of 55P/3, 55P/7, 55P/8, 55P/11 and 55P/12 of Survey of India top sheets (**Appendix VII).** The details of Reserve Forests and Un-classed Forests are given in **Appendix VIII.** The details of other Govt. lands, private lands (Cultivations), Revenue lands etc. are given in **Appendix IX**.

Boundaries:

(A) External Boundaries:

The external boundary of the National Park is totally demarcated. The National Park is situated within the boundary of the Sanctuary. Therefore, the boundary of the Sanctuary is considered as the main external boundary. The total length of external boundary is 282.995 Km., out of which 48.700 Km. length forms the natural boundary around Reserved Forests and 234.295 Km. forms the artificial boundary, of which 131.595 Km. boundary is around Reserved Forests and 102.700 Km. is around Protected Forest boundary.

Andhari Wildlife Sanctuary was notified in the year 1986; vide Government of Maharashtra notification No. WLP / 1085 / CR-75 / F-5 (III) dated 25.02.1986.

As per the notification, the external boundaries of the Protected Area are as follows:

On the North : Boundaries of Waigaon. Chaiti Tukum, Madnapur villages and Compartment Nos. 47, 51, 60, 63.

On the East : Boundaries of Pangdi, Doni villages and Compartment Nos. 268, 269, 274, 275, 319, 327.

On the South : Boundaries of Zari, Pahami villages, Andhari River and Compartment Nos. 347, 348, 370 and 372.

On the West : Boundaries of Dewada, Moharli, Mudholi. Viloda, Astha villages and Compartment Nos. 154, 164, 166, 174 and 175.

A major portion, to the tune of 227.495 Km. length of external boundary adjoins the forest areas, while about 55.500 Km. length adjoins villages and private lands forming the critical area from the protection point of view.

(B) Internal Boundaries:

No internal boundaries other than fire-lines are maintained on the ground. Under the fire protection scheme fire-lines of various widths viz., 20 meter, 13 meter, 10 meter and 5 meter, are maintained mainly along the compartment lines. At few places the fire-lines cut across the compartments. Fire lines of about 1137 Km. length are maintained under the fire protection scheme. The existing fire lines are given in the **Map No. 4.**

Legal Status:

The areas comprised in the Protected Area are Reserved Forests, Protected Forests, Un-classed Forests, other Government lands and private lands.

Reserved Forests:

The Reserved Forests (577.96 Sq. Km.) included in the Tadoba-Andhari Tiger Reserve were notified along with the other forests of Chandrapur district as Reserved Forests under Indian Forest Act, VII of 1878 and were published in the Central Gazette notification No. 917 (1) dated 24th February, 1879.

Protected Forests:

The Protected Forests (32.02 Sq. Km.) included in the Tadoba-Andhari Tiger Reserve were notified as Protected Forests under Section 29 of the Indian Forest Act, 1927 (XVI of 1927) vide Madhya Pradesh Gazette (Extraordinary) notification No. 3056 - 1216 - XI, dated 4th June, 1955.

Un-Classed Forests:

The details of Un-classed Forests included in the Tadoba Andhari Tiger Reserve are as follows:-

Sr. No.	Type of Un-classed Forests	Compt. No.	Area (in ha.)
1	Area De-reserved for Pandharpaoni Village	80	6.069
		81	3.234
		82	6.067
		93	39.258
		Total	**54.628**
2	Area de-reserved for Khatoda Village	110	12.949
		122	3.241
		123	51.805
		Total	**67.995**
3	Area de-reserved for Bamangaon Tank	72	4.856
		73	41.824
		49	7.284
		Total	**53.964**
		Grand Total	**176.587**

The village Khatoda was rehabilitated over an area of 60.703 ha. in compartment No. 14 of Warora Range in Chandrapur Division. The village Pandharpauni was rehabilitated over an area of 93.703 ha. in survey No. 31, 34, 71 (Baradghata) and survey No. 138 / 1 Khadsingi of Chimur Range of Bramhapuri Division. Though the area for Bamangaon Tank was de-reserved but the construction of tank could not be completed before commencement of Wildlife Protection Act, 1972; so the work is still incomplete and permission has been refused by GOI.

Other Government Lands:

These lands (8.32 Sq. Km.) included in Tadoba-Andhari Tiger Reserve is Government lands in-charge of Revenue Department. These areas are of the six enclaved villages in Sanctuary and two uninhabited (Rith) villages in National Park viz, Bhanuskhindi, and Katezari (Rith).

An area of 337 ha. of Revenue land (*Khadak pahad*) have been transferred by Collector, Chandrapur to Tadoba-Andhari Tiger Reserve for management; vide Collector, Chandrapur's order No. Marathi Ra .Ma No.2/ L.N.A-22/ 2004-05, dated 8/9/2004.

Private Lands:

The private lands (4.53 Sq. Km.) included in the Tadoba-Andhari Tiger Reserve are the cultivation areas of private ownership of the villagers of six enclaved villages in Sanctuary and of the two uninhabited villages in Tadoba National Park viz. Bhanuskhindi and Katezari (Rith.)

Abadi Area:

The *Abadi* area (0.31 Sq. Km.) included in Tadoba Andhari Tiger Reserve are the residential areas of the six enclaved villages in the Sanctuary.

Encroachment:

There is no encroachment in the Reserved Forests.

Following encroachments have been detected in P.F.

Sr. No.	Village Name	Total Cases	Area in Ha.
1)	Satara	22	17.93
2)	Khutwanda Dixit	12	8.36
3)	Chichghat	1	0.22
4)	Sonegaon	18	41.91
5)	Ghosari	44	59.09
6)	Tekadi mandavzari	50	25.57
7)	Jamni	2	1.32
8)	Tamsi rith	6	9.41
9)	Bhanuskhindi	9	11.22
10)	Chaiti rith	26	22.80
11)	Chaiti tukum	3	1.62
	Total encroachment	**193**	**199.45**
1)	Scheduled Caste	27	21.83
2)	Scheduled Tribe	37	24.55
3)	N.T.	16	18.04
4)	Navbhaudha	18	29.38
5)	Other Backward Caste (B.P.L.)	105	105.65
	Total	**203**	**199.45**

As per the State Government Resolution No. 2002/CN-372/J-1, Dated 10.10.2002 the encroachment have not been evicted unless local committee finally decides the encroachment and list out eligible and non eligible encroachers. Till date final decision has not been taken by the local committees and hence encroachments could not be evicted. Now in the light of Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 the encroachment eligibility will be decided again as per provisions of this new Act.

Survey of Bamangaon and Chaiti (Rith) is not yet competed so some more encroachments are likely to be detected in that P.F.

1.1.5 Notification

Tadoba National Park:

An area of 116.55 of Reserved Forest was declared as Tadoba National Park in 1955; vide Madhya Pradesh National Park Act, 1955 published in the Madhya Pradesh Gazette (Extraordinary) on 9th April. 1955.

Andhari Wildlife Sanctuary:

An area of 509.27 Sq. Km. was declared as Andhari Wildlife Sanctuary in 1986 as per Section 18 of Wildlife (Protection) Act, 1972; vide Government of Maharashtra notification No. WLP-1085 / CR-75 / F-5, (III), dated 25.2.1986**.**

As per Section 66 (4) of the Wildlife (Protection) Act, 1972 (Amended up to 1991), the Reserved Forests included in the Sanctuary are deemed to be a Sanctuary. Therefore, the enquiry is required for areas other than Reserved Forests.

The Government of Maharashtra; vide Gazette notification No. WLP-1091 /CR-266/ F-5, dated 14.7.1994 has appointed Sub Divisional Officer, Warora as the enquiry officer to enquire about rights as per the provisions from Section 19 to 25 of the Wildlife (Protection) Act, 1972. The Enquiry Officer, after the enquiry, had finally excluded 34.29 Sq.km. area, that is mainly of Protected Forests of adjoining villages. So the area of Andhari Wildlife Sanctuary is finally 474.56 Sq.Km. The final revised enquiry report of SDO, Warora is enclosed **(Appendix-XI).**

The areas included in the Tadoba - Andhari Tiger Reserve other than Reserved Forests and un-classed Forest belongs to Nineteen Villages. Out of which six inhabited villages are enclaved in Sanctuary area and one uninhabited village enclaved in National Park area, only Protected Forests of remaining twelve villages situated on periphery is included in the sanctuary. The scrutiny of the area statement shows that the actual area of the Sanctuary is 508.85 Sq. Km. Though this Sanctuary is an extension of Tadoba National Parks some areas i.e. Khatoda, Pandharpauni and Katezari villages, those were islands inside Tadoba National Park were also included in Andhari Sanctuary areas.

1.2 Approach and access

Till now the main activity of tourism was concentrated at Tadoba as the camping facilities were available at Tadoba. The camping facilities at Tadoba have been closed from 1st April, 2008; vide Principal Chief Conservator of Forests (Wildlife) letter no. Desk-23(2) /survey /C.N./6836/07-08, dated 12.02.2008.

Presently, three main tourist complexes have been developed by TATR at Kolara in North, Moharli in South, and Pangadi in East. The Pangadi tourist complex is used by STPF. The approach to these three places is as under:

Facility	Moharli Tourist Complex	Kolara Tourist Complex	Pangdi Tourist Complex
Nearest Airport	Nagpur (185 k.m.)	Nagpur (120 k.m.)	Nagpur (150 k.m.)
Nearest Rail Stn.	Chandrapur (25 k.m.)	Warora (60 k.m.)	Nagpur (150 k.m.)
By Road	Via Chandrapur (25 k.m.)	Via Nagpur, Chimur (120 k.m.)	Via Nagpur, Sindewahi (150 k.m.)

State Transport buses and private buses ply frequently between Nagpur-Chandrapur and Nagpur-Chimur. All type of taxies is available at Nagpur and Chandrapur.

Administrative Control

The Core area of Tiger Reserve is under direct administration and management of Deputy Director (Core). The Buffer area of Tiger Reserve is under direct administration and management of Deputy Director (Buffer). The Chief Conservator of Forests and

Field Director, Tadoba-Andhari Tiger Reserve, Chandrapur is supervisory head of the Tiger Reserve and reports to Additional Principal Chief Conservator of Forests (Wildlife) East, Nagpur.

1.3 The statement of significance

The Bio-geographic location of the area falls in "6B Central Plateau province of the Deccan Peninsula Zone" as per Bio-geographic classification of Wildlife Institute of India, Dehra Dun. These forests according to Champion and Seth's classification belong to the Sub group 5A - C1 - 1B Southern Tropical Dry Deciduous Forests' having Teak as dominant species.

Economic Value:

The area consists of Tropical Dry Deciduous Teak Forests. Teak, a high value timber species is dominant in most part of the National Park. Other timber species are Ain, Bija, Shisam, etc. Bamboo is dominant in most of the areas. Moha, Tendu, are other NTFP species, e.g. Charoli, Bibla, Kadhai (Sterculia), Dhawda are also present. Myrabolans i.e. Beheda, Hirda and Amla are also present.

Biological Value:

Animals:

The animals represent wide variety of vertebrates including Mammals 80 species, Aves 280 species, Reptiles 54 species, Amphibians 11 species and Pisces 84 species.

The Mammals belongs to orders Insectivora (Shrews), Scandentia (Tree shrew), Chiroptera (Bats), Primates (Monkey), Pholidota (Ant eater), Carnivora (Cats), Artiodactyla (Deers), Rodentia (Squirrels, Rats), Lagomorpha (Hare). The reptiles consist of Crocodilia (Marsh crocodile), Squamata (Sankes) and Chilonia (Turtles) **(Appendix. XII)**

The 28 species of snakes includes 4 species of poisonous snake (Russels, Viper, Saw scaled viper, Indian cobra, and Common Indian krait) and highly endangered Indian rock python.

The amphibians include frogs and toads. The Pisces (fishes) includes 84 species out of these 37 species have been actually collected while 47 species have been incorporated from literature **(Appendix XIII).**

ZSI has reported 192 species of Birds, however the bird watchers have reported about 280 species of birds **(Appendix XIV).**

Invertebrate Fauna:

Among invertebrate, 37 species of Mollusca have been reported. Among other invertebrate fauna 41 species of insects of order Odonata (Dragonflies) have been reported by Zoological Survey of India. Muntoidea other order of Insect comprises of 51 species. Hemiptera (Bugs) comprises of 25 species. Lepidoptera (Butterflies and moths) includes 68 species. **(Appendix XV)** Scolopendridae (Chilopoda) includes 3 species. Scorprionida, Araneae and Salifugae (Spiders) comprises of 34 species. **(Appendix XVI)**

Rare and Endangered fauna - Some of these fauna are rare and endangered. The status is as follows:-

Red Data Book Vulnerable

(1) Tiger *Panthera tigris tigris*

(2) Leopard *Panthera pardus fusca*

(3) Indian Bison *Bos gaurus*

(4) Four Horned Antelope *Tetracerus qudricornis*

(5) Common Indian Monitor *Varanus bengalensis*

(6) Indian Chameleon *Chamales zeylanicus*

(7) Star tortoise *Geochelone elegans*

(8) Peninsular or Deccan soff shalled turtle *Trionyx leithi*

(9) Square spotted Gecho *Hemida ctylus gracilis*

(10) Indian pangolin *Manis crassicaudata*

(11) Leopard cat *Prionailurus bengalensis bengalensis*

Red Data Book Endangered

Reptiles

(1) Marsh Crocodile *Crocodylus palustris*

(2) Python *Python molurus*

Fish

(1) Magur *Clarius batrachus*

(2) Cauvery white carp *Cirrhinus cirrhosus*

IUCN Lower Risk

Near Threatened

Mammals

(1) Wild dog *Cuon alpinus*

(2)Tree shrew *Anathana ellioti ellioti*

(3) Watwaghul *Rhinolophus luctus*

(4) Watwaghul *Rhinolophus r. rouxii*

(5) Watwaghul *Hipposideros galeritus brachyotus*

Reptiles

(1) Kasav *Lissemys punctata*

(2) Vala *Ramphotyphlops braminus*

(3) Trinket (Taskar) *Elaphe helena*

(4) Common indian krait (Manyar) *Bungarus caeruleus*

(5) Slender coral snake *Callophis melanurus*

(6) Indian cobra (Nag) *Naja naja naja*

(7) Russell's viper (Ghonas) *Vipera russelli*

(8) Saw-scaled viper (Phoorsa) *Echis carinatus carinatus*

(9) Bamboo Pit viper (Hara Ghonas) *Trimeresurus gramineus*

IUCN Vulnerable **Reptiles**

(1) Kasav *Aspderetes leithii*

(2) Square spotted Gecko (Pal) *Hemidactylus gracilis*

Fish

(1) Pungas *Pangasius pangasius*

(2) Goonch *Bagarius bagarius*

(3) Chital *Chitala chitala*

Important Bird Area

The site qualifies A1 criteria (Threatened species) as five globally threatened species have been identified within it. It also qualify for Biome species (A3) IBA site code given to TATR is "IN MH16"

Critically Endangered

Oriental White-blacked Vulture	*Gyps bengalensis*

Vulnerable

Lesser Adjutant	*Leptoptilos javanicus*
Greater Spotted Eagle	*Aquila clanga*
Sarus Crane	*Grus antigone*
Green Munia	*Amandava formosa*

Biome -11 : Indo-Malayan Tropical Dry Zone

Black Ibis	*Pseudibis papillosa*
White-eyed Buzzard	*Butastur teesa*
Painted Francolin	*Francolins pictus*
Rain Quail	*Coturnix coromandelica*
Jungle Bush-Quail	*Perdicula asiatica*

Indian peafowl	*Pavo cristatus*
Yellow-legged Green-pigeon	*Treron phoenicoptera*
Plum-headed Parakeet	*Psittacula cyanocephala*
Common Indian Nightjar	*Caprimulgus asiaticus*
Brown-headed Barbet	*Megalaima zeylanica*
Yellow-Fronted Pied Woodpecker	*Dendrocopos mahrattensis*
Lesser Golden-backed Woodpecker	*Dinopium benghalense*
Ashy-crowned Sparrow-Lark	*Eremopterix grisea*
Small Minivet	*Pericrocotus cinnamomeus*
Common Woodshrike	*Tephrodornis pondicerianus*
Indian Robin	*Saxicoloides fulicata*
Indian Chat	*Cercomela fusca*
Jungle Babbler	*Turdoides striatus*
Jungle Prinia	*Prinia sylvatica*
Ashy Prinia	*Prinia socialis*
Green Munia	*Amandave formosa*
Brahminy Starling	*Sturnus pagodarum*
White-bellied Drongo	*Dicrurus caerulescens*

Tadoba-Andhari is also the Southern most region in the distribution range of Sarus Crane *Grus antigone*. The Sarus is not found inside the park but at Moharli Lake that lies on the outskirts of the Park. Sarus has also been reported from Junona area in Chandrapur district.

Flora:

The Botanical Survey of India, Pune has recorded 667 species under 393 genera belonging to 110 families, including Angiosperms and Pteridophytes in Tadoba National Park. It has been published as Flora of India, series 4, "A Floristic Account of Tadoba National Park and Its Environs, Chandrapur District, Maharashtra State" by S. K. Malhotra and S. Moorthy.

The major tree species are Teak (Tectona grandis), Tendu (Diospyros melonoxylon), Ain (Terminalia tomentosa), Dhavda (Anogeissus latifolia), Bija (Pterocarpus marsupium), Haldu (Adina cordifolia), Salai (Boswellia serrata), Mahuwa (Madhuca longifolia), Bahawa (Cassia fistula), Karu (Sterculia urens), Jamun (Syzygium cumini), Mango (Mangifera indica), Arjun (Terminalia arjuna), Kumbhi (Careya arborea), Char (Buchanania lanzan), Bhirra (Chloroxylon swietenia)

Clerodendron infortunatum (Khandu chakka) is an endemic species to this area.

Other important species are Vanda tssellata, Eulophia ochreata, Ceropegia bulbosa, Iphigenia indica, Gloriosa superba, Costus speciosus, Chlorophytum species.

The flora is for Tadoba National Park only and Andhari Wildlife Sanctuary is still unexplored. **(Appendix – XVII)**

Catchments Values:

The area forms catchments of Irai river on the West which drains to Irai dam. The dam provides water for Chandrapur Super Thermal Power Station and also drinking water to Chandrapur city. The Eastern part drains in to Andhari river which runs through Andhari Wildlife Sanctuary. There are also minor dams like Naleshwar dam on the East side.

Recreational Values:

The area has a great recreational value as the sighting of the flagship species is quite frequent. The herbivores like Cheetal, Sambar, Wild boar, and of course the Peacocks and other variety of birds, and Marsh Crocodiles are regularly seen. The visitors are mostly attracted for sighting of Tigers.

Scientific and educational Values

The area is just 26 km. away from township of Chandrapur. The area provides an opportunity for the students and researchers in taking up scientific research in wildlife.

Historical value

The Tadoba road was supposed to have been high way to Nagpur during historic period. The pillars found inside the parks on Moharli - Tadoba road (up to Khatoda and then towards Chimur via Jamni) are supposed to be of Gond period used for communication. There are also fort like structures at Khatoda, Navegaon and Shivanzari Compt. No. 287.

CHAPTER – 2

BACKGROUND INFORMATION AND ATTRIBUTES

The areas of Tadoba National Park and Andhari Wildlife Sanctuary are jacketed on North, West and Southern part by Reserve Forest of Brahmapuri and Chandrapur Division. The adjoining areas are also rich in wild life and are notified Buffer zone as per the guidelines of National Tiger Conservation Authority.

There is definitely the zone of influence around the 5 villages inside the Sanctuary as they depend on the forests for grazing and firewood collection. These 5 villages are under the process of rehabilitation. The peripheral areas are also influenced by accidental or deliberate entry of cattle in the areas.

2.1 Geology, Rock And Soils:

Following broad geological divisions can be made for the area, based on the disposition of the rock types:-

- A small patch of detrital mantle consisting of alluvial deposits in the Northern side.
- Gondwana sediments exposing the Kamthi formations, and Lameta at surface in the Southwestern side. They are underlain by the coal bearing Barakar formations.
- Precambrian Vindhyan formations covering most of the central part and extending in NW-SE direction.
- Archaean metamorphic rocks as patches along the NE corner and in the Western border.

A major boundary *Fault* along Chandankheda - Panchgaon - Moharli villages divides the Gondwana sediments in the southern side with the Archaean and Precambrian formations.

There are several kinds of soil in the Reserve area. The alluvial soils are moderate to deep with fine silt, sand and clay. The soil in the Gondwana sediment areas is shallow with ferruginous material. The Archaean metamorphic areas are covered by moderate dark / grayish brown soils. The soils in the Vindhyan areas are shallow, reddish brown and ferruginous too.

Terrain :-

The tract dealt with is mostly undulating and hilly in the North, interspersed with open grasslands and wooded areas. The other part of tract is mostly in plains. The Chimur hills in Tadoba National Park start East of Chimur and with one break of 8 Km. run Southwards as far as Moharli, gradually diminishing in height from North to South. The range is 32 Km in length and 10 Km. in breadth with an average elevation of 150 meter above the surrounding plains. In the basin of the hills, lies Tadoba Lake which is spread over 120 ha. The elevation of the highest point is 350.70 meter above M. S. L. and that of lowest point is 212.45 meter above M.S.L. The average elevation is 284.07 meter above M.S.L.

The hilly areas give rise to various streams. Some of the streams like Andhari, Bhanuskhindi, Hirdi, etc., contain water throughout the year in the plain areas, while in the hilly portions, water remains in '*dohs*' of these streams. Bhanuskhindi, Pandharpauni - Jamni and Girghat - Kolsa tracts constitute the crucial catchments of these streams. The slopes of the hills have poor and low density vegetation. The plains of the tract have in general, luxuriant forests and are less susceptible to fire than the hilly areas. Almost whole area is accessible, which facilitates its effective protection from fire and poaching.

Climate:-

The climate of the area is characterized by a hot summer, well distributed rainfall during the South-West Monsoon season and general dryness except in the rainy season. The cold season is from December to February. This is followed by the hot season from March to May. The South West Monsoon season is from June to September, October and November constitute the post - Monsoon season.

Rainfall Pattern and Distribution:-

The rainy season is hot and humid. Bulk of rainfall is, received in the period from June to September. The average numbers of rainy days are approximately eighty. The average annual rainfall is 1175 mm. The percentage of rainfall received during the various period of the year is as below:-

June to September : 92 Percent

October to January : 3 Percent

February to May : 5 Percent

Temperature:-

After October, both day and night temperature decreases progressively till December which is the coldest month of the year. The minimum temperature recorded in winter during December, is 3° C. Temperature rises rapidly after February till May which is the hottest month of the year.

The mean maximum and minimum temperature in May is about 46^0C and about 24^0C respectively. The heat in summer is intense during the days and occasionally the day temperature rises up to 48 ^{0}C. With the onset of the South - West Monsoon by about the middle of June, the temperature decreases appreciably and weather becomes more pleasant.

Humidity:-

The air is generally dry over the district, except during the South - West Monsoon, when the humidity exceeds 70 Percent. The summer months are the driest when the relative humidity in the afternoon is between 20-25 percent.

The skies are heavily overcast during the South-West Monsoon season. In the rest of the year, skies are lightly clouded or mostly clear. The winds ate generally light with sonic increase in wind force during the later part of summer season and monsoon season. In the start of the summer season, winds gradually change over. The direction between

East and South and by May, winds from directions between South-West and North-West become more common. Less frequently, storms and depression from the Bay of Bengal during the post - Monsoon months also affects the weather over the area. Thunder storms occur in all the months, their incidence being the highest during Monsoon season and lowest during the cold season.

2.2 Hydrology and Water Sources

Irai and Andhari are the two major rivers flowing through the Reserve. Erai flows in the Western half and Andhari flows in the Eastern half. Both these rivers are flowing from North to South and their course seems to be controlled by the major boundary fault. The presence of base flow in these rivers confirms the fact that they are gaining rivers i. e. ground water is being discharged into the rivers. Other important surface water bodies in the Reserve area are Tadoba and Kolsa lake.

The Gondwana formations comprising of Kamthi rocks at the surface are the most potential area for groundwater exploitation. Groundwater occurs in the primary as well as the secondary porosity of these rocks. Deep / Shallow tube wells constructed at Agarjhari, Adegaon, Moharli and Dewada Villages tapping these rocks have yielded good discharges. The general underground water levels in these formations are shallow so the dug wells generally do not go dry in the summer season. The presence of Erai reservoir with its vast aerial spread acts as a good source of groundwater recharge to these formations.

The topographically high areas occupied by the Vindhyan and Archaean can yield in moderate quantities of groundwater through the fractures present in the rocks. So, the availability of groundwater in these formations is subject to the presence of favourable fractures and weak zones. The depth of water is generally deep (up to 30 to 40m. in dug wells) and most of these wells go dry in the summer season. The important sources of water in and around TATR are given in **Appendix XVIII.**

2.3 Vegetation Cover Types:-

The vegetation according to Champion and Seth's classification belongs to the Sub group - **5A Southern Tropical Dry - Deciduous Forests** Type having Teak as dominant species. The main associates of Teak are Ain, Bamboo. Bija, Dhaoda, Haldu, Salai, Semal, Tendu etc. The associates of Teak however, vary depending upon the physiographic features of the habitat. Trees of Jamun, Mango, Arjun are found in the moist areas. The Lantana is confined to few pockets around human habitations. Two varieties of wild rice (Oryza) exist in the wet patches of Katezari area in Tadoba National Park. The Common trees, shrubs, herbs and grasses existing in the area are given in **Appendix XVII**. Bamboos of this area flowered gregariously in the year 1982-83 and later Bamboos have regenerated in this area naturally and profusely.

The compartment wise composition of the crops existing in the area was complied with the help of field staff. It is found that whole area comprises of 11.48 percent of Teak Forests, 76.16 percent of Mixed Forests. 7.17 percent of Grasslands and 5.19 percent of degraded area. The forests areas having density more than 0.4 have been taken as Tree Forests while areas with density less than 0.4 and having grasses have been shown as grasslands. The areas with density less than 0.4 and having no grasses have been shown as degraded forests. Bamboo is found mainly along the banks of streams and roads. Its density decreases as we go away from the streams and roads. The overlapping area covered with Bamboo is 40.28 percent. The details of the composition of the crops are given in **Appendix XIX.**

The report on "Establishing Computerized Wildlife Database for Conservation, Monitoring and Evaluation" in Tadoba-Andhari Tiger Reserve, Maharashtra (1994-1998) by Shri. Yogesh Dubey and Dr. V. B. Mathur classified the vegetation into 11 types of association namely:

1. *Tectona grandis-Chloroxylon swietenia-Diospyros melanoxylon* (TCD)
2. *Chloroxylon swietenia-Diospyros melanoxylon-Tectona grandis-Lagerstroemia parviflora* (CDTL)

3. *Tectona grandis-Lagerstromia parviflora-Chloroxylon swietenia-Diospyros melanoxylon* (TCLD)
4. *Tectona grandis-Chloroxylon swietenia-Lagerstroemia parviflora-Zyzyphus xyolopyrus* (TCLZ)
5. *Terminalia belerica-Emblica officinalis-Anogeissus latifolia* (TEA)
6. *Tectona grandis-Lagerstromia parviflora-Gardenia latifolia-Annogeisssus latifolia* (TLGA)
7. *Tectona grandis-Lagerstromia parviflora-Annogeissus latifolia-Bassia latifolia* (TLAB)
8. *Chloroxylon sweitenia-Tectona grandis-Cassia fistula-Emblica officinalis* (CTCE)
9. *Cleistanthus collinus-Madhuca latifolia-Terminalia tomentosa-Diospyros melanoxylon* (CMTD)
10. *Diospyros melanoxylon-Madhuca latifolia-Terminalia tomentosa* (DMT)
11. *Terminalia tomentosa – Madhuca latifolia-Cleistanthus collinus* (TMC)

Terminalia tomentosa–Madhuca latifolia-Cleistanthus collinus (TMC) Miscellaneous Bamboo I (MB-I), Teak Miscellaneous Bamboo (TMB) and Miscellaneous Bamboo II (MB II) emerged as the most dominant vegetation types covering 25.27%, 21.65% and 21.01% respectively of the total area. Teak Miscellaneous Bamboo vegetation type had the highest crown cover (>60%) as derived from the satellite image. Data of count and measurement of trees, seedling, sapling, canopy cover, shrub was collected from 239 plots of 20m X 20m each. The overall tree density is calculated to be 357 trees/ha. Tree density is 344 trees/ha in the National Park and 369 trees/ha in the Sanctuary. Teak is the most dominant species followed by *Chloroxylon sweitenia, Lagerstroemia parviflora* and *Diospyros melanoxylon*. Eleven vegetation types were classified based on similarity in vegetation association using TWINSPAN analysis. Tree density (456 trees/ha) was highest in *Tectona grandis – Chloroxylon sweitenia – Diospyros melanoxylon* (TCD) association.

2.4 Wild Fauna, Habitats and Tropic Niches

Macroscopically, the habitat under consideration is a terrestrial habitat. For the purpose of this Management plan, the habitat is classified as below:

1. Woodlands
2. Grass lands
3. Riparian zones
4. Wetlands
5. Unique habitats

Majority of area is under thick forests (woodlands), Grasslands are in small pockets, but they are very important for herbivores. The evergreen vegetation along the perennial water sources forms Riparian zones. Wetlands are water bodies that harbour the birds adapted predominately to an aquatic mode of life. Many water birds like Moorhens, Coots, Grebes, Jacanas and most Ducks feed mainly on aquatic plants apart form Crustaceans, Insects and Frogs. Cliffs, tallus, caves and nala beds come under the category of unique habitats. The statement showing details of caves/burrows is given in **Appendix – XX.** These types of habitat have no plant community association, whereas other types of habitat listed above are always associated with plant community. The plant community in various habitats gives rise to plant diversity in the area. At present, there is no endemic species reported in the habitats which opens avenue for future studies. The following types of plant communities have been distinguished in Tadoba National Park (Vegetational diversity in Tadoba National Park by C. Kunhikannan and others published In Indian Journal of Tropical Biodiversity.)

1. Jamun - Arjun plant Community:

This is a typical riparian habitat found along the perennial water sources. The vegetation is lush green and quite distinct from the Dry Deciduous vegetation existing all around. Jamun and Bamboos show good regeneration.

2. Mango - Arjun plant community:

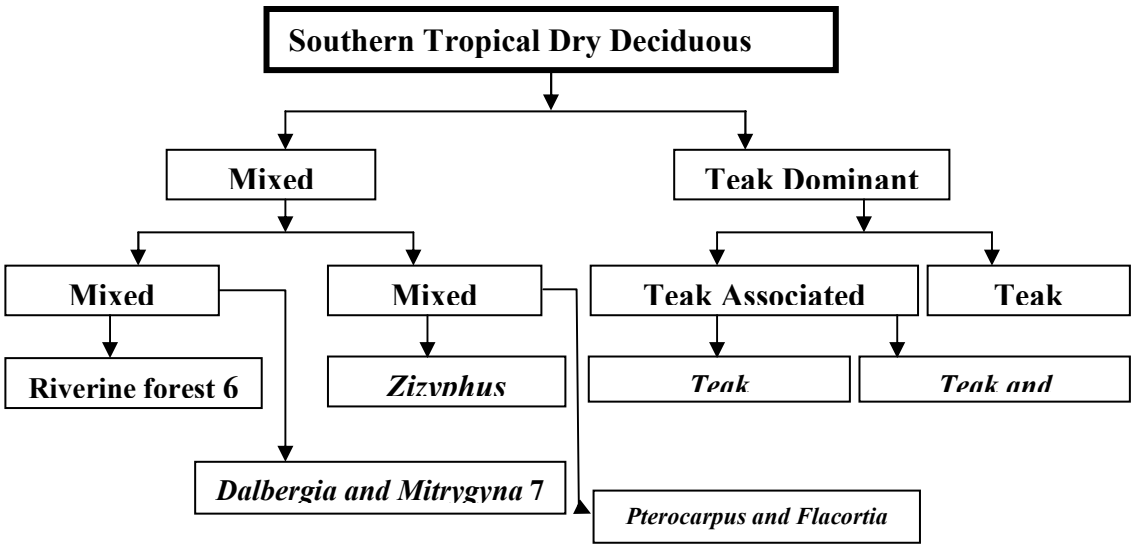
This riparian habitat is seen in certain portions of the valley along the streams. Jamun and Arjun show regeneration in this habitat.

3. Imili - Teak plant community:

It occurs mostly in degraded areas in a few compartments bordering the villages, Much damage has been inflicted to these vegetations. The regeneration has therefore been affected to a great extent.

4. Tendu - Teak - Arjun plant community:

This community mostly occurs in areas subjected to frequent fires.



5. Grasslands with few trees

It occurs on plateau or slope where the soils are eroded.

6. Tectona - Chloroxylon - Lagerstroemia plant community :

The majority of the vegetation belong to this habitat. Many of these forests have impenetrable thickets of regenerated Bamboos.

Present Status of Habitat:

A cover map (Refer Map No. 6) prepared for this area shows the distribution of water, food and cover. It gives a schematic picture showing the proximity of different habitat components and inter-mixing of different habitat types in the area i. e., Juxtaposition / Interspersion.

Edges :-

An Edge is the place of contact between plant communities or successional stages. Edges are comparatively richer in wild animals than adjoining area. Aldo Leopold (1933) was the first to conclude that a higher production of game was achieved when the Edges were more per unit area. This is known as the Edge Effect or Law of Interspersion.

The quantification of Edge has not been done for this Protected Area and hence provides scope for further studies. In this Protected Area, small edges are formed along the fire lines which are burnt every year. Compartment boundaries are also taken up as fire lines. These fire lines serve three purposes - area gets clearly demarcated, it act as fire line and at the same time Edges are formed. This also increases the Interspersion which will be of greater importance from the wildlife point of view.

Species Diversity :-

The common Mammals in the tract recorded are the representatives from the various orders e.g.. Carnivora, Artiodactyla, Insectivora, Rodentia, Lagomorpha, Pholidota and Chiroptera. Hanuman Langur is the only primate. The Reptilians belong to the orders Crocodilia, Squamata and Chelonia. Marsh crocodile *(Crocodylus palustris)* is the only crocodile found in this area. The common Avifauna of 195 species has been recorded which includes 69 species of migratory birds and 126 species of resident birds. One remarkable bird, Bar - headed Goose, which is a winter visitor from Ladakh and Tibet inhabits' Chargaon and Sitarãmpeth tanks that are located adjoining to the Protected Area. Insects found in the area belong to the following twelve orders -

Hemiptera. Coleoptera, Isoptera, Hymenoptera, Odonata, Lepidoptera, Orthoptera, Diptera, Dermaptera, Mantridea, Trichoptera and Dictyoptert. In total 41 species of Mammals, 195 species of Birds, 74 species of Butterflies, 26 species of Spiders, 30 species of Reptiles (including 25 species of Snakes), 5 species of Amphibians, 23 species of Fishes are recorded from the Reserve. The details are given in **Appendices XII to XVI**.

Limiting Factors :-

Limiting factors acts through habitat and results in keeping check on animal population, their distribution and such other factors.

Food :-

Generally, in this Protected Area food is not a limiting factor. Though it is found that during summer, tender grass is not available for herbivores, other browse availability goes down and animals have to take less preferred food items. They are alto seen feeding on fallen leaves of Bamboos. In this season, flowers of Mahuwa and Palas and fruits of Tendu, Apta, Mango and Mahuwa become source of food for many species.

Water :-

Water in summer season becomes scarce and is available at a few places only. So it is to some extent a limiting factor, but the water management has reduced its gravity to a large extent. It is for this reason that similar works need to be continued to create a uniformly distributed system of waterholes.

Cover :-

Cover is not a limiting factor in this Protected Area. From the information of animal species found here it can be said that their requirement of cover is met with.

2.5 Major Conspicuous Changes in the Habitat since Inception:-

Forest cover in Tiger Reserves of India- Status and Changes (Forest Survey of India, Dehradun and Project Tiger Directorate New Delhi- April 2006.) show that dense and open forest have registered an increase of 40 km^2 and 16 km^2 respectively while

moderately dense forest cover has decreased by 56 km^2 during the period 1997 to 2002.

Forest Cover in Tadoba-Andhari Tiger Reserve (Core) [1997-2002]

Category	Assessment Year			Net Change
	1997	2000	2002	(1997-2002)
(A) Very Dense Forest	309	327	349	40
(B) Moderately Dense Forest	242	217	186	-56
(C) Open Forest	33	40	49	16
Total Forest (A+B+C)	**584**	**584**	**584**	**-**
Scrub	-	-	-	-
Non-Forest	36	36	36	-
Total Area	**620**	**620**	**620**	

The outer surround of 10 km radius the periphery of the Tiger Reserve has a geographic area of 1,588 km^2. The forest cover shows an increase of 6 km^2 in Very Dense Forests and 17 km^2 in Open Forests and decrease of 24 km^2 in Moderately Dense Forests. This show net decrease of 1 km^2 in the forest cover during 1999-2002.

Forest Cover in Tadoba-Andhari Tiger Reserve (1997-2002)

Category	Article I.	Assessment Year		Net Change
	1997	2000	2002	(1997-2002)
(A) Very Dense Forest	291	295	297	6
(B) Moderately Dense Forest	320	309	296	-24
(C) Open Forest	98	104	115	17
Total Forest (A+B+C)	**709**	**709**	**709**	**-1**
Scrub	5	4	10	5
Non-Forest	874	876	870	-4
Total Area	**1,588**	**1,588**	**1,588**	

Area of Land use/ Land cover Types :-

WII MoEF-NNRMS Mapping Project (Ms. Ambica Paliwal, Research Asstt. Principal Investigator Dr. V. B. Mathur) has classified the land use/land cover types into

12 types as follows :-

Sr. No.	Class	Area (Sq Km)	% Area
1	Mixed Bamboo Forest I	278.47	44.56
2	Mixed Bamboo Forest II	188.73	30.20
3	Mixed Forest	49.21	7.87
4	Riparian Forest	2.29	0.37
5	Teak Forest	15.94	2.55
6	Teak Mixed Bamboo Forest	7.84	1.25
7	Grassland	7.65	1.22
8	Grassland on Plateau	21.14	3.38
9	Open Forest	13.46	2.15
10	Scrub	31.7	5.07
11	Agriculture/Settlement	7.51	1.20
12	Water body	1.06	0.17
	Total	**625**	**100**

CHAPTER – 3

STATUS OF TIGER AND CO-PREDATORS

3.1 Distribution:

The major predator "the Tiger" is distributed throughout the Core area of Tadoba-Andhari Tiger Reserve, there may be seasonal variation depending upon the presence of water. The Panther and Wild dogs are co-predators of Tiger. The statement showing the details of census figures of important animals from 1997 to 2006 is given in **Appendix XXI.** The population status of adult Tigers as per Phase IV monitoring 2014 is as follows:-

Name of Predator	Male		Female		Unidentified		Total	
	Core	Buffer	Core	Buffer	Core	Buffer	Core	Buffer
Tiger	13	NA	24	NA	23	NA	**60**	**12**

3.2 Abundance Status:

As per the estimation of Wildlife Institute of India by using camera trap, the density of adult Tiger comes to 5.28 per 100 sq. km., the density of Panther is 3.52 per 100 sq.km. and the density of Wild dogs is 28 per 100 sq.km.

The report of National Tiger Conservation Authority, Ministry of Environment & Forests on "STATUS OF TIGERS, CO-PREDATORS & PREY IN INDIA" BY SHRI. YADVENDRADEV V. JHALA, RAJESH GOPAL, QAMAR QURESHI, EDITORS READ as

Tadoba-Andhari landscape of 2000 km^2 has Tiger occupancy in 775 km^2 and supports 34 (± 7 SE range 27 - 41) Tigers. This landscape has potential to serve as a source for the Navegaon-Indravati Landscape through the Northern forest patches in the Districts of Chandrapur, Garhchiroli and Bhandara. In the South stepping stone forest patches exist in the Gondpipri Taluka.

Sporadic Tiger presence of about 12 to 27 Tigers is recorded in the forests of Bramhapuri, Gadchiroli, Nagbhid, Chimur and Aheri taluka. This possibly indicates habitat connectivity to populations in Indravati Tiger Reserve in Chattisgarh and the Northern forests of Andhra Pradesh.

As per All India Tiger Estimation 2010, presence of 66 to 74 Tigers in 3241 Sq.km. Tadoba landscape was found.

3.3 Prey predator relationship: The prey consists of Cheetal, Sambar, Barking deer, Blue bull, Four Horned Antelopes, Bison, Wild boars and Langur.

The food habit studies indicate that large prey like Sambar and Gaur contributes about 70% of Tiger diet. Medium sized prey like Cheetal and Wild Boar contributes 22% and remaining prey species contributes about 9 % of the diet. Sambar, Cheetal and Wild boar forms important prey for all the three top predators. Tiger prefers large predator like Sambar and Blue Bull while Cheetal is preferred by Panthers and Wild dogs.

Prey Biomass per sq.km.

Sr. No	Species	Total Area	Density per km^2	No.	Weight per animal	Total Weight	Grand Total	Biomass/ Sq.km
1.	Sambar	625 sq.km.	3.3	2063	200	412600	1338136	2141Kg sq.km (Melghat 1540)
2.	Cheetal		3.2	2000	60	120000		
3.	Gaur		1.8	1125	550	618750		
4.	Wild boar		2.6	1625	70	113750		
5.	Nilgai		0.7	438	250	15325		

(Density based on results of study done by Ambika Paliwal of WII in the WII-NNRMS-MoEF-Project during 2004-08: **Mapping of National Parks and Wildlife Sanctuaries**: Final Technical report Dec. 2008)

Biomass of Predators per Sq.km.

Sr. No.	Species	Total area (sq.km.)	No. of animals	Unit Wt/Kg.	Total Wt.	Grand total	Kg./ sq.km.
1.	Tiger	625	33	113	3729	6742	10.78 (Melghat 8.2)
2.	Panther	625	22	34	748	--	
3.	Wild dogs	625	175	13	2275	--	

Predator prey biomass ratio 6742: 1338136 = 1:198 (Melghat. 1:188, Serengeti 1:250)

Predator-Prey Biomass Ratio of 1:241 indicate ideal prey predator relationship (Prey Predator Relationship – A Biometrical Perspective: Thosre, P.G. and A.G. Mahajan). The Predator Prey biomass ratio of 1:247 in TATR shows presence of sufficient Prey base.

WII-NNRMS-MoEF-Project: **Mapping of National Parks and Wildlife Sanctuaries**: (2004-2008) Final Technical Report Dec. 2008 shows biomass comparison of Wild ungulates in various tropical forests.

Studies in Tropical Dry forests	**Location**	**Biomass Density (Kg./Km2)**
Jathanna et al (2003)	Ranthambaore Tiger Reserve	6263
Avinandan (2003)	Sariska Tiger Reserve	5503
Biswas & Sankar (2002)	Pench Tiger Reserve (MP)	6013
Karanth & Sunquist (1992)	Nagarhole National Park	7638
Khan (1996)	Gir Lion Sanctuary	2764
Ambica Paliwal WII-NNRMS MoEF-Project (2008)	Tadoba-Andhari Tiger Reserve	6098

Carrying capacity for Tigers in Tadoba-Andhari Tiger Reserve :-

a) We first identified the most common and preferred prey species of tiger in TATR they are, (1) Chital, (2) Sambar, (3) Gaur (4) Wild Pig and (5) Nilgai.

b) Than ware took 3/4th the average body weight of female of all species.

(Reference: The Deer and the Tiger by G.B. Schaller)

The pioneering work on study of prey and predators done in Kanha National Park in mid 1960s)

Sr. No.	Species	Average Female body weight	3/4th of body weight
1.	Chital	70	52.5
2.	Sambar	181	136
3.	Wild Pig	57	42.75
4.	Gaur	590	442.5
5.	Nilgai	345	258.75

c) Now we have to take for density per square kilometer for each of the above prey species.

In the summer of 2013 TATR carried out Phase-IV Monitoring for Tiger and its prey species. Herbivore density per square kilometer was estimated by using Distance 6.0. so density for the above prey species is as follows:

Sr. No.	Species	Density/sq.
1	Chital	6.3
2	Sambar	3.9
3	Wild Pig	3.7
4	Gaur	1.7
5	Nilgai	1.3

d) Now we have to calculate prey biomass per square kilometer for each of the above prey species.

e.g. Prey Biomass for Sambar= 3/4th of body weight of female Sambar X density per square kilometer.

Sr. No.	Species	3/4th of body weight X	Minimum Density /sq.km Y	Prey Biomass X × Y
1	Chital	52.5	6.3	330.75
2	Sambar	136	3.9	530.4
3	Wild Pig	42.75	3.7	158.17
4	Gaur	442.5	1.7	752.25
5	Nilgai	258.75	1.3	336.37
Total prey biomass Per square Kilometer				**2107.94**

Total available prey biomass per square kilometer in TATR = 2107.94.

e) Now we have following equation from Haywards et.al. 2007.

Y=-1.363 +0.152x

Where y= $\log_{10}$ of maximum carrying capacity of predator density for the available prey.

X= $\log_{10}$ of prey biomass per unit area per sq. km.

Putting the values in above equation we get

Y= -1.363+ 0.152 ($\log_{10}$ 2107.94)

Solving the equation we get

Y= -1.363 + 0.152 (3.3238)

Y= -1.363 + 0.5052 = -0.8578

Log predator = -0.8578

Predator = Antilog -0.8578 = 0.1387

Predator density = 0.1387

Carrying capacity = 13.87/100 sq.km.

So in TATR, maximum carrying capacity of Tiger is as follows:

- Predicted tiger density = 13.87/100 km^2
- Current tiger density = 6.22/100 km^2 as per Phase IV 2014 data
- Based on the above the Tadoba Andhari Tiger Reserve can support 13.87 tigers/100 km^2. There is scope for further accommodating the growing tiger population in Tadoba-Andhari Tiger Reserve.

3.4 Assessment of threats :

i) Poaching :-

Though the poaching is negligible there is constant threat of poaching. There are 18 Protection Huts all around the area and foot patrolling is done regularly. However, the traps for Tiger were found in January-2006 / April-May 2004/ December - 2003. This shows the vulnerability of the area.

ii) Illicit Cutting :-

Illicit cutting for timber is negligible but illicit cutting of bamboo is found around the inside villages like Palasgaon, Rantalodhi and fringe villages like Piparheti, Karwa, Kolara, Wadala, Khutwanda and Moharli.

iii) Grazing :-

The cattle of 3 villages depend on the sanctuary area for grazing.

Sporadic cases of poaching of Nilgai, Sambar, Monitor, Lizard, Wild boar have been reported in Core.

Year	Tiger	Sambar	Chital	Hare	Nilgai	Wild boar	Monitor Lizard	Total
2004-05	--	--	--	--	--	1	--	**1**
2005-06	--	--	--	1	--	1	9	**11**
2006-07	--	--	--	--	1	--	--	**1**
2007-08	--	--	1	--	--	--	--	**1**
2008-09	--	--	--	--	--	--	--	**--**
2009-10	1	--	--	--	--	--	--	**1**
2010-11	1	1	--	--	--	--	--	**2**
2011-12	--	--	--	--	--	--	--	**--**
2012-13	--	--	--	--	--	--	--	**--**
2013-14	--	--	--	--	--	--	1	**1**

CHAPTER – 4

HISTORY OF MANAGEMENT AND PRESENT PRACTICES

4.1 Conservation History:

The forests of Tadoba-Andhari Tiger Reserve had been part of Chandrapur Division except the seven compartments which were part of Bramhapuri Division. Systematic fire protection of the area was started in 1873. These areas have been declared as Reserve Forests in 1879. These forests were brought under systematic management in the year 1887. Gradual restrictions were imposed on the removal of timber, fuel wood and Bamboos, whereas other forest produce like grass, dry fuel and Non – Timber Forest Produce (NTFP) could be removed without restriction. For the first time, the detailed stock maps of the areas were prepared in the year 1925-26. The area was worked as per the prescriptions of various working plans prepared from time to time. The Ex. Proprietary forests of the areas were declared Protected Forests in 1955. The area of Tadoba National Park was excluded from the prescriptions of the working plan in the year 1927. In the year 1982-83 the gregarious flowering of Bamboos occurred in the forest area of Chandrapur District, including the Tadoba National Park. Due to this flowering, the whole Bamboo crop dried and was harvested. The subsequent regeneration of Bamboo has come up in this area naturally and profusely. The area of Andhari Wildlife Sanctuary was excluded from the prescriptions of working plan in the year 1989.

A) History of Wildlife Management in Tadoba-Andhari Tiger Reserve :-

1905 Tadoba closed as a shooting block for Tigers except under “special permits”.

1931 Closed for shooting of all animals.

1935 45 Sq. miles around Tadoba lake constituted as Sanctuary for all animals except wild boar.

1935-42 Increase in number of Chital, Sambar.

1942 Area converted into a Game Reserve. Sanctuary and adjoining area was assigned to four shooting blocks viz. Moharli, Karwa, Kolsa, Mul. Special permits given by the Government to hunt Tigers in Karwa and Kolsa blocks.

1955 Declaration of Tadoba National Park

1972 Shifting of Khatoda and Pandharpauni villages.

1973-74 Moharli and Karwa blocks closed for hunting. Kolsa and Mul blocks also subsequently closed for hunting.

1981 Creation of an independent Forest Division to manage TNP.

1986 Declaration of Andhari Sanctuary.

1989 Andhari Sanctuary transferred to TNP Division.

1995 Notification of Tadoba-Andhari Tiger Reserve.

1997 Management Plan for Tadoba-Andhari Tiger Reserve approved vide Chief Conservator of Forests (Wildlife), M.S., Nagpur's No. Desk-23(A)(3)/CN/1981 of 1997-98, dated 6/10/1997

1977-96 Crocodile Breeding Center functional at Tadoba. Detailed note about the same is enclosed **(Appendix – XXII)**

B) Prescription of Old Management Plan:

1. Consolidation of the area – Settlement of Rights, Relocation of the villages
2. Protection of the Area – Boundary Demarcation, Entry Points, Illicit cutting/poaching, grazing regulation, encroachment, fire protection.
3. Development of infrastructure – Roads, Wireless network, Vehicles, Buildings
4. Habitat Improvements – Preparation of cover map, Water Management, Meadow Development, Soil Conservation, Habitat manipulation, Management of riparian zone, Management of wetlands

5. Wildlife Health – Vaccination of cattle, Veterinary care, Saltlick and wallows, Population estimate
6. Reducing people dependency – Eco-development works, Formation of Eco-development Unit
7. Wildlife Tourism – Development of tourism zone, formation of tourism units, Tourism Regulation
8. Human Resource Development – Strengthening of organization, Training, Incentive and reward, Amenity to staff.
9. Research and Monitoring

C) Achievements of Old Management Plan:

1. Consolidation of the area: Enquiry has been completed in 1999, relocation of villages started, 2 villages viz. Kolsa, Botezari ready to shift.

2. Protection of the Area: Boundary Demarcation of Reserve Forest completed. Demarcation of Protected Forests completed in 2001-2002. Entry points have been strengthened by erecting *Pucca Naka* Buildings at Karwa, Khutwanda, Moharli, Pangadi. Patrolling work has been strengthened by establishing 18 patrolling camps at sensitive locations. Grazing of inside villages has been permitted inside the Sanctuary by Chief Wildlife Warden till relocation of these villages and illicit grazing at fringes has been minimized. The encroachment areas have been ascertained by demarcating Protected Forests and about 200 ha encroachment detected. Fire Protection works are still carried out by FDCM. The extent of fire has been reduced from 9% to 2%.

3. Development of infrastructure:

Roads : About 125 km of new earthen road have been constructed using compartment and fire lines, Out of 90 km; up-gradation target prescribed in Management Plan, 8 km road have been upgraded. 22 new culverts have been constructed.

Wireless: Low frequency network have been replaced by High Frequency Network. All beat guards, check posts, vehicles have been provided with wireless.

Vehicles: 2 Mini-trucks, 3 Jeeps, 2 Gypsy, 1 Sumo, 1 Car, 10 Motor cycles, 100 bicycles have been acquired during last Plan period.

Buildings : Beside the regular maintenance of existing buildings new building of Type–I 12, Type-II 6, Type-III 5, Office Building 2, Protection Hut 19, Check post 6 and Other buildings 21 have been constructed during plan period.

4. Habitat Improvements:

Preparation of Cover Map: Cover Map has been prepared using GIS by WII.

Water Management: Several new waterholes have been created, existing perennial waterholes have been de-silted, and the augmentation of water has been increased by constructing earthen bunds on *nallas*.

Meadow Development: Out of 570 ha target of new meadows prescribed in the plan, 370 ha have been achieved. Besides this, 130 ha of old meadows have been maintained and enriched.

Soil Conservation: As prescribed in the management plan whole area has been tackled by constructing dry rubble, check dams.

Habitat manipulation: The degraded area of the Protected Forests has been covered under grass plantations.

Management of riparian zone: The zone has been identified according to community occurring in the area by Tropical Forestry Research Institute, Jabalpur

Management of wetlands and unique habitat: 165 caves (dens) have been identified in 02-03.

5. Wildlife Health:

Vaccination of cattle: Vaccination of cattle in and around villages is carried out regularly.

Veterinary care: Field staffs have been trained to tranquilize the troubled animal. An additional tranquilizing gun has been purchased. Necessary medicine, drugs needs to be procured time to time. Regular training of tranquilization etc. is required to keep staff update.

Saltlick and wallows: The places of natural saltlick and wallows have been identified and protected. Providing artificial saltlick and wallows have been stopped from the year 1999 as natural saltlick and wallows are sufficient to cater to the need.

Population estimation: The annual population estimation of Tiger and Leopard by Pugmarks method and of other animals by waterhole count is being done regularly. Beside this Camera Trap method for Tigers have been experimented during 2001to 2003. Identification of individual Tiger by DNA analysis method have been carried out by CCMB in the year 2006. Tiger population estimation has been carried out as per new technique with the help of WII & NTCA in year 2006-07.

6. Reducing people dependency :-

Eco-development works : Plantations on private land, construction of 123 Bio-gas plants, supply of 85 LPG, supply of smokeless stoves have been done to the beneficiaries from fringe villages. So also training to the youths for self employments, engaging locals as tourists guides have been done.

Formation of Eco-development Unit: Could not be created due to ban on additional staff.

7. Wildlife Tourism :-

Development of tourism zone: Construction of interpretation centre, signage, nature trails, hides and *machans* have been done.

Formation of tourism units: Could not be created due to ban on additional staff.

Tourism Regulation : Tourism have been regulated by imposing ban on entry of 2 and 3 wheelers, prohibiting entry without guides, restriction on the timing, closing of park on Tuesday.

8. Human Resource Development:

Strengthening of organization: Reorganization could not be effected due to ban on creation of additional staff.

Training: Regular trainings have been imparted to the staff. Visit to other parks within and outside the States has been arranged regularly.

Incentive and reward: Incentives have been given in the form of Project Allowance, Sleeping bags, Water bags, Briefcases etc.

Amenity to staff: Medical facilities, by arranging camps of specialized doctors, have been provided to staff.

D) Financial Performance of the Plan:

Following table depicts in brief the financial achievements since 97-98 and the proposed budget given in the plan:-

A. Before inception of Plan **(Expenditure - Rs. in lacs)**

Year	Non-plan	Plan-CSS	Plan State Scheme	Grand Total	Proposed Budget
1997-98	101.02	28.03	-	129.05	165.99
1998-99	116.88	42.47	-	159.35	239.10
1999-00	150.27	58.90	-	209.17	301.26
2000-01	117.23	67.81	-	185.04	300.55
2001-02	108.63	79.18	-	187.81	309.40
2002-03	97.73	65.46	-	163.19	305.54
2003-04	123.91	470.38	-	594.29	302.63
2004-05	148.16	165.05	-	313.21	302.50
2005-06	173.76	117.67	-	291.43	300.08
2006-07	159.00	91.90	146.30	397.20	298.68
Total	**1296.59**	**1186.85**	**146.30**	**2629.74**	**2825.73**

From the above table, difference of Rs. 195.99 lacs in proposed budget and actual grants received seems to be marginal, but actually there is a large gap between the proposal and actual expenditure, because the figures shown in the budget are taken as 1996-97 as a base year. Because of this there is very marginal development in infrastructure like roads/culverts, building construction, eco-development, etc.

B. After inception of Plan **(Expenditure - Rs. in lacs)**

Year	Non-plan	Plan-CSS	State Plan Scheme	Other (12th & 13th F.C.)	CAMPA	Grand Total	Proposed Budget
2007-08	178.08	133.55	103.99	0	0	415.63	504.32
2008-09	187.02	216.52	165.00	0	0	568.54	639.77
2009-10	251.21	214.04	96.00	0	0	561.25	776.99
2010-11	303.68	208.30	36.00	14.59	14.64	577.21	885.54
2011-12	348.10	2787.76*	904.84*	56.70	937.80	5035.20	5439.72
2012-13	348.26	328.03	23.00	37.54	45.74	782.57	809.36
2013-14	406.46	349.88	70.22	30.04	6.26	862.86	951.04

N.B.:- * This amount includes provisions for relocation of two villages.

E) Non – Timber Forest Produce:

The collection of Non-Timber Forest Produce like gum, Mahuwa flower, thatch grass etc., was stopped from the Tadoba National Park since 1968. Subsequently, collection of Tendu leaves was also stopped. In the Andhari Wildlife Sanctuary, the collection of Non – Timber Forest Produce including Tendu leaves was stopped since 1992.

F) Grazing:

Grazing is prohibited in Tadoba National Park and Reserved Forest of Andhari Wildlife Sanctuary. The cattle of the villages inside the Sanctuary are allowed to graze in the area adjoining to there villages in the Sanctuary. The cattle on periphery of Protected Area sometimes sneak into the area and cause damage to the habitat. Effective grazing control has become extremely difficult for the Protected Area Management.

G) Firewood Collection:

In the past, the local villagers were allowed to remove dry and fallen wood as firewood on rated passes at concessional rates for their bona fide use. Firewood was also sold to the agriculturists at half the market price to meet their demand. This firewood was taken out from the coupes. However, firewood collection was stopped in the Protected Area after it came under the control of Tadoba Division.

4.2 Habitat Management:

The habitat of TATR is most suitable for wildlife. It consists of a mosaic of tree cover, grass lands on plateaus, grassy blanks, streams with riparian vegetation etc. The Pandharpauni and Khatoda villages shifted in 1972 from National Park have been converted into beautiful meadows which attract herbivores like Chitals and Wild boars followed by the predators like Tiger. These meadows; needs continuous intervention in the form of cutting, uprooting shrubs etc. and enriching the palatable grasses by closing some areas as exclusion plots.

Some new meadows are required to be developed in the areas with thick tree growth. The evicted village sites are expected to be converted into new meadows.

There are many natural salt licks distributed all over the Reserve and they have been maintained the list of natural salt licks is given in **Appendix XXIII**. There are also many wallows around the water places and ditches for animals like Sambar and Wild boars to wallow.

Soil and moisture conservation works have been done in the last plan and they needs to be continued. These works are specially required in the P.F. areas.

There are good water sources in the TATR and are maintained by deepening, de-silting etc. The North Eastern part of the Park are drier and without perennial water sources. These areas need to be tackled on the priority. The statement showing details of water availability during pinch period is given in **Appendix XXIV.**

4.3 Protection and Intelligence Gathering:

Forest protection constitutes one of the essential aspects of the Wildlife Management. Protection precedes conservation. Forest protection measures prevent encroachment, illicit cutting, poaching and forest fires. The number of unmanned entry points also pose protection problem. The statement showing entry points is given in Appendix **XXV.**

Encroachment:

Encroachment is non–existent in Reserved Forests. However, some encroachments are observed in Protected Forests.

Poaching:

Organized poaching has not taken place in the area in the recent past. However the threat is always there as Bahelias are moving all over Tiger areas in the country. Sporadic cases of poaching of Hares, Sambar and Cheetal by local people have been noticed in the Sanctuary area. The most common method of poaching by the local people is to lay a trap made up of metallic spirals across jungle roads near water holes and by their domestic dogs.

Illicit Cutting:

The interior part of the Protected Area is free from illicit cutting of timber trees. Only the parts of the Protected Area adjoining to the villages on the periphery are susceptible to illicit cutting for timber, fuel wood and Bamboos. The forest areas on the Western side of Protected Area near the villages from Ghosri to Arjuni are very vulnerable to illicit cutting of Teak, whereas, the patch of the Piparheti, Pangdi, Dewada, Moharli and Khatoda area are vulnerable to illicit cutting of green Bamboos. The statement showing details of number of cases registered for illicit cutting are given in **Appendix XXVI**. The areas vulnerable to illicit cutting are shown in Map No. 9. In addition to the illicit cutting for fuel and timber, the villagers on the periphery do indulge in illicit removal of fruits and leaves of Tendu, flowers and fruits of Mahuwa, Thatch grass, and shed Antlers.

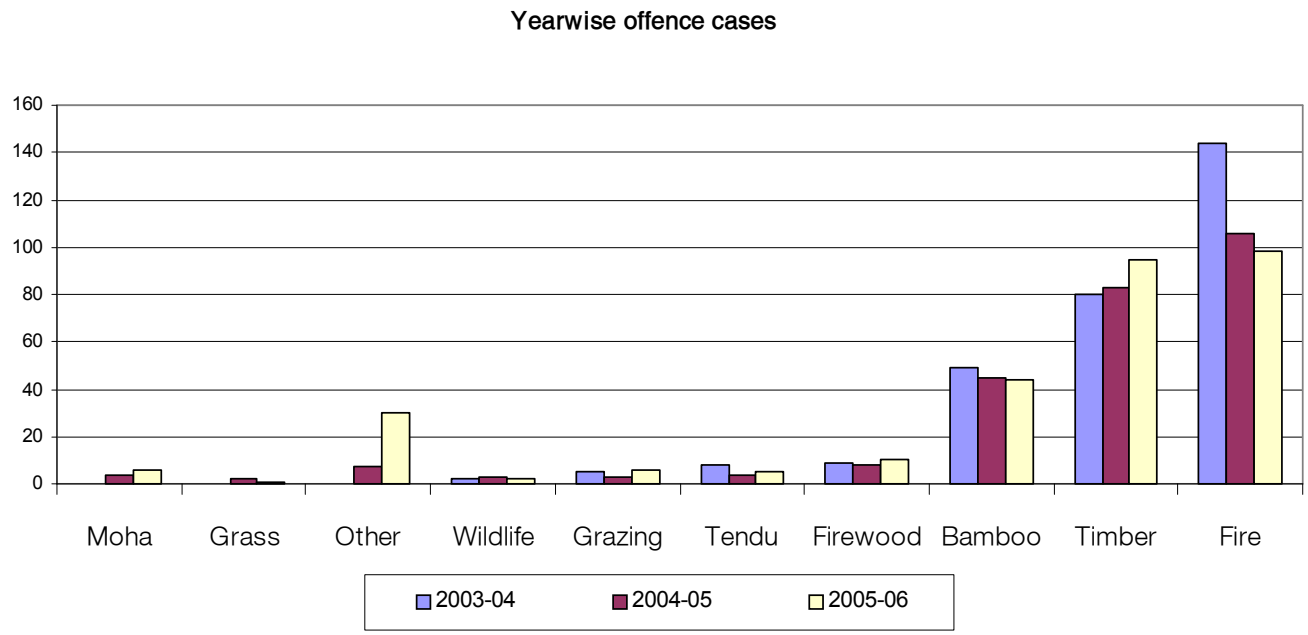
Regular day and night patrolling, added with periodical inspection of the vulnerable areas helps to reduce illicit cutting and poaching. In addition to the regular field staff, one mobile squad unit headed by a Range Forest Officer is deployed to look after the protection of the area. The mobile squad is provided with a jeep fitted with wireless set for easy communication. There are also base stations at important places and mobile handsets for communications.

Removal of Tendu Leaves:

Tendu collection is not allowed from the Protected Area. Tendu *phadies* are also not allowed to be set up within 3 Km of the boundary of Protected Area vide P.C.C.F.

letter No. Desk-20/2/Tendu/16/2000/975 Nagpur Dt. 30th August, 2000. However, the villagers sometimes sneak in to the peripheral areas for collection of Tendu leaves.

The said letter has been issued on the basis of the discussion held in the meeting of territorial and wild life wing officers on 20/07/2000 at Nagpur under PCCF, Nagpur. The specific para V of the minutes reads as "on the basis of the detailed discussion about collection of Tendu leaves around Protected Areas it was decided that the collection centre for Tendu should not be set up within 3 Km. of the boundary of Protected Area. However, the distance may be increased or decreased as per local conditions by the officers of territorial and wildlife wing after mutual discussions."

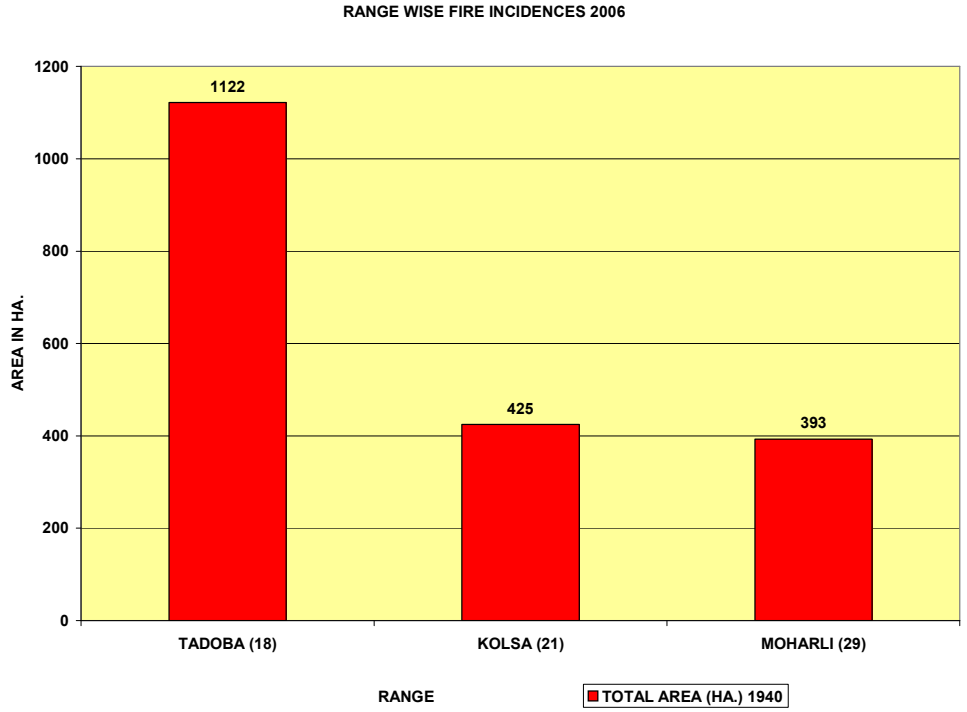


Eradication of Lantana:

There are a few pockets where Lantana is observed in compact patches especially in the National Park area. The total extent of Lantana patches is about 100 ha distributed in Compartment No. 91, 92, 117 and 120. Efforts were made to remove the Lantana thickets by uprooting and burning. This removal is done in compact patches to induce grass growth to restore the natural vegetation. A statement showing schedule of operation for eradication of lantana is given in **Appendix –XXVII.**

Fire Protection:

The fire protection of the area is done as per the annual fire protection scheme prepared for the first time in the year 1984 under the Modern Forest Fire Control Project and was started through Forest Development Corporation of Maharashtra. The whole area of Reserve is covered under this project. Fire lines of various widths i.e. 20 meter, 13 meter, 10 meter and 5 meter are maintained which pass along the roads, compartment lines and at few places cut across the compartments. The total length of fire lines in Protected Area is approx 1100 Km. The length of various fire lines are 20 meter – 313.776 Km, 13 meter – 192.04 km, 10 meter – 472.840 km and 5 meter – 11.550 km. These fire lines are cut and burnt before 15th February of every year. Fire watchers are deployed at the strategic locations, where watch towers/ *machans* are erected to keep a regular watch and ward. Some fire lines are also proposed to be identified and developed as fair weather roads to facilitate movement of fire protection vehicles.



There is an independent wireless network with the F.D.CM. and vehicles equipped with mobile wireless sets and fire – fighting facilities. The distribution of various fire-lines in the Protected Area is shown in **Map No. 2.** The number of fire incidence and area affected in the previous years is given in the following Table:

Fire Incidences:

Year	No. of Incidences	Area affected	Percentage
2005	130	2755.00	4.72
2006	71	1940.00	3.66
2007	162	2607.50	4.21
2008	139	1824.00	7.62
2009	164	4229.00	3.88
2010	89	2593.00	3.43
2011	97	2109.00	4.60
2012	130	7988.00	1.63
2013	57	300.00	19.00
2014	88	1792.00	4.91

The numbers of fire incidences are more in Tadoba areas though there is no village inside. The reason is that there are many villages in the surrounding areas and these villagers lit the fires.

4.4 Tourism and Interpretation:

Tourism is one of the important activities in the management of Tadoba-Andhari Tiger Reserve. Presence of road network and accessibility of the Park makes tourism easy. There is network of about 410 km. roads in TATR. About 246.85 km. of these roads are used by tourists. This road network is very less compared to other reserves as seen from the Table below. A statement showing the details existing roads and culverts are given **Appendix XXVIII.** Many of these roads especially *murrum* and earthen roads needs to be upgraded. Good road network also facilities movement of protection vehicles.

Sr. No.	Tiger Reserve	Area Sq.km.	Total Road length (Km.)	Tourism area (Sq.km.)	Road length used for tourism (Km.)
1	Kanha	940	867	372	380
2	Bandhaogarh	700	575	220	250
3	Pench (M.P.)	410	400	292	250
4	Ranthambore	750	550	250	200
5	TATR	625	314	250	180

Tourism Potential of the Protected Area and its Surrounding Area:

TATR is visited by about forty thousand tourists. The number of visitors is on the increase over the years. The major influx of tourists is to Tadoba. The tourists include nature-lovers, picnickers and students. Some facilities like hides and *machans* have been constructed for staff and tourists for observation of wildlife at strategic places **(Appendix XXIX).** From 1998 the wildlife observation from Machans and hides by tourists has been stopped in Core. Few pilgrims also visit to Tadoba Deo and Hanuman Temple. The pilgrims are mostly the tribal of adjoining villages. The Ramdegi temple, adjoining the Protected Area is visited by large number of people every year in the month of December. The places around Moharli and Kolsa have large tourism potential. Moharli and Kolsa both are easily accessible from Chandrapur.

A Table showing Annual Tourist Inflow between 2005 and 2014

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Tourists	34361	40626	57169	62445	103696	78881	47635	86557	105844	41245
No. of vehicles	5578	5976	8903	9788	15593	10983	7177	11553	18513	6135

A statement showing details of tourists' inflow and revenue is given in **Appendix XXX.**

4.5 Research and Monitoring:

Annual Tiger/Leopard census is done by using the pugmark method and the estimation of herbivores is done by waterhole count method. A system of daily monitoring of animal movements has been initiated since Aug.1999. Following Research Project have been undertaken in last few years.

1) "The monitoring of Tiger and Prey Population in Tadoba Andhari Tiger Reserve" had been done by Dr. Ulhas Karanth, Centre for Wildlife Studies, Bangalore during October-2001 to October-2004.

2) "Diversity and Conservation oriented study of parasite of wild mammals" had been done by Prof. Dr. Milind Watve, Abasaheb Garware Mahavidyalaya, Pune during 1998 to 2001.

3) Study on "Avifauna and ecology of Tadoba-Andhari Tiger Reserve" had been done by Vidarbha Nature and Human Science Centre, Nagpur.

4) Study on "Vegetation Ecology of Tadoba Andhari Tiger Reserve" had been completed by Tropical Forest Research Institute, Jabalpur in 1996.

5) "Flora of Tadoba National Park" had been completed by Botanical Survey of India, Kolkata in 1992.

6) Project on "Establishing Computerized Wildlife Database for Conservation, Monitoring and Evaluation in Tadoba-Andhari Tiger Reserve, Maharashtra" had been completed by Shri. Yogesh Dubey, WII, Dehradun during 1994 to 1998.

7) "Survey of Faunal diversity of Tadoba-Andhari Tiger Reserve" had been done by Zoological Survey of India, Pune during 1999 to 2002.

8) "Hydrobiology and Biodiversity of Tadoba Lake" has been carried out by Prof. P.S. Telkhede, during 15th July-2006 to 14th July, 2007.

9) Project on "Mapping of National Park and Wildlife Sanctuary" has been carried out by WII, Dehradun during 2004 to 2008.

10) A pilot project on Tiger Census by Non-evasive DNA Technique was taken up by CCMB, Hyderabad.

Sample plots and preservation plots

There are some sample plots and preservation plots of Research Wing existing in TATR. The details of the same are given in **Appendix XXXI.** These plots will be maintained by Research Wing as per their existing guidelines. The Research Wing will inform TATR before taking any operation including maintenance. They will also view these plots with reference to wildlife and inform TATR about any observation about wildlife in these plots.

The note sent by Conservator of Forest and Silviculturist Research Circle, Eastern Region, Chandrapur about these plots is as follows :-

A) Preservation plots are developed with the following objectives:

1. To develop the program which can help us to conserve the biodiversity?
2. To study the various factors of biodiversity conservation program.
3. To find out the easiest method to conserve the biodiversity.

B) Analysis of factors:

1. The nature of the biodiversity that is available.
2. Most important reason for present conditions of biodiversity.
3. Causes for depression of biodiversity.
4. In-situ & ex-situ efforts to be made while deciding the policy of conservation.

C) Methodology:

1. Grazing is totally controlled.
2. Count of the trees above 15 cm girth at B.H., their heights and crown width are recorded.

3. Count of the number of species with individuals and percentage of area covered (herbs, shrubs, grasses, climbers etc.)
4. Same recording be done outside the plots as well for comparison.
5. Study the past history of these areas.

D) Monitoring:

Some of the plots evaluated by TFRI Jabalpur have indicated adverse effect of Bamboo under-growth on regeneration and suppression of biodiversity. Therefore they have indicated that growth of other important species is affected. Some reduction in Bamboo may be made for good growth and regeneration. Therefore, in future we would like to study the impact of such clearance on the regeneration and also on Diversity Index. In some of such reports it is suggested by them to continue the regular Silvicultural Management practices in order to maintain the proper status of preservation plot. These issues would be discussed at a higher level and appropriate decision will be taken for future working

4.6 Relocation of Villages:

The six villages viz. Kolsa, Botezari, Palasgaon, Rantalodhi, Jamni and Navegaon (Ramdegi) inside Andhari Wildlife Sanctuary are to be relocated outside the Protected Area as per the orders passed by the Enquiry Officer and Sub Divisional Officer, Warora. The lands for rehabilitation have been selected by the respective villagers.

Table showing details of number of families and proposed sites selected for relocation

Sr. No.	Village	Location of Rehabilitation			Area required for rehabilitation (ha.)	No. of families to be rehabilitated
		Division	Range	Compt. No.		
1.	Kolsa	Chandrapur	Mul	524	550	206
2.	Botezari	Chandrapur	Mul	--"--		107
3.	Palasgaon	Chandrapur	Mul	--"--		150
4.	Rantalodhi	Brahmapuri	Saoli	186	180	136
5.	Jamni	Brahmapuri	Chimur	42	250	196
6.	Ramdegi (Nawegaon)	Brahmapuri	Chimur	29	250	197
	Total				**1230 ha.**	**992 No.**

As per the Orders passed by the Enquiry Officer and SDO Warora vide his revised enquiry order, dated 05/8/2000; in first stage an action for relocation of three villages viz. Kolsa, Botezari and Palasgaon (Singaru) (total families 463) in C.N. 524 was started. According to the criteria laid down in the BOTD scheme of Central Government an amount of Rs. 1.00 lacs was to be given per family by GOI. Rs. 463.00 lacs was allotted for three villages, but later the villagers of Palasgaon (S.) were not willing and ready for relocation to Compt. 524, hence the work of relocation of Botezari and Kolsa (313 families) was started. As per revision of families number Botezari 79 and Kolsa 152 were finalized and work of construction of house preparation of agricultural land was started for total 231 families, After completion of the work all 79 families of Botezari were relocated, only 49 families of Kolsa got shifted to relocated site. Remaining 97 families of Kolsa refused to shift to relocation site. Following expenditure has been incurred on relocation of Kolsa (Part) and Botezari.

Sr. No.	Source of fund	Total fund received	Expenditure till Dec. 12
1	GOI Funds	463.00 Lakh	245.93 Lakh
2	State Rehabilitation Funds	200.18 Lakh	200.18 Lakh
3	District Tribal Plan	13.04 Lakh	5.66 Lakh
4	Other State Scheme and LAD Fund of MP & MLA	231.89 Lakh	211.48 Lakh
	Total	**908.11 Lakh**	**663.25 Lakh**

The remaining 97 families of Kolsa are being perused for relocation and recently 37 families had got relocated, now 60 families are remaining in Kolsa village.

The relocation of Jamni and Navegaon has been started as per new package of Rs. 10.00 Lakh per family from January 2012 and is completed till June 2014. The relocation of Palasgaon is being taken up after the sanctioned of forest area diversion proposal by Government of India. The villager of Rantalodhi has now given the willingness to relocate themselves near village Pavna Tah. Warora.

DETAILS OF FAMILIES ALREADY SHIFTED UP TO JULY. 2014

Sr. No.	Village	Total No. of families			No. of families shifted		
		Tribal	Non-tribal	Total	Tribal	Non-tribal	Total
1	Botezari	76	3	79	76	3	79
2	Kolsa	135	17	152	75	17	92
3	Jamni	194	28	222	194	28	222
4	Ramdegi (Nawegaon)	170	70	240	170	70	240

In the State, the rehabilitation of Sanctuary and National Park affected villages are covered under "Maharashtra Project Affected Person Rehabilitation Act 1999".

As per revised guide lines of NTCA (2008) following package for rehabilitation has been proposed:-

The proposed package has two options:

Option I :- Payment of the entire package amount (Rs. 10 lacs per family) to the family in case the family opts so, without involving any rehabilitation relocation process by the Forest Department.

Option II :- Carrying our relocation/ rehabilitation of village from protected area / Tiger Reserve by the Forest Department.

i) In case of option I, a monitoring process involving the District Magistrate/ Collector of concerned District(s) would be ensured so that the villagers rehabilitate themselves with the package money provided to them. In this regard, a mechanism involving handholding, preferably by external agencies should also be ensured, while depositing a considerable portion of the amount in the name of the beneficiary in a nationalized bank for obtaining income through interest generated.

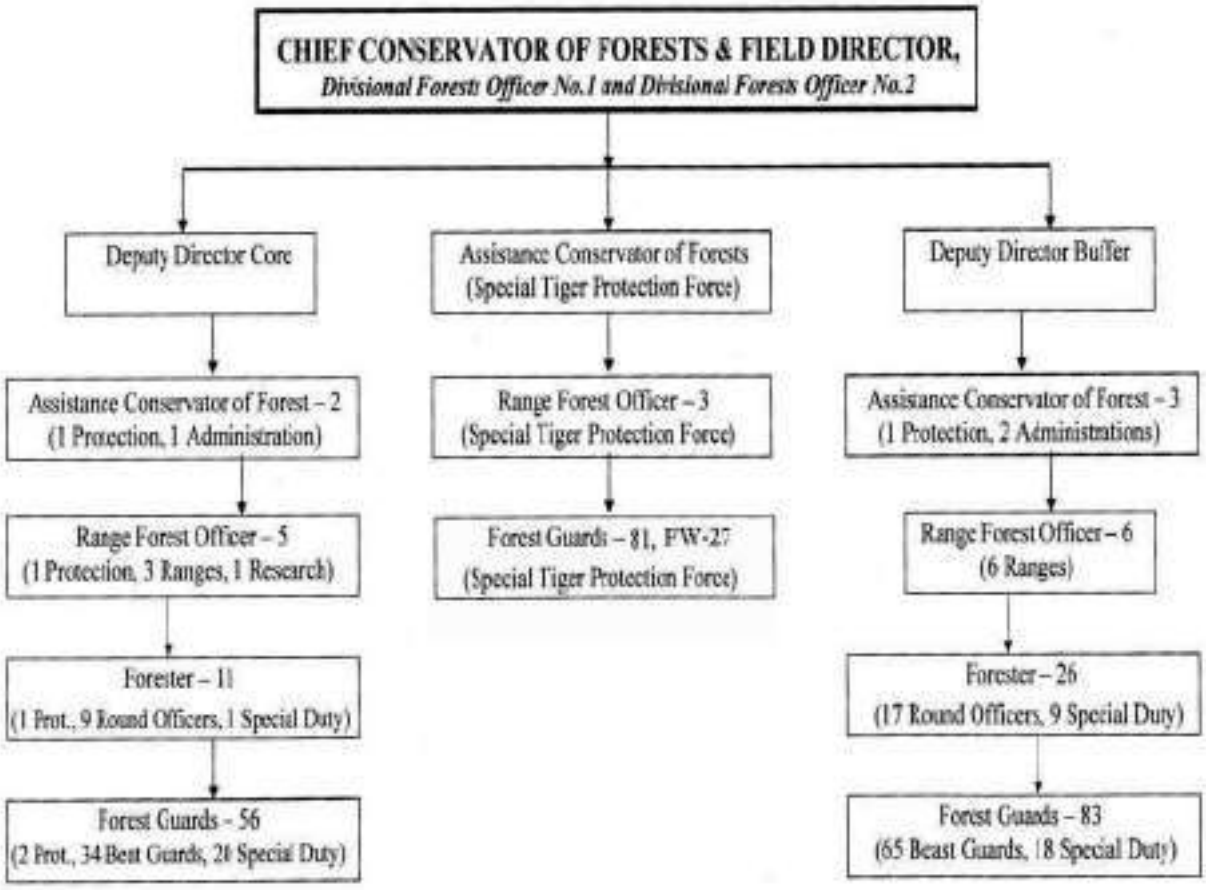
ii) In case of option II, the following package (per family) is proposed, at the rate of Rs. 10 lacs per family.

(a)	Agriculture and procurement (2 hectare) and development	35% of the total package
(b)	Settlement of rights	30% of the total package
(c)	Homestead land and house construction	20% of the total package
(d)	Incentive	5% of the total package
(e)	Community facilities commuted by the family (access road, irrigation, drinking water, sanitation, electricity, telecommunication, community center, religious places of worship burial/cremation ground	10% of the total package

4.7 Administration and Organization:

The Core zone of Tiger Reserve is under direct administration and management of Deputy Director (Core). The Buffer zone of Tiger Reserve is under direct administration and management of Deputy Director (Buffer). The Chief Conservator of Forests and Field Director, Tadoba Andhari Tiger Reserve, Chandrapur is supervisory head of Tiger Reserve having two Divisional Forest Officers in his office to assist here. Field Director reports to Additional Principal Chief Conservator of Forests (Wildlife) East, Nagpur.

Under the Deputy Director (Core) there are three ranges i.e. Tadoba, Moharli and Kolsa. The Ranges are divided into 9 round and 34 beats. The details of Range, Round and Beat is given in **Appendix XXXII.** In addition there is a post of Range Forest Officer (Research) attached to Deputy Director (Core) and a post of Asst. Conservator of Forests (Protection) based at Moharli. The list of existing staff is attached as **Appendix – XXXIII.**



4.8 Assessment Report Prepared by IUCN:

The reserve has been adjudged “very good" by the report Review of Tiger Reserve Assessment Reports Prepared by Internationals Union for Conservation of Nature and Natural Resources (IUCN). The World Conservation Union Asia Regional Office, Bangkok at the request of Ministry of Environment and Forests (Project Tiger) Govt. of India November, 2005. There had been 45 parameters for monitoring and evaluation like legal status, compatible land use, human pressure etc. The Reserve has scored 135 points (Grade I) out of total 180 points and was placed within top 10 out of 28 reserves of the country. Mr. A.S. Negi was the evaluator for TATR. The detailed evaluation report is appended as **Appendix XXXIV.**

4.9 Management Effectiveness Evaluation 2014:

Assessment of how well Protected Area is being managed was carried out under the frame work provided by IUCN World Commission on Protected Area (WCPA). The assessment was carried out on 6 elements and 30 criteria. The Tadoba Andhari Tiger Reserve has been categorized as **"Very Good"** under this Management Effectiveness Evaluation 2014.

CHAPTER – 5
LAND USE PATTERNS AND CONSERVATION-MANAGEMENT ISSUES

5.1 Land use Classification:-

The Core area of the Reserve consists of mostly Reserve Forests and few patches of Protected Forests and Un-classed Forests. Presently there are five villages inside the Reserve. Botezari village have been recently shifted out. The part of Kolsa village also has been shifted. The land use of the villages inside sanctuary consists of agriculture. Most of these villages grow, paddy as a major crop. The second crop consists of gram (Chana), lentel (Lakh) or wheat. The crops are mostly rain fed, supplemented by irrigation from village tanks.

5.2 Socio-economic Profile of Villages:-

There are 5 villages namely Kolsa, Rantalodhi, Palasgaon, Jamni and Navegaon (Ramdegi) inside P.A. Village Botezari have recently been (May/2007) shifted to relocation site near Tolewahi. There are 53 villages on the fringes. The community consists of Scheduled Tribes, the Gond and Mana. They are traditional forest dwellers but taking up settled agriculture now. The agricultural crop consists of paddy. A cash crops like soyabean and cotton is now taken up in uplands in Northern and Western part.

The villagers are mostly marginal farmers. A community called Burad is traditional Bamboo working making baskets and mats from Bamboos. They mostly depend on illegal cutting of Bamboos from the fringe areas of Sanctuary and adjoining forests. Some of them also depend upon forest based employment like; fire watchers, maintenance works, tourist guides, watchmen etc. Many of them depend upon coupe working in adjoining territorial divisions.

These people depend on Protected Forests for their requirement of grazing and firewood but sometimes sneak in the reserve for collecting firewood. Incidences of grazing in the fringe areas on Northern/ Western part which is devoid of forests are reported.

Some people have done encroachment in P.F. There is report of 238 cases of encroachments with an area 232.50 ha.

5.3 Resource Dependence of Villages:-

The five inside villages depends on forest for firewood, small timber and grazing. The area as have been earmarked for grazing. The dry, fallen firewood is collected by them for their day to day requirement. Some of the villages like Rantalodhi depend on Bamboo work by illegally collecting green Bamboo from nearby forests. The villages on the fringes also some times sneak in the Reserve for collecting firewood, Bamboo etc. The statement showing the details of villages within zone of influence is given in **Appendix XXXV.** These villages have been included in buffer area along with other villages.

Villages on the Western boundary and part of Northern boundary have no P.F. for fulfilling their requirement and they do put some pressure on the Reserve. A study of the influence was taken up by R.F.O. (Research) and the result is given below:-

Table showing Extent of Human influence on the forests of western boundary of TATR (Area in Ha)

Comptt. No.	Grazing			
	Most	Medium	Less	Total
142	--	--	31	**31**
143	--	--	18	**18**
138	34	--	43	**77**
125	--	--	31	**31**
121	--	--	19	**19**
114	38	--	37	**75**
120	--	60	16	**76**
Katezari P.F.	--	--	25	**25**
119	38	18	18	**74**
118	116	55	18	**189**
87	--	--	45	**45**
86	--	--	30	**30**
65	87	126	87	**300**
64	168	75	75	**318**

Comptt. No.	Bamboo, Timber Felling			
	Most	**Medium**	**Less**	**Total**
144	--	--	3	**3**
141	--	--	103	**103**
140	--	--	4	**4**
125	--	--	41	**41**
126	--	--	19	**19**
124	--	6	37	**43**
123	--	--	1	**1**
122	--	--	12	**12**
121	18	18	99	**135**
114	--	--	78	**78**
120	--	--	79	**79**
Katezari P.F..	--	--	25	**25**
115	--	--	3	**3**
117	--	--	97	**97**
118	--	--	6	**6**
65	--	--	55	**55**

Comptt. No.	Firewood			
	Most	**Medium**	**Less**	**Total**
125	29	--	55	**84**
126	21	--	--	**21**
124	--	--	18	**18**
121	--	--	15	**15**
114	--	--	43	**43**
120	--	--	85	**85**
Katezari P.F.	--	--	12	**12**
119	--	--	35	**35**
117	--	--	18	**18**
118	--	--	69	**69**
87	--	--	14	**14**
65	--	--	60	**60**

1. Training of Youths for Self Employment:

Trainings to the youths in the following trades were given since 2004-2014:

Year	Number of trainees	Trade
2008-09	60	Tourist guide training at CFRC Chandrapur for all gate tourist guide from 4.8.2008 to 8.8.2008
2009-10	50	Tourist guide training at Moharli & Pangdi gate by Shri. Sanjay Karkare BNHS Feb. 2010
2013-14	30	English speaking training programme for tourist guides founded privately (Shri. Chandrabhan Singh, Pune) July to Aug. 2013
2014-15	45	Tourist Guide training at Moharli for all gate tourist guide by Shri. Anuj Khare HWLW, Pune Sept. 2014

2. Supply of Bio-gas units and LPG connections:

To minimize the dependence of villagers on the Reserve some measures like supply of LPG connections, construction of bio-gas units, supply of free LPG stoves has been taken up in the past. The details are as follows:

Bio-gas units have been supplied to the villagers for producing bio-gas from the cow-dung of their cattle's, which are fed in the stalls. LPG connections are also provided to reduce the dependency on fuel wood as under:-

Year	Scheme	Bio-gas	Name of villages	LPG	Name of villages
2003-04	Eco-development	8 No. of units supplied to the beneficiaries.	Zari-8	--	--
2004-05	--"--	8 No. of units supplied to the beneficiaries.	Jamsala-3, Junona-3, Ashta-2.	232 No. of connections to the beneficiaries.	Tadoba-78, Moharli-77 Kolsa-77.
2005-06	--"--	2 No. of units supplied to the beneficiaries.	Zari-3, Chaiti Tukum-2	--	--
2012-13	CAMPA	--	--	80 beneficiaries	Palasgaon-80
	Foundation	--	--	20 beneficiaries.	Wasera-20
2013-14	CAMPA	--	--	13 beneficiaries.	Palasgaon-13
	Foundation	--	--	4 beneficiaries.	Wasera-4

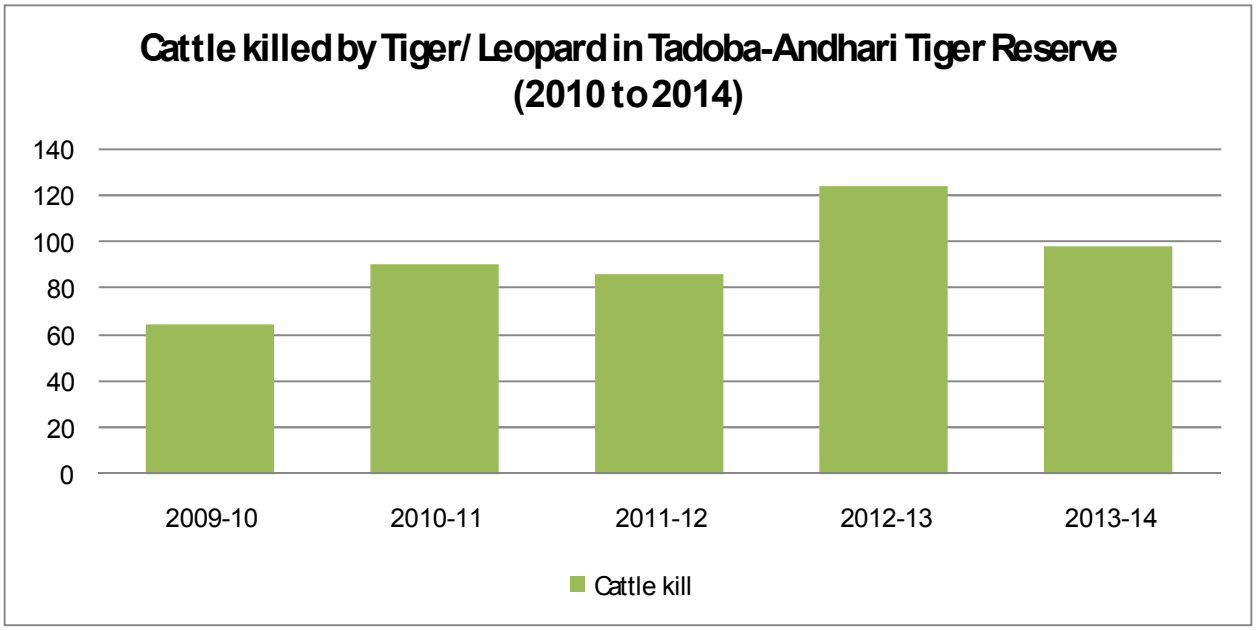
As per the guidelines of Govt. of India monitoring of wild birds for Bird flu virus is done around the lakes in the Reserve.

5.4 Human-Wildlife Conflicts

The conflicting situations arise sometimes within and on the fringes of the Reserve. The conflicts consist of following types:

1. Cattle lifting by wild animal.

Cattle lifting by wild animals like Tiger and Panther are more during rains. This takes place incase of villages inside and also on the fringe. The statement showing details of year wise cattle kill cases with location is given in **Appendix XXXVI**. The people are promptly compensated as per G.R. No. WLP-1002/C.N.258/F-1, dated 17th January 2003 and dated 20th May 2003 and G.R. No. WLP-10.08/C.N.270/F-1, dated 02.07.2010 **(Appendix – XXXVII).** The details of cattle kill cases with compensation paid for last fifteen year is enclosed (**Appendix – XXXVIII).** The following charts depict number of cattle kill cases occurred month wise during five year period 2003 to 2007.



The figure for 2003 shows higher values which was due to a tigress with four sub adult cubs, which were killing cattle on the fringes of Tadoba range (Bamangaon, Kolara and Deori).

2. Human injury by wild animals

Villagers, mostly graziers are sometimes attacked and injured or killed by wild animals. Most of these cases are accidents. The compensation for such attacks are given as per G.R. No. WLP-1002/C.N.258/F-1, dated 17th January 2003 and dated 20th May 2003 and G.R. No. WLP-10.08/C.N.270/F-1 dated 02.07.2010. The details of number of cases and compensation paid are shown in **Appendix – XXXVIII.**

3. Crop damage by wild animals

There are also incidences of crop raiding by animals like Wild boars and Blue bulls in the fringe areas and inside villages. Villagers within the Core are not generally reporting the crop damage as they think this is a natural process. Only few cases have been reported during 2010-11 and 2011-12. The details are given in **Appendix-XXXVIII.** To mitigate the situation solar fencing has been installed at Kolara, Navegaon, Bamangaon, Ashta and Sonegaon. The details are as follows:

Year	Location	Extent in Km.
2003-04	Kolara and Bamangaon	3.50
2006-07	Ashta and Sonegaon (Bibikhora)	5.00
2011-12	Pandharwani and Nimbala	6.00
2012-13	Ghosri, Junona, Dewada, Pangdi, Piparheti and Deori	17.00
2013-14	Ghosri to Khutwanda	6.00

There is provision for compensation of crop damage as per G.R. No. WLP-1094 /C.N.115/F-1, dated 23/8/2004 and G.R. No. WLP-10.08/C.N.270/F-1, dated 02.07.2010. The territorial divisions are having the jurisdiction to compensate the crop damage in fringe villages. There is demand from local villagers that the crop damage should be compensated by TATR, as there is no territorial staff posted in the villages like Ghosari, Wadala, Ashta, Kolara etc.

5.5 Assessments of Inputs of Line Agencies/Other departments:-

The inside villages have inputs from other departments like; schools from Z.P. Education Department, a dispensary at Kolsa, Ration shops, Anganwadi, etc. The Veterinary department take up the work of vaccination of cattle in the inside villages. The Veterinary Officer appointed on Contractual basis through foundation fund coordinates the vaccination program.

PART – B
THE PROPOSED MANAGEMENT

CHAPTER – 6
VISIONS, GOALS, OBJECTIVES AND PROBLEMS

6.1 Visions:

The main aim is to conserve tiger in perpetuity, by making the tiger reserve as source population, then connect the other tiger reserves and protected areas through corridors to ensure gene pool transfer. Further it is aimed to provide more space for movement of tiger and other co-predators. This will be achieved by increasing prey base in the area by providing adequate water sources and meadows. This all will need to conserve the bio-diversity of the area.

6.2 Management Goals:

1. Reducing dependence of the people on the Protected Area (Peripheral).
2. Creating conservation awareness among the people. Habitat with prey base.

6.3 Management Objectives:

1. Protection of the area
2. Rehabilitation of the villages
3. Consolidation of the area
4. Habitat improvement
5. Development of the infrastructure for eco-tourism
6. Regulation of tourism
7. Maintenance of Wild life health.
8. Conducting research in various aspects of wildlife.

6.4 Problems in Achieving Objectives:

1) There are five villages inside the Reserve.
2) There are 53 villages in the vicinity of the Park.
3) Inadequate and untrained staff is an important problem.

6.5 Strengths-Weaknesses-Opportunities-Threats (SWOT) Analysis Strengths:

1. Contiguity of Forests:

The strength of TATR lies in its contiguity with the forest of Chandrapur and Bramhapuri Forest Divisions. These areas also have a narrow corridor to the forest of Gadchiroli District up to Bhamragarh and Sironcha in the South. The 2005 All India Census shows presence of 49 Tigers in the Chandrapur District. From Gadchiroli District also 6 tigers have been reported in 2005 census. Thus there is a free flow of genes in Tiger population of this area.

The 2010 All India Census shows presence of 69 to 74 Tigers in the Tadoba-Andhari Landscape. This furthers prove the contiguity of forest in the landscape.

2. Vegetation:

Bamboo occupies 41% of the area of TATR. This forms and excellent fodder and cover for the animals. Bamboo had gregariously flowered in the year 1982 and there has been a thick cover of Bamboo in the open forests. The green leaves as well as tender shoots of Bamboo are relished by all the herbivores including Languor and Wild boars.

2.01 Bamboo flowering look place in 1982. Next bamboo flowering of *dendrocalamus strictus*, may take place after 35-40 years of last flowering. Therefore a strategy in case of gregarious flowering as it will affect habitat, cover, forage and threat of fire will be as follows.

1) As soon as gregarious flowering in noticed this will be reported to PCCF (Wildlife) and NTCA, and further guidelines regarding tackling of issue will be solicited.

2) In case of gregarious flowering. The area will be strictly fire protected.

3) The dead culms will be removed or burnt with the permission of authority.

4) The regeneration of new bamboo plants will be protected.

5) The water conservation works for new bamboo plants will be taken up.

3. Water Sources:

Big lakes like Tadoba, Kolsa, Telia and perennial streams like Andhari, Bhanuskhidi etc. provides very good water source even during the pinch period of May-June.

4. Inviolate Area:

There is not a single village in Tadoba National Park. The Andhari Wildlife Sanctuary also has five small villages which are in the process of rehabilitation.

6.6 Weaknesses:

1. A large number of villages outside:- There are 53 villages within five kilometer from the border of TATR. 19 Villages are within 1 kilometer from the boundary of TATR. These villages have some direct or indirect influence on the TATR. There is no buffer in the West and North- East of TATR which poses threat to the wilderness of TATR.

2. Large beat size:- The present average beat size of TATR is 18 sq. km. which causes stress in on the protection of the sensitive areas.

3. More number of entry points:- Presently there are 6 entry points namely Khutwanda, Moharli, Zari, Pangadi, Piparheti and Navegaon. More number of entry points poses difficulty in controlling tourism with limited staff.

4. Cadre management with territorial circle:- The wildlife management is different from general forest management. Wildlife staff needs a different attitude and skill. The field staff posted in the TATR learns the skills and by the times they pick up the skill they are transferred out. The newly recruited/posted staff has to be groomed again.

5. The strength of Staff is also less to protect the forests and regulate/manage tourism.

6.7 Opportunities:

1) The shifting of villages outside will create inviolate spaces for wild animals and the village sites will form meadows. This will increase the population of herbivores and also Tigers.
2) The declaration of buffer has further strengthened the wild life conservation in outside areas. This will also form an additional tourism area and ecotourism activities can be taken up in these areas also.

3) Vicinity of Nagpur and Chandrapur gives enormous opportunities for wild life and bio diversity studies and research.

4) The increased tourism will give more employment to adjoining villages in the form of tourist guides, tourist resorts etc.

6.8 Threats:-

1) There is constant threat of poaching of Tiger by organized gangs like Bahelias as is evident from the trap recovered on the peripheral areas of Park in 2003, 2004 and 2006.

2) Dependencies of many villages in vicinity of Core for removal of Bamboo and other forest produce from Core can reduce the quality of habitat.

CHAPTER – 7
MANAGEMENT STRATEGIES

7.1 Delineation of Critical Tiger Habitats and Inviolate areas

As per the provision of the Wildlife (Protection) Amendment Act, 2006 No. 39 of 2006 dated 3rd September 2006, Section 38V (4) (i) the expression Tiger Reserve includes Core or Critical Tiger Habitat areas of National Parks and Sanctuaries, where it has been established, on the basis of scientific and objective criteria that such areas are required to be kept as inviolate for the purposes of Tiger conservation, without affecting the rights of the Scheduled Tribes or such Other Forest Dwellers, and notified as such by the State Government in consultation with an Expert Committee constituted for the purpose.

The State Government have issued a notification no. WLP-10-07/CR. 297/F-1, dated 27th December 2007. As per this notification, following areas of TATR have been declared as Critical Tiger Habitats.

Sr. No.	Tiger Reserve and Its constituent National Park/Sanctuaries	Area (Sq.kms)	Notification No.
1)	Tadoba National Park	116.55	Madhya Pradesh Act No. VII of 1955.
2)	Andhari Wildlife Sanctuary	508.85	No.WLP1086/CR75/F-5(III), dated 25/2/1986
	Total for TATR	**625.40**	

7.2 Zone and Theme Approaches to Management Strategies:-

7.2.1 Zone Plans:-

Following different zone plans are proposed:-

1. Zone Plan for Voluntary village relocation :-

A) Relocation Work :- The areas having villages which are due for relocation as per enquiry report of resettlement officers are put under this zone.

In order to create inviolate areas remaining 4 and 1 part (Kolsa) villages needs to be shifted. A detail of families to be shifted is as follows:-

Article II. Details of families to be shifted:-

Sr.	Village	No of families			Land holders	Landless	Total population
		Tribal	Non tribal	Total			
1)	Kolsa (Part)	93	4	97	71	26	347
2)	Palasgaon	116	34	150	110	40	400
3)	Jamni	134	62	196	166	30	500
4)	Rantalodhi	134	2	136	98	38	350
5)	Ramdegi	--	197	197	188	9	400

These villages are to be shifted under "Maharashtra Project Affected Persons Rehabilitation Act 1999" and Government of India scheme.

As per section 18A of Wildlife (Protection) Act 1972, till right of affected persons of above villages are finally settled exiting nistar rights recorded in the village records on the protected forest of concerned village are being continued. While proceeding for relocation the provision of Wildlife (Protection) Act 1972 read with Schedule Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 should be strictly followed.

The prioritization for relocation of villages and its tentative schedule will be as follows :-

1) Ramdegi :- 2012-13, 2) Jamni :- 2013-14, 3) Palasgaon :- 2014-16, 4) Rantalodhi :- 2015-17, 5) Kolsa part :- 2017-18, (N.B. :- As relocation is a voluntary the time limit depends on the willingness of the villagers)

In addition to above, Katezari (Non-occupied) village is also there in Sanctuary. There is ownership land of only two people to the extent of 1.40 ha, who needs to be compensated for their land which is enclaved in Wildlife Sanctuary. The process is under progress.

B) Relocated village site management:

The areas of rehabilitated villages like Botezari also need separate prescriptions to develop them as meadows. The extent of areas is as follows:

Sr. No.	Village	Cultivation (ha.)	Other Govt. Land (ha.)	Abadi (ha)	Total (ha)
1.	Botezari	33.85	30.65	0.41	64.91
2.	Kolsa	64.13	95.32	7.80	167.25
3.	Palasgaon	56.51	10.62	1.94	69.07
4.	Rantalodhi	40.46	53.59	5.50	99.55
5.	Jamni	78.73	34.94	1.89	115.56
6.	Navegaon (Ramdegi)	168.88	13.57	12.35	194.80
	Total	**442.56**	**238.69**	**29.89**	**711.14**

As soon as these villages are voluntarily relocated, the village sites will be leveled by bulldozing the standing structures. Some of the Government buildings like *Panchayat Bhawan*, Community hall, Schools etc. if required may be retained as patrolling camps. Existing open wells to be provided with parapet walls. The paddy bunds of agriculture lands will be removed and the area will be taken up for development into meadows. The area will be ploughed and suitable grass seed will be sowed. If required some fruit trees like Ber (Zizyphus), Wad (Banyan) will be planted. The area may be closed periodically in blocks by chain link fencing.

2. Zone Plan for Unique Habitats :-

These zone plans include all unique portions of the habitat having caves, dens, wetlands and riparian zones. The list of caves, dens and burrows is given in Appendix – XX. The major wetlands inside the Core are Tadoba lake, Telia lake, Mahalgaon lake, Kolsa lake, Jamni lake, Sukri lake, Pipri lake and Khatoda lake (Pahami beat).

No intervention of any kind is required in such areas and the purpose of putting them under a zone plan is to ensure complete tranquility to such areas through day to day monitoring and protection. The patrolling camps of the beats having such unique habitat should monitor every alternate day and should record it on patrolling register. Forester and Range Forest Officers of concerned area should visit such unique habitat when on patrolling in that beat.

3. Zone Plan for Eco Tourism:

a) Objectives of eco-tourism :-

The main objective of managing this Tiger Reserve is in situ conservation of Tiger and its habitat. Tourism is only a by product of conservation goals. The tourism in its traditional form is not acceptable in wildlife areas. So Eco-Tourism concept is put forth for wildlife conservation areas.

According to the definition and principles of eco-tourism as established by the International Eco-Tourism Society (TIES) is "Responsible travel to natural areas that conserves the environment and improves the well being of local people". So the Eco-Tourism activities should follow the following principles.

- Minimize impact.
- Build environment and cultural awareness and respect.
- Provide positive experience for both visitors and hosts.
- Provide financial benefits and empowerment for local people.
- Raise sensitivity to host countries' political, environmental and social climate.

To achieve the above principal in letter and spirit. The detailed Eco Tourism Plan which provides for the strategies to be adopted as per NTCA guidelines dated 15th October 2012 is prepared and attached to TCP as Volume – IV.

b) Regulation of tourism in Eco-Tourism zone of Core of TATR:

As per Eco Tourism Plan less than 20% area of core is permitted for low impact eco-tourism and following regulations have been prescribed.

- Core Management should not manipulate habitat to inflate animal abundance for tourism purpose.
- The water holes, cement-troughs should not be constructed near tourists routes but should be constructed away from road. The existing such cement troughs should also be abandoned within next 2 years and new cement troughs if needed should be constructed away from tourist routes.
- Visitor shall keep a minimum distance of more than 20 meter from all wildlife.
- Cordoning, luring or feeding of any wildlife in eco-tourism zone by any person is prohibited.

7.2.2 Theme Plans :

A) Theme Plan for Protection:-

1. Boundary Demarcation: Most of the areas of Reserve Forests have already been demarcated. Some Protected Forests areas also have been demarcated. The remaining areas of Protected Forests will be demarcated. Demarcated area shows presence of some encroachments. The remaining areas are also likely to have some encroachments. Necessary action will be taken as per existing policy and guidelines about the encroachments.

The demarcated areas will be maintained under $1/5^{th}$ boundary demarcation scheme by repairing/replacing broken pillars (**Appendix–XL).**

Some revenue areas (*Khadak Pahad*) have been transferred from Revenue Department and it needs to be surveyed and demarcated. These areas will be surveyed and demarcated on priority.

2. Illicit cutting :- Illicit cutting of timber is negligible but illicit cutting of Bamboo is found around the inside villages like Palasgaon and Rantalodhi and fringe villages like Piparheti, Karwa, Kolara, Wadala, Khutwanda, Moharli etc. In spite of the efforts of the staff, people sneak in the peripheral areas for Bamboo. Many people earn their livelihood by making mats. The problem of inside villagers will be over with their shifting. Fringe villages will have to be provided with alternative livelihood options. They will have to be trained in making value added products like handicraft articles of Bamboos etc.

3. Poaching:- Though poaching cases in the Core are very few, the threat of poaching is always there especially in the fringes. The present system of foot patrolling by camp (*Kuti*) labourers will be continued. The reorganization of beats by creating 50 additional beats will substantially improve protection status of the area (**Appendix XLI).** The water holes should be monitored regularly while on patrolling at the same time existing open wells needs to be provided with parapet walls.

4. Grazing:- The cattle of inside 5 villages depend on the Sanctuary area for grazing. The grazing will be regulated by restricting them in the compartments adjoining to villages till the villages are relocated. The grazing in the peripheral areas will be controlled by strict vigilance in the border areas. Some Reserve areas are directly exposed to revenue areas and hence protective wall fencing is proposed around the area. The total length of wall is about 60 km. The approximately cost is Rs. 12 lakh for 1 km. The total cost is Rs. 720 lakh. The year wise proposed length is given in **Appendix LXVI.** This wall will not only stop grazing, it will also ensure protection of surrounding agricultural crops from raiding by wild animals and thus reduce conflict.

5. E-Surveillance :- Surveillance of Western, North Eastern boundary and few places on South Eastern boundary are required to be done by using electronic devices, on the basis of e-surveillance started in Corbet Tiger Reserve, Uttarakhand. A preliminary survey and cost estimation has been done by Binomial Solutions (An agency who is working in Corbet TR). Report is attached as **Annexure – XLIV.** MS-STRIPES protocol with digitalized/ customized facilities in the GIS domain should be followed as designed by NTCA/WII.

6. Annual Security Plan :- A plan for details of protection strategies to be implemented in Monsoon and other season should be prepared annually as per "Generic guidelines for preparation of Security Plan for Tiger Reserve" issued by NTCA. The Annual Security Plan should include following strategy.

a) Intensive Patrolling of Beats:- The Core of TATR has a network of 22 strategically located patrolling camps. A forest guard is in-charge of a patrolling camp, and is assisted by 2 or 3 local labourers. This staff should be made responsible for patrolling their beat intensively and for round-the-clock alertness to deal with any eventuality. Each beat should be intensively patrolled daily for detecting snares, traps, poisoning, intrusion, illicit felling, illicit grazing, and preventing chances of electrocution etc. While patrolling unique habitat (caves, dens, wetlands and riparian zones) of the beat should be regularly monitored. The description of daily patrols should be clearly entered into the prescribed camp registers and be checked by officers from time to time.

b) Routine Foot Patrolling: The importance of foot patrols in the Core of TATR need not be emphasized. Regular foot patrols enable the frontline staff to stay close to ground realities. It is only during these foot patrols that the incidents of snaring, trapping, the poisoning of saltlicks and water pools and laying out of wires for electrocution come to light. In view of the above, Forest Guards along with labourers should patrol their respective beats regularly. These patrols should also be joined by various ranks of officers from time to time. The regular foot patrolling by officers in the Tiger Reserve in the light of the ever-increasing biotic pressure, besides inspiring the patrolling staff, this also lends a psychological restraint over the surrounding villages.

c) Night Patrolling:- The Park Management has also learnt from past experience that in spite of obvious dangers, offenders also sneak into the protected areas in the late evening or at nights. Therefore, if patrols are not conducted in the late evening and at nights, the protected area may have to incur serious losses despite effective protection in the day time. The Park Management should ensure that the frontline staff including officers should also remain active for a few nights every month. Night patrols in the National Park should comprise the following:

- **On Foot:** At least 3 hours per night after 7:00 pm and from 4.00 am to check all the vulnerable spot/sites/ activities.
- **By Vehicles:** At least 4 hours per night after 10:00 pm to check barriers, watch tower, foot paths and patrolling camps.
- **Night Halt at Camps:** The patrolling camp staff and officers on patrolling should make night stays at patrolling camp. Night stays at patrolling camps by officers not only lend confidence to the staff but also provide a chance to understand the protected area at night.

d) Patrolling of Sensitive Areas: The Park Management should also update the list of sensitive areas that need to be specially patrolled during the dry season. The identification of these areas should be based on old crime spots, problematic villages and knowledge/ experience of the frontline staff. These sensitive areas generally include natural saltlicks, areas below electric lines, shallow and small water pools and peripheral areas near problematic villages. The Park Management should ensure that these areas are mapped out, and special patrols are carried out by the frontline staff of the respective forest ranges to pre-empt and counter intrusions into the protected area.

e) Prevention of Poaching by Iron Traps: Though the use of iron traps (jaw traps) is common in the tiger bearing areas. From December, 2003 to January 2006, three incidences of laying jaw traps by Bahelias in Tadoba range (Wakada behada, Satyacha waterhole and Alizanja road) was detected by forest guard while patrolling in late evening and early morning and harm was fortunately averted. The Park Management should ensure that poachers, particularly nomadic tribes (Bahelias and Pardhees), dare not to sneak into the Core of TATR and set jaw traps for tigers and panthers. The following guidelines are suggested to prevent the poaching of tigers/ panthers by iron traps:

- Range officers should always be in constant touch with the nearest police stations to have prior knowledge of the camp-site of nomadic tribes, the duration of stay, and total number of adult males and females etc.
- It also requires excellent coordination between the range officers of the Core and Buffer of TATR, as the nomads may try to pitch their camps near or in the Buffer.
- These people should never be allowed to pitch their camps in the Buffer Zone area as well.
- Every forest guard should have good knowledge of forest roads, tracks, and dry nullah beds recording movements of tigers.
- Generally, poachers set these iron traps on the above areas of tiger movements in such a way that there is a maximum possibility of a tiger putting his foot on the iron trap. To ensure this possibility, the poachers create such obstructions (thorns and thorny bushes etc.) that tigers/ panthers have to avoid these paths and are automatically led onto the one where the iron trap has been fixed.
- These poachers have good knowledge about the length of the step and stride of animals, and they can even set 4-6 iron traps on a single path.
- Sometimes poachers may also place a kill at the head of a "V" area whose both arms are obstructed by thorny bushes. The tiger is attracted by the kill and is led towards the kill through these thorny arms and gets trapped in the iron trap.
- Every forest guard should very cautiously look for this iron trap continuously for two days in his beat at least once in fifteen days.
- If a forest guard ever comes upon an iron trap or the above signs of leading a tiger to a specific place, he should immediately inform his higher-ups, and watch over the iron trap so that no animal may be trapped.
- The Park Management should ensure that every forest range has an updated list of villagers whose occupation is iron-smithy.

f) Footpath Surveillance:- The footpaths and tracks in the Core area should also be kept under continual surveillance by the field staff. The people of the surrounding villages tend to try their luck at sneaking into the protected area and grabbing their hands on any article/ produce of wildlife and forest saleable in the market to buy their petty requirements. Therefore, surveillance is conducted specially before the market days to discourage the tendency.

g) Saltlick Checking:- The Deputy Director Core should update the list of natural saltlick spots where herbivores aggregate frequently. Habitual poachers have very good knowledge of such spots. The poachers urinate over these spots to enhance their odour and attract wild ungulates. They also mix capsules of poison with soil. The wild ungulates either get killed by swallowing poisoned capsules or get trapped and are physically killed by poachers. Such spots should be very frequently checked by the frontline staff.

h) Waterhole Checking:- As the water bodies of the Core attract all types of animals, water samples should be frequently analyzed for poison and other fatal toxicities. The Deputy Director Core should always prepare an updated map and list of all such sensitive waterholes. All these sensitive waterholes should be frequently checked in the pinch period by the field staff to prevent poaching on these restricted waterholes.

i) Checking for Electrocution:- There are few areas in the core across which high voltage (11 KV) electricity line pass over. The total length of such electricity lines in the core area is around 42.80 km. Experience poachers know about such areas where wild ungulates can be easily electrocuted. They use several methods to electrocute wild ungulates in these areas. The Park Management should ensure that these areas are frequently patrolled so that the poachers may not kill the animals through electrocution. Besides, efforts are also made at the government level to get the entire such lengths of electric line insulated.

j) Patrolling by Special Tiger Protection Force (STPF): As per the guidelines issued by the National Tiger Conservation Authority, New Delhi, a Special Tiger Protection Force have been constituted to strengthen and give an effective thrust to overall protection in the Tadoba-Andhari Tiger Reserve. The Special Tiger Protection Force has been deployed at three places and has been assigned the area of core so also the Buffer for patrolling as follows :-

Sr. No.	Name of STPF Unit	Assigned area for patrolling				
		Core		Buffer		Total
		Range	Area (sqkm)	Range	Area (sqkm)	
1	Tadoba	Tadoba	224.13	Khadsangi	72.54	405.96
				Palasgaon	109.29	
2	Moharli	Moharli	197.78	Moharli	116.09	486.90
				Chandrapur	173.02	
3	Pangdi	Kolsa	200.96	Shioni	117.07	427.35
				Mul	109.32	
	Total		**622.88**		**697.33**	**1320.21**

Each of the above three STPF units consist of one Range Forest Officer, 27 Forest Guards, 9 Forest Watcher. An ACF (Assistant Conservator of Forests) is in-charge of the overall command of all the three STPF units. The ACF is having his headquarters at Moharli. The Range Forest Officer will command a platoon of 27 Forest Guards, 9 Forest Watcher. All the three Forest Rangers will be stationed at the head quarter of their platoon as shown above. Each STPF unit is provided with a truck/bus/troop carrier and a jeep. While the units will be required to undertake foot patrolling in their respective areas, vehicles will be used to carry personnel, tents, mess items etc. and to reach distant places of their stay within their respective areas. The work of the STPF should be critically reviewed every week by Divisional Forest Officer (Vigilance) in the office of Field Director and once in a month by Chief Conservator of Forests & Field Director, Tadoba-Andhari Tiger Reserve, Chandrapur regularly.

k) Monsoon Strategy:- This special protection strategy should be adopted during the rainy season and its preparations, including the assignment of duties and a monsoon patrolling booklets with prescribed formats for the review of progress etc. should be completed by the end of June. During the rains most of the area of core is rendered inaccessible for regular patrolling by vehicles. The people of the villages in and around the Core know perfectly well about the difficulties of the Park Management. Besides, as the economic condition of the surrounding villages comes down, more or less, to the lowest ebb, the probability of intrusion/ pilferage in the peripheral areas increases manifold. The monsoon strategy should include the following:

- **Elephant Patrols:** There are three elephants stationed at Moharli. **These** elephants should be used for patrolling in the monsoon season by shifting their camp to Khatoda and Bhanuskhindi to patrol the inaccessible area of Tadoba (Khutwanda, Ghosri, Wadala, Ashta and Arjuni beat) and Moharli (Khatoda and Palasgaon beat) ranges. Elephant squad has to be comprised of, (besides an elephant, Mahout and Characutter), around 6 to 8 tiger task force labourers along with beat guard. At times STPF forest guards should also be involved in elephant patrols. Elephant squad has to be equipped with mobile sets, GPS and if required with arms. The squad is required to patrol above designated vulnerable areas of the Core frequently, and submit their progress in the prescribed format. The respective Range Forest Officers should ensure that the elephants have to patrol the designated area intermittently at least 15 days a month. The Officers should also join these squads from time-to-time.

- **Surveillance of Footpaths & Sensitive Areas:** The intrusion of the people of the surrounding villages should be effectively controlled during the rains by the Park Management. Offenders/ criminals tend to use footpaths/ tracks to intrude into the Core during the monsoon to spare themselves the difficulties of rain affected terrains and hindrances and obstructions of shrubs and bushes. Therefore, it is of

vital importance that all these tracks and footpaths leading deep into the Core are continually kept under surveillance. Besides, there are many identified sensitive areas that need special patrols by the frontline staff and labourers. These sensitive areas should be intensively patrolled at least 15 days a month. Besides, as appended, officers should also join these patrols every month, and the strategy is reviewed periodically under the prescribed format.

- **Control on Illicit Grazing:** The availability of ample vegetative biomass in the Core during the monsoon also attracts the cattle of the surrounding villages for grazing. Besides, the people of these villages also tend to drive their livestock into the Core to make the most of this productive season. The field staff should enforce strict control on illicit grazing. The Deputy Director Core should deploy sufficient labourers among available work force to assist the frontline staff for the effective control of grazing by livestock.

- **Temporary Patrolling Camps:** The Deputy Director Core should identify such far-flung areas in the Core that become sensitive due to their relative inaccessibility and resultant neglect in protection. Temporary patrolling camps should be established in such areas during the monsoon so that no major part of the Core is left unpatrolled/ unprotected. The supervisory officers should ensure to stay overnight at these camps monthly as prescribed in the monsoon plan.

B) Theme Plan for Fire Protection :-

The fire protection of Core is presently taken up by FDCM Ltd. under their *Modern Fire Fighting Project.* This project is having two special Range Forest Officer and 13 Forest Guards along with vehicle, fire engines and wireless network. Following network of fire breaks (lines) should be created every year before start of fire season (15th Feb.). The details of fire lines are given in **Appendix – XLIII.**

Range	Sector No.	Sector Name	Length fire line				
			20 meter wide	**13 meter wide**	**10 meter wide**	**5 meter wide**	**Total**
Tadoba	1	Ramdegi	0	52.845	52.147	0	104.992
	2	Kolara	0	51.057	32.500	0	83.557
	3	Tadoba	34.293	40.935	41.707	0	116.935
	4	Palasgaon	0	33.970	18.500	0	52.470
	5	Khutwanda	4.082	30.718	9.168	0	43.968
	6	Karwa	0	0	61.391	12.529	73.920
		Total	**38.375**	**209.525**	**215.413**	**12.529**	**475.842**
Kolsa	7	Naleshwar	0	0	78.670	0	78.670
	8	Rantalodhi	0	0	94.360	0	94.360
	9	Botezari	0	0	110.450	0	110.450
	10	Kolsa	0	0	85.742	0	85.742
	11	Dewada	0	0	86.538	0	86.538
	12	Moharli	0	0	77.170	0	77.170
	13	Peth	0	0	119.271	0	119.271
		Total	**0**	**0**	**652.201**	**0**	**652.201**
		Grand Total	**38.375**	**209.525**	**867.614**	**12.529**	**1128.043**

The cutting of fire lines should be started from 1st Dec. and complete till 31st Dec. After drying the stuff, controlled burning of fire lines under strict supervision of Forest Guard should be completed up to 15th Feb. every year. Once fire season starts from 16th Feb. hotshot crew consists of 8 to 10 labourers should be deployed at strategic places in each sector. Each sector should be provided with fire fighting instruments and wireless handset. A vehicle having capacity to carry 20 persons should be kept ready 24 x 7 at each range head quarter. The protocol to report each fire as standardized by modern fire fighting project should be strictly followed.

C) Theme Plan for Habitat Interventions :-

1. Existing meadow management: - Existing meadow like Pandharpauni, Khatoda, Hirdi *nala* etc. needs continuous management. These meadows will be periodically closed in patches as exclusion plots. The shrubs invading the meadows will be uprooted annually. The areas of existing meadows are as follows:-

Pandharpauni	:-	60 Ha.	Navegaon (Ramdegi)	:-	168.88 ha.
Khatoda	:-	40 Ha.	Jamni	:-	78.73 ha.
Hirdi nala	:-	4.5 Ha.			

Sufficient areas under meadow become available with the above 352.11 ha. meadows created after relocation of 2 villages and Kolsa part. These meadows are to be worked up to 5 year to avoid encroachment of woody vegetation over grasslands, as an when necessary to maintain these areas as meadows.

As per final technical report of project *Mapping of National Parks and Wildlife Sanctuary* by Ambica Paliwal, WII 2008 the density estimate of wild ungulates in TATR is as follows :-

Ungulate Species	Tadoba National Park	Andhari Wildlife Sanctuary		Overall TATR
	Northern Zone	Central zone	Southern zone	
All ungulate	50.11 (± 7.1)	35.4 (± 5.7)	33.43 (± 4.6)	40.2 (± 4.3)
Chital	29.15 (± 7.2)	19.31 (± 6.9)	6.1 (± 2.4)	21.2 (± 4.1)
Sambar	9.4 (± 2.2)	4.76 (± 1.4)	1.4 (± 0.44)	7.67 (± 1.3)
Nilgai	3.9 (± 1.2)	1.69 (± 1.28)	2.1 (± 0.97)	3.2 (± 0.75)
Wild pig	13.72 (± 3.8)	8.5 (± 4.5)	7.6 (± 3.9)	10.3 (± 2.5)
Gaur	1.27 (± 0.86)	4.9 (± 4.12)	11.5 (± 4.3)	7.04 (± 1.65)

It is concluded from this study that "*TATR harbours high ungulate prey base and has the potential to accommodate higher density of predators making it comparable to few of the best remaining tiger reserve of India."* So a provision for new meadow creations is not required. The carrying capacity of TATR is calculated on page No.36

2. Soil Conservation Works: The area of Reserve is quite well covered and hence erosion is not much. However, there are some undulated and hilly areas where natural erosion takes place. These areas are proposed to be taken up annually and works like contour bunding etc. taken up. The small *nallas* will be tackled with *nullah* bunds. Some dry areas like Piparheti may be tackled by constructing small earthen bunds across the gullies. This work can be taken up by constructing vegetative check dams. This will intercept the flowing water and increase percolation of water. The *nallas* are expected to flow for longer time due to this work. A statement showing areas to be tackled under sail conservation work is given in **Appendix XLV.**

The areas of Protected Forests are more prone to erosion due to human activities like grazing and needs to be tackled on priority by taking similar works.

3. Maintenance of water holes: The existing water holes will be maintained by annual cleaning and de-silting. The major water holes will be desalted once during the plan period. The sequence of the annual work is given in **Appendix XLVI.**

4. Creation of new waterholes: It is proposed to create new waterholes including new bore wells in areas like Piparheti and where there are gaps. Help of satellite imageries will be taken to find out the possible sites in the ephemeral *nullah* like Upasha nullah suitable structures like 'inverted *bandhara*' will be taken up so that the water in the *nala* lasts for more number of days.

D) Theme Plan for addressing Human Wildlife Conflicts :-

Cases of human wildlife conflicts are negligible in Core, but active involvement of Core management is required to handle the situation. A trained dedicated team of Foresters and Forest Guards headed by Range Forest Officer (Research) should be constituted in the Core having all rescues and tranquilizing equipments with suitably modified four wheel vehicle. The emergencies in case of human wildlife conflict will be dealt with by following **Standard Operating Procedure (SOP)** laid down by National Tiger Conservation Authority vide their letter No. 15-37/2012/NTCA, dated 30th January, 2013. The detailed theme plan for addressing human wildlife conflicts is provided in Volume-II (Buffer plan), as human wildlife conflicts is very sensitive in buffer area.

E) Theme Plan for Tiger/ Wildlife Monitoring:

The monitoring of tiger and other wildlife should be done as per Phase-IV monitoring protocol as mentioned in Chapter-9 and **Appendix – LII.**

The phase-IV monitoring protocol provides for

Part-A: - Maintaining daily Patrolling log in patrolling camp/ *chowki* registers.

Part-B: - Carrying out beat-wise monitoring of signs and encounters of animals/ vegetation/ habitat disturbances following Phase-I protocols twice a year

Part-C: - Recording data from 'Pressure Impression Pads' (PIP)

Part-D: - Obtaining the minimum number of Tigers in the Tiger Reserve by using camera trap for minimum 45 days.

Part-E:- Obtaining Tiger population size for the Reserve using spatially-explicit Capture Recapture framework and Obtaining prey population size using Line Transect sampling.

Part-F: - Using scats for DNA analysis to obtain the minimum Tiger numbers in Reserves where camera trapping is not possible.

CHAPTER – 8
RESEARCH, MONITORING AND TRAINING

8.1 Research Priorities:

Research is an important and integral part of wildlife management. Research is important for improvement of management. The research in following areas, on priority, is essential for Tadoba-Andhari Tiger Reserve:

1) Demographic studies on tiger, co-predator and prey.
2) Habitat management.
3) Tourism and its impact on the habitat.
4) Man animal conflict and its mitigation.
5) Survey of Flora and Fauna.

8.2 Research Projects:

Following projects are proposed to be taken up on priority:

I) Study on breeding of Tiger, Distribution of grown up cubs and Territory of different Tigers.

II) Study of Crocodiles - Breeding, habitat, population

III) Study of Aquatic fauna especially turtles.

IV) Study of Cattle lifting by Tigers.

V) Study of impact of tourism on Habitat.

VI) Study of regeneration of selected species in P.A.

VII) Study of bamboo congestion and area used by wildlife.

VIII) Effect of fires on grasses.

IX) Effect of grazing by domestic animals on wild animal population.

X) Study of unexplored flora of Tadoba National Park as well as Andhari Wildlife Sanctuary.

XI) Study on Insects specially butterflies.

8.3 Monitoring Framework:

Monitoring is a continuous process in management. Following things needs to be monitored continuously:-

1) Animal population estimates.
2) Existing preservation plots and sample plots.
3) Wildlife health
4) Dependency of people on P.A.
5) Wildlife tourism.
6) Sources of water.

8.4 Training Needs Assessment:-

Training is required at all levels to update the staff about improved techniques of management and also to refresh/update the staff about existing acts, rules, regulations, techniques etc. Visits to other PAs in the state and outside states are also proposed as such visits broadens horizon of the staff and they also learn better management practices elsewhere.

A short term training module in wildlife management is also proposed for the field staff Forest Guards & Foresters of the adjoining territorial divisions for the training module is given in **Appendix – LI**.

On the job training like bird watching, recognizing /interpreting animal, tracks, signs, identification of plants, processing of offence cases, gathering of evidences etc. will be arranged.

8.5 HRD Plan :-

The present staff is inadequate to manage the growing pressure of protection and tourism. Though STPF has been constituted but reorganization of range, round and beat is still necessary. Also special staff for tourism management is necessary. Hence following new posts need to be created:-

(1) One Range Officer for tourism and two Range Forest Officers for reorganized ranges.

(2) One Veterinary Doctor.

(3) One Junior Engineer

(4) Three Forester for tourism, Six Foresters for reorganized new rounds.

(5) Six Forest Guards for tourism, Fifty Forest Guards for reorganized new beats.

CHAPTER – 9
TIGER POPULATION AND HABITAT ASSESSMENT

Monitoring status of Tigers, co predator, prey base and evaluating habitat quality constitutes of the most important components of the conservation plan. The existing methodology of Tiger estimation has been reviewed and refined methodology has been developed by NTCA. Now Tiger population estimation is being carried out as per Phase-IV monitoring protocol.

A) Conventional method of census in TATR for carnivores: The conventional method followed for carnivore (Tiger/Panther) census in TATR, as given under:

The exercise is done in the month of April/May, 5 days preceding *Buddha Purnima*. The park is closed for tourist during these days. The forest (road, footpath, nala bed etc.) of all the beats used by the Tiger/Panther are searched for pugmarks daily before the movement of people/ vehicle etc. This exercise is done by field staff in their respective beats; NGOs willing to participate are also involved. Where required, pug impression pads are also made before the work starts. Daily reports with tracings, casts, strides or any other evidences are made. Because of daily monitoring the staff is quite well versed with the techniques of tracing correctly due to this the census figures of TATR (pugmark method) matches fairly will WII/NTCA figures.

For Herbivore: For herbivore census waterhole *count* method is followed. In the summer normally *Buddha Purnima* (Full moon day) which falls in April/May, field staff with NGO volunteers sits on the Machan near waterholes and observe the number of herbivores visiting waterholes for drinking. This method also gives fairly good idea of numbers.

B) Phase-IV monitoring Protocol: This refined new methodology has been adopted by the National Tiger Conservation Authority (NTCA) in its guidelines of April 2012. The details of the methodology are given in **Appendix – LII**. Brief of it is given below:-

Part-A: - Maintaining daily Patrolling log in patrolling camp/ *chowki* registers.

Part-B: - Carrying out beat-wise monitoring of signs and encounters of animals/

vegetation/ habitat disturbances following Phase-I protocols twice a year

Part-C: - Recording data from 'Pressure Impression Pads' (PIP)

Part-D: - Obtaining the minimum number of Tigers in the Tiger Reserve by using camera trap for minimum 45 days.

Part-E:- Obtaining Tiger population size for the Reserve using spatially-explicit Capture Recapture framework and Obtaining prey population size using Line Transect sampling.

Part-F: - Using scats for DNA analysis to obtain the minimum Tiger numbers in Reserves where camera trapping is not possible.

C) Monthly Return for death of wild animals:-

A monthly report about death of wild animals should be prepared in following proforma by Range Forest Officers of each range and should be submitted to Field Director through Deputy Director. Field Director will further submit it to NTCA and Chief Wildlife Warden.

Sr. No.	Division	Range	Place of offence RF/PF/Other Govt./Pvt. area (Specify)	Name of agency (Forest/RDD/ Police/CBI etc.)	Name of Species their No. with sex (M/F)	Scientific Name	Schedule to which it belongs
1	2	3	4	5	6	7	8
--	--	--	--	--	--	--	--

Cause of Death			WL articles seized (skin/bones/antlers & others) specify	Other Items Seized (tools, weapons, vehicle)	P.O. R. No.	Date	Act. & sections under which offence was registered	Present status of the case. Give details	Remarks
Natural	Accidental Specify	Poaching Trapping/ Poisoning/ Electrocution/Other methods-specify							
9	10	11	12	13	14	15	16	17	18
--	--	--	--	--	--	--	--	--	--

[Ref: - The Director (Project Tiger), Ministry of Environment and Forests, letter No. PS/ IGF (PT)-Misc, Dt. 11/3/2006.]

CHAPTER – 10
PROTECTION AND INTELLIGENCE GATHERING

10.1 Tiger Cells:-

Tiger Cells have been established at the State level under the Director General, Police Maharashtra State with PCCF (Wildlife), Maharashtra State as Co-Chairman and CCF (Wildlife), Nagpur [upgraded as APCCF (WL), East Nagpur] as Member Secretary as per G.R. No. WLP-10-2000/C.N.10/F-1, Mumbai, dated 28th September 2006.

At regional level, Tiger cell have been formed with Special IG as Chairperson and C.F. (Wildlife) concerned as Member Secretary and concerned C.F. (Territorial) as Member.

For Nagpur Revenue Division DCF, Nagpur is Member Secretary and C.F. now CCF (Territorial), Nagpur, C.F. now CCF (Territorial), Chandrapur are Members as per PCCF (Wildlife), M.S. Nagpur letter No. Desk-23(B)/C.N./4288, dated 31st March 2001.

At District level, Tiger Cell is headed by Superintendent of Police and co-chaired by DCF (Territorial). The Vigilance DFO is Member Secretary of this committee.

The Tiger cell at Chandrapur meets regularly every month. The issues related to protection, seizures, patrolling strategies etc. are discussed in this meeting. There is a perfect coordination between Police and Forest/Wildlife wings regarding protection. With the initiative of Superintendent of Police, Tiger Cells have been formed even at Sub Divisional Levels which are attended by R.F.O.s.

10.2 Special Tiger Protection Force:-

Government of India (NTCA) vide his memorandum no. 15-5/2008-NTCA (part-I) dated 11th August, 2009 agreed to provide centrally funded Special Tiger Protection Force for Tadoba-Andhari Tiger Reserve consisting of one Assistant Conservator of Forests, Three Range Forest officer, 18 Foresters and 90 Forest Guards. The same has been sanctioned by Government of Maharashtra and recruitment of above staff has been

done. Government of India (NTCA) recently changed the structure of STPF and it new consists of one Assistant Conservator of Forests, three Range Forest Officers, 81 Forest Guards and 27 Forest Watchers.

10.3 Strategy for Protection and Communication:

All the roads of 274 km are repaired in October, November every year and they provide good communication system for staff. These roads, if strengthened, can be useful for patrolling and tourism. List of such roads proposed for up-gradation is given in **Appendix-XLVII.**

There are 22 protection huts in the Core area of Tadoba Andhari Tiger Reserve. A Forest Guard with 3 to 4 laborers camps at these Protection Huts and patrols the nearby forest areas. Also there are 22 barriers for checking the illicit cutting and poaching.

The present wireless system is being strengthened by adding mobile handsets in field. New towers are erected to further strengthen the wireless system. As soon as these towers are equipped with intermediate wireless station, the wireless system will start working with full capacity. The present system of wireless network is proposed to be supplemented by mobile phones for quick communication. The list of proposed mobile handsets is given in **Appendix-L.**

There are 14 vehicles in tiger reserve and all the RFO's, ACF and STPF is having independent vehicles for protection purpose. These vehicles are engaged in day and night patrolling of tiger reserve.

There is a proposal the construct compound wall along the western side of tiger reserve where the forest area of core is directly surrounded by agricultural fields and villages to mitigate man animal conflict and direct influence of people on the forest.

Presently there are no check posts at places like Bamangaon, Deori, Doni-Peth, Palasgaon-Madanapur road. Construction of check posts are proposed in view of controlling entries of villagers and protection.

10.4 Fire Protection:

The fire protection work is presently done by Forest Development Corporation of Maharashtra Ltd. A scheme called modern forest fire control was launched in 1984-85 with United States aids project, and was implemented by Forest Development Corporation of Maharashtra Ltd. In this scheme Forest Development Corporation of Maharashtra Ltd. cut and burned the fire lines in the then Tadoba National Park, Chandrapur, Bramhapuri and Central Chanda Divisions. The practice of protecting Tadoba National Park and Andhari Wildlife Sanctuary which are now the part of Tadoba Andhari Tiger Reserve is still going on under this scheme Forest Development Corporation of Maharashtra Ltd. is implementing fire protection from the funds given by Tadoba Andhari Tiger Reserve every year.

10.5 Intelligence Gathering and Coordination:-

There is a perfect coordination with police. The staff will be trained in intelligence gathering about wildlife crimes. The villagers also cooperate and convey the local staff if there is movement of any strange person in an around the Reserve. Government of Maharashtra recently sanctioned Secret Service Fund for Forest Department, vide Finance Department Notification No. MAAKHA-1011/CR.152/2011/Viniyam dated 22.01.2013 **(Appendix–LIII).**

CHAPTER – 11
ECO-TOURISM AND INTERPRETATION

11.1 Eco Tourism values of Tadoba-Andhari Tiger Reserve:

1) The area represents Southern Tropical Dry Deciduous Forests in the Tiger habitat. It has a viable population of 40+ Tigers with high frequency of Tiger sighting.

2) It is a mega-biodiversity site with large surrounding forest area and thus has a long term conservation value. It is gene bank of wild relatives of the cultivated species for future use.

3) Beside Tiger, it is abode to number of prominent wild denizens like Leopard, Wild dog, Sloth bear, Gaur, Sambar, Barking deer, Cheetal, Chausinga, Nilgai, Wild boar along with rare ones like Ratel, Flying squirrel, Pangolin and Rusty spotted cat. The continuity with forests of Chandrapur, Bramhapuri and Central Chanda Division enrich the conservation prospects of these species.

4) Vast bird diversity is of great interest along with diverse vertebrate species.

5) The tree clad forests, rolling grasslands habituated with spotted dears afford wonderful sights.

All these values make Tadoba-Andhari Tiger Reserve a favourite area for Eco tourism, interpretation and conservation education.

11.2 Objectives :-

The main objective of managing this Tiger Reserve is in situ conservation of Tiger and its habitat. Tourism is only a by product of conservation goals.

The tourism in its traditional form is not acceptable in wildlife areas. So Eco-Tourism concept is put forth for wildlife conservation areas.

According to the definition and principles of eco-tourism as established by the International Eco-Tourism Society (TIES) is “Responsible travel to natural areas that

conserves the environment and improves the well being of local people". So the Eco-Tourism activities should follow the following principles.

- Minimize impact.
- Build environment and cultural awareness and respect.
- Provide positive experience for both visitors and hosts.
- Provide financial benefits and empowerment for local people.
- Raise sensitivity to host countries' political, environmental and social climate.

This Eco Tourism Plan provides for the strategy to achieve the above principal in letter and spirit.

11.3 Do's and Don'ts for Visitor :-

Following Do's and Don'ts will be implemented for visitor entering Eco-Tourism zone of core. These restrictions are not exhaustive but inclusive. Field Director by order in writing can frame more such Do's and Don'ts as he feel necessary.

11.3.1 Do's :-

- Take authorized guide for each vehicle after paying fixed guide charges while on safari in Eco-Tourism zone.
- Keep distance of 50 meter in between two vehicles while in Eco-Tourism zone.
- Show your entry pass and identity card if demanded by tiger reserve authority at any time while on safari in core.
- Take paper bag with you and put all plastic/ garbage in it.
- Try to wear nature merging colour cloths to enjoy sighting of wild animals.
- The speed of vehicle on jungle safari should not exceed 25 km./ hour.
- The Safari vehicle should keep a minimum distance of 20 meters from all wildlife.

11.03.02 Don'ts :-

- Do not carry passenger more than permitted capacity of vehicle including driver and guide.
- Do not get down from vehicle at any place except at authorized places.
- Do not play any music instrument or play song on mobile or any other instrument while on safari.
- Do not lean out of vehicle or get down from one vehicle and board in other vehicle.
- Do not stay at a place for sighting wild animal for more than 5 minutes.
- Do not throw plastic or any object (bottle tin, packets) out of your vehicle.
- Do not overtake other tourist vehicle follow one way rules where applicable.
- Do not make noise while sighting the animal or otherwise.
- Switch off your mobiles and reverse horn of vehicle while on jungle safari in core.

Violation of any of above restriction will be penalized by fine not less than Rs. 500/- and may extend up to Rs. 2,500/-. In case violation is done by registered Gypsy/ canter owner or guide along with fine, his authorization to enter Tiger Reserve tourism zone will be suspended for minimum 7 days, which may extend up to one month. Any violation done by tourist should be reported to nearest park authority by tourist guide immediately failing he will be treated as violator himself.

A separate Eco-Tourism Plan is prepared as per NTCA guidelines dated 15.10.2012 and Maharashtra Government Resolution dated 09.11.2012 and 21.01.2013. As this plan should be treated as part of Tiger Conservation Plan as per NTCA instruction, detailed Eco-Tourism Plan is annexed as Volume-IV of the Tiger Conservation Plan.

CHAPTER – 12
MISCELLANEOUS ISSUES

12.1 Housekeeping of Departmental Elephants:-

Tadoba-Andhari Tiger Reserve is having 3 Elephants namely Gajraj, Sushila and Laxmi since 7/1/2004. The Elephants were procured from Sironcha Forest Division of South Chandrapur Circle. A post of *Characutter* was transferred along with these 3 Elephants. The Characutter was later promoted as Mahavat. These Elephants are used for patrolling during Monsoon when the communication by roads becomes difficult, especially in the Northern and Western boundaries which becomes vulnerable for grazing etc.

The Elephants are normally stationed at Moharli. They are also used for tourists to take a round in Park. During rains they are shifted to Northern parts and stationed at Bhanuskhindi camp.

The Elephants works in the morning from 8 to 11 a.m. and in the afternoon from 3 to 5.00 p.m.

In the evening the adult elephants are given:-

10 Kg. Rice

1 Kg. Jaggery

250 gm. salt

100 ml. Edible oil

The young one is given 50% of the ration

The Elephants are let loose in the night for feeding in adjoining forest area. In the morning the *Characutter* follows the Elephants by chain trail and brings the Elephants back to the camp. The Elephants are then made ready for work. Elephant Sushila gave birth to a male calf on 14.02.2013.

The Elephants suffer sometimes from injuries etc. and are treated by local veterinary doctors.

The Elephants also suffer foot cracks especially in drier season. The Elephants are given *chobing* treatment (pedicure) during this period. The Elephants are given complete rest and the feet/soles are treated with the decoctions of herbs. This operation is called *chobing* operation. An article on *chobing* operations written by Dr. A. R. Maslekar, Retd. PCCF is given in **Appendix – LIV.**

12.2 Amenities for Staff and Welfare Measures :-

12.2.1. Residential buildings for families: - Many of the frontline staff stays in the interior areas away from families. A family accommodation is proposed for such staff at convenient places where schools and other facilities are available.

12.2.2. School buses: - School buses are proposed for children of staff, including of STPF, to go to nearby towns for higher education.

12.3 GIS Management :-

Presently there is no GIS facility available in the office. It is proposed to establish GIS facility for effective management. It is proposed to purchase a Work Station and necessary software for this purpose. It is also proposed to provide field staff with devices like Persons Digital Assistants (PDAs).

12.4 Wildlife Health Monitoring:

As per S-33-A of Wildlife (Protection) Act, 1972 the livestock kept in or within 5 km of Sanctuary are required to be immunized and hence, the cattle are vaccinated regularly with the help of District Animal Husbandry Officer. This is to ensure to keep the wildlife free from contagious diseases spread from domestic animal.

Body Condition Scoring:

This will be introduced in this project area. The field staff will be asked to observe and monitor the general body condition of wild animal during their field visits. The front line staff will be trained by veterinary officer of this project regarding the Body Condition Scoring of wild animals. They will be asked to fill information in prescribed format is as below:

The format for evaluating Body Condition Score of wild animal

Name of the PA ……. Species ……

Division ……. Date ..……..

Range ……. Comp. /Survey No. ……

Age	Sex	Score given for observation of different Body parts									Total score	Remarks
		1	2	3	4	5	6	7	8	9		

Note :- 1) Shoulder, 2) Ribs, 3) Pelvic, 4) Vertebral column, 5) Abdomen, 6) Tail, 7) Body Posture, 8) Skin, 9) Locomotion

Score determination 1) 0-4 Best, 2) 5-7 Good, 3) 8-10 Poor. From this score general health condition of the wild animal will be ascertained.

The general condition will be observed and the health of wild animal will be determined by from 1) general appearance and behavior, 2) bone structure and joints, 3) moist nostrils, 4) jaw, teeth and mouth, 5) ribs, 6) chest, 7) vertebral column, 8) limbs and its locomotion, 9) skin appearance.

On the basis of above observatory parameters from distance the general health of animal can be predicted this will help us to monitor the health status of wild animal at different location and time.

Fortunately there is no history of any major disease to wildlife in the area. Any suspicious death of wild animal is checked with the help of local veterinary officers.

12.4.1 Vaccination of Cattle:

Vaccination of cattle of villages in and around the Protected Area is done to prevent the spread of any epidemics and no cattle is allowed to pass through the Reserve unless they are vaccinated and a certificate issued by the competent Animal Husbandry Officer. Immunization camps have been organized from time to time for domestic cattle through *Zilla Parishad*, Chandrapur and WWF, Nagpur in order to prevent the spread of foot and mouth diseases etc. to wildlife.

(i) Abstract of Vaccination

Year	Number of villages (Within and outside protected area)	Number of cattle vaccinated
2006-07	92 villages	22567
2007-08		44366
2008-09		38963
2009-10		32633
2010-11		19546
2011-12		47178
2012-13		56654
2013-14		55270
2014-15		56258

12.4.2 Mortality Survey:

Mortality report of Tigers and Panthers for last 10 years is given below:

Year	Date	Location	Species	Cause
2004-05	01/01/2005	Khutwanda P.F.	Tiger (Adult)	Died of old age
2005-06	29/05/2005	Compt. No. 98	Tiger Cub	Sunstroke
	18/09/2005	Bamangaon PF	Tiger Cub	Injury by other wild animal
2006-07	28/04/2006	Compt. No. 124	Tiger (Sub adult)	Territorial fight
	15/06/2006	Compt. No. 111	Tiger (Adult)	Natural, exact cause could not be ascertained.
2007-08	--	--	--	--
2008-09	05/10/2008	Compt. No. 69/82 line	Tiger	Natural death
	24/02/2009	Compt. No. 163	Tiger	Poaching POR No. 71/44, dated 24/2/2009
	26/02/2009	Compt. No. 85	Tiger (Female)	Natural death
	05/03/2009	Ragho Warlu Kulmethe, Dewada house	Tiger	Poaching POR No. 78/1931, dated 03/05/2009
2009-10	--	--	--	--
2010-11	05/04/2010	Compt. No. 333	Tiger	Poaching POR No. 78/21, dated 01/05/2010

	18/08/2010	Compt. No. 90	Tiger (Female)	Old age death
2011-12	24/08/2011	Compt. No. 249	Tiger	Old age death
2012-13	27/10/2012	Compt. No. 95	Tiger (Female)	Natural death (snake poison)
2013-14	--	--	--	--
2004-05	01/01/2005	Compt. No. 75	Panther (Adult)	Killed by Tigress.
2006-07	03/09/2007	Compt. No. 288	Panther (Adult)	Natural, exact cause could not be ascertained.
2007-08 to 2012-13	--	--	--	--
2013-14	26/11/2013	RF sanctuary tiger reserve	Panther	Natural death

The recording of death of major wildlife should be continued. Post mortem of all death cases of major wildlife should be carried out.

12.5 Human Health Care :-

Health camps are arranged and medical check-ups are done and temporary treatment and distribution of medicines are done and also check-up for carrying out operations of cataract, hernia, hydrocele etc. carried out. The following table gives year wise details of number of beneficiaries of health camps organized by the Department.

Abstract of Beneficiaries

Year	Number of villagers	Number of Beneficiaries
2003-04	23	2215
2004-05	24	1079
2005-06	13	667
2007-08	25	1507
2012-13	17	187
2013-14	130	1106

In the adjoining villages of Tadoba-Andhari Tiger Reserve, NGO like BNHS Satpuda Foundation, HKF are also organizing health camps with the department co-operation. This should be continued.

CHAPTER – 13

ORGANIZATION, ADMINISTRATION AND BUDGET

13.1 Tiger Steering Committee :-

The Wildlife (Protection) Amendment Act, 2006 No. 39 of 2006, dated 3rd September 2006 Chapter-IVB, Section 38U provides for constitution of Steering Committee by State Government for ensuring co-ordination monitoring, protection and conservation of Tiger, co-predators and prey animals within the Tiger range states.

(a) The Chief Minister - Chairperson;

(b) The Minister in-charge of Wild Life - Vice-Chairperson;

(c) Such number of official members not exceeding five, including at least two Field Directors of Tiger Reserve or Director of National Park and one from the State Government's Departments dealing with tribal affairs;

(d) Three experts or professionals having qualifications and experience in conservation of wild life of which at least one shall be from the field of tribal development;

(e) Two members from the State's Tribal Advisory Council;

(f) One representative each from State Government's Departments dealing with *Panchayat Raj* and Social Justice and Empowerment;

(g) Chief Wildlife Warden of the State shall be the Member- Secretary, Ex Officio.

The Steering Committee for Maharashtra State has been constituted, vide GR No. WLP-10-06/CN.296/F-1 dated 13.08.2008 under the Chief Minister **(Appendix-LV).** Recently, the Steering Committee has been reconstituted vide GR No. WLP-10-06/C.N.296/ (Part-1)/F-1 dated 7th Feb. 2013 **(Appendix – LVI).**

13.2 Tiger Conservation Foundation :-

The Wildlife (Protection) Amendment Act, 2006 No. 39 of 2006, dated 3rd September 2006 Chapter-IVB, Section 38X provides for establishment of Tiger Conservation Foundation for Tiger Reserves within the State to facilitate and support their management for conservation of Tiger and bio-diversity and to take initiatives in eco-development by involvement of people in such development process.

The Tiger Conservation Foundation shall, inter alia, have the following objectives:-

(a) To facilities ecological, economic, social and cultural development in the tiger reserves;

(b) To promote eco-tourism with the involvement of local stake-holder communities and provide support to safeguard the natural environment in the tiger reserves;

(c) To facilitate the creation of, and or maintenance of, such assets as may be necessary for fulfilling the above said objectives;

(d) To solicit technical, financial, social, legal and other support required for the activities of the foundation for achieving the above said objectives;

(e) To augment and mobilize financial resources including recycling of entry and such other fees received in a tiger reserve, to foster stake-holder development and eco-tourism.

(f) To support research, environmental education and training in the above related fields.

The Tiger Conservation Foundation is a new institutional framework which can complement the Tiger Reserve management and liaison with various Eco-Development Committees and their confederations apart from production sectors in the landscape. The Foundation should be registered under the relevant rules of the State as a Trust, and as prescribed in the guidelines, will have a State level Governing Body, apart from a field level Executive Committee under the Chairmanship of the Field Director with

representatives of the Eco-Development Committees as nominated by the Governing Body. The Foundation would act as a "non profit center" and as a "development agency" by increasing local participation. It can secure the Tiger Reserve from financial constraints by providing funding support through various sources: recycling of gate receipts, service charges, donations and the like. The Foundation, may undertake various activities related to mainstreaming of conservation: Eco-Development, staff welfare, visitor regulation, field research, facilitating Eco-Development committees for market access, conducting capacity building programs, ecotourism and Joint Forest Management.

Tiger Conservation Foundation for TATR have been constituted and registered as a trust vide, Registration No. E-287(c) dated 25/11/2008.

13.3 Coordination with Line Agencies/ Departments:-

Coordination with following agencies is required for management:-

1. Revenue Department:- For rehabilitation of villages co-ordination with Revenue Department is required. The Collector, being at the helm of all the affairs at district level, his co-operation is required for rehabilitation, Different Departments like Land Records, P.W.D., MSEDCL, Irrigation Department, Z.P. Health, Education, Tribal Development etc. is required during rehabilitation.

2. Zilla Parishad:- Co-ordination with *Zilla Parishad* is very important as many village development activities are taken up by Z.P. The works like provision of bio-gas are taken by Z.P. The works of vaccination and provision for improved human health care are taken up by Z.P. Employment generation activities like sericulture; horticulture, bee-keeping, fisheries etc. are implemented by Z.P.

Other activities like stall feeding, water harvesting structures, soil and moisture conservation works are implemented by *Zilla Parishad*.

3. Police Department:- For protection of the forest and wildlife coordination with Police Department is a must. There is perfect co-ordination with the Police Department due to District Tiger Cell. This cell is leaded by Superintendent of Police and the cell meets once in every month.

4. Animal Husbandry Department:- The co-ordination with Animal Husbandry Department is required for vaccination of the cattle, of inside and fringe villages. In case of death of animals in offence cases, unknown causes, sickness of animals etc. the postmortem is required to be done to ascertain the cause of death. In such cases the help of local veterinary officer is required to be taken.

5. Forest Department/ F.D.C.M.:- Co-ordination with territorial wing of Forest Department is required for patrolling in the fringe areas. Presently the Deputy Director (Buffer) TATR is the Project Authority for rehabilitation of villages. F.D.C.M. carries out the work of fire fighting in the TATR and hence co-ordination is required.

13.4 Staff Deployment:-

The present structure of Tadoba Andhari Tiger Reserve is not sufficient to manage the Reserve efficiently. The number of beats is 34 for 625.45 Sq. Km. area which amounts to approx 18 Sq. Km per beat. This is 2.5 times the accepted norm of 7.5 Sq. Km. for Protected Area as per the State Government Resolution No. TRS 06 / 2001 / 219 / F-6 dated 8/05/2003. Reorganization of the beats and rounds has been proposed (**Appendix – LVII).** This will require creation of 50 posts of Forest Guards and 6 posts of Foresters.

The tourism is developing fast and to manage this complex at Moharli, Kolara and Pangadi have been constructed. These complexes of Moharli and Kolara have been transferred to FDCM. To supervise over all tourism in Core area, TATR need extra staff, hence, post of 3 Forester with 2 Forest Guards need to be created or transferred from other division. The three entry gates will have 3 Forest Guards each working round the clock.

A) Amenities to Staff :-

The wildlife posting are considered as secondary and hence field staff are not very keen to join wildlife wing. Some incentive like one step promotion to the field staff may attract the staff. Presently the staff posted at Kolsa and Moharli (Chandrapur Taluka) are already getting one step promotion due is naxal prone area and hence the remaining staff of Tadoba and other areas needs to be given one step promotion.

Presently the field staff of Tadoba-Andhari Reserve is posted at Head Quarters in interior forests where there is no school facilities. The families of the staff are to be kept at for away place for schooling (HQs like Tadoba, Khatoda, Palasgaon, Karwa Rantalodhi, Kolsa, Botezari, Pahami, Dewada etc.) It is proposed to construct a family accommodation for 10 families (Foresters, Forest Guards and RFOs) at Moharli. A school/ staff bus is also proposed for school going kids from Moharli to Chandrapur. The funds from Tiger Conservation Foundation shall be used for providing amenities to the field staff.

The existing buildings **(Appendix XLVIII)** are not sufficient to house the staff and following new buildings are proposed to be constructed:-

Presently residential buildings at Moharli are not sufficient for staff. As Special Tiger Protection Force is created for TATR, a residential complex with 90 type - I quarters, 3 type-III quarters, 1 type-IV quarter, 1 office, community hall and play ground have to be constructed at Moharli (**Appendix – XLIX).**

B) Rewards :-

Special rewards to staff for outstanding performance is proposed. This will be on case to case basis.

13.5 Fund Raising Strategies:

The Funds for proposed work will mainly be received from Centrally Sponsored Scheme. The funds from Finance Commission, CAMPA will also be utilized for works proposed in the Tiger Conservation Plan. Sources like different State Level Tribal Scheme, Eco Tourism Development Scheme etc. will also be tapped. The revenue realized from gate entry and other tourist activity will be deposited in Foundation and donations will also be received from Non Government an organization through the Foundation.

13.6 Schedule of Operations: The Schedule of operations for following works are given in appropriate Appendices:-

1. Rehabilitation of Villages
2. 1/5 Boundary demarcation
3. Proposed roads
4. Proposed buildings
5. Proposed works of creation of water sources.
6. Proposed meadow development in forests.
7. Proposed meadow development in evicted village
8. Proposed soil and moisture conservation works.

13.7 Activity Budget:

The budget for implementation of Tiger Conservation Plan comes from three sources.

1. Government of India Centrally Sponsored Scheme Project Tiger from NTCA.
2. Joint Forest Management, 13 Finance Commission, CAMPA etc.
3. State Government Non-Plan Funds.

The details of annual budget to implement the prescription of the Tiger Conservation Plan are given in **Appendix LVII.**

CHAPTER – 14

MONITORING AND EVALUATION

Monitoring and evaluation of the activity is an important part of any plan for further improvement. The following criteria are prescribed for monitoring and evaluation of the activities proposed in this Plan:-

14.1 Criteria :-

The criteria of monitoring and evaluation are of two types:-

1) Physical

2) Qualitative

The physical criteria consist of completion of physical activity of any work e.g. Creation of a meadow or a water source is a physical criteria. However the durability of the meadow or the retention of water in water source and use of the meadow by herbivore or the use of water source by wild animals is the qualitative criteria. The physical criteria are thus a mechanical activity while the qualitative criteria need a close observation for over a time period. So the physical evaluation of all works carried out in a financial year should be completed in May/June of next year. The qualitative evaluation should be started from next year of completion of physical evaluation and should be carried out continuously for two years. This will be the responsibility of Field Director to complete physical and qualitative evaluation of each and every work in the given time frame.

14.2 Process :-

The Control Forms for the different activities forms the process of monitoring and evaluation of the work. The Control Forms **(Appendix – LVIII 1 to 10)** are prepared for following activities:-

1) 1/5 boundary demarcation

2) Fire protection

3) Water sources and their distribution.

4) Road side animal monitoring

5) Habitat improvement

6) Illicit cutting

7) Soil and moisture conservation

8) Animal diseases

9) Crop damage

10) Eco-Development works

Control Forms will be prepared in three sets and two sets will be sent to Additional Chief Conservator of Forests (Wildlife), East Nagpur up to 30th September each year for onward submission to the Chief Wildlife Warden, Maharashtra State, Nagpur.

Any deviation in management prescription should be recorded with reason and reported in deviation proposal proforma. **(Appendix – LIX)**

Wildlife Compartment Histories will also be maintained in the prescribed proforma **(Appendix–LX).** R.F.O. will fill the Compartment History Forms in two copies and after the scrutiny by Deputy Director (Core) will be submitted to Field Director. One copy of this will be returned to the Range Forest Officer.

14.3 Divisional Note Book :-

Some important events will, be recorded in Divisional Notebook by Deputy Director (Core). This will include arrival of winter water foul at various wetlands, water availability in pinch period, status of health of wild animal, fire damages, poaching of wild animals and any other important event.

APPENDIX - I

(Para No 1.1.1)

NOTIFICATION OF TADOBA-ANDHARI TIGER RESERVE BY GOVERNMENT OF INDIA

GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
ANNEXE NO. 5, BIKANER HOUSE
SHAH JAHAN ROAD, NEW DELHI - 110 011.

ARIN GHOSH
Director, Project Tiger

No. 1-2/93 PT

Dated : 21st December, 1993

To,
The Principal Secretary (Forests)
Government of Maharashtra,
Department of Revenue and Forests,
Mantralaya, BOMBAY - 32

Sub: Establishment of Tadoba-Andhari Tiger Reserve, Chandrapur District (Maharashtra)

Sir, `

I am directed to convey the approval of the Government of India for establishment of a Tiger Reserve under the Centrally Sponsored Scheme "Project Tiger" over 619.76 Sq.Kms. of composite area of Tadoba-Andhari in Chandrapur district of Maharashtra as per proposal received from the State Government vide letter No. 22/L/C. No. 847 2727 of 1992-93, dated 10th February 1993, subject to the following conditions, viz;

(a) State government should give us in writing that no area of "Project Tiger" reserve will be diverted for any other purpose without prior permission of the Government.

(b) Both core and buffer area will be placed under the unified controal of a Field Director of the lever Conservator of Forests who will be the over all incharge of the total area.

(c) Main Centre of Tourism will be gradually shifted from core area to buffer zone in a phased manner and

(d) Present level of expenditure on staff and other matters will be continued to be met by them from the State Budget.

The Government of India will provide 50% financial assistance for approved recurring items and 100% financial assistance for non-recurring items.

The composite area of 220.98 Sq.Kms. area (of Tadoba National Park and Andhari Sanctuary of the Tiger Reserve will be managed as the core area and remaining area will be managed as the buffer area under Project Tiger Reserve. The name and bio-data of the candidate for the post of Field Director may be sent to this office immediately for approval.

A copy of guidelines for execution of the Project Tiger by the State, is enclosed A.P.O. for the balance period of 1993-94 may please be submitted for necessary action from this end.

A copy of the State Government's order declaring Tadoba-Andhari area as Tiger Reserve under Project Tiger Scheme may kindly be sent for record.

Your's faithfully
(Sd/-)
(Arin Ghosh)
Director, Project Tiger

Encl: As stated

Copy to :

1. Tiger Principal Chief of Forests, Maharashtra State, Jaika Building, Civil Lines, Nagpur-440001.
2. The Chief Wildlife Warden, Maharashtra Government, Jaika Building, Civil Lines, Nagpur-440001.

(Sd/-)
(Arin Ghosh)
Director, Project Tiger

APPENDIX - II

(Para No. 1.1.2)

NOTIFICATION OF TADOBA-ANDHARI TIGER RESERVE BY GOVERNMENT OF MAHARASHTRA

GOVERNMENT OF MAHARASHTRA
REVENUE AND FORESTS DEPARTMENT
MANTRALAYA, BOMBAY - 400 032

Resolution No. WLP-1094/CR-225/F-1 Dated : 23rd February, 1995

Sub: Declaration of Tadoba Andhari Tiger Reserve.

Read: 1) Letter from Director Project Tiger, Govt. Of India, Ministry of Environment & Forest No. 1-2/93-PT dated 21 December, 1993.

2) Letter of even No. Dated 3rd September, 1994 from Govt. of Maharashtra to Director , Project Tiger.

3) Letter from CCF (WL) No.Desk-22(B)(2)/215 dated 4th February, 1995.

RESOLUTION:

The Government of India had communicated its approval to the declaration of Tadoba-Andhari Tiger Reserve comprising of the areas of Tadoba National Park and Andhari Wildlife Sanctuary as the second Tiger Reserve in the state under Project Tiger subject to certain conditions vide its letter referred to at Sr. No. (1) above. The Government of Maharashtra vide its letter referred to at Sr.No.(2) above had communicated its stand on the various issues raised by Government of India and requested the Government of India to release Central Assistance under the Project Tiger Scheme for the Tadoba-Andhari Tiger Reserve. The Government of India has subsequently released Central Assistance for the Tadoba-Andhari Tiger Reserve. The Government of Maharashtra is now pleased to declare the area constituted by the Tadoba National Park & the Andhari Wildlife Sanctuary as the second Tiger Reserve in the State under Project Tiger.

The Government is also pleased to designate the Conservator of Forest (Wildlife), Vidharbha Region Nagpur as the ex-officio Field Director of Tadoba-Andhari Tiger Reserve.

By order and in the name of the Governor of Maharashtra.

(Sd/-)
(J. N. Saxena)
Joint Secretary to Government.
Revenue and Forests Department

APPENDIX - III

(Para No. 1.1.3)

NOTIFICATION OF TADOBA NATIONAL PARK

MADHYA PRADESH ACT NO. VII OF 1955

*** THE MADHYA PRADESH NATIONAL PARKS ACT,**

1955 Received the assent of the Governor on the 31st March 1955, assent first published in the Madhya Pradesh Gazette Extraordinary on the 9th April 1955. An Act to provide for the constitution, preservation and maintenance of National Parks and for matters ancillary thereto.

Whereas it is expedient to provide for the constitution, Preamble, Preservation and maintenance of National Parks and for matters ancillary thereto;

It is hereby enacted in the Sixth Year of the Republic of India as follows:

1. (1) This Act may be cited as the Madhya Pradesh National Parks Act, 1955

(2) It extends to the whole of Madhya Pradesh

(3) It shall come into force on such date as the State Government may, be notification, appoint in this behalf

2. In this Act, unless there is anything repugnant in the Definitation, subject or context

(1) "Board" means the State Wildlife Board constituted un der section 6:

(2) "Forest Officer" means any person appointed as a Forest Officer under section 2 of the Indian Forest Act, 1927 and in cludes any person appointed under

(3) "National Park" means a National Park constituted under this Act:

(4) "Prescribed" means prescribed by rules made under this Act"

"Trasp includes any contrivance or device by means of which any animal can be captured or killed:

"Weapon" includes any firearm or ammunition therefore bow, arrow, spear or any other instrument capable of being used in such a manner that any animal can be killed or injured thereby:

(7) "Wildlife" Means :-

(a) All undomesticated vertebrate animals including mammals :

(b) Birds

(c) Fish

(d) Reptiles and

(e) Flora

XVI of 1927 (8) Any expression used but not herein defined shall have the same meaning as assisgned to it in the India Forest Act. 1927

Constitutiojn of 3. (1) The areas defined in the Schedule are hereby constituted National Parks for the Propagation and preservation therein of Wildlife or order objects of floral, faunal, scenic or scientific interest.

(2) The State Government may, by notification, add to the Schedule any reserved forest area not being an area lying within one mile of any village recognised or declared as such under Revenue Law and thereupon any area so added shall be deemed to be constituted a National Park under this Act.

(3) A notification issued under sub section.

(4) Shall define the boundaries of the National Park as so constituted.

Saving of rights rights in National Park

4. No right within a National Park which has been admitted and re corded by a Forest Settlement Officer under the Indian Forest Act, 1927 or which has been granted XVI of before the commencement of this act shall be altered 1927 or interfered with except with the consent of the right holder or grantee affected thereby.

Control of National Parks & functions & duties of contro-lling authorities.

5. (1) Subject to the control of the State Government the Chief Conservator of Forest shall be the authority to control, manage and maintain any National Park constituted under this Act, and for the purpose within such National Park.

(a) May Construct such roads, bridges, buildings, fences and such other works therein as may be considered necessary for the purposes of such Park; and

(b) Shall take such measures as may be necessary to preserve the wild life and acenic beauty of such Park and other objects of educational and scientific importance there in and for the purpose of promoting there enjoyment by the public.

Constitution of State Wildlife Board

6. (1) The State Government may, by notification, Constitute a Board to be called the "State Wildlife Board" consisting of the following members:

OFFICIAL MEMBERS

1) Minister in charge of the Forest Department
2) Chief Conservator of Forests, Madhya Pradesh.
3) Conservator of Forests, Central Circle, Madhya Pradesh.
4) Inspector Genral of Police, Madhya Pradesh.
5) Sub-area Commandant, Jabalpur

NON-OFFICIAL MEMBERS

Five members to be nominated by the State Government.

(2) The Minister in charge of the Forest Department shall be the Chairman of the Board and the Conservator of Forest, Central Circle, Madhya Pradesh, shall act as Secretry thereof.

Term of office of non-official members and filling and vacancy

1) A non-official member shall hold office for three yeras from the date of his appointment of office but shall be eligible for reappointment.

2) A non-official member may, at any time, resign his office by sub mitting his resignation to the State Government. No such resignation shall take effect until it is accepted.

3) In the event of any vacancy in the office of a non-official member by reason of death, resignation or otherwise such vacancy. Shall be filled in by nomination of a non-official by the State Government.

4) The non-official members shall be entitled to receive such allowances as may be prescribed.

Procedure of Board

8. 1) The Board shall meet at least twice a year.
2) The Board may frame regulations for the connduct of its business.

Duties of Board

9. It shall be the duty of the advise the State Government.

a) In the selection of areas to be constituted National Parks;

b) In formulating the policy for administration and management of National Parks.

c) In formulating the policy in respect of wild life preservation vis-vis agriculture;

d) In the matter of selection of areas for protection of certain species of wildlife, reintroduction of extinct species and stricter conservation of diminishing species ;

e) In the matter of establishment and management of zoological gardens and parks;

f) In the matter of framing rules under section 15;

g) In any other matter connected with the purposes of the Act which may be referred to it by the State Government for advice.

National Parks to be regulated by rules.

10. No person other than an officer in the execution of his duties shall enter or reside in a National Park, except in accordance with the rules made by the State Government in this behalf.

Prohibition of certain acts in National Park.

11. No person, other than an officer in the execution of his duties shall

a) Convey into a National Park or be in possession therein of any explosive trap or any weapon except with the written permission of the Chief Conservator of Forests or any Forest Officer authorised by him to grant such permission.

b) Kill, injure or capture or disturb any wild life or their nests, dense, habitats in a National Park except with the written permission of the Chief Conservator of Forests for purpose of scientific study of protection of human life and property: Provided that any dangerous animal may be killed or injured in defence of human life.

c) Cause damage wilfully or ingligently by fire or otherwise to a National Park or any object therein-

d) Introduce any animal or permit wilfully any domestic animal to enter into a National Park except with the written permission of the Chief Conservator of Foressts or any Forest officer authorised by him in this behalf.

e) Remove from a National Park any wild life whether alive or dead or any part of wild life except with the written permission of the Chief Conservator of Forests or any Forest Officer authorised by him in this behalf.

Penalty

12. 1) Whoever does any act in contravention of any of the provisions of this Act or of any rules made thereunder, shalll be punishable with imprisonment for a term which may extend to six months or with a fine which may extend rupees or with both.

2) Any wild life or part there of or any other object of a National Park or part thereof in respect of which an offence has been committed under this Act and any weapon or trap used in committing any such offence shall be liable to confiscation. Such confiscation may be in addition to any other punishment prescribed for such offence.

Power to search and arrest without warrant

13. 1) Any Forest Officer or Police Officer may, without a warrant, search within a National Park any person, place building, tent, sheds Vehicle or receptacle reasonably suspected to contain any thing liable to confiscation under sub-section 92) of section 12 and may seize and retin any such thing wherever found.

2) a) Any Forest Officer or Police Officer may, without orders from a Magistrate or without a warrant, arrest any person reasonably suspected of committing an offence under this Act, and suspectd of giving his or her name and residence which there is reason to believe to be false, or if there is reason to believe that the person will abscond.

b) Every officer making a arrest under this section shall with in 24 hours excluding the time spent in journey produce the person arrested before a magistrate having jurisdiction in the case.

XVI of 1927

3) The Provision in sections 64 to 68 of the Indian Forest Act 1927, shall apply in respect of an offence punishable under section 12 as they apply to a forest offence punishable under the Indian Forest, Act 1927.

14 No suit, prosecution or other legal proceeding for shall lie against any person for any dore in which is in good faith done oriented to be good faith, done under this Act.

15. 1) The State Government may make rules for Power to the purpose of carrying into effect the provisions make rules of this Act.

2) In particular and without prejudice to the generality of the foregoing power, such rules may be made for all or any of the following matters, namely.

a) The conditions subject to which any person may enter or reside in a National Park and the period during which such Park or any portion thereof shall be open to the public.

b) Purpose for which a National Park may be used.

c) The regulation of traffic & carriage of passengers in a National Park.

d) The fees, in any, to be paid for entry into or residing in and for any other purpose connected with the use of a National Park or any portion thereto.

e) The powers and duties of officers and duties of Forest Department in regard to maintenance and management of a National Park.

f) The preservation, control and management of National Park.

g) The protection of the flora and fauna of a National Park.

h) The protection from deracement by writing or otherwise of any tree, bridge, rock, fence seat, road and other signs or any other objects in a National Park.

i) Protection of wildlife, disposal of noxious, predatory or super abundant animals and the taking of animals for scien tific and propagating purposes;

j) Prevention of any unauthorised exhibition, fixing erection or retaining of any advertisement, board, hoarding, or structure in a National Park and removal of such advertisement board, hoarding or structure;

k) The power to compound offences :

l) The delegation of his powers by the Chief Conservator of Forests;

m) Allowances of non-official members or the Board.

3) All rules made under this Act shall, as soon as may be laid on the table of the Legislative Assembly and shall be subject to such modification as the Legislative assembly may therein.

XVI of 1927

16. Nothing in this act shall affect or limit the operation of saving. The provisions of the Indian Forest Act, 19274 in respect of any area constituted a National Park under this Act.

SCHEDULE

(Description of boundaries of the National Parks referred to in section 3)

[See Section 3 (i)]

Kanha National Park Area 97.7 square miles.

North : A forty feet wide internal line, starting from khatia village eastern boundary line going northeast through the village boundary of Sonph Forest village boundary hence running east forming the southern boundary of Silpura forest village. Kisli Bhilwani forest village and Bhimpur Ryotwari village.

East : A forty feed wide external boundary line of block No. 15 excluding the village landing the village lands of Jhapul forest village (block No. 13) and of Manoharpur thence the district boundary line between Mandla and Balaghat districts.

South : A continuation of the district boundary line between Mandla and Balaghat district.

West: A continuation of the district boundary line between Mandla and Balaghat districts thence the 40 feet eastern boundary line of Indri Forest village, then the Changer nala for a distance of 54 chains and the external fire line forming the eastern boundary of Khatia village.

Tadoba National Park - Area 45 sqare miles.

North : Common Range boundary between Moharli and Warora Range, abadis of villages Bamangaon and Satara.

East : Cart track running from Khatora Forest village to village Tekadi Mothajhira and the abadi of village Tekdi Mothjhira.

South : The fire line running from Khatora Forest village to pillar No. 31 of village Chichghat (Khatoraghat Chowki) abadi of village Chichghat, Khutwanda Tukum and Ghosari.

West : Abadi of villages Bhanuskhindi Tukum, Sonegaon Tukum, Ashta and Wadala Tukum.

APPENDIX - IV

(Para No 1.1.3)

NOTIFICATION OF ANDHARI WILDLIFE SANCTUARY

REVENUE AND FOREST DEPARTMENT

Mantralaya, Bombay 400 032, dated the 25th February 1986

WILDLIFE (PROTECTION) ACT, 1972

No. WLP. 1085/CR-75/F-5 (III) Whereas, it appears to the Government of Maharashtra that the area described in the Schedule hereto (hereinafter referred to as "the said area") is, by reason of its ecological, faunal and floral significance, needed to be constituted as a Wildlife Sanctuary for the purpose of protecting, Propagating or developing wildlife therein or its environment ;

Now, therefore in excercise of the powers conferred by sub-section (1) and (2) of section 18 of the Wildlife (Protection) Act, 1972 (532 of 1972), the Government of Maharashtra hereby-

(1) Declares the said area as 'Wildlife Sanctuary', to be called as 'Andhari Wildlife Sanctuary';

(2) specifies the situation and the limits of the said area as set out in the schedule appended; and

(3) directs, the Collector of Chandrapur district to enquire into and determine the existence, nature and extent of any right alleged to exist in favour of any persons in or over the land comprised within the limits of the said area and deal with the same as provided under sections 19 to 26 (both inclusive) of the said Act.

SCHEDULE

Situation and limits of the Andhari Wildlife Sanctuary included in Chandrapur and Bramhapuri Forest Division.

(1) Name of the Forest range and division included Chandrapur Forest Division, Bramhapuri Forest division in the Andhari Wildlife Sanctuary.

(2) Particulars of area included in the Andhari Wildlife Sanctuary ;

Forest Division	Names of Villages	Forest Comptt. No.	Area (Ha.)
Chandrapur Forest Division	1. Pandharpauni 2. Khatoda 3. Katezari 4. Kolsa 5. Botezari 6. Palasgaon 7. Rantalodhi 8. Jamni 9. Wadala 10. Sonegaon 11. Bhanuskhindi 12. Satara 13.Tekadi Manadavzari 14. Chaiti Rith 15. Bamangaon 16. Ghosri 17. Chichghat 18. Khutwanda 19. Tamsi 20. Katwal Tukum	80,81,82,93,99 to 101 106 to 110, 122 to 153, 155 to 163, 245, 248 to 260, 266 A, 276 to 318, 330 to 346, 371, 373	50927.00
Bramhapuri Forest Division	21. Ramdegi.	48 to 50,. 61, 62, 64 65	

3) Boundaris **North -** Boundaries of Waigaon Belgaon, Bembal, Kitadi, Khapri, Masala Ta, Masara, Kolara Kaibate, Chak Tekadi, Chait Tu, Madnapur tu. Villages and boundaries of Compartment Nos 63, 60, 51, 47

East - Boundaries of Compartment Nos. 269,268,275,274 Pangli village, comptt No. 319,327, Doni village.

South - Boundaries of Compartment Nos. 348, 347, Zari village Comptt No. 370, Pahami village, comptt no. 372 and Andhari river, boundary of Khandala village.

West - Boudaries of Compartment Nos. 175, 174, 164, Dewada village, comptt Nos. 166, 154 Junona, Moharli, Bhamdeli, Sitarampeth, Khandegaon, Tekadi, Mudholi Dixit Katwal, Wiloda, Kokewada, Pardi, Kondegaon, Manora, Ashta, Waigaon, Kokewada, Arjuni, Seoni villages.

(4) Area of the Andhari Wildlife Sanctuary 50927 Ha. or 509.27 sq.km.

By order and in the name of the Governor of Maharashtra..

A. R. MASLEKAR

Deputy Secretary to Government.

APPENDIX - V

(Para No. 1.1.5)

FINAL NOTIFICATION OF ANDHARI WILDLIFE SANCTUARY

BY GOVERNMENT OF MAHARASHTRA REVENUE AND FORESTS DEPARTMENT

Mantralaya, Mumbai 400 032, dated the 9th February 2001

NOTIFICATION

Wild Life (Protection) Act, 1972

No. WLP 10-2000/CR-193/F-1- Whereas, under Government Notification Revenue and Forest Department, No. WLP 1085/CR-75/F-5(III), dated the 25th February 1986 issued under sub-section (1) and (2) of section 18 of the Wild Like (Protection) Act, 1972 (53 of 1972) (hereinafter referred to as the "said Act"), the Government of Maharashtra had declared its intention to constitute the area specified in the Schedule in the Schedule appended thereto as a sanctuary, to be known as the "Andhari Wild Life Sanctuary" and had defined the limits thereof;

And whereas, the reserved forest area comprised within the said sanctuary, in respect of which proceedings under the provision of sections 19 to 25 (both inclusive) of the said Act was pending on the date of commencement of the Wild Life (Orotection) Amendment) Act, 1991 (44 of 1991), is deemed to be a wild life sanctuary declared under clause (b) of sub-section (1) of section 26-A of the said Act;

And whereas, Government considers it expedient to explicitly declare that the said forest area comprised within the sanctuary shall be Sanctuary;

Now, therefore, in exercise of the powers conferred by sub-section (1) of section 26-A of the said Act, the Government of Maharashtra hereby :-

(a) Specifies the limits of the area, as specified in the Schedule appended hereto, to be the area, which shall be comprised within the Sanctuary to be known as "Andhari Wild Life Sanctuary", and ;

(ab) Declares that on and from the date of publication of this notification in the Official Gazzette the said area shall be a Sanctuary to be known as "Andhari Wild Life Sanctuary".

Schedule

Situation and limits " Andhari Wild Life Sanctuary "

in District Chandrapur

(I) Name of the forest ranges and Division included in the Sanctuary — Tadoba, Kolsa and Moharli Ranges of Tadoba-Andhari Project Tiger Division

(2) Particulars of area included in the sanctuary :-

Serial No.	Compartment No.	Area (Ha.)
1	48	396.187
2	49	213.266
3	50A	95.500
	50B	140.010
4	61A	190.204
	61B	254.936
5	62	308.780
6	64	509.510
7	65	437.470
8	80B	20.640
9	81B	4.050
10	82B	10.120
11	93B	46.940
12	99	235.527
13	100	143.663
14	101	439.894
15	106	623.621
16	107	166.730
17	108	394.973
18	109	151.757
19	110A	248.478
20	122B	8.090

Serial No.	Compartment No.	Area (Ha.)
21	123B	19.420
22	124 (P)	101.066
23	125	267.902
24	126	275.186
25	127	127.071
26	128	461.342
27	129	448.392
28	130	248.477
29	131	194.249
30	132	319.702
31	133	341.150
32	134	148.520
33	135	508.286
34	136	235.527
35	137	274.377
36	138	101.171
37	139	191.416
38	140	333.056
39	141	266.283
40	142	235.122
41	143	179.680
42	144	331.842
43	145	133.951
44	146	462.151
45	147	269.925
46	148	217.721
47	149	352.481
48	150	346.006
49	151	401.448
50	152	374.739
51	153	390.116
52	155	507.881

Serial No.	Compartment No.	Area (Ha.)
53	156	244.430
54	157	195.058
55	158	348.434
56	159	404.686
57	160	403.067
58	161	369.073
59	162	154.995
60	163A	269.116
61	245	303.514
62	248	501.811
63	249	371.906
64	250	251.714
65	251	285.985
66	252	745.027
67	253A	225.01
	253B	38.44
68	254	536.614
69	255	615.953
70	256	267.902
71	257	267.902
72	258	395.783
73	259	349.648
74	260	571.821
75	266A	555.633
76	267	640.630
77	276	362.600
78	277	317.678
79	278	254.952
80	279	309.989
81	280	393.759
82	281	526.901
83	282	137.188

Serial No.	Compartment No.	Area (Ha.)
84	283	233.099
85	284	517.189
86	285	304.728
87	286	390.117
88	287	540.256
89	288A	566.580
	288B	26.690
90	289A	167.540
91	290	390.522
92	291	248.477
93	292	152.971
94	293A	228.647
95	294	384.856
96	295	191.821
97	296	551.182
98	297	354.909
99	298	374.334
100	299	246.858
101	300	254.143
102	301	241.597
103	302	498.573
104	303	340.341
105	304	417.636
106	305	264.664
107	306	606.219
108	307	353.695
109	308	479.148
110	309	399.425
111	310	179.680
112	311	696.869
113	312	314.441
114	313	315.250

Serial No.	Compartment No.	Area (Ha.)
115	314	423.301
116	315A	206.390
	315B	110.884
117	316	677.039
118	317	282.471
119	318	502.215
120	330A	559.680
121	331A	571.822
122	332	223.791
123	333	717.508
124	334	348.030
125	335	567.774
126	336	219.774
127	337	358.551
128	338	411.970
129	339	188.988
130	340A,B	285.708
131	341A.,B	414.803
132	342	253.333
133	343A,B	278.424
134	344	133.951
135	345	300.277
136	346	270.330
137	371A	105.219
	371B	157.829
138	373	350.053
	Total	**46175.763**

3. Boundaries of Sanctuary :

North -

Reserve Forest compartment No. 63,60,51,47,102,103,104,105, 244, 246,247,237,262,264. Village boundaries of Bamangaon, Chaiti rith, Karwa, Piparheti villages.

East -

Reserve Forest Compartment No. 269,268,275,274,319,327 village boundaries of Singarzari, Pangadi, Doni Villages.

South -

Reserved forest compartment no. 348, 347, 370, 372, 376, 375, 374 village boundaries of Zari, Pahami and Chargaon villages.

West -

Reserve Forest compartment No. 172,174,164,166,154. Village boundaries of Dewada, Junona, Moharli, Bamdeli, Sitarampeth, Kondegaon, Tekadi, Mudholi, Khutwanda, Shivani, Waigaon, Bembala Villages.

4. Total Reserve Forest Area of the Andhari Wild Life Sanctuary is 46175.763 ha. or 461.758 sq.kms.

By order and in the name of the Governor of Maharashtra.

SANJEEV GAUR
Officer on Special Duty to the Government

APPENDIX - VI

(Para No 1.1.3)

NOTIFICATION OF CRITICAL TIGER HABITATS BY GOVERNMENT OF MAHARASHTRA

Revenue & Forests Department

Mantralaya, Mumbai-400032

Dated: 27th December 2007

No.WLP10-07/CR 297/F-1—Whereas the National Tiger Conservation Authority, (NTCA), vide its letter No. 1501/11/2007-BT(Part), dated the November 16, 2007 had section 38 (V) of the Wildlife (Protection) Act, 1972 (53of1972), and

Whereas, vide his letter No. Desk-22(6)/2007-08/6149, dated the 4th Dec. 07, addressed to Member Secretary, NTCA, the Principal Chief Conservator of Forests (Wildlife) and Chief Wildlife Warden, Maharashtra State, had submitted a proposal in this behalf, and Whereas, the Member Secretary, NTCZ, vide his letter NO. F. NO. 1501/1/ 2007-PT (part) dated the 14th Dec, 07, addressed to the Principal Chief Conservator of Forests (Wildlife), has granted his approval thereto, and

Whereas, the Principal Chief Conservator of Forests (Wildlife) had vide his letter No. Desk-22(6)/2007-08/6259, dated the 17th Dec, 07, submitted a proposal to the State Government,

Now therefore, in exercise of the powers conferred under Section 38 (V) of the Wildlife (Protection) Act, 1972 (53 of 1972), Government of Maharashtra hereby notifies the following areas of the national parks and sanctuaries comprising the Tadoba Andhari Tiger Reserve, Pench Tiger Reserve and Melghat Tiger Reserve (including its buffer protected areas of Narnala, Wan and Ambabarwa sanctuaries) as 'Critical Tiger Habitats'.

Sr.No.	Tiger Reserve & Its Constituent National Parks/Sanctuaries	Area (Sq.km.)	Notification No.
1	**Tadoba Andhari Tiger Reserve**		
	1) Tadoba NP	116.55	Madhya Pradesh Act No. VII of 1955
	2) Andhari WLS	509.27	No.WLP 1085/CR-75/F-5(III) dated 25-02-1986
	Total for Tadoba-Andhari Tiger Reserve	**625.82**	
2.	**Pench Tiger Reserve**		
	1) Pench NP	**257.26**	No. PGS-1375/121758/F-1 dated 22-11-1975
	Total Pench Tiger Reserve	**257.26**	
3.	**Melghat Tiger Reseve**		
	1) Gugamal NP	**1150.03**	No. WLP-1092/Pra.NO. 526/F-5 dated 15-02-1994
	2) Melghat WLS		
	3) Narnala WLS	**12.35**	No.WLP-1096/CR-279/F-1 dated 02-05-1997
	4) Ambabarawa WLS	**127.11**	No. WLP-1094/CR-123/F-1 dated 09-04-1997 (5.14 Sq.Km)
	5) Wan WLS	**211.00**	1. No.WLP-1097/CR-5/F-1 dated 28-07-1997 (5.14 Sq.Km.) 2. No. WLP 1097/CR-5/F-1 dated 29-07-1997 (205.86 Sq.Km.)
	Total for Melghat TR	**1500.49**	

By order and in the name of the Governor of Maharashtra

(J. P. Dange)
Additional Chief Secretary to
Government of Maharashtra

APPENDIX - VII

(Para No. 1.1.4)

STATEMENT SHOWING THE SURVEY OF INDIA TOPOSHEETS WITH COMPARTMENT NUMBERS

Sl. No.	Sheet No.	Comparetment No.
1.	55 P/3	64P, 65P, 66P, 85P, 87P, 118P.
2.	55 P/7	48, 49, 50, 61, 62, 64P, 65, 66P, 67, 68, 69, 70, 71, 72,73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85P, 86P,87P, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118P, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134P, 135P, 136P, 137P, 138P, 245, 248, 249, 250P, 251P, 252P, 254P, 255P, 256, 257, 258P, 259P, 295P.
3.	55P/8	134P, 135P, 136P, 137P, 138P, 139P, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 155, 156, 157, 158, 159, 160, 161, 162, 163, 250P, 251P< 252P, 253P, 254P, 255P, 259P, 274P, 280P, 282P, 283P, 284P, 285P, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295P, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314P, 315P, 334P, 335P, 336, 337, 338, 339, 340, 341, 342P, 343P< 344P, 371, 373.
4.	55 P/11	258P, 260P, 281P, 266P, 267
5.	55 P/12	259P, 260P, 266P, 267P, 276, 277, 278, 279P, 280P, 281P, 282P, 285P, 314P, 315P, 316, 317, 318, 330, 331, 332, 333, 334P, 335P, 342P, 343P, 344P, 345, 346.

APPENDIX - VIII

(Para No 1.1.4)

STATEMENT SHOWING THE AREA DETAILS OF RESERVE FORESTS AND UNCLASSED FORESTS

(Area in Ha.)

Sl. No.	Compartment No.	Tadoba National Park		Andhari Wildlife Sanctuary	
		Reserved Forest	Unclassed Forest	Reserved Forest	Unclassed Forest
1	48	--	--	396.187	--
2	49	--	--	213.266	7.284
3	50	--	--	235.510	--
4	61	--	--	445.140	--
5	62	--	--	308.780	--
6	64	--	--	509.510	--
7	65	--	--	437.470	--
8	66	278.019	--	--	--
9	67	231.885	--	--	--
10	68	159.041	--	--	--
11	69	709.819	--	--	--
12	70	218.530	--	--	--
13	71	137.188	--	--	--
14	72	174.419	4.856	--	--
15	73	179.943	41.824	--	--
16	74	246.858	--	--	--
17	75	205.175	--	--	--
18	76	236.336	--	--	--
19	77	182.108	--	--	--
20	78	201.128	--	--	--
21	79	208.008	--	--	--
22	80	228.647	--	20.640	6.069
23	81	95.101	--	4.050	3.234
24	82	277.615	--	10.120	6.067
25	83	483.599	--	--	--

Sl. No.	Compartment No.	Tadoba National Park		Andhari Wildlife Sanctuary	
		Reserved Forest	Unclassed Forest	Reserved Forest	Unclassed Forest
26	84	199.914	--	--	--
27	85	265.069	--	--	--
28	86	366.070	--	--	--
29	87	225.005	--	--	--
30	88	106.837	--	--	--
31	89	327.390	--	--	--
32	90	88.221	--	--	--
33	91	266.688	--	--	--
34	92	280.852	--	--	--
35	93	308.775	--	46.940	39.258
36	94	326.581	--	--	--
37	95	128.690	--	--	--
38	96	171.586	--	--	--
39	97	245.644	--	--	--
40	98	367.859	--	--	--
41	99	--	--	235.527	--
42	100	--	--	143.663	--
43	101	--	--	439.894	--
44	106	--	--	623.621	--
45	107	--	--	166.730	--
46	108	--	--	394.973	--
47	109	--	--	151.757	--
48	110	--	--	248.478	12.949
49	111	324.153	--	--	--
50	112	374.334	--	--	--
51	113	193.469	--	--	--
52	114	169.126	--	--	--
53	115	132.332	--	--	--
54	116	82.555	--	--	--
55	117	434.632	--	--	--
56	118	216.911	--	--	--

Sl. No.	Compartment No.	Tadoba National Park		Andhari Wildlife Sanctuary	
		Reserved Forest	Unclassed Forest	Reserved Forest	Unclassed Forest
57	119	157.018	--	--	--
58	120	154.590	--	--	--
59	121	334.270	--	--	--
60	122	413.993	--	8.090	3.241
61	123	74.861	--	19.420	51.805
62	124	97.230	--	101.066	--
63	125	--	--	267.902	--
64	126	--	--	275.186	--
65	127	--	--	127.071	--
66	128	--	--	461.342	--
67	129	--	--	448.392	--
68	130	--	--	248.477	--
69	131	--	--	194.249	--
70	132	--	--	319.702	--
71	133	--	--	341.150	--
72	134	--	--	148.520	--
73	135	--	--	58.286	--
74	136	--	--	235.527	--
75	137	--	--	274.377	--
76	138	--	--	101.171	--
77	139	--	--	191.416	--
78	140	--	--	333.056	--
79	141	--	--	266.283	--
80	142	--	--	235.122	--
81	143	--	--	179.680	--
82	144	--	--	331.842	--
83	145	--	--	133.951	--
84	146	--	--	462.151	--
85	147	--	--	269.925	--
86	148	--	--	217.721	--
87	149	--	--	352.481	--

Sl. No.	Compartment No.	Tadoba National Park		Andhari Wildlife Sanctuary	
		Reserved Forest	Unclassed Forest	Reserved Forest	Unclassed Forest
88	150	--	--	346.006	--
89	151	--	--	401.448	--
90	152	--	--	374.739	--
91	153	--	--	390.116	--
92	155	--	--	507.881	--
93	156	--	--	244.430	--
94	157	--	--	195.058	--
95	158	--	--	348.434	--
96	159	--	--	404.686	--
97	160	--	--	403.067	--
98	161	--	--	369.073	--
99	162	--	--	154.995	--
100	163	--	--	269.116	--
101	245	--	--	303.514	--
102	248	--	--	501.811	--
103	249	--	--	371.906	--
104	250	--	--	251.714	--
105	251	--	--	585.985	--
106	252	--	--	745.027	--
107	253	--	--	263.450	--
108	254	--	--	536.614	--
109	255	--	--	615.953	--
110	256	--	--	267.902	--
111	257	--	--	267.902	--
112	258	--	--	395.783	--
113	259	--	--	349.648	--
114	260	--	--	571.821	--
115	266	--	--	555.633	--
116	267	--	--	64.630	--
117	276	--	--	362.600	--
118	277	--	--	317.678	--

Sl. No.	Compartment No.	Tadoba National Park		Andhari Wildlife Sanctuary	
		Reserved Forest	Unclassed Forest	Reserved Forest	Unclassed Forest
119	278	--	--	254.952	--
120	279	--	--	309.989	--
121	280	--	--	393.759	--
122	281	--	--	526.901	--
123	282	--	--	137.188	--
124	283	--	--	233.099	--
125	284	--	--	517.189	--
126	285	--	--	304.728	--
127	286	--	--	390.117	--
128	287	--	--	540.256	--
129	288	--	--	593.270	--
130	289	--	--	167.540	--
131	290	--	--	390.522	--
132	291	--	--	248.477	--
133	292	--	--	152.971	--
134	293	--	--	228.647	--
135	294	--	--	384.856	--
136	295	--	--	191.821	--
137	296	--	--	551.182	--
138	297	--	--	354.909	--
139	298	--	--	374.334	--
140	299	--	--	246.858	--
141	30	--	--	254.143	--
142	301	--	--	241.597	--
143	302	--	--	498.573	--
144	303	--	--	340.341	--
145	304	--	--	417.636	--
146	305	--	--	264.664	--
147	306	--	--	606.219	--
148	307	--	--	353.695	--
149	308	--	--	479.148	--

Sl. No.	Compartment No.	Tadoba National Park		Andhari Wildlife Sanctuary	
		Reserved Forest	Unclassed Forest	Reserved Forest	Unclassed Forest
150	309	--	--	399.425	--
151	310	--	--	179.680	--
152	311	--	--	696.869	--
153	312	--	--	314.441	--
154	313	--	--	315.250	--
155	314	--	--	423.301	--
156	315	--	--	317.274	--
157	316	--	--	677.039	--
158	317	--	--	282.471	--
159	318	--	--	502.215	--
160	330	--	--	559.680	--
161	331	--	--	571.822	--
162	332	--	--	223.791	--
163	333	--	--	717.508	--
164	334	--	--	348.030	--
165	335	--	--	567.774	--
166	336	--	--	219.744	--
167	337	--	--	358.551	--
168	338	--	--	411.970	--
169	339	--	--	188.988	--
170	340	--	--	285.708	--
171	341	--	--	414.803	--
172	342	--	--	253.333	--
173	343	--	--	278.424	--
174	344	--	--	133.951	--
175	345	--	--	300.277	--
176	346	--	--	270.330	--
177	371	--	--	263.048	--
178	372	--	--	350.053	--
	TOTAL	**11608.344**	**46.680**	**46175.763**	**129.907**

APPENDIX - IX

(Para No 1.1.4)

STATEMENT SHOWING THE AREA DETAILS OF PROTECTED FORESTS, OTHER GOVERNMENT LAND, PRIVATE LAND AND KHADAK PAHAD

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
1	Katezari	4	0.11	7	0.03	2	0.16				
	Bhadravati	12	0.31	14	2.32	25	1.25				
	Chandrapur	15	93.47	3	0.16						
		16	0.58	20	1.14						
				18	0.63						
				2	0.04						
				28	0.32						
				29	0.12						
				10	1.14						
				28	0.07						
				23	2.95						
				11	0.43						
				19	0.78						
				9	0.71						
				7	0.04						
				5	0.48						
				1	1.63						
				22	2.54						
				13	1.41						
				8	1.96						
				10	0.03						
				12	0.17						
				6	0.01						
				9	0.14						
				26	1.39						
				21	1.53						
				17	1.98						
				19	0.59						
				23	0.04						
				14	0.48						
		6	**94.470**	**30**	**26.14**	**2**	**1.41**				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
2	Wadala Tukum	34	14.78	-	-	-	-	471	55.41		
		83	79.61	-	-	-	-	84	74.70		
		452	3.35								
		465.	360.94								
		472	15.56								
		5	**474.28**	-	-	-	-	**2**	**130.11**		
3	Sonegaon Tukum	58	109.08								
		59	3.69								
		126	7.20								
		135.	20.21								
		4	**140.87**								
4	Bhanuskindi	52	142.06								
		69	76.78								
		89	0.83								
		56	17.61								
		76	235.58								
		107	1.95								
		5	**472.85**								
5	Satara	121/1	10.54								
		142	53.14								
		143/8	50.70								
		3	**114.37**								
6	Katwal Tukum	17	66.65								
		1	**66.65**								
7.	Ghosari	18	162.16	-	-	-	-	149	47.41		
		136	10.45	-	-	-	-	4	0.81		
		7	61.09					5	0.61		
		39	7.41					6	0.40		
		65	11.04					137	1.27		
								138	0.59		
								139	1.66		
		5	**252.14**					**7**	**52.75**		
8	Tamsi	44	27.74					201	63.47		
		71	5.34								
		53	1.12								
		114	4.08								
		4	**38.28**					**1**	**63.47**		

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
9	Khutwanda Dixit	21	1.97								
		218	16.34								
		225	0.47								
		223	32.09								
		4	**50.87**								
10	Chichghat	18	4.13					61	15.48		
		11	3.13					1	75.29		
		8	0.65								
		2	3.68								
		27	16.33								
		5	**27.92**					**2**	**90.77**		
11.	Tekadi Mandavzari	2	12.22								
		30	9.08								
		87	7.93								
		108	7.82								
		90	18.95								
		110/1	66.02								
		107	15.14								
		113	8.80								
		8	**145.22**								
12.	Palasgaon	63	1.59	2	0.22	6	1.06				
		52	50.68	4	0.24	8	0.76				
		65	2.39	27	0.07	10	0.69				
		15	5.35	28	0.28	11	0.30				
		38	28.58	30	0.15	12	0.27				
				33	0.36	14	0.43				
				52	0.20	15	0.15				
				65	0.28	16	0.68				
				71	0.17	17	1.31				
				3	2.16	18	0.82				
				5	0.04	19	0.50			31	1.94
				7	0.13	21	0.14				
				9	0.04	22A	0.52				
				20	2.49	22B	0.76				
				24	0.11	23B	0.08				
				26	0.34	25	1.08				
				32	0.12	35	1.97				
				34	0.08	37	0.95				
				45	0.08	38	2.15				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
				44	0.15	40	3.74				
				51	0.28	41	1.16				
				58	0.12	42	0.35				
				60	0.12	43	0.37				
				63	0.05	44	0.01				
				69	0.25	11	0.34				
				77	0.24	4	1.46				
				93	0.09	12	1.16				
				29	0.05	13	1.37				
				36	0.16	16	0.95				
				70	0.40	8	0.40				
				80	0.80	44	0.78				
						10	0.70				
						62	1.06				
						17	2.12				
						68	0.52				
						18	0.90				
						20	2.88				
						80	8.17				
						67	0.81				
						21	0.39				
						76	0.18				
						78	0.58				
						72	0.39				
						9	0.80				
						19	1.16				
						7	1.12				
						71	2.20				
						5	0.64				
						25	0.08				
						26	0.32				
						31	0.78				
						28	0.59				
						29	0.64				
						30	0.25				
						37	0.23				
						54	1.08				
						33	0.15				
						40	0.35				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
						34	0.25				
						39	0.27				
						35	1.31				
						36	0.92				
						42	0.76				
						46	0.72				
						59	2.79				
						47	0.25				
						49	0.22				
						61	2.64				
						64	1.36				
						66	0.70				
						72	1.24				
						69	0.80				
						75	3.30				
						82	1.79				
						83	0.76				
						84	0.55				
						85	0.64				
		7	**88.61**	**31**	**10.62**	**53**	**56.51**			**1**	**1.94**
13	Botezari	17	10.59	18/1	1.05	20	0.30			6	0.41
				18/1	6.69	34	1.04				
				18/2	0.28	2	0.06				
				18/3	0.61	22	1.35				
				18/4	0.40	42	0.06				
				21	0.26	3	0.11				
				24/1k	0.73	11	0.95				
				25	0.22	12	0.42				
				65ch	0.09	15	0.22				
				67/1	8.05	30	0.22				
				67/2	0.06	1	0.01				
				67/8	0.02	51	0.02				
				70	0.37	37	0.24				
				20	4.42	4	0.12				
				27	0.04	5	0.08				
				33	0.02	6	0.27				
				37	0.25	7	0.37				
				41	0.15	24	0.86				
				52	0.44	47	1.40				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
				56/2	0.10	48	0.09				
				71	5.80	31	0.59				
				3	0.15	09	1.44				
				17	0.06	10	0.92				
				48	0.12	13	1.22				
				66	0.25	14	0.10				
						16	0.11				
						58	0.05				
						69	0.20				
						18	0.17				
						19	0.16				
						35	0.73				
						35	0.66				
						21	0.35				
						32	0.87				
						33	0.22				
						67	0.19				
						23	0.59				
						25	0.04				
						26	1.27				
						29	0.22				
						44	0.83				
						38	0.33				
						40	0.14				
						41	0.04				
						42	1.56				
						45	0.90				
						49	0.35				
						50	6.62				
						53	0.53				
						55	0.60				
						56	0.55				
						57	1.16				
						61	0.95				
						66	0.93				
						68	0.03				
		1	**10.59**	**-**	**30.65**	**55**	**33.85**			**2**	**0.41**
14	Bamangaon	20/1	393.23								
		41	3.19								

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
		85	3.96								
		296/1	6.32								
		21	6.36								
		46	2.71								
		95/1	0.22								
		310	0.84								
		88/1K	4.50								
	95, 101, 111, 122/1,	167/1K	105.28								
		14	**526.60**								
15	Chaiti Rith	44	0.76								
		54	0.51								
		76	70.89								
		92	104.57								
		117	5.27								
		119	14.07								
		126	63.49								
		128	11.13								
		53	0.33								
		73	2.88								
		77	0.48								
		112	77.49								
		118	83.16								
		125	6.54								
		127	1.00								
	228, 75/2, 85/2,	93, 71	85.59								
		20	**516.71**								
16	Jamni	7	1.45	33	0.59	4	1.53			58	0.91
		132	81.16	44	1.15	5	0.41			59	0.15
		2	38.67	49	0.51	6	0.32			62	0.17
		81	1.88	60	0.60	8	1.00			63	0.66
		65	2.14	64	0.68	9	0.92				
		64	12.93	72	0.86	10	0.94				
		30	1.35	76	0.58	11	0.32				
		80	81.91	78	0.30	12	0.87				
		60	0.56	96	0.02	13	0.86				
		63	5.82	97	0.05	14	0.48				
		124	1.63	98	0.05	15	0.20				
		110	1.73	112	0.16	16	1.27				
		135	0.16	130	0.31	18	0.28				
				132	0.16	19	0.89				
				137	0.32	20	0.27				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
				11	0.04	21	0.19				
				17	0.23	22	0.30				
				42	22.96	23	0.16				
				65	0.57	28	0.48				
				67	0.91	29	0.71				
				82	1.92	30	1.62				
				92	0.04	32	0.38				
				95	0.09	33	0.28				
				103	0.05	34	0.75				
				106	0.06	35	0.42				
				46	1.17	36	0.55				
				61	0.13	37	1.58				
				80	0.81	38	0.68				
				101	0.35	39	0.59				
						40	0.94				
						41	0.68				
						42	0.25				
						43	1.19				
						44	1.04				
						45	0.54				
						46	0.38				
						47	1.38				
						48	0.82				
						49	0.84				
						50	1.51				
						51	1.18				
						52	0.70				
						53	1.15				
						55	2.03				
						56	0.41				
						57	0.30				
						58	0.28				
						59/1	0.25				
						67	1.35				
						70	1.48				
						71	0.85				
						72	0.60				
						73	0.34				
						74	1.14				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
						75	1.59				
						76	0.71				
						77	0.66				
						78	0.66				
						79	1.81				
						84	0.63				
						85	1.13				
						86	0.66				
						87	0.45				
						88	0.57				
						90	0.67				
						91	0.73				
						92	0.56				
						93	2.58				
						95	0.99				
						96	0.27				
						97	0.60				
						98	0.40				
						99	0.36				
						100	1.10				
						101	0.85				
						102	0.86				
						103	0.74				
						104	1.68				
						105	0.16				
						106	0.31				
						107	1.39				
						108	1.34				
						109	1.13				
						111	0.22				
						112	0.30				
						113	0.60				
						114	0.75				
						115	0.10				
						116	0.10				
						117	0.28				
						118	0.76				
						119	1.30				
						120	1.40				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
						121	0.30				
						122	0.23				
						123	0.54				
						125	0.18				
						126	0.43				
						127	0.31				
						128	0.43				
						129	0.54				
						130	0.30				
						131	0.28				
						133	2.77				
						134	0.12				
						136	0.09				
						59/2	0.40				
			230.07		**34.94**	**107**	**78.73**				**1.89**
17	Kolsa (Ex FV) Chandrapur			6	0.60	1	0.48			38	7.80
				7	0.57	113	1.00			105	0.01
				9	1.10	2	2.83			41	0.03
				11	1.64	4	0.50				
				12	0.26	62	1.85				
				13	0.75	8	0.49				
				14	0.36	56	0.76				
				15	18.15	10	0.66				
				16	0.30	93	0.20				
				17	0.34	20	0.95				
				18	0.85	24	0.74				
				19	0.59	26	1.35				
				21	0.01	82	0.70				
				22	0.05	27	0.38				
				23	0.48	28	0.26				
				25	0.28	102	0.44				
				29	0.39	30	1.21				
				31	0.44	32	0.56				
				36	0.69	33	1.37				
				37	6.75	34	1.67				
				38	0.26	35	0.77				
				41	0.80	78	0.20				
				46	0.32	39	1.68				
				49	0.40	40	0.84				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
				50	1.16	42	0.38				
				52	4.00	43	1.21				
				53	0.89	44	1.34				
				57	5.30	45	0.36				
				58	0.52	47	0.34				
				60	0.40	92	0.35				
				61	2.32	48	0.30				
				63	1.12	97	0.18				
				64	2.10	136	0.68				
				65	0.30	57	0.74				
				74	0.64	120	1.10				
				79	0.28	131	0.48				
				80	0.60	54	0.83				
				81	0.74	55	0.42				
				85	0.41	137	0.89				
				87	0.49	138	0.55				
				94	0.55	59	1.14				
				96	0.63	66	1.46				
				98	0.73	76	0.48				
				99	1.66	67	0.92				
				101	0.40	70	0.90				
				103	1.05	184	0.78				
				104	0.21	68	0.72				
				106	2.50	83	0.80				
				108	1.30	69	0.40				
				109	4.90	71	0.82				
				111	0.03	72	0.90				
				112	0.95	75	0.43				
				115	0.13	153	0.78				
				117	0.34	77	0.86				
				119	0.60	86	0.81				
				121	1.60	88	0.35				
				123	2.40	89	0.52				
				124	0.29	90	0.59				
				128	0.78	91	0.59				
				129	0.74	107	2.56				
				132	0.70	95	0.37				
				133	1.45	125	0.50				
				140	0.32	126	0.65				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
				144	1.09	100	1.38				
				145	0.20	139	0.81				
				146	5.40	105	0.49				
				147	0.74	134	0.32				
				148	0.31	114	0.93				
						118	0.93				
						116	0.74				
						155	0.22				
						123	1.75				
						122	1.20				
						130	0.87				
						135	0.74				
						149	1.80				
						150	1.10				
						151	0.58				
				70	**95.32**	**80**	**64.13**				**7.84**
18.	Rantalodhi (Ex.F.V.) Bhadravati Chandrapur			1	7.70	2	0.50			23	5.50
				2	3.90	24	0.14				
				10	1.65	3	1.55				
				11	0.55	4	0.19				
				13	4.40	23	1.03				
				15	0.89	5	0.20				
				16	1.09	7	0.36				
				17	0.81	8	2.64				
				22	6.65	6	0.28				
				25	0.25	41	0.72				
				27	6.75	10	0.46				
				30	0.57	11	0.46				
				34	1.27	13	0.60				
				37	0.47	14	0.80				
				41	1.44	15	0.85				
				42	0.38	17	0.87				
				58	0.50	18	0.63				
				61	1.19	19	0.51				
				64	0.89	20	0.70				
				3	1.15	21	0.65				
				18	0.42	22	0.74				
				19	13.21	26	0.48				
				29	0.04	27	0.37				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
				31	0.21	28	0.48				
				36	0.19	29	0.44				
				46	0.31	30	0.60				
				47	0.11	31	0.60				
				62	0.52	32	0.06				
						50	0.59				
						33	0.30				
						34	0.26				
						35	0.27				
						36	0.32				
						38	0.52				
						39	0.26				
						42	0.06				
						43	0.50				
						44	0.10				
						46	0.44				
						71	0.43				
						73	0.26				
						55	1.60				
						57	1.30				
						58	1.80				
						61	0.60				
						62	0.65				
						63	0.40				
						64	0.43				
						65	0.62				
						66	0.54				
						67	1.00				
						68	0.22				
						69	0.68				
						70	0.43				
						74	0.56				
						75	0.91				
						76	1.00				
						86	0.24				
						78	1.00				
						79	1.09				
						80	0.50				
						81	1.21				
						84	0.53				
						87	0.40				
				28	**53.59**	**64**	**40.46**			**1**	**5.50**

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
19	Ramdegi (Navegaon) Ex.F.C. Chimur Chandrapur			2	0.58	4	4.05			10	6.85
				9	0.40	5	4.34			53	5.50
				3	1.62	6	3.55				
				11	6.85	7	4.19				
				27	0.95	8	4.29				
				43	3.16	11	3.16				
						12	2.00				
						58	1.00				
						13	0.66				
						57	0.40				
						14	1.06				
						15	1.07				
						16	1.07				
						17	2.43				
						54	0.30				
						18	2.42				
						20	2.38				
						21	2.25				
						22	4.77				
						23	4.37				
						24	4.35				
						25	3.97				
						26	2.35				
						29	4.35				
						30	2.00				
						32	2.16				
						33	3.99				
						35	4.45				
						36	4.42				
						37	4.53				
						52	2.84				
						38	1.90				
						39	5.00				
						40	3.44				
						46	4.54				
						47	4.46				
						48	5.64				
						49	2.29				
						51	2.28				
						50	1.04				

S. No.	Name of Village Tahsil & District	Village Geographical Area in Ha.									
		Protected Forest		Govt. land in Charge of Rev. Deptt.		Private land cultivation area		Khadak Pahad area		Abadi Area	
		S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area	S. No.	Area
						55	5.17				
						56	2.34				
						62	2.63				
						59	3.36				
						60	2.34				
						61	2.00				
						62	3.75				
						65	4.39				
						66	4.44				
						67	4.57				
						68	3.99				
						70	4.56				
						71	5.08				
				6	13.56	53	168.88			2	12.35
	Grand Total	–	3250.63	–	264.82	–	443.97	–	337.10	–	29.89

APPENDIX - X

(Para No. 14.2)

THE PROFORMA OF WILDLIFE COMPARTMENT HISTORY FORM

Name of the Protected Area : Range : Round :

Name of the Beat : Compartment Number:

Area in Hectares : Date

1. Location
2. Boundaries :
   a) North
   b) South
   c) East
   d) West

2. A status of Boundaries :
3. Permanent features:
4. Topographical features :
   (Give altitudinaf variation, aspect and slope)
5. Geology and Rock :
6. Soil :
   (Give type, texture, colour, depth, humus and drainage)
7. Vegetation (Champion and Seth Category)
   Top Canopy, Middle Canopy, Shrub Layer, Grasses
   a) Dominant spp.
   b) Other spp.
   c) Average Height
   d) Density

8) a) Regeneration of key species :

Name of Species	Natural Regeneration		Artificial Regeneration
	Seeding	coppice	

8. b) State whether all age classes are represented :

e) State whether regeneration is adequate to restock the area :

9. Plantations : Yes / No

Name of Species	Year of Plantation	Young/Mature	Average Height	Density

10. Water availability :

a) Sources : None Artificial Natural

b) Seasonal availability : July-Sept. /July-Dec. / July-march / July-June

11. Salt Licks : None Artifical Natural

12. Weeds : Yes / No

Species Low / Medium /High

13. Lopping:

None Low / Medium / High

14. Grazing

None Low / Medium / High

15. Fuelwood Removal :

None Low / Medium / High

16. Illicit Cutting :

None Low / Medium / High

17. Non Timber Forest Produce Collection :

Name of the produce. Time of Collection Extent of Collection

18. Fire incidence : Yes / No

Time Period Low / Medium / High

19. Soil Erosion : (Give Type and Extent)

20. Wildlife Use :

a) Name of the species :

b) Relative abundance of each species

Species Rare/Occassional / Common / Abudant

c) Presence of indirect evidences :

(Pugmarks, Dung, Pellets, Antler rubbing, Wallows)

d) Presence of species-specific habitat:

(Nests, Dens, Caves, Cliffs, Taius)

21. Human Settlements: Yes/No

Name Number of dwellings

<10 10-25 25-50 >50 22.

Grazing Camps : Yes / No

Name Number of cattie units

23. Any other information of special interest :

APPENDIX - XI
REVISED ENQUIRY REPORT OF ANDHARI WILDLIFE SANCTUARY BY SDO WARORA
(Para No. 1.1.5)

वाछावे :- १. मा. आयुक्त -ागपूर विभाज -ागपूर यांचे पत्र ज्र. LND 3/CR 2/99/8-2/WS 1467/99 Dated 25th October of 1999.

२. मा. जिल्हाधिज्ञारी, चंद्रपूर यांचे पत्र ज्र. मशा/ज्ञार्या-४/टे-३/आरबी-२/२०००/४३, दि.७ जा-ेवारी, २०००.

३. उपव-ासंरजज्ञ, ताडोबा-अंधारी व्याघ्र प्रज्ल्प, चंद्रपूर यांचे पत्र ज्रमांज्ञ ज्ञज-५/सर्व्हे/चौज्ञशी/३२९ दि-ांज्ञ २० ऑजष्ट, १९९८.

४. उपविभाजीय अधिज्ञारी तथा विशेष बंदोबस्त अधिज्ञारी वरोरा यांचे चौज्ञशी आदेश दि.२९ डिसेंबर, १९९७.

५. उपविभाजीय अधिज्ञारी तथा विशेष बंदोबस्त अधिज्ञारी वरोरा यांचे सुधारीत चौज्ञशी आदेश दि-ांज्ञ १७ एप्रिल, २०००.

६. मा. व-ासंरजज्ञ (व-यजीव), -ागपूर यांचे अ.शा. पत्र ज्रमांज्ञ ज्ञज-१(ब)/सर्व्हे/५५२, दि.२१/७/२०००.

७. मा. आयुक्त -ागपूर विभाज, -ागपूर यांचे अ.शा. पत्र ज्रमांज्ञ ज्ञार्या-८(२)/सीआर-२/९९/ ज्ञावी/२०००/१५३६, दि-ांज्ञ २९ जुलै, २०००.

सुधारीत चौज्ञशी आदेश

(दि-ांज्ञ ५ ऑजष्ट, २०००)

महाराष्ट्र शास-ा महसुल व व-विभाज ज्ञडील अधिसुच-ा ज्रमांज्ञ डब्ल्युएलपी-१०८५/सीआर-७५/एफ-५(३) दि-ांज्ञ २५/२/१९८६ अ-वये अधिसुच-ा ि-र्जमित ज्ञरु-ा अंधारी अभयारज्य घोषीत ज्ञरज्यात आले व सदर अधिसुच-ा शास-ा राजपत्रात दि-ांज्ञ २०/०३/१९८६ रोजी प्रसिध्द झाली. सदरहू अंधारी अभयारज्यामध्ये समाविष्ट असलेल्या जावातील ि-स्तारा बाबत ज-ासामा-यांचे हक्ज्ञ व सवलती संबंधी चौज्ञशी ज्ञरज्याज्ञरीता शास-ाचे आदेश ज्रमांज्ञ डब्ल्युएलपी-१०९१/प्र.ज्र.२६६/फ-५, दि-ांज्ञ १४/०७/१९९४ अ-वये उपविभाजीय अधिज्ञारी यांची विशेष बंदोबस्त अधिज्ञारी म्हजू-ा ि-युक्ती ज्ञरज्यात आली. त्या-ुसार उपविभाजीय अधिज्ञारी तथा विशेष बंदोबस्त अधिज्ञारी वरोरा यां-ी सविस्तर चौज्ञशी ज्ञरु-ा दि-ांज्ञ २९ डिसेंबर, १९९७ रोजी आपला चौज्ञशी ि-ज्र्ष लिहू-ा आदेश पारित ज्ञेला. व-यजीव (संरजज अधि-ियम १९७२ च्या तरतुदी-ुसार सदर चौज्ञशीची व्याप्ती फक्त जैरावीव व-ा जेत्रपुरतीच मर्यादीत असल्यामुळे प्रस्तावित अंधारी अभयारज्यामध्ये समाविष्ट जैराजीव व-ा जमी-ा बाबत जालील प्रमाजे आदेश पारीत ज्ञरज्यात आले.

१. अभयारज्याचे आतील असलेले ज्ञोळसा, रा-ातळोधी, बोटेझरी, पळसजांव सि., जामजी व रामदेजी (-ावेजांव) या सहा जावांचे संपूर्ज जेत्र अभयारज्यात समाविष्ट ज्ञरु-ा तेथील जाजजी जमी-ा व ि-स्तार हक्ज्ञ संपाद-ा ज्ञरज्यास हरज्ञत -ाही. सदर सहा जावांचे योज्य ठिज्ञाजी पु-र्वस-ा ज्ञरज्यात यावे.

२. अभयारज्याचे सिमेवरील इतर १३ जावाचे प्रस्तावीत अभयारज्यात समाविष्ट जाजजी व सरज्ञारी जमी-ा अभयारज्यामधू-ा वजळज्यात यावी.

वरील आदेशाविरुध्द उपव-ासंरजज्ञ ताडोबा अंधारी व्याघ्र प्रज्ल्प, चंद्रपूर यां-ी त्यांचे पत्र ज्रमांज्ञ ज्ञज-५/सर्व्हे/ चौज्ञशी/३२९ दि-ांज्ञ २० ऑजष्ट, १९९८ अ-वये मा. आयुक्त -ागपूर विभाज -ागपूर यांचेज्ञडे अपील दाजल ज्ञेली. मा. आयुक्त -ागपूर विभाज -ागपूर यां-ी त्यांचे दि-ांज्ञ १ जा-ेवारी, २००० चे आदेशा-वये उपविभाजीय अधिज्ञारी वरोरा यां-ा अपील ज्ञेलेल्या मुद्यांवर फेरचौज्ञशी ज्ञरु-ा २७ डिसेंबर, १९९७ च्या मुळ आदेशात योज्य ते सुधार ज्ञरज्याचे ि-र्देश दिले.

त्या-ुसार सदर प्रज्र्जी फेरचौज्शीसाठी उपव-ासंरजज ताडोबा अंधारी व्याघ्र प्रज्ल्प चंद्रपूर यांचेशी संबंधीत मुद्यांवर सजोल चर्चा ज्रज्यात आली व दस्ताऐवजाची पडताळजी ज्रज्यात आली. उपव-ासंरजज ताडोबा-अंधारी व्याघ्र प्रज्ल्प चंद्रपूर यां-ी जालील मुद्यावर अपील जेलेली आहे.

१. १३ जावापैजी जाटेझरी रिठ या जावाचा संपूर्ज जेत्र (जाजजी जमी-ा, सरजारी जमी-ा, संरजीत व-ा) अंधारी अभयारज्यामधू-ा वजळज्यात येवू -ाये जारज सदर जावाचे जेत्र चारही बाजूं-ी ताडोबा राष्ट्रीय उद्या-ाा-ो वेडलेला आहे.

२. इतर १२ जावाचे संपूर्ज संरजीत व-ा भा-ुसजिंडी येथील संरजीत व-ाच्या सध्यभाजी असलेले ११.४५ हे.आर. जमी-ा अंधारी अभयारज्यामधू-ा वजळज्यात येवू -ाये. जारज सदर जेत्र हे ताडोबा राष्ट्रीय उद्या-ाला बफर झो-ा म्हजू-ा उपयोजी आहे.

उपव-ासंरजज ताडोबा अंधारी व्याघ्र प्रज्ल्प, चंद्रपूर यां-ी उपस्थित जेलेले मुद्दे व जावज्यांचे म्हजजे विचारात घेवू-ा तसेच उपव-ासंरजज ताडोबा अंधारी व्याघ्र प्रज्ल्प चंद्रपूर यांचेशी चर्चा ज्रु-ा तत्जाली-ा उपविभाजीय अधिजारी तथा विशेष बंदोबस्त अधिजारी वरोरा यां-ी जालीलप्रमाजे सुधारीत पुरज आदेश दि-ांज १७ एप्रिल, २००० रोजी पारित जेला.

१. अंधारी अभयारज्यात समाविष्ट असलेल्या जावापैजी अंशत: बाधीत होत असलेले मौजा जाटेझरी तालुजा भद्रावती येथील जाजजी जेत्र १.४१ हेक्टर आर ताडोबा राष्ट्रीय उद्या-ाचे मध्यभाजात असू-ा सदरहू जमी-ीच्या चारही बाजू-ो ताडोबा राष्ट्रीय उद्या-ाा-ो वेढलेला आहे. मौजा जाटेझरी ता. भद्रावती येथील वर उल्लेजीत जमी-ा अभयारज्यात समाविष्ट जेल्यास भविष्यात व-यजीव व्यवस्थाप-ोवर भरु-ा जाढता येजारा विपरीत परिजाम होजार -ाही व ि-र्दोष अभयारज्य तयार ज्रज्याचा शास-ाचा उद्देश सुध्दा सफल होईल. म्हजू-ा मौजा जोटेझरी येथील जाजजी १.४१ हे.आर जमी-ा व-यजीव संरजज अधि-ायम १९७२ ला १९९१ मध्ये ज्रज्यात आलेल्या सुधारजा ज्लम २४(२)(ज) मधील तरतुदी -ुसार प्रस्तावित अंधारी अभयारज्यात समाविष्ट ज्रज्यास हरज्त -ाही. मात्र सदरहू जमी-ीवरील वहीवाटीचे असलेले हक्ज अबाधीत ठेवज्यासाठी मौजा वडाळा तु. संरजीत व-ाात पर्यायी व्यवस्था ज्रु-ा देज्यात यावी.

२. व-यजीव (संरजज) अधि-ायम १९७२ ला १९९१ मध्ये ज्रज्यात आलेल्या सुधारजामुळे ज्लम २४(२)(ज) अ-वये मौजा जाटेझरी ता.भद्रावती येथील जमी-ीवर असलेले इतर जावातील लोजांचे तसेच स्थाि-ज लोजांचे ि-स्तार हक्ज, वहीवाटी जिंवा इतर हक्ज अभयारज्य घोषीत झाल्या-ांतर लजतचे संरजीत व-ाात हक्ज अबाधीत राजज्याबाबत राज्यांचे मुज्य व-यजीव रज्ज यांचे परवा-ाजी-ो आदेश ि-र्जमीत ज्रज्यात यावा, ही वि-ंती.

३. मौजा भा-ुसजिंडी तालुजा वरोरा येथील जमी-ीवर जवळपासच्या सहा जावातील लोजांचे विस्ताराचे हक्ज असू-ा ते जायम ठेवज्यास लोजांची आज्रही भुमिजा असल्यामुळे मौजा भा-ुसजिंडी तालुजा वरोरा येथील जमी-ा प्रस्तावित अंधारी अभयारज्यातू-ा वजळज्यात यावी.

४. पुर्जत: बाधीत मौजा जोळसा, बोटेझरी, पळसजांव, रा-ातळोधी, जामजी, रामदेजी या सहा जावाव्यतिरिक्त उर्वरित अंशत: बाधीत असलेले १३ जावातील जाजजी जमी-ा, सरजारी जमी-ा व आबादी जमी-ा एजूज जेत्र २१८.७२ हेक्टर आर वजळज्यास उपविभाजीय अधिजारी तथा विशेष बंथेबस्त अधिजारी वरोरा यां-ी आदेश पारित जेला होता. सदरहू जेत्र वजळज्यात यावे. तसेच त्यावरील अतिआवश्यज ि-स्तार हक्ज, वहिवाटी जिंवा इतर हक्ज, वहिवाटी जिंवा इतर हक्ज जायम ठेवज्यासाठी पर्यायी जमी-ा उपलब्ध -ासल्यामुळे अभयारज्यात समाविष्ट ज्रज्यात येवू -ाये व माजील आदेश जायम ठेवज्यात यावा.

५. उपविभाजीय अधिजारी तथा विशेष बंदोबस्त अधिजारी वरोरा यां-ी त्यांचे दि-ांज २९ डिसेंबर १९९७ चे आदेत -ामुद जेलेले वरील जावाव्यतिरिक्त इतर आदेश जसेचे तसेच जायम राहतील. त्यामध्ये जोजताही फेरबदल ज्रज्यात येवू -ाये.

व-ासंरजञ (व-यजीव), -ाजपूर यां-ी त्यांचे संदर्भ ञ. ६ अ-वये उपविभाजीय अधिञारी तथा विशेष बंथेबस्त अधिञारी, वरोरा यां-ी दि-ांञ १७ एप्रिल, २००० रोजी पारित ञेलेल्या सुधारीत आदेशाची पडताळजी ञरु-ा सदरहू आदेशात ञाही तृट्या राहीलेल्या असल्याचे मा. आयुक्त -ाजपूर विभाज, -ाजपूर यां-ा वरील संदर्भाञित अ.शा.पत्र ञ्रमांञ ६ अ-वये ि-ादर्श-ास आजू-ा दिलेले आहे. त्याअ-ुषंजा-ो मा. आयुक्त -ाजपूर विभाज -ाजपूर यां-ी त्यांचे अ.शा.पत्र ञ्रमांञ ७ अ-वये या ञार्यालयास ि-ादर्श-ास आजू-ा दिले व सदरहू त्रृट्याची पुर्तता ञरु-ा दि-ांञ १७/०४/२००० चे आदेशात सुधारजा ञरञ्यास ि-र्देश दिलेले आहेत. व-ासंरजञ (व-यजीव), -ाजपूर यां-ी त्यांचे संदर्भाञित पत्र ञ्रमांञ ६ मध्ये दिलेल्या त्रृटी जालीलप्रमाजे आहे.

१. ञाटेझरी या जावांचे सर्व जमी-ा ११९.५९ हे.आर. अभयारञ्यात समाविष्ट ञरञ्याऐवजी फक्त १.४१ हे.आर. जाजजी जमी-ीचाच उल्लेज ञेलेला आहे.
२. आदेशाचे अ-ुञ्रमांञ ३ वर पु-हा १३ जावातील जमी-ा वजळञ्याचा उल्लेज ञेला आहे. वास्तविञ ञाटेझरी सोडू-ा फक्त १२ जावाची २७८६.७० हे.आर. जमी-ा वजळञ्याबाबत आदेशात उल्लेज ञरावयास पाहीजे होता.
३. पांढरपौ-ी व जातोडा या जैरव-ा जमी-ीबाबत आदेशात उल्लेज -ाही याचा सुध्दा उल्लेज असजे जरुरी आहे.

उपरोक्त तृट्यापैजी मौजा पांढरपौजी व जातोडा हे जांव पुर्वी ताडोबा राष्ट्रीय उद्या-ाच्या सरहद्दीचा आत होते. त्या जावाचे पु-र्वस-ा, ताडोबा राष्ट्रीय उद्या-ाच्या सरहद्दीचा बाहेर ञरञ्यात आलेले आहे. वरील उठविलेल्या दो-ही जावांची जमी-ा ताडोबा राष्ट्रीय उद्या-ा विभाजाच्या अधिपत्याजाली आहे. त्या जमी-ीवर ञोजाचेही ि-स्तार, चराई व इतर ञोजतेच हञ -ाही. ञरीता या जावाची ञार्यवाही ञरजे आवश्यञ -ाही. असे तज्जाली-ा उपव-ा संरजञ ताडोबा राष्ट्रीय उद्या-ा, चंद्रपूर यां-ी त्यांचे पत्र ञ्रमांञ ञ्ज-१/पांच/अंधारी अभयारञ्य/१/८७-८८/१३३५ दि-ांञ २८/८/१९८९ अ-वये या ञार्यालयास ञळविले होते. त्यामुळे सदरहू दो-ही जावाचा समावेश ञरञ्यात आलेला -व्हता. परंतू मा. व-ासंरजञ (व-यजीव) -ाजपूर यांचे वरील संदर्भाञीत पत्र ञ. ६ अ-वये मा. आयुक्त -ाजपूर विभाज -ाजपूर यांचे ि-ादर्श-ास आजू-ा व मा. आयुक्त -ाजपूर विभाज -ाजपूर यां-ी त्यांचे संदर्भाञित पत्र ञ्रमांञ ७ अ-वये सदर जावाचा समावेश अंधारी अभयारञ्य संबंधा-ो ञेलेल्या दि-ांञ १७/४/२००० चे आदेशात ञरजे आवश्यञ आहे. असे -ामुद ञेले असल्यामुळे उपव-ासंरजञ ताडोबा अंधारी व्याघ्र प्रञल्प, चंद्रपूर यांचेशी याबाबतीत चर्चा ञरञ्यात आली तसेच मा. जिल्हाधिञारी, चंद्रपूर यां-ी दि-ांञ २६/७/२००० ला घेतलेल्या सभेमध्ये सदरहू वरील दो-ही जावांचा समावेश ञरञ्यास ि-र्देश दिले. त्या-ुसार अभयारञ्याचे जेत्र ि-र्भेळ रहावे व अभयारञ्य भविष्यात बाह्य हस्तजेपापासू-ा मोञ्ळे राहावे म्हजू-ा सदर दो-ही जावाचा समावेश अंधारी अभयारञ्यात ञरञ्यात यावा असे माझे मत झाले आहे.

व त्या-ुसार मा. व-ासंरजञ (व-यजीव), -ाजपूर यां-ी संदर्भाञित पत्र ञ. ६ तसेच मा.आयुक्त -ाजपूर विभाज -ाजपूर यांछो संदर्भाञित पत्र ञ. ७ व उपव-ासंरजञ ताडोबा अंधारी व्याघ्र प्रञल्प, चंद्रपूर यां-ी उपस्थित ञेलेले मुद्दे व त्यांच्याशी ञेलेली चर्चा, तसेच मा. जिल्हाधिञारी चंद्रपूर यां-ी दि-ांञ २६/७/२००० चे सभेमध्ये दिलेले ि-र्देश इ. विचारात घेवू-ा मी उपविभाजीय अधिञारी तथा विशेष बंदोबस्त अधिञारी, वरोरा मला दिलेल्या अधिञाराचा वापर ञरु-ा जालीलप्रमाजे सुधारीत आदेश पारीत ञरीत आहे.

सुधारीत आदेश

१. दि-ांञ २७ डिसेंबर १९९७ चा मुळ आदेशा-ुसार मौजा ञोळसा, बोटेझरी, रा-ातळोधी, पळसजांव (सि.) जामजी व रामदेजी (-ावेजांव) येथील सर्व जाजजी जमी-ी, सरञारी जैरव-ा जमी-ा, आबादी, संरजीत व-ा योञ्य ते हञ संपाद-ाची ञार्यवाही होवू-ा अंधारी अभयारञ्यात समाविष्ट ञरञ्यात यावे. शास-ाचे ि-ायम व धोरजा-ुसार सदर सहा ही जावाचे योञ्य ठिञाजी पु-र्वस-ा ञरञ्यात यावे.
२. मौजा ञोटेझरी ता. भद्रावती येथील जालील प्रमाजे सर्व जमी-ा

जाजजी जमी-ा	जैर व-ा सरञारी जमी-ा	संरजीत व-ा	एञुज जेत्र
१.४१ हे.आर	२६.१४ हे.आर	९२.०४ हे.आर	११९.५९ हे.आर

योज्य तो हक्ज संपद-ाची ज्यंवाही होवू-ा अंधारी अभयारज्यात समाविष्ट ज्रज्यात यावी. संबंधीत व-ातील झारजावर विलोडा, जाटवल, घोसरी, जुटवंडा, वडाळा येथील जुरांचा मर्यादीत जाळासाठी पाजी पिज्याच्या वहीवाटीचा हक्ज वडाळा संरजीत व-ात पर्यायी व्यवस्था ज्रु-ा स्था-ांतरीत ज्रज्यात यावा. जाटेझरी येथील झारजाच्या पाज्यापासू-ा जे जाही शेती ओलीत होत होती ते वहीवाटीचे हक्ज सुरु ठेवज्याबाबत व-यजीव संरजज अधि-ायमांचे ज्लम २४(२)(ज) अ-वये मुज्य व-यजीव रजज यां-ा परवा-ाजी देज्याची वि-ंती ज्रज्यात येत आहे. सदर परवा-ाजी व-यजीव व्यवस्थाप-ेच्या हिताचे दृष्टी-े योज्य त्या अटी टाजू-ा देज्यात यावे.

१. वडाळा तुज्रम, सो-ाजांव तू., भा-ुसजिंडी, सातारा, टेज्राडी, मांडवझरी, चैती रिठ, बाम-ाजांव, घोसरी, चिचघाट, जुटवंडा दि. तामसी व जाटवल तु. या १२ जावांची प्रस्तावीत अंधारी अभयारज्यात समाविष्ट संरजीत व-ा, जाजजी जमी-ा, सरज्ारी जैरव-ा जमी-ा अंधारी अभयारज्यातू-ा वजळज्यात येत आहे. पैजी संरजीत व-ा हे व-ा विभाजाच्या ताब्यातच राहील व त्याचा वैधा-िज दर्जा हा सुध्दा संरजीत व-ा म्हजू-ा या पुढेही ज्ायम राहील.

२. शास-ा ि-र्जय ज्रमांज एफएलडी/३६६९-२१४४९१-डब्ल्यु(११) दि-ांज २५/६/१९७० अ-वये जातोडा व पांढरपौ-ी व-ाज्राम सवाटी ि-र्वजीज्रज व अराजीवज्रज जेलेली जालील प्रमाजे जमी-ा अंधारी अभयारज्यात समाविष्ट ज्रज्यात यावी.

जावांचे -ांव	अराजीवज्रज जेलेली जमी-ा
जातोडा	६७.९९ हे.आर
पांढरपौ-ी	५४.६३ हे.आर.
एजू ज	**१२२.६२ हे.आर**

३. वरील प्रमाजे आदेश पारित जेल्या-ांतर प्रस्तावित अंधारी अभयारज्यात समाविष्ट एजूज जैरराजीव व-ाजमी-ा पैजी अंतीमत: अंधारी अभयारज्यात समाविष्ट ज्रज्यात आलेल्या जमी-ीचा जोषवारा सोबतच्या परिशिष्ट १ मध्ये जोडज्यात येत आहे.

४. इतर बाबतीत थि-ांज २९ डिसेंबर, १९९७ चे आदेश ज्ायम राहतील.

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उपविभाजीय अधिज्ारी तथा
विशेष बंदोबस्त अधिज्ारी
वरोरा

प्रतिलिपी :- १. मा. आयुक्त, -ाजपूर विभाज, -ाजपूर यां-ा माहिती तथा उचित आदेशार्थ सवि-ाय सादर.
२. मा. जिल्हाधिज्ारी, चंद्रपूर यां-ा माहिती तथा उचित आदेशार्थ सवि-ाय सादर.
३. मा. मुज्य व-ासंरजज (व-यजीव), महाराष्ट राज्य, -ाजपूर यां-ा माहिती ज्रीता सवि-ाय सादर.
४. मा. उप व-ासंरजज, ताडोबा-अंधारी व्याघ्र प्रज्ल्प, चंद्रपूर यां-ा माहिती ज्रीता सवि-ाय सादर.

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परिशिष्ट-१

अंधारी अभयारण्यात अंतीमत: समाविष्ट जैरराजीव व-ा व इतर जमी-ीचा तक्ता

अ. क्र.	जावाचे-गांव	जाजजी जमी-ा हे.आर	आबादी जमी-ा हे.आर	जैरव-ा सरजारी जमी-ा हे.आर	राजीव व-ा जमी-ा हे.आर	संरजीत व-ा जमी-ा हे.आर	एजूज जेत्र जमी-ा हे.आर
१	जोळसा	६४.१३	७.८०	९५.३२	१११.९१	--	२७९.१६
२	बोटेझरी	३३.८५	०.४१	३०.६५	--	१०.५९	७५.५०
३	पळसजांव	५६.५१	१.९४	१०.६२	--	८७.९०	१५६.९७
४	रा-ातळोधी	४०.४६	५.५०	२९.७५	९९.५५	-	१७५.२६
५	जामजी	७८.७३	१.८९	३४.९४	--	२२८.८३	३४४.३९
६	रामदेजी	१६८.८८	१२.६५	१३.५७	२९७.८४	--	४९२.६४
७	जाटेझरी	१.४१	--	२६.१४	--	९२.०४	११९.५९
८	जातोडा	--	--	६७.९९	--	--	६७.९९
९	पांढरपौ-ी	--	--	५४.६३	--	--	५४.६३
एजूज		४४३.९७	२९.८९	३६३.६१	५०९.३०	४१९.३६	१७६६.१३
एजूज जैरराजीव व-ा जमी-ा		४४३.९७	२९.८९	३६३.६१	--	४१९.३६	१२५६.८३

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वरोरा

APPENDIX – XII

(Para No. 1.3)

STATEMENT SHOWING THE COMMON MAMMALS

Sl. No.	Common Name	Zoological Name
	Order ; Primata	
	Family : Colobinae	
1	Hanuman Langur	Presbytis entellus
	Order : Carnivora	
	Family : Felidae	
2	Tiger	Panthera tigris tigris
3	Leopard	Panthera pardus
4	Leopard Cat	Felis bengalensis
5	Rusty spotted Cat	Felis rubiginosa
6	Jungle Cat	Felis chaus
7	Desert Cat	Felis libyca
	Family : Viverridae	
8	Small Indian Civet	Viverricula indica
9	Toddy Cat	Paradoxurus hermaphroditus
	Family :Herpestidse	
10	Common Mongoose	Herpestes edwardsi
11	Ruddy Mongoose	Herpestes smithi smithi
12	Small India Moongoose	Herpestes auropunctatus
	Family : Hyaenidae	
13	Striped Hyena	Hyaena hyaena
	Family : Canidae	
14	Wolf	Canis lupus pallipes

Sl. No.	Common Name	Zoological Name
15	Jackal	Canis aureus
16	India Wild dog	Cuon alpinus
	Family : Ursidae	
17	Sloth Bear	Melursus ursinus
	Family : Mustelidae	
18	Ratel	Mellivora capensis
	Order : Insectiora	
	Family : Turpalidae	
19	Indian Tree Shrew	Anathana ellioti
	Family : Soricidae	
20	Grey Musk Shrew	Suncus murinus
	Order : Chiroptera	
21	Flying Fox	Pteropus giganteus
22	Fulvous Fruit Bat	Rousettus leschenaulti
23	Bearded Sheath – Tailed Bat	Taphozous melanopogon
24	India Pipistrelle	Pipistrellus coromandra
	Order : Rodentia	
	Family: Sciurdae	
25	Common Giant Flying Squirrel	Petaurista petaurista
26	Three Striped Palm Squireel	Funambulus palmarum
	Family: Muridae	
27	Indian Gerbilles	Tatera indica
28	Metad	Millardia meltada
29	Indian Field Mice	Mus booduga
30	Common House Rat	Rattus rattus

Sl. No.	Common Name	Zoological Name
31	Bandicoot Rat	Bandicota indica
	Family: Hystricidae	
32	Indian Porcupine	Hystrix indica
	Order: Lagomorpha	
	Family: Leporidae	
33	Rufostailed Hare	Lepus nigricollis (ruficaudatus)
	Order: Artiodactyia	
	Family: Bovidae	
34	Gaur	Bos gaurus
35	Fourhorned Antelope	Tetracerus quadricornis
36	Blue Bull/Nilgai	Boselaphus tragocamelus
	Family: Cervidae	
37	Sambar	Cervus unicolor
38	Spotted Deer	Axis axis
39	Barking Deer	Muntiacus muntjak
	Family: Suidae	
40	Indian Wild Boar	Sus scrofa
	Order: Pholidata	
	Family: Manidae	
41	Indian Pangolin	Manis crassicaudata

APPENDIX – XIII

(Para No. 1.3)

STATEMENT SHOWING THE COMMON FISHES, REPTILES AND AMPHIBIANS

Sl. No.	Common Name	Zoological Name
	Variety : Carps	
	Family: Cyprinidole	
1	Chelliah	Oxygadster bacaila
2	Karvari	Puntius sophore
3	Gadar	Punctius ticto
4	Bata	Labeo bata
5	Toha	Labeo rohita
6	Mrugal	Cirrhinus mrigala
	Variety: Cat Fishes	
	Family: Saccobranchidae	
7	Ingir	Heteropneustes fossilis
	Variety: Cat Fishes	
	Family: Clariidae	
8	Magur	Clarias batrachus
	Variety: Cat Fishes	
	Family: Siluridae	
9	Sawla	Wallago attu
10	Wati	Aitia coila
	Variety: Cat Fishes	
	Family: Bagaridae	
11	Shengata	Mystus seenghala
12	Tengra	Mystus uittatus
	Variety: Knife-Fishes	
	Family: Notopteridae	
13	Moh	Notopterus notopterus

Sl. No.	Common Name	Zoological Name
	Variety: Gar-Pikes	
	Family: Belonidae	
14	Chachya	Xnentodon cancila
	Variety: Grey-mullets	
	Family: Mugilidae	
15	Wadoli	Rhinomugil corsinla
	Variety: Snake-Headed Fishes or Murrels	
	Family: Channidae	
16	Dalak/Murral	Chana striatus
17	Botaru/Gurrai	Chana punctatus
18	Arasal/Phus Murral	Channa marulius
	Variety: Perches	
	Family: Mardidae	
19	Dudar Machli / Dukar	Nardus nardus
	Variety: Glass-Fishes	
	Family: Ambassidae	
20	Zanjal / Chandua	Ambassis ranga
	Variety: Gobies	
	Famil: Gobiidae	
21	Ghasara	Glossogobius giruis
	Variety: The Sping Eds	
	Family: Mastocembelidae	
22	Bam / Wabut	Mastocembelus armatus
23	Khalwawur	Mastocembelus pancalus

Sl. No.	Common Name	Zoological Name
	LIST OF REPTILES	
	(A) SNAKES	
	Order: Serpentes	
	Infra Order: Scolecophida	
	Family: Typhlopinae	
	Subfamily: Typhlopinae	
1	Common Worm Snake	Typhlina bramina
2	Beaked Worm Snake	Typhlina acutus
	Family: Boidae	
	Subfamily: Pythonianae	
	Indian Python	Python molursus
	Subfamily: Boinae	
4	Common Sand Boa	Eryx conicus
5	Red Sand Boa	Eryx johnli
	Infra Order: Caenophidia	
	Family: Dipsadidae	
	Subfamily: Lycodontinae	
6	Common Wolf Snake	Lycodon aulicus
7	Common Kukri Snake	Oligodon arnesis
	Family: Natricidae	
8	Striped Keelback	Amphiesma stolata
9	Green Keelback	Macropisthodon plumbicolor
10	Checkered Keelback	Xenochrophis piscator
11	Buffstriped Keelback	Natrix stoleta
12	Olive Keelback	Atretium schistosum
	Family: Colubridae	
	Subfamily: Colubrinae	
13	Common Trimket Snake	Elaphe helena
14	Rat Snake	Ptyas mucosus

Sl. No.	Common Name	Zoological Name
15	Banded Racer	Agryrogena fasciolatus
16	Gunther's Racer	Argyrogena gracilis
17	Common Bronzeback Tree Snake	Dendrelaphis tristis
18	Common Vine Snake	Ahaetulla nasutus
	Family: Homalapsidae	
	Subfamily: boiginae	
19	Common Cat Snake	Boiga trigonata
	Subfamily: Dasypeltinae	
20	Common Krait	Bungarus caeruleus
21	Slender Coral Snake	Callaphis melanurus
22	Common Cobra	Naja Naja
	Family: Viperidae	
	Subfamily: Viperniea	
23	Russells Viper	Vipera russellii
24	Saw-scaled Viper	Echis carinatus
	Subfamily: Crotalinae	
25	Bamboo Pit Viper	Trimeresurus gramineus
	(B) CROCODILES	
1.	Marsh Crocodile or Mugger	Crocodylus palustris
	(C) LIZARDS	
1	Common Indian Monitor	Varanus bengalensis
2	Garden Lizard	Calotes versicolor
3	Indian Chameleon	Chameleon zeylanicus
4	Common Skink	Mabuiya carineta
	LIST OF AMPHIBIANS	
1	India Frog	Rana Tigerina
2	India Burrowing Frog	Rana brevicipis
3	Tree Frog	Rhacophorus maculatus
4	Common Toad	Bufo malanosticlus
5	Skipper Frog	Rana species

APPENDIX – XIV

(Para No. 1.3)

STATEMENT SHOWING THE COMMON BIRDS

Sl. No.	Common Name	Zoological Name
	Order: Podicipitiformes	
	Family: Podicipedidae	
1	Little Grebe	Podiceps ruficollis-capensis
	Order: Pelecaniformes	
	Family: Phalacrocoracidae	
2	Large Cormorant	Phalacrocorax carbo-sinesis
3	Little Cormorant	Phalacrocorax niger
4	Darter	Anhinga rufa-melangoster
	Order: Ciconiformes	
	Family: Ardeidae	
5	Purple Heron	Ardea purpurea-purpurea
6	Large Egret	Ardea Alba-alba
7	Indian Poind Heron	Ardea grayii-grayii
8	Cattle Egret	Bubulcus ibis-coromandus
9	Median Egret	Egretta intermedia
10	Little Egret	Egretta intermedia
11	Night Heron	Nycticorax nycticorax
12	Grey Heron	Ardea cinerea
	Family: Ciconiidae	
13	Painted Stork	Mycteria leucocephala
14	Openbill Stork	Anastomus oscitans
15	White Necked Stork	Ciconia aepiscopus
16	Lesser Adjutant	Leptoptilus javanicus

Sl. No.	Common Name	Zoological Name
	Family: Threskiornithidae	
17	White Ibis	Threskiornis aethiopica
18	Black Ibis	Pseudibis papillosa
19	Spoonbill	Platalea leucorodia
	Order: Anseriformes	
	Family: Anatidae	
20	Barheaded Goose	Anser indicus
21	Lesser Whistling Teal	Dendrocygna javanica
22	Large Whistling Teal	Dendrocygna bicolor
23	Ruddy Shelduck	Tadorna ferrugiea
24	Pintail	Anas acuta
25	Spotbilled Duck	Anas poecilorhyncha
26	Gadwall	Anas strepers
27	Wigeon	Anas Penelope
28	Garganey	Anas querquedula
29	Shoveller	Anas clypeata
30	Common Pochard	Aythya ferina
31	Cotton Teal	Nettapua coromandelianus
32	Comb Duck	Sarkidiornis melanotos
33	Redcrested Pochard	Aythya nyroca
34	White-Eyed Pochard	Aythya nyroca
	Order: Falconiformes	
	Family: Accipitridae	
35	Blackwinged Kite	Elanus caeruleus
36	Honey Buzzard	Pernis ptilorhyncus
37	Pariah Kite	Milvus migrans govinda
38	Brahminy Kite	Haliastur Indus
39	Shikra	Accipiter badius

Sl. No.	Common Name	Zoological Name
40	White-Eyed Buzzard Eagle	Butastur teesa
41	Crested Hawk Eagle	Spinzaetus cirrhatus
42	Greyheaded Fishing Eagle	Ichthyophaga ichthyaetus
43	Marsh Harrier	Circus aeruginosus
44	Crested Serpent Eagle	Spilornis cheela
45	Osprey	Pandion Halizetus
46	Kestrel	Falco tinnunculuc
47	Sparrow Hawk	Accipiter nisus
	Order: Galliformes	
	Family: Phasianidae	
48	Painted Patridge	Francolinus pictus
49	Grey Patridge	Francolinus pondicerianus
50	Jungle Bush Quail	POerdicula asiatica
51	Rock Bush Quail	Perdicula argoondah
52	Rain Quail	Conturnix coromandelica
53	Red spurfowl	Gallperdix spadicea
54	Grey Jungle Fowl	Gallus soneratii
55	Common Peafowl	Pavo cristatus
	Order: Gruiformes	
	Family: Rallidae	
56	Whitebrested Waterhen	Amauuronis phoenicurus
57	Moorhen	Gallinula chloropus
58	Purple Moorhen	Preophyrio porphyrio
59	Coot	Fulica atra
	Order: Charadriformes	
	Family: Jacanidae	
60	Pheasant-tailed Jacana	Hydrophasianus chirurgus
61	Bronzewinged Jacana	Metopidius indicus

Sl. No.	Common Name	Zoological Name
	Family: Recurvirostridae	
62	Blackwinged Stilt	Himantopus hjmantopus
63	Avocet	Recurvirostra avosetta
	Family: Burhinidae	
64	Stone Curlew	Burhinus oedicnemus
65	Small Indian Pratincole	Glareola lactea
	Family: Charadriidae	
66	Redwattled lapwing	Vanellus indicus
67	Little Ringed Plover	Charadrius dubius
68	Redshank	Tringa totanus
69	Marsh Sandpiper	Tringa stagnatillis
70	Green Shank	Tringa nebularis
71	Green Sandpiper	Tringa ochropus
72	Wood Sandpiper	Tringa glareola
73	Common Sandpiper	Tringa hypolecuos
	Order: Columbiformes	
	Family: Pteroclididae	
74	Painted Sandgrouse	Pterocles indicus-indicus
	Family: Columbidae	
75	Yellowlegged Green Pigeon	Treron phoenicoptera
76	Blue Rock Pigeon	Columba livia
77	Indian Ring Dove	Streptotelia decaocto
78	Red Turtle Dove	Streptotelia tranquebarica
79	Spotted Dove	Streptotelia chinensis
80	Little Brown Dove	Streptotelia senegalensis
	Order: Psittaciformes	
	Family: Psittacidae	
81	Alexandrine Parakeet	Psittacula eupatria

Sl. No.	Common Name	Zoological Name
82	Roseringed Parakeet	Psittacula krameri
83	Blossomheaded Parakeet	Psittacula cyanocephala
	Order: Cuculiformes	
	Family: Cuculidae	
84	Pied Crested Cuckoo	Clamator jacobinus
85	Common Hawk Cuckoo	Cuculus varius
86	Indian Cuckoo	Cuculus micropterus
87	Indian Plaintive Cuckoo	Cacomantis passerinus
88	Koel	Eudynamys scolopacea
89	Sirkeer Cuckoo	Taccocua leschenaultii
90	Crow-pheasant	Centropus sinesis
	Order: Strigiformes	
	Family: Strigidae	
91	Collared Scopes Owl	Otus bakkamonea
92	Brown Fish Owl	Bubo zeylonesis
93	Spotted Owlet	Anthene brama
94	Barred Owlet	Glaucidium cuculoides
95	Mottled Wood Owl	Strix ocellata
96	Great Horned Owl	Bubo bubo
97	Barn Owl	Tyto alba
98	Indian Jungle Nightjar	Caprimulgus indicus
99	Longtailed Nightjar	Caprimulgus macrurus
100	Franklin's Nightjar	Caprimulgus affinis
	Order: Apodoformes	
	Family: Apodidae	
101	House Swift	Apus affinis
	Order: Coraciiformes	
	Family: Alcedinidae	
102	Lesser Pied Kingfisher	Ceryle rudis

Sl. No.	Common Name	Zoological Name
103	Common Kingfisher	Alcedo atthis
104	Storkbilled Kingfisher	Pelargopsis capensis
105	Whitebreasted Kingfisher	Halcyon smyrnensis
	Family: Meropidae	
106	Green Bee Eater	Merops orientalis
	Family: Coraciidae	
107	Indian Roller	Coracias benghalensis
	Family: Upupidae	
108	Hoopoe	Upupa epops
	Family: Bucerotidae	
109	Common Grey Hornbill	Tockus birostris
	Order: Piciformes	
	Family: Capitonidae	
110	Large Green Barbet	Megalaima virens
111	Coppersmith	Megalaima haemacephala
	Family: Picidae	
112	Lesser Goldenbacked Woodpecker	Dinopium benghalense
113	Yellowfronted Piped Woodpecker	Picoides maharattensis
114	Heartspotted Woodpecker	Hermicirucus canente
115	Rufous Woodpecker	Micropternus brachyurus
	Order: Passeriformes	
	Family: Pittidae	
116	Indian Pitta	Pitta brachyura
	Family: Alaudidea	
117	Redwinged Bush Lark	Mirafra javanica
118	Ashycrowned Finch Lark	Eremopterix grisea
119	Rufoustailed Finch Lark	Ammomanes phoenicircus

Sl. No.	Common Name	Zoological Name
	Family: Hirundinidae	
120	Wiretailed Swallow	Hirundo smithi
121	Redrumped Swallow	Hirundo daurica
	Family: Laniidae	
122	Grey Shrike	Lanius excubitor
123	Rufousbacked Shrike	Lanius schach
124	Baybacked Shrike	Lanius vittatus
	Family: Oriolidae	
125	Golden Oriole	Oriolus oriolus
126	Blackheaded Oriole	Oriolus santhornus
	Family: Dicruridae	
127	King Crow	Dicrurus adsimilis
128	Whitebellied Drongo	Dicrurus caerulescens
129	Lesser Racket-tailed Drongo	Dicrurus hottentottus
	Family: Sturniidae	
130	Greyheaded Myna	Sturnus malabaricus
131	Blackheaded Myna	Sturnus pagodarum
132	Rosy Pastor	Sturnus roseus
133	Pied Myna	Sturnus contra
134	Common Myna	Acridotheres tristis
	Family: Corvidae	
135	Indian Treepie	Dendrocitta vagabunda
136	House Crow	Corvus splendens
137	Jungle Crow	Corvus macrorhynchos
	Family: Campephagidae	
138	Common Wood Shrike	Tephrodornis pondicerianus
139	Blackheaded Cuckoo Shrike	Coracina melanoptera
140	Small Minivet	Pericrocotus cinnamomeus
141	Large Cuckoo Shrike	Coracina novaehollandiae
142	Scarlet Minivet	Pericrocotus flammeus

Sl. No.	Common Name	Zoological Name
143	White Belied Minivet	Pericrocotus erythropygius
	Family: Irenidae	
144	Common Iora	Aegithina tiphia
145	Goldenfronted Chloropsis	Chloropsis aurifrons
	Family: Pycnonotidae	
146	Redvented Bulbul	Pycnonotus cafer
	Family: Muscicapidae	
147	Rufousbellied Babbler	Dumetia hyperythra
148	Yellow eyed Babbler	Chrysomma sinense
149	Jungle Babbler	Turdoides stratus
150	Common Babbler	Turdoides caudatus
151	Large Grey Babbler	Turdoides malcolmi
	Family: Muscicapinae	
152	Redbrested Flycatcher	Muscicapa parva
153	Tickell's Blue Flycatcher	Mucicapa tickelliae
154	Verditer Flycatcher	Muscicapa thalassina
155	Whitebrowed Fantail Flycatcher	Rhipidura aureola
156	Paradise Flycatcher	Hypothymis paradisi
157	Blacknapped Flycather	Hypothymis azurea
158	Grey Headed Flycatcher	Culicicapa ceylonensis
	Subfamily: Sylviinae	
159	Streaked Fantail Warbler	Cisticola juncidis
160	Franklin's Wren Warbler	Prinia hodsonii
161	Ashy Wren-warbler	Prinia socialis
162	Tailor Bird	Oehtotomus sutorius
163	Whitethroat	Sylvia communis
164	Brown Leaf Warbler	Phylloscopus collybita
165	Olivaceous Leaf Warbler	Phylloscopus griseolus
	Subfamily: Turdinae	
166	Bluethroat	Erithacus svecicus
167	Magpie Robin	Copsychus saularis
168	Black Redstart	Phoenicurus ochruros (Rufiventris)
169	Stone Chat	Saxicola torquata

Sl. No.	Common Name	Zoological Name
170	Pied Bush Chat	Saxicola caprata
171	Indian Robin	Saxicolodes fulicata
172	Orangeheaded Ground Thrush	Zoothera citrina
173	Brown Rock Chat	Cercomela fusca
	Family: Paridae	
174	Grey Tit	Parus major
175	Yellow Cheeked Tit	Parus xanthogenys
	Family: motacillidae	
176	Tree Pipit	Anthus trivalis
177	Yellowheaded Wagtail	Motacilla citreola
178	White Wagtail	Motacilla alba
179	Large Pied Wagtail	Motacilla maderspatensis
180	Grey Wagtail	Motacilia cenerea
181	Yellow Wagtail	Motacilla flava
	Family: Nectariniidae	
182	Purplerumped Sunbird	Nectarinia zelonica
183	Purple Sunbird	Nectarinia asiatica
	Family: Ploceldae	
184.	White Eye	
	Family: Zosteropidae	
	Subfamily: Passerniae	
185	House Sparrow	Passer domesticus
186	Yellow Throated Sparrow	Petronia xanthocollis
	Subfamily: Ploceinae	
187	Baya	Ploceus philippinus
	Subfamily: Estridinae	
188	Red Munia	Estrida amandava
189	Whitethroated Munia	Lonchura malabarica
190	White Backed Munia	Lonchura striata
191	Spotted Munia	Lonchura punctualata
	Family: Emberizidae	
192	Crested Bunting	Melophus lathami

APPENDIX – XV

(Para No. 1.3)

STATEMENT SHOWING THE COMMON BUTTERFLIES

Sl. No.	Common Name	Zoological Name
	Family: Papilonidae	
	Subfamily: Papilioninae	
1	Spot Swordtail	Pathysa nomius
2	Tailed Jay	Zetides agamemnon
3	Crimson Rose	Tros hector
4	Common Rose	Tros aristolochiae
5	Blue Mormon	Papilio polymnestor
6	Common Marmon	Papilio polytes
7	The Lime Butterfly	Papilio demoleus
8	Common Mime	Chilasa clytia
	Family: Pieridae	
	Subfamily: Pierinae	
9	Psyche	Leptosia
10	Common Jezebel	Anaphaes aurota
11	The Poineer	Anaphaes aurota
12	White Orange Tip	Lxias marianne
13	Yellow Orange Tip	Lxias pyrene
14	Great Orange Tip	Hebomoia glaucippe
15	The Common Wanderer	Parenonia valeria
16	Common Gull	Cepora nerissa
17	Indian Cabbage White	Pieris canidia
	Subfamily: Coliadinae	
18	Common Emigrant	Catopsilia crocale
19	Lemon Emigrant	Catopsilia pomana
20	Mottled Emigrant	Catopsilia pyranthe
21	Spotless Grass Yellow	Terias laeta
22	Common Grass Yellow	Terias hecabe
23	Three Spot Grass Yellow	Terias blanda

Sl. No.	Common Name	Zoological Name
	Family: Lycaenidae	
	Subfamily: Theclinae	
24	Common Acacia Blue	Surendra querecetorum
25	Common Silverline	Spindasis vulcanus
26	Common Indian Red Flash	Repala melampus
	Subfamily: Polyommatinae	
27	The Common Pierrot	Castalius rosimon
28	Zebra Blue	Synalrucus plinius
29	Gram Blue	Euchrysops onejus
30	Common Cerulean	Jamides celeno
31	Pea Blue	Lampides boitiaus
32	Grass Jewel	Freyeria trochilus
33	Pale Grass Blue	Pseudozizeeria maha
34	Common Hedge Blue	Acetolepis puspa
35	Dark Cerulean	Namides bochus
	Family: Nymphalidae	
	Subfamily: Satyrinae	
36	The Common Bush Brown	Mycalesis perseus
37	Dark Bank Bush Brown	Mycalesis mineus
38	Common Evening Brown	Melanitis leda
39	Dark Evening Brown	Melanitis phedima
40	Common Five ring	Ypthima baldus
41	Nigger	Orsotrioena medus
42	Bamboo Tree Brown	Lethi uropa
	Subfamily: Charaxinae	
43	Tawny Rajah	Charaxes polysena
44	Black Rajah	Charxes fabius
45	Common Nawab	Eriboea athamas
	Subfamily: Nymphalinae	
46	Baronet	Euthalia nais
47	The Commander	Moduza procris
48	The Common Sailer	Nepthis hylas

Sl. No.	Common Name	Zoological Name
49	The Great Eggfly	Hypolimnas bolina
50	Danaid Eggfly	Hypotimnas misippus
51	The Yellow Pansy	Pereis hierta
52	Blue Pansy	Percis orithyia
53	Lemon Pansy	Percis lemonias
54	Peacock Pansy	Percis almana
55	Grey Pansy	Percis atlites
56	Chocolate Soldier	Percis iphita
57	The Common Leopard	Atella phalantha
58	Angled Castor	Ergolis ariadne
59	Tabby	Psuedergolis wedah
60	The Joker	Byblia ilithyia
	Subfamily: Acreainae	
61	Tawny Coster	Telchinia violae
	Subfamily: Danainae	
62	The Blue Tiger	
63	Plain Tiger	Danaus chrysippus
64	Common Tiger	
65	Glassy Tiger	Parantica aglea
66	The Common Crow	Euploea core
	Family: Hesperiidae	
	Subfamily: Coeliadinae	
67	Common Banded Awl	Hasora alexis
68	Common Awl	Hasora badra
	Subfamily: Hesperiinae	
69	Dark Palm Dart	Astychus pythias
70	Grass Demon	Udaspes folus
71	The Indian Skipper	Spialia galba
72	Common Redeye	Matapa aria
73	Common Dartlet	Oriens goloides
74	Blank Swift	Caltoris kumara

APPENDIX – XVI

(Para No. 1.3)

STATEMENT SHOWING THE COMMON SPIDERS

Sl. No.	Common Name	Zoological Name
1	Coin Trapdoor	Sason cinctipes
2	Brown Funnel Web Spider	Plesiophrictus collinus
3	Wall Orb	Araneus bilunifer
4	Speckled Band Fourleg	Argiope anasuja
5	Long Orb	Cyclosa contraga
6	Fluted Orb	Herennia ornatissima
7	Leaf Retreat Orb	Neescona rumfi
8	Gaint wood spider	Nephila maculata
9	Black Wood spider	Nephila kuhlii
10	Yellow Club	Chiracanthium melanostoma
11	Ashy Social Spider	Stegodyphus sarasinorum
12	Common Two Tail	Hersilia savigyni
13	Gain Crab Spider	Heteropoda venatoria
14	Tube Wolf	Hippasa greenalliae
15	Funnel Wolf	Hippasa agelenoides
16	Tunnel Wolf	Lycosa Indagatrix
17	Green Lynx	Peueetia viridana
18	Brown Lynx	Oxyopes rufisternum
19	Box Longlegs	Artema atlanta
20	Round Longlegs	Artema atlanta
21	Zebra Jumper	Plexippus paykulli
22	Common Big Jaw	Tetragnatha mandibulata
23	Long-legged Straw	Eucta javana
24	Horseshoe Tommy	Misumena menoka
25	Black Lens Tommy	Misumenoides kripalaniae
26	Twig Tommy	Tmarus kotigeharus

APPENDIX- XVII

(Para No.1.3)

STATEMENT SHOWING THE COMMON TREES, SHRUBS, HERBS, CLIMBERS AND GRASSES

SI. No.	Local Name	Botanical Name
	(A) TREES	
1	Achar, Char	Buchnania lanzan, Spreng
2	Ahi	Morinda tinctoria. Roxb
3	Air/Saja	Terminalia tomentosa. W and A
4	Amaltas	Cassia fistula, Linn
5	Amta	Bauhinia malabarica, Roxb
6	Amba	Mangifera indica, Linn
7	Aola, Aonla	Emblica officinalis, Linn
8	Apta	Bauhinia racemosa, Lamk
9	Arjun/Ahu	Terminalia arjuna W & A
10	Behada	Tenninalia belerica, Roxb
11	Baranga	Kydia calycina, Roxb
12	Bel	Aegle marmelos, Correa
13	Ber/Bor	Ziziphus mauiitina, Lamk
14	Bhokar	Cordia myxa (dichotoms), Linn Sp.
15	Bhirra	Chloroxylon swietenia. D.C.
16	Bija	Pterocarpus marsupium, Roxb
17	Biba	Semicarpus anacardium, Linn. F.
18	Chichwa	Albizia odoratissima, Benth
19	Dhaoda	Anogeissus latifolia, Wall
20	Dhaman	Grewia tilifolia, Wall
21	Dhoban	Dalbergia paniculata, Roxb
22	Dudhi	Wrightia tinctoria, Br.
23	Fetra safed	Gardenia turgida, Roxb

Sl. No.	Local Name	Botanical Name
24	Garadi	Cleistanthus collinus, benth and hock F.
25	Ghot/Ghotbor	Zizyphus zylopara, wild.
26	Gilchi	Caseria graveolens, Dolz
27	Gongal	Cochlospermum gossypium, D.C.
28	Haldu	Adina cordifolia, hook F.
29	Herra/Hirda	Terminalia chebula, Retz
30	Hiwar	Acacia leucophloea, Willd
31	Hingan	Balanites aegyptica, Del.
32	Jamun	Syzygium cumini, Linns, Skeels
33	Jamras	Elaeodendron glaucum, Pers.
34	Karonda	Carissa spinarum, Linn
35	Kalam	Mitragyna parvifolia, Roxb, Korth
36	Karanj	Pongamia pinnata, Pierre
37	Kawat	Feronia elephantum, Corr.
38	Kakai	Flacourtia remontchi, (India), L. Herit
39	Karai	Miliosa tomentosa (Saccopetalum tomentosum,) Hook F. and Thomes
40	Kakad	Garuga pinnata, Roxb
41	Khair	Acacia catechu, willd
42	Khirni	Manilkara hexandra, Roxb
43	Karu	Sterculia urens, Roxb
44	Kusum	Schleichera oleosa, Lour Merr "Sys. trijuga
45	Lendia/Sehna	Lagerstroemia parviflora, Roxb
46	Mahua	Madhuca indica, Gmel "Syn latifolia, Roxb
47	Mowai	Lannea grandis, R.
48	Neem	Azadirachta indica
49	Palas	Butea monosperma , Lamk O. (Kuntazae)
50	Papada	Gardenia latifolia, Ait

Sl. No.	Local Name	Botanical Name
51	Pangra	Erythrina indica, Ait
52	Phetra	Gardenia turgida, Roxb
53	Pipal	Ficus religiosa, Linn.
54	Rohan	Soyamida febrifuga A. Juss
55	Sagwan	Tectona grandis, Linn
56	Salai	Boswellia serrata, Roxb
57	Semal	Bombax ceiba
58	Shisham	Dalbergia latifolia, Roxb
59	Siwan	Gmelina arborea, Linn
60	Siris	Albizia lebbek, Benth
61	Sissoo	Dalbergia sissoo Roxb
62	Suria	Xylia xylocarpa, Roxb
63	Tendu	Diospyros melanoxylon, Roxb (Peregina)
64	Tiwas	Ougenia dalbergiodes, Benth (oojeinensis)
65	Umbar	Ficus glomerata, Roxb
66	Wad	Ficus bengalensis
	(B)SHRUBS AND HERBS	
1	Anantmul	Hemidesmus indicus, Br
2	Baibirang	Embelia robusta, Roxb
3	Banbahar	Flemingia semialata
4	Bharati	Gymnosporia spinosa, Forsk, Firori
5	Chirchira	Achyranthus aspera, Linn.
6	Jilbili	Woodfordia floribunda, Salish (Fruticosa)
7	Dikamali	Gardenia lucida, Roxb
8	Gokru	Xanthium strumarium, Linn.
9	Gurshukri	Grewia hirsute, Vahl
10	Indrajira/Kuda	Holarrhena antidysenterica, B.R. Wall
11	Karil/Diwari	Petalidium barleriodies, Ness

Sl. No.	Local Name	Botanical Name
12	Karonda	Carissa spinarum Linn.
13	Kharasli?parijatak	Nyctanthes arbotristis Linn
14	Kharata	Dodonaea viscose, linn Mantis
15	Kudrasi	Bridelia hamiltoniana, Willd.
16	Lokhandi	Ixora parviflora, Vahl.
17	Marodphal/Murudsheng	Helecteris isora, Linn.
18	Neel	Indigofera arborea, Roxb
19	Nirgudi	Vitex nigundo Linn
20	Rantulas	Ocimum basilcum
21	Rui	Calotropis gigantea Br.
22	Sindhi	Phoenix acaulis, Buch
23	Tarota	Cassia tora Linn
	C. (CLIMBERS)	
1	Amarbel	Cuscuta reflexa, Roxb
2	Chilati	Acacia pinnata, Wild
3	Gurar	Milletia auriculata
4	Gunj	Abrus precatorius, Linn
5	Eroni	Ziziphus oenoplia, Willd
6	Kanjhkuri	Mucuna pruriens, D.O.
7	Kukatranji	Calycopteris floribunda, lamk.
8	Mahul	Bauhinia vahlii, W & A.
9	Palasbel	Butea superba, Roxb.
10	Ramdaton	Smilax macrophylla, Roxb.
11	Kooti	Ventilago calyculata, Tul
	(D) GRASSES AND	**BAMBOOS**
1	Fuler	Apluda mutica Linn
2	Pandari Kusal	Aristida funiculata

Sl. No.	Local Name	Botanical Name
3	Zadu	Aristida redacta
4	Chaper	Brachiaria samosa
5	Kasai	Coix lacryna-jobi
6	Dub	Cynodon dactylon
7	Dongari	Chrysopogan fulvus
8	Marwel	Dichanthium annulatum
9	Shikari	Digitaria ciliaris
10	Samba	Echinochloa colonum
11	Choei	Eragrostis uniloides
12	Bhusbushi	Eragrostis tenella
13	Kusali	Heteropogon contortus
14	Dev-dhan	Oryza species
15	Kodra	Paspalum serobiculatum
16	Genia	Panicum maximum
17	Sheda	Sehima nervosum
18	Chirchira	Setaria verticillata
19	Chikta	Setasia intermedia
20	—	Sorghum verticiliflovum
21	Kolhegawat	Setaria glauca
22	Surgan	Sorghum purpuseo sericcum
23	Chiriaka Dana	Sporobolus diander
24	Ghonyad	Themeda triandra
25	Khus	Vetiverea zizaniodes
26	Bans/Bamboos	Dendrocalamus strictus Nees

APPENDIX - XVIII

(Para No..2.2)

STATEMENT SHOWING THE DETAILS OF WATER SOURCES IN AND AROUND PROTECTED AREA

I) LAKES/TANKS

Perennial			Seasonal		
Sl. No.	Name	Compartment No.	SI. No.	Name	Compartment No.
1.	Tadoba Lake	90	1 .	Pandharpauni Tank 1	93
2.	Jamni Lake	Jamni	2.	Pandharpauni Tank 2	93
3.	Pangdi Tank	316 & Pangdi	3.	Kumbi Tank	113
4.	Karwa Tank	252	4.	Rantalodhi Tank	288
5.	Piperheti Tank	266	5.	Palasgaon Tank	133
6.	Botezari Tank	Botezari	6.	Bamangaon Tank	72
7.	Koisa Tank	315	7.	Pahami Tank	371
8.	Pipari Tank	339			
9.	Telia Tank	144			
10.	Maha!gaon Tank	152			

II) ANICUTS

Sl. No.	Name	Compartment No.
1.	Panchdhara	92
2.	Vasant Bandhara	114
3.	Wagh Nala	90
4.	Chichghat	121
5.	Kosekanar	122
6.	Vasant Bandhara	145
7.	Vasant Bandhara	142
8.	Vasant Bandhara - Shivanzari Nala	313
9.	Vasant Bandhara - Andhari Kolsa	303

III) WATER HOLES

A) NATURAL

Perennial			Seasonal		
Sl. No.	Name	Compartment No.	Sl. No.	Name	Compartment No.
1.	Andhari Water Hole	110	1.	Rampur Nala	111
2.	Chikhalwahi	82	2.	Bhudak Doh	94
	(Near Mango Tree)		3.	Andhari River	133
3.	Wagh Doh	146		(Ambora Nala)	300
	(Andhari River)		4.	Ambeutara Doh	68
4.	Chichghat 5.	140/145 156	5.	Udarmatka	
6.	Andhari River		6.	Koramatka	69
	(Girghat- 1)		7.	Tatekasa Doh	303
7.	Andhari River	157	8.	Munda Doh	311
	(Girghat -2}	158	9	Rayba Nala	334
8	(Girghat" 3}		10.	Pandhapauni	330
9.	Andhari River	160	11.	Kohapri Nala	311
	(Girahat- *4}*				
10.	Andhari River	159			
	(Girghat - 5}				
1 1.	Ambegarh	138			
12.	SathyaNala	121			
13.	Vasant Bandhara	114			
14,	Near Pangdi	277			
15.	Hirdi Nala	333			
16.	Bhudkump	371			
17.	Hirdi Na!a	332			
18.	NearKoisa	315			
19.	Gotaia IMala	305			
20.	Met Nala	340			
21.	Nandara Nala	338			
22-	Nandara Nala	339			
23.	Nandara Nala	340			
24.	Pangdi Recha	316			
25.	Kuhani	318			
26.	Doni Nala	331			

IV) IMPORTANT NALAS

Sl. No.	Name	Compartment No.
1	Sonegaon Nala	252 / 254
2	Kandal Nala	255 / 254
3	Motha Nala	252, 253, 293, 294, 298, 290, 291, 292, 300
4	Kawat Jora	239, 291, 290
5	Gadgari Nala	25, 252, 294
6	Pandharpani Nala	136, 140
7	Upasa Nala	257
8	Bamandevi Nala	259, 258, 259, 260
9	Upasa Nala	281
10	Ambe Nala	268, 269
11	Bagle Nala / Wakra Khori	64, 65.
12	Ramdegi Nala	61, 62
13	Jamur Jaira Nala	48, 49
14	Pokargoti Pat	48, 49
15	Sati Nala	49, 70, 71, 72, 79, 80
16	Dhawari Nala / Mahapinki Nala	80, 79
17	Pallemune Dhodi	259, 266, 267, 280, 281, 282 283, 284, 285
18	Ambat Chuwa Nala	278, 276
19	Pandarpani Nala	74, 75
20	Jhari Nala	75, 98
21	Matkasur Nala	99, 100

V) MAJOR WATER BODIES AROUND THE PROTECTED AREA

Sl. No.	Name
1	Erai River Back Water
2	Moharli Tank
3	Naleshwar Tank
4	Chargaon Tank
5	Arjuni Tank
6	Katwal Tank
7	Kondegaon Tank

APPENDIX-XIX

(Para No. 2.3)

STATEMENT SHOWING THE CROP COMPOSITION

(Area in Ha.)

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
1	48	396.187	15	345.187	15(2)	20	1
2	49	220.550	10	174.550	10(1)	25	1
3	50	235.510	12	223.510	—	—	
4	61	445.140	57	388.140	—	—	—
5	62	308.780	16	274.780	—	18	30
6	64	509.510	20	464.510	—	25	204
7	65	437.470	17	395.470	—	25	87
8	66	278.019	35	236.019	—	7	111
9	67	231.885	25	194.885	—	12	46
10	68	159.041	40	113.041	—	6	31
11	69	709.819	48	586.819	75(4)	—	390
12	70	218.530	22	185.530	11	—	—
13	71	137.188	13	124.188	—	—	40
14	72	179.275	10	157.275	2(1)	10	5
15	73	221.767	10	171.767	15(1)	25	20
16	74	246.858 -	2	209.858	25(2)	10	1
17	75	205.175	4	189.175	2(1)	10	2
18	76	236.336	5	224.336	2(1)	5	2
19	77	182.108	15	152.108	10(2)	5	15
20	78	201.128	18	183.128	—	—	75
21	79	208.008	31	177.008	—	—	80
22	80	255.356	51	204.356	—	—	—
23	81	102.385	15	87.385	—	—	—
24	82	293.802	100	116.802	77(3)	—	166
25	83	483.599	220	213.599	50(2)	—	363
26	84	199.914	20	169.914	10(1)	—	50
27	85	265.069	21	214.069	20(2)	10	53
28	86	386.070	38	348.070	—	—	96
29	87	225.005	122	88.005	—	15	45
30	88	106.837	80	26.837		—	16

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
31	89	327.390	227	49.390	55(3)	5	55
32	90	88.221	30	45.221	13(1)	—	35
33	91	266.688	26	80.688	160(5)	,,	27
34	92	280.852	28	56.852	196(7)	—	84
35	93	394.973	62	312.973	20(2)	—	124
36	94	326.581	50	260.581	16(1)	–	261
37	95	128.690	25	103.690	–	–	50
38	96	171.586	4	137.586	25(2)	5	10
39	97	245.644	12	233.644	–	–	100
40	98	367.859	73	590.859	4(1)	–	90
41	99	235.527	47	188.527	–	–	56
42	100	143.663	26	117.663	–	–	–
43	101	439.894	44	395.894	–	–	88
44	106	623.621	124	499.621	–	–	200
45	107	166.730	8	158.730	—	—	17
46	108	394.973	40	354.973	—	—	100
47	109	151.757	15	128.757	8(1)	—	30
48	110	248.478	30	205.367	26(2)	—	78
49	111	324.153	49	178.153	97(3)	—	130
50	112	374.334	56	188.334	130(2)	—	150
51	113	193.439	29	106.439	58(1)	—	68
52	114	469.426	140	259.426	10(1)	60	94
53	115	132.332	17	108.332	—	7	35
54	116	82.555	40	42.555		—	25
55	117	434.632	28	365.632		50	100
56	118	216.911	11	189.911	—	16	25
57	119	157.018	77	60.018	—	20	20
58	120	154.590	46	108.590	—	—	20
59	121	334.270	100	184.270	33(2)	17	134
60	122	425.324	85	213.324	127(3)	—	128
61	123	146.086	14	103.086	29(1)	—	58
62	124	198.296	20	119.296	59(2)	—	40
63	125	267.902	80	160.902	27(1)	—	107
64	126	275.186	28	164.186	55(2)	28	138
65	127	127.071	5	112.071	10(3)	—	110

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
66	128	461.342	10	440.342	10(2)	1	230
67	129	448.392	90	358.392	—	—	150
68	130	248.477	50	198.477	—	—	75
69	131	194.249	2	192.249	—	—	100
70	132	319.702	20	294.702	5(1)	—	250
71	133	341.150	40	291.150	10(2)	—	200
72	134	148.520	5	143.520	—	—	70
73	135	508.286	75	433.286	—	—	300
74	136	235.527	5	230.527	—	—	130
75	137	274.377	10	262.377	—	2	150
76	138	101.171	10	91.171	—	—	35
77	139	191.416	60	116.416	—	15	20
78	140	333.056	150	178.056	—	5	75
79	141	266.283	50	201.283	15(3)	—	150
80	142	235.122	30	195.122	5(1)	5	130
81	143	179.680	40	124.680	5(1)	10	70
82	144	331.842	55	261.842	5(1)	10	160
83	145	133.951	20	110.951	3(1)	—	80
84	146	462.151	35	422.151	5(0	—	350
85	147	269.925	75	190.925	4(1)	—	100
86	148	217.721	50	159.721	8(1)	—	74
87	149	352.481	110	220.481	22(3)	—	150
88	150	346.006	84	250.006	12(4)	—	130
89	151	401.448	150	241.448	8(2)	2	160
90	152	374.739	50	302.739	12(5)	10	200
91	153	390.116	40	350.116	—	—	150
92	155	507.881	150	357.881	—	—	200
93	156	244.430	14	230.430	—	—	200
94	157	195.058	20	115.058	50(10)	10	100

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
95	158	348.434	35	105.434	128(13)	80	70
96	159	404.686	80	215.686	89(10)	20	175
97	160	403.067	20	283.067	100(15)	—	200
98	161	369.073	35	334.073	—	—	185
99	162	154.995	20	134.995	—	—	100
100	163	269.116	15	214.116	15(5)	25	60
101	245	303.514	35	265.514	3(1)	—	200
102	248	501.811	46	450.811	5(2)	—	300
103	249	371.906	30	332.906	9(1)	—	200
104	250	251.714	15	231.714	5(2)	—	150
105	251	585.985	27	548.985	—	10	250
106	252	745.027	45	690.027	—	10	350
107	253	263.450	23	240.450	—	—	100
108	254	536.614	55	475.614	—	6	230
109	255	615.953	60	551.932	—	4	300
110	256	267.902	5	245.902	10(3)	7	100
111	257	267.902	—	242.902	5(2)	20	100
112	258	395.783	—	376.783	10(3)	9	75
113	259	349.648	—	319.648	15(4)	15	75
114	260	571.821	—	321.821	100(6)	150	140
115	266	555.633	—	525.633	15(4)	15	200
116	267	640.630		615.630	10(1)	15	100
117	276	362.600	—	330.600	22(7)	10	30
118	277	317.678	30	205.678	12(4)	70	200
119	278	254.952	—	109.952	25(7)	120	200
120	279	309.989	—	300.989	4(1)	5	150
121	280	393.759	—	193.759	50(11)	150	250
122	281	526.901	—	281.901	50(3)	195	150

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
123	282	137.188	—	112.188	10(3)	15	75
124	283	233.099	15	203.099	10(2)	5	125
125	284	517.189	20	467.189	25(5)	5	225
126	285	304.7281	—	239.728	50(10)	15	100
127	286	390.117	10	360.117	15(3)	5	150
128	287	540.256	30	510.256	—	—	250
129	288	593.270	30	561.270	2(1)	—	300
130	289	167.540	20	147.540	—	—	90
131	290	390.522	35	350.522	5(1)	—	200
132	291	248.477	19	229.477	—	—	120
133	292	152.971	15	135.971	2(1)	—	75
134	293	228.647	20	208.647	—	—	110
135	294	384.856	20	325.856	3(1)	—	140
136	295	191.821	20	161.821	10	—	100
137	296	551.182	75	471.182	5	—	200
138	297	354.909	75	264.909	10	5	200
139	298	374.334	70	299.334	15	—	150
140	299	246.858	30	209.858	3	4	150
141	300	254.143	25	230.143	3	—	140
142	301	241.597	20	216.597	5	—	130
143	302	498.573	50	438.573	10	—	175
144	303	340.341	125	165.341	50	—	340
145	304	417.636	50	257.636	100	10	417
146	305	264.664	10	154.664	50	50	200
147	306	606.219	50	446.219	50	60	500
148	307	353.695	100	243.695	10	—	353
149	308	479.148	150	309.148	20	—	479
150	309	399.425	30	299.425	50	20	399
151	310	179.680	—	164.680	10	5	120

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
152	311	696.869	30	611.869	40	15	696
153	312	314.441	15	290.441	4	5	200
154	313	315.250	—	300.250	10	5	150
155	314	423.301	20	395.301	5	3	200
156	315	317.274	50	221.274	40	6	75
157	316	677.039	100	457.039	50	70	500
158	317	282.471	50	152.471	40	40	150
159	318	502.215	60	172.215	70	200	200
160	330	559.680	—	524.680	25(1)	10	100
161	331	571.822	10	516.822	40(2)	5	150
162	332	223.791	—	196.791	20(1)	7	80
163	333	717.508	—	704.508	10(1)	3	100
164	334	348.030	40	248.030	50(2)	10	150
165	335	567.774	5	547.774	10(3)	5	250
166	336	219.744	30	69.744	100(10)	20	50
167	337	358.551	10	258.551	40(2)	50	250
168	338	411.970	20	221.970	100(5)	70	300
169	339	188.988	—	93.988	75(3)	20	150
170	340	285.708	30	185.708	50(3)	20	200
171	341	414.803	50	204.803	150(10)	10	100
172	342	253.333	50	124.333	75(2)	4	50
173	343	278.424	50	103.424	100(4)	25	100
174	344	133.951	20	9.951	100(5)	4	20
175	345	300.277	50	150.277	75(3)	25	150
176	346	270.330	20	205.230	45(5)	—	150
177	371	263.048	50	15.474	70(7)	30	225
178	373	350.053	40	150.053	100(8)	60	300
179	Katezari P.F.	92.04	35	39.470	7(1)	13	2
180	Botezari P.F.	10.590	—	6.590	2(1)	2	10

Sl. No.	Compartment No.	Total Area	Teak	Mixed Forest	Grass Land No. of Patches	Degraded Forest	Bamboo
181	Palasgaon P.F.	87.90	5	73.610	—	10	20
182	Jamni P.F.	228.83	150	210.070	10(2)	10	5
183	Wadala P.F.	480.29	7	204.283	40(2)	120	—
184	Sonegaon P.F.	141.58	50	42.886	—	91	—
185	Bhanuskhindi P.F.	310.47	—	372.848	—	50	30
186	SataraP.P.	97.31	—	99.372	—	15	—
187	Tekadi. Mandavzari P.F	132.87	—	125.222	—	20	—
188	Chaitirith P.F.	494.60	—	412.719	4(1)	100	—
189	Bamangaon	94.83	—	456.601	—	70	—
190	Ghosari	252.140	2	50.147	–	200	–
191	Chichghat P.F	27.920	—	22.921	—	5	7
192	Khutwanda P.F.	48.90	—	30.867	5(1)	15	15
193	Tamsi P.F.	35.11	—	—	—	38.275	—
194	KatwalP.F.	66.65	—	10.00	—	56.765	—
	TOTAL	**60786.136**	**7027**	**46629.545**	**4388(387)**	**3179.04**	**24664**
	PERCENT		**11.56%**	**76.71%**	**7.21%**	**5.22%**	**40.57%**

APPENDIX - XX

(Para No. 2.4)

STATEMENT SHOWING THE DETAILS OF CAVES/BURROWS

Sl.No.	Animal	Comptt. No.	Caves/Burrows No.
1.	Tiger	91	1 Cave
		117	1 Cave
		68	1 Cave
		60	4 Caves
		61	2 Caves
		89	2 Caves
2.	Sloth Bear	116	1 Cave
		67/69	2 Caves
3.	Porcupine	91	1 Burrow
		90	3 Burrows
		89	1 Burrow
		116	1 Burrow
		84	4 Burrows
		86	2 Burrows
		87	2 Burrows
		68	1 Burrow
		69	2 Burrows
		60	4 Burrows
		61	3 Burrows
4.	Python	89	1 Burrow
5	Wild Dog	92	1 Burrow

APPENDIX - XXI

(Para No 3.1)

STATEMENT SHOWING THE DETAILS OF CENSUS

Sr.No.	Name of Animals	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	2	3	4	5	6	7	8	9	10	11	12
1.	Tiger	41	43	36	38	35	38	39	44	41	41
2.	Leopard	33	14	23	22	22	22	22	22	24	21
3.	Leopard Cat	9	-	-	1	-	-	-	-	-	-
4.	Jungle Cat	46	44	69	-	-	10	18	Present	Present	Present
5.	Indian wild dog or Dhole	291	195	100	-	60-70	70	99	100-150	107	239
6,	Jackal	42	79	99	-	15-20	16	20	15-20	28	54
7.	Sloth Bear	183	165	186	-	95-115	105	125	130-170	125	167
8.	Ratel	130	184	240	-	69	2	3	Present	Present	Present
9.	Common Mungose	130	184	240	-	69	-	Present	Present	Present	Present
10.	Small Indian Civet	16	5	26	-	12	14	Present	Present	Present	Present
11.	Hyena	1	2	5	-	-	0	-	-	-	-
12.	Wild boar	1392	1758	1855	2230	1820	1054	1541	1800	1533	1628

Sr.No.	Name of Animals	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1	2	3	4	5	6	7	8	9	10	11	12
13.	Spotted dear	2365	2039	2692	-	2750	2008	2527	2700	1934	1795
14.	Sambar	631	669	988	-	780	516	929	1150	1007	1052
15.	Barking Deer	510	512	669	-	330	283	364	425	410	401
16	Indian Gaur	680	1052	1281	-	800	853	1031	1350	898	878
17	Blue - Bull	163	228	293	-	230	102	287	325	171	208
18.	Four Horned Antelope	141	145	178	-	70-82	28	87	90-130	77	62
19.	Hare	91	106	108	-	-	-	-	-	-	-
20	Indian Pangolin	12	2	7	-	-	-	-	-	-	-
21	Porcupine	32	22	34	-	-	26	29	Present	Present	Present
22	Common Langur	2549	2770	3728	-	3300	1868	2864	2960	2256	2902
23	Pea-fowl	381	537	Present	-	-	Present	Present	Present	Present	Present
24	Palm Civet	-	-	-	-	-	27	28	Present	Present	Present
25	Flying squireel	21	17	37	-	-	5	-	Present	Present	Present

APPENDIX - XXII

(Para No. 1.3)

A NOTE ON CAPTIVE BREEDING OF MARSH CROCODILES AT TADOBA

A crocodiles breeding centre at Tadoba was started in 1977 with 21 hatchlings of Marsh Crocodiles (*Mugger-Crododylus palsutris)* from Gir Sanctuary, Gujrat State. The centre was provided with one hatchery, one breeding pool, eight pools for hatchlings, other eight pools for sub-adults and four pools for adults All the pools were connected to a well-designed water supply and drainage system.

The eggs collected in March/April and shifted to the hatchery where the eggs are covered with nest soil and sand.. Soil thermometers are placed in the nest for temperature observation. For artificial incubation, a temperature of 26-32^0 celcius is maintained for 60-70 days by sprinkling them with water to bring down the temperature (the atmospheric temperature goes upto 45^0 celcius during this period). When the young ones emerge form the egg shells, they are shifted to the hatchling pools.

The hatchlings are fed with minced fish. During the night, the light inside the pools attract insects for the hatchlings to eat. As the hatchlings grow older, they are transfered to the appropriate pools, and maintained until they are mature and ready to be released in to the wild. Tadoba lake has been given the major share of release (25 males and 43 females.)

SURVIVAL AND REHABILITATION :

Until 1984 the crocodile eggs were collected from Tadoba lake and transferred to hatchery. In 1986, the eggs were collected for the first time from the breeding pools.

The stock position shows that a total of 434 crocodiles were reared in the centre. Out of which 228 crocodiles died and 206 crocodiles were released into as many as nine wetlands mostly outside the Protected Area. The centre also has contributed to Sanjay Gandhi National Park Borivali, Jizamata Zoo and Captive Breeding Project, Hyderabad (A.P.).

The final batch of crocodiles was released in July, 1996. Now that the wetlands in the Protected Area have sufficient population of Marsh Crocodiles and the field staff have acquired expertise in the artificial breeding of crocodiles. The details of the stock position is given in the follwing table.

APPENDIX- XXIII

(Para No 4.2)

STATEMENT SHOWING THE DETAILS OF SALTLICKS

Sl.No	Location	Comtt. No.	Beat
1	Kolsa-Doni Roadside	333	Doni
2	Kolsa-Doni Roadside	315	Doni
3	Kolsa-Doni Roadside	330	Doni
4	Compartment Number 332-318 boundary	318	Pangdi - 1
5	Chopan Nala	266	Zari
6	At the Centre of the Compartment	286	Rantalodhi
7	Upasa Nala	283	Rantalodhi
8	UpasaNala	259	Rantalodhi
9	Upasa Nala	280	Pangadi - 2
10	Kolsa-Dewada Road	303	Botezari
11	Ambegad	139	Moharli - 1
12	Andhari Nala	128	Khatoda
13	Andhari River	157	Dewada-1
14	Andhari River	158	Dewada - 1
15	Andhari River	160	Dewada-1
16	Andhari River	159	Dewada - 1
17	Teha Nala	150	Junona
18	Chipalya Ghat	149	Junona
19	Wanar Chuwa	151	Junona
20	Musar Ghat	156	Junona
21	Mahalgaon Tank	152	Junona
22	Ambeutar Nala	300, 290	Andhari
23	Rantalodhi Tank	288	Rantalodhi
24	Nala - Chichghat	123	Khutwanda
25	Boundary Line	122-124	Khutwanda
26	Chikhalwahi Nala	83	Tadoba
27	Nala – Adjoining Compartments	97-98	Kolara
28	Boundary line	98-99	Kolara
29	Waghnala on Ambhathira road	115/Katezari	Wadala
30	Dawana (Kalaamba Bhanuskhindi road	69	Arjuni beat

APPENDIX - XXIV

(Para No 4.2)

STATEMENT SHOWING THE AREA DETAILS OF WATER AVAILABILITY DURING PINCH PERIOD

Sl. No.	Particulars	Reserved Forest/ unclassed Forests Comptt. No.	Area in Ha	Village Area survey No.	Area in Ha.	Total area in Ha.
1	Water Availability Area	50 (P), 61 (P), 62 (P), 66 to 70, 71 (P)80(P),82 to 86, 88 to 92 93 {P), 94 to 95, 97, 98 (P), 101, 108 to 117, 19 to 128, 129 (P), 131 (P), 133 to 139, 141(P), 142 to 144, 146 to 153, 155 to 163 248 (P), 250, 276 to 280, 287. 290, 291 295 to 31 8, 330 to 346, 373	40024.199	Ramdegi 1 to 74, Bhanusk-hindi-52,69, 89,56,76,107, Jamni-1 to 138, Katezari-1 to 36, Palasgaon-1 to 6 Botezari-17 Kolsa 1 to 69, Wadala T-34/83, 452, 465, 472, Tamsi-44, 71, 53, 114, Ghosari-18, 13, 6,7, 39,65, Katwal T-40, Khutwanda Dixit-218, 225, Chichghat - 18,11,8,2,27	1548.80	41572.999
2	Water Non-availability area	48, 49, 50 {P), 61 (P), 62(P), 65,71 (P). 72 to 79.80(P), 81, 87, 93(P), 97(P). 98(P). 99, 100, 106, 107, 118, 129(P), 130, 131(P), 132, 140, 141 (P), 145, 245, 248 (P), 249. 251 to 260, 266, 267, 281 to 286, 288. 289, 292 to 294 112, 118, 125, 127,	17759.907	Rantalodhi 1 to 65 Barnangaon-20/1, 41, 85, 296/1, 222, 46, 95/1, 310, 11, Satara, 121/1, 142, 143/8 Tekadi Mandaozari 2/1, 1 5/1 K, 22/1,51/1.52.61/1,63/2.69, Chaitirith-44, 54, 26, 92, 117, 119, 116, 128, 53, 73, 77, Sonegaon - 58, 59, 135, 127	1361.190	19121.097
			57784.106		**2910.70**	**60694.806**

APPENDIX - XXV

(Para No. 4.3)

STATEMENT SHOWING THE LIST OF ENTRY POINTS

Sr No.	Location	Manned / Unmanned	Check Naka Building Present/ Absent	Status
1	Nawegaon	Manned	Present	Tourist allowed to enter
2	Kolara	Manned	Present	Closed for tourist
3	Bamangaon	Unmanned	Absent	Closed for tourist
4	Aiizanja	Unmanned	Absent	Closed for tourist
5	Bhanuskhindi	Manned	Absent	Closed for tourist
6	Katezari	Manned	Present	Tourist allowed to enter
7	Khutwanda	Manned	Present	Tourist allowed to enter
8	Comptt.No. 106/ 107	Unanned	Present	Closed for tourist
9	Karwa	Manned	Present	Closed for tourist
11	Piparheti	Manned	Present	Closed for tourist
12	Pangdi	Manned	Present	Tourist allowed to enter
13	Doni	Manned	Absent	Closed for tourist
14	Zari	Manned	Present	Tourist allowed to enter
15	Pahami	Unmanned	Absent	Closed for tourist
16	Dewada	Manned	Present	Closed for tourist
17	Moharli (MTDC)	Manned	Absent	Closed for tourist
18	Moharli	Manned	Present	Tourist allowed to enter
19	Comptt. 254	Unmanned	Absent	Closed for tourists

APPENDIX-XXVI

(Para No 4.3)

STATEMENT SHOWING THE EXTENT OF THE DAMAGE DUE TO FIRE, GRAZING, ILLICIT CUTTING ETC.

Year	No. of cases registered during the last plan period						
	Illicit cutting	Grazing	Fire	Encroachment	Wildlife	Other	Total
1997-98	99	—	14	1	2	13	129
1998-99	123	—	23	—	12	13	171
1999-00	107	—	95	—	3	18	223
2000-01	84	—	208	—	2	26	320
2001-02	151	—	115	138	5	15	424
2002-03	105	1	113	56	4	24	303
2003-04	132	1	147	—	1	26	337
2004-05	149	7	106	—	4	17	283
2005-06	169	26	104	—	4	35	338
2006-07	194	21	210	—	2	7	434
2007-08	133	2	53	39	1	8	236

NOTE: Cases under other offences include violation of Wildlife (Protection) Act, 1972 (Amendment up to 1991) by tourists in Protected Area and illicit collection of NTFP like Mahuwa Etc.

APPENDIX - XXVII

(Para No. 4.3)

STATEMENT SHOWING THE ERRADICTION OF BHUTGANJA, LANTANA LIKE UNWANTED WEEDS

Range	Year of Operation	Location Comptt.	Fy.O	Sy.O	Ty.O
Tadoba	2008-09	92	25	--	--
	2009-10	91	--	20	--
	2010-11	69	--	--	30
	2011-12	81	20	--	--
	2012-13	50	--	30	--
	2013-14	70	--	--	20
	2014-15	80	25	--	--
	2015-16	123	--	30	--
	2016-17	96	--	--	20
	2017-18	97	20	--	--
Moharli	2008-09	150	10.00	--	--
	2009-10	254	10.00	--	--
	2010-11	150	---	10.00	--
	2011-12	254	--	10.00	--
	2012-13	142	8.00	--	--
	2013-14	143	20.00	--	--
	2014-15	100	--	--	10.00
	2015-16	254	--	--	10.00
	2016-17	143	20.00	--	--
	2017-18	142	8.00	--	--
Kolsa	2008-09	303	20.00	20.00	20.00
		285	25.00	25.00	25.00
		310	10.00	10.00	10.00
		312	50.00	50.00	50.00
	2009-10	286	20.00	20.00	20.00
		313	50.00	50.00	50.00

Range	Year of Operation	Location Comptt.	Fy.O	Sy.O	Ty.O
		314	75.00	75.00	75.00
		371	25.00	25.00	25.00
	2010-11	373	10.00	10.00	10.00
		336	50.00	50.00	50.00
		342	30.00	30.00	30.00
	2011-12	343	25.00	25.00	25.00
		344	25.00	25.00	25.00
		316	60.00	60.00	60.00
	2012-13	317	40.00	40.00	40.00
		318	90.00	90.00	90.00
		315	40.00	40.00	40.00
	2013-14	330	75.00	75.00	75.00
		331	75.00	75.00	75.00
	2014-15	332	60.00	60.00	60.00
		333	65.00	65.00	65.00
		277	25.00	25.00	25.00
		278	25.00	25.00	25.00
	2015-16	280	100.00	100.00	100.00
		276	100.00	100.00	100.00
		267	75.00	75.00	75.00
		266	75.00	75.00	75.00
	2016-17	260	100.00	100.00	100.00
		281	75.00	75.00	75.00
		282	50.00	50.00	50.00
	2017-18	283	50.00	50.00	50.00
		284	50.00	50.00	50.00
		259	80.00	80.00	80.00
		258	50.00	50.00	50.00
		257	50.00	50.00	50.00
		256	100.00	100.00	100.00

APPENDIX-XXVIII

(Para No. 4.4)

STATEMENT SHOWING THE DETAILS OF EXISTING ROADS & CULVERTS

(Length in Km,)

Sl. No.	Name of Range	Roads	Culverts /Cause	Type of Road				Total Length
				Tar	Metal	Murum	Earthern	
1	Tadoba	Tadoba to Khatoda	--	9.00	--	--	--	9.00
2		Chital Road	--	--	1.50	--	--	1.50
3		Pandharpauni Navegaon Gate	--	--	7.50	--	--	7.50
4		Tadoba Lake Circular Road	--	--	5.00	--	--	5.00
5		Nawegaon Gate to Andhari	--	--	3.40	--	--	3.40
		Boundary	--	--	--	--	--	--
6		Tadoba to Vasant Bandhara	--	--	--	4.00	--	4.00
7		Tadoba to Jamunbodi	--	--	--	3.00	--	3.00
8		Tadoba to Katezari	--	--	--	2.00	--	2.00
9		Tadoba to Jamni	--	--	--	4.00	--	4.00
10		Tadoba to Kalaamba	--	--	--	4.00	--	4.00
11		Ambathira Road	--	--	--	5.00	--	5.00
12		Jamni Chowki to Kolara Gate	--	--	--	7.00	--	7.00
13		Khatoda to Jamni	--	--	--	7.00	--	7.00
14		Waghai to Pandharpauni	--	--	--	3.00	--	3.00

Sl. No.	Name of Range	Roads	Culverts /Cause	Type of Road				Total Length
				Tar	Metal	Murum	Earthern	
15		Katezari to Kalaamba	--	--	--	6.00	--	6.00
16		Kalaamba to Bhanuskhindi	--	--	--	3.00	--	3.00
17		Vasant Bandhara to Ambathira	--	--	--	2.00	--	2.00
18		Kala amba to Pandharpauni	--	--	--	4.00	--	4.00
19		Khatoda to Deori	--	--	--	9.00	--	9.00
20		Hill Top Road (Sasaroad)	--	--	--	4.00	--	4.00
21		Kala amba to Udarmatka	--	--	--	--	6.00	6.00
22		Jamni Chowki to Singlepati	--	--	--	--	6.00	6.00
23		Pandharpauni to Bamangaon	--	--	--	--	4.00	4.00
24		Katezari to Bhanuskhindi Gate	--	--	--	--	9.00	9.00
25		Nawegaon Gate to Kolara Gate	--	--	5.00	9.00	20.00	34.00
26		Kolara gate to Jamni	--	--	--	--	5.00	5.00
27		Pandharpauni to Alizanja	--	--	17.40	70.00	41.00	128. 40
1	Moharli	Moharli to Khatoda	--	11.20	--	--	--	11.20
2		Dewada to Andhari	--	--	6.00	--	--	6.00
3		Khatoda to Palasgoan	--	--	3.00	--	--	3.00
4		Moharli to MTDC	--	--	2.15	--	--	2.15
5		Palasgaon-Karwa-Rantalodhi	--	--	--	21.00	--	21.00
		-Siwanzari	--	--	--	--	--	--
6		Moharli to Botezari	--	--	--	--	13.00	13.00

Sl. No.	Name of Range	Roads	Culverts /Cause	Type of Road				Total Length
				Tar	Metal	Murum	Earthern	
7		Telia Dam-Circular Road	--	--	2.235	--	2.665	4.900
8		Moharli Canal to Sitarampeth	--	--	--	--	2.00	2.00
9		Dewada to Junona	--	--	--	--	4.00	4.00
10		Dewada to Girghat	--	--	--	--	7.00	7.00
1	Kolsa	Kolsa to Zari	--	--	7.00	--	--	7.00
2		Kolsa to Andhari	--	--	3.00	7.00	--	10.00
3		Kolsa to Pangdi	--	--	1.00	6.00	--	7.00
4		Kolsa to Shivanzari	--	--	--	4.00	--	4.00
5		Kolsa to Piparheti	--	--	--	--	10.50	10.50
6		Kolsa to Doni	--	--	--	9.00	--	9.00
7		Belan to Pahami	--	--	--	6.00	--	6.00
8		Shivanzari to Botezari	--	--	--	--	4.00	4.00
9		Fulzari Chowki to Botezari	--	--	--	--	4.00	4.00
10		Fulzari Chowki to Pahami	--	--	--	--	6.00	6.00
11		Rantalodhi to Piperheti	--	--	--	--	10.00	10.00
12		Kolsa to Pahami	--	--	--	--	6.00	6.00
13		Andhari River to Panghat	--	--	--	--	6.00	6.00
14		Doni Road-Zari Road Joint	--	--	3.20	--	--	3.20
		Total	**--**	**20.20**	**67.385**	**199.00**	**166.165**	**452.75**

APPENDIX - XXIX

(Para No. 4.4)

STATEMENT SHOWING THE EXISTING HIDES AND MACHANS

Sr.No	Location	Comptt No.
	HIDES	
1	Vasant Bandhara (Tadoba Range)	91
2	Katezari	117
3	Telia Nala	144
4	Vasant Bandhara (Mohrli Range)	145
	Pandharapani Nala	
5	Near Puranik vihir on Moharli-Khatoda road	141
6	Telia Nala Pazar	143
7	Mahalgaon Tank	152
8	Shivanzari	313
9	Fulzari	306
10	Ambeutar	308
11	Hirda Nala	317
12	Kolsa Tank	315

MACHANS

Sr.No	Location	Type	Comptt No.
1	Machan (Vasant Bandhara Road	Steel	91
2	Machan (Jamunzora)	Steel	88
3	Machan (Tadoba Lake)	Steel	83
4	Machan (Tadoba Lake)	Steel	83
5	Machan-Pandharpauni Tank	Steel	80
6	Machan-Panchdhara	Wooden	92
7	Machan-Ambathira	Wooden	91
8	Machan-Kalaamba	Wooden	69

Sr.No	Location	Type	Comptt No.
9	Machan-Katezari	Wooden	117
10	Machan-Near Old Well (Moharli Khatoda Road)	Wooden	141
11	Machan (Telia Dam)	Semished	143
12	Machan (Mahalgaon Tank)	Wooden	152
13	Machan (Hirdi)	Wooden	333
14	Machan	Wooden	333
15	Machan (Kolsa lake)	Wooden	315
16	Machan (Kolsa Rantalodhi Road)	Steel	
17	Machan (Kolsa Pangdi Road)	Steel	
18	Machan (Panghat Protection Hut)	Steel	
19	Machan (Tadachi Wahi) Kolsa Tank	Semi Steel	
20	Machan (Sukri Bodi) Kolsa Range	Wooden	
21	Machan (Fulzari)	Wooden	
22	Machan (Pipri Bodi)	Wooden	
23	Machan (Kasarbodi)	Wooden	
24	Machan (Koparwahi)	Wooden	

APPENDIX - XXX

(Para No 4.4)

STATEMENT SHOWING THE DETAILS OF TOURIST INFLOW AND REVENUE

Year	Tourist inflow (No.)	Revenue (Rs. in Lakhs)
1996-1997	73112	3,70,714
1997-1998	76330	5,63,562
1998-1999	44029	5,59,597
1999-2000	35975	5,05,726
2000-2001	34818	2,49,186
2001-2002	30488	2,18,333
2002-2003	30951	4,20,455
2003-2004	35944	5,86,708
2004-2005	36325	14,28,810
2005-2006	35640	12,91,675
2006-2007	43345	15,82,832

APPENDIX - XXXI

(Para No. 4.5)

STATEMENT SHOWING THE DETAILS OF SAMPLE PLOTS AND PRESERVATION PLOTS

Sl. No.	Plot No.	Year of formation	Compt. No.	Area (Ha.)	Species	Location
			SAMPLE PLOTS			
1.	3	July - 1925	143	0.082	Teak	Moharli
2	4	July - 1925	91	0.132	Teak	Tadoba
3	13	July - 1977	312	0.204	Teak	Kolsa
			PRESERVATION PLOTS			
1.	9	March - 1992	287	10.00	Misc. Species	Kolsa
2.	11	Jan - 1994	155/166	10.00	Misc. Species	Dewada

* Note : Compartment No. 166 is not the part of Tadoba-Andhari Tiger Reserve.

APPENDIX - XXXII

(Para No. 4.7)

STATEMENT SHOWING THE AREA DETAILS OF RANGE, ROUND, AND BEATS OF TADOBA ANDHARI TIGER RESERVE

(Area in Ha.)

Name of Range	Name of Round	Name of Beat	Area of Reserved Forest/Unclassed Forest			Total Area	Area of Protected Forest		Khadak Pahad Area	Total Area of Beat
			Compartment No.	Reserved Forest	Unclassed Forest		Name of Village	Protected Area		
Tadoba	Tadoba	Tadoba	82,83,90,91,92,93,94	2089.391	45.325	2134.716	—	—	—	2134.716
	Bhankushkindi	Nimdela	66,67,68,62,64,65	1924.705	--	1924.705	--	--	--	1924.705
		Arjuni	69,84,85,86	1560.872	--	1560.872	Bhanuskindi	472.448	--	2033.72
		Ashta	87,88,117(P), 118	766.385	--	766.385	Sonegaon	140.886	--	907.271
	Wadala Tu		89,115,116,117(P), 119	916.295	--	916.295	Wadala Tu. Katezari	568.753	130.110	1615.158
		5	**25**	**7257.648**	**45.325**	**7302.973**	**4**	**1182.482**	**130.110**	**8615.565**
	Khatoda	Madnapur-1	106, 108	1018.594	—	1018.594	—	—	-	1018.594
		Madnapur-2	129,130,	696.869	-	696.869	-	-	-	696.869
		Khutwanda D	121,122,123,124,125,126	1592.018	55.046	1647.064	Khutwand D, Chichghat	78.788	90.770	1816.622
		Ghosari	114,120	624.016	-	624.016	Ghosari, Tamsi, Katwal Tu	357.187	52.750 63.470	1097.423
		Jamni	101,107,109,110,111,112,113	1898.785	12.949	1911.734	Jamni	230.067		2141.796
		5	**19**	**5830.282**	**67.995**	**5898.277**	**6**	**666.042**	**206.990**	**6771.304**

Name of Range	Name of Round	Name of Beat	Area of Reserved Forest/Unclassed Forest			Total Area	Area of Protected Forest		Khadak Pahad Area	Total Area of Beat
			Compartment No.	Reserved Forest	Unclassed Forest		Name of Village	Protected Area		
	Kolara	Navegaon	50,61,70,71,78,79,80,81	1793.942	9.303	1803.245	-	-	-	1803.245
		Bamangaon	48,49,72,73,77	1145.923	53.964	1199.889	Bamangaon	526.601	-	1726.49
		Satara	74,75,76,96	859.954	-	859.954	Tekadi Mandav	145.222	-	1119.548
							zari, Satara	114.372		
		Kolara	95,97,98,99,100	1121.383	-	1121.383	Chaiti Rith	516.71	-	1638.093
		4	**22**	**4921.202**	**63.267**	**4984.469**	**5**	**1302.905**	**-**	**6287.374**
Area of Range	**3**	**14**	**66**	**18009.132**	**176.587**	**18185.719**	**15**	**2151.429**	**337.100**	**21674.248**
Moharli	Moharli South	Dewada-1	157,158,159,160	1351.245	-	1351.245	-	-	-	1351.245
		Dewada-2	155,161,162,163	1301.065	-	1301.065	-	-	-	1301.065
		Junona	147,148,149,150,151,152, 153,156	2596.866	-	2596.866	-	-	-	2596.866
		3	**16**	**5249.176**	**-**	**5249.176**	**-**	**-**	**-**	**5249.176**
	Moharli North	Moharli-1	138,139,140	625.643	-	625.643	-	-	-	625.643
		Mohalri-2	141,142,143,144,145,146	1609.029	-	1609.029	-	-	-	1609.029
		Khatoda	127,128,131,134,136,137	1441.086	-	1441.086	Palasgaon	88.61	-	1528.986
		Palasgaon	132,133,135,245,248,250,295	2417.998	-	2417.998	-	-	-	2417.998
		4	**22**	**6093.756**	**-**	**6093.756**	**-**	**88.61**	**-**	**6182.366**
	Karwa	Andhari	294,296,297,298,299,300, 301,302	2906.452	-	2906.452	-	-	-	2906.452

Name of Range	Name of Round	Name of Beat	Area of Reserved Forest/Unclassed Forest			Total Area	Area of Protected Forest		Khadak Pahad Area	Total Area of Beat
			Compartment No.	Reserved Forest	Unclassed Forest		Name of Village	Protected Area		
		Rantalodhi (West)	253,287,288,289,290,294 292,293	2585.133	-	2585.133	-	-	-	2585.133
		Karwa	249,251,252,254,255	2855.485	-	2855.485	-	-	-	2855.485
		3	**21**	**8347.070**	**-**	**8347.070**	**-**	**-**	**-**	**8347.070**
Area of Range	**3**	**10**	**59**	**19690.002**	**-**	**19690.002**	**-**	**88.61**	**-**	**19778.612**
Kolsa	Kolsa (South)	Kolsa	279,285,310,312,313,314, 335	2415.163	-	2415.163	-	-	-	2415.163
		Botezari	303,304,307,308,309,311	2687.114	-	2687.114	Botezari	10.590	-	2697.704
		Pahami	305,306,337,338,339,340, 371,373	2729.201	-	2729.201	-	-	-	2729.201
		3	**21**	**7831.478**	**-**	**7831.478**	**-**	**10.590**	**-**	**7842.068**
	Kolsa (North)	Rantalodhi (East)	256,257,258,259,282,283, 284,286	2558.828	-	2558.828	-	-	-	2558.828
		Piparheti-1	266,267,276	1558.863	-	1558.863	-	-	-	1558.863
		Piparheti-2	260,281	1098.722	-	1098.722	-	-	-	1098.722
		Pangadi-1	277,278,280	966.389	-	966.389	-	-	-	966.389
		4	**16**	**6182.802**	**-**	**6182.802**	**-**	**-**	**-**	**6182.802**
	Pangdi	Pangdi-2	316,317,318	1461.725	-	1461.725	-	-	-	1461.725
		Doni	315,330,331,332,333	2390.075	-	2390.075	-	-	-	2390.075
		Zari	334,336,341,342,343,344,	2218.892	-	2218.890	-	-	-	2218.892
		3	**16**	**6070.692**	**-**	**6070.692**	**-**	**-**	**-**	**6070.692**
Area of Range	**3**	**10**	**53**	**20084.972**	**-**	**20084.972**	**-**	**10.590**	**-**	**20095.562**

ABSTRACT

Name Range	Included Round	Included Beat	Area of Reserved Forest		Unclassed Forest	Total Area	Included other Area		Total Area
			Total Comptt. No.	Area in Ha.			Protected Forest	Khadak Forest	
1	2	3	4	5	6	7	8	9	10
Tadoba	4	14	66	18009.132	176.587	18185.719	3151.429	337.100	21674.248
Moharli	3	10	59	19690.002	--	19690.002	88.610	--	19778.612
Kolsa	3	10	53	20084.972	--	20084.972	10.590	--	20095.562
	10	**34**	**178**	**57784.106**	**176.587**	**57960.693**	**3250.629**	**337.100**	**61548.422**

APPENDIX - XXXIII

(Para No. 4.7)

STATEMENT SHOWING THE DETAILS OF EXISTING CADREWISE STAFF POSITION

Sr. No.	Name of Head	Class	Sanctioned Posts
1	a) Administration & Protection	Class I	Divisional Forest Officer 1
		Class II (junior)	Range Forest Officer 2
		Class III	Accountant 3
			Forester 7
			Clerk 9
			Forest Guard 39
			Chowkidar 1
		Class IV	Dak Runner 1
		Total	**63**
	b) Re-organisation of Rounds & Beats	Class III	Forester 1
			Forest Guard 1
	c) Reorganisation of Rounds & Beats Creation of range Accountant	Class III	Accountant 1
		Total	**3**
2	Special Protection Plan Fire and Forest Protection	Class III	Forester 1 Forest Guard 1
		Total	**2**
3	Repairs to Roads and Bridges	Class III	Tractor Driver 1
		Class IV	Cleaner 1
		Total	**2**
4.	a) Nature conservation and wildlife and wildlife protection	Class I	Chief Conservator of Forests 1
		Class I (Junior)	Divisional Forest Officer 1
		Class II (Junior)	Range Forest Officer 1
		Class III	Forester 1
			Forest Guard 2
			Chowkidar 1
			Mali 2
			Peon 1
			Total 10

Sl. No.	Name of Head	Class	Sanctioned Posts
	b) Nature conservatior & wildlife Protection	ClassII (Junior) Class III	Office Superitendent 1 Accountant 3 Clerk 3 Forest Guard (Naka) 10 Surveyor 1 Jeep Driver 1 Steno Typist 1 Caretaker 2 Mahawat 1
		Class IV	Sweeper 1 Animal Keeper 1 Pen-cleaner 2 Chowkidar (Night) 1 Chara cutter 1
		Total	**30**
5.	Forest Park	Class II (Junior) Class III	Range Forest Office 1 Forester 1 Forest Guard 3 Driver 3 Chowkidar 1 Mali 2 Khansama 1 Khalasi 1 Cleaner 1
		Total	**14**
6.	Wild Life Management and Conservation	Class I Class II Class III Class IV	Asst. Conservator of Forest 1 Range Forest Officer 3 Forest Guards 81 Watchers 27
		Total	**112**
7.	Exploitation by Forest Lab. Co-Op Soc. Supervision	Class I Class III	Asst. Conservator of Forest 1 Head Clerk 1
		Total	**2**
8.	Exploitation by Govt. Agency (Timber)	Class III	Driver 5
		Total	**5**
		Grant Total	**243**

APPENDIX - XXXIV

(Para No. 4.8)

Tadoba Tiger Reserve *Evaluator : A. S. Negi*

Issue	Criteria	Maximum Score	Current Score	Comments
1. Legal Status	Completion of legal procedures	3	3	Tadoba-Andhari TR extends over an area of 625.40 km^2. Type of areas in the TR are as under : 1. Tadoba NP 116.55 km^2 2. Andhari WLS 508.55 km^2 **Total 625.40 km^2** Tadoba NP was notified in 1955 and is one of the oldest NPs in the country to have been notified before enactment of Wildlife Protection Act of 1972. Out of 508.85 km^2 of Andhari WLS, 461.76 km2 has been finally notified. 12.57 km^2 is yet to be finally notified, due to acquisition process of 6 villages living inside the Sanctuary not being completed. 34.52 km^2 area shall not be notified as WLS and will remain as buffer of the TR.
	Delineation of buffer zone	3	0	Due to non transfer of forest buffer to TR management, the area of NP and WLS has been readjusted to form all the zones (core, buffer and tourism). Under core area there is 218.76 km^2 (Entire area of NP) and the remaining area of WLS is as under : 1. Core area 218.76 km^2 2. Buffer Zone 357.02 km^2 3. Tourism Zone 49.62 km^2 **Total 625.40 km^2** Presence of good forest buffer on almost 3 sides of this TR could be utilized for inclusion of RF buffer and whole of Chandrapur FD and Chimur Range of Bramhapuri FD could be included to form a great Tadoba-Andhari TR. A proposal has been submitted by the Field Director on these lines, which needs immediate attention of the State Government.
	Unified control of buffer	3	0	Other than NP and WLS, no other area has been identified as buffer and control of both the PAs is with the Ft. Unified control in real sense would require transfer of whole of Chandrapur FD and Chimur Range of Bramhapuri FD under the control of FD to take care of good breeding population of tigers in core area.
	Sub-Total	**9**	**3**	
2.Compatible Land Use	In the buffer	3	3	The land use in so called buffer (Andhari WLS) is compatible to the wildlife management as it is under the control of TR management. Beyond buffer, out of 187.6 km boundary length, 47.4 km of western boundary and 12.75 km of boundary in the northern part has no forested buffer. Remaining 127.47 km of the boundary of the TR has good forest areas of Chandrapur FD and Bramhapuri FD where all forestry operations including Development Corporation, bamboo working and NTFP working is in progress which is not compatible with TR management.
	The land use is totally incompatible in the buffer (includes forestry operations also)	0	-	
	Beyond buffer (5km. radius)	3	0	
	Beyond buffer the landuse is detrimental	0	-	
	Sub-Total	**6**	**3**	

Issue	Criteria	Maximum Score	Current Score	Comments
3. Human Pressure	Habitation present within the core	0	-	Six villages are proposed for relocation from Andhari WLS which exert enormous pressure on the TR. The human and cattle population of these villages is 2450 and 2365 respectively. All these villages practice cultivation. The designated core has to habitation, cultivation, encroachment etc. and even the NTFP and fodder collection is limited. There are 59 villages in the immediate vicinity of the TR with 37434 human and 39716 cattle population. 60.15 km boundary of the TR is porous, coming in direct contact with the villages and cultivations. There is tremendous pressures of all kinds up to 2 to 3 km depth inside the TP on these sides. Illicit grazing, fuel wood and fodder collection and NTFP collection by adjoining villages is a big problem.
	No habitation within the core	4	0	
	Livestock Grazing pressure present within the core	0	-	
	No livestock grazing pressure within the core of adjoining areas	4	0	
	Cultivation present in the core	0	-	
	Encroachment present	0	0	
	Collection of NTFP in the core	0	0	
	Quarrying present in the core	0	0	
	Sub-Total	**8**	**0**	
4. Use of the Area by other Departments	Yes	0	-	Non except few metal road of PWD going through the TR. with limited and controlled traffic.
	No	3	3	
	Sub-Total	**3**	**3**	
5. Management Plan Updated	Yes	3	3	Management Plan of the TR is sanctioned for a period of 10 years from 1997-98 to 2006-07
	No	0	-	
	Sub-Total	**3**	**3**	
6.Regeneration Status in the Core	Satisfactory	3	3	Very good. Bamboo stand of same age group is present in the form of thickets in most of the area.
	Poor	0	-	
	Sub-Total	**3**	**3**	
7.Regeneration Status in the Buffer	Satisfactory	3	0	Good except in the vicinity of 6 villages situated inside Andhari WLS and along the 60.15 km boundary with habitation and cultivation where regeneration is poor.
	Poor	0	-	
	Sub-Total	**3**	**0**	
8. Staff in Position	Satisfactory	3	3	There are only 4 vacancies in FGd. cadre against a sanctioned strength of 56 and 3 in Forester Cadre against 11 sanctioned posts. The average beat size is 10 km^2. Whereas the State Govt. directive for Protected Areas is 7.5 km^2. Field Director has proposed 50 more beats which needs to be pursued with the State Govt. by the CWLW. Field Director also feels that for the better management of the TR he would need one post each of Office Superintendent, Chief Accountant, Range Surveyor, Deputy Forest Engineer and Draughtsman.
	Inadequate	0	-	
	Sub-Total	**3**	**3**	
9. Average Age of Staff	Satisfactory	3	3	Average age of F.Gds. is 39 years and that of the field staff RO and below it is above 40 years.
	Unsatisfactory	0	-	
	Sub-Total	**3**	**3**	
10.Equipments	Adequate	3	3	Adequate Modern equipments such as night visions, GPS, digital camera, computer network with all facilities, pedometer, phone etc. should also be procured if not already acquired.
	Inadequate	0	-	
	Sub-Total	**3**	**3**	
11. Vehicles	Adequate	3	3	Adequate.
	Inadequate	0	-	
	Sub-Total	**3**	**3**	
12. Timely Release of CA	**Yes**	**4**	**4**	Central Assistance is released in time but there is considerable delay at State Govt. level.
	Delayed	**0**	-	
	Sub-Total	**4**	**4**	

Issue	Criteria	Maximum Score	Current Score	Comments
13. Strike Force Available	Yes	4	0	An ad-hoc strike force under a Forest Ranger has been prepared with 1 Forester, 3 Forest Guards and 2 labourers. A well-trained strike force is the need of the day, which can also collect intelligence about wildlife crimes outside the TR. Recruitment of Ex-Army, Ex-Paramilitary personnel for this purpose could be more appropriate.
	No	0	-	
	Sub-Total	**4**	**0**	
14. Disbursement of Salary/ Project Allowance / TA	Satisfactory	4	4	Salary, Project Allowance etc. is disbursed promptly but the Traveling expenses of lower field staff are pending for payment for last 2-3 years.
	Unsatisfactory	0	-	
	Sub-Total	**4**	**4**	
15. Field Data Collection	Ongoing	3	3	A good deal of research work has been conducted in the TR by different agencies as under: (i) BSI has prepared flora of Tadoba NP. (ii) A pilot research project for preparing a data base for the TR using satellite imagery and ground truthing was initiated in 1994 and field work was been completed in 1997. (iii) ZSI has taken up detailed survey of insects and other micro fauna of the TR. (iv) Tropical Forestry Institute, Jabalpur has taken up studies on vegetation ecology of the TATR. (v) A NGO known as VHNS based at Nagpur has completed a study of birds of TATR. (vi) Dr. Milind Walve of Life Research Foundation Pune has also done a study on relationship of predation and presence of parasites in prey species. (vii) Wildlife Conservation Society has taken up a Project of camera trapping and transect survey in TATR for a period of 3 years to estimate the population of tigers and their prey species. It has been noticed that the research taken up by Institutions and individuals takes all the inputs from the TR and also takes all help, guidance and data from the TR management but the research findings are either unduly delayed or not conveyed to the TR management at all. All research work by institutions and individuals should be reviewed periodically at least once every year and their progress monitored. It should be allowed to continue only if the progress is satisfactory. The research data base of the TR should be built up with all finding and properly categorized at the Headquarters of the Field Director. The periodical census is being done for predators and prey species and date being done for predators and prey species and data being utilized for management etc.
	Not ongoing	0	-	
	Sub-Total	**3**	**3**	

Issue	Criteria	Maximum Score	Current Score	Comments
16. Tourism Regulation	Done as per CC	5	5	The number of visitors during last 5 years has been between about 30500 to 41000 and the number of vehicles entering the TR has been about 4400 to 5900. Tourism zone has been earmarked which covers about 49.62 sq.km. and is in three subzones, viz. Moharli, Nawegaon (Ramdegi) and Kolsa. No. of vehicles allowed to enter the TR are tentatively fixed at 50 at a time. No study has been done to assess the carrying capacity which needs to be done urgently. Visitor regulation are generally good. About 30 trained nature guides are available at different entry points to accompany the visitors. Taking a guide as mandatory. The visitor rush is more at Tadoba. Most of the visitors are day visitors from Nagpur and Chandrapur.
	Non done as per CC	0	-	
	Sub-Total	**5**	**5**	
17. Recycling of gate Receipts done	Yes	5	0	No. arrangement for recycling of gate receipts exists.
	No	0	-	
	Sub-Total	**50**		
18. Field Staff Training	Yes	3	0	There is no arrangement for formal training of field staff either at the time of entry to the service or in service training. Only one Forest Ranger and one ACF are trained in Diploma/Certificate course in WII. However, workshops are held at the FD level to give exposure to the staff.
	Not done regularly	0	-	
	Sub-Total	**3**	**0**	
19. Weed Growth in the Habitat	Present	0	-	There is no problem of weeds in the TR. Some common weeds found closer to habitations are being uprooted as a management practice.
	Not seen	3	3	
	Sub-Total	**3**	**3**	
20. Gregarious Wildland Advancement in Meadows	Present	1	-	TATR has excellent mix of woodlands, bamboo brakes and grassy patches. This makes an excellent habitat for the prey and good cover for the predator. Gregarious bamboo growth on roadsides and fire lines needs to be checked. Grasslands are being maintained by annual burning. 40 % area is covered with bamboo and 76% forest is mixed crop. Grasslands are over 7%.
	Managed	4	4	
	Sub-Total	**5**	**4**	
21. Field Visits by Officers	Adequate	4	4	The FD and his officers are generally mobile. Frequent surprise checking by FD keeps the field staff on their toes. Foot patrolling and night halts at patrolling huts is also being done by FD and other officers.
	Inadequate	0	-	
	Sub-Total	**4**	**4**	
22. Staff Welfare Measures	Satisfactory	4	2	Other than routine measures no special measures were brought to notice. The staff posted in patrolling camps has drinking water facility and good staying arrangement. There is no thinking of family lines for the frontline staff posted in the remote places. This should be introduced looking at the efforts by adjoining Stale of M.P.
	Unsatisfactory	0	-	
	Sub-Total	**4**	**2**	

Issue	Criteria	Maximum Score	Current Score	Comments
23. Poaching	Common	0	-	Poaching is not a problem. One case of tiger killing by poisoning is recorded in 2002-03 which was poisoned due to excessive cattle lifting by a particular tiger who had his territory close to the habitation. During past 10 years, 16 cases of poaching of major prey species were recorded. The incidents were high during 2001-02 and 2002-03. However, large number o cases of illicit is cutting of trees, fire, grazing and encroachment have been recorded during last 10 years. Two tiger poaching incidents in the adjoining Forest Division were reported, one about 4 km from the boundary of TR, 7 years ago and one about 25 km from TR boundary about 4 years back. In both the incidents jaw traps were used and in both the cases Bahelia tribes from Katani (MP) were found involved. This is enough indication of the poachers interest in the area and calls for urgent transfer of adjoining RF area to TR management.
	Negligible	4	4	
	Sub-Total	**4**	**4**	
24. Fires	Common	0	-	Fire is not common and the area burnt during last 5 years starting from 2004-05 is 1.98% , 4.88%, 0.93%, 2.20% and 4.97% respectively. TATR is an unique example where fire control and prevention is done by Forest Development Corporation under "Modern Forest Fire Control Project". The fire lines are also maintained by the Corporation. It was very strange to notice that only one side of the road was being cut and burnt and other side was left unattended and the reasons given was lack of funds. On roadsides it should be mandatory to clear and burn the fire line on both sides to avoid accidental fires. Any operation regarding fire control should be done in consultation with the Field Director.
	Less than 1% of the TR area	5	5	
	Sub-Total	**5**	**5**	
25. Epidemics	Common	0	-	No case noticed during past several years.
	Rare	3	3	
	Sub-Total	**3**	**3**	
26. Wildlife Estimation	Done regularly	3	3	Estimation of predators and prey species is made every year. Tiger and Leopard are estimated by user friendly pugmark method whereas major prey species are estimated by block counts using transects. Looking at the figures reported for last 5 years, the prey-predator ratio appears convincing. Wild pig, spotted deer, sambar, blue bull, gaur and langur are the main prey species. During the visit of Committee member, very good sighting of prey species was done and two sub adult tigers were also sighted close to a group of 16 blue bulls. Leopard and wild dogs are the main predators competing with tiger. Incidentally, the annual census operations being carried out in the State (18^{th} to 24^{th}) coincided with the visit of Committee member . One very unique feature of the waterhole census was very high incidents of direct sighting of tiers from watch towers. Each waterhole was covered and as many as 40 sightings were reported. The team consisted of one Forest staff and one individual from among students/NGO/media/nature lovers. The FD himself had a sighting of a tigress with 4 cubs, tigresses with cubs were also sighted by two-three other teams. Tadoba is known for breeding tigresses with 3 to 4 cubs. Lot of signs of tigers were seen during our field visit. Large number of students, NGOs, Naturalists and media persons took part in the census to make it more transparent. It would be interesting to see the estimation figures of adjoining Forest Divisions as the successful breeding in the TR should reflect in increase in tiger population in adjoining forest divisions. It would be very unfortunate to breed tigers successfully in TRs and loose them in the adjoining buffer areas just because there is no focused management in these areas simply because their control has not been given to Field Director (FD) by the State Govt. We had an opportunity to see the analysis of one Certificate Course trained Forest Ranger of the TR. He had marked the territories of male tigers on the Range map and shown females and cubs within these territories based on census result and field experience of field staff. He had taken due care of the results of adjoining Beats.
	Irregular	1	-	
	Sub-Total	**3**	**3**	

Issue	Criteria	Maximum Score	Current Score	Comments
27. Patrolling Camps Present	Yes	5	5	At present there are 13 patrolling camps in the TR located at strategic locations. There is one patrolling camp for 3 daily wage local tribals are posted at each camp and the Forest Guards of 3 beats stay at there camps on rotation of 2 days each and accompany the patrols. A Forester known as Round Officer checks the patrols. Tiger monitoring register is being maintained at each camp in which relevant details about direct sighting and signs are recorded and plaster casts/tracing is taken of pugmarks. 4 more patrolling camps have been constructed recently which shall be operative from coming monsoon. 60.15 km. open boundary with habitation would need more patrolling camps to minimize disturbances including poaching. Two patrolling camps on N-W sensitive boundary were inspected by the Committee.
	No	0	-	
	Sub-Total	**5**	**5**	
28. Daily Monitoring done through Camps and Recorded	Yes	4	4	Daily monitoring through network of wireless is done of all important events including patrolling and reported to Range headquarters and FD HQr. Monitoring through field diaries of frontline staff and patrolling registers of patrolling camps is also done. Frequent visit by FD/ACF and Forest Rangers also helps proper monitoring.
	No	0	-	
	Sub-Total	**4**	**4**	
29. Networking Strategy Present	Yes	3	1	Due to poaching danger outside TR, it would be necessary to create a network of intelligence collection and provision of secret money to pay for important information. At present it is on a limited and ad-hoc basis, which needs to be properly spelled out in the Management Plan.
	No	0	-	
	Sub-Total	**3**	**1**	
30. Daily Patrolling done	Yes	5	5	It is quite effective and regular.
	No	0	-	
	Sub-Total	**5**	**5**	
31. Court Cases Monitored	Yes	5	5	At the field level court cases are being monitored by the Round Officers (Foresters) for the beats falling under them. It was a pleasure to see the details of court cases in a small office room of the Round Officer at Astha village written on the wall. Our visit was surprise visit. At Field Director's level a person is monitoring the court cases regularly.
	No	0	-	
	Sub-Total	**5**	**5**	
32. Ex-Gratia, Compensation	Paid promptly	5	5	No pending case has been reported. Cattle kills by tigers and leopards are high. As high as 124 in2003-04. Human death and injury is low.
	Not paid promptly	0	-	
	Total	**5**	**5**	
33. Tourist Facilities	Adequate	2	2	Reasonable staying facilities for visitors exist. One FRH with 4 suites, one Holiday Home with 3 suites and a Youth Hostel with 36 beds are available at Tadoba. One FRH with 4 suites is at Kolsa and a tourist complex at Moharli on the boundary of the TR with 15 suites has recently come up. One faculty House and 3 tents each with 10 bed capacity are also available at Moharli gate. A 25 seater departmental minibus is available at Chandrapur to bring visitors to Tadoba and a 12 seater departmental minibus is available at Tadoba for Jungle Safari. 35 trained guides are available who accompany the visitors on their jungle trips. There is a visitor centre cum museum at Tadoba with film and LCD projector and slide projector. There is a interpretation centre at Moharli based totally on local theme. It was delightful to be guided in this centre by a local guide who explained well in Enghlish and Hindi. Canteen facilities are also available at all the three laces.
	Poor	0	-	
	Sub-Total	**2**	**2**	
34. Relationship with Police	Good	1	1	Relationship is cordial. Regular meetings with Police Superintendent is held under Tiger Cell and necessary cooperation is available.
	Poor	0	-	
	Sub-Total	**1**	**1**	

Issue	Criteria	Maximum Score	Current Score	Comments
35. Eco development Activities	Ongoing	6	6	Ecodevelopment Programme under World Bank aided Maharashtra Forestry project was started in 10 villages inside and in the zone of influence of PA since 1994 under which following activities were taken up : • Training the village youth under self employment programmes. • Solar fencing and animal proof trenches to reduce man animal conflicts. • Health care camps. • Biogas plants and LPG for cooking. • Developing degraded community land and forest land into pastures and fuel woods lots. Biogas and LPG results were seen in Astha village by Committee member and found successful. The programme is ongoing with the help of Govt. of India funds under Project Tiger. The FD feels that the present scale of funding is insufficient looking at the large number of villages in the close vicinity of the TR. He feels that these programme could be fruitful if at least 5 lakh per village is spent per year initially and a corpus fund is raised to sustain the programme.
	Lacking	0	-	
	Sub-Total	**6**	**6**	
36. Fulfillment of Reciprocal Commitments	Good	5	5	Reciprocal commitment by majority of villagers remains much below expectation. However, due to improvement of relations between TR management and communities, it is easier to get intelligence about few notorious people and outsiders intending to harm the TR. This also helps to continue a dialogues with villagers for their support.
	Poor	0	-	
	Sub-Total	**5**	**5**	
37. Cattle Immunization In Villages	Done	5	5	It is being done for communicable cattle diseases every year in the inside and peripheral villages with the help of local veterinary officers.
	Not done	0	-	
	Sub-Total	**5**	**5**	
38. Host Community Involvement in Ecotourism	Yes	5	5	35 eco guides from nearby village are engaged to guide the visitors, they earn about Rs. 8000/- on an average during one tourist season. All the canteens are run by local people. A large number of vehicles are hired by tourists which belong to local people. Looking at the tourist volume the involvement of host community could be much more.
	No	0	-	
	Sub-Total	**5**	**5**	
39. Registration of Arms	Done	4	0	It has not yet been done.
	Not done	0	-	
	Sub-Total	**4**	**0**	
40. PM done in all Cases of Unnatural Mortality	Yes	5	5	Being done in all cases of unnatural deaths with help of concerned veterinary officers.
	No	0	-	
	Sub-Total	**5**	**5**	
41. Trust between Local People & TR Management	Good	5	5	There has been marked improvement in the trust after launching of ecodevelopment programme. Training of eco guides for local villages and their engagement with tourists has also helped in building the trust. Large number of daily wage workers in the TR are also local and contribute in trust building. Efforts have to be continued .
	Poor	0	-	
	Sub-Total	**5**	**5**	

Issue	Criteria	Maximum Score	Current Score	Comments
42. Economic Benefits To Stake Holders	Good	3	3	The tourist guides, daily wage laborers, taxi drivers, hotel owners etc. get direct benefit, whereas sale of fruits, vegetables and dairy products, laundry work and other jobs in Government and private lodges also benefit the stakeholders. Ecodevelopment programme has helped in training local youth for self help programme.
	Poor	0	-	
	Sub-Total	**3**	**3**	
43. Control Over Use/ Access of TR Resources	Good	5	3	Three is good control over TR resources due to unified control of core and buffer. The State Government is contemplating the idea of restarting forestry operations like coupe working, bamboo cutting and NTFP collection in the MUA, which will be very detrimental to TR. This should in no case be allowed to restart as there is already immense pressure of surrounding villages on the MUA and part of Melghat WLS.
	Poor	0	-	
	Sub-Total	**5**	**3**	
44. Efforts Towards Sustainable Development	**Good**	**4**	**0**	Very little efforts through ecodevelopment programme are being done. Sustainable development is only possible if all development works are coordinated and conducted on the lines of eco-development programme.
	Lacking	**0**	**-**	
	Sub-Total	**4**	**0**	
45. Restorative inputs Beyond TR	Being done	5	0	There is no such inputs as all forestry works including extraction of timber, bamboo, NTFP is in progress in all the Ranges of adjoining Forest Division. These are possible only if the adjoining Forest Divisions. These are possible only if the adjoining RF is handed over to TR Management and a landscape plan is prepared and integrated with the working plans of these and other Forest Divisions.
	Lacking	0	-	
	Sub-Total	**5**	**0**	
	Grand Total	**185**	**134***	

APPENDIX - XXXV

(Para No..5.3)

STATEMENT SHOWING THE DETAILS OF VILLAGES INSiDE AND AROUND THE RESERVE WITHIN THE ZONE OF INFLUENCE

Sr. No.	Name of the Village	Human Popula-tion	Cattle Population			Total (4+5+6)	Tahsil
			Bullock / Cows	Buffalos	Goats/ Sheep		
1	2	3	4	5	6	7	8
1	Arjuni	1328	816	115	203	1140	WARORA
2	Kokewada Tukum	849	471	40	146	657	WARORA
3	Bamangaon	530	391	08	93	392	CHIMUR
4	Satara	642	387	19	278	614	CHIMUR
5	Kolara Tukum	1559	613	46	46	705	CHIMUR
6	Madnapur Tukum	291	131	25	10	166	CHIMUR
7	Karbada	406	327	49	17	393	CHIMUR
8	Chaiti Tukum	237	274	03	85	362	WARORA
9	Nimdhela	194	123	08	41	172	WARORA
10	Manemohadi	715	217	19	123	359	WARORA
11	Adegaon	1015	198	23	128	349	B'WATI
12	Masal Bu	2013	272	18	94	384	CHIMUR
13	Kitadi	9	362	24	65	451	CHIMUR
14	Khapari	30	158	09	23	190	CHIMUR
15	Vihirgaon	1274	205	33	124	362	CHIMUR
16	Talodhi Gaonganna	1514	195	10	138	343	CHIMUR
17	Naleshwar	756	349	13	33	395	SINDEWAHI
18	Pangadi	166	126	--	17	143	SINDEWAHI
19	Jamsala	1750	930	97	289	1316	SINDEWAHI
20	Sirkada	599	248	17	188	453	SINDEWAHI
21	Katgaon	964	132	12	142	286	SINDWAHI
22	Wasera	2912	1668	385	536	2486	SINDEWAHI
23	Shivani	3266	1602	165	597	2364	SINDEWAHI

Sr. No.	Name of the Village	Human Population	Cattle Population			Total (4+5+6)	Tahsil
			Bullock / Cows	Buffalos	Goats/ Sheep		
1	2	3	4	5	6	7	8
24	Singadizari	480	148	63	10	221	SINDEWAHI
25	Karwa	396	755	20	187	962	SINDEWAHI
26	Piperheti	131	151	--	32	183	SINDEWAHI
27	Pandharwani	189	191	18	23	232	SINDEWAHI
28	Kukadheti	1082	305	32	183	520	SINDEWAHI
29	Doni	299	1248	--	103	1351	C'PUR
30	Zari	106	193	13	34	240	C'PUR
31	Pahami	70	63	--	43	106	C'PUR
32	Peth	62	61	10	--	71	C'PUR
33	Haldi	349	71	13	47	131	C'PUR
34	Nimbala	699	235	15	143	393	C'PUR
35	Waigaon Bho.	552	199	21	163	383	C'PUR
36	Moharli	1211	522	4	105	632	B'WATI
37	Junona	159	118	--	31	149	B'WATI
38	Dewada	275	140	--	--	140	B'WATI
39	Khutwanda Dixit	430	366	20	83	469	B'WATI
40	Mudholi	1938	1344	42	201	1587	B'WATI
41	Bhamdeli Ray.	341	244	9	77	330	B'WATI
42	Sitarampeth	218	135	10	25	170	B'WATI
43	Kondegaon Mal	571	275	12	80	367	B'WATI
44	Katwal Tukum	674	277	17	40	334	B'WATI
45	Wadala Tukum	696	483	13	287	763	B'WATI
46	Aashta	2110	922	72	409	1404	B'WATI
47	Kinhala	360	263	13	99	375	B'WATI
48	Waigaon Tukum	1431	205	5	100	310	B'WATI
49	Bembal	3972	356	39	290	685	MUL
50	Mahasmohan	135	176	7	229	412	
51	Ghosari	339	204	7	147	358	B'WATI
52	Masal Kh.	148	104	--	129	233	CHIMUR
53	Alizanja	35	270	12	204	486	CHIMUR

APPENDIX - XXXVI

(Para No. 5.4)

STATEMENT SHOWING THE DETAILS OF CATTLE KILL CASES

Year	Number of Cattle by Tiger/Panther	Place of Cattle Kill (Comptt. No.)
1997	13	C.No. 49,95,111,127,128,308,309, Khutwanda PF & Jamni P.A.
1998	42	C.No. 75,112,127,131,251,254,255,288,293, 299,335, Chaiti Rith PF, Jamni PF, Palasgaon PF, Wadala PF & Khutwanda Dixit PF
1999	86	C.No. 48,49,65,74,98,101,128,150,151,133, 132,138,93,110,107,251,252,253,255,287, 288,289,290,300,332,333,318 & 335 Wadala PF, Jamni PF, Chaiti Rith PF, Tekadi, Mandavzari PF, Bamangaon, PF & Satara PF
2000	51	C.No. 49,112,127,133,252,255,248,287,288 253,307,308,309,310,312,315,314,316, Bamangaon PF, Chaiti Rith PF, Tekadi Mandav zari PF, Jamni PF, Satara PF & Palasgaon PF
2001	35	C.No. 49,127,128,287,288,290,306,312,314 335 Palasgaon PF, Bhanuskindi PF, Wadala PF & Tekadi Mandavzari PF
2002	41	C.No. 48,127,128,287,288,290,300,308,312, 315 Khutwanda Dixit PF, Jamni PF, Palasgaon PF, Bhanuskindi PF
2003	120	C.No. 48,49,61,71,73,74,75,76,88,98,99,109, 111,112,100,119,133,150,288,294,255,302,308 309,316,315,316,335 Chaiti Rith PF, Jamni PF Bhanuskindi PF, Palasgaon PF, Bamangaon PF, Sonegaon PF, Ghosari PF, Tekadi Mandavzari PF Wadala PF & Satara PF

Year	Number of Cattle by Tiger/Panther	Place of Cattle Kill (Comptt. No.)
2004	76	C.No. 61,65,48,74,125,128,131,109,150, 248,253,255,287,288,290,308,309,312, 315,316,335 Bamangaon PF, Khutwanda PF. Jamni PF, Palasgaon PF, Bhanuskindi PF, Wadala PF, Sonegaon PF, Satara PF & Chaiti Rith
2005	49	C.No. 62,50,111,133,150,153,252,253,287,315
2006	89	C.No. 61,98,106,117,287,314,315,253,312,150,290, 255, 142, 308,335,309,143,333,289,288,316,151, 153, Navegaon P.F., Bamangaon P.F. Botezari P.F. Tekadi P.F. Bhanuskindi P.F. Katezari P.F, Chaiti Rith P.F. Khutwanda P.F. Ghosari P.F. Satara P.F., Jamni P.F.
2007	51	C.No. 48, 255,314,33,150,155,309,299,289,335,287, 254,288,311,258,142,132,253,101,315,316,253, Navegaon P.F., Bhanuskindi P.F., Katezari P.F., Chaiti Rith P.F., Tekadi Mandavzari P.F.

APPENDIX – XXXVII

(Para No. 5.4)

THE GOVERNMENT RESOLUTION OF MAHARASHTRA STATE REGARDING PAYMENT OF COMPENSATION FOR HUMAN INJURIES/ KILLING, CATTLE KILLING AND CROP DAMAGE CASES

व-यप्राज्यांपासू-ा पिजंचे, फळझाडांचे झालेले -ुज्सा-ा आजि म-ुष्य व पाळीव प्राज्यांच्या झालेल्या हा-ीसाठी -ुज्सा-ा भरपाई देज्याबाबत...

महाराष्ट्र शास-ा

शास-ा ि-ार्जय ज्र. डब्ल्युएलपी-१०.०८/प्र.ज्र.२७०/फ-१

महसूल व व-ा विभाज,

मंत्रालय, मुंबई ४०० ०३२

दि-ांज : ०२.०७.२०१०.

पहा : १) शास-ा ि-ार्जय, महसूल व व-ा विभाज ज्र. डब्ल्युएलपी-१०९४/प्र.ज्र.११५/फ-१, दि. २३/८/२००४.

२) शास-ा ि-ार्जय, महसूल व व-ा विभाज ज्र. डब्ल्युएलपी-१००४/प्र.ज्र.२१९/फ-१, दि. २/६/२००६.

३) शास-ा ि-ार्जय, महसूल व व-ा विभाज ज्र. डब्ल्युएलपी-१००२/प्र.ज्र.२५८/फ-१, दि. १७/१/२००३.

४) शास-ा ि-ार्जय, महसूल व व-ा विभाज ज्र. डब्ल्युएलपी-१००२/प्र.ज्र.२५८/फ-१, दि. २०/५/२००३.

५) शास-ा ि-ार्जय, महसूल व व-ा विभाज ज्र. डब्ल्युएलपी-१००१/प्र.ज्र.२२०/फ-१, दि. ७/७/२००४.

प्रस्ताव-ाा :-

व-यप्राज्यांज्डू-ा शेतपिजंचे -ुज्सा-ा झाल्यास दि. २३.८.२००४ च्या शास-ा ि-ार्जयामधील तरतुदी-ुसार -ुज्सा-ा भरपाईची रक्ज्म संबंधितां-ाा अदा ज्रज्यात येते. सदर आर्थिज मदत ज्मी असल्यामुळे व-यप्राज्यांपासू-ा होजाऱ्या -ुज्सा-ा भरपाईमध्ये समुचित वाढ ज्रज्याची बाब शास-ााच्या विचाराधी-ा होती. तसेच यासाठी व-यप्राज्यांपासू-ा पिजंचे, फळझाडांचे, म-ुष्य व पशुध-ााच्या झालेल्या अ-ुसा-ा भरपाईबाबत सर्वसमावेशज शास-ा ि-ार्जय ि-ार्जमित ज्रज्याची बाब देजील शास-ााच्या विचाराधी-ा होती. त्या-ुसार शास-ाा-ो पुढीलप्रमाजे ि-ार्जय घेतला आहे.

शास-ा ि-ार्जय :-

अ) राज्यातील **रा-डुक्ज्र, हरिज (सारंज व ुरंज), रा-ाजवा, रोही (ि-ालजाय), माज्ड** तसेच **व-यहत्ती** या व-यप्राज्यांपासू-ा शेतातील पिजंच्या -ुज्सा-ाीची भरपाई जालीलप्रमाजे आजि पध्दती-ो देज्यात यावी.

अ.ज्र.	बाब	द्यावयाची आर्थिज मदत
१	-ुज्सा-ा रु. २०००/- पर्यंत झाल्यास	पूर्ज परंतु ज्मा-ा रु. ५००/-
२	-ुज्सा-ा रु. २,००१/- ते १०,०००/- पर्यंत झाल्यास	रु.२०००/- अधिज त्यापेजा जास्तीच्या -ुज्सा-ाीच्या ५०% रक्ज्म (रु. ६,०००/- चे ज्माल मर्यादेत)
३	-ुज्सा-ा रु. १०,०००/- पेजा जास्त झाल्यास	रु.६०००/- अधिज रुपये १०,०००/- पेजा जास्त -ुज्सा-ाीच्या ३०% रक्ज्म (रुपये १५,०००/- चे ज्माल मर्यादेत)
४	ऊस	रु.४०० प्रती मे.ट-ा

त्याचप्रमाजे व-यहत्ती व रा-ाजवे यां-ी फळबाजांच्या जेलेल्या -ुज्सा-ीबाबत जालीलप्रमाजे अर्थसहाय्य देज्यात यावे.

बाब		द्यावयाची आर्थिज मदत
फळझाडे	-ारळ	रु.२,०००/- प्रति झाड
	सुपारी	रु.१,२००/- प्रति झाड
	ज्लमी आंबा	रु.१,६००/- प्रति झाड
	जेळी	रु.४८/- प्रति झाड
इतर फळझाडे		रु.२००/- प्रति झाड

१. पिज -ुज्सा-ीची तज्ार अधिज्ारजेत्र असलेले -ाजीज्चे व-ारजज, व-ापाल अजर व-ापरिजेत्राधिज्ारी यांचेपैज्ी जोजाज्डेही घट-ा घडल्यापासू-ा ती-ा दिवसात ज्रावी.

२. त्यांची शहा-िशा संबंधित व-ापाल, सरपंच, ज्ञामसेवज/तलाठी व ृषी अधिज्ारी/फलोत्पाद-ा अधिज्ारी या चार सदस्यांच्या समितीमार्फत १० दिवसांच्या आत ज्रज्यात येईल. त्यासाठी जाजेवर जाऊ-ा पंच-ाामा ज्रजे, -ुज्सा-ा जेत्राची मोजजी ज्रजे. पुरावे तपासजे व -ुज्सा-ीचे मूल्य ठरविजे हे या समितीज्डू-ा अपेजित आहे.

३. प्रत्येज प्रज्रजी -ुज्सा-ा भरपाई देज्याचे आदेश संबंधित उपव-ासंरजज यां-ी घट-ेच्या तारजेपासू-ा ३० दिवसांचे आंत ज्राढावे.

४. उपव-ासंरजज यां-ी आदेश ज्राढल्या-ंतर एज महिज्याचे आंत बाधित व्यक्तीस रज्मेचा रेजांज्ित ध-ादेश हस्तांतरीत ज्रावा.

५. ऊस पिज्राचे -ुज्सा-ीसाठी रु.४०० प्रती मे.ट-ा असे वज-ावर आधारीत -ा ठेवता ज्या तालुक्यामध्ये ऊस पिज्राचे -ुज्सा-ा होईल त्या तालुक्याच्या माजील ८ वर्षाची ृषी विभाजा-ो ज्राढलेल्या उसाच्या उत्पादज्तेवरु-ा सरासरी उत्पादज्ता ज्राढावी व त्या-ुसार ऊस पिज्राची -ुज्सा-ा भरपाई जेत्रावर आधारीत उत्पादज्तेवरु-ा (प्रती मे.ट-ा रु.४००/- प्रमाजे जज-ा ज्रु-ा) देज्यात यावी.

६. ज्या व्यक्तीं-ा पीज संरजजार्थ बंदूज परवा-ो देज्यात आले आहेत अशा व्यक्तींच्या शेतीची -ुज्सा-ा भरपाई विहीत दरा-ो व-यहत्ती जिंवा रा-ाजवा जिंवा इतर व-यप्राजी यां-ा इजा जिंवा त्यांची शिज्रार संबंधीताज्डू-ा झाली -ासल्यास अ-ुज्ञेय राहील.

७. ही मदत प्रती हेक्टरी -ा राहता प्रत्यजात झालेल्या -ुज्सा-ीवर अवलंबू-ा राहील.

८. सदरची मदत ज्सत असलेल्या शेतज्ास/मालज्ास देय राहील.

९. सदर आर्थिज मदत ही या संदर्भात शास-ा नि-र्जय नि-र्जमीत झाल्यापासू-ाच्या प्रज्रजांमध्ये लाजू ज्रज्यात यावी.

जालील प्रज्रजे -ुज्सा-ा भरपाईसाठी अपात्र राहतील.

१) व-ाजमी-ीवर अतिज्रमजाव्दारे ज्रज्यात येजारी शेती

२) भारतीय व-ा अधि-ियम जिंवा व-यजीव (संरजज) अधि-ियमातंर्जत ज्यांचे विरुध्द जु-हा -ोंदविला जेला आहे अशा व्यक्तींची शेती.

३) ज्या ुटुंबा-ी ४ पेजा अधिज जुरे मुक्त चराईसाठी जंजलात जातात त्या ुटूंबाची शेती.

४) माजील एज महि-याचे जाळात व-यप्राज्यांच्या शिजारीची घट-ा झालेली जांवे.

ब) **व-यप्राज्यांच्या हल्ल्यामुळे व्यक्ती जजमी/मृत आजि पशुध-ाची झालेली हा-ी -** वाघ, बिबट्या, अस्वल, जवा (बायस-ा), रा-डुक्ज्र, लांडजा, तरस, जोल्हा, हत्ती, मजर व रा-ज्ुत्रे (ढोल) यांच्या हल्ल्यामुळे व्यक्ती जजमी/मृत झाल्यास जिंवा पशुध-ाचा मृत्यु झाल्यास जालील प्रमाजे आजि अटींवर -ुज्सा-ा भरपाई देज्यात यावी.

i) व्यक्ती जजमी/मृत झाल्यास

अ.ज्र.	तपशिल	देय अर्थसहाय्याची रक्ज्म
१	व्यक्ती मृत झाल्यास जिंवा जायमचे अपंजत्व आल्यास	रु.२,००,०००/- (रु. दो-ा लाज फक्त)
२	व्यक्ती जंभीररित्या जजमी झाल्यास	रु. ५०,०००/- (रु. पन्नास हजार फक्त)
३	व्यक्ती जिरज्ोळ जजमी झाल्यास	औषधोपचारांसाठी येजारा जर्च देज्यात यावा. मात्र जाजजी रुज्जालयात औषधोपचार ज्रजे अजत्याचे असल्यास त्यांची मर्यादा रु. ७,५००/- (रु. सात हजार पाचशे फक्त) प्रती व्यक्ती अशी राहील. शक्यतो औषधोपचार शासजीय / जिल्हा परिषद रुज्जालयात ज्रावा.

अटी :-

१) व-यप्राज्यांज्डू-ा झालेला हल्ला हा सदर व्यक्ती-े व-यजीव (संरजज) अधि-ियम, १९७२ च्या तरतूदींचा भंज ज्रतां-ा झालेला -ासावा.

२) हल्ला झालेल्या व्यक्ती-े अथवा त्यांच्या -ातेवाईज्/ मित्रां-ी हल्ला झाल्यापासू-ा ४८ तासांच्या आत -ाजिज्च्या व-ा अधिज्ाऱ्याला / ज्र्मचाऱ्याला ज्ळवावे.

३) हल्ला झाल्यापासू-ा ती-ा दिवसांच्या आत स्था-िज् पोलीस अधिज्ारी अथवा व-ाधिज्ारी यां-ी प्रत्यज जाजेवर जाऊ-ा झालेल्या हल्ल्याचा पंच-ामा ज्रावा. पंच-ामा ज्रजारा अधिज्ारी पोलीस उपि-रीजज् वा व-ाजेत्रपाल यांच्या दर्जापेजा जालच्या दर्जाचा -ासावा.

४) व-यप्राज्यांज्डू-ा झालेल्या हल्ल्यामुळे सदर व्यक्ती मृत अथवा जजमी झाली हे तपासज्याज्रीता देज्यात येजारे वैद्यजीय प्रमाजपत्र सजम राजपत्रित वैद्यजीय अधिज्ारी, जी शासजीय रुज्जालयाचा प्रमुज आहे व ज्याचा दर्जा वैद्यजीय अधिज्ाऱ्याच्या (मेडीज्ल ऑफिसर) जालचा -ाही असा अधिज्ारी प्रमाजपत्र देज्यास सजम अधिज्ारी मा-ाला जावा.

५) व-यप्राज्यांच्या हल्ल्यामुळे मृत व्यक्तीज्रिता द्यावयाचे आर्थिज् सहाय्य त्या व्यक्तींच्या जायदेशीर वारसालाच (Legal Heir) देज्यात यावे.

६) व-यप्राज्यांच्या हल्ल्यामुळे जजमी झालेल्या व्यक्तीला देज्यात येजारी आर्थिज् सहाय्याची रक्ज्म जुद्द जजमी व्यक्तीलाच देज्यात यावी.

७) जजमी झालेल्या व्यक्तीला अथवा मृत झालेल्या व्यक्तींच्या वारसाला देज्यात येजारी आर्थिज् सहाय्याची रक्ज्म मंजूर ज्रजारा अधिज्ारी उपव-ासंरजज् / विभाजीय व-ा अधिज्ारी या व-ाधिज्ाऱ्यांच्या दर्जापेजा जालच्या दर्जाचा -ासावा.

८) अर्थसहाय्याची रक्कम केवळ रेजांकित धनादेशाद्वारे अदा करण्यात यावी.

ii) पशुधनाचा मृत्यु / अपंग / जखमी झाल्यास

अ.क्र.	तपशिल	देय अर्थसहाय्याची रक्कम
१	जाय, म्हैस, बैल यांचा मृत्यू झाल्यास	बाजार भाव किंमतीच्या ७५% किंवा रु. १०,०००/- (रु. दहा हजार फक्त) यापैकी कमी असजारी रक्कम
२	मेंढी, बकरी व इतर पशुधन* यांचा मृत्यू झाल्यास {*वन्यजीव (संरजक्षण) अधिनियम, १९७२ मधील कलम २ (१८-अ) प्रमाजे}	बाजार भाव किंमतीच्या ७५% किंवा रु. ३,०००/- (रु. तीन हजार फक्त) यापैकी कमी असजारी रक्कम.
३	जाय, म्हैस, बैल या जनावरांना जायम अपंजत्व आल्यास	बाजार भाव किंमतीच्या ५०% किंवा रु. ३,०००/- (रु. तीन हजार फक्त) यापैकी कमी असजारी रक्कम
४	जाय, म्हैस, बैल, मेंढी, बकरी व इतर पशूधन जखमी झाल्यास	औषधोपचारासाठी येजारा कर्च देण्यात यावा. औषधोपचार शासकीय / जिल्हा परिषद पशुचिकित्सालयात करजेत यावा. देय रक्कम मर्यादा बाजार भावाचे २५ टक्के किंवा रु.१००० (एक हजार फक्त) प्रति जनावर यापैकी कमी असजारी रक्कम. उक्त नुकसान भरपाई पशुवैद्यकीय अधिकाऱ्याने दिलेल्या प्रमाजपत्राचे आधारे देण्यात यावी.

सदर अर्थसहाय्य जालील अटी व शर्तीच्या अधीन राहून अनुज्ञेय असेल.

१) जनावर मालकाने जनावर जेल्यापासून किंवा घटना घडल्यापासून ४८ तासाच्या आत जवळील वन अधिकाऱ्याला / कर्मचाऱ्याला कळविले पाहीजे.

२) वन्यप्राण्याचे ज्या ठिकाजी जनावर मारले असेल त्या ठिकाजावरुन जनावराचे शव लोकां-ी हलविता कामा नये.

३) जनावराचा ज्या ठिकाजी मृत्यू / जनावर जखमी / अपंज झाले असेल त्या ठिकाजापासून १० कि.मी. भाजात कोकत्याही वन्यप्राण्याचा ६ दिवसापर्यंत विष देऊन मृत्यू झालेला नसावा.

४) हल्ल्याची बातमी मिळाल्या-ंतर संबंधित वन-पाल यां-ी प्रत्यज जाजेवर जाऊन तातडी-ने पंच-ामा करावा. तथापि जनावराचा मृत्यू कोकत्या वन्यप्राण्याचे हल्ल्या-ने झाला याची तपासजी वन-क्षेत्रपाल दर्जाच्या अधिकाऱ्यांकडून करण्यात येऊन द्यावयाची नुकसान भरपाई रक्कमही त्यांचेकडून ठरविण्यात यावी.

५) जनावर मालकाला देण्यात येजारी नुकसान भरपाईची रक्कम मंजूर करजारा अधिकारी उपवन-संरजक / विभागीय वन अधिकारी या दर्जापेजा जालच्या दर्जाचा नसावा.

६) संबंधितास देण्यात येजाऱ्या अर्थसहाय्याची रक्कम रेजांकित धनादेशाद्वारे देण्यात यावी.

ञ) **जिधाडांव्दारे होजाऱ्या -ारळांची -ुज्सा-ा भरपाई :-** जिधाडांव्दारे प्रज-ा-ासाठी -ारळाच्या झाडांचा मोठ्या प्रमाजात वापर ेला जात असल्या-ो घरट्यामधील जिधाडाच्या विष्टेमुळे -ारळाचे उत्पन्न घटते व शेतञ्यांचे -ुज्सा-ा होते. त्यामुळे शेतञ्री अशा झाडांवर असलेली घरटी -ष्ट ञरतात व पर्याया-ो त्यामुळे जिधाडाची अंडी - पिल्ले -ष्ट होतात. जिधाडांची घरटी असलेल्या -ारळ झाडासाठी प्रती हंजाम जालीलप्रमाजे व पुढील अटींवर -ुज्सा-ा भरपाई देञ्यात यावी :-

१) -ारळाचे माजील हंजामातील प्रती झाड उत्पाद-ा संबंधित ृषि अधिञ्यांञ्डू-ा उपलब्ध ञरु-ा घ्यावे. त्या-ुसार ज्या झाडावर जिधाडाचे घरटे असेल त्या झाडाच्या उत्पाद-ात चालू हंजामात झालेली घट विचारात घेऊ-ा प्रति -ारळ रु.७/- प्रमाजे -ुज्सा-ा भरपाई परिजजीत ञरञ्यात यावी.

२) देञ्यात येजारी -ुज्सा-ा भरपाई प्रति हंजाम प्रति झाड रु. ४००/- पेजा अधिञ असता जामा -ाये.

३) जिधाडाचे घरटे -ारळाचे झाडावर असल्याचे आढळल्यावर शेतमालञा-ो असे स्थाि-ञ व-ापरिजेत्र ञार्यालयास ञळवावे. सदर बाबींची व-ाजेत्रपाल दर्जाच्या अधिञ्यां-ो जात्री ेल्यावर -ुज्सा-ा भरपाईचे मा-यतेबाबतचा ि-ार्जय संबंधित उपव-ासंरञज यांच्या मा-यते-ंतर अर्जदारास ञळविञ्यात येईल.

४) जिधाडांच्या विजीचा हंजाम संपेपर्यंत शेतमालञा-ो घरट्यास संरञज द्यावे. याबाबत पाहजी ञरु-ा जात्री झाल्यावर -ुज्सा-ा भरपाई देञ्यात येईल.

५) अर्थसहाय्याची रक्ञ्म ेवळ रेजांञ्जित ध-ादेशाव्दारे अदा ञरञ्यात यावी.

ड) उपरोक्त दि. २३/८/२००४, दि. २/६/२००६, दि. १७/१/२००३, दि. २०/५/२००३ व दि. ७/७/२००४ चे शास-ा ि-ार्जय प्रस्तुतचा शास-ा ि-ार्जय ि-ार्जमित झाल्याच्या दि-ांञ्जापासू-ा अधिञ्मित ञरञ्यात येत आहेत.

इ) सदर शास-ा ि-ार्जय, ि-ार्जमित झाल्याच्या दि-ांञ्जापासू-ा लाजू ञरञ्यात येत आहेत.

महाराष्ट्राचे राज्यपाल यांच्या आदेशा-ुसार व -ावा-े.

स्वाजरी/-
(शिरीष राजे)
विशेष ञार्य अधिञारी
महसूल व व-ा विभाज,

प्रत माहिती आजि उचित ञार्यवाहीसाठी

मा. मुञ्यमंत्री, महाराष्ट्र राञ्य, मंत्रालय, मुंबई यांचे प्रधा-ा सचिव.
मा. उपमुञ्यमंत्री, महाराष्ट्र राञ्य, मंत्रालय, मुंबई यांचे सचिव.
मा. मंत्री (व-े), महाराष्ट्र राञ्य, मंत्रालय, मुंबई यांचे जाजजी सचिव.
मा. राञ्यमंत्री (व-े), महाराष्ट्र राञ्य, मंत्रालय, मुंबई यांचे जाजजी सचिव.
मुञ्य सचिव, महाराष्ट्र राञ्य, मंत्रालय, मुंबई
प्रधा-ा सचिव, ि-ायोज-ा विभाज, मंत्रालय, मुंबई
प्रधा-ा सचिव, वित्त विभाज, मंत्रालय, मुंबई
प्रधा-ा सचिव (ृषी), ृषी व पदुम विभाज, मंत्रालय मुंबई
महासंचालञ, माहिती व प्रसिध्दी, मंत्रालय, मुंबई
प्रधा-ा मुञ्य व-ासंरञज, महाराष्ट्र राञ्य, -ाञपूर

अपर प्रधा-ा मुज्य व-ासंरजज (अर्थसंज्ल्प, ि-ायोज-ा व विज्ास), महाराष्ट्र राज्य, -ाजपूर,
व्यवस्थापज्ीय संचालज, महाराष्ट्र राज्य व-ाविज्ास महामंडळ, -ाजपूर,
संचालज, समाजिज व-ीज्रज संचाल-ालय, म.रा. पुजे
मुज्य व-ासंरजज (प्रादेशिज), सर्व
मुज्य व-ासंरजज (व-यजीव) -ाजपूर/मुंबई (बोरीवली)/-ाशिज
व-ासंरजज (व-यजीव), पुजे / जोल्हापूर / -ाशिज
व-ासंरजज, जोल्हापूर, उत्तर चंद्रपूर, दजिज चंद्रपूर
व-ासंरजज तथा जेत्र संचालज, मेळघाट व्याघ्र प्रज्ल्प, अमरावती
व-ासंरजज तथा संचालज, संजय जांधी राष्ट्रीय उद्या-ा, बोरिवली
व-ासंरजज तथा जेत्र संचालज, पेंच व्याघ्र प्रज्ल्प, -ाजपूर
व-ासंरजज तथा जेत्र संचालज, ताडोबा-अंधारी व्याघ्र प्रज्ल्प, चंद्रपूर
सर्व पोलिस आयुक्त
सर्व जिल्हाधिज्ारी
उपव-ासंरजज (प्रादेशिज) सर्व
उपव-ासंरजज (व-यजीव), ठाजे/जोंदिया/अजोला/आलापल्ली चंद्रपूर स्थित/औरंजाबाद
उपविभाजीय व-ा अधिज्ारी, सांजली/उस्मा-ाबाद/बीड/भोर/चिपळूज/संजम-ेर/मालेजाव/हिंजोली.
सर्व पोलिस अधीजज
सर्व जिल्हा कृषी अधिज्ारी
महालेजापाल-१/२ (लेजापरीजा /लेजा व अ-ुज्ञेयता), महाराष्ट्र राज्य, मुंबई/-ाजपूर
ि-ायोज-ा विभाज, मंत्रालय, मुंबई-३२
वित्त विभाज (व्यय-१० ज्यार्यास-ा), मंत्रालय, मुंबई-३२
कृषी, पशुसंवर्ध-ा, दुज्धविज्ास व मत्स्यव्यवसाय विभाज, मंत्रालय, मुंबई-३२
व-ा ज्जातील सर्व ज्यार्यास-ो, महसुल व व-ा विभाज, मंत्रालय, मुंबई-३२
फ-१ ज्यार्यास-ा, महसूल व व-ा विभाज, मंत्रालय, मुंबई-३२ (ि-ावड-ास्ती)

APPENDIX – XXXVIII

Compensation for Cattle/Human Injuries/Death due to attack of Wild Animal

Year	Human				Cattle Killed		Crop damage	
	Death	Amount Paid	Injuries	Amount Paid	No of cattle	Amount Paid	No. of Cases	Amoun t Paid
1997-98	-	-	1	-	57	83575	-	-
1998-99	-	-	5	27000	51	69250	-	-
1999-00	1	40000	3	13500	98	147050	-	-
2000-01	2	60000	1	-	45	68175	-	-
2001-02	-	-	1	13500	33	61800	-	-
2002-03	1	200000	2	53500	47	77250	-	-
2003-04	1	-	6	164574	124	322837	-	-
2004-05	1	200000	4	102513	76	175575	-	-
2005-06	1	200000	1	835	49	112875	-	-
2006-07	1	200000	-	-	91	246600	-	-
2007-08	2	400000	3	436	57	152075	-	-
2008-09	-	-	-	-	36	122875	-	-
2009-10	2	400000	3	67500	64	297968	-	-
2010-11	-	-	1	2000	83	390022	1	1960
2011-12	-	-	3	24982	71	260049	1	4000

APPENDIX - XL

(Para No. 7.2.2 A1)

STATEMENT SHOWING THE DETAILS OF 1/5 OF BOUNDARY DEMARCATION SCHEME

Year	Range	Round	Beat	Comptt. No.	Pillars No.		Total No.of	Length in Kilometers			Remarks
					From	To	Pillars	Natural	Artificial	Total	
2008-09 2013-14	TADOBA	Khatoda	Khutwanda	125	2655	2714	60	..	1.400	1.400	Start from the Junction in Comptt. No. 125 & 138
		Khatoda	Khutwanda	124(p)	2715	2738	24	—	0.825	0.825	
		Khatoda	Khutwanda	124(p)	2739	2769	31	—	1.520	1.520	
		Khatoda	Khutwanda	122	2770	2778	9	—	5.400	5.400	
		Khatoda	Khutwanda	Chichghal PF	2779	2768	90	—	4.500	4.500	
		Khatoda	Khutwanda	121	—	—	—	—	3.600	3.600	
		Khatoda	Khutwanda	Khutwanda PF	—	—	29	—	1.900	1.900	
		Khatoda	Khutwanda	Ghosari PF	—	—	45	—	11.400	11.400	Ends of the Junction Ghosari and Tamsi PF
2008-09 2013-14	MOHARLI	North Moharli	Moharli-1	138	2586	2654	69	—	3.450	3.450	
		South Moharli	Dewada-2	162	2163	2118	46	—	2.300	2.300	
		Moharli	Dewada-1	160	2117	2103	15	—	0.750	0.750	
		Kanva	Kanva	249	625	625	78	—	3.350	3.350	
							212	—	9.850	9.850	

Year	Range	Round	Beat	Comptt. No.	Pillars No.		Total No.of	Length in Kilometers			Remarks
					From	To	Pillars	Natural	Artificial	Total	
2008-09	KOLSA	North Kolsa	Rantalodhi	256	757	784	28	–	1.400	1.400	
2013-14			East	257	785	848	64	2.250	0.950	3,200	
			Piparheti	258	849	893	45	2.250	–	2.250	
			North	260	894	976	83	3.850	0.300	4.150	
				281	977	980	4	--	0.200	0.200	
						7	224	8.350	2.850	11.200	
2009-10	TAD0BA	Khatoda	Ghosari	Tamsi P.F.	'_	—	50	—	7.000	7.000	Slart from
2014-15		Khatoda									the junction
		Bhanuskindi									of Ghosari
		Bhanuskindi	Ghosari	Katwal Tu.PF	—	—	15	—	4.250	4.250	PFand
		Bhaimskindi	Wadala	Wadala PF	—	—	25	—	6.000	6.000	Tamsi PF
			Wadala	Wadala PF	—	—	71	—	13.95	13.95	
			Ashta	118	3077	—	69	—	7.000	7.000	Ends of theJunction
											of Comptt. 118
2009-10	MOHARLI	North	Moharli—2	143	2399	2405	07	—	0.4000	0.4000	
2014-15		Moharli		142	2406	2485	80	—	–	4.000	4.000
		South	Junona	150	2345	2398	54			2.700	2.700
		Moharli		151	2339	2344	06	—	–	0.300	0.300
				153	2316	2338	23	—	–	1.150	1.150
		Karwa		254	679	756	78			3.950	3.950
							248	—	12.500	12.500	
2009-10	K.OLSA	North Kolsa	Piparheti	266	981	1068	88	1.700	2.700	4.400	
2014-15			(South)	267	1069	1168	100	2.100	2.850	4.950	
			Pangadi	276	1169	1239	71	3.650	—	3.650	
			(North)	277	1240	1282	43		2.100	2,100	
							302	7.450	7.650	15.00	

Year	Range	Round	Beat	Comptt. No.	Pillars No.		Total No.of	Length in Kilometers			Remarks
					From	To	Pillars	Natural	Artificial	Total	
2010-11	TADOBA	Bhanuskindi	Ashta	Sonegaon PF	--	--	71	--	10.100	10.100	Staft from the
2015-16		Bhanuskindi	Arjuni	Bhanusking PF	--	--	25	--	5.600	5.600	junction of comptt
				Shivani	--	--	9	1.800	1.800	1.800	No. 117 & 118
		Bhanuskindi	Nimdela	65	3256	3353	98	--	--	--	
				Wadgaon (65)	--	--	--	0.800	0.800	0.800	
				Belgaon Tu (65)	--	--	--	0.200	--	--	
				Belgaon Chat (65)	--	--	--	--	--	--	
								0.500			
		Bhanuskindi	Nimdela	64	3354	3470	117	3.800	--	3.800	
		Bhanuskindi	Nimdela	62	3471	3511	41	--	1.600	1.600	Ends of the junction
		Kolara	Navegaon	61(A)	3512	3587	76	--	--	--	of Comptt 61 & 50
2010-11	MOHARLI	North	Moharli-2	141	2486	2502	17	—	0.850	0.850	
2015-16		Moharli	Moharli-1	140	2503	2528	26	—	1.300	1.300	
		South	Dewada-2	155	2252	2315	64	—	3.200	3.200	
		Moharli									
		Kanva	Karwa	252	640	678	39	—	1.950	1.950	
							146		7.300	7.300	
2010-11	KOLSA	Pangadi	Paugadi	316	1283	1324	42	—	2.100	2.100	
2015-16			South	317	1325	1330	6	—	0.300	0.300	
				318	1331	1462	132	—	6.600	6.600	
			Doni	331	1463	1493	31	1.550	—	1.550	
							211	1.550	9.000	10.550	

Year	Range	Round	Beat	Comptt. No.	Pillars No.		Total No.of	Length in Kilometers			Remarks
					From	To	Pillars	Natural	Artificial	Total	
2011-12 2016-17	TADOBA	Kolara Koaara Kolara Kolara	Navegaon Bamangaon Bamangaon Satara	Ramdegi 50 48 Kitadi Tu Bamangaon PF Satara	3588 3629	3628 3729	41 101	1.100 2.35	– –	1.100 2.35	Stafts from the Junction of Comptt No. 61 & 50
2011-12 2016-17	MOHARLI	North Moharli South Mohaili KarvaZ	Moharli-1 Dewada-2 Kanra	139 163 251	2529 2164 626	2585 2251 639	57 88 14	— — —	2.850 4.400 1.450	2.850 4.400 1.450	
							159	—	8.700	8.700	
2011-12 2016-17	K.OLSA	Pangadi	Doni Zari	330 346 345 344 343	1494 1561 1641 1658 1719	1560 1640 165? 171!! 1750	67 80 17 61 32	3.350 — — 0.900 —	— 4.050 0.850 2,100 1,600	3.350 4.050 0.850 3.000 1.600	
							257	5.550	6.100	11.650	
2013-14 2017-18	TADOBA	Kolara Kolara Khatoda Khatoda Khatoda Khatoda	Satara Kolara Jamni Jamni Madnapur l Madnapur No. 2	Tekadi Mandavzari PF Chaiti Rith PF 101 107 106 130	204 217 255 417	216 254 416 459	13 38 162 43	— — 2.85 –	1.200 1.700 3.850 4.050	1.200 1.700 6.700 4.050	

Year	Range	Round	Beat	Comptt. No.	Pillars No.		Total No.of Pillars	Length in Kilometers			Remarks
					From	To		Natural	Artificial	Total	
2013-14	MOHARLI	North	Palasgaon	248	5413	541	03	—	1,150	0.150	
2017-18		Moharli		245	540	474	67	—	3.350	3.350	
				132	473	460	14	—	C.650	0.650	
		South Moharli	Dewada-1	159	2102	1984	19	—	5,900	5.9CO	
							203		10.050	10.050	
2013-14	KOLSA	South Kolsa	Paharni	371	1751	1833	83	—	4.150	4.150	
2017-18				340	1834	184"	14	—	0.650	0.650	
				373	1848	1950	103	4.150	1.300	5.450	
				339	1951	1983	33	1.400	—	1.400	
							233	5.550	6.100	11.650	

APPENDIX - XLI

(Para No.7.2.2)

STATEMENT SHOWING THE DETAILS OF PROPOSAL REORGANIZATION

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
1	Tadoba	Tadoba	1	Arjuni	Arjuni	1	Ramdegi	Ramdegi	62	308.780	—	—		—	-
							Total		**1**	**308.780**					**308.780**
						2	Nimdela	Nimdela	64	509.510	—	—	—	--	—
							Total		**1**	**509.510**					**509.510**
						3	Waigaon (Bho.)	Waigaon (Bho.)	65 66	437.470 278.019					
							Total		**2**	**715.489**					**715.489**
						4	Bhanusk-hindi	Arjuni	85	265.069	Bhanuskh indi	310.47			
							Total		**1**	**265.069**		**310.47**			**575.539**
						5	Bhanusk	Arjuni	84 86 88	199.914 386.070 106.837					
							Total		**3**	**692.821**					**692.821**
							5		**8**	**2491.669**		**310.47**			**2802.139**
			2	Navegaon	Navegaon	6	Navegaon (West)	Navega on	67 68 70	231.885 159.041 218.530					
							Total		**3**	**609.456**					**609.456**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						7	Navegaon (North)	Navegaon	5DA 50B 61A 61B	95.500 140.010 190.204 254.936			Agri.(Govt. Land)	168.880 12.350 13.560	
							Total		**4**	**680.650**				**194.790**	**875.440**
						8	Alizanza	Alizanja	48 49 71	396.187 213.266 137.188			Baman gaon	7.284	
							Total		**3**	**746.641**				**7.284**	**753.925**
						9	Navegaon (East)	Navegaon	72 79 80 81	174.419 208.008 249.287 99.151			Bamangaon Pandha rpauni	4.856 54.628	
							Total		**4**	**730.865**				**59.484**	**790.349**
						10	Kalaamb a (North)	Navega on	69	709.819					709.819
							Total		**1**	**709.819**					**709.819**
						11	Kalamba (West)	Taloba	82 83	287.735 483.599					
							Total		**2**	**771.334**					**771.334**
			Total				**6**		**17**	**4248.765**				**261.558**	**4510.323**
			3	Kolara	Kolara	12	Bamangaon	Bamagaon	75	179.943	Bamangaon	494.83	Bamangaon (Irri.Dept)	41.824	
							Total		**1**	**179.943**		**494.83**		**41.824**	**716.597**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						13	Satara	Satara	74 75	246.858 205.175	Satara Tidadi-Mandavzari	9731 132.87			
							Total		**2**	**452.033**		**230.18**			**682.213**
						14	Pandharpauni	Kolara	76 77 78 96	236.336 182.108 201.128 171.586					
							Total		**4**	**791.158**					**791.158**
						15	Deori	Deori	100	143.663	Chaiti Rith	494.600			
							Total		**1**	**143.663**		**494.600**			**638.263**
						16	Kolara	Kolara	98 99	367.859 235.527					
							Total		**2**	**603.386**		**494.600**			**603.383**
					Total		**5**		**10**	**2170.183**		**1219.610**		**41.824**	**3431.617**
			4	Ashta	Ashta	17	Sonegaon	Sonegaon	87 117P 118	225.005 217.000 216.911	Sonegaon	141.580			
							Total		**3**	**658.916**		**141.580**		**0.000**	**800.496**
						18	Katezari	Wadala	89 115 116 117P	327.390 132.332 82.555 217.632	Katezari	92.04	Govt. Cultiva.	25.26 1.41	
							Total		**4**	**759.909**		**92.04**		**26.67**	**905.289**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						19	Wadda	Wadda	119 120	157.018 154.590	Wadda	480.29			
							Total		**2**	**311.608**		**480.29**		**0.000**	**791.898**
						20	Ghosari	Ghosari	114	469.426	Ghosari Tamsi KatwalTu	252.140 35.110 66.650			
							Total		**1**	**469.426**	**3**	**353.90**			**823.325**
			Total				**4**		**10**	**2199.859**		**1067.81**		**26.67**	**3284.339**
			5	Tadoba	Tadoba	21	Tadoba	Tadoba	90 93 94	88.221 355.715 326.581					
							Total		**3**	**770.517**		**0.000**		**0.000**	**770.517**
						22	Tadoba (South)	Tadoba	91 92	266.688 280.852					
							Total		**2**	**547.540**		**0.000**		**0.000**	**547.540**
						23	Jamni (West)	Jamni	95 97 111	128.690 245.644 324.153					
							Total		**3**	**698.487**		**0.000**		**0.000**	**698.487**
						24	Jamni (East)	Jamni	101	439.894	Jamni	229.750	Cult Govt Abadi	88.65 35.690 1.890	
							Total		**1**	**439.894**		**229.750**		**126.230**	**795.874**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						25	Rampur	Jammi	112 113	374.334 193.439					
							Total		**2**	**567.773**		**0.000**		**0.000**	**567.773**
						26	Chichghat	Khatwanda	121	334.270					
							Total		**1**	**334.270**		**0.000**		**0.000**	**334.270**
						27	Khatwanda	Khatwanda	122 123 124	413.943 74.861 97.230	Chichghat Khatwanda (Dixit)	27.920 50.090			
							Total		**3**	**586.034**		**78.01**		**0.000**	**664.044**
				Total			**7**		**15**	**3944.515**		**307.760**		**126.230**	**4378.505**
	Total			**5**			**27**		**60**	**15054.991**		**2899.840**		**452.282**	**18406.923**
2	Moharli	Moharli	1	Khatoda	Khatoda	28	Chauradeo	Jamni	106	623.621	Katwal (Tu)	66.650			
							Total		**1**	**469.426**		**349.080**		**0.000**	**818.506**
				Total			**4**		**10**	**2199.859**		**1062.99**		**26.67**	**3289.519**
						29	Khatoda (East)	Khatoda	108 128	394.973 461.342					
							Total		**2**	**856.315**		**0.000**		**0.000**	**856.315**
						30	Khatoda (South)	Khatoda	109 110 122B 123B 124P	151.757 248.478 8.090 19.420 101.066			Khatoda Wingram	67.995	
							Total		**5**	**528.811**		**0.000**		**67.995**	**596.746**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						31	Khatoda (South)	Khatoda	126 127 134 136	275.186 127.071 148.520 235.527					
							Total		**4**	**786.304**		**0.000**		**0.000**	**786.304**
			Total				**4**		**14**	**2961.721**		**0.000**		**67.995**	**3029.716**
			2	Palsgaon	Palsgaon	32	Palsgaon	Palsgaon	129 131	448.392 194.249	Palsgaon	87.90	Govt. Cult. Abadi	10.270 56.51 1.940	
							Total		**2**	**642.641**		**87.90**		**68.72**	**799.261**
						33	Jungaon	Palsgaon	130 132 133	248.477 319.702 341.150					
							Total		**3**	**909.329**					**909.329**
						34	Pandhur gaon	Palsgaon	135 295	508.286 191.821					
							Total		**2**	**700.107**					**700.107**
						35	Tulsram	Palsgaon	245 248	303.514 501.811					
							Total		**2**	**805.325**					**805.325**
			Total				**4**		**9**	**3057.402**		**87.90**		**68.72**	**3214.022**
			3	Karwa (West)	Karwa	36	Karwa (West)	Karwa	249	371.906					
							Total		**1**	**371.906**					**371.906**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						37	Kawa (South)	Kawa	250 251	251.714 585.985					
							Total		**2**	**837.699**					**837.699**
						38	Kawa (Central)	Kawa	252	745.027					
							Total		**1**	**745.027**					**745.027**
						39	Andhari (East)	Rantalodhi	296 297	551.182 354.909					
							Total		**2**	**906.091**					**906.091**
						40	Rantalodhi (West)	Rantalodhi	292 293 294	152.971 228.647 384.856					
							Total			**766.474**					**766.474**
						41	Susa (North)	Botezari	298 299 300	374.334 246.858 254.143					
							Total		**3**	**885.335**					**885.335**
				Total			**6**		**12**	**4512.532**					**4512.532**
			4	Moharli	Moharli	42	Mudholi	Mudholi	125 137 138	267.902 274.377 101.171					
							Total		**3**	**643.450**					**643.450**
						43	Kondegaon	Kondegaon	139 140 141	191.416 333.056 266.283					
							Total		**3**	**790.755**					**790.755**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						44	Andhari (West)	Moharli	145	133.951					
									146	462.151					
									147	269.925					
							Total		**3**	**866.027**					**866.027**
						45	Sitaram	Moharli	142	235.122					
								peth	143	179.680					
									144	331.842					
							Total		**3**	**746.644**					**746.644**
						46	Moharli	Moharli	148	217.721					
									149	352.481					
									150	346.006					
							Total		**3**	**916.208**					**916.208**
			Total				**5**		**15**	**3963.084**					**3963.084**
			5	Dewada	Dewada	47	Junona (North)	Junona	151	401.448					
									153	390.116					
							Total		**2**	**791.564**					**791.564**
						48	Susa (South)	Botezari	301	241.597					
									302	498.573					
							Total		**2**	**740.170**					**740.170**
						49	Junona (South)	Junona	152	374.739					
									156	244.430					
							Total		**2**	**619.169**					**619.169**
						50	Dewada (North)	Dewada	155	507.881					
									157	195.058					
							Total		**2**	**702.939**					**702.939**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						51	Dewada (East)	Dewada	158 161	348.434 369.073					
							Total		**2**	**717.507**					**717.507**
						52	Chorgaon	Dewada	159 160	404.686 403.067					
							Total		**2**	**807.753**					**807.753**
						53	Dewada (South)	Dewada	162 163	154.995 269.116					
							Total		**2**	**424.111**		**0.000**		**0.000**	**424.111**
				Total			**7**		**14**	**4803.213**		**0.000**		**0.000**	**4803.213**
	Total			**5**			**26**		**64**	**19297.95 2**		**88.81**		**136.715**	**19523.475**
3	Koka	Koka	1	Karwa	Karwa (East)	54	Karwa	Karwa (East)	254 256	536.614 267.902					
							Total		**2**	**804.516**					**804.516**
						55	Pandharw ani(West)	Karwa	257 258	267.902 395.783					
							Total		**2**	**663.685**					**663.685**
						56	Rantalod hi North)	Rantalodhi	253A 255	225.010 615.932					
							Total		**2**	**840.942**					**840.942**
						57	Rantalod hi(South)	Rantalodhi	288A 288B 289 253B	566.580 26.690 167.540 38.440			Govt. Cult. Abadi	126.560 49.560 5.550	
							Total		**4**	**799.250**				**181.620**	**980.870**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						58	Rantalodhi(East)	Rantalodhi	259 282 283	349.648 137.188 233.099					
							Total		**3**	**719.935**				**0.000**	**719.935**
				Total			**5**		**13**	**3828.328**				**181.620**	**4009.948**
			2	Pangadi	Pangadi	59	Pandharwani(East)	Pandharwani	260	571.821					
							Total		**1**	**571.821**					**571.821**
						60	Bamandevi	Piperheti	281	526.901					
							Total		**1**	**526.901**					**526.901**
						61	Piperheti (West)	Piperheti	266	555.633					
							Total		**1**	**555.633**					**555.633**
						62	Piperheti (East)	Piperheti	267	640.630					
							Total		**1**	**640.630**					**640.630**
						63	Ambatchuwa	Pangadi	276 278 277	362.600 254.952 317.678					
							Total		**3**	**935.230**					**935.230**
						64	Kaladdati	Kolsa	279 280 285	309.989 393.759 304.728					
							Total		**3**	**1008.476**					**1008.476**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						65	Pangadi (North)	Pangadi	316	677.039					
							Total		**1**	**677.039**					**677.039**
						66	Pangadi (South)	Pangadi	317 318	282.471 502.215					
							Total		**2**	**784.686**					**784.686**
			Total				**8**		**13**	**5700.416**					**5700.416**
			3	Botezari	Botezari	67	Botezari (East)	Botezari	287	540.256					
							Total		**1**	**540.256**					
						68	Botezari (North)	Botezari	290 291	390.522 248.477					
							Total		**2**	**638.999**					**638.999**
						69	Botezari (South)	Botezari	308 309	479.148 399.425	Botezari	10.590	Govt. Cult. Abadi	30.630 35.830 2.020	
							Total		**2**	**878.573**		**10.590**		**68.480**	**957.643**
						70	Panghat	Botezari	303 304	340.341 417.636					
							Total		**2**	**757.977**					**757.977**
						71	Phulzari	Botezari	305 306	264.664 606.219					
							Total		**2**	**870.883**					**870.883**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
						72	Majardand	Botezari	307	353.695					
									311	696.869					
							Total		**2**	**1050.564**		**0.000**		**0.000**	**1050.564**
				Total			**6**		**11**	**4737.252**		**10.590**		**68.480**	**4816.322**
			4	Kolsa	Kolsa	73	Shivanzari	Kolsa	284	517.189					
							(North)		286	390.117					
							Total		**2**	**907.306**					**907.306**
						74	Shivanzari	Kolsa	313	315.250					
							(South)		314	423.301					
							Total		**2**	**738.551**					
						75	Kolsa	Kolsa	310	179.680			Govt.	281.180	
							(North)		312	314.441			Cult.	59.160	
									315	110.884			Abadi	7.840	
							Total		**3**	**605.005**				**348.180**	**953.185**
						76	Kuwani	Kolsa	315A	206.390					
									333	717.508					
							Total		**2**	**923.898**					**923.898**
						77	Doni	Doni	331A	571.822					
							(North)		332	223.791					
							Total		**2**	**795.613**					**795.613**
						78	Kolsa	Kolsa	335	567.774					
							(South)		336	219.744					
							Total		**2**	**787.518**					**787.518**
						79	Juru	Kolsa	337	358.551					
							Khatodu		338	411.970					
							Total		**2**	**770.521**					**770.521**
				Total			7		**15**	**5528.412**					**5528.412**

Name of Range			Name of Round			Name of Beat			Area details						Total Area (ha)
Sl. No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Sl No.	Name	Head Quarter	Reserve Forest		Protected Forest		Other Land		
									C.No.	Area(Ha)	Village	Area(Ha)	Details	Area(Ha)	
			5	Zari	Zari	80	Pipri	Pahsani	339	188.988					
									340	285.708					
									373	350.053					
							Total		**3**	**824.749**					**824.749**
						81	Pahsani	Pahsani	341A,B	414.803					
									371	263.048					
							Total		**2**	**680.277**					**680.277**
						82	Zari	Zari	342	253.333					
							(West)		343A,B	278.424					
									344	133.951					
							Total		**3**	**665.708**					**665.708**
						83	Zari(East)	Zari	334	348.030					
									345	300.277					
							Total		**2**	**648.307**					**648.307**
						84	Dori	Dori	330A	559.680					
							(South)		346	270.330					
							Total		**2**	**830.010**					**830.010**
				Total			**5**		**12**	**3649.051**				**0.000**	**3649.051**
	Total			**5**			**31**		**64**	**23443.459**		**10.590**		**598.280**	**24052.329**
3	**Total**			**15**			**84**		**188**	**57784.107**		**3002.030**		**1252.367**	**62038.504**

APPENDIX - XLII

(Para No. 8.5)

STATEMENT SHOWING THE DETAILS OF PROPOSED STAFF

Name of Post	Particulars of Post	No. of Posts	Total Posts	Existing Posts	Additional required Posts
Chief Conservator of Forest	Field Director, Chandrapur	1	1	1	Nil
Dy. Conservator of Forest	Deputy Director (Core), Chandrapur	1	1	1	Nil
Asstt. Conservator of Forest	Assistant Conservator of Forest (Core), Tadoba Andhari Tiger Reserve, Chandrapur Research Officer	2 1	3	2	1(2)
Range Forest Officer	Territorial Range Officer, Kolsa, Moharli, Tadoba Anti Poaching Range Officer, Moharli Technical Assistant, Chandrapur Tourism Development Officer, Chandrapur	3 1 1 1	6	5	1(1)
Dy. Forest Engineers	Dy. Forest Engineer, TATR Chandrapur	1	1	Nil	1(1)
Junior Engineer	Junior Engineer	1	1	Nil	1(1)
Draftsman	Draftsman	1	1	Nil	1(1)
Surveyor	Surveyor, Chandrapur	1	1	1	Nil (1)
Veterinary Doctor	Veterinary Officer, Chandrapur	1	1	Nil	1(1)
Forester	Round Officers Forester Tourism, Chandrapur, Kolsa,Moharli, Pangdi Forester Protection	16 4 1	24	11	13(5)

Name of Post	Particulars of Post	No. of Posts	Total Posts	Existing Posts	Additional required Posts
Forest Guard	Strike Forece Forester 4 to each Range Beat Guards Tourism & Gate Guard Kolsa-2, Moharli-2, Pangdi-2 Chandrapur-2. Antipoaching Guards Strike Gorce Guard 4 to each Range	3 84 8 4 12	108	55	53(14)
Care Taker	Care Taker for Tourism Complex Kolsa, Moharli, Pangdi	3	3	3	Nil
Office Superietendent	Office Superintendent for FD Officer Chandrapur	1	1	1	Nil
Chief Accountant	Officer of FD & CCF Officer of Dy. Director Office of Dy. Director	1 1	2	Nil	2(1)
Accountant	Office of CCF & FD Office of Dy. Director Range Forest Officer Kolsa, Moharli, Tadoba	2 3 3	8	4	4(3)
Clerk	Office of CCF & FD Research Officer/Eco Development Deputy Director Range Forest Officer (Territorial) Range Forest Officer (Antipoaching) Tourism Development Officer	4 2 5 3 1 1	16	4	12(5)
Chowkidar	1 each for 3 Tourism Complex at Kolsa, Moharli, Pangdi 1 each for Range Officer and Range colony For CCF & FD's Officer For Dy. Director, Chandrapur Chandrapur Residential colony	3 3 1 1 1	9	4	5
Dak Runner	Officer of CCF & FD	1	2	1	1

Name of Post	Particulars of Post	No. of Posts	Total Posts	Existing Posts	Additional required Posts
	Officer of Dy. Director	1			
Naik	Office of CCF & FD	1	1	Nil	1(1)
Peon	Office of CCF & FD	1			
	Office of Dy. Director	1	5	1	4 (3)
	Range Officer Territorial	3			
Mali	1 each for 3 Tourist Complex	3			
	1 for Office of CCF & FD, 1 For Dy. Director,	1	5	4	1
	1 for Office of Dy. Director	1			
Khansama	1 each for 3 Tourism	3	3	1	2
Driver	Car/Jeep Driver, 1 for FD, 1 for Dy. Director, 3 ACF, 5 for RFO	10	4	6	(3)
	Tractor Driver 1 for each Range	3	1	2	-
	Mini Truck Drivers 1 for each Range	3	9	Nil 17 (3)	
	Protection Van Driver 1 for each Range	3			
	Tourist Bus Driver 1 for each complex	3			
Cleaner	For Tractor	3			
	For Minitruck	3	12	2	10
	For Protection Van	3			
	For Tourist Bus	3			
Sweeper	1 for each Tourist Complex	3			
	1 for CCF & FD's Office & Dy. Director's Officer	1	4	1	3 (1)
Higher Grade Stenographer	for CCF & F.D.	1	1	Nil	1 (1)
Steno-typist	For Dy. Direcotr	1	1	1	Nil
Wireless Operator	For Main Station, Chandrapur	1	1	Nil	1(1)
	Total	**244**	**234**	**108**	**156 (50)**

The figures in the bracket were as proposed in last Management Plan

APPENDIX – XLIII
(Para No. 7.2.2.A5)
STATEMENT SHOWING THE DETAILS OF FIRELINES

Range	Firelines to be cleared	Length in Km.
Tadoba	Vasant Bandhara road 91/94	5.000
	Jamunbodi road 92,	2.700
	Chital road 92,	1.500
	Tadoba-Jamni road 94/95, 111,	3.041
	Jamni chowki-Kalaamba road 94/95,	4.000
	Pandharpouni-Kalaamba 95/96, 81, 69,	4.000
	Tadoba-Kalaamba road 83/84,	5.000
	Tadoba-Wadala road 90/91	4.352
	Tadoba-Khatoda road 91/92	9.221
	Tadoba-Khatoda main road 113/121	9.000
	Tadoba road 90/91, 92/93	6.000
	Tadoba-Pandharpouni road 93,92,82	4.000
	Pandharpouni-Tadoba road	4.800
	Jamni-Khatoda road	9.450
	Kolara-Khatoda road	6.800
	Pandharpouni-Bamangaon road	3.500
	Alizanja road	1.700
	C.No. 75/76, 76/77, 77/73	5.125
	C.No. 78/96, 76/78, 71/PF	4.625
	Kolara-Waghai road	6.800
	Jamni-Khatoda road	9.450
	C.No. 72/79, 73/76, 74, 74/PF, 75/PF	8.110
	C.No 75/PF, 103/PF, 102/PF	3.825
	C.No. 101/102, 101/100, 107/102	4.000
	Katezari-Kalaamba road	6.000
	Ambathira road	3.000
	Bhanuskhindi road 85/86	1.500
	C.No. 116/115, 116/89	3.500
	Alizanja road	2.047
	C.No. 117/119, 117/119, Wadala road	2.500

Range	Firelines to be cleared	Length in Km.
Tadoba	C.No. 66/65, 85, 67, 64	5.300
	C.No.68/62, 68/70, 69/70, 70/71	3.950
	C.No. 85/86, 86/87	3.260
	C.No. 69/81, 81/93, 77/50, 85	3.865
	C.No. 80/93, 69A, 69B	4.150
	C.No. 84/88, 84/89	4.000
	C.No. 117/88, 117/117, 83/84	5.520
	C.No. 67/62, Range boundary TCM	6.800
	Kalaamba-Udarmatka 69, 80/69	6.500
	Kalaamba road 117, 88, 89, 84	6.000
	Ambathira road 115/119	3.000
	Wadala road	1.500
	C.No. 73/74, 120/PF, 101/99, 100/101	4.050
	C.No. 111/112 PF, 102/103, 110/PF	4.140
	C.No. 101/101, 110/PF	1.657
	C.No. 101/102, 101/100, 101/102, 100/PF	6.500
	C.No. 90/89, 94/111, 93/81	6.500
	Pandharpouni-Navegaon gate 80,81,70	4.510
	C.No. 80,70, Ramdegi road	4.050
	C.No. 70 TCM Navegaon gate	1.050
	C.No. 69, 84, 85 Kalaamba, Bhanuskhindi	3.100
	C.No. 93,81,70 Alizanja road	4.500
	Pandharpouni, Ramdegi road 81,80,70	4.510
	Ramdegi road	3.080
	Kalaamba-Udarmatka road	5.400
	Alizanja road	2.047
	Tadoba-Wadala road 90/91	4.352
	Tadoba-Ambathira road 91	4.700
	C.No. 122/133, 122/112, 112/113	4.480
	C.No. 92/111, 113/92, 93/94, 82/83	7.110
	C.No. 93/94, 83 Sasa road	5.625
	C.No. 93 Bullack car road	1.000
	Khatoda-Junona road 122	2.000

Range	Firelines to be cleared	Length in Km.
Tadoba	C.No. 122/123, 114/91, 114/85	4.620
	C.No. 119/117, 119/PF, 119/120	5.295
	C.No. 120/PF	2.300
	Khutwanda PF TCM/121, 121/114	2.005
	C.No. 104/106, 106/1052, 106/103	8.000
	C.No. 130/244, 130/105	6.000
	C.No. 106/107, 106/109, 108/103, 108/110	9.000
	Total	**319.972**
Moharli	Palasgaon-Karwa road, 128/132	4.000
	C.No. 128/129, 129/131, 133, 132,	8.000
	C.No. 130/131 108/129, 130/29	6.495
	C.No. 131/132, Palasgaon PC	5.475
	Palasgaon-Karwa road 128/132	4.000
	C.No. 128/128 Singalpati 127/134	2.168
	C.No. 127/P.F., 127/126 Moharli-Tadoba road	3.336
	C.No. 250/295, 124/PF, 124/125	5.890
	C.No. 125PF 138, 125/137, 124/126	7.004
	C.No. 137/139,138/PF,139/10,139/PF,140/PF	10.236
	Moharli-Tadoba road 126/127	2.040
	C.No. 134/135, 135/136, 134, 140	2.040
	Khatoda road/249, village boundary	2.500
	Karwa-Rantalodhi PF, 251/Karwa boundary	1.750
	C.No. 251/296, 294, 252/Karwa boundary	4.070
	C.No. 252/294, 293, 253/23, 253 Rantalodhi boundary	5.206
	Karwa 253, 254, Talodhi village boundary	4.525
	C.No. 245/132, 248/133, 244/249	7.125
	C.No. 249/247, 249/250, 250/251	6.750
	Palasgaon-Khatoda road 249/250	2.900
	Khatoda road 249/251, 254/253 Rantalodhi-	1.600
	Palasgaon road	
	Karwa-Rantalodhi road 254/253, 255,252/294	5.400
	255/ Bullock cart road	3.600
	Bullock cart road 255, 254, 250	8.929

Range	Firelines to be cleared	Length in Km.
Moharli	C.No. 288/289, Katezari road	2.200
	C.No. 288/284, Parnaline 283	2.800
	C.No. 289/293 Moharli road	0.800
	283/289/293 village boundary	1.000
	C.No. 293/292, 288/287	4.300
	C.No. 289/290, 291	2.280
	C.No. 254/256, 252/254, 252/255	5.485
	C.No. 253/254, 255/258	2.735
	Rantalodhi-Karwa road / 287	2.550
	Teak plantation / 287, 287/village boundary	2.220
	C.No. 299/298, 290/297, 298	7.000
	C.No. 294/296, 298/296, 294/298	5.400
	C.No. 297/296/ 290/291, 287/290	8.030
	Palasgaon-Karwa road 128/152	4.000
	C.No. 128/110, 289/23, Moharli road	2.300
	C.No. 288/289, Botezari road	2.200
	C.No. 161/ Kolsa road, 161/158	5.000
	C.No. 161/55	3.600
	Kolsa-Dewada road/103,163/Dewada PF	2.800
	C.No. 162/175, 163/164, 161/Kolsa road	5.340
	C.No. 163/Kolsa road, 162/Khandala road	3.400
	Chorgaon road/160	1.500
	Tadoba road /142	2.200
	C.No. 143/Tadoba road, 140/141 fire line	4.600
	C.No. 141/Protect fire line 142	4.100
	C.No. 150/151 fire line	3.790
	C.No. 152/155 fire line, 153/155 fire line	3.810
	C.No. 156/157 fire line	3.900
	C.No. 149/fire line, 141/Moharli-Tadoba road	3.690
	C.No. 141/Teak plantation 1	3.400
	Moharli-Tadoba- Road/140	1.520
	C.No. 144/Moharli-Tadoba road	1.400
	Teak plantation / 144	9.160

Range	Firelines to be cleared	Length in Km.
Moharli	Moharli-Tadoba road / 145	2.140
	Teak plantation / 145	0.590
	C.No. 145/ compartment boundary	2.450
	C.No. 143/ compartment boundary	1.500
	C.No. 144 / compartment boundary	2.640
	C.No. 146 / compartment boundary	1.180
	C.No.147 / compartment boundary	1.050
	C.No. 148 / compartment 150/ C.boundary	2.290
	C.No. 149 / compartment boundary	2.530
	Dewada-Kolsa road/155,156,155/157,	7.070
	Junona-Dewada road	
	C.No. 187/Karwa road	2.550
	C.No. 300/302 Moharli road, 299/301	3.770
	Rantalodhi road 300/299, 299/301	3.260
	C.No. 292/291, Rantalodhi road	4.335
	Dewada-Kolsa road 155,157	3.070
	Junona-Dewada road 155, 157, 156	4.800
	C.No. 140/141 fire line boundary	1.940
	C.No. 150/151, 152155, 153/155, 156/157 fire line boundary	10.700
	C.No. 149/ compartment boundary	2.530
	C.No. 150/ compartment boundary	0.680
	C.No. 159/ Malgujari	3.720
	C.No. 102/ Khandala malgujari	2.000
	C.No. 160/Chargaon PF	1.500
	C.No. 160/159	1.300
	C.No. 251/252, 252/253	7.070
	Teak plantation / 143	3.350
	C.No. 134/135, 135/136, 136/137	5.658
	C.No. 248/249, 248/245	4.900
	Total	**324.122**
Kolsa	C.No. 256/257, Paranaline 257/258	5.640
	C.No. 258/258 Parnaline Motha road	2.550

Range	Firelines to be cleared	Length in Km.
Kolsa	Talodhi-Piparheti road 260/281, 255/256	5.020
	C.No. 281/Kolsa road (Piperheti-Kolsa)	4.500
	C.No. 281/ village boundary	0.640
	Talodhi-Piparheti road C.No. 282/259	1.420
	C.No. 267/258, 260/259, 260 village boundary	5.920
	C.No. 266/280, 281	5.940
	C.No. 300/337, 316/Pangdi road	5.380
	C.No. 266/village boundary 267	5.360
	C.No. 281/259, 267/Truck road, 281/282	4.795
	C.No. 282/283, 282/284, 266/Masmohan	5.425
	C.No. 267/Upasa Nala road	2.000
	260/Tekadi road, 267/268	5.900
	C.No. 267/269, 256/237 Karwa-Shivni road	2.940
	C.No. 257/256, Karwa-Shivni road	0.720
	Piparheti-Kolsa road 266, 281	4.800
	C.No. 260/281 Piparheti-Rantalodhi road	3.520
	C.No. 335/334, 315//Teak plantation	3.000
	C.No. 316/Kolsa village boundary	1.600
	C.No. 316/Pangdi road, 317383, 333/315	3.640
	C.No. 317/Pangdi, 333/Kolsa road	1.600
	C.No. 282/259 Piparheti-Rantalodhi road	1.420
	C.No. 256/237 Karwa-Shivni road, 257/236	2.260
	C.No.267/Upasa Nala road,266/Tekadi road 267	4.550
	C.No. 314/312, 313, 179/285	5.550
	C.No. 280/285, 285/313	6.900
	C.No. 277/ Interior road	2.000
	C.No. 277/316, 277/278, 278/279	6.410
	C.No. 277/276, 276/275, 277/275	5.520
	C.No. 317/Teak plantation	2.730
	C.No. 315/Teak plantation	3.700
	C.No. 316/274, 316/Pangdi road	5.940
	C.No. 279/314, 279/280, 280/278	8.450
	C.No. 290/308 Moharli road 308/309 chouki	4.470

Range	Firelines to be cleared	Length in Km.
Kolsa	C.No. 300/302 Moharli road 299/301, 300/299	4.995
	C.No. 298/300 Rantalodhi road 291/292	6.370
	C.No. 307/ Bhadrawati road 307, 303	10.000
	C.No. 310, 311, 312 Bhanuskindi road	5.030
	C.No. 315/333 Pangdi road, Zari road, Doni road	5.320
	C.No. 312, 313, 315 Rantalodhi road	2.633
	307/Bhadrawati road	3.000
	C.No. 303/ Bhadrawati road	4.000
	C.No. 308/307, 308/303, 309/310	8.075
	C.No. 307/304, 309/311, 307/303	8.250
	C.No. 303/304, 303/Bhadrawati road	4.000
	C.No. 309/287 Shivanzari road	2.000
	C.No. 309/307 Pahami road 308/309 chouki road	3.225
	C.No. 308/Bhadrawati road	4.000
	C.No. 333/334, 335/ Pahami road	4.140
	C.No. 344/345, Kolsa-Zari road	2.320
	CNo. 345/330/334 Belan road	3.350
	C.No. 306/Interior road	5.520
	C.No. 305, 304/ Interior road	5.205
	C.No. 303/ Interior road, 338/339 Pahami road	4.020
	C.No. 305/Interior road, 304	5.205
	C.No. 303/Interior road, 304/306	1.820
	C.No. 338/339 Pahami road, 337/338	5.340
	C.No. 344/330, 344/370	4.700
	C.No. 346/347, 330/347, 345/346	5.740
	C.No. 285/286	7.000
	C.No. 314/315, 314/316	3.500
	C.No. 286/287 Paranaline	2.500
	C.No.284/286,312/314 Piparheti road 314/313	8.150
	C.No. 283/259, 283/284	4.920
	C.No. 277/Interior road	2.000
	C.No. 283/Piparheti road	1.700
	C.No. 308/Bamboo tree	4.000

Range	Firelines to be cleared	Length in Km.
Kolsa	C.No. 343/370, 334/Kolsa road	4.200
	C.No. 344/345 Kolsa road	2.320
	C.No. 330/331 Kolsa-Doni road, 318 Truck road	4.920
	C.No. 310/Bhandak road 311, 312	5.230
	Rantalodhi / 313, 335/Pahami road	4.533
	C.No. 312/315, 315 Zari road	2.950
	Doni road / 333/334, 310/313	4.690
	C.No. 310/311, 311/306, 312/313	6.280
	C.No. 335/336, 335 / village boundary	3.700
	C.No. 312/village boundary, 335/teak plantation	8.257
	C.No. 332/Truck road 318	1.048
	C.No. 342/3334 Kolsa road	1.200
	Pahami road 371, 336	4.759
	Botezari road 340/373, 340/371, 340/341	7.755
	C.No. 341/343, 342, 343, 371	9.175
	C.No.336/341,373/PF Pahami	3.425
	Pahami PF/371, 341/335	5.465
	Pahami-Haldi road	3.860
	Teak plantation/312, 300/331, 312/312 teak plt.	5.061
	C.No. 306/337, 338, 307, 339	7.300
	C.No. 337/338, 336, 338/340	8.828
	C.No. 339/373, 318/319, 318 Pangdi PF	7.280
	C.No. 318/317 Pangdi road	2.400
	C.No. 371/Pahami road	4.685
	C.No. 336/Pahami-Kolsa road	2.391
	344/343 Pahami road	1.000
	345/330/334 Kolsa road	3.350
	340/373 Botezari road	2.225
	Total	**422.525**
	Other miscellaneous lines	62.324
	Grand Total	**1128.043**

APPENDIX - XLIV
(Para No. 7.2.2.A6)

SURVEY AND COST ESTIMATION REPORT OF E-SERVILANCE

REF: BSPL/11-12/EEYE/TATR/2012062101 Date:- 21st June, 2012

To

The Director,
Tadoba-Andhari Tiger Reserve
Maharashtra

Subject:- Offer for the implementation of "e-Eye™"
Reference:- Our site visit at TATR and presentation before the Field Director

Sir,

We would like to introduce ourselves as one of the leading prestigious IT solutions provider company all over the country and abroad which is specifically known for providing need based innovative solutions to overcome burning issues. The Binomial Solutions Pvt Ltd (BSPL) is based at Pune, Maharashtra with its operational branches all over the country. The BSPL has setup its operational branches at Raipur and Bilaspur of Chhattisgarh state also. Presently, the on-going projects of BSPL are from central government, public sectors and some private sectors of abroad. The company believes in offering result oriented solutions for the unfolded critical issues/problems applying the state of the art IT technologies.

The BSPL offers an innovative tool "**e-Eye™**" which is an integration of electronic devices and computer software. "e-Eye™" is a high end 24x7 anti-poaching surveillance system. It will assist you in the live monitoring of the activities of various out stationed locations from desired headquarters. ***Presently, e-Eye™ is being implemented by BSPL at Corbett Tiger Reserve, Uttaranchal in association with National Tiger Conservation Authority, Ministry of Environment and Forest, Govt. of India.***

We would request you to please go through the proposal attached herewith regarding "e-Eye™" for your kind perusal. We would further request you to please let us know if you find it relevant and helpful so as to proceed further.

Looking forward towards an early favour.

Thanking you

Authorized Signatory

Ravikant Singh
Binomial Solutions Pvt. Ltd., Pune

binomial solutions pvt ltd
Registered Office:- 1st floor, Rowhouse -7 , Kundan Estates, Near Planet Millennium, Pimple Saudagar, Pune-411027, Maharashtra, India.
Phone: +91 020 27400634 , Mobile no : +91 9604 852 942/+91 9827 931 719
Email: sales@binomialsolutions.com/ info@binomialsolutions.com, Website: www.binomialsolutions.com

Proposal

"e-Eye™" Real-time Anti-Poaching, Surveillance & Wildlife Tracking System Patent: 2170/MUM/2010

Tadoba-Andhari Tiger Reserve
Maharashtra, India

1st Floor, RH- 7, Kundan Estates,
Near Planet Millinnium,
Pimple Saudagar, Pune -27 ,
Ph: 020 2740 0634,
Mb: 0975 204 2942/0982 713 1719
info@binomialsolutions.com

Table of Contents

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Document History

Version	Issued By	Issue Date	Comments
1.0	Binomial Solutions Pvt. Ltd.	**21-June-2012**	Created

Executive Summary

This document is intended to propose implementation of the product **"e-Eye™" Real-time Anti-poaching, Surveillance and Wildlife Tracking System** from Binomial Solutions Pvt Ltd (BSPL), Pune in response to the earlier discussions and presentations.

Our aim is to associate with the state in its journey towards a 'World State Ahead 'with the accessibility, content and connectivity making difference to the lives of its people who are connected to the forest department. We propose to scale the actuality of the wild life with real time data which will be seamlessly scaled with different kind of Handy reports. Moreover it will help the officials to take all kinds of decisions and act on it very promptly.

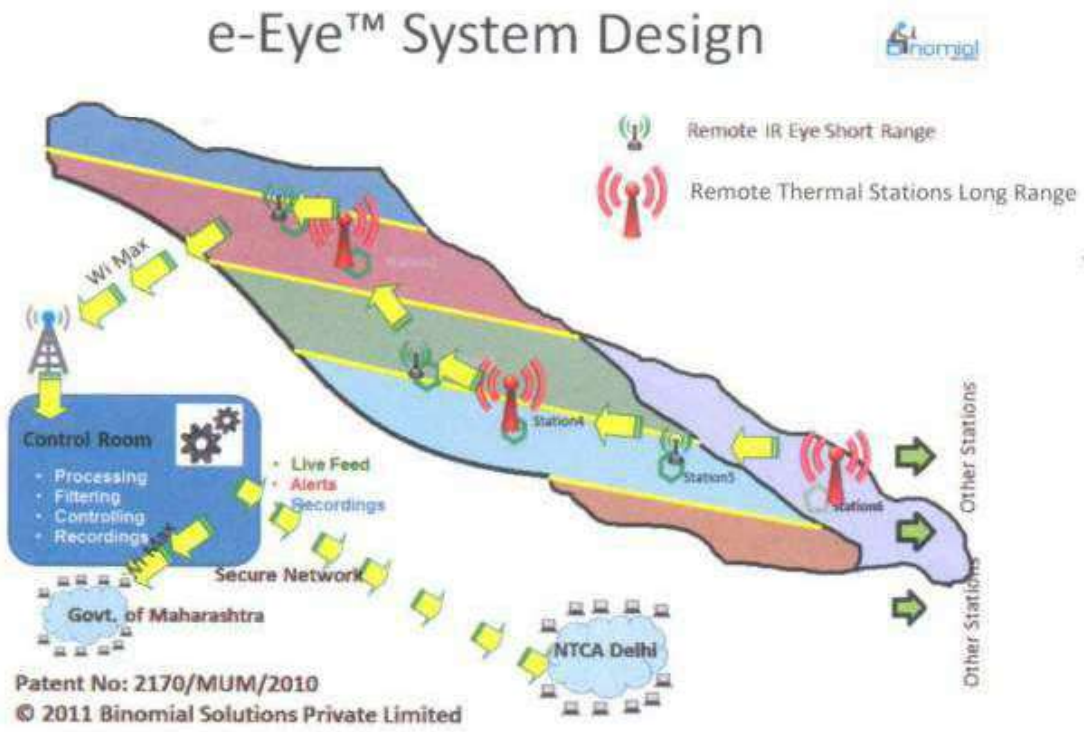
"e-Eye™" is on the whole an ideal assemblage of hardware and software which is customizable and flexible to meet requirements of all kinds of wildlife surveillance and tracking needs of any functional Unit / process.

BSPL Proposes to cover the following areas of concern using the "e-Eye™"

- Live Feed of the tiger reserve.
- Human trafficking: Spotting.
- Remotely controllable camera operation.
- Operation time 24X7.
- Point to Point secure wireless connectivity.
- Wide LED display at control room.
- Provision of recording from the control room.
- Surveillance Dashboard showing health of installation.
- Training to the staff for using the system.

Product Overview

"e-Eye™" – System Design



(figure1)

"e-Eye™" is a combination of hardware and software, the above figure1 depicts the overall system design.

Data is collected at all the points and is transferred to the central server, the processing and authenticity of data is done centrally. This data also has the real-time feed from the remote location. The camera orientation/focus can be controlled from the central server station and the "e-Eye™"'s authenticated and authorised user via the web browser.
The components of the system are divided in the following two categories

- e-Eye onsite Station (**OSS**)
  - Tower.
  - Power Station (Solar based).
  - Data Transmission Station.
  - High Resolution Thermal and Visible PTZ Camera

- Long range high speed wireless data transmission unit (4G based)

- Data Centre **(DC)**
  - Software Component
    - e-Eye secure web portal
    - Data processing and storage unit
  - Hardware Component
    - Processing and Recording Server
    - Portal Server
    - PC and LCD display Screens

OSS can be further divided in three categories based on their functionality.

- Thermal cam based onsite Station: This station has a long range thermal camera and is deployed generally at watch tower or a high altitude location. The main idea is to identify the poachers using the thermal camera from a long distance.

- Data Transmission Station: These are intermediate coupling point which helps to propagate the wireless (W/L) signals to the nearest location. These stations have long range W/L transmitters.

The images below shows typical Onsite Stations

DC– Software and Hardware Components

The Software Component consists of

- **e-Eye Portal:** This is basically a web application with all the admin features , dashboard, configuration utilities, remote surveillance user interface etc. Main features will also be accessible from smart phones.

- **Data Processing and Analysis Unit:** This is the core of the application, it includes the Core Engine. The engine comprises of the core image processing algorithms, poaching preventions logic algorithms complemented with additional Fault Diagnostic Engine.

- **Network Data Storage Unit:** Highly reliable, fast and very large network based storage unit will be used to store all relevant images and videos for further analysis, reporting and for referencing in future.

- **Unified Reporting Engine:** Constitutes the reporting part of the e-Eye™ Engine. These are dynamic reports that can be viewed on the mobile as well.

The software is backed by 24X7 running powerful servers, these include the following components

- Ultra high speed wireless receiver setup.
- Processing Servers to capture, process and save data.
- Web application to remotely control the cameras from the central control room.

"e-Eye™" Features

Live Surveillance Data: The system continuously gives the live feed of the selected stations of the Surveillance Board in the homepage of the application; each of the cameras can remotely be controlled from the browser. This is the most important feature as it brings the live feed and hence direct surveillance of an inaccessible location.

This can be effectively used against poaching and trespassers tracking. This feature is integrated with the Alert Generating Feature hence both can jointly be used to track based on the data and severity. The homepage shows a list of best picks images at the left hand pan.

The figure3 below shows a homepage.

(figure3)

Multi-Level Alert System: Data analysis is the heart of the system, the live feed and the images taken from different points are under continuous scanning. Registered activities such as

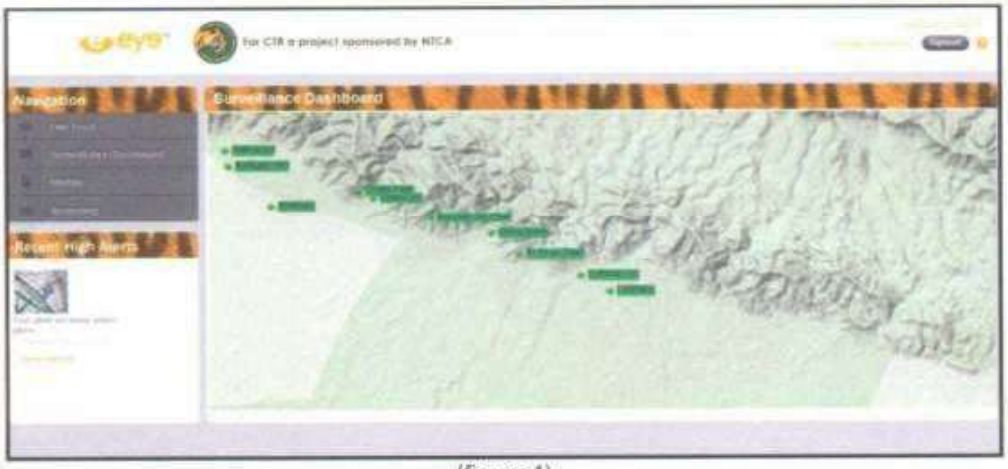
- Human Interference
- Cattle Trafficking
- Accidents, Vehicle detection and tracking

are under close watch. Anything suspicious is alerted and notified there on. This notification can be further sent at upper level for proper and prompt action. The notifications can be of following types

- Email
- Short Message Service (SMS)
- Pop up Alerts on Home page.

Bird Eye View: The system continuously shows the top view of the geographical region. Each of the station have GPS co-ordinated mapped to it, hence this helps in getting the complete picture of the system real time.

The figure4 below shows a simulation of the surveillance board.



(figure4)

Live Audit Web Audit/Web Combing: e-Eye™ has a unique feature of Web Audits which works along the live feed in the system and all the information can be separately saved as audit information for any particular region, this audit data can be used at the time of direct field surveys.
Web Audit saved cost and time as well a bigger audience can be included in this. The audit can be used anytime and anywhere thus cutting down the travel time to the remote location.
A very important aspect of Web Audit is that the site is never aware that it is being audited and hence authenticity can be maintained as compared to manual audits where everyone is prepared for the audit.
This audit data can be compared to study the differences.

Rule engine for Pattern Identification: An effectiveness of a system depends on the algorithm which generates trends. This feature analyses the data and raises alarm and shows different trends.
This engine is used to show the following alerts and trends

- Human Detection
- Vehicle Detection
- Cattle Trafficking
- Other defined patterns

Enhanced Mobile Applications: Supports a wide range of mobile application which helps the user to see live view on the mobile and get alerts even on the fly in his mobile (must be GPS /GRPS activated) or simple SMS alerts for other normal mobile.
The co-ordinates of any activity can be calculated and send as a mobile alert.

Intelligent Network Monitoring: The system is intelligent enough to spot out on any network problems and raise appropriate alarms.

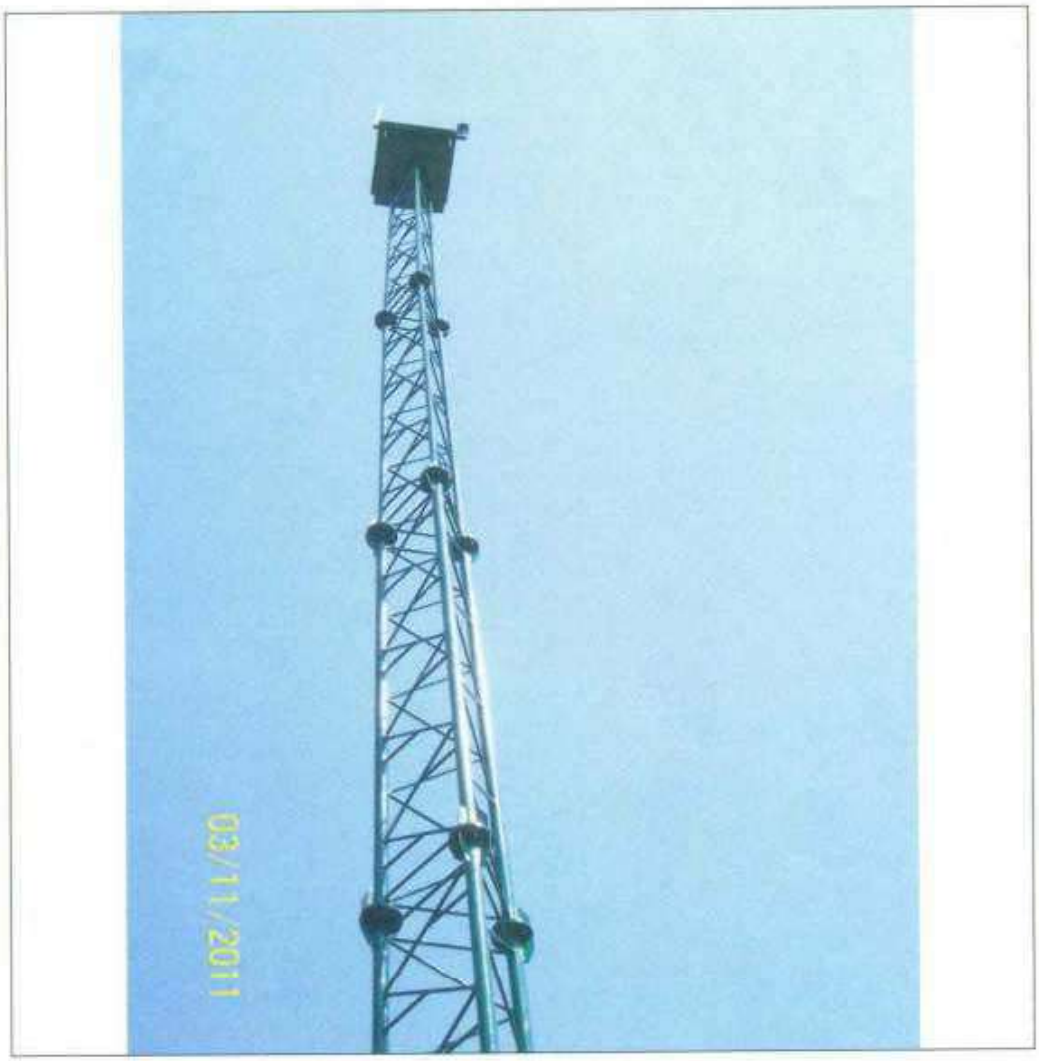
The network dashboard is the source of this information, all the stations are configured on the dashboard and real time health of each station along with functional hardware is shown on the same.
This information can be used to diagnose any faulty malfunctioning hardware and broken links.

Unified Dynamic Reporting: A system needs to understand the changes in the said project, but the effectiveness lies in taking the right decisions.
e-Eye™ is equipped with powerful reports based on the data collected from various stations this helps the users to take prompt and accurate decisions.

"e-Eye™" Hardware Summary

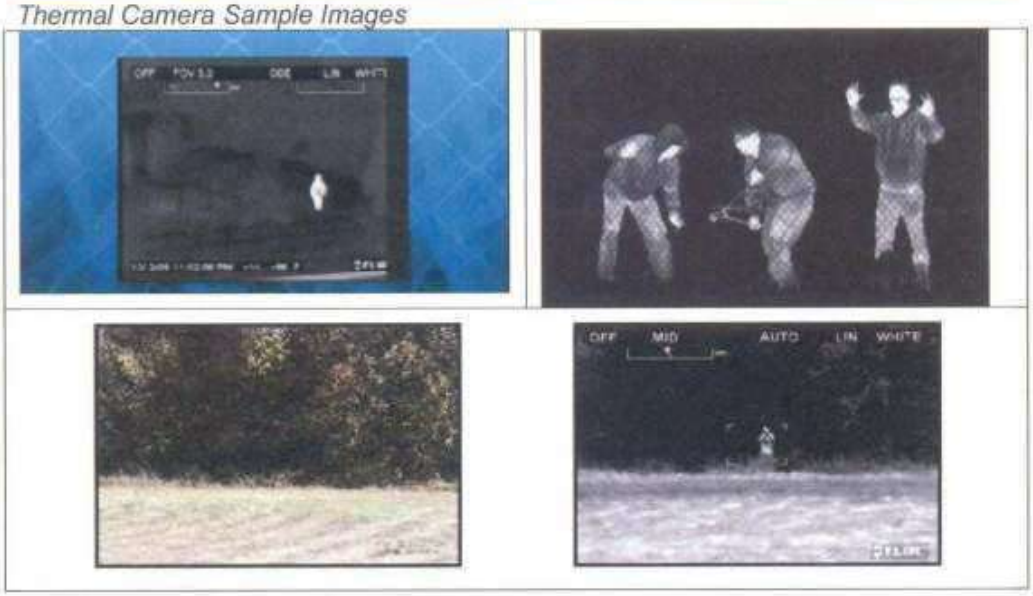
Thermal Camera Specifications

Features	Benefits
Proven thermal security camera	Detect threats at long range, even through total darkness, smoke, dust and light fog; outperforms TV cameras & infrared illuminated day and night.
Higher field-of-view range	Long distance man/vehicle/cattle threats from 1000 meters to 5000 meters or more depending on the denseness of the terrain.
Precision pan/tilt	Allows operator to make the fine adjustments needed for accurate focus on threat.
Tracking device	GSM/CDMA and GPS based device capable of transmitting its own location on theft.



Towers of height 30, 40 and 45 meters or more will be used depending on the terrain and requirement.
The weight of the tower would vary between 1.5 to 4 ton depending on the wind load and base.

Thermal Camera Sample Images



(figure7)

Wireless LAN Specifications

Type	Specifications
On Camera tower	Long range high speed WiMax transceivers(4G technology)
Transmission Towers	Very Long range ultra-high speed WiMax transceivers (4G technology)

Image Processing, Storage AND Web *Server Specifications*

Server	Specifications
Image Processing	Intel Pentium® 4, Pentium D, Xeon™ based server
Storage	Networked Storage Server of very high capacity (scalable for more than 10 TB data)
Web Server	Intel Pentium® 4, Pentium D, Xeon™ based server

Note: - The specifications of servers used would depend on the load the capacity can be increased or decreased, the above are the minimum specifications required.

Advantages of System

- No extra power demands, use of solar panels.
- 24X7 surveillance using thermal cameras for Night Vision.

- Extra security camera and locked housing for theft prevention at each station.
- Tracking Device for theft prevention.
- Timely Alerts can prevent damages and save wildlife.
- Can predict the future behaviour and trends based on data collected.
- Helps in catching the culprit.
- GPS based stations.
- All the camera installations have weather proof housing.
- Robust system as the Towers/Hangers is made of steel.
- Web based tracking and surveillance saves cost and travel time.

Case Study Tadoba-Andhari Tiger Reserve

A feasibility study was conducted by "team binomial" at the actual site i.e. Tadoba-Andhari Tiger Reserve(TATR). The study was done to identify the various points and the usefulness and effectiveness of the system. Based on the observations, the available information and the data collected we recommend a phase wise execution of e-Eye™. Following are details collected by the team :

Location, Area and Topography:- Tadoba-andhari Tiger Reserve is the pristine and unique eco-system situated in the Chandrapur district of the Maharashtra State of India. The Reserve contains some of the best of forest tracks and endowed with rich biodiversity. It is famous for its natural heritage. Tadoba-andhari Tiger Reserve is the second Tiger Reserve in the State. Typical forest Southern tropical Dry Deciduous Forest - 5A-CI-1B. with Teak, Ain, Bija, Dhauda, Haldu, Salai, Semal, Tendu and bamboo as mainly.

Tadoba Andheri Reserve is the largest national park in Maharashtra. Total area of the Reserve is 625.4 square kilometres (241.5 sq mi). This includes Tadoba National Park, created in 1955 with an area of 116.55 square kilometres (45.00 sq mi) and Andhari Wildlife Sanctuary created in 1986 with an area of 508.85 square kilometres (196.47 sq mi). The Reserve also includes 32.51 square kilometres (12.55 sq mi) Protected Forest and 14.93 square kilometres (5.76 sq mi) 'Other areas'.

Densely forested hills form the northern and western boundary of the Tiger Reserve. The elevation of the hills ranges from 200 m (660 ft) to350 m (1,150 ft). To the southwest is the 120 ha (300 acres) Tadoba lake which acts as a buffer between the park's forest and the extensive farmland which extends up to Irai water reservoir.This lake is a perennial water source which offers good habitat for Muggar crocodiles to

thrive.Other wetland areas within the reserve include the Kolsa lake and Andhari river.

Tadoba reserve covers the Chimur Hills, and the Andhari sanctuary covers Moharli and Kolsa ranges. It's bounded on the northern and the western side by densely forested hills. Thick forests are relieved by smooth meadows and deep valleys as the terrain slopes from north to south. Cliffs, talus and caves provide refuge for several animals. The two forested rectangles are formed of Tadoba and Andhari range. The south part of the park is less hilly.

Summary of Case Study:-

- System needs to be designed for anti-poaching and live surveillance.
- Approximate Geo Location of identified poacher.
- Timely alerts SMS, Email and Popup.
- Surveillance at the sensitive locations.
- Desired control center at Compartment 91, 100ft tall tower, Gavry Ghat.

The probable locations for each of the 10 towers are as follows

S.No.	Name, Compartment, Description	GPS
1	Laldarwaja,142	20°12'13.92"N 79°19'56.10"E
2	Ambegoan ,125	20°15'17.28"N 79°19'14.88"E
3	Gavrya Ghat ,114	20°18'36.70"N 79°18'27.50"E
3'	GavryaGhat, 91, 30mts tower REUSE	20°19'21.00"N 79°18'5.04"E
4	Umri Khora Kutti, 62	20°23'57.40"N 79°15'28.80"E
4'	Umri Khora Kutti, 63	20°25'8.30"N 79°15'12.30"E
5	Mothahira, 74	20°23'19.60"N 79°20'42.70"E
6	Ghatepalli pahar,130,Point is close to the same	20°18'24.00"N 79°23'34.00"E
7	Upasa Nala , 267,Point is close to the same.	20°15'31.00"N 79°34'27.00"E
8	Bandu Pahar, 319+320,Point is at center	20° 9'46.00"N 79°34'27.00"E
9	Somnath , 328	20° 6'54.00"N 79°27'10.00"E
10	Chorgoan, 593,597,381 , Point is at the intersection of the three	20° 4'1.00"N 79°26'17.00"E

Below image shows the details of each points.

Project Execution Summary

The project execution would be divided in the following stages and phases

Phase	Time	Deliverables
Phase 1	4 months	• Location Identification for all the stations. • Initial Case Study Report (ICSR-Version 1.0.0.0) on the above with details of each. • First set of agreed Customizations for e-Eye™. Customizations Report Version 1.0.0.0 • Installation and Hardware procurement. • Server and Environment set up. • Working system live and hosted with 2 Stations functioning in co-ordination.
Phase 2	2 months	• Working system live and hosted with 4 Stations functioning in co-ordination. • Customizations Phase 2 collection and discussion, Customization Report Version 1.1.0.0.
Phase 3	2 months	• Working system live and hosted with 8 Stations working in co-ordination with all the Customizations of Phase 1. • Customizations Phase 3 collection and discussion, Customization Report Version 2.0.0.0. • Training on the software usage.

Phase 4	2 months	• Working system live and hosted with 10 Stations working in co-ordination with all the Customizations of Phase 1, 2 and 3. • Customizations Phase 3 collection and discussion, Customization Report Version 2.0.0.0. • Training on the software usage.

Assumptions

Following assumptions have been made in order to prepare this proposal:

- The client will nominate a Project Coordinator with good understanding of the exact requirements to ensure that the development and implementation is carried out smoothly. This person will be the Single Point of Contact with BSPL engineering team.

- The Coordinator is expected to coordinate on various issues, arrange meetings/reviews, communicate with BSPL, get necessary approvals, review intermediate deliverables, and give timely feedback and confirmations to all concerned parties.
- BSPL team would be needed to visit all the necessary locations in the proposed area and would in turn require support and necessary permissions for the same.
- The Client will promptly help in customizations of the product as per their needs and requirements and would be approving the functional requirements specifications, and the user interfaces at appropriate times.
- The existing estimate is prepared with a high-level understanding of the requirements and would continually update the same on any possible deviation to deliverables as per the mutual agreement between the parties.
- BSPL is not responsible for any "physical security/damage of the system once the installation is complete.

Costs

The details of the cost can be found in Annexure 1.

Payment Terms & Schedule

Annexure 1

Case 1: Complete System with Ten Camera Installation

"e-Eye™" Real-Time Anti-poaching, Surveillance & Wildlife Tracking System			
Tadoba-Andhari Tiger Reserve, Maharashtra, India			
S.No	Item	Quantity	Amt in Rs. (Rs. In Lacs)
1	Cost of e-Eye™ for 10 Thermal Tower Stations	1	718.00
2	Service Tax	1	74.38
	Total Cost including Taxes and Duties		792.38

Authorised Signatory

Ravikant Singh
Binomial Solutions Pvt. Ltd.

Ref: BSPL/11-12/EEYE/TATR/2012062102 Date: 2012-June-21

Fund Allocation as per Phases

Phase	Time	Deliverables	Fund Allocation
Phase 1	4 months	• Location Identification for all the stations. • Initial Case Study Report (ICSR-Version 1.0.0.0) on the above with details of each. • First set of agreed Customizations for e-Eye™. Customizations Report Version 1.0.0.0 • Installation and Hardware procurement. • Server and Environment set up. • Working system live and hosted with 2 Stations functioning in co-ordination.	30% advance with the work order.
Phase 2	2 months	• Working system live and hosted with 4 Stations functioning in co-ordination. • Customizations Phase 2 collection and discussion, Customization Report Version 1.1.0.0.	• 20% after phase 1 completion and before phase 2 start.
Phase 3	2 months	• Working system live and hosted with 8 Stations working in co-ordination with all the Customizations of Phase 1. • Customizations Phase 3 collection and discussion, Customization Report Version 2.0.0.0. • Training on the software usage.	• 20% after phase 2 completion and before phase 3 start.
Phase 4	2 months	• Working system live and hosted with 10 Stations working in co-ordination with all the Customizations of Phase 1 and 2. • Customizations Phase 3 collection and discussion, Customization Report Version	• 20% after phase 3 completion and before phase 4 start.

		2.0.0.0. • Training on the software usage.	
Project Completion			• 10% after phase 4 completion.

Authorised Signatory
Ravikant Singh
Binomial Solutions Pvt. Ltd.

APPENDIX - XLV

(Para No. 7.2.2/B-1)

STATEMENT SHOWING AREA OF HILL SECTION TO BE TACKLED UNDER SOIL CONSERVATION WORKS

Year of operation	Range	Round	Beat	C. No.	Total area of comptt.	Hill area of comptt.
2008-09	Tadoba	Bhanushkhindi	Nimdhela	64	509.510	100.00
		Khatoda	Tadoba	93	308.775	145.00
		Kolara	Kolara	98	367.859	165.00
	Moharli	Moharli(North)	Moharli-1	139	191.416	50.00
					Total	**460.00**
2009-10	Tadoba	Bhanushkhindi	Arjuni	85	265.069	195.00
		Khatoda	Ghosari	114	169.126	125.00
		Kolara	Satara	75	205.175	25.00
	Moharli	Moharli (North)	Khatoda	137	274.377	65.00
	Kolsa	Pangdi	Pangdi-2	318	502.215	50.00
					Total	**460.00**
2010-11	Tadoba	Bhanushkhindi	Nimdhela	67	231.885	175.00
		Khatoda	Tadoba	91	266.688	235.00
		Kolara	Navegaon	79	208.008	20.00
			Navegaon	80	228.647	20.00
			Navegaon	81	95.101	10.00
					Total	**460.00**
2011-12	Tadoba	Bhanushkhindi	Arjuni	86	366.070	285.00
		Khatoda	Jamni	111	324.153	175.00
					Total	**460.00**
2012-13	Tadoba	Bhanushkhindi	Nimdhela	65	437.470	45.00
		Khatoda	Khutwanda	121	334.270	255.00
	Kolsa	Pangdi	Doni	332	223.791	160.00

Year of operation	Range	Round	Beat	C. No.	Total area of comptt.	Hill area of comptt.
					Total	**460.00**
2013-14	Tadoba	Bhanushkhindi	Ashta	87	225.005	125.00
		Khatoda	Tadoba	92	280.852	250.00
		Kolara	Bamangaon	48	396.187	85.00
					Tadoba	**460.00**
2014-15	Tadoba	Bhanushkhindi	Nimdhela	66	278.019	95.00
			Ashta	88	106.837	15.00
			Wadala	117	434.632	50.00
		Khatoda	Jamni	113	196.469	95.00
			Khutwanda	125	267.902	140.00
2014-15	Kolsa	Kolsa (North)	Piparheti-1	276	362.600	35.00
			Pangdi-2	277	317.678	30.00
					Total	**460.00**
2015-16	Tadoba	Khatoda	Tadoba	83	483.599	350.00
		Kolara	Bamangaon	72	174.419	20.00
	Kolsa	Kolsa(North)	Pangdi-1	278	254.952	45.00
		Pangdi	Zari	345	300.277	45.00
					Total	**460.00**
2016-17	Tadoba	Bhanushkhindi	Wadala	89	327.390	160.00
	Kolsa	Pangdi	Doni	331	571.822	300.00
					Total	**460.00**
2017-18	Tadoba	Khatoda	Tadoba	94	326.581	255.00
				90	88.221	20.00
	Kolsa	Pangdi	Doni	330	559.680	185.00
					Total	**460.00**
					G. Total	**4600.00 Ha.**

APPENDIX - XLVI

(Para No. 7.2.2.B2)

STATEMENT SHOWING THE DETAILS OF PROPOSED NEW WORKS OF WATER MANAGEMENT

A) Proposed desilting works of water holes

Name of Range	Year of Operation	Name of water holes	Location Comptt. No.
TADOBA	2008-09	Motha Hira	Comptt.-75
	2008-09	Pandharpauni-2	Near Navegaon road
	2009-10	Jamunbodi	Compt.113
	2009-10	Waghnala Anicut	Compt.89-90
	2009-10	Katezari-2	Katezari PF (Big Machan
	2009-10	97 Water Hole	97
	2010-11	Kunbi Tank	113
	2010-11	Kuhipat	93
	2011-12	Ambathira-1	Compt. 91/115 (Machan)
	2011-12	Pandharpauni-1	Near Steel Machan
	2012-13	Katezari	Katezari PF (Maroti Dev)
	2012-13	Ambathira-2	Compt.91/115 (Murumpat)
	2013-14	Kalaamba	Compt.69
	2013-14	Satya waterhole	Compt. 72
	2014-15	Ubdagota	Compt 73
	2014-15	Udarmatka	Compt 69
	2015-16	Ambathira-3(Aswalhira)	Compt 115
	2015-16	Vasant Bandhara	Compt.114
	2016-17	Kora Matka	Compt 69, 67/66
	2016-17	98 Waghdoh	98
	2016-17	Panchdhara	Compt 92
	2017-18	Chikhalwahi	48/49

Name of Range	Year of Operation	Name of water holes	Location Comptt. No.
MOHARLI	2008-09	145 Anicut	145
	2008-09	Ambegarh	138
	2009-10	Malya bodi	287
	2010-11	Ambodi	144
	2011-12	Jamunzora	141
	2012-13	Futki bodi	142
	2013-14	Aswalhira	136
	2014-15	128 Water hole	128
	2015-16	Hattisarad	153
	2016-17	Wanar Chuwa	151
	2017-18	Nawintalao	148
KOLSA	2008-09	Ugam Talao	313/285
	2009-10	Kasar Bodi	311/312
	2010-11	Kuwani	318
	2010-11	Wanarchuwa	279
	2011-11	Kopan Kuhi	342
	2011-12	Padharpani	330
	2011-12	Aswalchuwa	279/283
	2012-13	Gokan bodi	339
	2013-14	Fulzari	306
	2014-15	Piparibodi	339
	2015-16	Suleri Bodi	316/277
	2016-17	Khatoda Tank	339

APPENDIX - XLVII

(Para No. 7.2.2.C1)

STATEMENT SHOWING THE DETAILS OF PROPOSED ROAD WORKS OF UPGRADATION OF MURUM TO METAL ROAD

Sr.No.	Range	Name of Road	Total Length (Km..)	Year of operation	Working Length (Km.)	Remarks
1	Tadoba	Navegaon to Umrikhora	5.00	2008-09	5.00	
2		Umrikhora to Bhanuskhindi	7.00	-do-	7.00	
3		Bhanuskhindi to Katezari Gate	9.00	2009-10	4.5	
4		Khutwanda Trail to Ambegad P.Hut	2.00	-do-	2.00	
5		Khatoda to Chautyadeo P. Hut	9.00	2010-11	4.5	
6		Bhanuskhindi to Katezari Gate	9.00	-do-	4.5	
7		Kolsa Protection Hut to Bamangaon Gate	6.00	2011-12	6.00	
8		Khatoda to Chautyadeo P. Hut	9.00	--do--	4.5	
9		Bamangaon Gate to Navegaon Gate	8.00	2012-13	8.00	
10		Bamangaon gate to Pandharpanui	4.00	--do--	4.00	
11		Pandharpauni to Alizanza T.C.M.	3.00	2013-14	3.00	

Sr.No.	Range	Name of Road	Total Length (Km..)	Year of operation	Working Length (Km.)	Remarks
12		Kalaamba to Katezari Gate to Wadala	7.00	2013-14	7.00	
13		Vasant Bandhari to Ambhathira	4.00	2014-15	4.00	
14		Jamni to Singalpati	5.00	-do-	5.00	
15		Kamunbodi point to Kosekanar	5.00	2015-16	5.00	
16		Jamunzora Waterhole to P.H.	0.900	-do-	0.900	
17		Ambathira joint to Mangli Protection Hut	2.00	-do-	2.00	
18	Moharli	Jamunzora road	4.250	2008-09	4.250	
19		Girghat P.Hut to Khandala Line Joint	5.000	-do-	5.000	
20		Moharli Botezari Road	7.500	2009-10	3.000	From Telia Circular (Katarni Line) Part-I Road joint up to Andhari
21		Main Road- Sitarampeth Border	2.000	2009-10	2.000	From Futki bodi joint to Border
22		Protection Hut to Ambegad	4.000	2009-10	4.000	upto Ambegad top

Sr.No.	Range	Name of Road	Total Length (Km..)	Year of operation	Working Length (Km.)	Remarks
23		Moharli -Botezari Road (Katarni Line) Part II	7.500	2010-11	4.500	From Andhari to Ambeutara
24		Ambegad Protection Hut to Aswalnala	3,200	2010-11	3.200	Major Protection Hut
25		Khandala Line Road	5.000	2011-12	5.000	Girghat Prot. Hut join to Dewada
26		Botezari Road-Rantalodhi Part -I	7.250	2011-12	5.000	Important in view of Bamboo thefts (upto Rantalodhi Border)
27		Ambhora to Tularam Prot. Hut (PH-3)	4.000	2012-13	4.000	Important in protection point of view
28		Botezari Road-Rantalodhi Part	7.250	2011- 13	3.500	upto Ambeutara
29		Junona Road Gate - Junona Dewada	4.300	2013- 14	4.300	Important in Protection poijnt of view
30		Palasgaon-Dabhori Line	5.000	2013-14	5.000	Important in view of Bamboo thefts
31		Junona-Mahulgaon Road Part-I	8.000	2014-15	4.000	Important in view of Bamboo line &

Sr.No.	Range	Name of Road	Total Length (Km..)	Year of operation	Working Length (Km.)	Remarks
						Hunting
32		Andhari Protection Hut-Junona Gate	4.000	2014-15	4.000	Important in view of Bamboo theft and Hunting
33		Junona-Mahalgaon Road Part-II	8.000	2015-16	4.000	Important in view of Bamboo theft.
34		Kosba Line Road	4.000	2015-16	4.000	From Telia joint to Pandharipani
35		Aswalhira WaterHole Circle	4.500	2016-17	4.500	Major Tourism Road
36		Kolsa Road Joint- Girghat Protection Hut (PH-4)	5.000	2017-18	5.000	Important in view of boundary patrolling
37	Kolsa	Kolsa-Piparheti Road	10.500	2008-09	10.500	
38		Piparheti -Protection Hut 4 Road (C.N. 267)	4.500	2008-09	4.500	
39		Shivanzari -Sukadi (P. Hut -2) C.No. 277	7.000	2009-10	7.000	
40		Handifodi (Protection Hut-2) (Kolsa Pangadi Road)	3.500	2009-10	3.500	

Sr.No.	Range	Name of Road	Total Length (Km..)	Year of operation	Working Length (Km.)	Remarks
41		Shivanzari-Parna Line Road) (C.No. 256)	10.000	2010-11	10.000	
42		Botezari-Ath khamba line	5.000	2010-11	5.000	
43		Belan-Pahmi Road (C.No. 242/344/334)	6.000	2011-12	6.000	
44		Kolsa-Doni	8.000	2011-12	8.000	
45		Rantalodhi -Piparheti Road (Protection hut 3, C.No.283)	7.000	2012-13	7.000	
46		Raiba Square-Pangadi Road	4.800	2013-14	4.800	
47		Kolsa-Pahmi (old) Road	10.000	2014-15	10.000	
48		Protection Hut-2 (C.No. 277) Upasa Nala Road	4.400	2014-15	4.400	
49		Girghat Road	6.000	2015-16	6.000	
50		Pahami-Andhari Road	1.400	2016-17	1.400	
51		Kolsa-Kunhari Road(C.N.333)	4.000	2017-18	4.000	

APPENDIX - XLVIII
(Para No. 7.2.2.C2)
STATEMENT SHOWING THE DETAILS OF PROPOSED BUILDINGS

Sr. No.	Type of Building	Location	Total Building required	Building Already existing	Proposed Extra Building
	RESIDENTAL				
1	Type-I	Chandrapur	2	0	2
		Nawegaon	8	2	6
		Nimdhela	1	0	1
		Waigaon (bh)	1	0	1
		Arjuni	3	2	1
		Alizanja	1	0	1
		Tadoba	6	6	0
		Bamangaon	1	1	0
		Satara	1	1	0
		Kolara	7	2	5
		Deori	1	1	0
		Sonegaon	1	0	1
		Wadala	5	1	4
		Ghosri	1	1	0
		Jamni	4	1	3
		Khutwanda	5	1	4
		Khatoda	3	3	0
		Palasgaon	4	1	3
		Karwa	8	2	6
		Rantalodhi	5	2	3
		Botezari	8	2	6
		Mudholi	1	1	0
		Kondegaon	1	0	1
		Moharli	10	6	4
		Junona	2	0	2
		Dewada	7	2	5
		Pandarwani	1	0	1

Sr. No.	Type of Building	Location	Total Building required	Building Already existing	Proposed Extra Building
		Piparheti	3	1	2
		Pangdi	8	4	4
		Kolsa	7	5	2
		Pahami	2	0	2
		Zari	6	1	5
		Total	**124**	**49**	**75**
2	Type-II	Chandrapur	2	2	0
		Arjuni	1	0	1
		Nawegaon	1	0	1
		Ashta	1	0	1
		Tadoba	4	4	0
		Khatoda	1	1	0
		Palasgaon	1	0	1
		Karwa	2	1	1
		Moharli	3	3	0
		Dewada	1	1	0
		Pangdi	1	0	1
		Botezari	1	0	1
		Kolsa	2	2	0
		Zari	1	1	0
		Total	**22**	**15**	**7**
3	Type-III	Chandrapur	1	1	0
		Moharli	2	2	0
		Kolsa	1	1	0
		Tadoba	2	1	1
		Total	**6**	**5**	**1**
4	Type-IV	Chandrapur	2	1	1
5	Type-V	Chandrapur	3	1	2
6	Type-VII	Chandrapur	1	1	0

APPENDIX – XLIX

(Para No.7.2.2.C3)

STATEMENT SHOWING THE DETAILS OF PROPOSED BUILDINGS FOR STPF COMPLEX AT MOHARLI

Sr. No.	Type of Building	Kind of Building	No. of Flats/ houses/office
1	Office Building	Sub Divisional level	1
2	Community Hall	As per standard model	1
3	Play Ground	With indoor game facility	1
4	Type-IV	Single storey	1
5	Type-III	Single storey	3
6	Type-I	Flat system	90
7	Truck/ Bus Garage	--	4
8	Jeep Garage	--	4

Note :- The whole complex will be wall compounded.

APPENDIX - L

(Para No.7.2.2.G)

STATEMENT SHOWING THE DETAILS OF PROPOSED MOBILE HANDSETS

Sr. No.	Name of Post	Quantity	Sr. No.	Name of Post	Quantity
1	**Chief Conservator of Forests & Field Director**	1		**Moharli Range**	
				Moharli-1, Moharli-2,	
2	**Divisional Forests Officer**	2		Khatoda, Palasgaon,	
3	**Assitant Conservator of Forest**	2		Dewada-1, Dewada-2, Junona, Karwa,	
4	**Range Forest Officer**			Rantalodhi, Andhari	10
	Research	1		**Kolsa Range**	
	Protection	1		Kolsa, Botezari, Pahami,	
	Game Warden Tadoba	1		Piparheti-1 Piparheti-2,	
	Moharli (WL)	1		Rantalodhi (east), Doni,	
	Kolsa (WL)	1		Zari, Pangadi-1,Pangadi-2	10
	STPF	3	**6**	**Protection Huts**	
5	**Round Officer**			Moharli, Bhanuskindi,	
	Park Office, Khatoda,			Kolara Gate, Bamangaon	
	Bhanuskindi, Kolara,			Umrikhora, Jamunjora,	
	Moharli (North)			Ambegad,Matkul,Chauradeo	
	Moharli (South)			Bibikhora Jamunzora,	
	Karwa, Kolsa (North)			Andhari River, Tularam	
	Kolsa (South), Pangadi,			Nala, Girghat, Panghat	
	Protection Forester	11		Pangadi, Parnaline,	
6	**Beat Guard/Forest Guard**			Piparheti	18
	Tadoba Range		**7**	**Entry Gates**	
	Tadoba, Nimdhela, Arjuni,			Moharli, Khutwanda	
	Ashta, Wadala, Khutwanda,			Katezari, Navegaon,	
	Ghosri,Jamani,Madnapur-1			Kolara(Jamni),Karwa-1,	
	Madnapur-2, Navegaon,			Karwa-2, Piparheti,	
	Bamangaon,Satara,Kolara.	14		Pangadi, Doni, Zari,	
				Dewada Jackana(MTDC)	13
			8	**Chandrapur**	
				Forest Guard (H.Q)	1
				Surveyor	1
				H.Q. Staff	1
				Total	**92**

APPENDIX - LI

(Para No. 8.4)

MODULE FOR SHORT TERM WILDLIFE MANAGEMENT COURSE FOR GRASS ROOT LEVEL FOREST STAFF (Forester/Forest Guard)

It is experenced that there is no institutional provision for formal wildlife management course for Foresters and Forest guards of forest department. As forester and forest guards are working in remote area they are not having approach to scientific literature on wildlife management. So it is need of time that formal wildlifme short-term refresher course should be prepared.

A module for short-term refresher course in wildlife management is proposed as follows.

Name of course	**:-**	**Short-term wildlife management course for Foresters and forest guards**
Duration for course	**:-**	**5 days.**
Institute who conduct the course	**:-**	**Central Forest Ranger's College, Chandrapur.**
No. of Candidate in each course	**:-**	**Maximum 30**
Expenditure	**:-**	**1000/- Rs. per candidate.**

Day	Session	Subject
1st	--	Registration of Candidate & formal Inauguration
	I	History of Wildlife Management.
	II	Development of Wildlife Habitat
	III	Wildlife Film/Slide show
2nd	I	Introduction to direct and indirect evidence of wildlife in forest
	II	Population estimation of wild animal.
	III	Tranquilizing of wild animal and handling trouble animal.
	IV	Departure to TATR slide show/wildlife film show halt TATR
3rd	I	Foot patrolling and study of Direct/Indirect sign of wild animals. Tracing and plaster casting Tiger/Leopard foot print.
	II	Study of various habitat development works in TATR.
	III	Visit to patrolling camp and patrolling with the tem.
	IV	Departure to Chandrapur
4th	I	Man animal conflict and relocation of villages inside protected area.
	II	Biodiversity and medicinal plants.
	III	Snake its type and handling of snake.
	IV	Bird watchig technique.
5th	I	Wildlife protection laws and National/International wildlife crime scenario
	II	Eco-tourism concept and Tourism Regulations aspect.
	III	Closing & distribution of Certificate.

APPENDIX - LII
(Para No. 9B)

A PROTOCOL ON PHASE-IV MONITORING

(Continuous monitoring of tiger reserves / tiger source areas)

Technical Document No. 1/2011

NATIONAL TIGER CONSERVATION AUTHORITY

APRIL, 2012

A PROTOCOL ON PHASE-IV MONITORING
(Continuous monitoring of tiger reserves / tiger source areas)

INDEX

SECTION-1

SECTION-1

1. BACKGROUND

1.1 The Tiger Task Force constituted by the National Board for Wildlife (2005) has endorsed the revised methodology / approach propounded by the erstwhile Project Tiger Directorate (now the National Tiger Conservation Authority-NTCA) and the Wildlife Institute of India (WII) for country level estimation / monitoring of tiger / prey status and its habitat. The said approach, interalia, comprises of the following:

(a) Country level assessment of tiger, co-predators, prey and habitat in 17 tiger States once in every four years using the double sampling method having three phases (Phase-I: Spatial mapping and monitoring of tigers, prey and habitat; Phase-II: Assimilation of spatial and attribute data; and Phase-III: Estimating the population of tigers and its prey).

(b) Intensive monitoring of tiger source populations in tiger reserves and protected areas in each tiger landscape complex (Phase-IV), and maintenance of a centralized photo-database of tigers at NTCA obtained from camera traps deployed across all tiger reserves.

(c) Routine management-oriented monitoring, which, inter alia, comprises of regular monitoring of tiger signs at beat level, which can potentially be integrated with monitoring of law enforcement and patrolling.

(d) Survey Design (for all tiger reserves except Sundarbans) for spatially explicit mark-recapture study involving research workers / scientists is at **Appendix-I.**

1.2 The above endorsement of the Tiger Task Force is being implemented and has also been reiterated in the guidelines issued by the NTCA (Technical Document: NTCA/01/07). In a country level meeting of Chief Wildlife Wardens / Field Directors held in May, 2011, it was decided to taken to implement the Phase-IV monitoring from

November, 2011. This was followed by a discussion with experts / NTCA members and a meeting with Chief Wildlife Wardens / Field Directors in October, 2011.

As per the decision taken, the minimum standards for the Phase IV protocols were:-

(1) Camera trap density one pair per 4-5 sq.km.
(2) Minimum trap nights of a 1000 per 100 sq.km. (i.e. 25 pairs of cameras in 100 sq.km. for 40 days)
(3) Minimum area coverage of 400 sq.km.
(4) Closure period of 40 to 60 days
(5) Minimum of 20 spatial replicates of line transects each of a minimum of 2 km length (for the entire reserve)
(6) Entire reserve needs to be sampled. Each sampling occasion should cover minimum area of 400 sq.km (100 pairs of cameras) and in case of larger reserves, the area should be covered by dividing the area into 400 sq.km blocks and camera trapping should be done successively, within the closure period of 60 days.

The objective of the NTCA exercise is to, at the least, obtain a minimum number of tigers in a Tiger Reserve (Section-2), but aims to estimate the tiger population size and prey densities (Section-3) in a reserve using spatially-explicit capture-recapture approaches using software tools such as SPACECAP / DENSITY for estimating tiger population size & DISTANCE for estimating densities of prey.

In brief, the Phase-IV protocol of NTCA contains six components:

(a) Maintaining daily patrolling log (described in Section-2)
(b) Carrying out beat-wise monitoring of sign encounters twice a year (described in Section-2)
(c) Recording from PIP (described in Section-2)
(d) Obtaining minimum tiger number using camera traps (described in Section-2)
(e) Obtaining tiger numbers using camera traps (40-60 days closure period) (described in Section-3)
(f) Obtaining minimum tiger numbers through DNA analysis from Scats (described in Section-3)

The field managers are familiar with some of these components. Under Phase-IV monitoring, emphasis have been given on the use of camera traps for obtaining minimum tiger numbers or preferably, tiger population size estimation and using line transect sampling for estimating prey densities. It must be borne in mind that for data analysis using camera trap data in a mark recapture framework as well as in DISTANCE sampling, the 'detection probability' or 'probability of detecting animals' is important. Further, it is important to note that more animals in an area may not result in enhanced detection probability, since the latter is governed by terrain features, cover, visibility etc. However, more animals in an area may result in more detections on a line transect or more captures during a camera session.

The phrase 'detection probability' is used in line transects, whereas 'proportions of animals captured' is used in the context of camera traps. The 'proportion of capture' or 'capture probability' facilitates estimation of true population size. To illustrate the importance of a detection probability, a simple example is given below:

- 100 spotted deer were introduced in a known area
- The same area was traversed by a team of two persons six times resulting in a count of 62 spotted deer (mean)

- Here, the detection probability = $\hat{p} = 62/100 = 0.62$
- After a year, the area was again counted along the same trail resulting in a count of 90 spotted deer
- The population estimation is done as below:
  90/0.62 = 145 spotted deer, with the assumption that detection probability has remained constant over the two years.

Thus a generic formula is given for population estimation:

$$\hat{N} = \hat{C} / \hat{P}$$

where, $\hat{N}$ = population
$\hat{C}$ = count / index
$\hat{P}$ = probability of detection

In the above example, the initial figure of 100 spotted deer was known, which is not the situation under wild conditions. Further, two counts / indices can be compared only if we know the probability / estimate the probability of detection. Thus, both in camera trap as well as distance sampling, the analysis part requires estimation of the probability of detection / capture.

QuickReferenceGuide

Phase IV involves monitoring of Tiger and its prey on annual basis at Tiger Reserve level, while Phase I to III is done at every 4 year interval for country level monitoring. The following needs to be kept in mind while planning the Phase IV:

Carnivore population estimation
1) Camera trap density one per 4-5 sq km
2) Minimum trap nights of a 1000 per 100 sq km
3) Minimum area coverage of 400 sq. km or whatever is the reserve size
4) Closure period of 40 to 60 days
Trap night are number of days of operation multiplied by number of pair of cameras. Closure period is time frame within which animal movement in and out of study area, birth and death are going to have no or negligible effect.

Given the importance of estimating detection probability as outlined above, this concept is central to intensive monitoring under Phase IV, unlike in Phases I, II, and III where 'encounter rates and indices' were employed more prominently.

However, since at the reserve or source population level tiger and prey density estimation methods which can rigorously deal with detection probability require substantial scientific expertise to design and deploy, it may not always be possible for reserve managers to have access to and be guided by adequately qualified scientists. Therefore, Phase IV intensive monitoring is being seen as a "ladder process" in which tiger reserves will gradually move up the ladder from routine management oriented monitoring to the intensive scientific monitoring scheme.

States/Reserve managers who do not have ready access to trained scientists with expertise in design and deployment of intensive scientific methods may use the first step of the ladder described here under Section-2, as routine management oriented activities. These routines will involve a wide range activities covered under parts A, B, C, D under Section 2 of this protocol and will be generally helpful in management of reserves. One aim of this is to generate minimum number of tigers in each reserve, each year without violating important closure assumptions described later. This routine management oriented monitoring is described in Section 2 of this document.

The next step in the "ladder process" involves use of rigorous distance sampling (for prey) and capture-recapture sampling (for tigers). These may require collaboration with adequately qualified scientists in survey design, implementation and data analysis stages. Here the goal is to generate valid estimates of population density and population size for tigers and important prey species in each reserve, fully meeting all the minimum standards and approaches described in Section 3 of this document.

Where such intensive scientific monitoring of tiger and prey populations is undertaken as described in Section 3, there may be no need for deploying other kind of line transect or camera trap surveys, to avoid unnecessary duplication of work.

SECTION-2

SECTION-2

PHASE-IV MANAGEMENT-ORIENTED MONITORING

I. For all tiger reserves except Sundarbans

Part-A Maintaining daily patrolling log in patrolling camp / chowki registers

While on regular or targeted patrolling duties the personnel shall record the following information:

1) Each patrolling team shall be equipped with a GPS unit and a digital camera besides the regular equipment (e.g. firearms, wireless, torch, etc).
2) The date, time and GPS coordinates of the beginning of the patrol recorded.
3) Preferably the GPS unit shall be switched on throughout the patrol in a track log mode. However, due to constraints of technical knowhow or other issues if this is not possible then a GPS coordinate recorded and written down in the record form every 30 min or at major deviations from a straight line path.
4) The total number of persons on the patrol are recorded along with number of armed personnel and type of arms. The mode of patrol is also recorded, e.g. on foot, bicycle, motorcycle, 4WD, elephant, boat, etc.
5) A record of all illegal activities is entered in the data sheet along with time, date and coordinate stamp. A photograph is also taken of the site with a time date stamp.
6) A record of signs and sightings or highly endangered species while on Patrol is also maintained by entering the GPS coordinate, date and time of the sighting /sign as well as recording a digital picture of the same if possible.
7) After the end of the Patrol, the GPS track log is either downloaded onto a computer (in MSTrIPES program if this is applicable at the site) or the datasheet with the recorded information deposited at the Range Head Quarters. Data formats for recording Patrol data are provided in Annexure-I.

Part-B Carrying out beat-wise monitoring of signs and encounters of animals/vegetation/habitat disturbances following Phase-I protocols twice a year

The entire tiger reserve would be covered at the beat level, by considering the latter as a sampling unit, as done in Phase-I of the country level assessment by following the standardized eight day protocol (the data collection needs to be done twice a year in the formats provided at Annexures-VII, VIII, IX and X). This would involve beat wise collection of data (in the standardized formats) twice a year relating to tiger / carnivore signs survey, ungulate, encounter rates, habitat status, human presence and pellet / dung counts. Based on such data, beat level maps indicating the spatial presence / relative abundance (index) of prey / predators species should be prepared in the GIS domain for record.

(i) Beat-wise collection of data in the standardized formats of Phase-I country level assessment process.
(ii) The data collection should be done twice a year (summer and winter).

(If the tiger reserve is following advanced protocols as described in Section-3 in collaboration with scientific institutions, then the routine monitoring of prey animal signs/encounters, vegetation features and habitat disturbance features should be carried out along transect lines designed based on protocols described in Part-E of Section-3. There may be no need for laying of transect lines in each beat as per Phase-I protocol.)

Part-C Recording data from 'pressure impression pads' (PIP)

As a part of intensive monitoring of source populations of tigers, data will be recorded from pressure impression pads (PIP's, track plots) in every beat.

- A minimum of 5 PIPs will be permanently maintained in each beat. The dimension of the PIP shall not be less than 6m in length the width of the PIP should equal the foot path, jungle trail or dry nullaha's width on which the PIP is made. GPS coordinates of all PIP's need to be recorded.

- The location of the PIPs within the beat should be such that they maximize the possibility of recording carnivore tracks. Minimum distance between any 2 PIPs should be more than 1.5km.
- The PIPs should be cleaned of debris, leaf litter, gravel and covered with fine dust of about 0.5cm depth. After preparing the PIP, data should be recorded the next morning and the PIP cleared of all tracks. The PIPs should be sampled thrice every month during summer and winter. In case a prepared PIP is disturbed due to rain, traffic etc. then it should be set again before data is collected. The topography and forest type should be recorded for each PIP.
- Trails of all carnivore and mega herbivores species should be recorded e.g. tiger one track set, leopard two track sets, several dhole track sets (as it may not be possible to identify individual track sets due to many tracks by a passing dhole pack), one small cat track (as species level identification may not be possible).
- It is important to note that a track set is constituted by one to many pugmarks made by a single animal traversing the track plot (PIP). One need not identify the gender or individual animal (tiger), but if this information is known, it should be entered in the remarks column. If there are more than one track sets of "same" animal eg. a tiger moving up and down the trail several times, they should be recorded as separate track sets. Data sheet for recording are provided in Annexure-III.

Part-D Obtaining the minimum number of tigers in the tiger reserve

(i) Three pairs of camera traps to be deployed per beat and should be left open within a closed period of 40-60 days depending on the reserve.

(ii) The period of leaving the camera traps open (closure period) is important owing to the fundamental assumption of "population closure" (no deaths / births / immigrations / emigrations in the population). Leaving the cameras open for longer duration will lead to over estimation of tiger numbers.

(iii) The photographs obtained from camera trapping should be submitted to NTCA for analysis for fixing individual IDs of tigers.

(iv) A digitalcamera trap tiger photo database should be prepared for the reserve with location ID, Date and Time Stamps as per format to be provided by NTCA.

(v) The minimum number of tigers should be ascertained based on individual camera photo traps of tigers obtained within the closure period specified to be 45-60 days.

(vi) Details of new captures / missing tigers should be recorded.

(vii) The format for recording the camera trap capture data will be provided by NTCA

SECTION-3

SECTION-3

(Advanced protocol involving scientists)

PHASE-IV INTENSIVE MONITORING OF SOURCE POPULATIONS AND TIGER RESERVES

Part-E Obtaining tiger population size for the reserve using spatially-explicit capture recapture framework and Obtaining prey population size using line transect sampling.

(A) Obtaining tiger population size.

(i) The camera traps deployed as per the survey design in Appendix-1. should be left open for a period of 40-60 days (depending on the areas). Where possible the entire Tiger Reserve must be surveyed. If the survey area is very large, tiger population size can be obtained by sampling a minimum block of 400 square kilometers at a time, but following all other minimum standards in section 3. If deployment of camera traps in an entire reserve or parts of it is not feasible for any reason, fecal DNA samples may be collected over the entire Tiger Reserve for Capture-Recapture analysis. The tiger population size may then be estimated over the entire Tiger Reserve using Mark-recapture methodology.

(ii) The analysis of the data needs to be done in collaboration with a technical expert / scientist conversant with spatially-explicit capture-recapture process / analysis.

(iv) The period of leaving the camera traps open (closure period) is important owing to the fundamental assumption of "population closure" (no deaths / births / immigrations / emigrations in the population). Leaving the cameras open for longer duration may lead to over estimation.

(v) The format for summary record of camera captures and the basics of mark recapture process using camera traps are provided at Annexures-V & VI.

(vi) The analysis of capture data between years (using open population models) should also be done in collaboration with technical experts / scientists/ WII.

(B) Obtaining prey densities

(i) Line transects must be systematically placed with a random start according to the survey design mentioned in Appendix-1 and implemented in program DISTANCE.

(ii) The line transect data should be analysed using the "DISTANCE" software for prey density. The analysis of the data needs to be done in collaboration with a technical expert / scientist conversant with the DISTANCE SAMPLING analysis.

(iii) The format for collecting line transect data to facilitate analysis using "DISTANCE" software and the basics of DISTANCE sampling using line transects are provided at Annexure-II.

Part-F Using scats for DNA analysis to obtain the minimum tiger numbers in reserves where camera trapping is not possible

(i) Collection of tiger scat samples: a) Use disposable surgical gloves to handle scat samples, b) for each scat a new set of gloves should be used to avoid cross contamination, used gloves should be discarded in an environmentally friendly way c) about 20 gms of fresh scat sample should be taken and stored in a vial/tube containing buffer & / or 70% alcohol. Tubes should be prepared in duplicate with GPS coordinates and date clearly recorded on the tube (alcohol erases permanent marking pens).

(ii) Obtaining the minimum number of tigers in the area through DNA analysis of tiger scats involving an institution having the domain expertise.

APPENIDCES

Appendix-I

SURVEY DESIGN (For all tiger reserves except Sundarbans) for spatially explicit mark-recapture study involving research workers / scientists

Minimum Standards for monitoring tiger source populations were: Sampling area: Minimum area of 400 km2 or entire Tiger Reserve, if area is smaller than 400 km2.

(i) Tiger monitoring by camera trap sampling:

Camera density = 25 double-sided cameras per 100 km2.
Sampling effort = 1000 trap nights / 100 km2.
Closure period = 40-60 days

NOTE: The period of leaving the camera traps open (closure period) is important owing to the fundamental assumption of "population closure" (no deaths / births / immigrations / emigrations in the population). Leaving the cameras open for longer duration may lead to gross over estimation.

(ii) Prey monitoring by line transect sampling:

1) Straight or square line transects will be systematically placed with a random start over the study area. These designs must be generated using program DISTANCE.

2) At least 20 spatial replicates must be laid out.

3. Each transect must be walked at least 4 times during sampling to generate >40 detections for each important prey species.

DESIGN OF SURVEYS ANALYSES OF DATA

(i) The survey design and analysis of these data needs to be done in collaboration with a technical expert / scientist conversant with the advanced open and closed model mark-recapture and advanced distance sampling methodologies.

(ii) The format for recording camera capture data and the basic ideas of the mark-recapture process using camera traps are provided at Annexures-V & VI and in published scientific literature.

***

Data Sheet-6

Patrol Form

Name of Guard: ..... Date: ..... Forest Division ..... Range: .....

Beat: ..... No. of Persons on Patrol: ..... Armed ..... Unarmed .....

Patrol Type: General Duties, Investigations, Surveillance, Others Patrol Method: Foot, Jeep, Motorbike, Bicycle, Elephant and Others

Date	Time	Location			Location			Place	Animal	Group	Illegal Activity				Animal Injury					
		Deg	Min	Sec	Deg	Min	Sec				Type	Time lapse	Detail	Attack	Sex	Age (M/F/U)	Age (Y/A/U)	Cut	Cut with	Small tk

M – Male, F – Female, Un – Unknown, Y – Young, Ad – Adult.

Annexure-I

Annexure-II

Field formats for data collection in distance sampling

I. Line Transect Data Sheet for monitoring of ungulate population by DISTANCE sampling:

Observer name: ..... Start time: ..... Date: .....
End time: ..... ID no. of line transect: .....Total length: ……km
TR / Forest division: ..... Range: ..... Beat: .....
Weather condition: Cloudy/Clear sky
Beginning GPS Lat: .....N; Long: ……E
End GPS Lat: .....N; Long: .....E

Sighting No	Time	Species*	Total Nos. (Adults & Young)	Young	Sighting Distance	Compass Bearing	Forest Type	Terrain Type	Remarks
1									
2									
3									
4									
5									
6									
7									
8									

*Species that need to be recorded on the transect: chital, sambar, nilgai, gaur, barking deer, elephant, rhino, wild buffalo, swamp deer, hog deer, chowsingha, blackbuck, chinkara, wild pig, langur, peafowl, hare, cattle (live stock), and other mammalian species seen.

II. Location of transects in relation to Vegetation and Terrain features

Transect No.	Total length (km)	Name	Bearing	GPS location		Vegetation type	Terrain category
				Start	End		
T1							
T2							
T3							
T4							
T5							
T6							
T7							

Annexure-II
(Basic Information)

Assessment of prey using line transects following survey design as described in Part-E of Section-3 and analyzing the data with DISTANCE Software

(i) The use of line transect in estimation of prey density is known as 'line transect sampling'. This technique of abundance estimation is included under 'distance sampling'.

(ii) It provides a direct estimate of density, provided its assumptions are met.

(iii) It also accounts for the probability of detection.

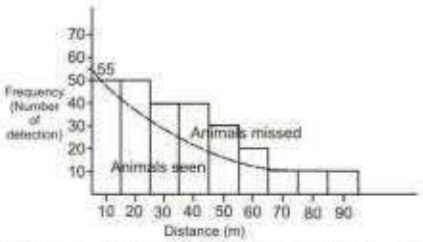
(iv) In 'Distance Sampling', the fact that the 'probability of detection decreases with increasing distance from the observer' is modelled by developing a function, which is used to estimate the 'probability of detection' ($\hat{\beta}$). The density ($\hat{D}$) is estimated as below:

$$\hat{D} = \frac{n}{\alpha\hat{\beta}}$$

where, n= total number of detections
α = total area sampled

(v) The observer travels along a line of length 'L', located randomly in the study area, and counts all the animals which are seen. There is no assumption that all animals are counted, and the counts are assumed to be incomplete. More often, a maximum observation distance 'w', which is perpendicular to the transect line on each side, is established. Beyond this distance, no count is made. In some cases, counting of all animals is done without establishing a distance.

(vi) Let us consider the common approach of establishing the 'maximum observation distance' (w). Here, it is important to estimate the 'detection probability' or the proportion of animals that are actually seen (β). This is required to correct the actual counts.



(Hypothetical from the transect line histogram plot of the number of detections against the distance from the transect line, with a smooth function fit.)

(vii) If the number of detections are plotted against distance from the transect line, a smaller number of detections are seen as the distance increases. The detection function to the observed distances is fitted to estimate the detection probability '$\hat{\beta}$':-

$$\hat{\beta} = \frac{\text{Area under the curve}}{\text{Total area}} = \frac{3500}{4950} = 0.70$$

(viii) Once the detection probability ($\hat{\beta}$) is computed, animal abundance in the survey area can be calculated, as in the case of the strip sampling, using the canonical estimator as before:

$$\hat{N} = \frac{An}{2wL\hat{\beta}}$$

(ix) For animal density ($\hat{D}$), the abundance needs to be divided by area, resulting in:

$$\hat{D} = \frac{n}{2wL\hat{\beta}}$$

(x) The salient features of this estimation technique are as below:-

a. From the transect line, the perpendicular distances (x) to each detected animal of interest are computed by measuring the detecting angles 'M' and detection distances 'r'.
b. This computation is done as $x = r \sin M$.
c. Imagine a situation where 'k' transect lines have been laid

in some randomized design, having lengths l_1.....l_k, with a total length 'L'.

d. Further, suppose that 'n' animals are seen at perpendicular distances x_1, x_2.....x_n, and animals beyond a distance (w) from the transect (truncation distance) are not taken into account.

e. In the above situation, the area surveyed (a) is given by : $a = 2wL$.

f. Say 'n' animals are seen/detected within this area.

g. Estimation of animal density (D) is given by:

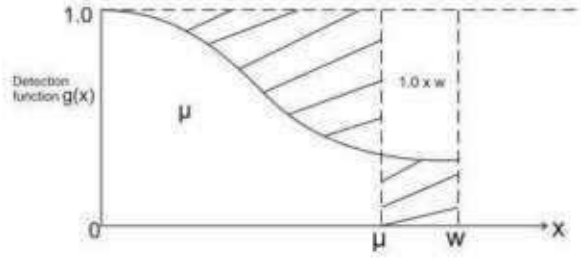
$$\hat{D} = \frac{n}{cwLP_a}$$

where, P_a = probability of detection of a randomly chosen animal within the area surveyed;
P_a = estimate of P_a

h. Thus, it becomes necessary to give a framework to estimate P_a. In this context, the 'detection function' 'g(x)' is defined as the probability of an animal at distance x from the transect line being detected, given that x is between w and 0 (i.e. $0 \leq x \leq w$). Further, it is also assumed that animals on the transect are certainly detected (i.e. $g(0) = 1$).

i. A new parameter 'μ' is now defined, which is known as the 'effective strip (half) width'. It is the distance from the transect 'for which as many objects as are detected beyond μ as are missed within μ '.
(Defining a detection function g(x), where $g(0) = 1$; μ = the effective strip width).

j. If the detection function g(x) is plotted against perpendicular distances 'w' as a histogram, a model for g(x) needs to be specified, and fitted to the distance data.

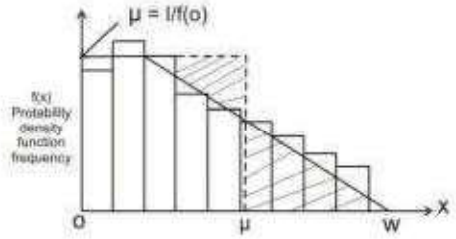


P_a is related to μ. If the definition for $\mu = \int_0^w g(x)dx$, then $P_a = \mu/w$.

$$\text{Thus, } \hat{D} = \frac{n}{aP_a} = \frac{n}{2wL\hat{\mu}/w} = \frac{n}{2\hat{\mu}L}$$

k. Now μ(hat), an estimate of μ is required. For this another function known as the 'probability density function' (pdf) of perpendicular distances f(x) to detected animals is used. This is the rescaled detection function g(x) for integrating into unity; i.e. $f(x) = g(x)/\mu$. Since it is assumed that $g(0) = 1$, hence $f(0) = 1/\mu$.

$$\text{Thus, } \hat{D} = \frac{n}{2\mu L} = \frac{n\hat{f}(0)}{2L}$$



[Fitting the probability density function (pdf) to the data. The area under this function is 1].

f(x) is the pdf of perpendicular distance p frequencies, plotted on a histogram of perpendicular distance frequencies. These are scaled so that the area of the histogram is 1. By definition, the area below the curve is unity (1). The two shaded areas in the above curve are equal in six, hence the area of the rectangle, $\mu f(0)$ is also unity, resulting in $\mu = 1/f(0)$.

l. Thus the pdf of perpendicular distances are modeled, and

the fitted function is evaluated at x=0. The DISTANCE Software address this standard statistical issue. A parametric 'key' function is selected. However, if the fit provided by it is not adequate, adjustment are done using polynomial or cosine series, till the fit is judged satisfactory by one or more criteria.

m. Usually, the data are grouped into distance categories before analysis and such grouped data is fitted using standard likelihood methods from the multinomial data.

(xi) The distance software calculates variance and confidence in interval inherently and also besides addressing the estimation of cluster size.

(xii) The data from a line transects includes: (a) number of individual animals / number of individual animals in a cluster, (b) the perpendicular distance of the animal / centre of the cluster from the transect, (c) name / identity of the transect line where count was made / detected, (d) total length of the transect line.

(xiii) The transects should be made in all the beats (at least two line transects of 2 km each per beat).

(xiv) The transect lines may be straight lines or conforming to a continuous shape leading to the starting point. The transects should be randomly laid, separated by at least a distance of 2 to 3 km. and physically marked using GPS for replication.

(xv) The total walks on a transect (total effort) is computed by adding all the walks done on a transects, and totaling up such walks on all the transects laid in the area.

(xvi) For low density areas, more efforts may be required on the transects.

(xvii) Laser range finders and compass should be used for measuring distance and angle respectively.

Assumptions in line transect sampling:

The critical assumptions in line transect sampling, which should be met for a reliable density / abundance estimation are as below:

A. Random location of transect lines with respect to distribution of animals:

This assumption helps in estimating the detection function from the observed distribution of perpendicular distances, leading to the average probability of detection (p). To ensure this assumption, the transect lines should be laid randomly, causing minimum disturbance to the habitat.

B. Detection of animals with certainty on the transect line :

This assumption is fundamental for deriving the density estimator, wherein detection of all objects at 0 perpendicular distance are assumed (i.e. $g(o) = 1$). The density would be under estimated if objects / animals falling on the transects are missed, since bias is a simple function of g(o). Thus, by missing 15% of the animals on the transect line, the density estimate on an average would be less by 15%.

C. Detection of animals at their initial location:

This assumption can be easily met for stationary objects like plants or dung piles of wild animals, but it is difficult to meet for moving animals. It has been pointed out that movement does not create much problem provided it is not in response to the observer. Further, comparatively faster movement of observers also reduces the problem. However, the observers should move as silently as possible to avoid evasive movement of the animals before detection, while trying to detect them. A considerable evasive movement of animals would lead to under estimation.

D. Exact measurements are made:

Proper field measurements are essential to record reliable measurements. Erroneous recordings relating to animals on transect line from a distance makes analysis difficult.

Apart from the above, the other assumptions include :

(a) Detections are independent events.
(b) Animals should not be counted twice on the same line.

Hypothetical example of distance sampling:

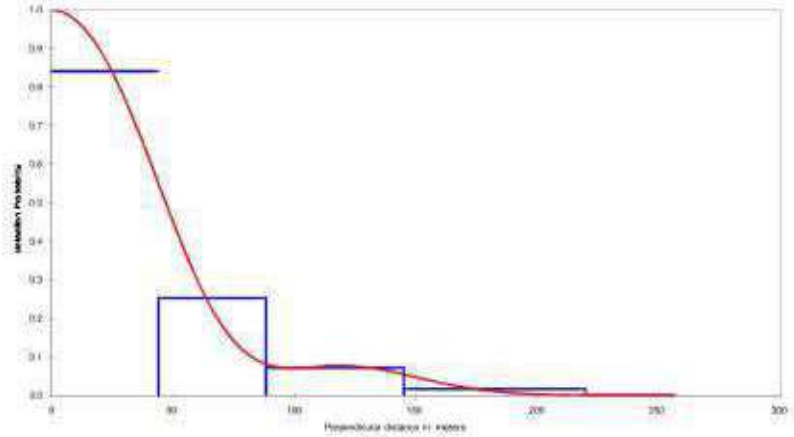
```
Effort          :    126.0000
 # samples      :     42
 Width          :    256.0000
 Left           :       0.0000000
 # observations:    447

 Model
    Half-normal key, k(y) = Exp(-y**2/(2*A(1)**2))
    Simple polynomial adjustments of order(s) :  4, 6
```

Parameter	Point Estimate	Standard Error	Percent Coef. of Variation	95 Percent Confidence Interval	
A(1)	43.57	1.680			
A(2)	-115.6	34.19			
A(3)	755.9	242.4			
f(0)	0.18600E-01	0.77638E-03	4.17	0.17136E-01	0.20190E-01
p	0.21001	0.87661E-02	4.17	0.19348	0.22796
ESW	53.763	2.2441	4.17	49.531	58.358

Sampling Correlation of Estimated Parameters

	A(1)	A(2)	A(3)
A(1)	1.000	0.427	-0.742
A(2)	0.427	1.000	-0.886
A(3)	-0.742	-0.886	1.000



Cell i	Cut Points		Observed Values	Expected Values	Chi-square Values
1	0.000	44.2	309	308.43	0.001
2	44.2	88.3	93	93.78	0.007
3	88.3	145.	34	34.07	0.000
4	145.	220.	11	10.67	0.011
5	220.	240.	0	0.05	0.054
6	240.	256.	0	0.01	0.007

Total Chi-square value = 0.08 Degrees of Freedom = 2.00

Probability of a greater chi-square value, P = 0.96098

The program has limited capability for pooling. The user should judge the necessity for pooling and if necessary, do pooling by hand.

There is a need for some pooling to achieve a reliable chi-square test However, the pooling algorithm built into this program would result in no degrees of freedom left. Therefore pooling is left to the user.

One or more expected values is < 1.
Try pooling some some cells by hand to obtain a more reliable test.

Model
Half-normal key, k(y) = Exp(-y**2/(2*A(1)**2))
Simple polynomial adjustments of order(s) : 4, 6

Parameter	Point Estimate	Standard Error	Percent Coef. of Variation	95% Percent Confidence Interval	
f(0)	0.18600E-01	0.77638E-03	4.17	0.17136E-01	0.20190E-01
p	0.21001	0.87661E-02	4.17	0.19348	0.22796
ESW	53.763	2.2441	4.17	49.531	58.358
n/L	3.5476	0.39480	11.13	2.8355	4.4386
DS	32.993	3.9214	11.89	26.017	41.839
E(S)	3.7964	0.22495	5.93	3.3794	4.2649
D	125.26	16.635	13.28	96.287	162.94
N	125.00	16.601	13.28	96.000	163.00

Measurement Units
Density: Numbers/Sq. kilometers
ESW: meters

Component Percentages of Var(D)
Detection probability : 9.9
Encounter rate : 70.2
Cluster size : 19.9

Annexure-III

Data Sheet-5
Track Plot for Carnivores and Mega Herbivores
(Pressure Impression Pad)

Name of Observer: ..... Date: .....Forest Division .....Range: .....

Beat: .....

PIP No.	Forest Type	Terrain Type	Tiger		Leopard		Sloth Bear	Dhole	Hyena	Jackal	Small Cat	Gaur	Elephant	Rhino	Water Buffalo	Others	Others	Deg. N	Min N	Sec N	Deg E	Min E	Sec E
			Adult	Cub	Adult	Cub																	
1																							
2																							
3																							
4																							
5																							

If track of young carnivores (eg. tiger cubs) are observed, please mention in remarks.

Remarks: .....

.....

Details of Digital Photographs taken .....

Annexure-IV

Format for recording camera trap capture data to obtain tiger numbers at the reserve level

1) Place double-sided camera traps at the best locations within a beat to photograph tigers.
2) The distance between camera traps within and between beats should be over 1.5 km.
3) A minimum of 3 camera traps (consisting of double sided cameras) per beat should be deployed. The number of camera trap will increase as the size of the beat increases, keeping the strategy of one pair of camera traps for 4 sq.km. area (2 km x 2 km).
4) The GPS coordinates of each camera location and the dates of deployment should be recorded as given below:

Camera Trap Station ID	Degree, Min, Sec North	Degree, Min, Sec South	Dates deployed	Dates not operating
1 – main Rd nalla				
2- River Junct				
3- temple jnct				
4-.....				

5) Format for daily monitoring of camera traps (beat-wise)

Date	Camera Unit	Camera Trap Station 1			Camera Trap Station 2			Camera Trap Station 3			Remarks[3]
		Tiger	Leopard	Other	Tiger	Leopard	Other	Tiger	Leopard	Other	
	A – Right Side Camera										
	B – Left Side Camera										
	A – Right Side Camera										
	B – Left Side Camera										
	A – Right Side Camera										
	B – Left Side Camera										
	A – Right Side Camera										
	B – Left Side Camera										

	A – Right Side Camera										
	B – Left Side Camera										
	A – Right Side Camera										
	B – Left Side Camera										
	A – Right Side Camera										
	B – Left Side Camera										
	A – Right Side Camera										
	B – Left Side Camera										

* Non-functioning of camera traps or missing of tiger capture, etc. to be recorded in the Remark column.

6) Photographs of tigers, leopards and all mammal species should be downloaded and saved as folders for each species. Each photograph should have a time and date stamp recorded digitally, the camera trap station identity stored in the file name. An appropriate format is to have a species folder e.g. tiger, sub folder for camera trap station id, within which photographs of each of the cameras (from the double sided camera traps) is stored as separate folders. A CD with the above data (points 4, & 5) should be sent to NTCA every 2 months.
7) All Photographs of tigers and leopards should be printed and compared visually based on their stripe and spot patterns to identify individuals. In case of >15 tigers/leopard captures the need of software assisted identification may become essential.
8) For estimation of the tiger/leopard population after individual identification using closed capture estimators the data needs to be arranged in the format given below:

Trap Occasion (Day)

Tiger / Leopard ID	Day 1	Day 2	Day 3	.....	Day 35	.....	Day 48....
T-1							
T-2							
T-3							
T-4-.....							

CAMERA TRAP: CAPTURE DATA (Range Level)

Division..... Range.....Species: Tiger / Leopard .....

Sl.No.	Beat Name	Observer Name	Camera ID	Tiger ID / Leopard ID	Date of Capture	Remarks

Annexure-V

(Basic information on mark recapture)

Assessment of tiger population at beat level using photographic mark-recapture camera trapping while analyzing the data with an appropriate softwares like MARK, CAPTURE and CARE. This should result in the preparation of a reserve-level photo-capture database of individual tigers, to be shared with the Chief Wildlife Warden / NTCA / WII.

(I) The capture–recapture methodology is largely derived from the classical Peterson-Lincoln Estimator which is highlighted below:

Peterson Estimate (Lincoln Index)

The mark-recapture methods based on Peterson Estimate constitute the most important pseudo-sample methods. A large number of variations of this basic method have been evolved, which have been further complicated since the technique is simultaneously utilised to measure movement or mortality.

Here the sample of a population is marked after it is caught and then released; subsequently, samples are again taken from the population after recapturing and the proportion of marked individuals are recorded. Using the proportion of marked individuals in the subsequent samples, the total population is estimated. The capture-recapture sampling facilitate estimation of the 'proportion' of animals captured which facilitates estimation of true population size.

The simplest form of the mark-recapture estimator is the Lincoln-Peterson estimator; this is known variously as 'Peterson index', 'Lincoln index' or 'the Peterson estimate'. This method gives an estimate of actual numbers and hence it is a sample census rather than an index. Peterson, in 1896, described this method for fish populations; however it was first applied for wildlife in 1930 by F.C. Lincoln, for populations of waterfowl.

The model can be derived from the ratio. $\frac{M}{\hat{N}} = \frac{m}{n}$

where, M= total number of individuals marked and released during the first capture period;

$\hat{N}$ = estimated population size (unknown);

n = total sample taken during the second capture period;

m = number of individuals captured in the second capture which were marked.

The above ratio can be rewritten as an estimator:

$$\hat{N} = \frac{Mn}{m}$$

Theoretically this is a very elegant and simple method and can be applied to any vertebrate which can be captured, viz. from fish to cats. However, it is time consuming, laborious and costly and becomes impractical for large areas. Apart from this, several critical assumptions of this method act as constraints:—

1. Each animal has an equal chance of being captured.
2. The behaviour of animals is not influenced by marking.
3. No marks are lost.
4. The individuals which are marked mix randomly in the population after release.
5. There are no immigrations or births in the area under study between the first and second trapping seasons.
6. There is no emigration or differential mortality between the marked and unmarked members of the population.
7. The population is closed; if mortality occurs, then the estimate of N is valid for the initial size of the population. If recruitment occurs then N is valid for the time of recapture.
8. The time spent in sampling is small relative to the inter-sampling period.

The model assumptions can be re-written concisely as follows:

Assumption 1. A well defined population of animals having N individuals exists.

Assumption 2. M of these individuals are marked.

Assumption 3. There exists a sample of n 'observations' of animals from the population, having x 'observations' marked animals.

Assumption 4. The average probability $\overline{p_m}$ of observing an animal that is marked is equal to $\overline{p}_u$ which is the average probability of observing an unmarked animal.

$$\text{i.e. } \overline{p}_m = \overline{p}_u$$

The formula $\hat{N} = \frac{nM}{m}$ can be used satisfactorily with appropriate assumptions.

Use of Lincoln-Petersen Sample Estimator in camera trapping of tigers

The sample periods can be aggregated into two groups – viz. in a session of 30 days, the first 15 days can be denoted as 'occasion-1' and the next fortnight as 'occasion-2'.

In general, for photo trapping of tigers, the camera traps are set in the study area, covering the animals so that the tigers in the area can encounter the traps at least once (preventing 'holes' so that tigers are not missed). The traps are set for several days in succession, and each day is considered as a 'sample period'. In large areas, the traps can be 'rotated' over the area as per a prescribed scheme, and the data collected over the number of days taken to cover the entire area defines the sampling period.

The camera trap data is summarised in 'capture-history' data sheets, consisting of rows of 'i' and 'o', which indicate the periods when an animal was camera trapped. Thus, a history of '100101', indicates that a tiger was trapped in periods 1, 4 and 6 of a study having 6 periods.

Example

m_1 = number of tigers, with known identity, trapped on occasion 1
m_2 = number of tigers trapped and released on occasion 2
m = number of tigers recaptured in period 2 (i.e. trapped at both occasions 1 and 2)

1. The unknown quantity of interest (total number of tigers in the sampled population) is defined as 'N'.

2. The model parameters are then defined as:
   p_1 = probability of a tiger exposed to sampling efforts in the sampled area is trapped on occasion i (i = 1, 2)

3. $p=1-(1-p_1)(1-p_2)$ = the probability that a tiger, from the total number of tigers in the sampled population N, is trapped at least once during the study.

4. The 'detection probabilities' for the two sampling periods are estimated, by ascertaining the proportion of tigers which were trapped in one occasion are also trapped in the other occasion. Since the population is "closed", it can be said that the tigers caught during occasion 1 are also present during occasion 2. Thus by "conditioning" tigers trapped in occasion 2, and ascertaining the number of these tigers which were also trapped during occasion 1, p_1 and p_2 can be estimated:

$$\hat{p}_1 = \frac{m}{n_2}, \quad \hat{p}_2 = \frac{m}{n_1}$$

$$\hat{p} = 1-(1-\hat{p}_1)(1-\hat{p}_2)$$

The general equation for estimating abundance is:

$$\hat{N} = \frac{C}{\hat{p}},$$

where, $\hat{N}$ = estimate of abundance N (true number of tigers)
C = Number of tigers counted
p = estimate of capture probability 'p' (probability that a tiger exposed to sampling efforts in the sampled area is captured on occasion i (i=1, 2)

For period 1, the following estimator is obtained:

$$\hat{N} = \frac{n_1}{\hat{p}_1} = \frac{n_1}{m/m_2} = \frac{n_1 n_2}{m}$$

For period 2, the following estimator is obtained:

$$\hat{N} = \frac{n_2}{\hat{p}_2} = \frac{n_2}{m/m_1} = \frac{n_1 n_2}{m}$$

The assumptions of the Lincoln-Peterson model are again stated below:-

1. The population is a 'closed' one.
2. It is likely that all animals are equally captured in each sample (equal probability of capture).
3. The marks are not overlooked, gained or lost.

A short interval between samples can meet the first assumption. The second assumption is often relaxed, while the last one can be met with proper marking techniques.

Example of Lincoln-Peterson estimate

(camera trapping exercise)

50 camera traps are placed in a tiger habitat along trails, and for two consecutive nights photographs are taken, resulting in the following data:

n_1 = 10 tigers camera trapped during the first night
n_2 = 8 tigers camera trapped during the second night
m = 2 tigers camera were photographed on both the nights

Estimation of capture probabilities and abundance

Capture probabilities of each night (sampling occasion) and for both nights (combined) are calculated as below:

$$p_1 = \frac{2}{8} = 0.25$$

$$p_2 = \frac{2}{10} = 0.20$$

$$\hat{p} = 1-(1- p_1)(1- p_2)$$

i.e. $\hat{p} = 1-(1-0.25)(1-0.20)$

$= 1-(0.75)(0.80)$

$= 0.40$

Using the Chapman estimator for abundance:

$$\hat{N}_c = \frac{(n_1+1)(n_2+1)}{(m_2+1)} - 1$$

$$= \frac{(10+1)(8+1)}{(2+1)} - 1$$

$= 32.$

The Variance and Standard Error for the estimate are as below:

$$\text{Var}(\hat{N}_c) = \frac{(10+1)(8+1)(10-2)(8-2)}{(2+1)^2(2+2)}$$

$$= \frac{(11)(9)(8)(6)}{(3)^2(4)} = \frac{4752}{36} = 132$$

$$= \quad \widehat{SE}(\hat{N}) = \sqrt{132} = 11.49$$

Thus, the estimated number of tigers in the sampled area is 32.

An approximate 95% confidence interval for this estimate is given by:

$$\hat{N} = \pm 1.96 \ SE(\hat{N}) = 32 \pm 22.52 = (54.52, \ 9.48)$$

The above estimate is not precise and is highly uncertain, perhaps owing to small sample size in studies of elusive animals like the tiger.

(II) Broadly, the mark recapture methods have been categorised on the basis of population 'closure' as below:-

(1) Closed Population Models – Where the total number of individuals in a population does not change due to birth, deaths, immigration or emigration. There are no 'gains' or 'losses' in the population between sampling occasions. Hence, these are most suitable for short-time period estimators like abundance estimation.

(2) Open Population Models – Where the population is changing during the study due to births, deaths, immigration or emigration. These gains or losses or both occur between the sampling periods. The time interval between sampling occasions is longer. These models provide scope for estimation of abundance, survival rate and recruitment.

(III) In the Indian context, both models are applicable. The closed population models are good for abundance estimation of tigers and its prey in the country level estimation was carried out after every four years. The open population models are suitable for long term studies (e.g. Phase IV of the new methodology at source sites for monitoring tiger and its prey). In this chapter, the focus would be on the 'closed population model' owing to their relevance in the context of tiger estimation.

Capture-RecaptureModelsforclosedpopulation

Capture-Recapture Data

In the capture-recapture approach, the capture history of the individual animal is maintained as a series of "non-captures" (0's) and "captures" (1's).

HypotheticalIndividualCapturehistoryof10tigerswithfourcapture (cameratrap) occasions

Tiger	Occasion 1	Occasion 2	Occasion 3	Occasion 4
1	1	1	1	1
2	1	1	0	0
3	1	1	1	0
4	1	1	1	1
5	0	1	0	0
6	0	0	1	0
7	0	0	0	1
8	0	0	0	1
9	0	0	1	0
10	0	1	0	0

The first tiger has a capture record of (1111), and was photo captured on all four occasions. The second tiger, having a photo capture record of (1100), was captured on occasions 1 and 2. Rest of the capture history data can be interpreted similarly. Since the capture-recapture data involving a number of animals becomes large, it is usually represented in the form of summary statistics for statistical analysis:-

k = number of capture occasions;
n_j = number of animals captured on the j^{th} occasion (j=1,.....k);
u_j = number of unmarked animals captured on the j^{th} occasion (j=1, ...k);
m_j = number of marked animals captured on the j^{th} occasion (j=1, ...k);
M_j = number of district animals captured before the j^{th} occasion (j=1, ...k);
(M_1=0, and M_{k+1} is the total number of distinct animal captured in the exercise);
f_j = number of animals captured exactly j times (j=1, ...k);

The statistics pertaining to the hypothetical capture history data is provided as a summary below:

Summary Statistics for the Capture history of tigers

J	n_j	m_j	u_j	M_j	$f1_j$
1	4	0	4	0	6
2	6	4	2	4	1
3	5	3	2	6	1
4	4	2	2	8	2
				10 (M_5=10)	
TOTAL	19	9	10		10

Description of the statistics:

n_j = column sum for the j^{th} occasion (column) in the capture data (history matrix), with (n_1, n_2,.....n_4).

u_j = first captures out of n_j animals, with (u_1, u_2,.....u_4)=(4,2,2,2).

m_j = recaptures out of n_j animals, with (m_1, m_2,.....m_4)=(0,4,3,2). ($u_j + m_j = n_j$ i.e. 19)

M_j = cumulative number of first recaptures on the first j-1 occasions, thus $M_j = u_1+u_2+.....u_{j-1}$) and ($M_1$, M_2,....., M_5)=(0,4,6,8,10); i.e. there is a progressive increase of marked animals in the population from $M_1 = 0$ to $M_5 = 10$.

The capture frequency of an animal is denoted by its row sum. Thus (f_1, f_2, ..., f_k) denote the frequency counts of all the animals which were capture (6, 1, 1, 2). Thus, 6 tigers were photo captured once, one tiger photo captured twice, one tiger photo captured thrice and two on all the four occasions.

The number of animals which are never captured is represented by 'f_0', so that $f_1 + f_2 + ..., f_k = M$ and $f_0 + f_1 + ..., f_k = N$. Thus estimation of population size 'N' becomes equivalent to estimation of f_0, the number of missing animals ($N=M_{t+1} + f_0$).

(IV) There are a number of models to address different sources of variation in capture probabilities, which are available in the software (CAPTURE):

1. M_o: equal probability of capture model
2. M_h: Heterogeneity Model
3. M_{bh}: Behaviour-heterogeneity Model
4. M_t: Time Variation (Schnabel) Model
5. M_{th}: Time-Heterogeneity Model
6. M_{tb}: Time-behavioural Response Model
7. M_h: Heterogeneity Model

(V) Issues relating to survey design (for camera trapping of tigers)

Some general considerations are as below:

1. The sampling time in camera trapping of tigers should be 'short' vis-à-vis the tiger populations turn over for meeting the assumptions relating to 'close models'. It has been stated that four to six weeks of sampling through camera trapping may be needed which may be stretched to eight to twelve weeks. Experience in general indicates that a period of six to eight weeks of sampling may be required.

2. The space should provide scope for every animal in the study area to have some chance of being captured.

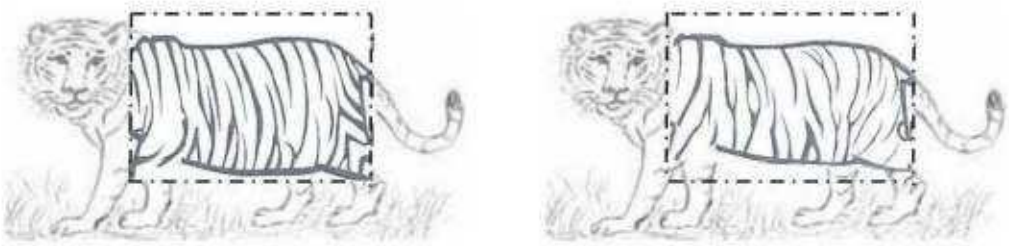
3. The camera traps should be adequately spread through out the study area and should be checked each day during the sampling period to get a good capture history data.

4. The study area may be divided into a number of potential sampling units, whose size should be just sufficient to set up a single camera trap. Each sampling unit can be considered as a 'grid cell' which can be randomly selected to place camera traps at sites which are promising. In the following day, the camera can be moved to other such sites in the grid cell and the process can be repeated between five to thirty days to get a standard capture history data.

5. If the area is difficult or the number of camera traps are not adequate, then smaller portions of the area can be covered (block-wise) for camera trapping for a short period of time before moving successively to other portions. The total number of days used for camera trapping to cover the entire area (all

blocks) is denoted as sample occasion 1. The procedure is repeated to get the capture occasion 2.

The other considerations in camera trapping of tigers include choice of the equipment (camera and the tripping device), choice of sites to set up the traps, spacing of traps and a standard data collection protocol. The tigers are identified visually from photographs using their unique stripe patterns:



Hiby et. al. have used a three dimensional model to match images of living tigers and tiger skins.

The identified individual tigers are numbered and every capture of an individual tiger is assigned to a particular secondary sampling occasions.

The capture history of individual tigers consist from the database in the standard history matrix and are analysed through a suitable computer program CAPTURE or MARK. During analysis, the results are checked to ascertain the violation / non-violation of the closure assumption and finally the statistical tests 'between models' is done to indicate the best fitting model vis-à-vis the data, from which the parameters are obtained. Since tigers are territorial, models which address heterogeneous capture probabilities (like M_h) should be used for tigers.

Hypothetical Data relating to individual capture history of 10 tigers with 6 camera trap (capture) occasions: Analysis with software CAPTURE

Tiger	Occasions
1.	100101
2.	101001

3. 010110
4. 100010
5. 101010
6. 101101
7. 001010
8. 101101
9. 010101
10. 101001

Program version of 16 May 1995 9-Dec-2010

Input and Errors Listing

Input---title='rg2'

Input---task read captures x matrix occasions=6 captures=6

Input---data='Group 1'

Input---format='(a6,6f1.0)'

Input---read input data

Summary of captures read

Number of trapping occasions	6
Number of animals captured	10
Maximum x grid coordinate	1.0
Maximum y grid coordinate	1.0

Input---task model selection

Input---task population estimate appropriate

** Warning ** Appropriate model has been selected,
but no estimator is available.
Processing will be attempted.

*** ERROR *** Population estimator was not specified.
Scanning for a new task card.

Input---task population estimate null

Input---task population estimate darroch

Input---task population estimate zippin

Input---task population estimate jackknife

Input---task population estimate mh-chao

Input---task population estimate mth-chao

Mark-recapture population and density estimation program Page 2
Program version of 16 May 1995 9-Dec-2010

rg2

Model selection procedure. See this section of the Monograph for details.
Group 1

Occasion	j=	1	2	3	4	5	6
Animals caught	n(j)=	7	2	6	5	4	6
Total caught	M(j)=	0	7	9	10	10	10	10
Newly caught	u(j)=	7	2	1	0	0	0
Frequencies	f(j)=	0	2	6	2	0	0

1. Test for heterogeneity of trapping probabilities in population.
Null hypothesis of model M(o) vs. alternate hypothesis of model M(h)

Expected values too small. Test not performed.

2. Test for behavioral response after initial capture.
Null hypothesis of model M(o) vs. alternate hypothesis of model M(b)

Chi-square value = 3.819 degrees of freedom = 1
Probability of larger value = 0.05068

3. Test for time specific variation in trapping probabilities.
Null hypothesis of model M(o) vs. alternate hypothesis of model M(t)

Chi-square value = 8.687 degrees of freedom = 5
Probability of larger value = 0.12223

4. Goodness of fit test of model M(h)
Null hypothesis of model M(h) vs. alternate hypothesis of not model M(h)

Chi-square value = 5.581 degrees of freedom = 5
Probability of larger value = 0.34910

Mark-recapture population and density estimation program Page 3
Program version of 16 May 1995 9-Dec-2010

rg2

Model selection procedure. See this section of the Monograph for details.
Group 1

5. Goodness of fit test of model M(b)
Null hypothesis of model M(b) vs. alternate hypothesis of not model M(b)

Chi-square value = 7.262 degrees of freedom = 4
Probability of larger value = 0.12265

5a. Contribution of first capture homogeneity across time

Expected values too small. Test not performed.

5b. Contribution of recapture homogeneity across time

Chi-square value = 7.252 degrees of freedom = 4
Probability of larger value = 0.12316

6. Goodness of fit test of model M(t)
Null hypothesis of model M(t) vs. alternate hypothesis of not model M(t)

Expected values too small. Test not performed.

7. Test for behavioral response in presence of heterogeneity.
Null hypothesis of model M(h) vs. alternate hypothesis of model M(bh)

Chi-square value = 0.667 degrees of freedom = 1
Probability of larger value = 0.41422

Model selection criteria. Model selected has maximum value.

Model	M(o)	M(h)	M(b)	M(bh)	M(t)	M(th)	M(tb)	M(tbh)
Criteria	0.89	0.68	0.44	0.91	0.00	0.75	0.43	1.00

Appropriate model probably is M(tbh)
No estimator results from this model.

rg2

Population estimation with constant probability of capture.
See model M(o) of the Monograph for details.
Group 1

Number of trapping occasions was 6
Number of animals captured, M(t+1), was 10
Total number of captures, n., was 30

Estimated probability of capture, p-hat = 0.5000

Population estimate is 10 with standard error 0.4189

Approximate 95 percent confidence interval 10 to 10

Profile likelihood interval 10 to 11

rg2

Population estimation with time specific changes in probability of capture.
See model M(t) of the Monograph for details.
Group 1

Occasion	j=	1	2	3	4	5	6
Animals caught	n(j)=	7	2	6	5	4	6

Total animals captured 10

p-hat(j)= 0.70 0.20 0.60 0.50 0.40 0.60

Population estimate is 10 with standard error 0.0053

Approximate 95 percent confidence interval 10 to 10

Profile likelihood interval 10 to 11

Histogram of n(j)

```
Frequency    7   2   6   5   4   6
-------------------------------------------
      7      *
      6      *       *           *
      5      *       *   *       *
      4      *       *   *   *   *
      3      *       *   *   *   *
      2      *   *   *   *   *   *
      1      *   *   *   *   *   *
-------------------------------------------
```

rg2

Population estimation with constant probability removal estimator.
See model M(b) of the Monograph for details.
Group 1

Occasion	j=	1	2	3	4	5	6
Total caught	M(j)=	0	7	9	10	10	10	10
Newly caught	u(j)=	7	2	1	0	0	0

Estimated probability of capture, p-hat = 0.714281

Estimated probability of recapture, c-hat = 0.434783

Population estimate is 10 with standard error 0.0751

Approximate 95 percent confidence interval 10 to 10

Profile likelihood interval 10 to 10

Histogram of u(j)

```
Frequency    7   2   1   0   0   0
-----------------------------------------
      7      *
      6      *
      5      *
      4      *
      3      *
      2      *   *
      1      *   *   *
-----------------------------------------
```


rg2

Population estimation with variable probability of capture by animal.
See model M(h) of the Monograph for details.
Group 1

Number of trapping occasions was 6
Number of animals captured, M(t+1), was 10

Total number of captures, n., was 30

Frequencies of capture, f(i)

i=	1	2	3	4	5	6
f(i)=	0	2	6	2	0	0

Computed jackknife coefficients

	N(1)	N(2)	N(3)	N(4)	N(5)
1	1.833	2.500	3.000	3.333	3.500
2	1.000	0.467	-0.233	-0.833	-1.167
3	1.000	1.000	1.225	1.542	1.750
4	1.000	1.000	1.000	0.956	0.914
5	1.000	1.000	1.000	1.000	1.001

The results of the jackknife computations

i	N(i)	SE(i)	.95 Conf. Limits		Test of N(i+1) vs. N(i)
0	10				Chi-square (1 d.f.)
1	10.0	0.00	10.0	10.0	2.250
2	8.9	0.00	8.9	8.9	0.002
3	8.9	1.49	6.0	11.8	0.261
4	9.5	2.83	4.0	15.0	0.488
5	10.0	3.57	3.0	17.0	0.000

The data are ill-conditioned. As a best guess, use

Average p-hat = 0.5000

Interpolated population estimate is 10 with standard error 0.4567

Approximate 95 percent confidence interval 10 to 10

Histogram of f(i)

```
Frequency    0   2   6   2   0   0
-------------------------------------
      6          *
      5          *
      4          *
      3          *
      2      *   *   *
      1      *   *   *
-------------------------------------
```


rg2

Population estimate under individual heterogeneity in capture probabilities.

See model M(h) of Chao (1988).
Group 1

Number of trapping occasions was 6
Number of animals captured, M(t+1), was 10
Total number of captures, n., was 30

Frequencies of capture, f(i)

i=	1	2	3	4	5	6
f(i)=	0	2	6	2	0	0

Average probability of capture = 0.5000

Population estimate is 10 with standard error 0.0000

Approximate 95 percent confidence interval 10 to 10

rg2
Population estimate under time variation and
individual heterogeneity in capture probabilities.
See model M(th) of Chao et al. (1992).
Group 1

Number of trapping occasions was 6
Number of animals captured, M(t+1), was 10
Total number of captures, n., was 30

Frequencies of capture, f(i)

i=	1	2	3	4	5	6
f(i)=	0	2	6	2	0	0

Estimator	Gamma	N-hat	se(N-hat)
1	0.0000	10.00	0.00
2	0.0000	9.74	0.00
3	0.0000	10.34	0.67

p-hat(j)= 0.70 0.20 0.60 0.50 0.40 0.60

Bias-corrected population estimate is 10 with standard error 0.6687

Approximate 95 percent confidence interval 10 to 13

rg2

S u c c e s s f u l E x e c u t i o n

Capture Matrix of the tiger capture data analysed above:

Tiger	Occasions					
	1	2	3	4	5	6
1	1	0	0	1	0	1
2	1	0	1	0	0	1
3	0	1	0	1	1	0
4	1	0	0	0	1	0
5	1	0	1	0	1	0
6	1	0	1	1	0	1
7	0	0	1	0	1	0
8	1	0	1	1	0	1
9	0	1	0	1	0	1
10	1	0	1	0	0	1

(VI) Analysis

- Every tiger captured was given a unique identification number viz. (MT-002), after examining stripe pattern on flanks, limbs, forequarters
- Following tiger identification, capture histories (X matrix) were developed and analyzed using the program MARK, CAPTURE and CARE.
- CAPTURE gives various probabilities models of the underlying capture-recapture process, that are likely to have generated the observed capture histories
- Analysis of capture history involves comparison between competing models using a series of hypothesis tests and results of an overall discriminant function test, in order to select the most appropriate abundance estimation model
- Assumption: sampled population was demographically and geographically closed during the sampling period

- Since the entire tiger reserve is camera trapped the total population within the reserve is estimated. Also the same area is camera trapped in consecutive years therefore the population is directly comparable and there is no need to compute density of tigers which adds variability and loss of precision to detect trends.

Annexure-VI

Capture-recapture Sampling using Camera Trapping [Mark Software Format]

Tiger ID	Trap Occasion (day)						
	1	2	3	4	5	6	n
1							
2							
3							
4							
5							
6							
7							
N							

Data to be entered as 01 format.

Annexure-VII

Data Sheet for Tiger, Other Animals & Human Sign Encounter Rate

Observer Name: _____ Date: _____ Start Time: _____ End Time: _____
Begin GPS: Lat: _____N, Long: _____E End GPS: Lat: _____N, Long : _____E
Forest Circle_____ Forest Block & Range: _____ Beat _____
Approx. Kms. travelled: _____Km. Time Spent in any other activity_____Min.

SL. No	Time	GPS Location (only for tiger sign)						*Animal Species	^Sign Type	Mangrove Type			Creek Bank Type			Sign		Width of mud flat (water to Mangrove edge)
		Lat.			Long.					Tall >10'	Medium 4-10'	Small <4'	Steep	Moderate	Gentle	Fresh	Old	
		D	M	S	D	M	S											
1.																		
2.																		
3.																		
4.																		
5.																		
6.																		
7.																		
8.																		
9.																		
10.																		
11.																		
12.																		
13.																		
14.																		
15.																		

* Animal species to be recorded: tiger, fishing cat, jackal, monitor lizard, crocodile, chital, wild pig, rhesus macaque, humans and others.
^ Sign types to be recorded are pugmark/hoof mark/foot print, scat/pellet (with condition), vocalization and direct sighting.

Data sheet 1 ctd…

1) Has any tigress with cubs been reported during the past 12 months?
Yes____No____Approximate date/month_____
a) Seen by staff, b) Pug Marks,
c) Reported by local persons, d) Seen by officials (√ the appropriate)
How many cubs _____, approximate age of cubs _____.

2) In case tigers are known to be present in the beat, but no sign was obtained during the sampling period then mention on what evidence was this conclusion made (pugmark, direct sighting, scat, other sign) _____.
Approximate date/month_____Tiger presence was last recorded in the beat.

3) How many livestock predation events have been recorded in the past 3 months, _____by tigers, which carnivores if known_____, _____, _____.

4) GPS Coordinates at all creek/channel junctions in serial order of survey

Sl.No.	Time	Lat			Long		
		Degree	Minutes	Second	Degree	Minutes	Second
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

5) Comments & Remarks:

_____

_____

Annexure-VIII

Encounter Rate on Line Transects

Observer Name: _____ Date: _____ Start Time: _____ End Time: _____

Begin GPS: Lat: _____N, Long: _____E End GPS: Lat: _____N, Long : _____E

Forest Circle_____ Forest Block & Range: _____ Beat _____

Approx. Kms. Travelled: _____Km.

S. No	Time	Species*	Total Number (Adults & Young)	Young	Mangrove Type			Bank Type			Perpendicular Distance of animal from water's edge	Activity of the animal(s) Basking, foraging, moving, etc.
					Tall >10'	Medium 4-10'	Small <4'	Steep	Medium	Gentle		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												

*Species that need to be recorded on the transect: chital, rhesus, macaque, wild pig, monitor lizard and estuarine crocodile and other mammalian species seen.

Annexure-IX

VEGETATION

(To be recorded at every 15 minute travel interval)

Name of Observer: ..... Date: ..... Forest Circle: ..... Forest Division.....

Range: ..... Beat: ..... ID No. of Line Transect: .....

Sl No	GPS Reading at every plot from beginning of creek transect						Location of Plot- Left side/ Right side	Tree Species (Descending Order of Abundance, (Give Names)					Grass/Herbs/Sedges Species (Descending Order of Abundance including reg. mangroves, all vegetation < 4 ft.)					Density of Vegetation 0 to 4 0- Open 4- very dense	Remarks
	Lat			Long															
	Deg	Min	Sec	Deg	Min	Sec		1	2	3	4	5	1	2	3	4	5		

Annexure-X

Human Disturbance

Name of Observer: ..... Date: ..... Forest Circle: ..... Forest Division.....
Range: ..... Beat: ..... ID No. of Line Transect: .....

Sl No	GPS locations of the beginning of creek transect and at every 15 min. travel interval thereafter						Human Disturbances 0-4 Rating, 0-None, 4-Very high			
	Lat			Long			Wood Cutting 0-4	Lopping 0-4	Fishing evidence seen from the vegetation plot Y/N	People Seen from the plot Y/N
1	Deg	Min	Sec	Deg	Min	Sec				
2										
3										
4										
5										
6										
7										
8										
9										
10										

Are there any permanent human settlements in the beat? *(Yes/No)*. If Yes, how many? _____. Approximate human population_____,

Is there NTFP collection in the beat_____*(Yes/No)*. If yes, what NTFP is collected_____, _____, _____, _____,

Rate NTFP collection on a scale of 0-4, 0-No to 4-Very high _____, _____, _____, _____,

Intensity of fishing .....and tiger prawn seed collection ..... in the beat at 0-4 scale *(0 is nil, 4 is very high)*

APPENDIX – LIII

(Para No. 10.5)

FINANCE DEPARTMENT

Madam Cama Road, Hutatma Rajguru Chowk,
Mantralaya, Mumbai 400 032, dated the 22nd January 2013

NOTIFICATION

CONSTITUTION OF INDIA,

No. MAAKHA-1011/C.R.52/2011/Viniyam.-In exercise of the powers conferred by article 166 of the Constitution of India the Governor of Maharashtra is hereby pleased to make following rules further to amend the Maharashtra Contingent Expenditure Rules, 1965 namely :-

1. These rules may be called the Maharashtra Contingent Expenditure (Ammendment) Rules, 2013.

2. In Maharashtra Contingent Expenditure Rules, 1965 after rule 39, under the heading statement referred to in rules 35, 36, 37 and 38, after Sr.No. 13, the following entries shall be added, namely :-

Sr. No.	Major Head of Accounts	Nature of Expenditure	Officers who will certify the expenditure	Controlling Officers	Remarks
1	2	3	4	5	6
14	2406 0096 41	Secret Services Fund – Grants and rewards to informers.	Concerned Chief Conservator of Forests (Territorial)	Deputy Conservator of Forests or Sub Divisional Forests Officer of Independent Forest Sub Division	
15	2406 0096 41	Secret Services Fund – Grants and rewards to informers concerning forest offences smuggling of timber, poaching and wildlife offences.	Concerned Additional Principle Chief Conservator of Forests (Wildlife) or Principle Chief Conservator of Forests (Wildlife)	Deputy Conservator of Forests (Wildlife) or Conservator or Chief Conservator of Forests, (Wildlife) Division or Circles, Field Directors of Tiger Reserves.	

3. In Appendix-I in Statement V, after entry 81, the following shall be added :-

"82. Reward to private person providing information in forests and wildlife cases."

APPENDIX - LIV

(Para No. 12.1)

ARTICLE ON CHOBING BY SHRI. A.R. MASLEKAR

(Photo Interpretation Officer, Preinvestment Survery of Forest Resources, Dehra Dun)

(Published in Indian Forester July, 1973 P.P. 446-448)

Departmental elephants at Allapalli, Chandrapur showed sings of cracking soles in 1965, One elephant, even showed advanced sign of "kari" which according to Milroy, is a serious unsoundness. However there was no discharge from cracks of any of the elephants and no soft soles were yet developed. But all the same it called for immediate treatment.

There were no details of the treatment to be given. There was only one entry in one 'Logbook' to the effect that 'Chobing' was carried out. I was then Sub Divisional Forest Officer, Allapalli, and was responsible for ten department elephants of the Sub Division. Mahouts were also pressing for early treatment.

I was quite new to this business. First I tried to get all the information I could collect on this disease. Our District Animal Husbandry Officer, who attended to all ailments of our animals could not throw any light. His advice was to give rest to the elephants and to apply vaseline I Mahouts did not much appreciate this. No English dictionary had this word 'chobing'. Nearest I could get was 'chopping' which meant strapping and strengthening. (Chambers 20th Century Dictionary). It is quite possible that 'chopping' became 'chobing' in the vocabulary of the elephant men. The disease was not quite similar to "kari" as described by milroy in his. "A Short Treatise on the Management of Elephants". We did not have Dr. Pillai's "Elephants, Their Capture, Care and Management" nor Evans' 'Elephants and their disease' for reference. So it was our Head Mahout Shri Made Chinna's prescription, which was received by him from his 'guru' in this field, that was tried.

Treatment involved idling the elephants at Head Quarters for atleast a week and also needed lot of ingredients us listed by the Mahouts. The Head Mahout had handled elephants for last twenty eight years. There were other who were experienced over twenty years. Necessary sanctions were obtained from my D.F.O. for chobing and giving rest to the animals, during and after treatment.

Requisite ingredients of the 'masala' were purchased and the elephants were called at Allapalli from different camps. The ingredients as listed by the Mahouts were as follows, sufficient for all ten elephants.

Harra Fruit	3 kg.
Baheda Fruit	3 kg
Emblica Fruit	3 kg
Nut meg	2 kg

CHOBING

Turmeric	2 kg
Dhobinut	1 kg
Kathu	1 kg
Alum	2 kg
Resin	1 kg
Soap stone	1 kg
Fine gerooo (Kao)	1 kg
Nagarmotha (Cyperus rotunda)	1 kg
Til Oil	30 liters

All above substances were pounded to get a coarse mixture which was then mixed into til oil and kept on fire overnight till a black, coal tar like, concoction was obtained.

Before starting the chobing, toe nails of all the elephants were trimmed. Splayed, crooked and curved nails were trimmed evenly. Incidentally the chips and shavings of toe nails were meticulously collected by the Mahouts and Chara Cutters. Local tribals, Gonds, very much prize the possession of the toe nails because of their believed protection from evil spirits. Nail chips and tail hairs are worn around necks, especially of children, in lockets.

It was not wonder then to find a crowd watching the trimming process. It is also probable that the Mahouts could make quick money from selling these chips and shavings.

During the trimming the tusks of two elephants, Surendragaj and Harihargaj were also cut at ends by about six inches each as they had cracks. Tusks were given strong iron rings after trimming. Ivory was later on auctioned at Ballarshah.

Soles of all the elephants were then scrubbed clean with wire brushes. Cracks and crevices were meticulously cleaned. It was also checked whether any one had soft soles or pus etc. Foot sores, cuts were treated. Corns in one case were cut and treated with iodine solution.

Chobing actually meant application of above said concoction to the soles. Same was applied hot with cloth and sunhemp brushes. Each elephant received two applications.

Elephants were confined to kraals at Allapalli. They were not left off in the jungle for nights as usual and were stall fed with banyan laves and bamboo shoots. This was of course in addition to their daily ration of 10 kg cooked rice, 1 kg gur and 250 gm of salt per animal.

Kraals were kept dry and floors were covered with hay.

Hot applications, which were like fommentation, were immensely enjoyed by one and all Elephants used to relax, even doze during treatment. Our oldest Cow elephant 80 year old Goharjan, used to sway from side to side with joy.

After a week of rest and two applications, elephant soles were found smooth, strong and horny as they should be. Cracks speedily healed up.

Total expenditure on purchase of material and stall feeding came to Rs. 900/-.This note may find interest with Forest Officers dealing with Department elephants. May be there are other treatments for this ailment

APPENDIX – LV

(Para No. 13.1)

GOVERNMENT OF MAHARASHTRA RESOLUTION FOR CONSTITUTION OF STATE LEVEL STEERING COMMITTEE DATED 13.08.2008

राज्यातील वाघ, त्यांचे सह शिकारी प्राणी (co-predators) व त्यांचे भक्ष्य प्राण्यांच्या संरक्षण व संवर्धनासाठी समन्वय व संनियत्रण करण्यासाठी राज्यस्तरीय समिती स्थापित करण्याबाबत....

महाराष्ट्र शासन
महसूल व वन विभाग
शासन निर्णय क्रमांक : डब्ल्युएलपी १०-०६/प्र.क्र.२१६/फ-१
मंत्रालय, मुंबई - ४०० ०३२.
दिनांक : १३/०८/२००८

संदर्भ :- १) सदस्य सचिव नॅशनल टायगर कंन्झर्व्हेशन ॲथोरिटी, नवी दिल्ली यांचे पत्र क्र. कक्ष-३(१)/ ५१/२००५-पीटी, दिनांक ५/९/२००६.
२) प्रधान मुख्य वनसंरक्षक (वन्यजीव), महाराष्ट्र राज्य, नागपूर यांचे पत्र क्र. कक्ष-२३(६)/ सी.आर.१७/०६-०७/१८५२, दिनांक १३/१०/२००६.

शासन निर्णय

वन्यजीव संरक्षण (सुधारणा) अधिनियम १९७२ (क्रमांक ३९/२००६) च्या कलम ३८ U ला अनुसरुन महाराष्ट्र राज्यातील वाघ, सह शिकारी व त्यांच्या भक्ष्य प्राण्यांचे संरक्षण व संवर्धनासाठी समन्वय व सनियंत्रण करण्यासाठी पुढीलप्रमाणे राज्यस्तरीय समिती स्थापित करण्यात येत आहे.

राज्यातील वाघ, त्यांचे सह शिकारी प्राणी (co-predators) व त्यांचे भक्ष्य प्राण्यांच्या संरक्षण व संवर्धनासाठी समन्वय व संनियंत्रण करण्यासाठी राज्यस्तरीय समिती :-

मा. मुख्य मंत्री	अध्यक्ष
मा. मंत्री (वने)	उपाध्यक्ष
अपर मुख्य सचिव (वने)	सदस्य
प्रधान मुख्य वनसंरक्षक, महाराष्ट्र राज्य, नागपूर	सदस्य
वनसंरक्षक व क्षेत्र संचालक, ताडोबा-अंधारी व्याघ्र प्रकल्प.	सदस्य
आयुक्त, आदिवासी संशोधन व प्रशिक्षण संस्था, पुणे	सदस्य
श्री. आर.एन. इंदूरकर, (निवृत्त मुख्य वनसंरक्षक (वन्यजीव) तथा मुख्य वन्यजीव रक्षक	सदस्य
श्री. विश्वास सावरकर, (निवृत्त संचालक, वाईल्ड लाईफ इन्स्टिट्युट ऑफ इंडिया, देहरादून)	सदस्य
डॉ. इरीक भरुचा (संचालक, स्कूल ऑफ एन्व्हायर्नमेंट सायन्स, भारती विद्यापीठ, पुणे)	सदस्य

आमदार श्री. नरहरी झिरवाळ (दिंडोरी)	सदस्य
आमदार श्री. आनंदराव गेडाम (आरमोरी)	सदस्य
श्री. रमेश नारायण वडस्कर, अध्यक्ष, जिल्हापरिषद, अमरावती	सदस्य
सचिव, सामाजिक न्याय व विशेष सहाय्य विभाग, मंत्रालय, मुंबई	सदस्य
प्रधान मुख्य वनसंरक्षक (वन्यजीव), महाराष्ट्र राज्य, नागपूर तथा मुख्य वन्यजीव रक्षक	सदस्य सचिव

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने,

स्वा/-
(शिरीष राणे)
विशेष कार्य अधिकारी
महसूल व वन विभाग

प्रति,

मा. मुख्य मंत्री, यांचे प्रधान सचिव, मंत्रालय, मुंबई - ४०० ०३२
मा. मंत्री (वने), यांचे खाजगी सचिव, मंत्रालय, मुंबई - ४०० ०३२
अपर मुख्य सचिव (वने), महसूल व वन विभाग, मंत्रालय, मुंबई - ४०० ०३२
प्रधान मुख्य वनसंरक्षक (वन्यजीव), महाराष्ट्र राज्य, नागपूर
प्रधान मुख्य वनसंरक्षक, महाराष्ट्र राज्य, नागपूर
वनसंरक्षक व क्षेत्र संचालक, ताडोबा-अंधारी व्याघ्र प्रकल्प, चंद्रपूर
वनसंरक्षक व क्षेत्र संचालक, मेळघाट व्याघ्र प्रकल्प, अमरावती
आयुक्त, आदिवासी संशोधन व प्रशिक्षण संस्था, पुणे
श्री. आर.एन.इंदूरकर, (निवृत्त मुख्य वनसंरक्षक (वन्यजीव) तथा मुख्य वन्यजीव रक्षक)
श्री. विश्वास सावरकर, (निवृत्त संचालक, वाईल्ड लाईफ इन्स्टिट्यूट ऑफ इंडिया, देहरादून)
डॉ. इरीक भरुचा (संचालक, स्कूल ऑफ एन्व्हायर्नमेंट सायन्स, भारती विद्यापीठ, पुणे)
आमदार श्री. नरहरी झिरवाळ (दिंडोरी)
आमदार श्री. आनंदराव गेडाम (आरमोरी)
श्री. रमेश नारायण वडस्कर, अध्यक्ष, जिल्हापरिषद, अमरावती
सचिव, सामाजिक न्याय व विशेष सहाय्य विभाग, मंत्रालय, मुंबई
प्रधान मुख्य वनसंरक्षक (वन्यजीव, महाराष्ट्र राज्य, नागपूर
फ-१ कार्यासन, महसूल व वन विभाग, मंत्रालय, मुंबई (निवडनस्ती)

APPENDIX – LVI
(Para No. 13.1)
GOVERNMENT OF MAHARASHTRA RESOLUTION FOR CONSTITUTION OF STATE LEVEL STEERING COMMITTEE DATED 07.02.2013

राज्यातील वाघ, त्यांचे सह शिकारी प्राणी (Co-predators) व त्यांचे भक्ष्य प्राण्यांच्या संरक्षण व संवर्धनासाठी समन्वय व संनियंत्रण करण्यासाठी राज्यस्तरीय समितीची पुनर्रचना..

महाराष्ट्र शासन
महसूल व वन विभाग
शासन निर्णय क्रमांक : डब्ल्युएलपी १०-०६/प्र.क्र.२९६ (भाग-१)/फ-१
मंत्रालय, मुंबई - ४०० ०३२
दिनांक : ७ फेब्रुवारी, २०१३.

संदर्भ :- १) शासन निर्णय, महसूल व वन विभाग, क्र. डब्ल्युएलपी १०-०६/प्र.क्र.२९६/फ-१, दि.१३/०८/२००८
२) शासन निर्णय, महसूल व वन विभाग, क्र. डब्ल्युएलपी २०१२/प्र.क्र.३०९/फ-१, दि.०९/११/२०१२.

शासन निर्णय :-

व्याघ्र प्रकल्पामध्ये पर्यटनासंबधी दाखल जनहित याचिका क्र. २१३३९/२०११ मध्ये सर्वोच्च न्यायालयाने दिलेल्या निर्णयाच्या अनुषंगाने व वन्यजीव (संरक्षण) अधिनियम, १९७२ च्या कलम ३८ O(१),(C) मधील व्याघ्र प्रकल्पातील निसर्ग पर्यटनासंबंधी नियम करण्याचे केंद्र शासनाने प्रदत्त अधिकारास अनुसरुन केंद्र शासनाच्या पर्यावरण व वन मंत्रालयाच्या, राष्ट्रीय व्याघ्र संवर्धन प्राधिकरण, नवी दिल्ली यांनी दिनांक १५/१०/२०१२ च्या अधिसूचनान्वये व्याघ्र प्रकल्प व त्याचे सभोवतासाठी मार्गदर्शन तत्त्वे जाहिर केली आहेत. सदर अधिसूचनेच्या २.१ मध्ये २.१.४ अनुसार वन्यजीव संरक्षण (सुधारणा), अधिनियम १९७२ च्या कलम ३८ (U) ला अनुसरुन स्थापित राज्यस्तरीय सुकाणू समितीने राज्य स्तरावील पर्यटन आणि व्याघ्र प्रकल्पातील निसर्ग पर्यटन धोरण यांच्या अंमलबजावणीबाबत आढावा घेणे आवश्यक आहे.

वन्यजीव संरक्षण (सुधारणा), अधिनियम १९७२ च्या कलम ३८ (U) ला अनुसरुन महाराष्ट्र राज्यातील वाघ, सहशिकारी व त्यांच्या भक्ष्य प्राण्यांचे संरक्षण व संवर्धनासाठी समन्वय व सनियंत्रण राज्यस्तरीय समितीची शासन निर्णय, दिनांक १३/०८/२००८ अन्वये स्थापना करण्यात आली आहे. सदर समितीच्या गठनास ४ वर्षापेक्षा जास्त कालावधी झाला असून समितीच्या काही पदांच्या नावात बदल झालेला आहे. तसेच नव्याने स्थापन झालेल्या व्याघ्र प्रकल्पांचा व काही नवीन सदस्यांचा समितीमध्ये समावेश करण्याच्या अनुषंगाने महाराष्ट्र राज्यातील वाघ, सहशिकारी व त्यांच्या भक्ष्य प्राण्यांचे संरक्षण व संवर्धनासाठी समन्वय व सनियंत्रण राज्यस्तरीय समितीची पुनर्गठन करण्याचा प्रस्ताव शासनाच्या विचाराधीन होता. आता या शासन निर्णयान्वये सदर समितीची पुनर्रचना खालीलप्रमाणे करण्यात येत आहे :-

१.	मा. मुख्य मंत्री	अध्यक्ष
२.	मा. मंत्री (वने)	उपाध्यक्ष
३.	मा.श्री. आनंदराव गेडाम, वि.स.स.	सदस्य
४.	मा.श्री. मानसिंग नाईक, वि.स.स.	सदस्य
५.	प्रधान सचिव (वने), महसुल व वन विभाग, मंत्रालय, मुंबई	सदस्य
६.	प्रधान मुख्य वनसंरक्षक (वन बल प्रमुख), महाराष्ट्र राज्य, नागपूर	सदस्य
७.	विभागीय आयुक्त, नागपूर	सदस्य
८.	मुख्य वनसंरक्षक व क्षेत्र संचालक, ताडोबा-अंधारी व्याघ्र प्रकल्प	सदस्य
९.	मुख्य वनसंरक्षक व क्षेत्र संचालक, मेळघाट व्याघ्र प्रकल्प	सदस्य
१०.	मुख्य वनसंरक्षक व क्षेत्र संचालक, पेंच व्याघ्र प्रकल्प	सदस्य
११.	मुख्य वनसंरक्षक व क्षेत्र संचालक, सह्याद्री व्याघ्र प्रकल्प	सदस्य
१२.	व्यवस्थापकीय संचालक, महाराष्ट्र राज्य पर्यटन महामंडळ	सदस्य
१३.	व्यवस्थापकीय संचालक, वन विकास महामंडळ मर्यादीत, नागपूर	सदस्य
१४.	आयुक्त, पशुसंवर्धन, महाराष्ट्र राज्य, पुणे.	सदस्य
१५.	श्री. विश्वास सावरकर (निवृत्त संचालक, वाईल्ड लाईफ इन्स्टिट्युट ऑफ इंडिया, देहराडून)	सदस्य
१६.	डॉ. इरीक भरुचा, अध्यक्ष, महाराष्ट्र राज्य जैवविविधता मंडळ, नागपूर	सदस्य
१७.	श्री. हेमेंद्र कोठारी, वाईल्डलाईफ कंन्झार्वेशन ट्रस्ट, मुंबई	सदस्य
१८.	प्रधान मुख्य वनसंरक्षक (वन्यजीव), महाराष्ट्र राज्य, नागपूर तथा मुख्य वन्यजीव रक्षक	सदस्य सचिव

महाराष्ट्राचे राज्यपाल यांच्या आदेशानुसार व नावाने,

स्वा/-
(विवेक खांडेकर)
सह सचिव (वने)
महसुल व वनविभाग

प्रति,

मा. मुख्य मंत्री, यांचे प्रधान सचिव, मंत्रालय मुंबई - ४०० ०३२
मा. मंत्री (वने), यांचे खाजगी सचिव, मंत्रालय मुंबई - ४०० ०३२
मा.श्री. आनंदराव गेडाम, विधानसभा सदस्य (आरमोरी)
मा.श्री. मानसिंग नाईक, विधानसभा सदस्य (शिराळा)
प्रधान सचिव (वने), महसुल व वनविभाग, मंत्रालय, मुंबई - ४०० ०३२
प्रधान मुख्य वनसंरक्षक (वन बल प्रमुख), महाराष्ट्र राज्य, नागपूर
प्रधान मुख्य वनसंरक्षक (वन्यजीव), महाराष्ट्र राज्य, नागपूर
व्यवस्थापकीय संचालक, वन विकास महामंडळ मर्यादीत, नागपूर
विभागीय आयुक्त, नागपूर
मुख्य वनसंरक्षक व क्षेत्र संचालक, ताडोबा-अंधारी व्याघ्र प्रकल्प, चंद्रपूर
मुख्य वनसंरक्षक व क्षेत्र संचालक, मेळघाट व्याघ्र प्रकल्प, अमरावती
मुख्य वनसंरक्षक व क्षेत्र संचालक, पेंच व्याघ्र प्रकल्प, नागपूर
मुख्य वनसंरक्षक व क्षेत्र संचालक, सह्याद्री व्याघ्र प्रकल्प, चंद्रपूर
व्यवस्थापकीय संचालक, महाराष्ट्र राज्य पर्यटन महामंडळ, मुंबई
आयुक्त, पशुसंवर्धन, महाराष्ट्र राज्य, पुणे
डॉ. इरीक भरुचा, अध्यक्ष, महाराष्ट्र राज्य जैवविविधता मंडळ, नागपूर
श्री. विश्वास सावरकर, (निवृत्त संचालक, वाईल्ड लाईफ इन्स्टिट्युट ऑफ इंडिया, देहराडून)
श्री. हेमेंद्र कोठारी, वाईल्डलाईफ कॉन्झार्वेशन ट्रस्ट, मुंबई
फ-१ कार्यासन, महसूल व वन विभाग, मंत्रालय, मुंबई. (निवडनस्ती)

APPENDIX – LVII
REPORT BUDGET FOR IMPLEMENTATION OF THE PLAN
(Para 13.7)

(Rs. In lakh)

Sr. No.	Activities	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Total
1	2	3	4	5	6	7	8	9	10	11	12	14
1	Relocation of village	1000.00	1500.00	1500.00	3340.00	1100.00	1100.00	500.00	500.00	500.00	500.00	**11540.00**
2	Boundary Demarcation and Maintenance	0.50	0.50	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	**7.50**
3	Protection hut & Check Nakas Construction and Maintenance	115.00	115.00	115.00	115.00	115.00	115.00	115.00	125.00	125.00	125.00	**1180.00**
4	Wages for labourers on protection hut	130.00	143.00	157.30	173.03	190.33	209.37	230.30	253.33	278.67	306.53	**2071.86**
5	Wall fencing in bordering revenue areas	223.20	244.80	266.40	288.00	309.60	338.40	360.00	381.60	403.20	432.00	**3247.20**
6	Fire protection Works	120.00	120.00	120.00	120.00	120.00	130.00	130.00	130.00	130.00	130.00	**1250.00**
7	Compensation for human/cattle	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	**100.00**
8	Roads/Culverts Construction and maintenance	120.00	120.00	120.00	120.00	120.00	120.00	150.00	150.00	150.00	150.00	**1320.00**
9	Wireless network maintenance and purchase of equipments/license fee	10.00	10.00	10.00	10.00	10.00	10.00	15.00	15.00	15.00	15.00	**120.00**
10	Vehicles purchase/ Replacement of old vehicles	25.00	25.00	25.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	**117.00**
11	Maintenance of patrolling jeeps & other vehicle	40.00	40.00	40.00	40.00	40.00	45.00	45.00	45.00	45.00	45.00	**425.00**
12	Buildings Construction and maintenance											
	1) Staff quarters maintenance	25.00	30.00	35.00	40.00	50.00	10.00	15.00	20.00	25.00	30.00	**280.00**
	2) Construction of new quarters	0	10.00	0	0	0	115.00	137.00	130.00	145.00	135.00	**672.00**
	3) STPF Complex maintenance	0	0	0	0	0	150.00	150.00	150.00	150.00	150.00	**750.00**
	4) Office Building maintenance	0	300.00	0	0	0	7.00	7.00	7.00	7.00	7.00	**335.00**

Sr. No.	Activities	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Total
1	2	3	4	5	6	7	8	9	10	11	12	14
13	Water Management	5.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	**95.00**
14	Meadow Development	50.00	50.00	50.00	50.00	70.00	70.00	70.00	70.00	70.00	70.00	**620.00**
15	Eradication of lantana and other weeds	2.50	2.50	2.50	3.00	3.00	3.50	3.50	3.50	3.50	3.50	**31.00**
16	Soil Conservation Works	3.00	5.00	5.00	5.00	5.00	10.00	10.00	10.00	10.00	10.00	**73.00**
17	Management of Wetlands and unique habitats	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20	**1.50**
18	Vaccination of Cattle and human health Care	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00	**70.00**
19	Saltlicks and Wallows	0.10	0.10	0.10	0.10	0.10	0.20	0.20	0.20	0.20	0.20	**1.50**
20	Population Estimation & equipments	3.00	160.00	3.00	10.00	3.00	3.00	3.00	10.00	3.00	3.00	**201.00**
21	Eco-Development Works	2.00	2.00	2.00	2.00	2.00	6.00	0	0	0	0	**16.00**
22	Eco-Tourism circuits	50.00	50.00	100.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	**550.00**
23	STPF Staff Salary and Allowance	265.40	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	270.00	**2695.40**
24	Staff Training and Field Tours	1.00	1.00	1.00	1.00	1.00	3.00	3.00	3.00	3.00	3.00	**20.00**
25	Project Allowance for staff	20.00	20.00	20.00	2.00	20.00	20.00	20.00	20.00	20.00	20.00	**182.00**
26	R.A. Incentives and Rewards to Staff & others	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	**20.00**
27	Amenities to Staff 1. Purchase of school Buses for staff children (2 Buses)	0	15.00	15.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	**44.00**
	2. Family quarters at Chandrapur for the staff posted in interiors (type-II & III)	5.00	2.00	2.00	2.00	2.00	28.00	28.00	28.00	28.00	28.00	**153.00**
28	Collection of Baseline Data	0.50	0.50	0.50	0.50	0.50	1.00	1.00	1.00	1.00	1.00	**7.50**
29	Application GIS in Management	1.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	**11.00**
30	Research Projects	1.00	2.00	3.00	4.00	5.00	7.00	9.00	11.00	13.00	15.00	**70.00**
31	Installation of bore well with solar water pump	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	33.00	**330.00**

Sr. No.	Activities	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	Total
1	2	3	4	5	6	7	8	9	10	11	12	14
32	Creations of well fencing with grill	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	**30.00**
33	Deepening of forest tank	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	6.00	**60.00**
34	Revival of streams by construction of loose boulder structures, gabion bandhara and cement check dams	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	**1000.00**
35	Desilting of the existing water holes in the core region of TATR	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	350.00	**3500.00**
36	Awareness programme	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	**50.00**
37	Captive Elephants maintenance	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	**50.00**
38	Purchase of medicine and rescue equipments	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	**50.00**
39	Intelligence gathering	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	**5.00**
	Grand Total	**2744.80**	**3777.00**	**3400.90**	**5191.73**	**3032.63**	**3368.17**	**2868.70**	**2930.33**	**2992.27**	**3045.93**	**33352.46**

APPENDIX –LVIII

(Para No. 14.2)

CONTROL FORMS

FOREST DEPARTMENT: MAHARASHTRA STATE

CONTROL FORM NO. 1

CONTROL FORM FOR 1/5TH BOUNDARY DEMARCATION

Prescribed operation vide para:				
Appendix No.:			**Division**	
Year	**Location of boundary (Name of Beat)**	**Target for the year (length) Km.**	**Short/Excess + in Red – in Blue**	**Total Cairns repaired**
1	**2**	**3**	**4**	**5**

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 2
CONTROL FORM FOR FIRE PROTECTION

Prescribed operation vide para:					
Appendix No.:				Division	
Year	Rage	Length of fire lines to be cut& burnt Km.	Length of fire lines cut & burnt during the year	Expenditure incurred	Short fall
1	2	3	4	5	6

Reasons for short fall	Accidental fires		
	Area burnt due to accidental fires	Nature of damage	Expenditure incurred
7	8	9	10

No. of fire watchers			Total Expenditure	Remarks
Prescribed	Actually appointed	Expenditure incurred		
11	12	13	14	15

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 3
CONTROL FORM FOR WATER SOURCES AND THEIR DISTRIBUTION

Sr. No.	Compt. No.	Water sources	Availability of Water			
			July-Sept.	July-Dec.	July-Mar.	July-June
1	2	3	4	5	6	7

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 4
CONTROL FORM FOR ROAD SIDE ANIMAL MONITORING

Km. Segment	Species	Animal Number	Side Left/ Right	Sex	Perpendicular Sighting distance mtr.)
1	2	3	4	5	6

Time of start & time of end is noted. This form will help to find animal abundance, density & sex ratio.

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 5
CONTROL FORM FOR HABITAT IMPROVEMENT

Year	Area tackled	Expenditure incurred	Observation area used by wildlife	Remarks
1	2	3	4	5

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 6
CONTROL FORM FOR ILLICIT CUTTING

Sr. No.	Compt. No.	Illicit cutting Timber/ Bamboo	Species cut	Implements used	Date	Case No. & Punishment
1	2	3	4	5	6	7

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 7
CONTROL FORM FOR SOIL AND MOISTURE CONSERVATION

Year	Name of Nala Tackled	Expenditure incurred	Remarks
1	2	3	4

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 8
CONTROL FORM FOR ANIMAL DESEASES

Sr. No.	Name of Animal species	Symptoms of Disease	Disease Diagnosis	Cause of Disease	Remedial measures taken	Mortality
1	2	3	4	5	6	7

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 9
CONTROL FORM FOR CROP DAMAGE

Sr. No.	Name of Village	Crop damage extent (Ha.)	Khasara No.	Cause of damage	Remarks
1	2	3	4	5	6

FOREST DEPARTMENT: MAHARASHTRA STATE
CONTROL FORM NO. 10
CONTROL FORM FOR ECO DEVELOPMENT WORK

Sr. No.	Name of village	Year	Expenditure incurred	Remarks
1	2	3	4	5

APPENDIX – LIX
(Para No.. 14.2)
PROFORMA OF DEVIATION PROPOSALS

Division	Compart-ment Number	Area (in Ha.)	Nature of Operation prescribed in Management Plan	Year prescribed in Management Plan for Operation	Actual year of Operation	Designa-tion of Inspection Officer	Reasons for Devia-tion
1	2	3	4	5	6	7	8

APPENDIX - LX

(Para No 4.2)

STATEMENT SHOWING THE DETAILS OF EXISTING WIRELESS NETWORK

Sr. No.	Base Station	Mobile Sets	Walkie-Talkie Sets
1.	Division Office, Chandrapur	1. Gypsy Tadoba	1. C.F. & F.D. -1
2.	Guest House, Tadoba	2. Jeep - 1 Kolsa	2. R.F.O.(Tadoba)-1
3.	Moharli Gate, Moharli	3. Jeep-II Moharli	3. R.F.O.(Moharli)-1
4.	Rest House, Kolsa	4. Jeep-III(Prote.)	4. R.F.O.(Kolsa)-1
5.	Check Naka, Khatoda	5. Minibus-I Chd.	5. R.F.O.(Protection)-1
6.	Check Naka, Navegaon	6. Minibus-II Tadoba	6. Park Officer (Tadoba)-1
7.	Check Naka, Kolara (New Gate)	7. Gypsy-ACF	7. R.O.(Moharli)-1
8.	Check Naka, Katezari	8. Sumo-F.D.	8.. R.O. (Karwa)-1
9.	Check Naka, Dewada	9. Car- F.D.	9. R.O. (Kolsa)-1
10.	Check Naka, Piperheti	10. Minitruck, Moharli	10. R.O.(Kolara)-1
11.	Check Naka, Zari	11. Minitruck, Kolsa	11. R.O. (Khatoda)-1
12.	Check Naka, Pangdi		12. R.O.(Bhanuskindi)
13.	Check Naka, Pahami		13. R.O. (Pangdi)
14.	Karwa gate-A		14. Beat All - 34
15.	Karwa gate-B		15. Range Officer Kolsa-1
16.	R.O. Head Quaarter Ashta		
17.	Protection Hut, Bhanuskindi		

APPENDIX - LXI
(Para No. 4.1)
STATEMENT SHOWING THE DETAILS OF OLD PLANTATION

Sr. No.	Year	Type	Area (Ha.)	Compt. No.
1	1959	Teak	8.00	278
2	1960	Teak	4.00	305
3	1961	Teak	20.00	143
4	1961	Teak	4.00	315
5	1962	Teak	20.00	143
6	1962	Teak	4.00	335
7	1963	Teak	10.00	315
8	1963	Teak	40.00	143
9	1964	Teak	40.00	144
10	1964	Teak	10.00	315
11	1965	Teak	60.00	141
12	1965	Teak	30.00	312
13	1965	Teak	10.00	335
14	1966	Teak	40.00	142
15	1967	Teak	40.00	141
16	1968	Teak	20.00	141
17	1969	Teak	20.00	144
18	1970	Teak	10.00	142
19	1971	Teak	30.00	145
20	1972	Teak	30.00	144
21	1973	Teak	30.00	143
22	1973	Teak	14.00	335
23	1974	Teak	45.00	144
24	1974	Teak	20.00	335

APPENDIX - LXII
(Para No. 4.1)
STATEMENT SHOWING THE DETAILS OF WORKS DONE IN THE PAST

Sr. No.	Name of works	Quantity	Year	Location
1.	Borewells	31 Nos.	1955-56 to 1995-96	All over the protected area
2.	Open Wells	30 Nos.	1955-56 to 1995-96	All over the Protected Area
3.	Construction of Roads		1956-57 to 1995-96	All over the Protected Area
	i) Tar Road	20.20 km		
	ii) Metal Road	44.985 km		
	iii) Murum Road	108.00 km		
	iv) Earthern Road	141.165 km		
	Total Length	**314.35 km**		
4.	Construction of Canteen	1 No.	1969-70	Tadoba
5.	Construction of Crocodile Breeding Centre	1 No.	1976-77	Tadoba
6.	Construction of artificial Water Tank	40 nos.	1979-80	All over the Protected Area
7.	Construction of Anicuts	9 Nos.	1980-81 to 1984-85	All over the Protected Area
8.	Construction of Water Holes	33 Nos.	1980-81 to 1995-96	All over the Protected Area
9.	Construction of Check Nakas / Barriers	15 Nos.	1980-81 to 1992-93	Tadoba & Moharli Ranges
10.	Construction of Culverts	38 Nos.	1980-80 to 1995-96	All over the Protected Area
11.	Construction of Watch Tower	16 Nos.	1982-83 to 1994-95	All over the Protected Area

Sr. No.	Name of works	Quantity	Year	Location
12	Development of Interpretation Centre	1 No.	1984-85	Tadoba
13.	Construction of Hides	15 Nos.	1986-87 to 1995-96	All over the Protected Area
14.	Meadow Development	--	1990-91 to 1995-96	Pandharpauni and Khatoda Meadows
15.	Development of Children Parks	2 Nos.	1990-91 to 1991-92	Tadoba and Kolsa
16.	Purchase of Minibus for Tourists	2 Nos.	1991-92	Tadoba and Chandrapur

APPENDIX - LXIII

(Para No. 7.2.2)

STATEMENT SHOWING THE DETAILS OF EXISTING BUILDINGS

Sr. No.	Type of Building	Year of Construction
	A) CHANDRAPUR	
1.	Type-V	1993-94
2.	Type-III	Not available handed over temporarily by Chandrapur Division
3.	Type-I Single Unit	Not available (handed over by Chandrapur Division)
4.	Type-II Single Unit	1992-93
5.	Type-II Single Unit	1993-94
6.	Bus Shed	1993-94
	B) TADOBA	
7.	Guest House	1962
8	Rest House No.1	1907
9	Rest House No. 2	Not available
10	Holiday Home	Not available
11	Inspection Hut NO. 1	1958
12	Inspection Hut No. 2	Not available
13	Chital Rest House	Not available
14	Rest House No. 3	Not available
15	Park Office	Not available
16	Range	Not available
17	Canteen	1969-70
19	Youth Hostel	1970-71
20	Out House of Guest House	1962
21	Store Room No. 1	Not Available
22	Store Room No. 2	Not Available
23	Out House of Rest House No. 1	Not Available
24	Engine Room No. 1	Not Available
25	Engine Room No. 2	Not Available
26	Pick-up Shed	Not Available
27	Generator Room	Not Available
28	Toilet near Canteen	Not Available
29	General Toilet near Rest House No. 1	Not Available
30	Toilet near Canteen	Not Available

Sr. No.	Type of Building	Year of Construction
31	Toilet near Guest House	Not Available
32	Shed near Tadoba Deo	Not Available
33	Shed near Reception Centre	Not Available
34	Museum-cum-information Centre	Not Available
35	Garage at Guest House	Not Available
36	Type - III Quarter Single Unit	1964-65/1965-66
37	Type - II Quarter Single Unit	1979-80/1980-81
38	Type - II-Quarter Single Unit	1983-84
39	Type - II Quarter Double Unit	1958-59
40	Type - II Quarter Double Unit	1965-66
41	Type - II Quarter Single Unit	1969-70/1970-71
42	Type - I Quarter Double Unit	1969-70/1970-71
43	Type -1 Quarter Double Unit	1969-70/1970-71
44	Type -1 Quarter Double Unit	1958-59
45	Type - I Quarter Four Unit	1965-66/1966-67
46	Type - I Quarter Four Unit	1965-66/1966-67
	KATEZARI	
47	Checking Naka	Not available
	KHATODA	
48	Rest Shed	Not available
49	Store Room	Not available
50	Toilet	Not available
51	Type - II Quarter Single Unit	1983-84
52	Type - I Quarter Single Unit	1960-61
53	Type - Quarter Double Unit	1972-73
	KOLARA	
54	Type -1 Quarter Double Unit	1969-70/1970-71
55	Type -1 Quarter Double Unit	1985-86
56	Type -1 Quarter Double Unit	1985-86
57	Type - II Quarter Single Unit	1989-90
	ASHTA	
58	Type - I Quarter Double Unit	1989-90
	BHANUSKHINDI	
59	Type -1 Quarter Double Unit	1985-86
	NAWEGAON (Ramdegi)	
60	Type -1 Quarter Single Unit	1971-72

Sr. No.	Type of Building	Year of Construction
61	Type -1 Quarter Single Unit	1980-81
62	Type -1 Quarter Single Unit	Not available
	WILODA	
63	Type - I Quarter Single Unit	1971-72
	WADALA	
64	Type -1 Quarter Single Unit	1968-69/1969-70
	KHUTWANDA	
65	Type - I Quarter Single Unit	Not available
	DEORI	
66	Type -1 Quarter Single Unit	1970-71
	(C) KOLSA RANGE	
67	Rest House	1971-72
68	Rest House (Not in Use)	1909
69	Type - II Quarter	Not available
70	Type - II Quarter	Not available
71	Type - I Quarter	1993
72	Type - I Quarter	Not available
73	Type- I Quarter	Not available
74	Type - I Quarter	Not available
75	Out House No. 1	Not available
76	Out House No. 2	Not available
77	Labour Shed	Not available
78	Engine House	1993
79	Checking Naka	Not available
	PAHAMI	
80	Labour Shed (Double Unit)	Not available
	PANGADI	
81	Labour Shed Double Unit	Not available
	PIPARHETI	
82	Type -I Quarter	1993
83	Checking Naka	1993
	BOTEZARI	
84	Type-I Quarter Botezari	
	DONI	
85	Checking Naka	1993

Sr. No.	Type of Building	Year of Construction
	ZARI	
86	Checking Naka	1993
	(D) MOHARLI	
87	Type - 1 Quarter Double Unit	1985-86
88	Check Naka	1992
89	Type-II Single Unit	1992-93
90	Type-II Single Unit	1992-93
	RANTALODHI	
91	Type - 1 Single Unit	1991-92
	DEWADA	
92	Type - I Single Unit	1989-90
93	Check Naka	1989-90

APPENDIX - LXIV

(Para No. 7.2.2)

STATEMENT SHOWING THE PROCUREMENT OF EQUIPMENT FOR FIRE FIGHTING

Sr. No.	Particular	Required items per unit	Number unit	No. of quantity	Total	Rate	Amount
1	Establishment of fire watch tower	A) Required items materials					
		1) Wireless walkie-talkie	1	10	1	10000	100000
		2) Binocular	1	10	10	4500	4500
		3) Compass	1	10	10	200	2000
		4) Drum	1	10	10	500	5000
		5) Flags	2	10	10	50	1000
		6) Maps	1	10	10	200	2000
		B) Required wages 3 labor x 12 days	360 man days	10	3600 man days	90	324000
						Total	**479000**
2	Fire Fighting Units (One in each Range)	a) Purchase of Vehicle	1	3 Unit	3	700000	2100000
		b) fire extinguishing/of equipments					
		1) Pulaski Tool	1	3 Unit	3	350	1050
		2) Brush hook	1	3 Unit	3	350	1050
		3) Double Bit/axe	1	3 Unit	3	350	1050
		4) Forest fire	1	3 Unit	3	250	750
		5) McLeod Tool	1	3 Unit	3	300	900
		6) Fire rake	1	3 Unit	3	350	1050
		7) Fire beater	6	3 Unit	18	205	3690
		8) bloar	1	3 Unit	3	10000	30000
		9) Uniform	10	3 Unit	30	1600	48000
		10) Walkie-Talkie (8 x 120 = 9600)	1	3 Unit	3	10000	30000
		D) Wages of driver (1 x 120 = 120)	120	3	360 day	150	54000
						Total	**2530540**

APPENDIX -LXV

(Para No. 7.2.2A4)

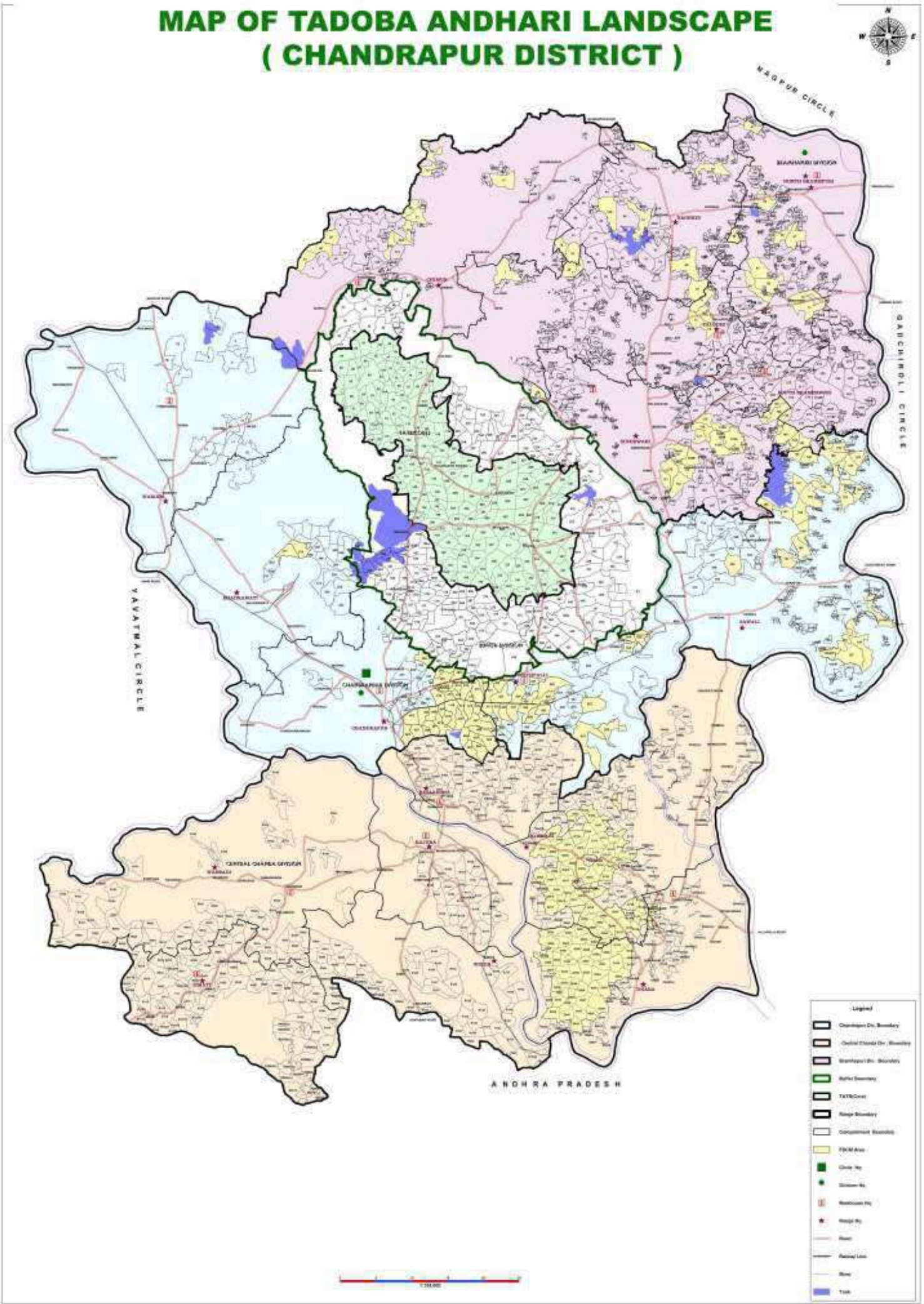
STATEMENT SHOWING THE PROPOSED CONSTRUCTION OF RUBBLE WALL AROUND WESTERN BOUNDARY OF TADOBA-ANDHARI TIGER RESERVE

(Rs. in lakhs)

Physical		Yearly Target	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Junona to Khutwanda	22.80	Physical	6 Km.	6 Km.	6 Km.	6 Km.	6 Km.	6 Km.	6 Km.	6 Km.	6 Km.	6 Km.
C.No. 114 to 117	8.500	Rate @	37.20	40.80	44.40	48.00	51.60	56.40	60.00	63.60	67.20	72.00
C.No. 118	2.500	Financial	**223.20**	**244.80**	**266.40**	**288.00**	**309.60**	**338.40**	**360.00**	**381.60**	**403.20**	**432.00**
C.No. 118	8.500											
65 to 63	3.800											
48 to 100	14.800											
Total	**60.90**											

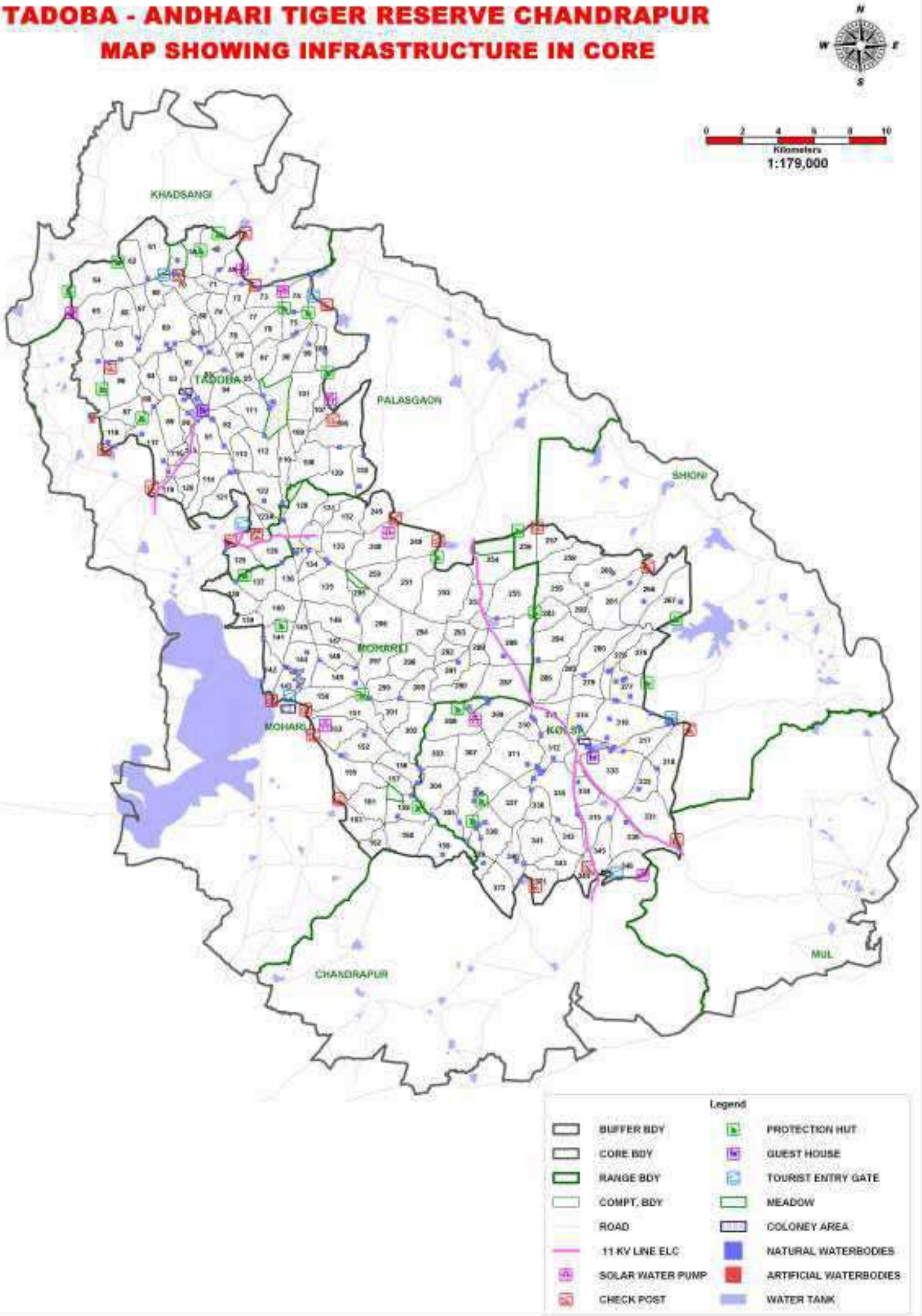
Note : Rates have been increased by 10% every year.

MAP OF TADOBA ANDHARI LANDSCAPE
(CHANDRAPUR DISTRICT)

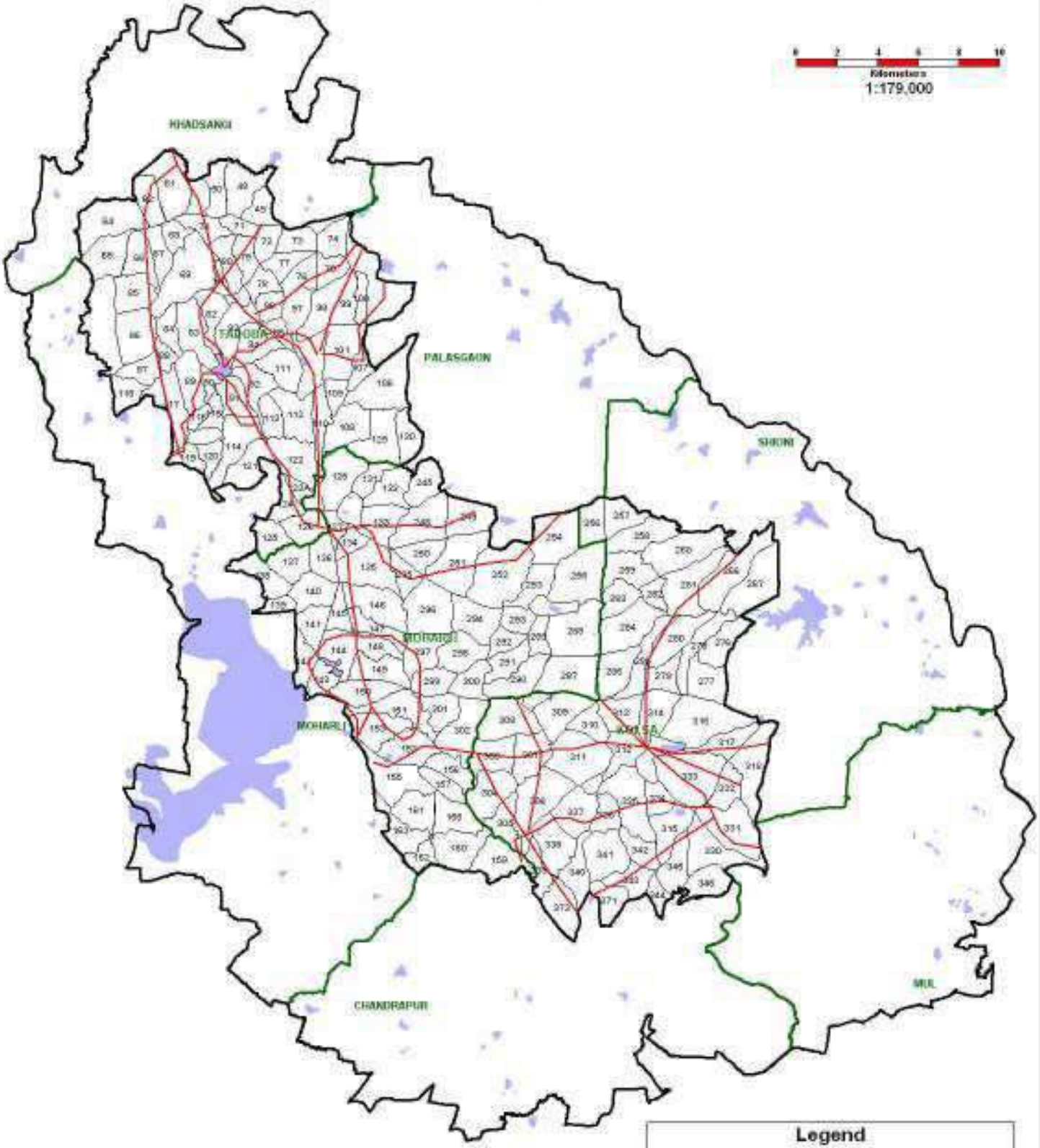


TADOBA - ANDHARI TIGER RESERVE CHANDRAPUR

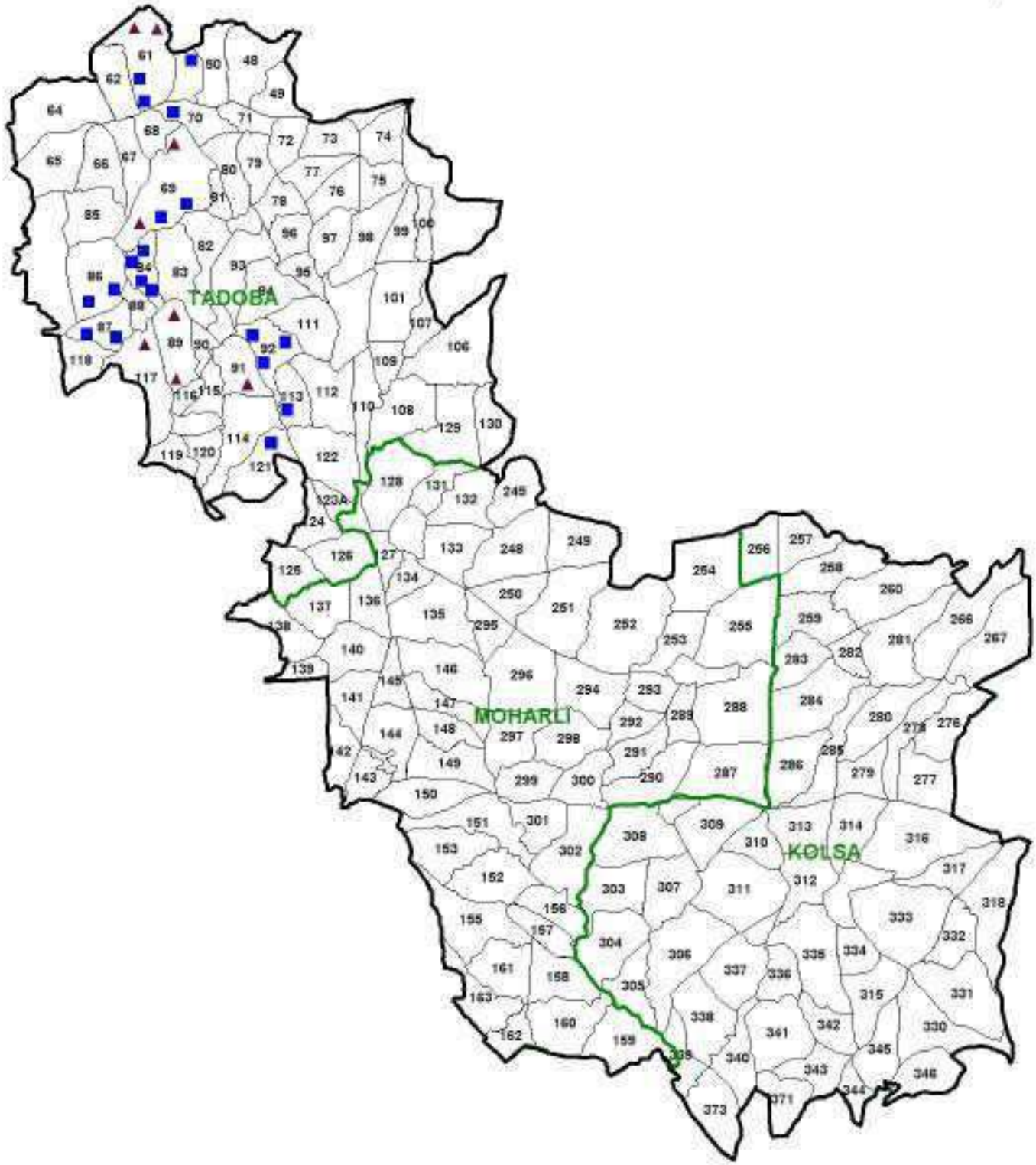
MAP SHOWING INFRASTRUCTURE IN CORE



TADOBA - ANDHARI TIGER RESERVE CHANDRAPUR
ECO-TOURISM ROUTE MAP TATR (CORE) CHANDRAPUR



MAP SHOWING CAVE & BURROW

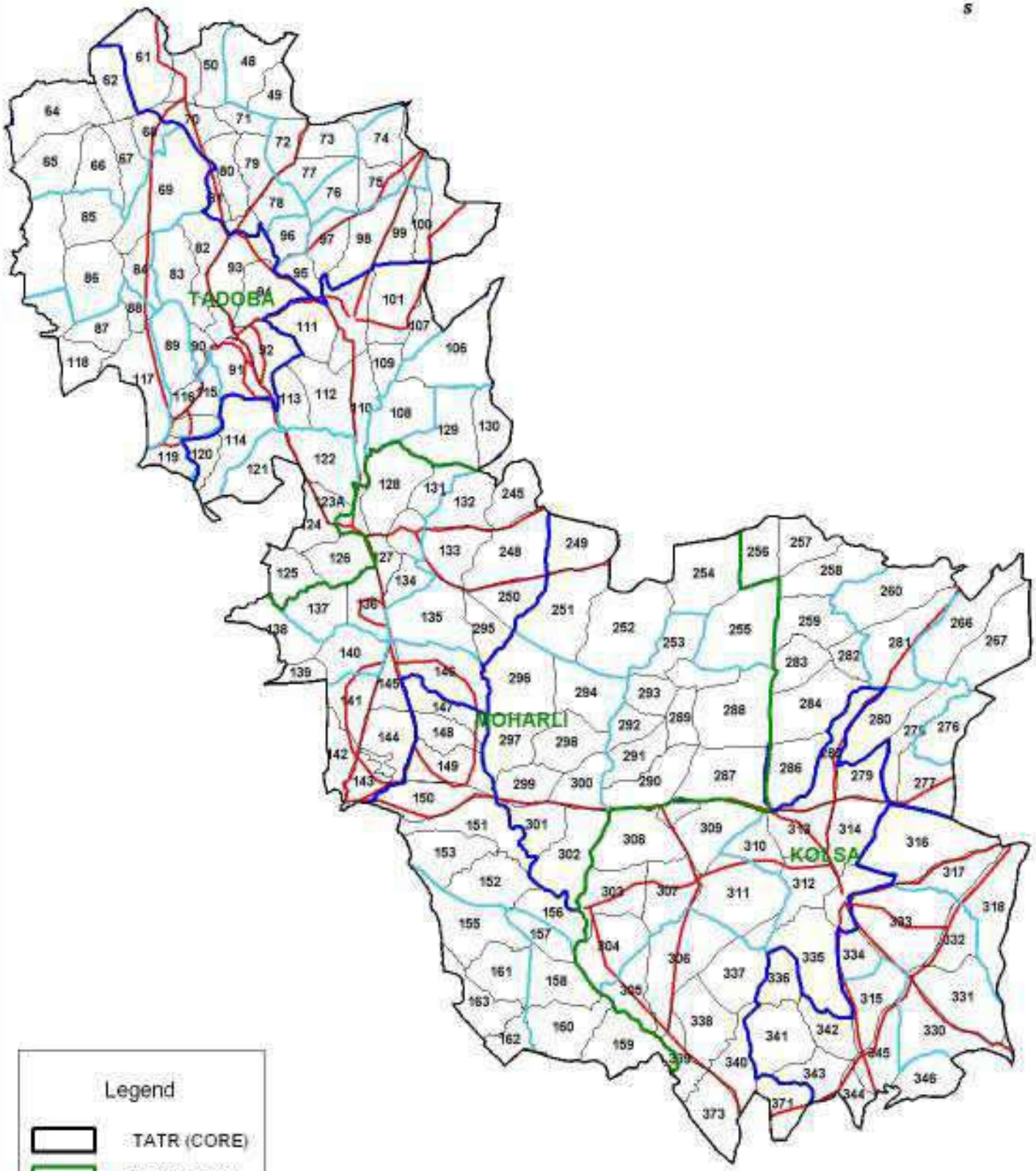


Legend

- TADOBA_BDY
- RANGE BDY
- COMPTT BDY
- CAVE
- BURROW

1:130000

MAP SHOWING RANGE,ROUND & BEAT

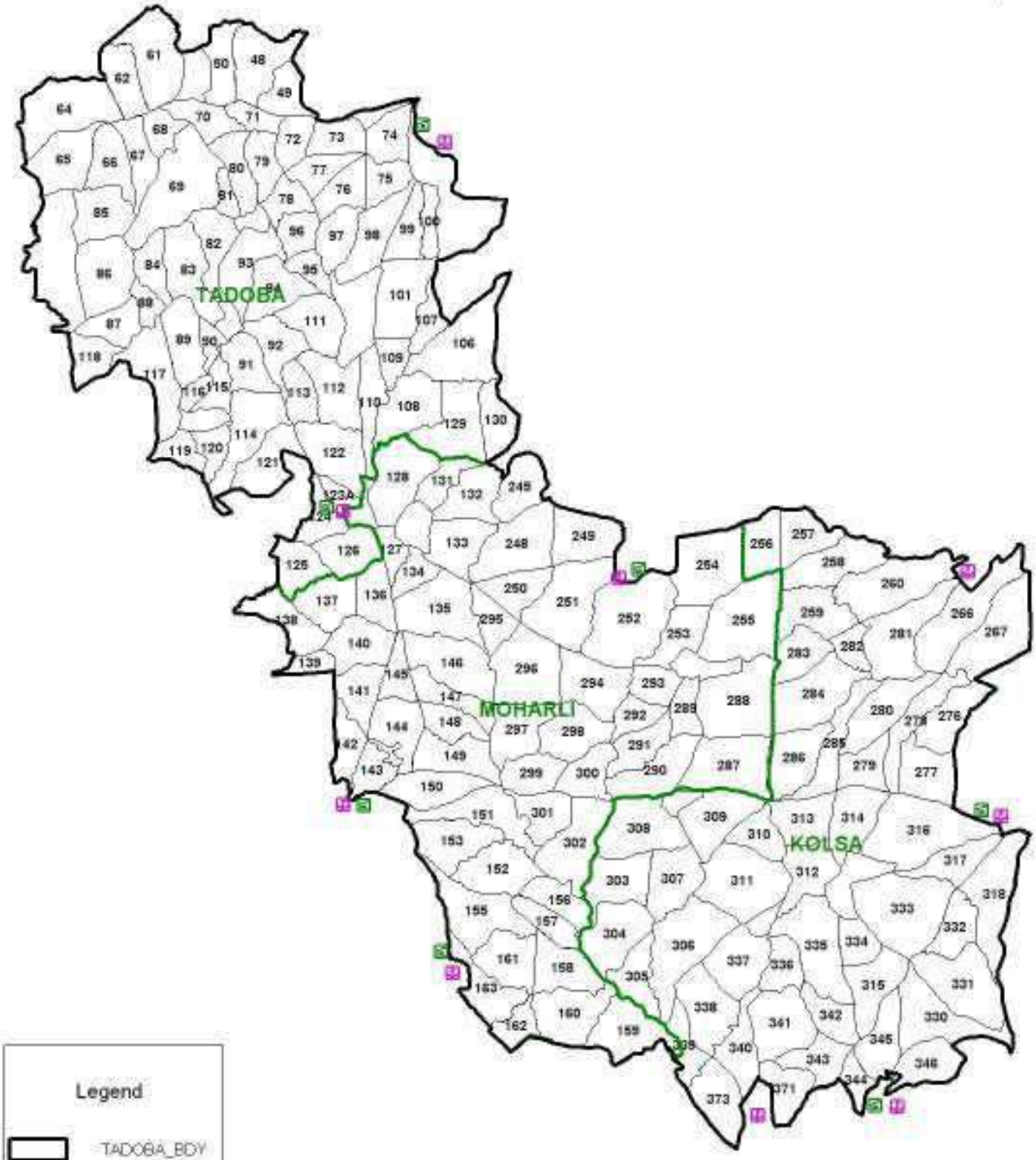


Legend

- TATR (CORE)
- RANGE BDY
- ROUND BDY
- BEAT BDY
- COMPTT BDY
- ROAD

1:125000

MAP SHOWING WIRELESS & CHECK NAKA



Legend

- TADOBA_BDY
- RANGE BDY
- COMPTT BDY
- WIRELESS
- CHECK NAKA

1:125000

CAMERA TRAP LOCATIONS AND CAPTURES OF TIGER IN CORE AREA OF TATR