



MANAGEMENT PLAN
2011-12 TO 2021-22
Van Vihar National Park Bhopal

By-
J.S.CHAUHAN
IFS
DIRECTOR
VAN VIHAR NATIONAL PARK
BHOPAL

ACKNOWLEDGEMENTS

Van Vihar National Park, Bhopal is a unique institution in the sense that it is not only a National Park, but also a Zoological Park, Conservation Breeding Center and Rescue Center. The VVNP was notified way back in February 1983, but the first Management Plan was written for the period from 2000-2010, by Shri Jagdish Chandra. One year extension was given by CWLW, M.P. & further extended for the year 2011-12

This is the second time Management Plan for the Van Vihar National Park has been prepared. A separate Zoo Master Plan of the Van Vihar Zoo has been prepared during 2010-11 and submitted to the Central Zoo Authority, New Delhi, on the basis of "Guidelines for Establishment and Scientific Management of Zoos in India" (CZA : 2008).

Revising any plan of an area for the is a mammoth job and require a lot of hard work and collection of data, which in turn can only be completed by team work and pooling of knowledge base from many persons and organisations.

In writing this plan, I received moral support and guidance from several persons. I would specially like to thank Dr. H.S. Pabla, I.F.S. Chief Wildlife Warden, Madhya Pradesh and also Shri R.S. Negi, PCCF (Working Plan), M.P. their valuable guidance and time

to time support. I am thankful to Shri T.R. Sharma, APCCF (Wildlife), M.P. , Shri Dharmendra Shukla, APCCF (Wildlife), Shri Vidhan Chandra, APCCF (Working Plan) and Shri Shahbaz Ahmed, CCF (Wildlife), M.P. for guiding me at each and every step. I am thankful to Shri S.S. Rajpoot, Chief Conservator of Forests, Bhopal for making presentation at the time of approval and also give me the valuable suggestion in completing the management plan. I am also thankful to my colleague of VVNP Mr. A.K. Khare, Asstt. Director, for his help in compiling the data, collection of information and in writing the management plan. I am also thankful to Shri Vijay Shrivastava, Range Forest Officer, Shri Rajeev Shrivastava, Range Forest Officer who have contributed in their respective capacities to complete this task. I also extend my special thanks to Dr. Atul Gupta, and Dr. Kajal Jadhav, Veterinary Doctors for their input especially about animal health care.

At the end but not least, I am thankful to Shri Rajesh Dixit, and Shri Santosh Rajput who worked with dedication to type, design and provided valuable secretarial support. I also extend my hearty gratitude to entire staff of the Director Office, Van Vihar and all those persons also, who provided their direct and indirect support for writing this plan and whose names are not mentioned here.

(Jasbeer Singh Chauhan)
I.F.S.
Director
Van Vihar National Park Zoo,
Bhopal

THE EXECUTIVE SUMMARY

The Van Vihar National Park, Bhopal was notified vide M.P. Government Gazette Notification No. 15-1-83-X-2 dated 18th January 1983 and which was published in government Gazette on 18th February 1983 and VVNP was declared as National Park w.e.f. 1983. The Central Zoo Authority recognized it as a Medium Sized Zoo on 24th Nov. 1994. The VVNP Zoo was notified with 445.21 Ha. of Govt. and Private land of villages Dharampuri, Aamkheda and Prempura. It is located in the heart of Bhopal city and lies between 23°13'02" North to 23°14'31" North latitude and 77°21'16" East to 77°23'34" East longitude.

The National Park has unique distinction of amalgamation of National Park, Zoological Garden, Rescue Center and Conservation Breeding Center. This park caters more than 1200 free ranging ungulate population, about 211 recorded species of birds and 35 species of butterfly etc. give it a National Park character, whereas carnivores and reptiles are managed on the lines of modern zoological garden. It is the only rescue center of Central India, which is harbouring number of wild animals rescued from circuses, madaries and stray wild animals. The park has also been designated as a coordinating zoo for conservation breeding of Royal Bengal Tiger and participating zoo for Asiatic Lion and Gyps Vultures and also have plan of conservation breeding of Hardground Barasingha.

The Part-I of the plan consist of introduction of the park and appraisal of present arrangement and constraints. In the Chapter-I introduction to the area covers history, legal status and location etc. It includes status of land acquired, approach and access.

The National Park has 3.240 Km of land boundary and 5.214 Km of boundary with the lake. Among physical features, geology of the park is mainly deccan trap, underlying basaltic rocks and have red laterite and black cotton soil. The terrine is semi-hilly to plain. In the climate rainfall pattern, temperature, humidity, wind speed and draught etc are discussed. Natural and artificial water resources, flora and fauna of the area and source of pollution to the park are also elaborated in the chapter.

In the appraisal of the present arrangement and constraints, the various arrangements which are in place in different sections like animal, veterinary, store and feed, health, hygiene and sanitation, maintenance, security, water supply, visitor's amenities, land escape, administration, staff accommodation and vehicles are being elaborated. Animal collection plan of the existing animals along with their source of procurement are also detailed here. Among other present arrangement general administration, research, conservation breeding, education and awareness, road and trekking network, fire protection etc. have also been outlined in this chapter.

Part-II of the Management Plan deals with the proposed management. It includes plan objectives, mission statements and vision statement for the National Park. The zonation of area based

on the functional classification is also provided here. From management point of view the area divided into free ranging animal zone, captive animal zone, administrative zone, tourism zone and old animal zone. The park map has been digitized with the help of IT section of M.P. Forest Department. All the map are shown in Appendix.

The future action plan has incorporated proposal to address inadequacies and shortcomings identified in the appraisal report. In animal section, detail category-wise discussion on display, conservation breeding and free ranging has been taken up. It includes details of existing infrastructure, renovations and new facilities required in various categories. Under veterinary section, the infrastructure requirement inclusive of equipment and other allied essential things have been discussed. Store and feed section has taken into account feed for carnivores, free ranging animals and bear rescue center. Health, Hygiene and Sanitation covers vaccination, hygiene protocol, record keeping and other requirements. Maintenance of infrastructure, security, water supply, landscape, administration, staff accommodation, rescue squad, fire protection, vehicle, research and study etc. have also been elaborated. Among the visitor amenities all the issues viz. parking, transport, footpath, road, toilets and drinking water, signages, interpretation etc. have been discussed. Conservation breeding plan for Tiger, Asiatic lion, Gyps vulture, Hard ground Barasingha have been outlined. The future extension of Van Vihar is also conceived as Van Vihar Phase-II.

Conservation education and interpretation have been discussed in one full chapter. One of the major objectives of the park is to provide the visitors through a well designed interpretation programme and opportunity to enjoy, experience, understand in appreciate nature and need to conserve wildlife. Analysis of visitation pattern and capacity building of staff for conservation interpretation in education has been outlined. Various interpretation facilities along with other useful tools of conservation education like signages, publication, special conservation education events, programs to enhance visitors involvement, web sites, guiding system have also been detailed. The importance of media and public relation and its proper use for conservation education is highlighted. Various extension and outreach activities have also been suggested.

Plan to address problem faced during the natural calamities or Disaster Management have also been discussed under Chapter Disaster Management. Flood, earthquakes, fire and civil disturbances are probable causes of situation which can cause damage or destruction of property and to the human and wild animals. The plan to meet out these kinds of disaster has been prescribed. Apart from natural calamities, there can be many contingent situations, which a park may face. Some possible key situations and plans to deal with them have been discussed. These situations for which contingency plan have been suggested include animals rescue from wild, escape of animals from enclosures, cattle and dog menace, arrangement of food in case of strike, snake bite, visitor injury and epidemics.

VVNP is directly under control of M.P. Forest Department and various initiatives in the field of e-governance have been taken up by the department and many of these are benefiting this park also. Among major e-governance initiatives are GIS based resource inventory, Forest Offence Management System, Fire Alert Management System, Accounting and Budgeting Management System, Communication Network, Training Facility and point of Sale Solution.

Broad budget analysis for implementation the plan has been discussed under recurring and non-recurring categories. The recurring expenditure required for the year 2011-12 and onwards have been projected and for later years with presumption of 10% hike every year, the necessary requirement of budgetary allocation shall be calculated, for arranging the same. Various non-recurring items of expenditures to be taken up in the next five year have been identified year-wise along with the approximate financial requirement to execute them.

CONTENTS

Particulars		Page No.
Executive Summary of the Management Plan		I-V
PART - I		
Chapter - 1		
Introduction to the Area		
1.1	Name, Location, Constitution and the Extent of area	01
1.1.1	Name	01
1.1.2	Location	01
1.1.3	Constitution & Legal status	01
1.1.4	Extent of area & Area Transferred	02-03
1.2	Approach & Access	03-04
1.3	Statement of Significance	04-05
Chapter - 2		
Background information and Attributes		
2.1	Boundaries	06
2.1.1	External Boundaries	07
2.2	Physical Features	07
2.2.1	Geology Rock and Soil	07
2.2.2	Topography	07-08
2.3	Climate	08
2.3.1	Rainfall Pattern and Distribution	09
2.3.2	Temperature	09-10
2.3.3	Humidity	10
2.3.4	Wind Speeds	11
2.3.5	Drought	11
2.4	Water Sources	11-12
2.4.1	Natural Resources	12
2.4.2	Man Made Water Resources	13
2.4.2.1	Wells	13-14
2.4.2.2	Tube Wells	14-16
2.5	Flora & Fauna	16

2.5.1	Flora	16
2.5.1.1	Natural Vegetation	17
2.5.1.1.1	Trees	17
2.5.1.1.2	Shrubs	17
2.5.1.1.3	Herbs	17
2.5.1.1.4	Climbers	17
2.5.1.1.5	Grasses:	18
2.5.1.2	Artificial (Man-made) plantations:	18
2.5.1.3	Survey for The Vegetation Analysis of Van Vihar	18-19
2.5.1.3.1	Method to survey the vegetation	19-20
2.5.1.3.2	Method to survey the forest resource	20
2.5.1.3.3	Method to analyze the biodiversity	20-23
2.5.1.3.4	Result of Vegetation Survey	23
2.5.1.3.5	Result of Biodiversity Analysis	23-24
2.5.1.3.6	Conclusion	24
2.5.2	Fauna	24-26
2.6.	Threat	26-27
2.6.1	Pollution	27
2.6.1.1	Water pollution	27
2.6.1.2	Garbage	27
2.6.1.3	Waste disposal	28
2.6.1.4	Agriculture waste	28
2.6.1.5	Singhada cultivation	28
2.6.1.6	Vehicular emission	28
2.6.2	Firing range	29
Chapter - 3		
History of Past Management & Present Practices		
3.1	General	30
3.2	Animal Section	30-35
3.2.1	Conservation breeding	35-37
3.2.2	Store & feed section	37
3.2.2.1	Carnivores	37-38
3.2.2.2	Herbivores	38-39

3.3	Protection section	39
3.4	Maintenance section	39
3.4.1	Electric section	40-41
3.4.2	Water supply section	41-42
3.4.3	Landscape section	42
3.4.4	Road and trekking network	42-43
3.4.5	Fire protection	43-44
3.5	Health & Hygiene	44
3.5.1	Animal health protocol	44
3.5.1.1	Carnivores	44-45
3.5.1.2	Herbivores	45-46
3.5.2	Sanitation	46
3.5.3	Veterinary section	46-47
3.5.4	Quarantine	47
3.5.5	Rescue Squad	47-48
3.6	Tourism section	48-49
3.7	Administrative section	49
3.7.1	General administration section	49-50
3.7.2	Staff Accommodation	50
3.7.3	Vehicle section	51-52
3.8	Research, Education & awareness	52
3.8.1	Research	52-53
3.8.2	Education & awareness	53-54
Chapter - 4		
The Protected Area & the Interface land use Situation		
4.1	Existing Situation in PA and in the impact zone	55
4.1.1	The location, extent, boundaries and natural attributes of the PA	55
4.1.2	Villages within PAs	56
4.1.3	Social and demographic structure	56
4.1.4	Socio-Economic status	56
4.2	The development programmes and Conservation Issues	56

PART - II		57
PROPOSED MANAGEMENT		
Chapter - 5		
Plan objectives and Problems		
5.1	The Vision & Mission Statement	58
5.1.1	Vision Statement	58
5.1.2	Mission Statement	58-59
5.2	Objectives of Management	59-60
5.3	Major issues	60-61
Chapter - 6		
Management Strategies		
6.1	Legal Status	62
6.2	Boundaries	63-64
6.3	Zone Plan	64
6.3.1	Free Ranging Animal Zone	64-65
6.3.1.1	Water Management	65
6.3.1.2	Weed eradication	66
6.3.1.3	Soil and water conservation works	66
6.3.1.4	Fodder farm and grass plantation	66-68
6.3.1.5	Salt lick, mineral and other supplements	68
6.3.1.6	Planting of shade trees	68
6.3.1.7	Landscape section	68-70
6.3.1.8	New enclosure	70
6.3.1.9	Quarantine	70
6.3.1.10	Translocation of animal from VanVihar	70-71
6.3.2	Captive animal zone	71-72
6.3.2.1	Off display Zone	72
6.3.2.2	Conservation Breeding zone	73
6.3.2.2.1	Tiger	73-74
6.3.2.2.2	Asiatic Lions	74
6.3.2.2.3	Gyps Vultures	75-76
6.3.2.2.4	Hard Ground Barasingha	76

6.3.2.3	Maintenance and upgradation of existing enclosures	76-79
6.3.2.4	Modification in existing enclosures	79
6.3.2.4.1	Hyena housing	79
6.3.2.4.2	Lion display enclosure	79-80
6.3.2.4.3	Leopard display enclosure	80
6.3.2.4.4.	Snake Park	80
6.3.2.4.5	Bear display enclosure	80
6.3.2.4.6	Shavak enclosure	80-81
6.6.2.4.7	Old bear facility	81
6.3.2.4.8	Crocodile and Gharial pond	81
6.3.2.5	New Enclosures	81-82
6.3.3	Tourism Zone	82
6.3.3.1	Animal display zone	83-84
6.3.3.2	Reptiles and Birds	84
6.3.3.2.1	Snakes	84-85
6.3.3.2.2.	Gharial	85
6.3.3.2.3	Mugger	85
6.3.3.2.4	Aviary	85-86
6.3.3.3	Visitors amenities	86
6.3.3.3.1	Nature Interpretation Centre (NIC)	86-88
6.3.3.3.2	Parking	88
6.3.3.3.3	Transport	88-89
6.3.3.3.4.	Pedestrian footpath and cycling lane	89
6.3.3.3.5	Road	89-90
6.3.3.3.6	Sit outs and shelters	90
6.3.3.3.7	Garbage collection	90
6.3.3.3.8	Toilet	90-91
6.3.3.3.9	Drinking water	91
6.3.3.3.10	Entry Gates	91-92
6.3.3.3.11	Cycling	92
6.3.3.3.12	Other services	92-93
6.3.3.3.13	Cafeteria and Kiosk	93
6.3.4	Administrative Zone	93-95

6.3.4.1	Veterinary Section	95-97
6.3.4.2	Store & Feed Section	97
6.3.4.2.1	Feed for carnivore	98-99
6.3.4.2.2	Feed for bears	99-100
6.3.4.2.3	Feed for other animals	100
6.3.4.3	Health, Hygiene and Sanitation	100-101
6.3.4.3.1	Health	101-103
6.3.4.3.2	Hygiene and Sanitation	103-105
6.3.4.4	Rescue squad	105-106
6.3.4.5	Maintenance Section	106
6.3.4.5.1	Buildings	106-108
6.3.4.5.2	Roads	108-109
6.3.4.5.3	Fire Protection	109
6.3.4.5.4	Electric Line	109-110
6.3.4.6	Safety and Security Section	110
6.3.4.6.1	Boundary wall	110-112
6.3.4.6.2	Chainlink Fencing	112-113
6.3.4.6.3	Night patrolling	113
6.3.4.7	Water supply Section	114-115
6.3.4.8	Vehicle Section	115
6.3.4.9	General Administration Section	116
6.3.4.10	Description of the layout plan	116
6.3.4.10.1	Composite Map	116
6.3.4.10.2	Animal Enclosure Map	116-117
6.3.4.10.3	Wildlife Health Management & Administration Map	117
6.3.4.10.4	Visitors facility Map:	117
6.3.4.10.5	Water Management Map:	117
6.3.4.10.6	Vegetation Map	117
6.3.5	Old Animal Zone / Rescue Centre	117-118
6.3.6	Van Vihar Phase-II	118-119
6.3.7	S.O.S. Wild life	119

Chapter - 7		
Tourism, Interpretation and Conservation Education		
7.1	General	120
7.2	Visitation	121
7.3	Capacity building of staff	121-123
7.3.1	Fields of training	123-124
7.3.2	Organising study tours	124
7.3.3	Modes of capacity building	124-125
7.3.4	Planning and Training programmes	125
7.4	Interpretation facilities	125-126
7.4.1	Interpretation Centre	126
7.4.2	Snake Interpretation Centre	126
7.4.3	Library	126-127
7.4.4	Plant and Tree labeling	127
7.4.5	Display boards/ signages	127-128
7.4.6	Publications	128-129
7.4.7	Brochure and leaflets	129
7.5	Conservation Education	129
7.5.1	Wildlife Week	129-130
7.5.2	Bird watching and nature camps	130-131
7.5.3	Nature walk / trekking	131-132
7.5.4	Animal keeper's talks	132
7.5.5..	Film shows and exhibition	132-133
7.5.6	Safari	133
7.6	Visitor's involvement	133
7.6.1	Friends of Van Vihar	133-134
7.6.2	The animal adoption	135-137
7.6.3	Photograph of the week	137-138
7.6.4	Visitor of the day	138
7.6.5	Anti-plastic and other environment campaign	138
7.7	Events associated with animals	139
7.8	Web site	139
7.9	Guides	139-140

7.10	Park literature	140
7.11	Media & Public relations	140-141
7.12	Extension & outreach	141
7.12.1	Visits to school & colleges	142
7.12.2	School visits to the Park	142-143
7.13	Networking and partnerships	143-144
Chapter - 8		
Research, Monitoring & Trainings		
8.1	Research	145-146
8.2	Research Priorities	147
8.3	Monitoring and Population estimate	147-148
8.4	Staff welfare	148
8.4.1	Workers society	148
8.4.2	Insurance of animal keepers	148
8.4.3	Medical health camp	148
8.4.4	Vaccination	148
8.5	Shifting of animals beyond carrying capacity	149
8.6	Trainings	149
Chapter - 9		
Miscellaneous Issues		
9.1	Disaster Management	150-151
9.2	Basic emergency planning concepts	151-152
9.3	Flood	152-153
9.4	Food sanitation	153
9.5	Waste disposal and hygiene	153-154
9.6	Vector control	154
9.7	Fire	154-155
9.8	Civil disturbance	155-156
9.9	Animal escape	156
9.9.1	Information to appropriate	156
9.9.2	Restriction on tourist entry	156-157
9.9.3	Searching of animal	157
9.9.4	Rescue operation	157

9.9.5	Post rescue operation	157
9.9.6	Documentation	157
9.10	Other measures	157-158
9.11	Rapid response team	158
9.12	Equipment	158
Chapter - 10		
Schedule of Operations And Miscellaneous Regulations		
10.1	The Schedule	159
10.2	Record of Deviations & Implemented targets	160
Chapter - 11		
Budget analysis for implementing the plan		
11.1	Recurring Expenditure	161-163
11.2	Non Recurring Expenditure	164-166
Appendix		
I	Notification of National Park	167-170
II	Management of Tigers In Captivity	171
III	Management of Lions In Captivity	172
IV	Management of Leopards In Captivity	173
V	Management of Hyenas In Captivity	174
VI	Management of Jackal In Captivity	174
VII	Management of Gaur In Captivity	174
VIII	Management of Sloth Bears In Captivity	175-176
IX	Management Of Free Ranging Animals	177
X	Animals Occur Naturally	178
XI	Animal Census	179
XII	List of Carnivores Animals Received	180-181
XIII	Transfer of Animals From VVNP	182
XIV	The Death Details of Captive Animals	183-184
XV	Death Details of Free Ranging Animals	185-188
XVI	Checklist of Birds	189-196
XVII	List of Butterfly	197
XVIII	List of Plants	198-199
XIX	List of Grass	200

XX	Budget Allotment and Expenditure	201-213
XXI	Park Development Fund Works details	214-220
XXII	Entry Fee Notification	221
XXIII	Visitors Information	222
XXIV	Park Development Fund Collection	223
XXV	Average Max. And Min. Temperature	224-225
XXVI	Average Max. and Min. Daily Temperature	226-227
XXVII	Relative Humidity (%)	228-229
XXVIII	Wind Speed	230
XXIX	Rainfall Data In Mm	231
XXX	List of Buildings	232
XXXI	List of Fire Line	233
XXXII	Boundary Wall information	234-238
XXXIII	Chainlink Fence information	239
XXXIV	List of Animal Adoptions	240-241
XXXV	List of Rescue Squad Materials	242-246
XXXVI	List of Rescue Operations	247-248
XXXVII	Snake Rescue & Release detail	249
XXXVIII	Per ha. Girth Classwise Number of Tress	250
XXXIX	Important Value Index of Different Vegetation Categories	251-252
XL	List and Digitised Maps	253-261

LIST OF APPENDIX

No.	Particulars	Page No.
I	Notification of National Park	167-170
II	Management of Tigers In Captivity	171
III	Management of Lions In Captivity	172
IV	Management of Leopards In Captivity	173
V	Management of Hyenas In Captivity	174
VI	Management of Jackal In Captivity	174
VII	Management of Gaur In Captivity	174
VIII	Management of Sloth Bears In Captivity	175-176
IX	Management Of Free Ranging Animals	177
X	Animals Occur Naturally	178
XI	Animal Census	179
XII	List of Carnivores Animals Received	180-181
XIII	Transfer of Animals From VVNP	182
XIV	The Death Details of Captive Animals	183-184
XV	Death Details of Free Ranging Animals	185-188
XVI	Checklist of Birds	189-196
XVII	List of Butterfly	197
XVIII	List of Plants	198-199
XIX	List of Grass	200
XX	Budget Allotment and Expenditure	201-213
XXI	Park Development Fund Works details	214-220
XXII	Entry Fee Notification	221
XXIII	Visitors Information	222
XXIV	Park Development Fund Collection	223
XXV	Average Max. And Min. Temperature	224-225
XXVI	Average Max. and Min. Daily Temperature	226-227
XXVII	Relative Humidity (%)	228-229
XXVIII	Wind Speed	230
XXIX	Rainfall Data In Mm	231
XXX	List of Buildings	232
XXXI	List of Fire Line	233
XXXII	Boundary Wall information	234-238
XXXIII	Chainlink Fence information	239
XXXIV	List of Animal Adoptions	240-241
XXXV	List of Rescue Squad Materials	242-246
XXXVI	List of Rescue Operations	247-248
XXXVII	Snake Rescue & Release detail	249
XXXVIII	Per ha. Girth Classwise Number of Tress	250
XXXIX	Important Value Index of Different Vegetation Categories	251-252
XL	List and Digitised Maps	253-261

CHAPTER – 1

Introduction to the Area

1.1 Name, Location, Constitution and the Extent of area

1.1.1 Name

This Management Plan is proposed for Van Vihar National Park Bhopal M.P.

1.1.2 Location

The Van Vihar lies between 23.13.2 to 23.14.31 N Latitude and 77.21.16 to 77.23.34 E Longitude. Its location is in the heart of Bhopal town on eastern bank of upper lake. The location map of Van Vihar National Park is shown in **Figure-1**.

1.1.3 Constitution and Legal Status

The Van Vihar National Park was notified vide M.P. Govt. Gazette notification number 15-1-83 (ten)-2 dated 18-2-83, w.e.f. 26-1-83 as a National Park, the notification is enclosed as Appendix-XXVIII. The barren area of 445.21 hectare notified as Van Vihar National Park, under strict vigil and protection has now been transformed into a mosaic of vegetation. Van Vihar is a classic example of clothing a denuded land with woody green fabric within a span of two decade. It is a typical amalgamation of in-situ and ex-situ conservation of wild fauna and flora. Later on Central Zoo Authority has recognized it is a Medium sized Zoo on 24-11-1994. At present vide Central Zoo Authorities letter F.No. 19-

27/92-CZA(144) (Vol.V) (M) dated 8/10/2010 the zoo has been designated as small zoo.

1.1.4 Extent of area and Area Transferred:-

The land incorporated in the VVNP is either Government land, Revenue land or private village and agriculture land. The map showing status of land before acquisition of VVNP is shown in table 1.1. The forest department acquired this land by paying the desired compensation to the villagers and the revenue department. Details of the land acquired are as follows:

Table 1.1
Status of land acquired for VVNP

Name of the village	Government Land (in Ha.)	Acquired Land (in Ha.)	Total Area (in Ha.)
Dharampuri	142.14	-	142.14
Amkhera	102.95	-	102.95
Prempura	143.20	56.92	200.12
Total	388.29	56.92	445.21

A crescent shaped 5.0 kms long asphalt road provides a good lake-view in the National Park, connecting both the gates of the Park. Initially this road was constructed to make the lake view drive a recreation spot for the local people, now act as the main tourist road for the visitors of the park.

Van Vihar National Park and Zoo is rare combination of thrills of jungle and learning experience of a Zoo. The

wilderness of VVNP within the municipal limits of Bhopal Municipal Corporation offers great attraction to variety of visitors, bird watchers, picnickers and nature lovers.

Van Vihar is an abode of avifauna, free ranging ungulates and captive carnivores in the midst of greenery. It is an important destination in the tourist map of Bhopal Town. Recently, it was adjudged as "*Most Favoured Tourist Destination*" of Bhopal in a survey conducted by a leading Hindi daily "Dainik Bhaskar". The characteristic mosaic of wet riparian stretch, plains, grasslands, shrubby vegetation, water pools, rugged slopes, mixed bamboo forest and patches of mixed plantations enriches the floral and faunal diversity of the area. This oasis of vegetation plays a vital role as carbon sink for the environmental health of the city of lakes. It is a part of the catchments of Upper Lake that releases relatively silt and pollution free water in the reservoir.

1.2 Approach & Access -

There are two entry gates of Van Vihar, known as Ramu and Cheeku Dwar. The National Park can be accessed by any of the above two gates. The Ramu Dwar is on the museum of man side, which can be approached from shyamla hills area. The Cheeku Dwar is convenient from Jawahar Chowk, Nehru Nagar and Bhadbhada road area.

The park is well connected by road network of both gates. It is easily accessible from all the important places within Bhopal city including railway station and the aerodrome. The

distances from the VVNP to the various important points are shown in table 1.2.

Table 1.2
Distances from different places

Places	Distance from	
	<i>Ramu Dwaar</i>	<i>Cheeku Dwaar</i>
Main Railway Station	7km	10km
Aerodrome	12km	15km
Bus stand	8km	11km

1.3 Statement of Significance

Since independence there was strong thinking that a natural area should be developed within the periphery of township of Bhopal. As back as in 1971, the Chief Minister of Madhya Pradesh suggested that an area of around 1000 acre by the side of Upper Lake near lake view drive should be reserved for Zoological/ Botanical garden and a golf course. It was only a suggestion and clear picture came out in February 1977 when a formal decision was made to establish Zoo at Bhopal at the same location.

An area of 299.30 acre was earmarked in the year 1978 out of this 299.30 acre, 207.84 acre was private land. Area of 299.30 acre was smaller in comparison with other Zoological garden like Nehru Zoological Park (700 acre) and Nandankanan (1200 Acre). The concept of Van Vihar was not a tiny conventional Zoo but rather a bigger park with enough ranging ground for carnivores and herbivores with recreation, educational and conservation activities. In early 1980s, the

Govt. of Madhya Pradesh decided to formulate the VVNP in which around 1000 hectare of land was proposed by committee of experts, in which only 445.21 hectare of area could be made available to form the Park. Most of the proposed land for the Park was either Government revenue land or private village agriculture land of villages' viz. Prempura, Dharampuri and Amkhera. To acquire the above land, an amount of Rs. 23.52 lakhs was paid as compensation to the villagers for acquiring the land.

The main gate of the Park (gate number one) is situated near the Museum of Man is called 'Ramu Dwaar', named after a dedicated forest guard Ramu, who was killed by blue bull on 7th March 1983, while performing duties. Another gate (gate number two), exists near village Prempura towards Bhadbhada dam, named after the first tiger of Van Vihar is Cheeku, called as 'Cheeku Dwaar'. The tiger Cheeku died on 17th May 1984

VVNP is an important institute in Bhopal which provides conservation education to the visitors. This institute needs to be strengthening and to make it more diverse in activities; VVNP can be given a formal mandate to co-ordinate conservation education and wildlife research for the state of MP.

CHAPTER – 2

Background information and Attributes

2.1 Boundaries

The Van Vihar National Park lies at the eastern bank of Bhopal Lake. The eastern boundary starts from village Prempura. This boundary continues towards the upper ridge of the hill making a common boundary with Police line and Museum of Man (Manav Sangrahalay). The boundary of the park is constructed with rubble masonry wall of 2.0 to 3.0 meter height. This masonry wall 1.50 mts high chain link of 4x4 inch mesh size has been provided on the wall supported with angle iron poles with Y-shaped forking toward the top for effective animal proofing. This fencing ends at Ramu Gate and thereafter, the western boundary is submerged under water and is fenced by chain link fencing, which is 5-6.5 meter in height.

The whole area under submergence could not be covered due to consistent water depth on lake side. Unprecedented low rainfall during 2008, monsoon gave chance to cover left over area in 2009 by creating new fencing along with the actual boundary on the lake side. The concrete boundary pillars have been erected on various points along the lake as a demarcation points and fencing is done connecting with these pillars.

2.1.1 External Boundaries :-

The boundaries are defined as under :-

Northern : Pillar 13 to pillar 27 submerged in upper lake fenced with chainlink fencing..

Eastern :- Pillar no 27 on Ramu gate towards boat club up to Cheeku gate towards Prempura village made up of stone masonry wall

Southern : Pillar 1 to pillar 3 submerged in upper lake fenced with chainlink fencing.

Western : Pillar 4 to pillar 13 submerged in upper lake fenced with chainlink fencing.

2.2 Physical features

2.2.1 Geology, Rock and Soil

Geology of the Park is comprised of Deccan trap underlying basaltic rocks, which are exposed on the cliffs. These basaltic rocks are red brown laterite of Vindhyan formation of Bhandar sandstone. Apart from red laterite soil on the plateau, black cotton soil is found in the lower plains with good soil depth. However, soil depth on the plateau is very less varies from few centimeters to one meter.

2.2.2 Topography

Most of the park area is undulating varying from gentle to steep slopes. These hills fall in the Vindhyan ranges varying from plain valley from small hillocks to plateau. Maximum area of the park is covered by western slope. This slope runs from

Northern Ramu gate to Southern Cheeku gate. The whole National Park is part of the catchment area of Upper Lake, Bhopal. Around 65-75% of the Park area is covered by hills and plateau, rest of the terrain is plain.

2.3 Climate

Since the Park lies almost in the heart of Bhopal town, thus the climate of VVNP does not differ much from it. However, the Upper Lake does affect the local microclimate of this area by lowering temperature around 1 to 1.5 degree Celsius as compare to downtown Bhopal.

Climate is hot and dry for about 7 months. Rains from southwest Monsoon, from June-end till mid-September, bring much pleasure in the sense that weather then becomes milder with average relative humidity rarely crossing 95%. The year wise data of temperature, rainfall and wind speed shown in **Appendix-XXV - XXIX**.

Humidity and the wind coming from Lakeside make a pleasant environment even during summers. General climate of the whole area is excellent and mainly southwest rains govern it. There are three distinct seasons viz. summer, monsoon and winter.

2.3.1 Rainfall Pattern and Distribution

The average rainfall of the area is 1128.9mm. Distribution of rain in various seasons is 90% during monsoon, 2.6% post monsoon, 5.3% during winter and 1.1 % in summer. Month wise rainfall data from the year 1998 to 2009 is enclosed. Average rainfall in different months are as follows:

Table 2.1
Month wise Average Rainfall

Months	Average Rainfall (in mm)
January	013.90
February	010.10
March	007.20
April	005.20
May	008.90
June	123.80
July	347.90
August	375.10
September	171.40
October	029.20
November	017.10
December	019.10
Annual	1128.90

2.3.2 Temperature

As typical weather of tropical region, temperature goes down in the month of December-January and rises in the month of April-June. Temperature data is appended in Appendix. In the past years maximum temperature recorded was 46.4°C on 26th May 1992 and the lowest temperature

recorded was 3.6°C on 7th January 1987. The average maximum and minimum temperature of the Bhopal District is enclosed. Year wise monthly average maximum, minimum and temperature data is as follows:-

Table 2.2
Month wise Minimum, Maximum and
Average Temperature (in °C)

Months	Max.	Min.	Average
January	25.1	10.4	17.6
February	28.2	12.4	20.3
March	34.1	17.2	25.6
April	38.2	21.7	29.9
May	40.3	25.5	32.9
June	37.1	25.4	31.2
July	30.9	23.3	27.1
August	28.8	22.5	25.6
September	30.7	21.5	26.1
October	32.5	18.5	25.5
November	29.0	14.5	21.7
December	25.5	11.1	18.3
Annual	31.7	18.6	25.1

2.3.3 Humidity:

Since the Van Vihar National Park lies on the bank of the Bhoj wetland, this area is relatively more humid than rest of the town. Month wise data of relative humidity shown in **Appendix-XXVII.**

2.3.4 Wind Speed

In the month of November to January when the wind is virtually negotiable, according to Beau Fort's scale of wind force, the wind velocity varies between 2 to 3km/hr. During the remaining months, the velocity ranges from 4 to 8.5 km/hr. can be termed as light. During summer, local storms and anti-cyclonic winds are common when the wind velocity crosses these limits. Such storms last for short period, but sometime causes damage to life and property. Month wise data of wind speed is shown in **Appendix-XXVIII**.

2.3.5 Drought

VVNP generally does not face any kind of water shortage as being surrounded by Upper Lake nearly three sides. Year 2008 had been a drought year in the total rainfall was 647.80 mm which was nearly 40% lower then the normal rainfall. Due to such circumstances the level of lake was 20 feet below FRL and water availability was reduced tremendously during the summer of 2009.

2.4 : Water sources

Water is the basic need for any living system, water requirement in VVNP is basically for the following purposes: -

- Drinking water for animal, staff and visitors.
- For sanitation and sewage.

- For irrigation in the fodder farm.
- For construction and maintenance of infrastructure.
- To maintain habitat.
- To maintain aviary and aquatic animals etc.

Water is not only precious but is an important tool for the management of park, particularly for the animals. Since, the number of free ranging herbivores are increasing year after year, thus, availability of water to these animals has to be ascertained.

There are two kinds of water sources present here. The natural sources i.e. the Upper Lake adjoining the park and manmade sources i.e., dug wells, bore wells etc.

2.4.1 Natural Resources:

Most of the boundary of VVNP is along with the lake and this boundary runs a little deeper in the lake, thus a sizable area of upper lake is included in VVNP. Recently 22 Ha. of area which was not reclaimed earlier has also been covered. The lake portion within the boundary of VVNP is an important source of water for free ranging animals. This water body is also helpful in recharging well and bores for supply of water and also make suitable habitat for aquatic fauna.

2.4.2 Manmade water resources:

Water supply in the VVNP is mainly catered by artificial water sources. Following types of artificial water supply sources :

- Wells
- Tube wells
- Ponds

2.4.2.1 Wells:- At present there are following 6 wells in the VVNP –

- Barah Aam Well
- Bageecha well-No. 1 (Road side)
- Bageecha well-No. 2 (Lake side)
- Lake side well (in front of tiger enclosure)
- Management well-1
- Management well-2

The above well supplies water to different destination as detailed in the table 2.3.

Table 2.3
Wells and Supply Points

Sr. No.	Name of well	Pump Type (HP)	Power Supply	Supply destinations
1	Barah Aam	10	Electric	1. Barseem bara
				2. Gharial Enclosure
				3. Bird Aviary
		15	Electric	1. Bird Aviary
				2. Barseem bara
				3. Vihar Vithika
5	Solar	Bird Aviary		

Sr. No.	Name of well	Pump Type (HP)	Power Supply	Supply destinations
		7.5 (Jalpari)	Electric	1. Barseem bara 2. Bird Aviary 3. Talab
2	Bageecha well No. 1	5 (Jalpari)	Electric	1. Magar bara 2. Needam 3. Hiran bara
3	Bageecha well No. 2	10	Electric	1. Management pond 2. Mugger enclosure
		7.5 (Jalpari)	Electric	3. Hiran Bara 4. Mugger bara 5. Road side water hole
		5	Solar	1. Needam 2. Mugger bara
4	Lake side well			
5	Management well-1			
	Management well-2			

2.4.2.2:-Tube wells

Tube wells are dug mostly along tourism road towards lakeside, so as to ensure sufficient supply to fulfill the daily demand of VVNP. The details about tube well, power source & supply destinations are given as under :

Table 2.4
Tube wells and Supply points

S No	Name of Tube wells	Motor type (Submersible) (HP)	Bore dia	Destination
1	Director office	5	6"	1. Hospital
				2. Director Office
				3. Vihar Vithika
				4. Gate No. 2
				5. Cafeteria
				6. Quarantine
2	Snake enclosure	2	6"	1. Snake Enclosure
				2. Butterfly Garden
				3. Hiran Enclosure
				4. Drinking Water tank at Sarpentorium
3	Chhatghar	-		
4	Kachhua bara	5/ 18	6"	1. Kachhua bara,
				2. Tiger enclosure
				3. Pahadi baba tank.
5	White Tiger enclosure	5	6"	1. White Tiger Enclosure
				2. Tiger Enclosure
				3. Water tank
				4. Toilet
6	Panther Encl.	5	6"	1. Tiger
				2. Panther
				3. Sump well
7	Safari office	5	6"	1. Safari sump well.

S No	Name of Tube wells	Motor type (Submersible) (HP)	Bore dia	Destination
				2. Drinking Water tank at Safari.
8	Gate No. 1	20	8"	1. Sump well
				2. Lion enclosure
				3. Bear enclosure
				4. Toilet
				5. Drinking water tank
9	Barseem Bara	3 H.P.		1. Barseem bara tank
10	Barseem Bara	5 H.P.		1. Barseem bara tank
				2. Barseem bara
11	Management Office	2 HP		1. Management office
				2. Postmortem house
				3. Water hole
12	Prempura	2 HP		1. Prempura Colony

2.5: - Flora & Fauna

2.5.1 Flora

The VVNP has tree growth as a result of recent protection and the growth is stunted on the plateau. There is reasonably good vegetation in the valley. According to the Champion and Seth classification this area falls in Southern dry deciduous scrub forest i.e.5ADS1 with mixed dry deciduous forest. Species like Bel (egle), Imli (Temerendous), Sitafal, Amaltas (Cassia), Babool, Khair (Acacia), Tendu (Diospyros), Lendia (Lagerstromia spp) etc. are found here naturally.

Vegetation of the Park can be divided into two types i.e. natural and artificial or man-made

2.5.1.1 Natural Vegetation:

The broad forest type and major tree species of the park is discussed in para 2.5.1. The list of common plants including tree, shrubs, herbs and climbers is shown in the **Appendix XVIII to XIX**. The brief details about trees, shrubs, herbs, climbers and grasses are given as under-

2.5.1.1.1 Trees:

The important tree species found in the area is Babool, mainly present on the lower plains. Imli and Mango are also significantly present grown by the past human habitations. Other tree species present in the Park are Bel, Imli, Sitafal, Reonjha, Dhaora, Bahera, Saja, Haldu, Lendia, Aonla, Amaltas, Palash, Ber, Karanja, Khajur and Tendu etc.

2.5.1.1.2 Shrubs:

Major species of shrubs occur naturally in the park are Dudhi, Lantana, Ber etc.

2.5.1.1.3 Herbs:

Chirota, Jungli tulsi, Gajar ghass etc. are main herbs occur naturally in Van Vihar. These herbs are replacing the palatable grasses.

2.5.1.1.4 Climbers:

Main climber of the area is Mahul Vel. It can be seen during rains only, in other season its presence is hardly noticed.

2.5.1.1.5 Grasses:

Lampaa, Kaans, Khus, Sukli and Bhurbhusi are commonly found here. The list of common grasses found in Van Vihar is shown in **Appendix XIX**.

2.5.1.2 Artificial (Man-made) plantations:

In the earlier stage after notification of National Park, habitat improvement activities were taken up. Plantations were raised with the objective to provide shelter and food for free ranging herbivore and roadside plantation were also taken up to provide shed to the visitors. Capital Project Authority planted Amaltas, Kanji, Shisham, Neem species in and around VVNP. Out of 445.21 hectares of VVNP area, around 40 hectare is covered under CPA plantations, which is 8.76% of total area.

Year wise plantations taken up in the Zoo are given in table 2.4

Table 2.4
Details of Plantations

Particulars	Year	Area Covered	No. of plants
Shade and fodder	1980-85	Scattered	3000
Capital Project Authority.	1996-99	38.990 Ha.	65000

2.5.1.3 Survey for The Vegetation Analysis of Van Vihar

In order to survey vegetation and analysis the biodiversity we have used following methodology :

- (a) Method to survey the vegetation.

- (b) Method to survey the forest resource.
- (c) Method to analysis the biodiversity.

2.5.1.3.1 Method to survey the vegetation -

In forest vegetative mapping is called stock mapping. For stock mapping, Map of VVNP at the scale of 1:15000 was used. Whole area of VVNP was divided according to their density, forest type, site quality and age.

Density – Density is classified as blank (less than 0.1) under stocked (0.2 to 0.4) and stocked (above 0.4).

Forest type – Forest type is classified as Babul forest and mixed forest. Babul forest is those type of forest in which the composition of the Babul species more than 40%. Mixed forest is those type of forest in which the composition of main species i.e. Sal or Teak is not more than 20%.

Site Quality – It is the capacity of a sight to grow particular vegetation which is based on height of the dominant tree of that area. It is classified into :

- I- Height more than 30m.
- II- Height in between 25 to 30m.
- III- Height in between 20 to 25m.
- IV-a. Height in between 15 to 20m.
- IV-b. Height in between 12 to 15m.
- V-a. Height in between 9 to 12m.
- V-b. Height less than 9m.

Age – Age is classified in young, middle and mature.

- (i) Young – Less than 60 cm girth.
- (ii) Middle – 61 to 120 cm girth.
- (iii) Mature – above the 120 cm girth.

All the area which is marked on stock map based on density, site quality, age, forest type will be approximate.

2.5.1.3.2 Method to survey the forest resource :

The latitude and longitude of the site was marked on digitized map of VAN VIHAR National Park. 17 grid points was marked on the VAN VIHATR map. With the help of GPS and Prismatic Compass at each grid point the 0.16 hectare plot and 9 quadrates of size 2x2m were laid out.

The density, forest type, site quality and age were recorded, within the area of each sample plot the girth of each tree species was also recorded, total number of different species of shrubs, climbers and tubers at each 0.16 hectares sample plot. Within the sample plot, the presence and absence of the different of herbs and grasses at each 9 quadrates was also noted down. Above mention method was carried out to note down the data at each 17 grid point.

2.5.1.3.3 Method to analyze the biodiversity

Biodiversity analysis is done through IVI (Important Value Index) method. IVI is an ecological parameter which is sum of the relative frequency, the relative density, the relative

basal area. The frequency, density and basal area are calculated by the data taken at each 17 grid points and $17 \times 9 = 136$ quadrates. The various ecological parameters are defined as below :

Frequency

Frequency of the particular species represents the presence or absence of that species in particular quadrates or plot. For example, if Lendia tree is present in 8 sample plots out of 17 grid point then frequency of the Lendia is $(8/17) \times 100$.

Frequency of the species

(Total number of quadrates or sample plots in which particular species is present/Total number of quadrates or sample plots) $\times 100$.

Frequency of all the species is evaluated through above formula.

Relative Frequency

Relative Frequency of the particular species is calculated by following formula :

Relative frequency of the particular species = (Frequency of particular species/ sum of the frequencies of all the species) $\times 100$.

Density

Density of the particular species is the population of particular species per unit area. It is defined as, Density of

the particular species =) Total number of the species/ Total area of all quadrates or sample plots)

Relative Density

Relative Density of the particular species is calculated by following formula :

Relative Density of the particular species = (density of particular species/ sum of the density of all the species) x 100.

Basal Area

Area occupied by particular species in land. It is calculated by following formula.

Basal Area of particular species = $(G/4)^2 \times$ Total number of particular species.

Where G = Girth at breast height.

Relative Basal Area

Relative Basal Area of the particular species is calculated by following formula :

Relative Basal Area of the particular species = (Basal Area of the particular species/ Sum of the basal area of all the species) x 100.

Important Value Index- IVI of the particular species = Relative Frequency + Relative Density + Relative Basal Area

For Trees Frequency, Density and Basal Area was calculated. **For Shrubs and Climbers** Frequency and Density were calculated. **For Herbs and Grasses** evaluation of Frequency was calculated.

Various ecological parameters for Trees, Shrubs, Climbers and Tubers were carried out in 17 sample plot while for Herbs and Grasses; it was done in $17 \times 8 = 136$ quadrates.

For each categories of vegetation (i.e. Trees, Shrubs, Climbers, Herbs and Grasses) average (μ) and standard deviation (σ) of IVI is calculated.

2.5.1.3.4 Result of Vegetation Survey

Result of Forest Resource Survey – The data of 17 sample plot for various tree species have been collected and analyzed. Number of trees per hectare for various girth classes is shown in **Appendix-XXXVIII**.

From **Appendix-XXXVIII** is clear that there are 244 numbers of trees per hectare. It is also clear that 86.13% of the total number of trees belongs to middle class and 2.2% of the total number of trees belongs to mature class.

2.5.1.3.5 Result of Biodiversity Analysis :

The value of IVI of various vegetation categories (i.e. Trees, Shrubs, Climbers, Tubers, Herbs and Grasses) along with their average (μ) shown in **Appendix– XXXIX**. The results of total number of species under various vegetation categories under surveyed area is given below :

Vegetation Categories	Number
Trees	36
Shrubs	14
Climbers	5
Herbs	17
Grasses	11
Total	83

2.5.1.3.6 Conclusion :

Vegetative survey in Van Vihar National Park reports that there are total 83 species have been observed. In which 36 trees, 14 shrubs, 5 climbers, 17 Herbs and 11 Grasses species have been reported in study area. The total number of trees per hectare is 244 and volume is 33.53 Cmt/ Hectare. Estimate shows that there are 108631 trees whose total volume is 14927.89 cubic meter. No species requires any special protection measure as national park is very much protected from illicit falling and illicit grazing. The area is well protected from fire. This protection is a major cause to represent some of the species as the species of Biological hot spot.

2.5.2 Fauna

In the VVNP carnivores are in captivity, where as herbivores are free ranging. The details of carnivores and omnivores are shown in **Appendix-X, XI, XVI and XVII** and also shown in table 2.5 as on 31.03.2011.

Table 2.5
Details of Carnivores Animals

S.N	Animal name	Scientific name	No. of Animals as on 31.03.11		
			Male	Female	Total
1	Sloth bear	Melursus ursinus	19	17	36
2	Himalyan bear		01	00	01
3	Leopard	Panthera pardus	05	09	14
4	Lion	Panthera leoparsica	08	06	14
5	Bengal tiger	Panthera tigris tigris	02	07	09
6	Hyena	Hyena hyena	01	01	02

Apart from above there are 17 Crocodiles and 06 Gharial among the reptiles. There are 46 fresh water Indian soft shell turtles also housed in VVNP.

Interspersion of most of the free ranging herbivores in VVNP is not uniform. Major parts of their populations are seen in low-lying areas. However, their distribution on the hilly terrain and on the plateau area is also seen frequently.

Herbivore animals like chital, sambar, Bluebull etc. roam freely in the park, The ungulates are not seen in large herds rather their presence is scared in the park. Chital are most commonly seen in larger number followed by Sambar and Bluebull. A small herd of black buck can also be seen. Apart from these animals four horned antelope, wild pigs, Jackals, Civets, Porcupines, verity of snakes can also be seen

occasionally. More than 200 species of birds are also reported visiting VVNP in different seasons. The details of population estimation free ranging herbivore animals in last five year are given in table 2.6

Table 2.6
Details of Herbivores animals

S.N	Animal	No. of Animals				
		2006-07	2007-08	2008-09	2009-10	2010-11
1	Chinkara	04	01	03	6-8	-
2	Chousinga	01	01	02	7-9	05
3	Black buck	19-21	24-48	59-65	56-62	54-59
4	Cheetal	577-637	539-726	731-789	723-806	735-811
5	Sambar	186-206	130-283	209-230	248-274	212-235
6	Neelgai	78-86	34-74	82-92	83-92	79-87
7	Wild Boar	77-85	58-102	47-52	64-71	43-48
8	Langur	frequent	12-42	Frequent	frequent	frequent
9	Jackal	51-56	22-49	29-32	12-26	29-32

2.6. Threat :-

For Wild animals :- Herbivores:

The herbivore population in the Van Vihar is in free ranging hence daily health check up is not possible, however, monitoring by general health status ocular is being carried out. Apart from the above practice, following procedures are also being carried out:

- (i) Fecal samples are checked on random sampling basis

- (ii) The food and water is supplemented during harsh weather condition by minerals mixture, cattle feed, salt licks, Green fodder, wheat straw, gram husk etc.
- (iii) Any abnormality seen is immediately reported and attended too.

2.6.1:- Pollution

The VVNP is surrounded on three sides by the upper lake and is situated in low density area, hence the pollution level is very low. However there are following source of pollution is present :-

2.6.1.1 Water pollution

The upper lakes bounds the VVNP by three sides, which is lifeline to the VVNP, as it is major source of water, habitat for aquatic fauna and have a great scenic value. Along with these advantages, there are some other sources of pollutions attached with the lake. The prominent among them are discussed as under:-

2.6.1.2 Garbage

The annual visitation is more than 3.5 lakh tourists to VVNP. Use of polythene is prohibited within the Zoo area, but still even after best efforts of park management, there are stray cases of littering by visitors. This include gutkha pouch and sometime polythene bags plastic water bottles etc. Dustbins have been placed at many locations and regular cleaning is done to deal with the problem.

2.6.1.3 Waste disposal

With the establishment of Lake Conservation Authority, by direct waste disposal to the upper lake has been checked to the great extent. Still there are few pockets of residential area along the lake where waste is disposed off in the lake and it is causing pollution to the lake. Since there is no direct intake of water from the lake to the VVNP, hence this does not affect the VVNP directly.

2.6.1.4 Agriculture waste

The catchment of the upper lake is very large and many villages are situated in the catchment area. Pesticides and insecticides are used in the agriculture fields in the catchment area, which cause chemical pollution in the lake.

2.6.1.5 Singhada cultivation

Singhada cultivation is practiced in the lake out side VVNP area which causes disturbance and is also minor source of pollution as they use chemicals.

2.6.1.6 Vehicular emission.

Due to lack of parking facilities, vehicles are allowed inside the VVNP. Every year between 40 to 60 thousands vehicle enter VVNP and it is major source of pollution. Vehicular entry causes both air and sound pollution, therefore urgent need to develop parking and ban on the entry of vehicles inside VVNP is required.

2.6.2 Firing range

Firing range of 25th battalion of SAF is situated on the eastern side of the VVNP. The boundary of SAF premises is adjoining to the VVNP, where regular firing by various weapons is under taken by SAF personnel. The loud noise emanating from weapon firing is a major disturbance and irritant to the animals. Correspondence to shift the firing range from the present site to some other area is on.

CHAPTER – 3

History of Past Management & Present Practices

3.1 General

Van Vihar is an amazing world of winged creatures; free ranging ungulates and captive carnivores in the midst of greenery. It is an important attraction in the tourist menu of Bhopal City. The characteristic mosaic of wet riparian stretch, plains, grasslands, shrubby vegetation, water pools, rugged slopes, mixed bamboo forest and patches of mixed plantations enriches the floral and faunal diversity of the area. This oasis of vegetation plays a vital role as carbon sink for the environmental health for the city of lake. VVNP is the part of the catchments of Upper Lake and releases relatively silt and pollution free water in the reservoir.

Such a diverse area requires variety of management. The present practices of management / arrangement are described in following paras.

3.2 Animal Section

Animals section in Van Vihar National Park is different from other Parks, on the account that it around 1200 free ranging herbivores attracts thousands of migratory and residential birds and many butterflies due to large water body along it. The list of recorded species of animals, birds and butterflies in Van Vihar are shown in **Appendix-X, XI, XVI and XVII.**

Carnivores are kept in very large near natural enclosure. VVNP is also a designated rescue center for circus animals, wild animals and bear rescued from Kalandars. Based on above multiple functions, which the park is performing, suitable facilities are developed to cater the need.

Carnivore animals are kept in enclosures, designed in conformity with the CZA guidelines and provided with required enrichment.

Habitat management works e.g. weed eradication, maintenance of water sources, fodder farm management etc. are taken up for herbivores animals. About 211 species of birds have been identified in the VVNP, therefore maintenance of shallow water body and providing aquatic flora useful to the birds are also taken up.

The tables below 3.1 to 3.4 shows the description of animal enclosures in the zoo for various functions :

Table No. 3.1

Details of Display Area of Enclosures for captive animals

Sr. No.	Species	Type of enclosure	Size of encl. (in mtrs)	Area (in Sqm)	No. of night cells	Year of construction	Remark
1	Jackal	Chain link Fenced	28X12	336	-	2008-09	Cage attached
2	Hyena	Chain link Fenced	45X12 15X5	540 75 6242	1	2007-08	Twin enclosure
3	Bear	Chainlink & Moated		76842	-	1994-95	Connected to night

4	Lion	Chainlink & Moated		105237	-	1994-95	shelter through gallery
5	Himalyan Bear	Chain link Fenced		752	1	2002-03	Night shelter
6	Bear	Chain link Fenced		4300	2	1997-98	Night shelter
7	Star tortoise	Fabricated steel	3X3	9	-		Cage
8	Leopard	Chain link Fenced	14X20	280	2	2007-09	Night shelter
9	Leopard	Open & Moated		12500	2	1994-95	Night shelter
10	Tiger	Open & Moated		9690 5719 3606	4	2007-08	inside Tiger enclosure 31.33 ha.
11	Tiger	Chain link Fenced	38X18 – 1 73X15 - 1	684 1095	2	2004	"-"
12	Soft shell turtle	Pond	36X20 – 2	1440	-	1997	
13	Star Tortoise	Dry Pond	10X20 – 1	200	-	1997	
14	Snake	Chambers Pits Snake Aq.	4 3 1	2400	-		
15	Deer	Chain link Fenced		40000	-	2007-08	
16	Crocodile	Earthen Pond		5000	-	1994-95	
17	Ghariyal	Earthen Pond		14000	-	1994-95	
18	Aviary	Earthen Pond		46000	-	1994-95	
19	Needam	Enclosure		11000		2008-09	
20	Butterfly Park	Enclosure		36		2008-09	

Table No. 3.2

Details of Rescue Enclosures

Sr. No	Species	Type of enclosure	Size of enclosure	Area (in sqm)	No. of night cells	Year of construction
1	Lion	Chain link	28X23 - 10	6440	30	2007-08
		Fenced	28X40 - 10	11200		
2	Tiger	Chain link	28X23 - 8	5152	8	2007-08
		Fenced				
3	Bear	Chain link	28X23 - 8	5152	8	2007-08
		Fenced				

Table No. 3.3

Details of Off-Display Enclosures

Sr. No.	Species	Name of Encl.	Type of enclosure	Size of encl. (in Mtr)	Area (in Sqm)	No. of night cells	Year of construction	Remark
1	Lion	Old	Chain link	3X6 - 3	54	6	1995	Inside loin enclosure
		New	Fenced	13X6 - 2	156			
	Tiger	New Tiger	Chain link Fenced	20X15 - 3	900	6	1996	Inside Tiger enclosure
				20X10 - 1	200			
	Tiger	Old Tiger	Chain link Fenced	25X12 - 1	300	1	1983	38.54 Ha.
				10x5 - 1	50			
	Tiger	White Tiger	Chain link Fenced	8x5 - 1	40	2	1995	--"
				22 x 15	330			
3	Tiger	White Tiger	Chain link Fenced	20X10 - 2	400	2	1995	--"
4	Tiger	Quarantine	Chain link Fenced	11X5 - 1 45X55 - 1	55 2475	1	2004	--"

5	Bear	Old	Chain link Fenced	7X8 – 1 19X8 - 1	56 152	10	1994-96	Inside bear enclosure 6.750 Ha.
6	Bear	New	Chain link Fenced	21X10 - 1 10X10 - 1	210 100	8	2008	--"--
7	Leopard		Chain link Fenced	6X8.50 -1 4X8.50- 1 20X1.50 - 1 34X5 - 2 8X8 - 2 13X8 - 4 9X4 – 2	51 34 30 340 128 416 72	2 2 2 2 4 2	2002-03 2002-03 2002-03 2006-07 1995-96 2008-09 1995-96	
8	Leopard	New				6	2008-09	

Table No. 3.4
Details of Quarantine Enclosures

Sr. No	Species	Name of Encl.	Type of enclosure	Size of encl.	Area	No. of night cells	Year of construction	Remark
1	Tiger	Tiger Enclosure	Chain link Fenced		38.54 ha.	Nil	1995	

Animal section is under and overall control of the Director assisted by Assistant Director and following staff down the line:

1. Unit in-charge or Range Officer
 - R.O. Safari - for captive animals
 - R.O. Management - for free ranging herbivores
2. Supervisors - 2
3. Animal keepers - 15
4. Sweepers - 4

Staff engaged in the VVNP has been given training from time to time in animal keeping. The whole section is divided into 2 shifts of 8 hours each. First shift start from 6.00 AM to 02.00 PM and another from 11.00 AM to 7.00 PM. Supervisor visits all the animals & takes notes from keepers observation. Then prepares daily notes on prescribed format & submit to Unit in-charge Safari & Veterinarian they enter their comments, while taking round. The daily report is submitted to the Director of the National Park.

Cleaning of all enclosures is done on daily basis. Meat for the diet of carnivores is brought to VVNP after due inspection & reported fit for human consumption by BMC Veterinarian is received and checked by Unit in-charge Safari and the park Veterinarian. Once it is Okayed then it is dispatched for feeding animals in pre-determined way.

3.2.1 Conservation breeding

Conservation breeding has been in the agenda of the Van Vihar National Park. The following are the objectives for conservation breeding :

- I. For having proper captive stock to continue display.
- II. To have properly bred animals to act as insurance.
- III. For reintroduction or releases in the wild as the need arises.

In the present practice there has been satisfactory breeding record of free ranging herbivores. Breeding of big cats in the Van Vihar National Park in the past years is shown in the table 3.5

Table 3.5
Breeding record of Van Vihar Zoo

S.No.	Name of species	Name	Sex	Name of dam / Sire	Date of birth
1	Tiger	Chhotu	M	Shyamu / Lata	22.03.1987
2	Tiger	Shyamli	F	Shyamu / Lata	22.03.1987
3	Tiger	Malti	F	Shyamu / Lata	22.03.1987
4	Tiger	Petu	M	Shyamu / Lata	22.03.1987
5	Tiger	Sultan	M	Shyamu / Mohini	17.09.1992
6	Tiger	Rekha	F	Chhotu /Malti	25.05.1993
7	Tiger	Salma	F	Chhotu /Malti	25.05.1993
8	Tiger	Ben	M	Chhotu /Malti	25.05.1993
9	Tiger	Reena	F	Chhotu /Mohini	30.07.1994
10	Panther	Rana	M	Kanha / Mandvi	16.04.1994
11	Panther	Chanchal	M	Rana / Prathvi	16.08.2001
12	Panther	Dhara	F	Rana / Prathvi	16.08.2001
13	Tiger	Palash	M	Ram / Rini	20.09.2003
14	Tiger	Shweta	F	Ram / Rini	20.09.2003

Central Zoo Authority vide their letter no. F.no.24-25/2007-CZA(N) dated 02.07.2007 has identified Van Vihar Zoo as Coordinating facility for conservation breeding of Royal Bengal Tigers and also as participating facility for Asiatic lion. A separate conservation breeding center for Gyps Vultures with the help of BHNS is proposed to be set up near VVNP. The proposal for off-display conservation breeding facility for Royal Bengal Tiger is proposed in the annual action plan 2009-10. There is no pure Asiatic lion for conservation breeding. Conservation breeding center for white backed and long billed vultures has been constructed and expected to start working in this financial year.

Maintenance and upkeep of captive animals of Van Vihar shall be carried out according to the provision laid out in the Zoo Master Plan which is submitted to the Central Zoo Authority, New Delhi.

3.2.2 Store & feed section

3.2.2.1 Carnivores

Like any other Zoological park, carnivores are fed with beef meat, which is provided on all days of week except Friday on that day, the animals are kept off feed. The essential management exercises such as cleaning, transfer of animals, routine health check up etc. are normally done on Friday. Average daily diet prevalent at the VVNP for different carnivores animals are shown in following table :-

Table No. 3.6

Average daily diets of carnivores

Sr. No.	Name of Species	Average daily diet
1	Tiger	8 to 10 kg.
2	Lion	7 to 9 kg.
3	Panther	3 to 4 kg.
4	Jackal	1 to 1½ kg.
5	Hyena	3 to 4 kg.

Crocodiles and Turtles are given meat, whereas Tortoise are given tomatoes and other fruits and vegetables.

Bear Rescue Facility

All the bear are managed by an NGO "Wild Life SOS" under the supervision of park authorities. MPFD has signed an

MOU with Wildlife SOS regarding upkeep of bears at VVNP.

The daily diet of each bear comprises of –

Ata Lapsi	-	700 gm.
Honey	-	200 gm.
Carrot	-	200 gm.
Sweet potato	-	200 gm.
Fruits	-	1.5 kg
Egg	-	01 no.
Daliya	-	200 gm.
Milk	-	1 lt.
Nuts	-	As per requirements

Beef meat is procured on annual tender basis, which is brought from slaughter house to "Meat House". At meat house it is regularly checked & inspected by veterinarian & Unit in-charge. Weighing & distribution is done in animal wise container at meat house only. Then meat vehicle distributes the container to in-charge of animal housings.

Meat house is equipped with weighing facility, deep freezer, cleaning equipments etc.

3.2.2.2 Herbivores

Herbivores are free ranging and around 300 ha. grassland and open area is available to them. Animals are supplemented with husk of gram, lentil, wheat, mineral mixed feed supplement (Sudana) etc. Apart from it, mineral mixed salt licks are placed at different points, preferably near water sources.

During the pinch period of summer shortage of nutritious grasses is felt. To meet out this eventuality Barseem and Green fodder is grown in the fodder form, which is around 13 ha. in area. Barseem is cultivated and placed at different vantage points. Also green grass is cut and stored with salt for feeding during summer.

3.3. Protection section

VVNP is surrounded by lake and land. Lakeside fencing has been renewed completely which is 5214 .Mts. in length. There is a wall all along at the boundary on the land side. The length of wall is 3240 mtr. Chainlink fencing and boundary wall are being maintained regularly.

Round the clock security is ascertained for the premises. Both the gates are manned for 24 Hrs. Special vigil is kept in the night, and night patrolling team is deputed for security. Night patrolling is carried out on all the days and is supervised by Assistant Director and Range Officers on the roster basis.

3.4 Maintenance section

All the offices, residential and tourism buildings etc. are maintained by respected Unit in-charge under the supervision of assistant director. All the buildings are put under three years roster system for maintenance. All the housings and kraals are regularly checked and maintained. For day-to-day maintenance, the section comprises of electrician, carpenter and a plumber is deputed and provided with all the maintenance tools and equipment.

3.4.1 Electric section

There is nearly 5 km. of electric line of 1100 KV, which is maintained by MPSEB. At present there are 6 electric connections details of which are shown in table as under:-

Table No. 3.7
Details of Electric Connections

S.No.	Place of connection	Service No.	Name of consumer	Load details
1	Ramu Gate	436665	Director, Van Vihar, Ramu Gate-1	Lightings at the gate
				Submersible Pump 17.5 HP
				Submersible Pump 7.5
2	Safari	436410	Director WL Park Mahavir Nagar for Water Supply	Lightings at Safari office
				Monoblock Pump 20 HP
				Submersible Pump 5 HP
3	Tiger Enclosure	436525	Director WL Park Shyamla Hill	Water Cooler / Filter
				Submersible pump 5 HP
				Submersible pump 5 HP
				Chhat ghar 5 HP Pump
				Submersible pump 8 HP
4	Aam Bagicha	436653	Director Van Vihar NP Lake View Road, Bhopal	Lightings at management office
				Submersible pump 5 HP
				Monoblock Pump 10 HP
				Submersible Pump Snake 2HP
				Submersible Pump Range 1HP
5	Barseem Bada	436963	R.O. Van Vihar National Park	Submersible Pump 5 HP
				Submersible Pump 3 HP
6	Chiku Gate	625863	Director Van Vihar Zoo Gate	Vihar Vithika
				Cafeteria

S.No.	Place of connection	Service No.	Name of consumer	Load details
			No. 2, Bhadbhada Road	Amphitheatre Meeting Hall Cheeku Gate & Range Office Director Office Submersible Pump 5 HP Monoblock pump 15 HP
7	Snake park	1118109	Director Van Vihar Zoo Gate	3 phase 5000 W.
8	Vihar vithika	1132775	No. 2, Bhadbhada Road	Single phase 2000 W.
9	Incinerator	1139536		3 phase 32 KV.

Maintenance of internal meters supply line etc. is carried out by the maintenance section.

3.4.2 Water supply section

VVNP has its own water supply system and have 6 wells and 11 tube wells. The details of water supply systems are discussed in para 2.4.2 Distribution system is through pipe lines and 3 overhead and 3 ground tanks. System is managed by section comprising of in-charge staff, electricians and plumbers etc. In normal years there is enough water to meet the requirement of the park. During scarcity period some necessary arrangement are made. It is also essential now to go for a deep tube well away from the lake and draw all the

drinking water required for staff, visitors and animals to avoid any possibility of source getting contaminated by the lake water.

3.4.3 Landscape section

Vihar Vithika campus is having sprawling lawns, water canals and chabutaras beneath old mango trees. Apart from it, the landscape is maintained by way of viewpoints along the tourism zone. The natural landscape of the VVNP in itself is majestic which includes hills, plateau, valley and lake. Due to beautiful natural landscape the need for artificial landscaping is much lesser, still shade bearing and other useful trees for the wildlife are planted regularly in whole area.

3.4.4 Road and trekking network

Van Vihar National Park have good network of roads for visitors and management purposes. The main tourism road is double lane BT road, which is 4.80 km. In length and run along the banks of upper lake of Bhopal. Apart from this, there is good network of all whether road used for management purposes and is shown in table 3.8.

Table 3.8
Details of Road Networks

S.No.	Details of the road	Length (in Km.)
1	Safari Office to New Tiger Housing	2.0
2	Quarantine tri-circle- to rescue centre tri-circle	2.0
3	New Tiger Housing to Old Tiger Housing	1.0

4	Pahadi baba and water tank link roads	0.5
5	Heeraman Baba to MM House tri-circle	1.0
6	Lion and bear housing road	0.5
7	Gate No. 1 to Lion housing and link road	2.0
8	Stop dam link road near boundary	1.5
9	Watch tower tri-circle to rescue centre tri-circle	1.5
10	Watch tower to water tank link	0.5
11	Gate No. 2 to Barseem bada and rescue ghat	3.0
12	Management office to Barseem bada and ghati link	1.5
13	Snake park to ghat link.	1.0
14	New tiger to management office	2.0
15	Inside Barseem bada	1.5
16	Inside Lion enclosure	2.0
17	Inside Tiger enclosure	6.3
18	Inside Bear enclosure	1.7
19	Along boundary wall.	3.5
	Total	35.0

Three Tracking routs are also laid out for the interested people. Visitors can do the tracking after paying fee. The three routes are 6, 3.5 and 2 km. long so as visitor can choose any one based on their endurance and time available with them.

3.4.5 Fire protection

Van Vihar National Park is having area of 445.21 Ha. and is situated within the municipal limit of BMC. This area is fully stocked with vegetation and prone to fire. Every year preventive measures area taken up against fire. All the roads and fire lines are cleared in the month of October- November. List of these fire lines area enclosed as **Appendix-XXXI**.

During the fire season i.e from 15th February to onset of monsoon fire watchers are engaged for watch and ward, regular brushing and cleaning of the inflammable material from the road is done.

3.5 Health & Hygiene

3.5.1 Animal health protocol

Protocol about general health care of animals are as follows:

3.5.1.1 Carnivores

Daily: -

- (i) Health check up on visual and physical examination basis is carried out to know the health status, if any irregularity seen it is immediately taken up by a full time veterinarian.
- (ii) Food material is checked and if found with offensive odor, discoloring etc. than it is rejected.
- (iii) Footbaths constructed in front of the entry gate of housing are filled with Potassium Permanganate solution to check infiltration of organisms inside.

Weekly: -

- (i) Water saucers are cleaned in time and fresh water filled to minimize chances of water born diseases.
- (ii) Thorough physical check- up of caged animals is carried out.

- (iii) Macroscopic examination of fecal and urine sample is done.

Monthly: -

- (i) Microscopic examination of fecal sample is done to know the endo and ecto parasitic infestation.
- (ii) Every enclosure, kraals made for the carnivores are checked.

Quarterly: -

- (i) All housings are checked including kraals and water saucers are cleaned and white washed.
- (ii) De-worming schedule is followed to check and remove worm load.
- (iii) Different vitamins and mineral supplements are given orally to maintain body resistance of the animals and adjust stressful atmospheric conditions.

3.5.1.2 Herbivores:

Since the herbivore population of this Park is free ranging, hence daily health check-up is not carried out. However, monitoring general health status of weak animals is carried out.

- (i) Monthly faecal samples checked on random sampling basis
- (ii) In stressful atmospheric condition and scarcity of food water, minerals salt licks, Barseem, Green fodder, wheat straw, gram husk etc is supplemented.

Any abnormality seen is immediately paid attention to and accordingly treatment is carried out.

3.5.2 Sanitation

This section is headed by concerned unit in charge in their respective jurisdiction. At present there are six sweepers in this section. One sweeper is assigned for maintaining hygiene & cleaning in meat house and distribution of meat. Three sweepers are deputed for animal housing and kraals to entrust with three sanitation beats, which are panther housing, tiger / lion housing and Rescue center. Toilets, tourism road, footpath etc. are assigned to one sweeper who is responsible for their cleanliness and sixth sweeper is for cleaning of Office, Hospital, Gate no.2 and Vihar vithika premises.

Dustbins are cleaned every week and the collected garbage is disposed off to municipal waste site. Left over bones is buried in pits and dead animals are burnt. Incinerator is installed for above disposal, which shall be functional very soon.

3.5.3 Veterinary section

VVNP has a reasonably well-equipped veterinary section with a veterinary hospital which includes indoor clinic, pathological laboratory and operation theater. Along with this there are facilities of X-ray, postmortem, complete blood count,

quarantine enclosures etc. Available instruments in the hospital are as under –

- Portable X-Ray Machine
- Blood Auto Analyzer
- Dental Machine
- Anesthesia Machine with Oxygen facility
- O.T. table
- O.T. lights
- Suction Machine
- Microscope
- Hot air oven
- Centrifuge Machine
- Equipment trolley
- Incubator
- Tele inject
- Dist inject
- Blow pipe
- Glass wares
- Reagents

3.5.4 Quarantine:-

The quarantine enclosure is separate for carnivores and herbivores are situated away from the animal enclosures. Postmortem and incinerator area also situated away from animal enclosure near management unit office.

3.5.5:- Rescue Squad:-

VVNP has also been entrusted with work of rescue squad for the Bhopal circle and adjoining districts. For the rescue

squad a modern customized rescue vehicle, transport cages, tranquilizing guns and blowpipes, net, protective gears etc. have been provided.

3.6 Tourism section:

5 km. BT road runs along the lake, which is designated as tourist/ visitors' zone. Visitors are allowed to enter from both entry gates- namely Ramu and Cheeku Dwar. Both the gates have ticket counter. Visitors are provided with many amenities, which include toilet facilities (at Gate No. 1, Tiger enclosure, Snake Enclosure and Vihar Vithika). Drinking water is also provided at both the gates, Vihar Vithika, Tiger enclosure, Snake facility and Bear enclosure.

Vihar Vithika is a nature Interpretation Center established to bring interest and awareness amongst the people towards the wildlife conservation. Interpretation Centre has photographs, models, animal trophies and other exhibits with some interactive exhibits for the visitors. A small souvenir shop is also functional in the same premises where one can buy articles like T-shirts, Caps, Key rings, Books, Ayurvedic Medicines etc.

There is a small but fully equipped Conference Hall where wildlife movies are screened on every working day in the evening. Just behind the Conference Hall a 300+ capacity open air amphitheatre is available where various presentations, programs and awareness camps take place.

For refreshment of visitors a beautiful, merging with nature Cafeteria is available in the same premises.

All along the road at regular intervals sit outs, dustbins, signages etc. are placed. A well-designed signage system is in place within the tourism zone, which includes directional signages and details about the animals for self-guidance to the visitors. To promote non-polluting means of transport two battery operated carts and around 94 bicycles are available at the gates. For the morning walkers, monthly and annual passes are issued on the nominal payments. Small library is available for the visitors in the Director's office.

3.7 Administrative section

Just near the gate no. 2 i.e. Cheeku Dwar there is an administrative building where Director, Asstt. Director and other office staff are working. Administrative building also has a small library. Veterinary hospital is also within the office premises.

3.7.1 General administration section

The Park administration section is housed in the office building near Cheeku dwar. Administration section is headed by Director VVNP and Asstt. Director VVNP helps him in performing duties. General administration section is overall supervised by the head clerk. The section is further divided into six sub sections.

- Audit/inspection.
- Accounts
- Establishment
- Store
- Management & Received-Dispatch

A full fledged computer section is working for data entry of day-to-day works. There is a separate store and record room

attached with the administration section for keeping store and records of the section.

The overall staff position as on 30.6.2011 is shown in the table 3.9

Table 3.9
Staff Position as on 30.06.2011

S.N.	Name of designation	Sanctioned post	Posted	Vacant post
1	Director	1	1	-
2	Asstt. Director	1	1	-
3	Veterinary officer	1	1	-
4	Range Officer	3	3	-
5	Deputy Ranger	3	2	1
6	Forester	10	10	-
7	Forest Guard	46	46	-
8	Superintendent	1	1	-
9	Cinema Operator	1	1	-
10	Accountant	1	-	1
11	Asstt. Grade- III	4	4	-
12	Driver	2	2	-
13	Peon	2	2	-
14	Daftari	1	-	1

3.7.2 Staff Accommodation

At present there are no official residences for the Director, Asstt. Director, Range officers and Veterinarian. However some accommodation for the class III and IV employee is available at Prempura and Kolar road.

3.7.3 Vehicle section

VVNP have one Scarpio, Ambassador Car, 1 Gypsy, 1 Multi-utility vehicle (Bolero), 1 Mini truck, 1 Tanker mounted Truck, 1 tractor, 2 battery operated vehicle, 1 Maruti 800 Car, 4 motor cycles and 2 Tata 207 vehicle is recently procured for vulture conservation and breeding centre. Gypsy is old and need replacement. Two new vehicles are required for Veterinary Ambulance and meat distribution. A customized vehicle for rescue operation has also been procured. The details of the vehicle is shown on table 3.10.

Table 3.10
Details of vehicles

Sr .	Model	Make	No.	Allotted
1	Tata 207	2009	MP 02 AV 2469	Vulture Conservation Centre
2	Scorpio	2008	MP02 AV 2040	Multipurpose Rescue Vehicle.
3	Bolero Camper	2006	MP 02 AV 1291	Patrolling work.
4	Ambassador car	2006	MP02-1290	Allotted to Director
5	Gypsy	2003	MP02-2268	Allotted to Asstt. Director
6	Car	1997	MP 02 2962	Allotted to Veterinary Doctor.
7	Swaraj Mazda	1998	MP 02-4347	Patrolling and other Govt. works
8	Tractor	2002	MP 02-6078	Patrolling and other Govt. works
9	Battery operated Bus	2000	MP 02 5102	Not in use
10	Motor cycle	2005	MP02-AV-1050	PCCF(WL) office

Sr .	Model	Make	No.	Allotted
11	Motor cycle	2005	MP02-AV-1049	Patrolling and other Govt. uses
12	Motor cycle	-	MP02-KL8067	Patrolling and other Govt. uses
13	Motor cycle	2009	MP04-MS-1602	Patrolling and other Govt. uses
14	Swaraj Mazda	2009	MP02-AV-2697	Rescue purposes.
15	Tata 207	2010	MP02-2904	Animal health
16	Tanker mounted Truck	2011	MP02- AV-2692	Management
17	Two Battery operated cart	2009	-	Tourism

3.8 Research, Education & awareness :-

3.8.1 Research

In Van Vihar National Park any research or study can only be carried out after taking due permission from Chief Wildlife Warden of the Madhya Pradesh. There is no scientific officer separately posted as Research officer, however basic studies for habitat improvement, wildlife health etc. are taken up by the officers and veterinarians posted here. For this, there are equipment like microscope, oven, complete blood counter, GPS, Binoculars etc. available with the management.

Some researchers from outside Van Vihar National Park have also carried out research / studies in the VVNP premises. Some of the studies carried out are shown in the table 3.11.

Table 3.11
List of Researches

S.N.	Topic of study	Duration	Agency
1	Carrying capacity of Van Vihar National Park	1996	Mr. S.S. Khan, Indian Institute of Forest Management
2	Infestation of Alien weeds in Van Vihar National Park and their impact on animal life	1999	Dr. Madhu Verma and Nishita Bakshi, Indian Institute of Forest Management
3	Biodiversity and Habitat Management in Van Vihar National Park	2000	Mr. Ravindra Singh, Indian Institute of Forest Management
4	Avian Bio-diversity of Van Vihar	2004-07	Dr. Suchitra Benerji
5	Ecological studies on upper lake and associated water bodies	2007-08	Dr. Vipin Vyas Proff. Deptt. Of Limnology
6	Studies on the nutritional management of wild animals at Van Vihar National Park	2007-08	Allahabad Agriculture of University
7	Impact of total solar eclipse on animal behaviour in captivity.	2009-10	Mr. S.S. Rajpoot, Director Van Vihar NP Bhopal and others.

3.8.2 Education & awareness

The education and awareness programme is dealt by unit in-charge tourism. Necessary infrastructure is available in administrative building and Vihar Vithika complex. This infrastructure include a full fledge library, Eduset and information system in the main administrative block. In Vihar Vithika complex lecture hall, auditorium and facility for movie

show is provided. In the same complex interpretation center is also there.

Students on study tours are admitted free and are educated to make them aware about the wildlife and wildlife conservation. In a year, round outreach programme is also running in which school and college students are given one day tutored course of their choice. This is undertaken on pre-intimation. The major activities are taken up during the wildlife week which include wildlife quiz, painting, rally, nukkad natak, photography workshop, debate, etc.

Bird Watching Camps-

Van Vihar National Park harbors 207 species of birds, which include more than 50 migratory birds and hence it is a major destination for birding in Bhopal. To facilitate bird watching, camps are organized during summer and winter.

Interpretive signages, booklets, maps, leaflets, brochures, annual reports etc. are regularly printed and distributed for extension. On every holiday snake show is organized to give information about the local snakes and need of conserving them.

CHAPTER – 4
The Protected Area & the Interface
Land use Situation

4.1 Existing Situation in PA and in the impact zone

The land incorporated within VVNP was Government land, Revenue land and agriculture land. The forest department acquired this land by paying the desired compensation to the villagers and the revenue department.

This oasis of vegetation plays a vital role as carbon sink for the environmental health of the city of lakes. It is a part of the catchment of Upper Lake that releases relatively silt and pollution free water in the reservoir.

4.1.1 The location, extent, boundaries and natural attributes of the P.A.

The Van Vihar National Park, Bhopal is situated within the municipal limits of Bhopal Municipal Corporation and the extent is 445.21 ha. The boundaries of VVNP are -

Northern :- Pillar 13 to pillar 27 submerged in upper lake fenced with chainlink fencing..

Eastern :- Pillar no 27 on Ramu gate towards boat club up to Cheeku gate towards Prempura village made up of stone masonry wall

Southern :- Pillar 1 to pillar 3 submerged in upper lake fenced with chainlink fencing.

Western :- Pillar 4 to pillar 13 submerged in upper lake fenced with chainlink fencing.

4.1.2 Villages within PAs :-

No village in PA.

4.1.3 Social and demographic Structure :-

Since there is no village inside hence it is not applicable.

4.1.4 Socio-Economic status :-

Since there is no village inside hence it is not applicable.

4.2 The development programmes and Conservation Issues

As such no need to implement conservation program around the P.A. For school going children and other target group many program are going on.

PART - II

PROPOSED MANAGEMENT

CHAPTER – 5

Plan objectives and Problems

5.1 The Vision & Mission statements :-

5.1.1 Vision statement: -

A vision statement is what an organisation wants to become or it describes how the future will look if the organisation achieve its mission. Vision statement describes a picture "Preferred future".

VVNP 's vision is that public should knew it as:-

- i. Scientific institutions engaged in animal welfare and conservation of wildlife.
- ii. Centres of knowledge on effective techniques for maintaining healthy ambience and pollution free environment.

5.1.2 Mission statements

A mission statement concerns about what an organisation is all about and answers following key questions:

- ❖ What do we do ?
- ❖ For whom do we do it ?
- ❖ What is the benefit ?

Mission statement of National Park shall also answer the above, which shall describe overall purpose of the organisation. The mission statement of VVNP is as under–

- i. Compliment the national efforts in conservation of wildlife through planned coordinated conservation breeding of endangered wild animal species of the Central India.
- ii. Develop amongst visitor sympathy for wild animals and motivate them to support the cause of conservation of wildlife.
- iii. Develop amongst the visitors an understanding about the ecological linkages with the life supporting processes of nature and the need for keeping them intact by adopting sustainable life styles and living in harmony with nature.
- iv. Enhancing the role of zoos in conservation of wildlife through collaborative research aiming at attaining management skills for *in-situ* population and carrying out advocacy for protecting the wild animals and their natural habitat.
- v. To act as Rescue Centre by receiving and keeping orphaned, seized, rescued, injured wild animals subject to availability of appropriate housing for the same.

5.2 Objectives of Management

VVNP has been established to keep & protect wildlife, to bring awareness amongst people related to wildlife conservation & education, provide opportunities for studies & research, to support conservation breeding etc. It is a unique institution serving as National Park, Zoological garden, Rescue centre, Conservation breeding centre and Centre for imparting conservation education.

Based on above, following objectives have been set to achieve the mission of this National Park :-

I. To manage in captivity the wildlife of central India along with animals from other biogeography regions of India in near-natural simulated habitat conditions to serve as a repository of genes and in case of further expansion of the area of the VVNP some rare exotic species can also be displayed in this area.

II. To pursue conservation breeding of some rare and endangered species like-Tiger, Asiatic lion, Hard ground barasingha, Gyps vultures etc.

III. To provide the visitors, through a well-designed Interpretation programme, an opportunity to enjoy, experience, understand and appreciate nature and the need to conserve wildlife.

IV. To carry out appropriate studies to strengthen both in-situ and ex-situ wildlife management.

V. To serve as rescue center for orphaned, weak, diseased, injured and aged animals found unfit for release in the wild as well as those rescued from traditional animal performers and circuses of Madhya Pradesh.

5.3 Major issues :

- Human pressure .
- Limited grasslands.
- Insufficient and over-aged staff.
- Weed infestation.
- Fishing.

- Tourist inflows.
- pollution
- Firing range
- Vehicular emission.
- Waste disposal

CHAPTER – 6

Management Strategies

6.1 _Legal Status

The Van Vihar National Park was notified vide M.P. Govt. Gazette notification number 15-1-83 (ten)-2 dated 18-2-83, w.e.f. 26-1-83 as a National Park, the notification is shown in **Appendix-I**. The barren area of 445.21 hectare notified as Van Vihar National Park, under strict vigil and protection has now been transformed into an island of different mosaic of vegetation. Van Vihar is a classic example of clothing a denuded land with woody green fabric within a span of about three decade. It is a typical amalgam of *in-situ* and *ex-situ* conservation activities of wild fauna.

The land incorporated within VVNP was Government land, Revenue land and agriculture land, the map showing status of land before acquisition for VVNP. The forest department acquired this land by paying desired compensation to the villagers and the revenue department. Details of the land so acquired are as follows:

Table 6.1
Status of land acquired for VVNP

Name of the village	Government Land (in Ha.)	Aquired Land (in Ha.)	Total Area (in Ha.)
Dharampuri	142.14	-	142.14
Amkhera	102.95	-	102.95
Prempura	143.20	56.92	200.12
Total	388.29	56.92	445.21

A crescent shaped 5.0 km long asphalt road provides a good lake-view in the National Park, connecting both the gates of the Park. Initially this road was constructed to make the lake view drive a recreation spot for the local people, now acts as the main tourist road for the visitors of the park.

Van Vihar National Park is a rare combination of thrills of jungle and learning experience of park. The wilderness in tranquility offers great attraction for visitors, bird watchers, picnickers and nature lovers.

Van Vihar is an amazing world of winged creatures; free ranging ungulates and captive carnivores surrounded by the greenery. It is an important attraction in the tourist menu of Bhopal Town. Recently, it was adjudged as "*Most Favoured Tourist Destination*" in and around Bhopal in a survey conducted by a leading Hindi daily "Dainik Bhaskar". The characteristic mosaic of wet riparian stretch, plains, grasslands, shrubby vegetation, water pools, rugged slopes, mixed bamboo forest, plateau and patches of mixed plantations enriches the floral and faunal diversity of the area. This oasis of vegetation plays a vital role as carbon sink for the environmental health of the city of lakes. It is the part of the catchments of Upper Lake that releases relatively silt and pollution free water in the reservoir.

6.2 Boundaries

Northern :- Pillar 13 to pillar 27 submerged in upper lake fenced with chainlink fencing.

Eastern :- Pillar no 27 on ramu gate towards boat club up to chiku gate towards prempura village made up of stone masonry wall.

Southern :- Pillar 1 to pillar 3 submerged in upper lake fenced with chainlink fencing.

Western :- Pillar 4 to pillar 13 submerged in upper lake fenced with chainlink fencing.

6.3 Zone Plan

Total area of VVNP 445.21 ha. is divided in following different zones –

- I. Free ranging animal zone
- II. Captive animal zone
- III. Tourism zone.
- IV. Administrative zone
- V. Old animal zone/ Rescue centre.

6.3.1 Free ranging animal zone-

Approximately 300 ha. of wilderness area outside enclosure is forest & open areas, used by free ranging herbivores. This zone can be broadly divided into three sub zone i.e. plateau, valley and area between lake & tar road. The area harbors 1200 herbivores are free ranging and attract thousands of migratory and resident birds and many species of butterflies due to large water body along with it. The lists of recorded species of birds in Van Vihar is shown in **Appendix-XVI**. All carnivores are captive and kept in very large near natural enclosures. From management point of view free ranging animals are managed by management unit, whereas carnivores are managed by Safari unit of the VVNP.

As discussed in the above mentioned para that VVNP also have a large number of free ranging herbivore population. This calls for management of free ranging area on the pattern of National Park and Sanctuaries. The information about herbivore population in this National Park is attached as **Appendix-X & XI**. There are more than 1200 free ranging animals in the area and following works shall be taken upon the regular basis to cater the need of this population.

6.3.1.1 –Water Management.

The present arrangement about the water supply system is discussed in para 2.4 to 2.4.2.2 This arrangement covers water supply to free ranging area also. For free ranging population water is available at lake front within the boundary of the park, three small ponds, water channels and nine concrete water saucers. The conglomerate soil substrata does not hold water for longer duration and almost all the ponds in the premises dry up in November- December. During the peak summer water in the lake also recedes beyond the boundary of the VVNP. Due to these factors water is mainly provided through artificial water saucers and channels.

Works related to maintenance of existing water sources and augmentation of water regime shall be taken up for sustainable water supply during the pinch period.

6.3.1.2 Weed eradication

Out of 445.21 Ha. total area of the VVNP, the effective area available to free ranging population between 300 to 325 Ha. leaving area under enclosures, roads, buildings and other infrastructures. For sustaining the large herbivore population it is essential to eradicate obnoxious weeds like lantana, parthenium, chironta, van tushi etc. on regular basis this also essential to provide an opportunity to nature grass species to grow and replace weeds by grasslands. Since last many years the weed uprooting of parthenium is being carried out but infestation of the parthenium is not under control. With the help of Weed Science Research Directorate, Jabalpur, the biological control of the parthenium through Maxican Beetle should be ascertained.

6.3.1.3 – Soil and water conservation works

The terrain of the VVNP is undulating and thereby soil erosion is frequent. To prevent the soil erosion and promote water conservation, check dams, dikes and other soil and moisture conservation works shall be carried out in systematic and planned manner.

6.3.1.4 Fodder farm and grass plantation

For the free ranging herbivore no additional feed except salt licks and mineral supplements are supplied during monsoon and early winter. However, from March onward Barseem, Chari, Lentil, Khalichuni, Mahua, Green foliage etc. are supplied.

Barseem and chari is grown in the VVNP premises. For this purpose, a barseem farm of 5 ha. is used for growing barseem, chari etc. The farm is divided into 8-10 sectors and the differential seed sowing is taken up at the interval of 1 week. This arrangement ensures continuous supply of green fodder. Everyday a section is cut and the green foliage is placed at different locations in the VVNP. Mechanisation of the farm activities and experimentation for more nutritious and palatable grasses and other foliages shall also be taken up.

Cutting of Babool twigs for animals during summer.

During the pinch period, barseem and chari is also supplemented with mahua, other green foliages, khali chuni, mineral supplements etc. at different vantage points.

Managing the free ranging habitat should be also taken up, which includes soil moisture conservation and weed eradication works. Closure of such section with make shift chainlink fencing during the monsoon shall also be tried, where broadcasting/ sowing of palatable and nutritious grasses and fodder species shall be taken up. This area can be utilised in the pinch period.

At many places woody invasion in grasslands are also notices. It is also necessary to intervene and uproot such woody growth from the grasslands.

In Van Vihar National Park there is about 40 Ha. Submerged area of upper lake. During the summer due to draw down of water, this area remains moisty blank.

The area can be very well used for green fodder production by simply broadcasting the seeds of fodder species.

6.3.1.5 Salt lick, mineral and other supplements -

There is no natural salt lick available in the VVNP therefore artificial salt bricks shall be placed near the water sources. At the fag end of the monsoon small depressions, where water is impounded shall be taken up to cater as natural salt licks by mixing salt and mineral in the water, this offer getting dried up will act as a natural salt lick. As a part of enrichment of diet mahua, other green foliages, khali chuni, mineral supplements etc. are also placed at different points.

Some animals like sambhar, wild pigs etc. needs wallow, therefore they shall be developed preferably near water sources.

6.3.1.6 - Planting of shade trees- Existing vegetation within and outside the enclosure shall be strengthen by planting suitable species in order to create desired simulated environment for the animals as closed to their natural habitat as possible.

6.3.1.7 - Landscaping

VVNP has one of the most beautiful landscapes with plateau, Valley, grassland, mixed forest etc. which have been re-corrected by good protection out of degraded and denuded hillocks. This beautiful

landscape has reduced the requirement of artificial garden or lawns. Developing artificial green meadows is big problem in this VVNP as it has a large population of free ranging herbivores. Some gardens in a specific area can be created for aesthetic appeal to visitors and inmates by fencing the area.

The possible venue for landscaping and gardening are proposed children corner, Vihar Vithika premises, Director's office etc. These areas may be fenced initially with chainlink fencing and green hedges can be developed along with it. Once green hedges are developed the fencing can be removed within these premises, aesthetically designed landscape can be created.

In rest of the area basic naturalistic feature and vegetation should be maintained as it is only planting of frugivores and shady trees near waterholes shall be taken up with the provision of tree guards. On the inner side of the tourism road wherever there is a blank semi evergreen trees can be planted. Care should be taken not to plant trees on outer side of tourism road as it may block aesthetic view of upper lake.

Developing green hedge along the moat wall should also be considered to hide overshooting part of moat wall. A small nursery for fulfilling the plant requirement and selling of surplus plants may be setup in the present needam premises.

As the park has to sustain a large population of herbivores for which good quality grassland shall also be maintained. Wherever the existing grasslands have been encroached by woody growth of Babool and other species, efforts should be made for uprooting of advance growth of invasive woody species from these grasslands.

6.3.1.8 New enclosure

VVNP has also been recognized as a Zoo by CZA, hence provisions for new enclosures have been proposed in the Zoo Master Plan. New enclosures shall be constructed as and when required and as per the zoo master plan.

6.3.1.9 Quarantine

Since VVNP is also a recognized zoo and a rescue centre new animals keep coming to VVNP through exchange of animals from other zoo and rescued animals from the wild. Separate quarantine facilities for herbivores and carnivores are maintained at VVNP

6.3.1.10 Translocation of animal from VAN vihar

VVNP has a limited scope for housing animals hence the surplus animals needs to be translocated to other suitable places. Specially herbivores population at VVNP needs to be thinned out in order to minimize the impact of high prey density. Hence provision for active population management is must. A periodic partial

withdrawal, some of the herbivores species from VVNP and supplement the prey population elsewhere in free ranging environment is essential.

The basis for translocation of herbivores could be either as per the grazing rules determination for Reserve Forest or can be calculated on the basis of productivity of the area. In terms of productivity, a small project can be awarded to WII, IIFM or any other competent institution to determine the carrying capacity of the area. The maximum number of ungulates to be retained should be the sum of carrying capacity + at least 20% of the carrying capacity. Specially the spotted deer to be maintained as buffer population for resident jackal population. Jackal population is known for faun lifting. Also the green fodder is supplemented along with other food supplements for at least 4-5 month.

The translocation process can also be worked out in a phased manner and over a period of 3-5 years.

Few individual animals of the different species of ungulates can be displayed in smaller enclosures as proposed in the master plan.

6.3.2 - Captive animal zone

It is evident that most of the animals procured in this National Park are from wild, but none has been purposefully captured to be brought here. Injured, orphaned, stray animals which were in stress and their conditions did not allow them to be rehabilitated back in the wild, are kept here.

Van Vihar National Park have objectives to keep the animals in near natural conditions & It encompasses in itself Zoo, National Park, Conservation Breeding centre and Rescue centre .

VVNP has been primarily focusing on animal species of central India and it shall continue to do so, until its proposed extension takes place, where representative wild animal species of the region, nation and exotic origin will also figure in its plan.

All the captive animals, which are mainly carnivores being managed under the guideline of CZA. The separate Zoo Master Plan has been prepared for the management of these captive animals.

Carnivores are kept in very large and near natural enclosure. This area include following:-

6.3.2.1 Off-display Zone

It consists of night cubicles and enclosures for tigers, bears, lions and leopards. Details about different enclosures are shown in Table-3.3 in Chapter-3.

Table 6.2
Carrying capacity for Off-display Zone

S.No.	Name of species	Scientific name	Carrying capacity
1	Bengal Tiger	<i>Panthera tigris tigris</i>	09
2	Indian Lion	<i>Panthera leo persica</i>	06
3	Indian sloth bear	<i>Melursus ursinus</i>	16
4	Leopard	<i>Panthera pardus</i>	14

6.3.2.2 Conservation Breeding zone

All the enclosures other than display & rescue centre comes under this zone which includes new tiger, panther and lion housings. This zone also covers 2 ha. of Kerwa land being used for Ex-situ Vulture Conservation Breeding Program.

One of the major objectives of Van Vihar is to carryout conservation breeding of some of the endangered species like Royal Bengal Tiger, Asiatic lion, hard ground barasingha and gyps vulture etc. VVNP has been identified as a coordinating zoo for conservation breeding of Royal Bengal Tiger and participating zoo for Asiatic lions and gyps vultures.

Conservation breeding is very important in the present scenario as wildlife habitat is under heavy biotic pressure and a large number of species of wild animals have become endangered. By conservation breeding VVNP will not only be able to sustain their own population but may also help in restocking the depleting populations of endangered species in the wild. For conservation breeding of endangered species following initiatives should be taken up :

6.3.2.2.1 Tiger

Central Zoo Authority vide its letter no. F-No. 24-25/2007-CZA (N) dated 02.07.2007 has identified VVNP as a coordinating zoo for Royal Bengal Tiger Conservation Breeding. The VVNP at present have 1 female and 2 males of wild origin and can be used for

conservation breeding, as the pedigree of existing breeding stock is quite diverse. The pairing of these tigers can be taken up after taking necessary permission from CZA under section 38(i) of Wildlife Protection Act, 1972 for holding above animals in the zoo.

A state of art conservation breeding centre with modern technique and facilities having near natural enclosures, housings, habitat enrichment, monitoring and other equipments shall be taken up with the help of CZA. The information about suitable tigers of wild / F-1 origin available at other zoos to be collected and if required the animal will be acquired. A detailed plan for the conservation breeding of tiger is being developed at VVNP.

6.3.2.2 Asiatic Lions

Asiatic Lions also been identified as one of the targeted species for conservation breeding in Indian Zoos by CZA and has identified this zoo as a participating zoo for the conservation breeding of Asiatic lion vide their letter no. F.No. 24-9/2007-CZA (N) dated 02.07.2009. The present stock has been checked by LaCONES Hyderabad and found that all available lions are hybrid and therefore are not useful for conservation breeding.

To pursue conservation breeding of Asiatic lions founder stock should tried to be acquired from other zoos where it is available.

6.3.2.2.3 - Gyps Vultures

The Indian White Backed (*Gyps bengalensis*) and Indian Long Billed Vultures (*Gyps indicus*) were the most numerous and were seen in hundreds on large ungulate carcasses over most part of the country. As per the BNHS study there is population crash of more than 99% in both these species over the period of 1992 to 2003. Looking to the grave situation decision to establish Ex-situ conservation breeding centre at VVNP was taken. CZA has agreed to provide necessary financial resources for capital expenditure and has already provided some fund to that effect. The BNHS has agreed to run the proposed centre and has signed MOU with State Government. The centre has been constructed at Kerwa facility of VVNP. The centre is proposed for captive breeding of 25 pairs each of White backed and Long billed vulture.

Following is the position of infrastructure availability (under construction) and gaps in it.

Table 6.3
Infrastructure Available

S. No.	Item	Total requirement	Available	Gaps
1	Management block	1	1	0
2	Hospital pan	3	1	2
3	Nursery aviaries	10	1	9
4	Quarantine aviaries	3	1	2
5	Holding aviaries	3	1	2
6	Colony aviaries	2	1	1
7	Vehicle	2	1	1

In the next phase the gaps in the infrastructure shown as above shall be filled. Some of the equipment like CCTV, Freezer, and Weighing Machine etc. will be procured out of available funds and other equipment like incubator, brooder, tags etc. will have to be procured in next phase. Fencing, water supply and electric connections have already been established. Permission for capturing vulture has already been received. The centre is expected to start functioning from financial year 2011-12.

6.3.2.2.4 Hard Ground Barasingha

Hard Ground Barasingha (*Cervus duvauceli branderii*) is only found in Kanha Tiger Reserve of the Madhya Pradesh. Having presence only in one habitat can have chances of wiping out of this population in case of some epidemics. Therefore, it is important that its conservation breeding is taken up at some other place too. VVNP situated on the bank of upper lake can be a suitable location as well as habitat for it. A detailed conservation breeding programme shall be prepared for this, which shall include habitat manipulation, capture, transportation and rehabilitation etc. at VVNP. Govt has granted the permission to keep Barasingha at VVNP.

6.3.2.3 Maintenance and up-gradation of existing enclosure

VVNP is spread over an area of 445.21 Ha. therefore most of the enclosures have been designed in

such a way that they have adequate land space for facilitating the animals to have free movement and exercise. Following action plan is proposed for maintenance/ up-gradation of existing enclosures:-

(I) Regular maintenance of all enclosures and housings shall be taken up.

(II) All the enclosures have natural forests inhibiting them, but environmental enrichment in all the enclosures shall be upgraded. Environmental enrichment shall be guided by range of activities which are carried out by wild animal in nature viz. foraging, exploration, wallowing, climbing, burrowing etc. if needed the technical help of behavioural biologists may be obtained in developing the appropriate enrichment plan for the wild animals.

Efforts shall be made to keep animals in comfortable social group. Animals should be provided with suitable substrate to facilitate digging and burrowing needs, suitable opportunities for climbing, swinging, feeding, clawing, playing, rubbing the antlers etc. to satisfy their natural instincts. Burrows and dens wherever they not been provided shall also be constructed to facilitate the animals to take shelter during extreme weather conditions. A part of enclosure should be maintained with grass and weeds to provide cover area for the animal.

(III) Built in squeeze cages should be attached to the group of animal houses for providing treatment whenever necessary.

(IV) Each housing shall be provided with adequate drainage facility so that liquid waste can be drained, out of the enclosure and underground septic tanks along with soak pits should be built for disposing of the liquid waste from the housing.

(V) Minimum height and distance of stand off barriers from the enclosure barriers should be as per the guideline of CZA which is as under :

S. no.	Barrier type	Height	Distance from the barrier
1	A long moated viewing barrier.	75 cm	75 cm
2	A long chain-link barrier	75 cm	75 cm

Space between the stand-off barriers and enclosure barriers shall be planted with thorny evergreen hedges to safeguard against the visitors crossing the stand-off barriers.

(VI) All housings or a group of housings shall have a keeper shelter in the service area, so as whenever they are free from animal upkeep can rest and relax. These shelters shall be designed in such a way that they merge with the surroundings and should not be visible to animals from enclosure. If needed planting around these shelters should be taken up to conceal them.

(VII) Planting of appropriate trees and shrubs should be done around the animal viewing areas to break up the visitors in the small viewing groups.

(VIII) Most of the animal display area is moated, but the moat height on viewing side is not sufficient therefore increasing of height and repairing of old wall shall be taken up. Wherever old moat wall has lived its life or beyond repair it should be rebuild in phased manner.

6.3.2.4 Modification in existing enclosures

Some existing housings / enclosures have to be modified as they are very old or have some management problems, some of these modifications are proposed as following :-

6.3.2.4.1 Hyena housing

At present there is no stand off barrier, therefore stand off barrier has to be provided. Proper modification will be needed to keep a pair of animal in present housing.

6.3.2.4.2 – Lion display enclosure

Present lion display enclosure is having large area 12.60 Ha., therefore most of the time lions are not visible to the visitors. A partition with provision of keeping minimum prescribed area by CZA for lion shall be taken up along

with construction of 2 numbers of night shelters along with a treatment room.

6.3.2.4.3 - Leopard display enclosure

Present Leopard display enclosure is having large area 2.25 Ha., therefore most of the time leopard are not visible to the visitors. A partition with provision of keeping minimum prescribed area by CZA for leopard shall be taken up along with construction of 3 numbers of night shelters with a treatment room.

6.3.2.4.4. Snake Park

Snake Park at Van Vihar is having two big pits and four display enclosures which are not sufficient; therefore upgradation of existing display facilities along with expansion of these shall be taken up.

6.3.2.4.5 Bear display enclosure

This enclosure is very large in size of 9.54 ha. and have similar problems as detailed in lion display enclosure. Therefore, same modifications will be required in bear display enclosure also.

6.3.2.4.6 Shavak enclosure

This enclosure was created for displaying tiger cubs but since it was not moated therefore keeping tigers in them have been stopped. This enclosure is proposed for keeping small mammals like Civet, Ratel, Jungle cat, Pangolin, Porcupine etc. For this purpose the existing enclosure shall be divided into 6 to 8 small enclosures along

with befitting night shelters and with proper stand-off barriers.

6.3.2.4.7 Old bear facility

This facility is not in use right now. It is proposed to modify this as a carnivore quarantine facility. The modification will include strengthening of chainlink enclosure, up-gradation of housing and proper liquid waste disposal system etc.

6.3.2.4.8 Crocodile and Gharial pond

These ponds are to be modified by installing proper water aeration mechanism, developing sand banks and enhancing the water impounding capacity of tanks.

6.3.2.5 New Enclosures :

The main theme of display is broad taxonomic display of wild animal species of national importance th special emphasis on those of Central India showing prey-predator relationship.

Keeping animal collection plan in view new enclosures for following animals shall be taken up :

- a. Jackal
- b. Indian wolf
- c. Fox
- d. Wild dog.

- e. Herbivore enclosures for Sambhar, Cheetal, Black buck, Chinkara, Chausingha, Barking deer, Blue bull and Mouse deer.
- f. Bison.
- g. Wild pig
- h. Bird aviary.
- i. Butterfly park.
- j. Barasingha

The proposed location of enclosures for these animals is shown in master layout plan in blue colour. VVNP has sufficient land area therefore area of above enclosure will have adequate land space for facilitating the animals to have free movement and exercise etc. The sizes of enclosure will not be less than the indicative sizes of enclosures both for feeding cells and outdoor, as prescribed by the Central Zoo Authority and due care should also be taken that the area under enclosure will not exceed beyond maximum permissible limit as prescribed by the CZA.

Apart from above indigenous species, few species of other regions of India and exotic origin may be introduced strictly following CZA guidelines in this regard.

6.3.3 Tourism Zone

Van Vihar National Park have objectives to keep the animals in near natural conditions and it encompasses itself Zoo, National Park, Conservation Breeding centre and Rescue centre.

6.3.3.1.1 Animal display zone

VVNP is having large area of 445.21 ha. and have ample space to house animals. Until proposed extension of VVNP takes place, the theme of existing display zone shall primarily focus on the wild animal species of central India with few exceptions.

Table 6.4
Proposed Animal plan for display

S.No.	Name of species	Scientific name	Carrying capacity
1	Bengal Tiger	<i>Panthera tigris tigris</i>	3
2	White Tiger	<i>Panthera tigris tigris</i>	2
3	Common leopard	<i>Panthera pardus</i>	4
4	Asiatic Lion	<i>Panthera leo persica</i>	4
5	Sloth Bear	<i>Melursus ursinus</i>	8
6	Indian wild dog	<i>Cuon alpinus</i>	4
7	Hyena	<i>Hyena hyena</i>	2
8	Indian wolf	<i>Canis lupas pallipes</i>	2
9	Jackal	<i>Canis aureus</i>	4
10	Black buck	<i>Antelope cervicapara</i>	6
11	Chinkara or Indian Gazelle	<i>Gazella garlia bennetti</i>	4
12	Four horned antelope	<i>Teraceros quadricornis</i>	4
13	Gaur or Indian bison	<i>Bos gaurus</i>	3
14	Mouse deer	<i>Tragulus meminna</i>	2
15	Pangolin	<i>Manis crassicaudata</i>	2
16	Ratel	<i>Mellivora capensis</i>	2
17	Small Indian civet	<i>Viverridae</i>	2
18	Common fox	<i>Vulpes bengalensis</i>	2
19	Jungle cat	<i>Falis chaus</i>	2

S.No.	Name of species	Scientific name	Carrying capacity
20	Otters	<i>Lutra, l. perspecliata</i>	10
21	Barking deer	<i>Mauntiacus. munjak</i>	4
22	Cheetal	<i>Aixis aaxis</i>	4
23	Nilgai	<i>Boselaphus tragocamelus</i>	4
24	Sambar	<i>Cervus unicolor</i>	4
25	Wild pig	<i>Sus serofa</i>	6
26	Indian porcupine	<i>Hystrix indica</i>	2
27	Hippo		3
28	Himalayan black bear		1
Reptiles			
1	Crocodile	<i>Crocodylus palustris</i>	15
2	Terrapin	<i>Batgur baska</i>	6
3	Gharyal	<i>Gravialis gangeticus</i>	10
4	Indian soft shell turtle	<i>Lissemys punctata punctata</i>	20
5	Star tortoise		2

6.3.3.2 - Reptiles and Birds

6.3.3.2.1 Snakes

Snake park has been established in VVNP in the year 2006. At present snakes rescued from Bhopal and around are collected at this park and rehabilitated in areas suitable for them. All the prominent snakes of central India are displayed here. Following are the species of snakes, which are commonly put for display:-

Table 6.5

Displayed species of snakes

S.No.	Name of species	Scientific name
1	Indian Rock python	<i>Python molurus</i>

2	Common Sand Boa	<i>Eryx conicus</i>
3	Checkerd Keelback	<i>Xenochropic pircator</i>
4	Rat Snake Dhaman	<i>Ptyas mucosus</i>
5	Bronjeback Tree Snake	<i>Dendrelaphis tristis</i>
6	Common Krait	<i>Bungarus caeruleus</i>
7	Indian Cobra	<i>Naja naja naja</i>
8	Russels Viper	<i>Vipera russellii</i>
9	Sand Boa	<i>Eryx johnii</i>

6.3.3.2.2. Gharial (*Gavialis gangeticus*)-

Gharial is the most endangered species among all the crocodilians found in the subcontinent. There are six individual in VVNP but all females. Efforts are on to bring males under the animal exchange program. Proper shelter and sand banks needs to be prepared for basking and for the gharials to breed in future.

6.3.3.2.3 Mugger (*Crocodilus palustris*)

There are more than 16 fresh water crocodile (mugger) in VVNP. Muggers are breeding. Ponds and the enclosures need to be fenced with permanent low height fence so that the adult animals do not stray out in the human use area. The ponds need to be deepened and sand banks created for basking purposes.

6.3.3.2.4- Aviary

The VVNP is situated on the bank of the Bhoj wetland commonly known as upper lake. Its unique situation and large area makes it a suitable habitat for

birds. In all 205 species of birds have been authentically identified in Van Vihar. Many migratory birds also seen during the winter. A separate area has been allocated in the VVNP as bird's habitat that included ponds, bushes and grasslands. Separate area has been kept for a big aviary and keeping big uncommon birds, which are normally not seen by common visitors. Excellent nesting and roosting habitat is naturally available for these birds in VVNP

6.3.3.3 Visitors amenities

Van Vihar is an important place for conservation education. More than 3 Lakhs visitors visit every year and it should be harnessed to link people with conservation issues. Visitor amenities are needed to be developed and maintained to make the VVNP visitor friendly and comfortable.

The 5 km. BT road runs along the bank of the lake which is also designated as visitor's zone. Visitors are allowed to enter from both the ends of the road, namely Ramu and Cheeku Dwar. Both the gates have ticket counter. Visitors are provided with many amenities which include toilet facilities at Gate No. 1, Tiger enclosure, Snake enclosure and Vihar Vithika. Drinking water is also provided at both the gates. Vihar Vithika, Tiger bada, Snake facility etc.

6.3.3.3.1 Nature Interpretation Centre (NIC)

Vihar Vithika is an Interpretation Center established with an objective to educate and create awareness amongst the people towards conservation of natural

resources. Interpretation Centre has various photographs, models, animal trophies and other exhibits and some interactive exhibits for the visitors to feel the touch of wildlife. A small souvenir shop is also running in the same premises where one can buy articles like T-shirts, Caps, Key rings, Books, Ayurvedic Medicines etc. There is a small but fully equipped Conference Hall where wildlife movies are shown on each working day in the evening. Just behind the Conference Hall a 300+ capacity open air amphitheatre is available where various presentations, programs and awareness campaign take place. For refreshment of visitors a Cafeteria is available in the same premises. This facility is quite primitive and needs upgradation not only on conceptual front but re-doing of civil works also. The existing building neither sufficient nor strong enough for extension purpose. A state of art nature Interpretation Centre is proposed with an integrated building comprising of different sections of NIC and the Director office. The green building technology needs to be roped in to enable minimum use of power and allow maximum natural light in each and every cover of the building. The area from gate no. 2 to existing Vihar Vithika needs to be landscaped to ensure judicious use for NIC, cafeteria, parking, open space etc.

All along the road at regular intervals sun shelters, dust bins etc. are placed. A well-designed signage system is in place within the tourism zone, which includes directional signages and details about the animals for self-guidance to the visitors. To promote non-polluting means of transport, two battery operated carts and

around 94 bicycles are available at the gates on hire basis. For the morning walkers, monthly and annual passes are issued on the nominal payments. Small library is available for the visitors in the Director's office.

The existing amenities available and should be maintained so as they remain functional and useful. Various amenities that needs to be developed and maintained are discussed as following :

6.3.3.3.2 - Parking

At present vehicles are allowed through both the gates of the VVNP. It is proposed to prohibit entry of vehicles within VVNP to reduce noise and air pollution. The problem is availability of space for parking. The issue of space for parking shall be taken up with Municipal Corporation and various alternatives for parking shall be explored. There is possibility of creating a multi level parking near gate no. 1 and government land availability can be explored for parking at gate no. 2. Till such time it will not be feasible to impose vehicle prohibition.

6.3.3.3.3 - Transport

As mentioned in the foregone para that vehicles are permitted in the tourism zone, therefore most of the visitors uses their own vehicles as means of transportation within the zoo premises. However, for the people who are not coming by vehicles, two battery operated carts are available on hire basis. Ideally set of at least 20 battery operated carts should ply to and fro from one gate to another and the charges could be

inclusive in the entry fee. No vehicle should be allowed to enter the park. This arrangement is possible only either boat club is declared vehicle free or parking facility is provided at both the gate. The visitor can board any vehicle at anywhere and can also get down anywhere he / she chooses to. For promoting pollution free means of transportation use of bicycle is promoted. Van Vihar Workers Society is providing bicycle on the rent and that is very popular among the visitors. At present 94 bicycles are available for the purpose.

Regular maintenance of bicycles and battery operated bus is needed. In future provision for battery operated vehicles like mini buses, golf carts, trams and cycle rikshaw etc. shall be explored.

6.3.3.3.4. Pedestrian footpath and cycling lane

The road between gate no. 1 and 2 is used by the visitors, hence two ways traffic is prevalent on the road. The road is being used by all types of vehicles, pedestrians and cyclist facilitate the traffic within VVNP it is proposed to construct a pedestrian footpath on the inner side of the road and along with it a cycling lane.

6.3.3.3.5 Road

The existing road in the display area is maintained by Public Works Department of Madhya Pradesh. Regular maintenance and more speed barriers should be taken up. Construction of new road from snake park to

Aam Bagicha via management office has to be taken up, as herbivore enclosures are proposed in this area.

6.3.3.3.6 Sit outs and shelters.

There are sit outs and shelters all along the road, but these shelters are not looking enough to the number of visitors visiting to the VVNP. More sit outs and shelters should be taken up in future at appropriate locations. Care should be taken that all these structure are made in such a way so they do not look out of place or do not obstruct the view of landscape.

6.3.3.3.7 Garbage collection

Use of polythene within the VVNP premises is banned and it should be strictly enforced. Still there are chances of littering by visitors, to reduce it, proper signages should be displayed. Dust bins are placed at different locations. Repairs of the dust bin and regular cleaning should be done and if needed more dust bins designed and placed. It should be placed in such a way that the dust bin merge with the surroundings. Since free ranging animals are present in VVNP therefore dust bins with closed lid should be used.

6.3.3.3.8 --Toilet

It is obligatory to provide adequate civic facilities like toilets and drinking water points at convenient places in the National Park for the visitors. The available facility is at gate no. 1, tiger bara, snake park and at Vihar

Vithika. The facility at gate no-1 is to be renovated and few more facilities at suitable locations shall be taken up as and when required.

6.3.3.3.9 - Drinking water

It is obligatory to provide adequate civic facilities like drinking water points at convenient places in the National Park for the visitors. The facility available at gate no. 1, safari, tiger enclosure, snake park gate no-2 and at Vihar Vithika . The water facility is equipped with water purifier and water cooler. Few more facilities at suitable locations should be taken up. These facilities require regular maintenance on roster basis to ensure proper and quality water supply.

6.3.3.3.10 - Entry Gates

The entry gates of any institution leaves ever lasting impact on the visitors and also acts as reception to that area. Therefore, the VVNP entrance should be impressive and should reflect purpose with the mission of Van Vihar. The gates of VVNP are not very apt to the above, hence a thorough renovation with adequate landscaping, better queue arrangements, informative signages, sitting arrangement for waiting visitors, drinking water and other facility etc. should be taken up. A CCTV monitoring system attached with Director, Asstt. Director and RO Tourism should also be taken up in the future.

Both the gates shall have first aid equipment, wheel chair, sufficient brochure and guide maps etc. for the visitors. Along with it facilities such as clock room, etc. should also be developed. At both the gates a large well depicted guide map should also be displayed in order to guide visitors about the various display, civic amenities and other important points.

6.3.3.3.11 – Cycling

The cycling activity was started in Van Vihar during May 2008 with 14 bicycles on hire basis, at present 94 bicycles are being operated. The Van Vihar workers welfare society is operating and maintaining these bicycles on profit sharing basis. The MOU is to be signed between park management and society. The number of bicycles is proposed to be increased upto 150 for the time being which is supposed to be reviewed time and again.

6.3.3.3.12 - Other services

The other services which are being provided include morning walk, safari and trekking. For morning walk monthly and annual passes are issued on payment of requisite fee. Passes are valid only for open days and from opening of the Park to 9:30 AM. Similarly, safari is allowed in the afternoon on payment of requisite fee. Trekking routes have been laid out.

Need for a reasonably well developed children corner is felt since long. Area near the present interpretation centre should be developed as a children's

corner with proper landscaping, swings, slides, interactive games, food corner, souvenir cum gift shop and other required facilities.

6.3.3.3.13 – Cafeteria and Kiosks

Among this facility, there is 1 cafeteria in Vihar Vithika and two kiosks at snake park and tiger enclosure respectively. These facilities are run on the basis of annual lease out process. A suitable agreement has been developed, which includes precautionary hygienic condition required within the VVNP premises for day to day functioning of such facilities.

6.3.4 Administrative Zone

The VVNP administration section is housed in the office building near the Cheeku dwar. Administration section is headed by Director VVNP. Asstt. Director VVNP helps him in performing duties on day to day basis. General administration section is overall supervised by the Superintendent. The section is further divided into six sub sections.

- Audit/inspection.
- Accounts
- Establishment
- Store
- Management
- Receive-Dispatch

A full fledge computer section is working for data entry of day-to-day works. There is a separate store and record room which is attached with the administration section for keeping store and records of the Directors office.

The overall staff position as on 31.3.2011 is shown in the table 6.6

Table 6.6
Staff Position as on 31.03.2011

S.N.	Name of designation	Sanctioned post	Posted	Vacant post
1	Director	1	1	-
2	Asstt. Director	1	1	-
3	Vet. Doctor	1	1	-
4	Range Officer	3	3	-
5	Deputy Ranger	3	3	-
6	Forester	10	10	-
7	Forest Guard	46	46	-
8	Superintendent	1	1	-
9	Cinema Operator	1	1	-
10	Asstt. Grade- III	4	4	-
11	Driver	2	2	-
12	Peon	2	2	-
13	Daftari	1	-	1

VVNP Bhopal is directly under control of M.P. Forest Department and is under the Chief Wildlife Warden of Madhya Pradesh. Overall head of the VVNP is a Director who is Chief Conservator of Forests rank. The existing administrative arrangement and staff position is detailed in previous para, apart from the staff shown in table. There are 70 daily wages

workers employed in VVNP to carry out day to day work of the park.

The present arrangement is good enough for day to day functioning of the VVNP, still following additional personnel are required for better functioning of the Park :

1. Veterinarian	-	1
2. Hospital Compounder	-	1
3. Lab Assistant	-	1
4. Education Officer	-	1
5. Biologist	-	1
6. Steno	-	1
7. Mali	-	4
8. Computer programmer	-	1

Computer, photocopier, presentation equipment etc. available but the equipment required for better office management shall be procured from time to time. The available equipment should have a protocol for maintenance/ upgradation.

6.3.4.1 - Veterinary Section

VVNP has a reasonably well-equipped wildlife health facility, that includes veterinary hospital, indoor clinic, pathological laboratory, operation theater and quarantine facility. Along with this there are facilities of X-ray, postmortem, complete blood count, quarantine enclosures etc. Available infrastructure list is shown in Chapter-3.5.3 .

The quarantine enclosure is separate for carnivores and herbivores and is situated away from the animal enclosures. Postmortem and incinerator area also situated away from animal enclosure near management unit office.

Present veterinary hospital has some basic equipment and infrastructure. With this arrangement present infrastructure can cater surgical operations, complete blood analysis, X-ray, dental examination and treatment, tranquillisation, incubation, stain and faecal sample analysis etc. Apart from hospital, a quarantine ward for carnivore, nursery for hand rearing and post mortem room and also crematorium for disposal of carcasses are placed at suitable locations within the VVNP campus.

Upgradation and further equipping of the existing facility should also be taken up. This will include a new quarantine enclosure for carnivore, indoor patient ward near hospital, ICCU room, new modern lab room etc. among the equipment electro cautry, ultra sound system, air sterilization unit for OT, air conditioning of OT, Autoclave, ECG Machine, Pulse Oximeter with rectal probe, automatic blood chemistry analyser, deep freezer, hydraulic OT table, ventilator and monitoring system, a modern gaseous anaesthesia machine and endo-tracheal tube (18 to 22 Nos.), dental surgical equipment, dental x-ray machine and video camera etc. should be procured in due course of time.

Carcases of animals are disposed off in the crematorium by using fire wood. An incinerator system has already been installed and it is being made operational. This will ensure proper disposal of dead bodies and also solid waste left from

the feed of animal enclosures to be incinerated on routine basis.

The present veterinary section is manned by one veterinarian, one compounder and one assistant. Looking to the size of VVNP and quantum of work it is needed to have an extra veterinarian, a compounder, a data entry operator for maintaining various health records and a lab assistant. Necessary action for getting these posts sanctioned and filled shall be taken up on priority.

The library of the veterinary section have small collection of reference books, further addition of the useful publication on treatment, health care and upkeep of wild animals shall also be taken up.

For tranquilization of animals, post mortem, disposal of carcasses, population control measures and euthanasia of animals etc, guidelines issued by C.Z.A. shall be followed.

6.3.4.2- Store & Feed Section

There is no separate commissary section in this National Park. Management of feed and store can be broadly divided into following 3 sub section :

- i) Feed for carnivore
- ii) Feed for Bears
- iii) Feed for other animals.

6.3.4.2.1 - Feed for carnivore Like any other Zoological park, carnivores animals are fed with beef meat. Beef meat is provided on all days of week except on Friday. This day is utilized for other essential management exercises such as cleaning, transferring of animals, routine health check up etc. Average daily diet prevalent in this zoo for different carnivores animals are shown in following table :-

Table No. 6.7
Average daily diets of carnivores

Sr. No.	Name of Species	Ave. daily diet
1	Tiger	8 to 10 kg.
2	Lion	7 to 9 kg.
3	Panther	3 to 4 kg.
4	Jackal	1 to 1½ kg.
5	Hyena	3 to 4 kg.

Crocodiles are given meat, whereas Turtles & Tortoise are given beef meat, tomatoes and other fruits.

Feed for all the captive animals is supervised and headed by veterinarian and Range officer (Safari) jointly. Most of the animals in the captivity are carnivore and reptiles, for them beef / goat meat, chickens, rats; frogs, fishes etc. are procured through annual tendering process. Every year tenders for above items are floated and tender is awarded to the suitable supplier as per the prevailing rules. The meat supplied is from slaughter house of Municipal Corporation, where meat is delivered for human consumption

as well. A veterinarian of Municipal Corporation certifies quality of meat and which is further checked and inspected by zoo veterinarian and Range Officer (Safari).

The meat is supplied in the morning at around 7-8 AM at the meat house, where meat is brought in four pieces. After approval the meat is chopped in suitable sizes for supply to various housings. A good hygienic meat house is in place near safari office. The present meat house has two deep freezers, electronic weighments and liquid waste disposal system. This house and system needs modernization and upgradation and an ultraviolet disinfection unit for disinfecting chopping and other instruments which are used in the meat house. The slaughtering is done in the VVNP premises on the days on which the slaughter house of Municipal Corporation remains closed.

After chopping the meat is divided housingwise and transported to the concerned housings, where animal supervisors receive it and make arrangement for animalwise distribution in their respective housings. Daily recording of feed given and feed left by each individual is kept for diet evaluation and monitoring. A meat transport vehicle is urgently required for the purpose.

6.3.4.2.2 – feed for bears Each Bear is given following daily diet on an average :-

Ata Lapsi	-	600 gm.
Honey	-	200 gm.
Carrot	-	200 gm.
Sweet potato	-	200 gm.
Fruits	-	1.5 kg
Egg	-	01 no.
Daliya	-	200 gs.
Milk	-	1 lt.
Nuts	-	As per requirements

6.3.4.2.3 – Feed for other animals

Herbivores animals are free ranging and around 300 ha. of grassland and open area is available to them. Animals are supplemented with husk of gram, lentil, wheat, mineral mixed feed supplement (Sudana) etc. Apart from it, mineral mixed salt licks are placed at different points, preferably near water sources.

During the pinch period of summer shortage of nutritious grasses is felt. To meet out this eventuality Barseem and Chari is grown in the fodder farm, which is around 10 ha. in area. Barseem and Chari is cultivated and placed at different vantage points. Also green grass is cut during winter and stored with salt for feeding during summer.

6.3.4.3 - Health, Hygiene and Sanitation

Health care, Hygiene and Sanitation is very important aspect of any park. The daily, weekly, monthly and quarterly protocol for health and hygiene along with protocol covering the free ranging herbivores as discussed in previous para. All existing good practices and the guidelines issued in this

regard by CZA shall be followed. Some of the important provisions are mentioned here under :

6.3.4.3.1 - Health

General well being of the animals is of paramount importance. Various preventive measures shall be taken up as per the standards, guidelines and protocol related to wild animals in captivity as well as in free ranging. Indian Veterinary Research Institute, Bareilly (U.P.) and Central Zoo Authority have issued a document in this regards. Vaccination schedule for animals shall be prepared as per the guidelines and protocol and also various local factors. A complete protocol should be followed regarding vaccination, deworming, tick control measures, scat, urine, endo/ ecto-parasites, complete blood count etc.

Free ranging and captive wild animals have several zoonotic agents and may be a potential source of communicating them to human beings and other animals vice-versa. Following preventive measures and strategies shall be followed for containment of zoonotic infections:-

- Use of disinfectant foot bath at all entry point of the housing.
- Restrict the entry of sick visitors if possible.
- Provide training to the VVNP personnel to create awareness about zoonotic diseases so that they strictly follow necessary do's and don'ts for protection of self, animals and visitors.
- All keepers should be given separate disinfected gear.

- Keepers and veterinarians should use personal protective clothing (disposable gowns, gloves, face masks) and should wash their hands after handling meat and other food materials.
- Carcasses of animal suspected to be died of anthrax or any other communicable diseases shall not be opened.
- All the staff associated with animal keeping and handling viz. keepers, veterinarians should be provided prophylactic anti-rabies and other vaccines under proper medical supervision.
- Any suspected case of rabies or other zoonotic conditions shall be isolated and should be handled with precaution.
- In case of bite or scratch from carrier animals are suspected rabies case shall be provided with post exposure rabies vaccination.
- Persons engaged in animal keeping shall be subjected to annual health check up for various important zoonotic diseases.
- Deworming is recommended atleast twice a year.

Recording of observations regarding social, biological and reproductive behaviours and health status of animals including preventive and curative treatment, provided birth and care of young ones, sickness of mortalities shall be maintained. Among these documents keeper's diary, daily report, animal history cards, stud book and treatment card shall be maintained as given in guidelines

During the quarantine period, newly arrived animals should be looked after carefully and monitored clinically or by laboratory

testing for evidence of any infectious conditions. Examine stool samples for presence of parasitic ova. Three negative faecal examination is essential to rule out the possibility of helminthic parasites and coccidiosis. Blood should be examined for haemoprotozoan infections. Examination of urine and testing of all primates and artiodactylids for tuberculosis is always desirable. The current outbreaks of leptospirosis in bears underline the need for monitoring blood and urine of bears for leptospira during quarantine. Besides quarantine for new arrivals, sick animals should be isolated and treated for specific disease condition till they recover.

6.3.4.3.2 - Hygiene and Sanitation

Good hygiene and sanitation are essential for maintaining healthy animals and reducing incidences of infectious diseases. Following are main routes of infections:

- Improper design or construction of enclosures.
- Humans : Hands, Hair, Clothing, Foot wear etc.
- Contaminated equipment including the food distribution vans.
- Domestic and wild animals.
- Improperly disposed carcasses.
- Contaminated food and water.
- Backyard flock like rodents and other vermin.
- Infected premises.
- Migratory birds.

While designing enclosures easiness of cleaning and a proper drainage system shall be taken into the mind. All the premises where animals are kept, all their feed is stored or processed shall be clean on daily basis. Periodical disinfection by torching, itinol, bleaching powder, lime etc. should be taken up.

All the personnel engaged in animal keeping and handling shall be provided protective gears and only provided gears shall be used in the animal keeping section.

Kitchen and meat house are the important places which should be taken care for better hygienic level. At least twice daily cleaning of these premises shall be done, diluted bleach should be used once in a week to scrub food buckets. If possible utensils, equipment shall be disinfected in ultra-violet radiation boxes.

The present hygiene protocol of animal premises or enclosure is reasonably good. Cleaning should be first done with the help of broom and thereafter if necessary by the sills. Floor should be hand sprayed to remove any dung or manure, food, or debris. After that wet cleaning with water should be done. Apart from present practices an effective paste (including rats) management program should be implemented. Daily, weekly and quarterly protocol shall be strictly followed and monitored. Introducing use of water pressure or vacuum cleaning machines should also be thought off.

Water is one of the major routes for entry of harmful microbes into the animal bodies. The water cleaning protocol as followed should be adhered strictly.

The bedding and biomedical waste should be discarded properly, preferably through incineration.

Proper handling and disposal of carcass is essential to minimize risk of spread of infection. A carcass meant for post-mortem examination should be removed immediately from enclosure and shifted to cold room or placed on an ice slab until necropsy. Incinerator installed in the VVNP premises **should be** made operational as early as possible. Till then carcass can be burnt in a 45 cm deep trench of sufficient length and width. If carcass is to be disposed off by burial, it should be 1.5 to 2.0 meter deep with an ample supply of quick lime / bleaching powder and any other disinfectant.

Disposal of animal house wastes (faeces, beddings, residues) are buried at present but shall be incinerated once the incinerator start operating.

Liquid wastes from animal enclosures, meat house, PM house, toilets etc. are disposed off in septic tanks. However it is proposed to develop a complete sewage disposable system on modern lines.

6.3.4.4 - Rescue squad –

Wild animal rescue and rehabilitation operations have enormously increased in last two decades. This increase in number of immobilisation and rescue is result of increasing animal human conflicts in and around shrinking wildlife habitat. Looking to this scenario M.P. Forest Department

have constituted 9 rescue squads at strategic locations for tackling emergencies related to rescue of wild animal in distress. VVNP Zoo is one of the 9-rescue squad covering Rajgarh, Bhopal, Vidisha, Sehore & Raisen Districts of Madhya Pradesh.

A team of 8-10 staff have been constituted and trained for the purpose. Rescue squad has been equipped for the various exigencies in the rescuing of animals in distress. List of equipments available with the rescue squad is enclosed as **Appendix-XXXV**. A customised rescue vehicle has been designed and procured for the squad, probably for first time in India. Regular experience sharing workshops are held annually to strengthen the rescue squads. The list of rescue operation carried out by rescue squad of VVNP since 2007-08 shown in **Appendix XXXVI**.

6.3.4.5 - Maintenance Section

Primarily maintenance involves that of water, buildings and power supply. There are many kinds of buildings under the administration of VVNP, which include office, residential, buildings of tourist importance, health care buildings and animal housings etc.

6.3.4.5.1– Buildings

All the buildings are maintained by concerned R.O. Three year roaster of building maintenance is maintained in account section. There is need for getting new connections at

various points, because in existing connections many items are covered by a single connection. This causes frequent maintenance due to over load.

The present Director office is in very old shed. A new modern and aesthetically designed building is required and similarly offices for RO Tourism and Education Officer should also be created near Director's office. All the offices, residential and tourism buildings etc. are maintained by respective Unit in-charge under the supervision of assistant director. All the buildings are put under three years roster system for maintenance. All the housings and kraals are regularly checked and maintained. For day-to-day maintenance, the section comprises of electrician, a carpenter and a plumber is deputed and provided with all the maintenance tools and equipments. Just near gate no. 2 i.e. Cheeku Dwar there is an administrative building where Director, Asstt. Director and other secretarial staff are working. Administrative building also has a small library. Veterinary hospital is just on the back of office building.

At present there are no official residences for the Director, Asstt. Director, Range officers and Veterinarian. However some accommodation for the class III and IV employee is available at Prempura and Kolar road. A staff accommodation position is highly insufficient as there are only 12 small residential units. A lot of work is to be done on this front, to undertake staff accommodation as well as accommodation of Director, Asstt. Director and Vet. Officer.

The status of existing land at Prempura is not very clear; therefore demarcation and proper taking over of this land

should be done. Once the legal possession of the land is acquired all the existing buildings should be demolished. Over this land, a planned development of residential colony preferably of 1+1 floor should be taken up. Other government land in nearby area should also be considered if available for this purpose.

6.3.4.5.2 – Roads

Van Vihar National Park has good network of roads for visitors and management purposes. The main tourism road is double lane BT road, which is 4.80 km. in length and run along the upper lake of Bhopal. Apart from this there is a good network of all weather road used for management purposes is shown in table 6.8

Table 6.8
Details of Road Networks

S.No.	Details of the road	Length (in Km.)
1	Safari Office to New Tiger Housing	2.0
2	Quarantine tri-circle- to rescue centre tri-circle	2.0
3	New Tiger Housing to Old Tiger Housing	1.0
4	Pahadi baba and water tank link roads	0.5
5	Heeraman Baba to MM House tri-circle	1.0
6	Lion and bear housing road	0.5
7	Gate No. 1 to Lion housing and link road	2.0
8	Stop dam link road near boundary	1.5
9	Watch tower tri-circle to rescue centre tri-circle	1.5
10	Watch tower to water tank link	0.5
11	Gate No. 2 to Barseem bada and rescue ghat	3.0
12	Management office to Barseem bada and ghati link	1.5

13	Snake park to ghat link.	1.0
14	New tiger to management office	2.0
15	Inside Barseem bada	1.5
16	Inside Lion enclosure	2.0
17	Inside Tiger enclosure	6.3
18	Inside Bear enclosure	1.7
19	Along boundary wall.	3.5
	Total	35.0

Tracking routs are also laid out for the people interested in it. Visitors can do the tracking after paying fee of Rs. 50.

6.3.4.5.3 – Fire Protection

Van Vihar National Park is having large area of 445.21 Ha. is situated right in the town. This area is fully stocked with vegetation and prone to fire. Every year preventive measures are taken up against fire. All the roads and fire lines are cleared in the month of October- November. List of this fire lines enclosed as **Appendix-XXXI**.

During the fire season from 15th February to onset of monsoon fire watchers are engaged for watch and ward, regular brushing and cleaning of the inflammable material from the roads is done.

6.3.4.5.4 Electric Line

There is nearly 5 km. of electric line of 1100 KV, which is maintained by MPSEB. There is a need of new electric line on the plateau of Van Vihar to provide electric supply at Rescue Centre and nearby housings.

A regular maintenance is also required of existing electric lines. Maintenance of internal meters supply line etc. is carried out by the maintenance section.

6.3.4.6 - Safety and Security Section

VVNP is spread over a large area and have two types of boundary structures.

6.3.4.6.1 Boundary wall

The land side boundary is protected by stone masonry wall having total length 3.240 kms. Details of Boundary wall mentioned in **Appendix-XXXII**. There are two entry gates known as Ramu Gate or Gate No. 1 and Cheeku Gate or Gate No. 2. Both the gates are manned for 24 hrs. The renovation of the gates shall be taken up and should be designed in such a way that the free ranging population of the VVNP not to cross over in the other way stray dogs, domestic live stock could not get access into the VVNP. Any breaches in the perimeter boundary barrier must be repaired immediately. It is proposed to create boundary plantation of bamboos, along the perimeter as buffer and also a motorable road all along the boundary wall for inspection and patrolling. Regular annual maintenance of boundary wall should be taken up, which will include repair, renovation and strengthening etc.

Table 6.9

Abstract of Boundary Wall

S.N.	Particulars	Section	total length	Proposed length (In Mtr.)
1	Wall to be Constructed after dismantling (Dust wall)	6—16	200	116
		23--33	200	172
		62--113	1020	902
		140--146	120	66
		151--160	180	169
			Total	1425
2	Wall to be extended upto 3 Mt. height	1—7	120	111
		11--29	360	241
		33--64	620	600
		74--76	40	10
		95--113	360	88
		137--144	140	114
		159--163	80	65
			Total	1229
3	Wall need not repair	113--136	480	480
		146--152	120	106
			Total	586
	Grand Total			3240

Table 6.10
Boundary Wall Maintenance Detail

Sr	Particulars	Quantity	Rate	Unit	Amount in lakh
1	New construction	1425	6500	Mtr.	92.62
2	Wall extension	1229		Mtr.	43.02
3	New wall	586	-	Mtr.	-
	Total	3240	6500		135.64

Table 6.11
Yearwise maintenance of Boundary Wall

S.N.	Year	Wall Construction		Wall upgradation		Total Amount
		Length (R.M.)	Amount (Rs)	Length (R.M.)	Amount (Rs)	
		1	2011-2012	288	1872000	
2	2012-2013	302	1963000	200	700000	2663000
3	2013-2014	300	1950000	200	700000	2650000
4	2014-2015	300	1950000	210	735000	2685000
5	2015-2016	235	1527500	267	934500	2462000
	Total	1425	9262500	1229	4301500	13564000

6.3.4.6.2 – Chainlink Fencing -

The lake side has chainlink fencing of 5.214 kms length. Regular annual maintenance of chainlink fencing should be taken up, which will include repair, renovation and strengthening of them. Whereas anti-rust coating, straightening of poles, replacing binding wires etc. should be taken up as annual maintenance of chainlink fencing. Details of Chainlink fencing mentioned in **Appendix-XXXIII**

Table 6.12

Yearwise Maintenance Detail of Chainlink Fencing

Year	S.N.	Pillar no	Total	Rate	Amount
2011-2012	13	13-14	98		
	14	14-15	103		
	15	15-16	100		
	16	16-17	115		
	17	17-18	80		
	18	18-19	103		
	19	19-20	180		
	20	20-21	105		
	21	21-22	125		
Total for the year 2011-2012			1009	1000	1009000
2012-2013	9	9-10	320		

	10	10-11	288		
	11	11-12	204		
	12	12-13	250		
Total for year 2012-2013			1062	1000	1062000
2013-2014	1	1-2	86		
	2	2-3	87		
	3	3-4	330		
	4	4-5	175		
	5	5-6	495		
Total for year 2013-2014			1173	1000	1173000
2014-2015	6	6-7	195		
	7	7-8	290		
	8	8-9	450		
Total for year 2014-2015			935	1000	935000
2015-2016	22	22-23	275		
	23	23-24	210		
	24	24-25	220		
	25	25-26	105		
	26	26-27	155		
	27	27-28	70		
Total for the year 2015-2016			1035	1000	1035000
Grand Total			5214		5214000

6.3.4.6.3 - Night patrolling

There is a separate unit for night patrolling which is supervised by Assistant Director and Range Officers on the roaster basis. They do monitoring of captive animals and patrol of boundary and other areas to prevent entry of any unauthorised person.

6.3.4.7 Water supply Section

VVNP has its own water supply system and have 6 wells and 11 tube wells. The details of these water

supply systems are discussed earlier. Distribution system is through pipe lines and 3 overhead and 3 ground tanks. System is managed by section comprising of in-charge staff, electricians and plumbers etc. In normal years there is enough water to meet the requirement of VVNP.

Water is one of the most important natural resource required for any national Park. Optimum utilization of this natural resource to cater need of water for wildlife as well as visitors. There are both kind of water sources available in the VVNP premises i.e. surface water source viz. lake and pond and ground water i.e. wells and tubewells.

Part of upper lake fall within the periphery of VVNP. As far as this water remains within the boundary of the VVNP, there is not much problem about water exist, because it is an important source for free ranging animals. Wells and tube wells also get recharged through it. There is need to establish some more structure in this area to retain the water during summer season.

The water supply system caters all animal enclosures, mugger, gharial and other ponds, barseem farm, water saucers, residential colony, various tourism points and other administrative establishment.

A detailed contingency plan for exceptionally dry year is important to meet out any contingency. Regular maintenance of water sources, pumps and pipelines is very crucial as almost whole of water supply is dependent

on this system. The plateau portions of the VVNP do not have any natural water sources, as water level on the plateau is low. Some deeper bore wells are to be dugout. To augment wells, tube wells, ponds, soil and moisture conservation work should be taken up on plateau as well as valley portion. Based on well designed soil and moisture conservation work a pond can be taken up on the plateau. Most of the pumps are electricity based; it will be useful from environmental and economical point of view to phase out them with solar pumps.

6.3.4.8 - Vehicle Section

The details of available vehicle are given in section 3.7.3 more battery operated vehicles as discussed in the tourism amenity section are required for pollution free environment in the VVNP. There is an urgent need of one ambulance and one meat distribution vehicle. Both the Gypsies with the VVNP are not in proper condition and needs replacement. Apart from this, other vehicles will require replacement as and when they are written off. Maintenance of vehicle shall be carried out as per the instruction of Govt. of Madhya Pradesh.

6.3.4.9 - General Administration Section.

Discussed in Para 3.7.1 & 3.7.2. time to time revision of staff position is required. Some more staff will

be needed with the expansion of activities & increase in the number of animals.

6.3.4.10 Description of the layout plan

The whole area of VVNP has been digitised therefore layout plan can be obtained on any scale. For the purpose of Appendix layout map is enclosed on the scale of 1:3500. Various features have been digitised as a different layer and maps can be obtained by selecting the desired layers. Following different maps have been enclosed along with the Management Plan.

6.3.4.10.1 - Composit Map

This map contains following features : Boundary, Contours, Roads, Drainages, Entry Gates, Religious places, Meadows, Tree covers, Transmission lines etc.

6.3.4.10.2 – Animal Enclosure Map

The map showing animal enclosures in animal display, conservation breeding and rescue centre areas have been prepared. All existing animal enclosures are shown in black colour, enclosures to be modified in green, enclosures that need to be re-done after demolition. The old structure in red and new proposed enclosures has been indicated in blue colour. Location of the housing and service roads etc. are shown in the map.

6.3.4.10.3 - Wildlife Health Management & Administration Map

The features included in this map are - Director's office, Entry gates, Offices of all units, Hospital, Meat house, Incinerator, PM House, Quarantine, Fodder form, Fire lines, Watch towers, Staff quarters, Wireless stations, Kitchen etc.

6.3.4.10.4 - Visitors facility Map

This map include visitor circulation route, entry plaza, sit outs, drinking water points, toilets, interpretation centre, snake interpretation centre, auditorium, kiosks and cafe etc.

6.3.4.10.5 - Water Management Map

All the ponds, wells, tube wells, electric lines, pipe lines, saucers, sump wells, dikes, overhead tanks etc. are indicated in this map.

6.3.4.10.6 – Vegetation Map

This map shows complete vegetation picture of Van Vihar.

6.3.5 Old Animal Zone / Rescue Centre

The rescue centre of VVNP is mainly established for the animal received from various circuses with the consent of CZA. It consists of 30 night cubicles and 20 enclosures for lions, 8 enclosures and cubicles for tigers and 8 enclosures and cubicles for bear. Along with above

facility which has been established by CZA there is some extra housing facilities for other captive animals.

This VVNP is also designated as a rescue centre for injured, sick, rescued animals from circuses/kalandars and strayed wild animals. There cannot be a specific collection plan, as animals will be rescued as and when it is required. At Rescue Centre many feeding cubicles and enclosures are vacant much more animals can be accommodated, looking to space availability etc. The animal which kept here are very old. These animals should be treated as special animal for their upkeep. Following carrying capacity in the rescue centre for the rescued wild animals:-

Table 6.13
Carrying capacity of rescue centre

S.No.	Name of species	Scientific name	Carrying capacity
1	Bengal Tiger	<i>Panthera tigris tigris</i>	08
2	Indian Lion	<i>Panthera leo persica</i>	30
3	Indian sloth bear	<i>Melursus ursinus</i>	26

6.3.6 Van Vihar Phase-II

The Van Vihar National Park is strategically located in the center of the city of Bhopal, and adjacent to the upper lake. This severely limits the variety of animals that can be displayed, restricting it to species from Madhya Pradesh. Thus, a new Wildlife Cluster is envisaged that will offer a much more comprehensive and wider range of animals,

wildlife and ecotourism related offering. As the development of a modern zoo along with ancillary facilities requires very large sums of money and, if innovatively managed, can also generate significant revenues to make it fully or largely self-reliant, it is proposed that the new modern zoo should be established in a public-private-partnership (PPP) or build-operate-transfer (BOT) model, in which the costs and the revenues can be shared with the investors.

6.3.7 S.O.S. Wildlife

In the Van Vihar upkeep of all the rescued and other bears is looked after by a Delhi based NGO “Wildlife SOS” under MOU with M.P. Government with due approval of CZA. The people engaged in above sections are sincerely doing their duties. It is proposed to provide training and exposure in the field of evaluation, implementation and upgradation of diet. Modernisation and upgradation of kitchen and its allied facilities should be taken up.

CHAPTER – 7

Conservation Education and Interpretation

7.1 General

In the present circumstances wildlife habitats are under severe biotic pressure and number of species of wild animals has become endangered. In such scenario the Parks will not only have to sustain their own population but also augment the depleting populations of endangered species in the wild. Parks are visited by large number of visitors, therefore they can be an important institution for imparting conservation education, educating people about the habitat, ecosystems and forests, maintaining the life supporting nature, inspire visitor's empathy and awareness, for the need of conservation of wildlife and maintaining the ecological balance.

The Parks should have an outreach and extension activities to the urban population, surrounding population and other institution about involving them in wildlife conservation.

Looking to importance of conservation education and interpretation, it is one of the major objective for Van Vihar National Park. There is need to achieve this object through a well designed interpretation programme.

7.2 Visitation

VVNP is situated in the heart of Bhopal and at a picturesque location of the town. In a recent survey by a leading daily news paper of Bhopal, VVNP is the most favoured destination in and around Bhopal, approximately 3.5 lakhs visitors are visiting every year. The VVNP is located in the same area in which other tourist attraction like Bharat Bhawan, Museum of Man, Boat Club etc. are situated. A new centre of attraction for the visitor is coming up in the vicinity of the Park opposite Prempura ghat to be linked with a suspension bridge. This centre is being developed by M.P. Tourism Development Corporation, a GOMP undertaking.

Large number of visitors, large area and unique location give following strengths and opportunities for conservation education and interpretation.

- Variety of visitor.
- A large number of young and educated people.
- It is an inexpensive source of entertainment, the average rate per person is between Rs. 20-25 and education trips are allowed with 50% concessions.
- In addition to animal enclosures, VVNP has a good biodiversity within its premises.

7.3 Capacity building of staff

Education Officer and the staff engaged in the tourism zone is the important key for Park education programme. A trained and hospitable staff can provide good experience to visitors as they can help visitors in knowing more

about animals, conservation issues and interact in a better way. Some areas for capacity building of VVNP staff can be as under :-

- Visitor management and interaction.
- Handling school visits.
- Interpretation about animal, wildlife habitat, conservation issues etc.
- Education and communication skills.

Every employee and volunteer should be given an introductory overview of the aims and objectives of the organisation, including its conservation and educational activity. No matter what their job is, the staff should be aware that they are working towards a common goal. All parks should develop a structured training plan for their staff and volunteers to ensure best practice in all fields of operation and support for the professional development of their staff."

Human resources management and utilization by any organisation defines its success in any area of its functioning. It should be seen that all staff should clearly explained about the vision, mission and objectives. Training and capacity building play a key role in creating and sustaining a committed, motivated and effective cadre of staff. Therefore, the Park should plan for training and capacity building at all levels of staff for upgrading of skills, motivation and job enrichment. The staff shall cover the managers, animal keepers, guides, volunteers, conservation education staff etc.

7.3.1 Fields of training

The Park should plan the training calendar for every year based on requirement of the park and what is desirable by the staff. The VVNP have diverse area of working, the main areas for capacity building and training are as under :

- Animal keeping
 - Animal upkeep
 - Animal enrichment
 - Hygiene and sanitation
 - Health care
 - Food and nutrition requirement of different animals
 - Enclosure designs.
 - Zoonotic diseases etc.
- Tourism or visitor management
 - Visitor management
 - Visitor interaction
 - Interpretation etc.
- Habitat management
 - Grassland/ meadow development.
 - Food supplements.
 - Water holes etc.
- Conservation education and awareness
 - Nature conservation

- Outreach activities
- Organising nature camp.
- Wildlife Protection.
 - Act and policies.
 - Wildlife crime control
 - Crime investigation
 - Sample collections

7.3.2 Organising study tours

The front line staff is quite familiar with their duties and do perform their duties satisfactory. The scope for improvement is always there. It will be extremely beneficial to enhance their efficiency to expose them to the best practices being followed elsewhere in the country. Visiting various National Parks, Wildlife Sanctuaries and Zoo's gives them an opportunity to interact with their counterparts and share their experiences. It is therefore proposed to send VVNP staff to various well managed parks around the country.

7.3.3 Modes of capacity building

Various forms of training/capacity building programme should be taken up for the staff, this will include hands on training, session at the park, visit other parks, sending park personnel to the workshop and training on relevant subject at different parks and institutions etc.

There should be interaction with other P.A.s and institution for various capacity building and conservation education awareness and outreach programme. At Bhopal many good institutions like D.I. Lab, Bhopal University, Disaster Management Institute, Indian Institute of Forest Management, State Veterinary Department, M.P. Tourism Department etc. can give great help in the field of capacity building. VVNP should have regular interaction with these institutions for the purpose.

7.3.4 Planning and Training programmes

For proper planning and training programme, the trainings held in the past years should be documented so as this will give idea of the areas where capacity building has taken place and the remaining areas for which capacity building programme is to be planned. Out of the remaining fields priorities should be identified based on availability of resources and other opportunities. The training schedule should include theoretical as well as practical experience.

7.4 Interpretation facilities

As per *Freeman Tilden* interpretation is an educational activity which reveals meanings and relationships through the use of original objects and first hand experiences. It is more than simply to communicate facts. More active involvement of the visitors in the VVNP experience enhances the education element and also the effectiveness of the experience. Interpretation is an

approach and technique to hold this and achieve this. There can be many techniques, some of them are discussed as under :

7.4.1 Interpretation Centre

A small interpretation centre is established in this national park, but it is very small and old, therefore, it needs thorough renovation with more emphasis on interactive activities, through which visitors can be educate as well as made aware to the key issues.

7.4.2 Snake Interpretation Centre

VVNP is running a snake interpretation centre, where snake shows are organised on holidays. Unlike other animals, snakes have many myths associated with them. In order to remove these false myths and conservation of the snakes, the snake interpretation shows should organised in more effective and technical way so that they could prove and achieve their object the detail information about rescue and release of snakes in wild is shown in Appendix-XXXVII.

7.4.3 Library

Libraries are good source for reference and knowledge. There is a small library at director's office, but it is not equipped with proper building, cataloguing of books, reading tables etc. It is needed to have a separate library building and supporting infrastructure so as it can become a good

centre for wildlife reading materials. All the available books, journals, news letters and other publications are needed to be catalogued in modern ways.

7.4.4 Plant and Tree labelling

VVNP has developed into a good jungle of variety of species of flora by dedicated protection and habitat management works. Different variety of tree species should be labelled for their local and scientific names. Detailed information about plants, its morphology, uses, etc. can also be placed in the form of display boards, so as they can act as source of information for the VVNP visitors.

7.4.5 Display boards/ signages

Different types of signages are displayed in VVNP the effort should be made to maintain and upgrade them. New signages should be installed wherever they are needed.

Signages at entry gate are placed with VVNP timings and closed days, ticket rates and basic information about the Park. VVNP maps are useful for visitors to get an overall picture of what and where and other information like distances etc. Easy to understand maps should be installed not only at the entrance but also at other strategic locations within the VVNP site, to help visitors.

Directional signages are installed at different locations for showing animal enclosures and the

important facilities. Wherever there is a gap in such signages, new signages should be installed with minimum text and using effective icons.

It is important that visitors are made well known about their behaviour within the Park premises by placing VVNP ethics signs. Regulatory signs with Do's and Don'ts can be helpful tools for desired behaviour of the visitors.

Signages should be bilingual i.e. in Hindi and English. A common pattern of information, fonts size, colour scheme, design should be followed and care should be taken that signages do not appear to be out of place. A judicious mix of content and visual presentation should be taken up so as they can communicate clear messages. Most of the visitors in the park are children therefore a sizeable number of signages should be child friendly i.e. on the lower heights and with colourful depictions.

7.4.6 Publications

Various types of publication can also be useful for interpretation about the intended field. There are some brochures and leaflets about the VVNP, but they need regular updating. New publications viz. about the information of the Park, animals of central India, VVNP guide map, annual reports and news letters should be taken up from time to time.

7.4.7 Brochure and leaflets

VVNP situation within the municipal limits of the state capital Bhopal is visited by large numbers of visitors. It is therefore an opportunity for VVNP management to interact and educate visitors about the conservation of biodiversity issues, make them aware about the VVNP management, what the VVNP has to offer to a visitor, rules & regulations, do's & don'ts in a protected area etc. It is also not necessary that the every visitors can see & observe every thing that VVNP has, but the visitor should be provided with brochures, thematic leaflets and lots of information that a visitor may like to know about VVNP.

7.5 Conservation Education

There are many events which are of conservation education importance, organised in the Van Vihar, these should be strengthened and more extension of activities are required. These activities are briefly discussed as under :

7.5.1 Wildlife Week

Wildlife week is celebrated from 1 to 7 October every year. In Van Vihar National Park state level programmes are organised and various activities like painting, debate, quiz competitions, awareness rally, workshops, photography competition, creativity workshop, rangoli, essay writing etc. are held. Large

number of students, teachers, parents and other people participate in above competitions. In these programs the participation of much more institutions is needed.

7.5.2 Bird watching activity and nature education

Situated in the unique location, the VVNP is an ideal site for bird watching and nature camps. Every year in summer and winter, number of such camps are organised. These programmes are well structured and help of learned resource persons are taken for interpretation. Lately, these camps have become very popular and are over booked. The main aim of organising such camps are to motivate people towards wildlife conservation and clean and green environment. Presently, these are one day camp. In future 2-3 days regular nature camps at Van Vihar and at different locations of the state should be organised so as to cover more issues. These camps should include birding, nature walk, safari, animal upkeep, snake interpretation and class room presentations, lecture etc. There is further need to run such kind of camps throughout the year, for this various capsule courses e.g. animal upkeep, butterfly, talk with animal keepers, a day in the Park, flora and fauna of central India, specific animal weeks, trekking etc. should be designed as an offer to various interested groups. These camps should have following activities:

- Understanding about animal keeping.
- Animal signs and identification with the help of them.

- VVNP kitchen visit to know about the quality and quantity of animal feed.
- Learn about animals and plants.
- Cleaning of housings and enclosures : This will give thrill of being in the animal housings and enclosure and will develop respect among visitors towards animal keepers.
- Play environmental games, role play etc.
- Talks and lectures by resource persons on reptiles, birds, butterflies, insects, mammals, wildlife related issues, environmental education, personality development etc.
- Sharing information with the help of animal keepers etc.

Every year during summer and winter seasons at least 8 camps with minimum 30 participants should be organised in every season.

7.5.3 Nature walk / trekking

VVNP have some very good treks and trails. VVNP visits may not be able to communicate through animal enclosures and signages alone. Therefore, there is need to develop guides for the purpose. The small treks and trails should be self-guided experience, with the help of signages and supporting material such as brochure or trail guides etc. These treks/ trails should be designed in such a way that they cover all aspects of site for example, the flora, the fauna, geology, facilities etc. The

designing of these trips should include various components like enjoyment, meaningful content which are easy to remember, definite flow and theme based.

Every month at least 1 to 2 groups of school/ college students should be taken on nature walk.

7.5.4 Animal keeper's talks

This activity is not a regular one in the VVNP and it is required to make it the regular feature of conservation education programme. People are more receptive to informal approach and animal keeper talks can be one such instrument. Animal keepers have wealth of information about the animals they are looking after and their wealth of knowledge should be used for interpretation and education. This can be done in following ways:

- A regular schedule with specific timings in the VVNP can be planned.
- Organised programme for the students and others. at the time of feeding etc

7.5.5. Film shows and exhibition

Film shows and exhibitions are important visual medium of education. Present arrangement for film show is in conference hall of the Park. A separate auditorium for showing wildlife films should be taken up in the coming years where movies related to wildlife can be shown on a fixed timing. The information about the name

of film and time of film show should be displayed on the both gate and at many other places in tourism zone to make the tourists aware about the information.

7.5.6 Safari

VVNP has good landscape and therefore is ideal for animal safari. Safari in Van Vihar is a special attraction for the tourist. These trips should be guided, so as to enhance the experience of the visitors. The rate for Safari should not be too high.

7.6 Visitor's involvement

There are many people who keep genuine interest for the cause of wildlife conservation and wish to volunteer in different walks of programmes. Many such programmes are held in this Park and many programmes should be initiated for involving more and more people.

7.6.1 Friends of Van Vihar

Friends of Van Vihar Programme is initiated with the objective of involving volunteers to have their services during the peak visitation seasons and to represent the VVNP as goodwill ambassador to the community. These persons are trained for interpretation, regulation and guidance. These volunteers are important as Park does not have adequate human resources required especially

during the peak tourist season. This programme should involve persons who have genuine interest for the cause. Emphasis should be more on quality of volunteers rather than quantity.

The process of adding and deleting the list of friends of Van Vihar should be a continuous process. Regular invitation to apply through notices or press release should be taken up and the committed people should be involved for the probation period of six months and after assessment should be appointed formally. Similarly, names of registered volunteer who for some reason or others are not able to provide their services to the VVNP should be deleted from the list.

It should be necessary that the assigned tasks are clear and volunteer's role is clearly defined to them as well as to the staffs that are being assisted by these volunteers. These volunteers should be guided and monitored from time to time. The possible tasks may include interpretation and regulation in the animal display area, educational activity, fund raising, guide etc. Volunteers will not be paid for the assignments but should be offered some special privileges like free entry pass, giving certificates, honour their services etc.

7.6.2 The animal adoption

The VVNP has launched animal adoption scheme since Jan. 2009 with the following objectives –

- To enable opportunity to interested persons / organizations, who are willing to contribute for wildlife conservation and don't find many avenues to do so.
- To create awareness and sentiments towards wildlife and their conservation.
- To generate funds for better upkeep of animals.

The scheme was approved by Govt. of Madhya Pradesh vide their letter dated 22.12.08 and is applicable from 1st January 2009. The main features of the schemes are given below –

- Any person / organization can adopt one or more wild animals of the National Park after paying the requisite fee.
- Animal / animals can be adopted for the period of one month, three months, six months and for a year. Adopter has to pay for the necessary fee for the period for which he want to adopt the animal. This fee has been fixed on the basis of actual expenditure incurred on the animal during the adoption period.
- Interested person or institution can apply for adoption in very simple form along with cheque / bank draft / cash payable to M.P. Tiger Foundation Society payable at Bhopal. The application form along with requisite fee can be deposited to the office of Director, Van Vihar National Park, Bhopal on any working day during working hours.

- Species and period wise adoption fee applicable as on 1.4.2011 is shown in Table 7.1.

Table 7.1
Amount of Adoption

Species	Year	Half year	Quarter	Month
Tiger	125000	67000	36000	14640
Lion	110000	60000	33000	13200
Leopard	50000	26000	14400	5760
Sloth Bear	65000	35000	19200	7680
Hyena	30000	15000	8400	3360
Jackal	25000	15000	8400	3360
Crocodile	30000	16000	9000	3600
Gharial	40000	22000	12000	4800
Python	6000	3300	1800	720

Facilities to the adopters:–

- The amount payable for the adoption is exempted from income tax under 80 G (5) of income tax act.
- Certificate of adoption to the person or institution.
- A small display board highlighting the name of person / institution near the animal enclosure which has been adopted and on both the entry gates of Van Vihar (if adoption is for year). This has a great publicity value as around 3 lakh visitors come annually to the National Park.
- Free entry pass for one light commercial vehicle (with maximum 6 persons) for once in every week during the adoption period.
- Facilitation of adopters at suitable forum.

The animal adoption scheme started on 1st January 2009 has shown very good response from persons / institutions and in very first year.

People from all walks of life have come forward and have participated. It includes Govt. organization, private institution, student, couples, retired govt. servants, media persons etc. To include much more institutions and participants to the scheme it is needed that some hoardings and signages should be installed inside and outside the premises. The momentous and some gifts should also be presented to the adopters at various occasions. List of adopters shown in **Appendix-XXXIV**.

7.6.3 Photograph of the week

VVNP has initiated an innovative scheme named as "Photograph of the Week" in collaboration with *Hindustan Times, Bhopal*. People visiting the Park have been capturing photographs of the different aspects of the park. To associate these visitors towards wildlife & environment conservation, photographs are invited and the best adjudged photograph of the week is published in the *Hindustan Times, Bhopal* and some token gifts are being awarded to the winners. This is creating good interest among the visitors. To include large group of participants the activities should be properly depicted

in the form of signages with all details. The new sponsors should also be search out to associate with the programme.

7.6.4 Visitor of the day

Around 3.5 lakh visitors visited the park every year, to add attraction of the visitor, *The Visitor of the Day* scheme was launched in association with one of the leading Hindi Daily *Dainik Jagran*. Every day a random group is photographed and visitor of the day is also selected from that photograph on random basis. This photograph along with circled visitor of the day is published in the Dainik Jagran. The lucky visitor is also gifted with coupons and free pass. To make the event long lasting some more news paper and sponsors should also be searched out.

7.6.5 Anti-plastic and other environment campaign

From time to time campaign should be taken up for environmental causes like anti-plastic, save papers etc., this will ensure visitors to be aware about ill-effects of environment polluting agents and solicit their contribution in propagating against these agents.

7.7 Events associated with animals

Various events are associated with animals like celebrating animal birthdays, naming ceremony of animals etc. can also be a good measure for involving people and media and in turn

spreading conservation messages about the importance and protection of that species. Indirect participation like announcing naming ceremony in the newspaper and people should be invited to name the animal and the name given is selected and winner can be facilitated.

7.8 Web site

A website giving brief information about Van Vihar is on internet but there is a need for a well designed and update VVNP website. This website should include the information about the park timings, closed days, approach, entry fee, animals of the park, various activities and programmes etc. offered by the park. It should be updated from time to time so as current information, press releases are available on the website. Website is especially relevant would be visitors, non-visitors and world community. Website should be developed as information, educational, marketing and interacting media with the community.

7.9 Guides

Well-trained guides are needed to enhance visitor's experience. No guides are in place therefore it is needed that some guides from the nearby vicinity should be selected trend and position at entry gate and other place inside the VVNP. Apart from this arrangement, self-guide facility should also be developed. For developing self-guide facility, low frequency, FM transmitters can be installed at different point of interest and a pre-recorded commentary both in English and Hindi

should be broadcasted from them. Hand free low cost FM receiver can be used by the visitors and can gain information through it. A guide-cum-driver should also be positioned in the vehicles operated for the visitors.

7.10 Park literature

Brochure, leaflets, annual reports etc. are published in the VVNP from time to time; these should be upgraded and modified from time to time. A monthly or tri-monthly newsletters and booklets for self-guiding should also be given thought. Relevant and suitable literature should also be developed for education purposes, which can be utilised at different educational events being organised.

7.11 Media & Public relations

Both electronic and print media have the potential through which information and conservation education messages can be disseminated to the community. Promoting conservation and environmental issues by press releases of different events and activities such as birthdays, arrival of new animal, specific information about the important species and even negative stories, such as the death of an animal, can be important in raising the profile of the Park. Regular proactive contacts and briefings to the media personnel should be taken up to avoid publication of any misinformation.

A clear policy to deal with media should be developed. Following can be some of the points of that policy.

- All the press releases should generate from only one place i.e. director's office.
- Telephone, e-mail and contact details of the media persons should be maintained and updated from time to time.
- Invitation to all the important event and functions should be extended to relevant media personnel.
- Press release should provide complete information in the shortest possible way. Quote and relevant photographs should be attached with press release.
- For interacting with the media, director should be the key person and in absence of director, assistant director or zoo education officer should be done the job.

7.12 Extension & outreach

Essentially VVNP visitor is the primary target audience of park education, but there are a large section of people to whom the park can reach out. The extension and outreach programme should focus on the non-visitor, who for some reason or the other, do not have enough time to visit the Park. These non-visitors can be reached through media, publications, visits and activities etc. Following are outreach possibilities:

7.12.1 Visits to school & colleges

Students are most promising target for conservation education, to outreach maximum possible number of schools, the very first step is to establish links with schools, colleges, universities and

teachers training institutes. Park personnel should establish good rapport with principles or heads of the institutions. Lectures, presentations, organising activities, workshops, film shows, etc. in the school/ institute premises on different aspects of park, wildlife and its conservation can be taken up.

7.12.2 School visits to the Park

A Park visit is an excellent opportunity to expose students to the amazing diversity of life and to help them understand many of the ecological principles and concepts that they have been learning in their textbooks. For visiting school groups, structured programmes could be offered, which should be thematic and curriculum linked. Every programme should be structured based on visiting students age group, time available and the curriculum. The themes of the programmes can be animal keeping, animal adaptations, behaviour, reproduction, nutrition, evolution and ecology etc. For higher classes, special themes based on animals or group of animals like cats, reptiles, birds, butterflies, mammals, can be taken up. Some programmes should also focus on main ecological principles/ concepts like the prey predators, inter-relationship, camouflage etc.

In addition to educational aspect, a school visit will require lot of logistic and other arrangements. It should also address issues of orderly conduct and safety of the children. A good briefing session with the supervisor will handle the above issue. Appropriate resource material and persons will also help enhanced educational experience. There could be three kinds of

school resource material viz. in school before the visit, during the park visit and after the park visit in the school. Appropriate resource packs, activity kits, manual worksheets, handbooks etc. should be arranged beforehand.

7.13 Networking and partnerships

Networking and partnerships with different institutions and organisations can benefit in the field of education, infrastructure, fund raising etc. Partnership with key departments like education, higher education, universities and tribal development can encourage the departments to support the use of park as an educational institute. In case of higher education, colleges and universities can encourage internship, postgraduate projects and onsite research projects in the VVNP. Help can also be obtained for developing educational programmes and materials and also in the form of resource persons.

Public sector banks, mobile companies, industries etc. can be useful for sponsoring signages, animal adoption, developing public utilities and other infrastructure requirements. Now-a-days various corporate groups are involved in enhancing the corporate image and profile throughout the community through education and environmental activities, partnership with these groups can be beneficial in many ways. Partnership with architectural and engineering institute can help the Park in innovative

and new enclosure designs and also in designing of eco-friendly buildings etc. Veterinary Colleges, Vet. Department and Labs related to veterinary can be useful in animal health care.

CHAPTER – 08

Research, Monitoring & Trainings

8.1 Research

The basic data regarding flora, fauna, weather information, soil, topography etc. should be upgraded from time to time.

The collected data should be used to assess animal health and diseases, response of animals to the different treatment etc. The daily keepers observations can be used for developing animal diet chart. Behavioural observations may be undertaken to enhance knowledge base about the species and to use it in improving the different management techniques. Planned study about the leading biology should be very handy tool for the success of future captive breeding programmes.

Being a National Park any research or study should only be carried out after taking due permission from Chief Wildlife Warden of the Madhya Pradesh. There is no scientific officer separately posted as Research officer, how-ever basic studies for habitat improvement, wildlife health etc. are taken up by the officers and veterinarians posted here. For this there are equipments like microscope, oven, complete blood counter, GPS, Binoculars etc.

Some researchers from out side Van Vihar National Park have also carried out research / studies in the VVNP premises. Some of the studies carried out are shown in the table 8.1

Table 8.1
List of Researches

S.N.	Topic of study	Duration	Agency
1	Carrying capacity of Van Vihar National Park	1996	Mr. S.S. Khan, Indian Institute of Forest Management
2	Infestation of Alien weeds in Van Vihar National Park and their impact on animal life	1999	Dr. Madhu Verma and Nishita Bakshi, Indian Institute of Forest Management
3	Biodiversity and Habitat Management in Van Vihar National Park	2000	Mr. Ravindra Singh, Indian Institute of Forest Management
4	Avian Bio-diversity of Van Vihar	2004-07	Dr. Suchitra Benerji
5	Ecological studies on upper lake and associated water bodies	2007-08	Dr. Vipin Vyas Proff. Deptt. Of Limnology
6	Studies on the nutritional management of wild animals at Van Vihar National Park	2007-08	Allahabad Agriculture of University
7	Impact of total solar eclipse on animal behaviour in captivity.	2009-10	Mr. S.S. Rajpoot, Director Van Vihar NP Bhopal and others.

8.2 Research Priorities

The long term aim of the plan is to achieve an understanding of the whole ecosystem and wildlife biology, so that it becomes possible to predict confidently and accurately the response of natural systems to management practices. In order to understand, develop and conserve the Park. A continuous programme of learning and research should have to be envisaged. Biological data on the ecosystem and different species is absolutely essential for management research studies. Monitoring for identifying and understanding key processes is of immense use for deciding effective management strategies. To achieve the above, priorities need to be recognized, so as important fields are not lost. It is also essential that required research / studies should be carried out by management with the help of specialist institution, local people and knowledge base generated, so far. Survey and Inventories which are required to gain knowledge & know how about techniques should also be part of research.

8.3 Monitoring and Population estimate

Monitoring is an important tool for assessing habitat, wild animals, protection and success of evaluations of various management prescriptions. Monitoring is done by field staff. Various performs are developed & are being in use for collecting valuable dates. These dates are compiled and use for improved management of the area. The population estimation

process should be more scientific and technical. It also needs some modern methods.

8.4 Staff welfare

Van Vihar management is very keen for our staff welfare. Many schemes are operated for this purpose.

8.4.1 Workers Society

In VVNP the worker society for entire staff is registered under Firms and Society Acts. The Workers Society is operating 94 bicycles rides in VVNP for the tourist. It is also providing the loan facilities for the members. The souvenir shop is also run by workers society. The management body of the workers society is duly elected. This was found in 2006. The audit of worker society is annually conducted by cooperative inspectors.

8.4.2 Insurance of animal keepers

The animal keepers are insured annually. The annual premium is deposited by VVNP through Park Development Fund.

8.4.3 Medical health camp

A regular medical health management is organized by VVNP management.

8.4.4 Vaccination

Animal keepers are vaccinated yearly against rabies.

8.5 Shifting of animals beyond carrying capacity: -

The matter has been discussed in para 6.3.1.10. Some studies may be carried out for the safe relocation and calculation of carrying capacity for different herbivores.

8.6 Trainings

Training or capacity buildings are critical for maintain/ upgrading management capabilities of staff. Wildlife training at all levels should be encouraged. Trainings in following forms should be taken up :-

- i. On the job training.
- ii. Organisational subject specific training courses with the help of experts.
- iii. Sending staff in training courses organised by different institutes.
- iv. Exposure visits / study tour.
- v. Orientation / Refresher courses.

CHAPTER – 09

Miscellaneous Issues

9.1 Disaster management

VVNP are among one of the most visited places. In the Park number of animals have been kept in display and off display facilities and a number of staff are deployed for various upkeep and other related works. There can be many emergency situations that the Park may have to face. These emergencies can be of two types i.e. natural calamities or contingencies that may arise due to some accidents.

Disaster management means a continuous and integrated process of planning, organising, coordinating and implementing measures which are necessary or expedient for:-

- i. Prevention of danger or threat of any Disaster.
- ii. Mitigation or reduction of risk of any Disaster or its severity or consequences.
- iii. Capacity-building.
- iv. Preparedness to deal with any Disaster.
- v. Prompt response to any threatening Disaster situation or Disaster.
- vi. Assessing the severity or magnitude of effects of any Disaster.
- vii. Evacuation, rescue and relief;
- viii. Rehabilitation and reconstruction.

Disaster Management Plan is must for any organization, which shall have organization's policy and procedures for coping with exigencies. These policies and procedures lay out the plan in case of disaster, that the organization would protect the people and its property. The Park may face various emergency situations e.g. flood, draught, cyclone, earthquake or accidental happenings like fire, animal escapes, out break of diseases etc.

9.2 Basic emergency planning

In the interest of Park animals as well as public safety a disaster management plan need to be formulated. A handbook of emergency preparedness is requiring developing and it should incorporate following basic concepts in it:-

- Chain of command in the team,
- Members of the team,
- Control room and the media centres for helping coordinated approach to the disaster and in the dissemination of information.
- Adequate communication and warning capabilities.
- Role of each employee should be well defined and details of whom to report and work with etc.
- Adequate evacuation procedure.
- Damage assessment capabilities.
- Alternate power & water supply planning etc.

The role of Emergency Preparedness Team (EPT) will be very crucial in case of emergency, the director of the Park should be overall in-charge during the exigency who should get

the plan prepared and approved, identify the people and assign them the task and decide on protective actions, operations and expenditures. He should identify emergency, unit, warning/information, assessment, maintenance, medical and security coordinators for the EPT.

Apart from manpower, the necessary equipment resources that may be needed to respond to the hazards should also be assessed and park should accordingly maintained and procure them. Alarm systems, public address system and radio communications should also be needed for warning people during the emergency.

9.3 Flood

VVNP is not in any flood prone area, but excessive rain within short period have caused emergency like situation in the past. The rainfall data, along with days of heavy rains are enclosed as **Appendix-XXIX**. The last such situation arise on 14th August 2006, when within 6 hours heavy rain caused flooding, which eventually caused damage to animal enclosures, buildings and the roads.

To meet such exigency a plan should be formulated. Flooding may lead to contamination of drinking water and water born diseases associated with poor hygiene and sanitation and this in turn can affect Park population. Caracas near source, excessive increase in turbidity and contamination with sewage may be potential source of contamination of drinking water. Following points should be kept in mind to deal with the above situation.

- During flood only reliable and clean sources should be used for water supply.
- Testing of water for infection and any other pollution.
- Identified alternate source of water for emergency.
- Sufficient containers for storage and water tankers.
- Disinfections of the water.

9.4 Food sanitation

The flood water may directly or indirectly affect the food safety. The food safety management in the flood situation should include all processes related to storage, processing, preparation, handling and distribution of food. Following planning should be taken up to curtail these risks :

- Maintain high level of sanitization of food, food contact surfaces, utensils etc.
- Food items should be stored above ground in water proof containers.
- Contaminated and decaying food material should be disposed off by burring/ burning

9.5 Waste disposal and hygiene

For protecting the health of animals, it is important to maintain good sanitary conditions in the Park

after flooding. It should address water supply, left over of animal meals, excreta disposal etc.

9.6 Vector control

Vectors carry disease causing micro organisms from one host to another. These potential disease carriers are capable of rapidly reproducing and dispersing when floods like favourable situation occurs. A variety of species of flies and mosquitoes pose the greatest threat for vector borne diseases.

A good surveillance mechanism helps in saving lives of animals. Monitoring of area which are likely to develop stagnant pools of water, waste collection areas and food preparation area is important for study and check and control.

9.7 Fire

The details of fire protection are discussed earlier. The Park being managed for free ranging animal as well, therefore large chunk of area is managed as grassland. This grassland becomes very dry during the period of mid-March to onset of rain. Protective measures like cutting fire lines, regular watch and ward etc. are observed. Still the threats of fire exist as it can be accidental (by short circuit or by thrown cigarettes butts by the negligent visitor) or at times can be intentional.

Every year fire scheme is prepared to deal with this contingency following are measures needed in case of fire emergency.

- The whole area should be fragmented into smaller area by cutting and cleaning fire lines, road strips etc., so as if fire accident occurs in any area it is limited to small area.
- A warning system like siren or horn should be placed to declare fire emergency.
- Personnel should evacuate the visitors to safer areas.
- Fire brigade should be called at once.
- The Park should be closed till the operation is over.
- Fire line should be cut near to the animal enclosures.
- Supply of water for fire extinguishing to the accident area.
- All animal keepers and other staff should be taking appropriate action in their respective areas.
- Ensure the emergency medical care to the affected animals/ persons.
- Shut down electricity lines or systems as necessary.
- Every animal enclosure should have a fire extinguisher.

9.8 Civil disturbance

There can be many situations in the town when demonstrations, riots, curfew and other forms of civil disturbances can threaten supply of food to the animal

and sometime for the safe evacuation of visitors and the staff. The emergency team should develop an alternate set of response procedures for maintaining essential operations and services.

The correct information about civil disturbances is necessary to determine actions needed to do the needful. Assistance from law enforcement agencies should be requested for the help and safe evacuation of visitors should be plan as per the conditions of the disturbances. The entry points into the park should be well secured for regulating entry and exit etc.

9.9 Animal escape

Animal escape from activity should be treated as a calamity and to be deal in following stages :

9.9.1 Information to appropriate

As the information about the escape of an carnivore captive wild animal received from any source, it is necessary to give the information for superior officers as well as officer in-charge of rescue team.

9.9.2 Restriction on tourist entry

As the information received about the escape of animal, the officer in-charge for the tourism should decide whether the animal is dangerous for life of the tourist he

should take the decision about restriction on the entry on the tourist inside the national park and take necessary permission about it.

9.9.3 Searching of animal

Just after escape, rescue team should start searching of animal and putting the device to make an animal isolation.

9.9.4 Rescue operation

Officer In-charge of rescue team has to decide about the method of immobilization to be used for the animal it may be physical capture through net/cages or chemical capture through drugs.

9.9.5 Post rescue operation

After successful operation of the animal, the thorough check-up of animal must be carried out if necessary the marking of animal can also be done.

9.9.6 Documentation

Complete documentation of each and every stage to be carried out in form of photographs and data along with positive and negative points of complete rescue operation.

9.10 Other measures

- Develop some highland areas in those enclosures which have a history of inundation.

- Pre monsoon cleaning of all the outlets of water is very essential.
- All the outlets should be cleaned of any obstacle deposited on the water way.

9.11 Rapid response team

The Director of VVNP should head the rapid response team and should ensure a team of personnel, who are well aware of their role in the operation and to whom they should report etc.

9.12 Equipment

Basic equipment like flash lights, rubber boots, protective gears, water testing kit, chlorine tablets, generators, rescue equipment, fence and wall repair equipment, ropes, nets, sand bags etc. should be maintained.

CHAPTER – 10

Schedule of Operations and Miscellaneous Regulations

10.1 The Schedule

Conservation and management of any area involves various activities to be taken up. These tasks are detailed in various chapters of this plan. There are two kinds of tasks prescribed.

- I. Task which are to be taken up every year.
- II. Various activities, which for restriction of financial allocations are distributed over a period of time.

First kind of tasks include annual expenditure incurred on various protection, maintenance activities, where as second kind include creation or development resource e.g. habitat development, new water resources, eco-development, other infrastructures etc.

For above two types of tasks separate schedule of operations are prepared. Tasks which are to be taken up every year on regular basis are appended.

The above Appendix incorporate physical components of different activities. Financial estimates are not provided, as estimation should be done as per site specification and prevailing rate then.

10.2 Record of Deviations & Implemented targets

A book at the reserve level should be maintained to record deviation & implemented targets. This book shall also include annually deferred targets. It should be attempted to accomplish tasks in year in which it's provisions are made & if some tasks could not be taken up in the prescribed year, they should be taken up in plan period.

There may be strategies to put off indefinitely for some unseen or compelling reasons.

There be some strategies / prescriptions which are not in Plan, but at particular time need is felt to include new strategies to be included. These strategies should be proposed with justifications to competent authority & obtain due approvals. There may be need in future to change certain strategies / prescription, similar procedure shall be adopted for them too. These deviations should be duly recorded in this book.

Implemented targets both in terms physical & financial achievement should be recorded with highlights & problems in achieving them.

A similar record shall be maintained at each range level too. These records shall be updated timely and duly inspected from time to time. The book should always be placed with management plan. This book need to be referred at the time of revision of Tiger Conservation Plan especially on matter which relate to strategies in the field.

CHAPTER – 11

BUDGET ANALYSIS FOR IMPLEMENTING THE PLAN

11.1 Recurring Expenditure

The various recurring expenses require to run the National Park efficiently. These recurring expenses broadly include salary, wages, allowances, animal feed, electricity bill, electricity and water maintenance, hygiene and sanitation, animal health care, maintenance of infrastructure, signage, research and studies, conservation education, office expenses etc.

There are 72 employees and 71 persons engaged on daily wages and a huge paraphernalia like vehicles, machines, buildings, roads etc. The day-to-day maintenance or recurring expenditure is met from different sources. Approximately 78-80% of above expenses are fulfilled by the budgetary grant received from M.P. Forest Department. 14-17% of recurring expenditure is met by Central Zoo Authority and as Central Assistance from Ministry of Environment & Forests. Among the fund received from the CZA which is the major item for carnivore feed of rescue animals. The fund received from CZA is separately dealt in zoo master plan. The gap in recurring expenditure after accounting above provisions is fulfilled by park development fund, which accounts on an average from 8-

10%. The park development fund receives money, mainly from gate collection by sale of entry tickets.

The recurring expenditure required for the year 2011-12 to 2015-16 for different items has been projected in table- 11.1 & 11.2 presuming 10% hike every year the necessary budgetary allocation for the coming years can be calculated and based on that the arrangements for recurring expenditure shall be made accordingly.

Table - 11.1

Pay & Office Expences from 2011-12 to 2015-16

S.No.	Item of work	2011-12	2012-13	2013-14	2014-15	2015-16	Total
1	Pay & Allowance - Subordinate	150.00	165.00	181.50	199.65	219.62	241.58
2	Pay Allowance - Officers	12.00	13.20	14.52	15.97	17.57	19.33
3	Travlling Allowance	2.00	2.20	2.42	2.66	2.93	3.22
4	Office exp.	2.00	2.20	2.42	2.66	2.93	3.22
5	Wages for daily wages staff	50.00	55.00	60.50	66.55	73.21	80.53
6	Building maintenance	10.00	11.00	12.10	13.31	14.64	16.11
7	Construction of small works	6.00	6.60	7.26	7.99	8.78	9.66
	Total	232.00	255.20	280.72	308.79	339.67	373.64

Table - 11.2

Recurring Expenditure from 2011-12 to 2015-16

S.No.	Item of work	Quantity	Approx. Cost (in lakh)					Total
			2011-12	2012-13	2013-14	2014-15	2015-16	
1	Weed eradication	380 ha.	20.00	22.00	24.20	26.62	29.28	122.10
2	Fodder farm	10 ha.	5.00	5.50	6.05	6.66	7.32	30.53
3	Mineral Suppliment	LS	2.00	2.20	2.42	2.66	2.93	12.21
4	Road repair	35 km.	2.50	2.75	3.03	3.33	3.66	15.26
5	Health & medicine	LS	3.00	3.30	3.63	3.99	4.39	18.32

6	Rescue operation	LS	1.00	1.10	1.21	1.33	1.46	6.11
7	Capacity building of staff	20	1.00	1.10	1.21	1.33	1.46	6.11
8	Tour	10	2.00	2.20	2.42	2.66	2.93	12.21
9	Training	10	1.00	1.10	1.21	1.33	1.46	6.11
10	Book for library	20	0.20	0.22	0.24	0.27	0.29	1.22
11	Broucheure	10000	0.50	0.55	0.61	0.67	0.73	3.05
12	Leaflets	10000	0.50	0.55	0.61	0.67	0.73	3.05
13	Conservation education	2000	2.00	2.20	2.42	2.66	2.93	12.21
14	Wildlife week	LS	5.00	5.50	6.05	6.66	7.32	30.53
15	Extension out reach	LS	1.00	1.10	1.21	1.33	1.46	6.11
16	Disaster management	LS	1.00	1.10	1.21	1.33	1.46	6.11
17	Maintenance of signages	LS	1.00	1.10	1.21	1.33	1.46	6.11
18	Building repair of tourism	LS	1.00	1.10	1.21	1.33	1.46	6.11
19	Fire line	62 km	2.00	2.20	2.42	2.66	2.93	12.21
20	Electric Bill	LS	12.00	13.20	14.52	15.97	17.57	73.26
21	Water supply	LS	5.00	5.50	6.05	6.66	7.32	30.53
22	Vehicle repair	17	5.00	5.50	6.05	6.66	7.32	30.53
23	POL	17	12.00	13.20	14.52	15.97	17.57	73.26
24	Stationary for ticket	LS	1.00	1.10	1.21	1.33	1.46	6.11
25	Toilet cleaning material	5	0.50	0.55	0.61	0.67	0.73	3.05
26	Maintenance of Snake Park	1	2.50	2.75	3.03	3.33	3.66	15.26
27	Workshop & meeting exp.	LS	1.00	1.10	1.21	1.33	1.46	6.11
28	Telephone exp.	LS	0.50	0.55	0.61	0.67	0.73	3.05
29	Cleaning of Tourism Area	4.8 km	2.00	2.20	2.42	2.66	2.93	12.21
30	Golf Cart Maintenance	2	1.00	1.10	1.21	1.33	1.46	6.11
31	Boundary wall maintenance	3240 mt.	2.00	2.20	2.42	2.66	2.93	12.21
32	Chainlink maintenance	5214 mt.	3.00	3.30	3.63	3.99	4.39	18.32
33	Animal enclosure cleaning	13×2	2.60	2.86	3.15	3.46	3.81	15.87
34	Carnivore animal feed	50	40.00	44.00	48.40	53.24	58.56	244.20
35	Health & Hygine	LS	10.00	11.00	12.10	13.31	14.64	61.05
	Total		151.80	166.98	183.68	202.05	222.25	605.63

11.2 Non-recurring expenditure

The non-recurring expenditure will include for execution of items of work prescribed in this management plan and other necessary infrastructures requirement for efficient running of the National Park. Various issues discussed in the plan and a strategy to achieve objectives and goals has been described. These strategies are composed of many items of work.

The target for next 5 years has been broadly identified and is detailed year wise for next five years in the table 11.3 Still there may be some items which are not listed here, but at any point of time in future, need for those items arises, then they should be included in the action plan as and when required.

Central Zoo Authority provides 100% financial assistance in some of the cases for selected development works related to animal housing, health care, conservation breeding and rescue centre etc. for some captive animals only. At the same time for other captive animals infrastructure development works to be carried out for which it provides grants on 50-50% basis. Based on guidelines of CZA and Central Assistance source of funding should be identified and necessary action for getting the grant shall be taken up. The non recurring expenditure for various works prescribed in the management plan is shown table 11.3

Table - 11.3

Non Recurring Expenditure from 2011-12 to 2015-16

S.No.	Item of work	Quantity	Approx. Cost (in lakh)					Total
			2011-12	2012-13	2013-14	2014-15	2015-16	
1	Preparation of DPR for relocation and breeding centre for Barasingha.	L.S.	3.00	0.00	0.00	0.00	0.00	3.00
2	Procurement of electro-cautry, pulse oximeter, gas based anesthesia machine & Oxygen cylinder etc.	1 set of each	0.00	2.00	0.00	0.00	0.00	2.00
3	Ambulance & other vehicles	2	0.00	8.00	7.00	0.00	0.00	15.00
4	Establishment of footpath and cycle lane in tourist zone	4.8 km	9.60	10.00	10.00	10.00	10.00	49.60
5	Preparation of DPR for new interpretation center.	L.S.	5.00	0.00	0.00	0.00	0.00	5.00
6	Procurement of self audio guide system for the tourist.	L.S.	0.00	0.00	8.00	0.00	0.00	8.00
7	Procurement of rescue and fire fighting equipment.	L.S.	0.00	0.00	2.00	0.00	0.00	2.00
8	Establishment of new signages.	L.S.	2.00	1.00	1.00	1.00	1.00	6.00
9	Water Management	1 bore well	3.00	2.00	5.00	0.00	0.00	10.00
10	Soil water conservation	50 ha.	1.20	1.20	1.20	1.20	1.20	6.00
11	Planting of shed trees	100	1.00	1.00	1.00	1.00	1.00	5.00
12	Land scaping	4	0.00	2.00	2.00	3.00	3.00	10.00
13	Quarantine	1	0.00	0.00	10.00	0.00	0.00	10.00
14	Animal relocation	L.S.	2.00	2.00	2.00	2.00	2.00	10.00
15	Hard ground Barasinga enclosure	1 set	10.00	0.00	0.00	0.00	0.00	10.00
16	Crocodile and Gharial Pond deepening	3 sets	0.00	0.00	4.00	4.00	4.00	12.00
17	Nature Interpretation center	1 set	0.00	30.00	50.00	30.00	0.00	110.00
18	Parking	5 place	0.00	0.00	0.00	10.00	10.00	20.00
19	Sit-out and shelter	5	2.00	2.00	2.00	2.00	2.00	10.00
20	Garbage collection dustbin	40	1.00	1.00	1.00	1.00	1.00	5.00
21	Toilets	1 set	0.00	10.00	0.00	0.00	0.00	10.00
22	Drinking water faciltiy	5	3.00	3.00	3.00	3.00	3.00	15.00
23	Entree gate upgradation	2	0.00	10.00	10.00	10.00	10.00	40.00

24	Cafeteria upgradation	1	0.00	5.00	10.00	0.00	0.00	15.00
25	Administrative zone office	1 set	0.00	0.00	30.00	40.00	40.00	110.00
26	Medical ward	1 set	0.00	0.00	0.00	10.00	0.00	10.00
27	Plant and tree leveling	L.S.	0.00	2.00	2.00	0.00	0.00	4.00
28	Chainlink	5214 mt.	10.09	10.62	11.73	9.35	10.35	52.14
29	Boundary wall	1229 mt.	31.04	26.63	26.50	26.85	24.62	135.64
30	New roads in herbivores area	300 mt.	0.00	3.60	0.00	0.00	0.00	3.60
31	Residential building	2 sets	0.00	0.00	0.00	25.00	25.00	50.00
32	Bison enclosure	1	20.00	0.00	0.00	0.00	0.00	20.00
	Total		103.93	133.05	199.43	189.40	148.17	773.98

Notification of National Park

आक-व्यय की पूर्व-अदायगी के बिना आक द्वारा भेजे जाने के लिये अनुमत. अनुमति-पत्र क्र. भोपाल-505/इक्यू. पी.



पंजी क्रमांक भोपाल डिवीजन
122 (एम. पी.)

मध्यप्रदेश राजपत्र

प्राधिकार से प्रकाशित

क्रमांक 7]

भोपाल, शुक्रवार, दिनांक 18 फरवरी 1983—माघ 29, शके 1904

विषय-सूची

1. — (1) राज्य शासन के आदेश, (2) विभाग प्रमुखों के आदेश, (3) उच्च न्यायालय के आदेश और अधिसूचनाएं, (4) राज्य शासन के संकल्प, (5) भारत शासन के आदेश और अधिसूचनाएं, (6) निर्वाचन आयोग, भारत की अधिसूचनाएं, (7) लोक भाषा परिशिष्ट.

भाग 2. — स्थानीय निकाय की अधिसूचनाएं.

भाग 3. — (1) विज्ञापन और विविध सूचनाएं (2) सांख्यिकीय सूचनाएं.

भाग 4. — (क) (1) मध्यप्रदेश विधायक, (2) एकर सौंपने के प्रतिवेदन, (3) संसद में पुरःस्थापित विधेयकों (ख) (1) अध्यादेश, (2) मध्यप्रदेश अधिनियम, (3) संसद के अधिनियम. (ग) (1) प्रारूप नियम, (2) अंतिम नियम.

भाग १

राज्य शासन के आदेश

सामान्य प्रशासन विभाग

भोपाल, दिनांक 1 फरवरी 1983

क्र. ई-1-23-83-एक-5.-- (1) श्री व्ही. एस. कृष्णा, आय. ए. एस., उपसचिव, मध्यप्रदेश शासन, खाद्य और नागरिक पूर्ति विभाग को अस्थायी रूप से, आगामी आदेश तक, स्थानापन्न संचालक, खाद्य और सिविल पूर्ति, मध्यप्रदेश नियुक्त किया जाता है.

(2) श्री एस. सी. कंसल, आय. ए. एस., संचालक, खाद्य और सिविल पूर्ति, मध्यप्रदेश को अस्थायी रूप से, आगामी आदेश तक, स्थानापन्न उपसचिव, मध्यप्रदेश शासन, पंचायत एवं ग्रामीण विकास विभाग नियुक्त किया जाता है.

(3) श्री एस. एल. कालिया, आय. ए. एस., उपसचिव, मध्य-प्रदेश शासन, पंचायत एवं ग्रामीण विकास विभाग की सेवाएं योजना, आर्थिक एवं सांख्यिकी विभाग को उपसचिव, राज्य योजना मण्डल के पद पर नियुक्त के लिए सौंपी जाती हैं तथा उन्हें आगामी आदेश तक

पदेन उपसचिव, मध्यप्रदेश शासन, योजना, आर्थिक एवं सांख्यिकी विभाग भी घोषित किया जाता है.

(4) इस विभाग का आदेश क्र. ई-1-6-83-एक-5, दिनांक 18 जनवरी 1983 जहां तक उसका संबंध श्री के. के. वर्मा, आय. ए. एस., कलेक्टर, शहडोल की सेवाएं योजना, आर्थिक एवं सांख्यिकी विभाग को उपसचिव, राज्य योजना मण्डल के पद पर नियुक्ति के लिए सौंपने, से है, को निरस्त करते हुए, श्री के. के. वर्मा, आय. ए. एस. को अस्थायी रूप से, आगामी आदेश तक, स्थानापन्न उपसचिव, मध्यप्रदेश शासन, खाद्य और नागरिक पूर्ति विभाग नियुक्त किया जाता है.

भोपाल, दिनांक 3 फरवरी 1983

क्र. 956-पी. एफ.-आय. ए. एस.-अवकाश-214-एक-5-83.--

(1) श्रीमती बी. सेन, संचालक, नगर प्रशासन, भोपाल को दिनांक 18 से 23 अक्टूबर 1982 तक छः दिन का अर्जित अवकाश मंजूर किया जाता है तथा उन्हें इस छुट्टी के साथ दिनांक 17 अक्टूबर 1982 का सार्वजनिक अवकाश जोड़ने की अनुमति दी जाती है.

(5) अवकाश काल में श्री ए. एन. अस्थाना को अवकाश वेतन एवं भत्ता उसी प्रकार देय होगा जो उन्हें छुट्टी पर जाने के पूर्व मिलता था।

(6) प्रमाणित किया जाता है कि यदि श्री ए. एन. अस्थाना छुट्टी पर नहीं जाते तो कलेक्टर, विदिशा के पद पर कार्य करते रहते।

भोपाल, दिनांक 5 फरवरी 1983

क्र. 1041-पी. एक-आय. ए. एस.-अवकाश-146-एक-5-83.-- इस विभाग के आदेश क्र. 7933-7997-एक-5-82, दिनांक 24 दिसम्बर 1982 के आदेश की कड़ी (1) में सार्वजनिक अवकाश, दिनांक 25 एवं 26 दिसम्बर 1982 को जोड़ने की अनुमति दी जाती है।

क्र. 1050-पी. एक-आय. ए. एस.-301-एक-5-83-अवकाश.-- इस विभाग के आदेश क्र. 6458-5782-एक-5-82, दिनांक 5 अक्टूबर 1982, श्री मोतीसिंह, आर. ए. एस., नियंत्रक, मद्रास एवं लेखन सामग्री द्वारा अवकाश का उपभोग न करने से निरस्त किया जाता है।

क्र. 1053-पी. एक-आय. ए. एस.-अवकाश-12-एक-5-83.-- (1) इस विभाग के आदेश क्र. 414-पी. एक-आय. ए. एस.-अवकाश-12-एक-83, दिनांक 17 जनवरी 1983 के तारतम्य में श्री के. देवगण, संचालक, अल्प बचत एवं राज्य लाटरी भोपाल को दिनांक 23 जनवरी से 10 फरवरी 1983 तक उन्नीस दिन का अर्जित अवकाश मंजूर किया जाता है तथा उन्हें इस छुट्टी के साथ दिनांक 11, 12 एवं 13 फरवरी 1983 का सार्वजनिक अवकाश जोड़ने की अनुमति दी जाती है।

(2) श्री के. देवगण की छुट्टी की अवधि में श्री के. एल. उसरेटे, उपसंचालक, अल्प बचत एवं राज्य लाटरी को अपने कर्तव्यों के साथ-साथ, अस्थायी रूप से, आगामी आदेश तक, संचालक, अल्प बचत एवं राज्य लाटरी, भोपाल का चालू कार्यभार सम्भालने के लिए नियुक्त किया जाता है।

(3) छुट्टी से लौटने पर श्री के. देवगण को अस्थायी रूप से, आगामी आदेश तक, स्थानापन्न संचालक, अल्प बचत एवं राज्य लाटरी, भोपाल पुनः पदस्थ किया जाता है।

(4) श्री के. देवगण द्वारा संचालक, अल्प बचत एवं राज्य लाटरी, भोपाल का कार्यभार ग्रहण करने पर श्री के. एल. उसरेटे, संचालक, अल्प बचत एवं राज्य लाटरी के चालू कार्यभार से मुक्त होंगे।

(5) अवकाश काल में श्री के. देवगण को अवकाश वेतन एवं भत्ता उसी प्रकार देय होगा जो उन्हें छुट्टी पर जाने के पूर्व मिलता था।

(6) प्रमाणित किया जाता है कि यदि श्री के. देवगण छुट्टी पर नहीं जाते तो संचालक, अल्प बचत एवं राज्य लाटरी के पद पर कार्य करते रहते।

भोपाल, दिनांक 7 फरवरी 1983

क्र. ई. 1-14-83-एक-5.-- (1) श्री एस. सी. वैहार, आय. ए. एस., संचालक, मध्य प्रदेश राज्य सार्वजनिक अनुसंधान तथा प्रशिक्षण परिषद्, भोपाल की सेवाएं स्कूल शिक्षा विभाग से वापस लेते हुए उन्हें अस्थायी रूप से, आगामी आदेश तक, स्थानापन्न आदिवासी विकास आयुक्त नियुक्त किया जाता है। वे अपने इस कार्य के साथ-साथ, आगामी आदेश तक, संचालक, आदिम जाति कल्याण, मध्य प्रदेश का

अतिरिक्त कार्यभार भी संभालेंगे तथा इसके साथ-साथ वे संचालक, राज्य शैक्षणिक अनुसंधान तथा प्रशिक्षण परिषद् का कार्य भी पूर्ववत् देखते रहेंगे।

(2) इस विभाग का समसंबंधी आदेश, दिनांक 20 जनवरी 1983 जहाँ तक उसका संबंध श्री जी. बैकना, आय. ए. एस., प्रबंध संचालक, राज्य नियति निगम की सेवाएं वाणिज्य एवं उद्योग विभाग से वापस लेकर आदिम जाति विकास आयुक्त के पद पर पदस्थापना से है, निरस्त किया जाता है। तदनुसार श्री जी. बैकना अपने पूर्व पद प्रबंध संचालक, राज्य नियति निगम के पद पर ही बने रहेंगे।

क्र. ई. 1-29-83-एक-5.-- श्री ए. ए. कुमार, आय. ए. एस., अपर संचालक, आदिम जाति कल्याण (नागरिक अधिकार संरक्षण), भोपाल को, आगामी आदेश तक, पदेन उपसंचालक, मध्य प्रदेश शासन, आदिम जाति, हरिजन एवं पिछड़ा वर्ग कल्याण विभाग भी घोषित किया जाता है।

मध्य प्रदेश के राज्यपाल के नाम से तथा आदेशानुसार,
वीरबन, मुखर सचिव.

(वेतन आयोग प्रकोष्ठ)

भोपाल, दिनांक 7 फरवरी 1983

क्र. 24-1-वे.आ.प्र.83.-- राज्य शासन ने मध्य प्रदेश वेतन आयोग, 1981 की अनुसंधान प्रकाश में कार्यभारित एवं आकस्मिकता से वेतन पाने वाले कर्मचारियों की सेवा के सदस्यों की सेवा शर्तों पर विचार करने हेतु इस विभाग की अधिसूचना क्र. 351-1-वे.आ.प्र.-82, दिनांक 5 अक्टूबर 1982 द्वारा जो राज्य स्तरीय कमेटी गठित की गई है उसके धिचारीय विषयों में निम्नलिखित विषय और सम्मिलित किया जाता है:—

“कार्यभारित एवं आकस्मिकता से वेतन पाने वाले सेवा के वे कर्मचारी जो अल्पधिक परिष्कृत या मूल्यवान मशीनों को चलाते हैं उनको दिये जाने वाले वेतनमानों पर विचार करना।”

मध्य प्रदेश के राज्यपाल के नाम से तथा आदेशानुसार,
के. एन. श्रोवास्तव, उपसचिव

वन विभाग

भोपाल, दिनांक 18 जनवरी 1983

क्र. 15-1-83-वस-2.-- चूंकि राज्य शासन का यह विचार है कि नीचे दशायो अनुसूची से विनिर्दिष्ट क्षेत्र वन्य प्राणियों की सुरक्षा, वृद्धि और विकास तथा उसके पर्यावरण की दृष्टि से महत्व का है;

चूंकि वन्य प्राणी सुरक्षा अधिनियम, 1972 की धारा 19 से 26 के अनुसार कार्यवाही की जा चुकी है एवं राष्ट्रीय उद्यान के अन्तर्गत आने वाली सभी पट्टे की भूमि अधिग्रहीत की जा चुकी है एवं धारा 35 (4) के प्रावधानों का पालन किया जा चुका है;

भारत राजपत्र, राइड्वारा, वन्य प्राणी संरक्षक अधिनियम, 1972 (कमॉन 53 जू 1972) की धारा 34 (4) के अनुसार नीचे परिशिष्ट में दशमि क्षेत्र को "वन विहार राष्ट्रीय उद्यान, भोपाल" दिनांक 26 जनवरी 1983 से घोषित करना है:—

अनुसूची

जिला—भोपाल, तहसील—हुजूर

राष्ट्रीय उद्यान का नाम—वन विहार राष्ट्रीय उद्यान, भोपाल.

उद्यान का क्षेत्रफल—445.21 हेक्टर

ग्रामों का नाम जिनका क्षेत्रफल सम्मिलित किया गया है—धरमपुरी, ग्रामखेड़ा एवं प्रेमपुरा.

सम्मिलित खसरा नंबर का विवरण:—

ग्राम धरमपुरी

खसरा नंबर—1, 2, 3, 4, 5, 6, 7, 8(भाग), 9 (भाग) 98-1-3-2, 98-1-3, 98-1-3-1 क्षेत्रफल—142.14 हेक्टर.

ग्राम ग्रामखेड़ा

खसरा नंबर—40, 41, 42, 43, 44, 33 (भाग), 35² "31, 36, 37" (भाग), 45/1, 45/2, 34/2, 34/1/2, 46, 47, 48, 49, क्षेत्रफल—102.95 हेक्टर.

ग्राम प्रेमपुरा

खसरा नंबर—1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27 (भाग), 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53 (भाग), 54(भाग), 55(भाग), 56, 57 (भाग), 58, 59, 60, 61, 62(भाग), 68, 89(भाग), 140/52(भाग), 143/5, 147/22, 148/33, 149/4, क्षेत्रफल—200.12 हेक्टर.

कुल योग

ग्राम धरमपुरी	142.14 हेक्टर
ग्राम ग्रामखेड़ा	102.95 हेक्टर
ग्राम प्रेमपुरा	200.12 हेक्टर
महायोग	445.21 हेक्टर

मध्यप्रदेश के राज्यपाल के नाम से तथा आदेशानुसार,

जे. बी. लाल, उपसचिव.

भोपाल, दिनांक 18 जनवरी 1983

क्र. 15-1-83-दस-2.—भारत के संविधान के अनुच्छेद 349 के खंड (3) के अनुसरण में इस विभाग की अधिसूचना क्र. 15-1-83 दस-2, दिनांक 18 जनवरी 1983 का अंग्रेजी अनुवाद राज्यपाल के प्राधिकार से एतद्वारा प्रकाशित किया जाता है.

मध्यप्रदेश के राज्यपाल के नाम से तथा आदेशानुसार,

जे. बी. लाल, उपसचिव.

Bhopal, the 18th January 1983

No. 15-1-83-X-2.—Whereas the State Government consider that the area specified in the Schedule below is of adequate significance for the purpose of protecting, propagating and developing Wildlife and its environment;

And whereas action under sections 19-26 of the Wildlife (Protection) Act, 1972 (53 of 1972) has been taken and all private land in the proposed park has been acquired and provision of Section 35 (4) has been complied with;

Now, therefore, in exercise of the powers conferred by Section 35 (4) of the Wildlife (Protection) Act, 1972 (No. 53 of 1972), the State Government of Madhya Pradesh declares the area specified in the Schedule below as "Van Vihar National Park, Bhopal" with effect from 26th January, 1983.

SCHEDULE

District	...	Bhopal
Tahsil	...	Huzur
Name of National Park	...	Van Vihar, National Park, Bhopal.
Area of National Park	...	445.21 Hectares
Name of villages whose area has been included in the National Park:—		(1) Dharamपुरी, (2) Amkheda, (3) Prempura

Details of Khasra Nos. included

Village Dharamपुरी

Khasra No. 1, 2, 3, 4, 5, 6, 7, 8 (Part), 9 (Part), 98/1/3/2, 98/1/3, 98/1/3/1. Area 142.14 Hectares.

Village Amkheda

Khasra No. 40, 41, 42, 43, 44, 33 (Part), 35, 31, 36, 37 (Part), 45/1, 45/2, 34/2, 34/1/2, 46, 47, 48, 49, Area 102.95 Hectares.

Village Prempura

Khasra No. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13,
14, 15, 16, 17, 18, 19, 20, 21, 22, 23,
24, 25, 26, 27 (Part), 28, 29, 30, 31, 32,
33, 34, 35, 36, 37, 38, 39, 40, 41, 42,
43, 44, 45, 46, 47, 48, 49, 50, 51, 52,
53, (Part), 54, (Part), 55 (Part), 56, 57
(Part), 58, 59, 60, 61, 62 (Part), 68,
89 (Part), 140/52 (Part), 143/5, 147/22,
148/33, 149/4.

Area	200.12	Hectares
Total Area		
Village Dharampuri	142.14	Hectares
Village Amkhera	102.95	Hectares
Village Prempura	200.12	Hectares
Grand Total	445.21	Hectares

By order and in the name of the Governor of
Madhya Pradesh,
J. B. LAL, Dy. Secy.

राजस्व विभाग

भोपाल, दिनांक 29 जनवरी 1983

क्र. 8-15-82-अ-1-सात—चूंकि राज्य शासन को इस बात का समाधान हो गया है कि नीचे दी गई अनुसूची के पद (1) में वर्णित भूमि की, अनुसूची के पद (2) में उल्लिखित सार्वजनिक प्रयोजन के लिये आवश्यकता है. अतः भू-अर्जन अधिनियम, 1894 (क्रमांक एक सन् 1894) की धारा 6 के अंतर्गत इसके द्वारा यह घोषित किया जाता है कि उक्त भूमि को उक्त प्रयोजन के लिए आवश्यकता है:—

- अनुसूची
- (1) भूमि का वर्णन—
- (क) जिला—सरगुजा
(ख) तहसील—सूरजपुर
(ग) ग्राम—तेलईकठार, जयनगर
(घ) लगभग क्षेत्रफल—1.033 हेक्टर

ख. नं.	रकबा
(1)	(2) (हेक्टर में)
ग्राम तेलई कठार	
88	0.206
89	0.016
90	0.081
84/1	0.219
104	0.001

(1)	(2) हेक्टर में
205	0.049
74	0.053
75/1	0.008
83/1 से	0.121
76/1 से	0.073
योग	0.830

गाक जयनगर

342 से	0.061
313/1	0.045
338/1से	0.016
311/1से	0.053
312	0.008
319/1से	0.020
योग	0.203

- (2) सार्वजनिक प्रयोजन जिसके लिये आवश्यकता है—कालरी द्वारा कीयला निकालना.
(3) भूमि के नक्शे (प्लान) का निरीक्षण जिलाध्यक्ष के कार्यालय में किया जा सकता है.

भोपाल, दिनांक 2 फरवरी 1983

क्र. 9-31-82-सा-1-सात.—चूंकि राज्य शासन को इस बात का समाधान हो गया है कि नीचे दी गई अनुसूची के पद (1) में वर्णित भूमि की, अनुसूची के पद (2) में उल्लिखित सार्वजनिक प्रयोजन के लिए आवश्यकता है, अतः भू-अर्जन अधिनियम, 1894 (क्रमांक एक सन् 1894) की धारा 6 के अंतर्गत, इसके द्वारा यह घोषित किया जाता है कि उक्त भूमि को उक्त प्रयोजन के लिए आवश्यकता है:—

अनुसूची

- (1) भूमि का वर्णन—
- (क) जिला—सिवनी.
(ख) तहसील—लखनादौन.
(ग) नगर/ग्राम—चमरवाहा.
(घ) लगभग क्षेत्रफल—106.497 हेक्टर.

खसरा नम्बर	रकबा
(1)	(2) (हेक्टर में)
2/1ग	0.097
2/2	0.154
3	0.474
4	1.185
5	0.547
7	2.152
8	0.858
9	2.023
10	0.105

Appendix – II

Management of Tigers in Captivity as on date 31.3.2011

S.n	Name	Sex M/F	Origin	Date of birth Or Entry date in VVNP	Present Age in years	Daily Diet	Exhibit frequency	Physical Condition	Breeding behaviour/ breeding efforts
1	2	3	4	5	6	7	8	9	10
1	Salma	F	Van Vihar	25 May 1993	18	9 Kg	Not exhibited	Very old	No mating efforts till date
2	Sita	F	Jagdapur (Wild)	12 June 1994	17.5	8 Kg	Exhibited	Old	Tried once with Chhotu Could not conceive, Normal
3	Reena	F	Van Vihar	30 July 1994	16.5	8 Kg	Exhibited	Old	No mating efforts till date
4	Basni	F	Karmai (Wild)	30 January 2003	8	8 Kg	Exhibited	Adult	Mating
5	Shiwani	F	Madhav NP Shivpuri	16 March 07	20.5	6 kg	Not exhibited	Very old	Brought from Madhav N.P. since no mating efforts
6	Kanha	M	Kanha NP Mandla	16 May 2008	6	9 kg	Exhibited	Adult	Mating
7	Nahar	M	Bandhavgarh NP Umaria	08 Dec. 2008	6	8 kg	Not exhibited	Adult	No mating efforts till date
8	Lalita (WT)	F	Nandankanan Orissa	22 April 2009	11	9 kg	Exhibited	Old	No mating efforts till date
9	Priya	F	Jaipur Zoo	18 May 2006	12	6 kg	Not exhibited	Old	No mating efforts till date

Appendix-III

Management of Lions in Captivity as on date 31.3.2011

S.n	Name	M/F	Origin	Date of birth(B) Or Entry(E)	Age In Year	Daily Diet	Exhibit frequency	Physical Condition	Breeding behaviour
1	2	3	4	5	6	7	8	9	10
1	Indar	M	Indore Zoo	12 Feb 1992	20	8 Kg	Exhibited	Very old	No mating effort
2	Shiva	M	Jaipur zoo	18 May 2006	12	7 kg	Not exhibited	Old	No mating effort
3	Shivani	F	Jaipur zoo	18 May 2006	12	6 kg	Not exhibited	Old	No mating effort
4	Lilee	F	Jaipur zoo	18 May 2006	13	6 kg	Not exhibited	Old	No mating effort
5	Mauli	F	Jaipur zoo	18 May 2006	14	6 kg	Not exhibited	Old	No mating effort
6	Bhawani	F	Jaipur zoo	18 May 2006	12	6 kg	Not exhibited	Old	No mating effort
7	Jauni	M	Korba	22 October 2006	21	8 kg	Not exhibited	Very Old	No mating effort
8	Amar	M	Korba	22 October 2006	21	8 kg	Not exhibited	Very Old	No mating effort
9	Anthony	M	Korba	22 October 2006	21	8 kg	Not exhibited	Very Old	No mating effort
10	Akbar	M	Korba	22 October 2006	21	6 kg	Not exhibited	Very Old	No mating effort
11	Ramu	M	Korba	22 October 2006	23	8 kg	Not exhibited	Very Old	No mating effort
12	Jamuna	F	Korba	22 September 2006	13	6 kg	Not exhibited	Old	No mating effort
13	Sultan	M	Bilaspur	1 July 2010	18	8 kg	Not exhibited	Very Old	No mating effort
14	Jamuna-2	F	Bilaspur	1 July 2010	18	8 kg	Not exhibited	Very Old	No mating effort

Appendix-IV

Management of Leopards in Captivity as on date 31.3.2011

S.n.	Name	Sex	Origin	Date of birth(B) Or entry(E)	Age in years	Daily Diet	Exhibit frequency	Physical Condition	Breeding behaviour
1	2	3	4	5	6	7	8	9	10
1	Rana	M	Van Nihar	16 Apr 1994	17	3 Kg	Not exhibited	Very old	No mating effort
2	Shyamu	M	Jabalpur	12 July 1999	20	3 Kg	Not exhibited	Very old	No mating effort
3	Mohni	F	Kanha	31 Jan. 2002	12	3 Kg	Not exhibited	Old	No mating effort
4	Aman	M	Van Vihar	16 Aug 2001	10	3 Kg	Not exhibited	Old	No mating effort
5	Naina	F	Neemach	17 Feb. 2005	7	3 Kg	Not exhibited	Adult	No mating effort
6	Khushi	F	Burhanpur	6 October 2005	15	4 Kg	Not exhibited	Very old	No mating effort
7	Poonam	F	Van Vihar	16 Aug. 2001	10	3 Kg	Not exhibited	Old	No mating effort
8	Jhiria	M	Jhiri	12 May 2005	17	3 Kg	Not exhibited	Very old	No mating effort
9	Neemu	F	Neemach	02 Jan. 2005	14	3 Kg	Not exhibited	Old	No mating effort
10	Nimi	F	Neemach	7 Feb. 2005	6	3 Kg	Not exhibited	Adult	No mating effort
11	Durga	F	Balaghat	13 Jan. 2008	17	3 Kg	Not exhibited	Very old	No mating effort
12	Shera	F	Balaghat	17 Jan. 2008	17	3 Kg	Not exhibited	Very old	No mating effort
13	Katerina	F	Sehore	22 Jan. 2010	2	2 Kg	Not exhibited		No mating effort
14	Salman	M	Mandla	11 Feb. 2010	7	3 Kg	Not exhibited	Adult	No mating effort

Appendix-V

Management of Hyenas in Captivity

S.n ,	Name	Sex M/F	Origin	Date of birth(B) Or Entry(E)	Age in year	Daily Diet	Exhibit frequency	Veterinary Condition	Breeding behaviour
1	2	3	4	5	6	7	8	9	10
1	Dharmendra	M	Burhanpur	(E) 9 May 1996	5	2 Kg	Exhibited	Adult	No mating effort
2	Lucee	F	Satna			2 Kg	Exhibited	Adult	No mating effort

Appendix-VI

Management of Jackal in Captivity

S. n.	Name	Sex M/F	Origin	Date of birth(B) Or Entry(E)	Age in year	Daily Diet	Exhibit frequency	Physical Condition	Breeding behaviour
1	2	3	4	5	6	7	8	9	10
1	Hema	F	Van Vihar		3	1 kg.	Exhibited		No mating effort

Appendix-VII

Management of Gaur in Captivity

S. n.	Name	Sex M/F	Origin	Date of birth(B) Or Entry(E)	Age in year	Daily Diet	Exhibit frequency	Physical Condition	Breeding behaviour
1	2	3	4	5	6	7	8	9	10
1	Gauri	F	Van Vihar		3	Green fodder	Exhibited	Adult	No mating effort

Appendix-VIII

Management of Sloth Bears In Captivity

S.n.	Name	Sex M/F	Origin	Date of birth(B) Or Entry(E)	Age in year	Daily Diet	Exhibit frequency	Veterinary Condition	Breeding behaviour
1	Moss	M	from kalandar, Nasik, Maharashtra	15.08.2008	7yrs	Morning: labssi 750 gms ata boiled in 2 lit water, Egg 1no, Sweet potato & carrot 500gm, honey 100gm Afternoon: 1 kg of fruit Evening: Daliya(wheat porridge) 200gm boiled in 1 lt. Milk	Not exhibited	Healthy	N/A
2	Pluto	M	from kalandar, Bihar	27.07.2008	4yrs		Exhibited	Healthy	N/A
3	Rex	M	from kalandar, Bihar	27.07.2008	4yrs		Not exhibited	Healthy	N/A
4	Guddi	F	from kalandar, MP	11.05.2006	29yrs		Not exhibited	Healthy	N/A
5	Ruby	F	from kalandar, MP	06.05.2006	16yrs		Not exhibited	Healthy	N/A
6	Neelam	F	From kalandar, MP	12.05.2006	28yrs		Not exhibited	Healthy	N/A
7	Rashmi	F	From kalandar, MP	06.05.2006	26yrs		Not exhibited	Healthy	N/A
8	Mirinda	F	from kalandar, Nasik, Maharashtra	15.08.2008	8yrs		Not exhibited	Healthy	N/A
9	Mali	M	from kalandar, Nasik, Maharashtra	15.08.2008	8yrs		Not exhibited	Healthy	N/A
10	Max	M	from kalandar, Nasik, Maharashtra	15.08.2008	10yrs		Not exhibited	Healthy	N/A
11	Minorva	F	from kalandar, Nasik, Maharashtra	15.08.2008	8yrs		Not exhibited	Healthy	N/A
12	Boss	M	from kalandar, Bihar	27.07.2008	10yrs		Not exhibited	Healthy	N/A
13	Leo	M	from kalandar, Bihar	27.07.2008	9yrs		Not exhibited	Healthy	N/A
14	Bablu	M	From kalandar, MP	06.05.2006	23yrs		Not exhibited	Healthy	N/A
15	Rahul	M	From kalandar, MP	26.11.2006	16yrs		Not exhibited	Healthy	N/A
16	Gulabo	M	From kalandar, MP	06.05.2006	29yrs		Not exhibited	Healthy	N/A
17	Fedo	M	From kalandar, MP	06.05.2006	17yrs		Not exhibited	Healthy	N/A
18	Prerna	F	From kalandar, MP	12.05.2006	20yrs		Not exhibited	Healthy	N/A
19	Reya	F	From kalandar, MP	26.11.2006	10yrs		Not exhibited	Healthy	N/A
20	Rethu	F	From kalandar, MP	11.05.2006	17yrs		Not exhibited	Healthy	N/A
21	Arya	M	From kalandar, MP	12.05.2006	8yrs		Not exhibited	Healthy	N/A
22	Baiju	M	From kalandar, MP	11.05.2006	19yrs		Not exhibited	Healthy	N/A
23	Rekha	F	From kalandar, MP	12.05.2006	18yrs		Not exhibited	Healthy	N/A

24	Rama	M	From kalandar, MP	06.05.2006	20yrs	Not exhibited	Healthy	N/A
25	Harry	M	From kalandar, MP	06.05.2006	20yrs	Not exhibited	Healthy	N/A
26	Anmol	F	From Mothkuli range	21.11.2009	2 yrs	Not exhibited	Healthy	N/A
27	Bholu	M	Rescued from forest	09.06.2006	4yrs	Not exhibited	Healthy	N/A
28	Gudda	M	Rescued from forest		25yrs	Not exhibited	Healthy	N/A
29	Nathan	F	Rescued from forest	18.05.2006(21.07.1995)	18yrs	Not exhibited	Healthy	N/A
30	Jamwant	M	Rescued from forest	16.11.2007	6yrs	Not exhibited	Healthy	N/A
31	Baladeen	F	Rescued from forest	17.12.2008	14yrs	Not exhibited	Healthy	N/A
32	Sherna	F	Rescued from forest	18.05.2006(01.04.2002)	8yrs	Not exhibited	Healthy	N/A
33	Singori	F	Rescued from forest	18.05.2006(18.05.2006)	10yrs	Not exhibited	Healthy	N/A
34	Ram	M	Rescued from forest	18.05.2006	7yrs	Not exhibited	Healthy	N/A
35	Shyam	M	Rescued from forest	18.05.2006(19.02.2005)	7yrs	Not exhibited	Healthy	N/A
36	Sagar	M	from Circus	18.05.2006(19.02.2005)	7yrs	Not exhibited	Healthy	N/A
37	Shivani	F	From kalandar, MP	12.05.2006	27yrs	Not exhibited	Healthy	N/A

Management of Free Ranging Animals

Name of species and number of individuals		Presence of palatable vegetation		Name of Supplemented feed	
Species	Total Population	Natural vegetation	Supplemented feed	Fodder species	Others (name of the feed)
1	2	3	4	5	6
Chital	773	Not adequate	Not adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti
Sambar	223	Not adequate	Not adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti
Neelgai	83	Not adequate	Not adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti
Black-buck	56	Not adequate	Not adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti
Chousingha	5	Not adequate	Not adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti
Wild boar	45	Adequate	Adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti
Barking deer	1	Not adequate	Not adequate	Barseem, Dry Grass	Sudana, Wheat husk, Gram husk, Kutti

Animals Occur Naturally

Species	Frequency of animals seen			Breeding status	Area preferred	Special behaviour recorded if any
	Daily	Occasional	Rare			
Porcupine	Y	--	--	Good	Hill and slopes	Debarking trees
Jungle cat	--	Y	--	Satisfactory	Plain areas	--
Mangose	Y	--	--	Good	All over	--
Hare	Y	--	--	Good	Plains and plateau	--
Rat	--	Y	--	Satisfactory	All over	--
Fox	--	--	Y	Not known	Southern plains	--

* S: Summer, W: Winter, R: Rains

Appendix – XI

Animal Census

S.N.	Species	Number of animals										
		2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
1	Tiger	08	08	13	13	11	10	10	10	10	09	07
2	White Tiger	02	02	02	01	03	04	02	02	02	02	01
3	Panther	12	13	14	14	14	15	17	17	16	15	14
4	Lion	05	05	04	04	04	04	04	04	03	03	01
5	Sloth Bear	04	05	05	05	06	07	08	08	09	09	09
6	Sloth Bear (albino)	01	01	01	01	01	01	01	01	01	01	00
7	Hyena	01	01	01	01	02	01	01	01	02	02	02
8	Gharial	10	07	07	07	07	07	07	07	06	06	06
9	Crocodile	11	14	15	15	15	15	15	15	17	16	16
10	Turtle	41	45	45	30	30	46	46	46	46	46	46
11	Star Tortoise	02	02	02	02	05	03	03	03	03	03	02
12	Barking deer	02	-	-	-	-	-	-	-	-	-	01
13	Chinkara	&	04	-	-	-	04	02	-	03	06-08	00
14	Chousinga	01	04	01	02	-	01	01	01	02	07-09	05
15	Black buck	08	09	09	10	03	19-21	24-48	24-48	59-65	56-62	54-59
16	Cheetal	1253	1255	1050 to 1080	790-840	600-740	577-637	539-726	539-726	731-789	723-806	735-811
17	Sambar	145	153	140 to 150	130-150	180-200	186-206	130-283	130-283	209-230	248-274	212-235
18	Neelgai	135	138	130 to 140	90-110	90-110	78-86	34-74	34-74	82-92	83-92	79-87
19	Wild Boar	182	Implanting	Implanting	110-125	115-140	77-85	58-102	58-102	47-52	64-71	43-48
20	Langur	82	Implanting	Implanting	80-100	65-80	-	12-42	12-42	-	-	-
21	Porcupine	12	Implanting	Implanting	Implanting	Implanting	Implanting	Implanting	Implanting	Implanting	Implanting	Implanting
22	Jackal	10	06	Implanting	15-18	25-30	51-56	22-49	22-49	29-32	12-16	29-32
23	Honey Badger (Ratel)	-	-	-	-	-	01	01	01	01	-	-
24	Indian Bison-Gaur	-	-	-	-	-	-	-	-	-	-	01

Appendix-XII

List of Big Cat Animals Received in VVNP, Bhopal

S.No	Cast of animal	Sex	Receive Date	Received So Far
Year2001				
NIL				
Year – 2002				
1	Panther (Jhoria)	M	12.05.2002	Gram Jhiri ratapani Sanctuary
Year – 2003				
1	Tiger Cub (Gautam)	M	14.05.2003	Birth at Van Vihar
2	Tiger Cub (Plash)	M	20.09.2003	Birth at Van Vihar
3	Tiger Cub (Sweta)	F	20.09.2003	Birth at Van Vihar
4	Panther (sidhi)	F	01.04.2003	Sidhi Division
Year – 2004				
Nil				
Year – 2005				
1	Panther (Nimu)	M	02.01.2005	Nimach Division
2	Panther (Nimmi)	F	07.02.2005	Nimach Division
3	Panther (Maina)	F	17.02.2005	Nimach Division
4	Panther (Khushi)	M	06.07.2005	Burhanpur Division
5	White Tiger (Ishu)	M	22.11.2005	Dehli Zoo
6	White Tiger (Keeku)	F	22.11.2005	Dehli Zoo
Year – 2006				
1	White Tiger (Karan)	M	11.04.2006	Sanjay Gandhi NP Mumbai
2	White Tiger (Rashmi)	F	11.04.2006	---
3	Tiger (Sagar)	M	19.05.2006	Jaipur Circus
4	Tiger (Priyal)	F	19.05.2006	Jaipur Circus
5	Loin (Shiva)	M	19.05.2006	Jaipur Circus
6	Loin (Shiwani)	F	19.05.2006	Jaipur Circus
7	Loin (Bhawani)	F	19.05.2006	Jaipur Circus
8	Loin (Moli)	F	19.05.2006	Jaipur Circus
9	Loin (Lily)	F	19.05.2006	Jaipur Circus
10	Loin (Jamuna)	F	22.09.2006	Jaimini Circus Gorakhpur
11	Tiger (Bandhvi)	F	05.10.2006	Bandhavgarh Tiger Reserve
12	Tiger Cub (Shara)	F	18.10.2006	---
13	Tiger Cub (Ira)	F	18.10.2006	---
14	Loin (Raja)	M	22.10.2006	Rajmahal circus Korba
15	Loin (Badal)	M	22.10.2006	---
16	Loin (Amar)	M	22.10.2006	---

17	Loin (Akbar)	M	22.10.2006	---
18	Loin (Anthony)	M	22.10.2006	---
19	Loin (Ramu)	M	22.10.2006	---
20	Loin (Joni)	M	22.10.2006	---
Year – 2007				
1	Tiger (Shiwani)	F	16.03.2007	Madhav NP Shivpuri
2		M	03.05.2007	South Seoni Division
Year – 2008				
1	Panther (Durga)	F	13.01.2008	South Division Balalghat
2	Panther (Shera)	F	17.01.2008	South Division Balalghat
3	Tiger (Heera)	M	17.02.2008	Satna Division
4	Tiger (Kanha)	M	16.05.2008	Kanha Tiger Reserve
5	Tiger (Nahar)	M	08.12.2008	Bandhavgarh Tiger Reserve
Year – 2009				
1	Tiger (Rani)	F	21.03.2009	Ratapani Sanctuary
2	Tiger (Pancham)	M	04.04.2009	
3	White Tiger (Bhagat)	M	22.04.2009	Nandan Kanan Orisa
4	White Tiger (Lalita)	F	22.04.2009	Nandan Kanan Orisa
Year – 2010				
1	Panther (Catreena)	F	22.01.2010	Sehore Division
2	Panther (Salman)	M	11.02.2010	East Mandla Division
3	Lion (Sultan)	M	01.07.2010	Kanan Pendari Bilaspur
4	Lion (Jamuna)	F	01.07.2010	Kanan Pendari Bilaspur

Transfer of Animals From VVNP
(Under Animal Exchange Programme of CZA)

S.No	Species	Name of animal	Sex	Transfer Date	Transfer to
1	Tiger	Naresh (M)	M	22-12-2005	Delhi Zoo
2	Tiger	Basanti	F	05-04-2006	Sanjay Gandhi National Park Borivali Mumbai
3	Tiger	Palash	M	05-04-2006	Sanjay Gandhi National Park Borivali Mumbai
4	Tiger	Sara	F	15-04-2009	Nandan kanan gyological Park Bhuvneshvar
5	Jackal	Basanti	F	15-04-2009	Nandan kanan gyological Park Bhuvneshvar
6	Jackal	Veeru	M	15-04-2009	Nandan kanan gyological Park Bhuvneshvar

The Death Details of Big Cat Captive Animals

S. No.	Name of animal	Sex	Date of death	Causes of Death
Year 2001				
NIL				
Year 2002				
1	Tiger (Sultan)	M	07.1.02	Enteritis peritonitis
2	Leopard (Maikal)	M	20.7.02	Senility
Year 2003				
1	Tiger cub (Rini cub)	F	17.5.03	Mishandle by mother
2	Lion (Rani)	F	17.8.03	Senility
Year 2004				
1	White Tiger (Rustam)	M	21.06.04	Senility
2	Leopard (Mandavi)	F	14.10.04	Senility
Year 2005				
1	Tiger (Shyamu)	M	13.02.05	Senility
2	Leopard (Jaggu)	M	19.04.05	septicemia due to ruptured liver
3	Leopard (Kanha)	M	22.05.05	Senility
4	Leopard (Prathvi)	F	18.07.05	Peritonitis
Year 2006				
1	Tiger (Ram)	M	15.06.06	Intestinal obstruction leading to acute intoxication
2	White Tiger (Karan)	M	15.10.06	Acute Hemorrhagic gastroenteritis
3	Tiger (Malti)	F	22.12.06	Senility
4	Lion Rescued (Raja)	M	28.12.06	Cardiac paralysis due to asphyxia
Year 2007				
1	Tiger (Chotu)	M	26.06.07	Senility
2	White Tiger (Ishu)	M	12.10.07	Liver ruptured
3	Tiger (Gautam)	M	06.12.07	Bebasia
Year 2008				
1	Tiger (Hira) From Satna	M	22.02.10	Septicemia & Toxicemia Result of Gun Shot
1	White Tiger (Rashmi)	F	14.03.08	Trauma & Shock
2	Lioness (Indrani)	F	15.05.08	Senility
3	White Tiger (Keeku)	F	30.06.08	Senility
4	Panther (Sidhi)	F	24.08.08	Strangulation
5	White Tiger (Rini)	F	06.09.08	Cancer

6	Lion Rescued (Badal)	M	19.09.08	Senility
Year 2009				
1	Tigeress (Era)	F	02.06.09	Aspiration of Vomitus fluid
2	Panther (Sheru)	M	04.06.09	Senility
3	Panther (Trega)	M	02.07.09	Senility
4	Tiger (Pancham)	M	14.04.09	Septicemia
5	Tiger (Rani)	F	02.04.09	Cardiac Failure
Year 2010				
1	Panther (Rakhi)	F	03.03.10	Senility
2	Tiger (Bandhavi)	F	09.06.10	Infection in lungs & kidney
3	Tiger (Shweta)	F	22.06.10	Kidney failure
4	Tiger (Sagar)	M	15.10.10	Kidney failure
5	Panther (Agni)	M	22.11.10	Cancer
Year 2011				
1	Lion (Suhag)	M	4.1.11	Senility
2	Lion (Rehana)	F	22.3.11	Senility
3	White Tiger (Bhagat)	M	29.3.11	Renal failure

Death Details of Free Ranging Animals

S.No.	Year	Name of Animals	Date of Death	Cause of Death
1	2001	Black Buck	27-04-2001	Penther kill
2		Black Buck	22-08-2001	Python Kill
3		Black Buck	15-11-2001	Respiratory & Hepatic Failure
4		Black Buck	25-11-2001	Pneumonia
5	2002	Sambar	08-01-2002	Accedent
6		Black Buck	10-01-2002	Accedent
7		Sambar	13-02-2002	Natural
8		Spotted Deer	16-02-2002	Natural
9		Sambar	16-02-2002	Natural
10		Spotted Deer	17-02-2002	Natural
11		Wild Boar	02-03-2002	Natural
12		Nilgai	04-03-2002	Natural
13		Spotted Deer	03-04-2002	Natural
14		Spotted Deer	06-04-2002	Natural
15		Spotted Deer	18-04-2002	Natural
16		Spotted Deer	01-05-2002	Natural
17		Spotted Deer	08-05-2002	Natural
18		Spotted Deer	09-05-2002	Natural
19		Black Buck	10-05-2002	Accidents
20		Sported Spotted	13-06-2002	Natural
21		Four horned antelope	13-07-2002	Natural
22		Black Buck	12-08-2002	Infighting
23		Hyena	18-08-2002	Accidents
24		Black Buck	01-09-2002	Natural
25		Black Buck	09-09-2002	Accidents
26		Nilgai	21-09-2002	Infighting
27	2003	Chinkara	11-02-2003	Natural
28		Black Buck	29-03-2003	Natural
29		White Tiger Cub	17-05-2003	Natural
30		Black Buck	22-04-2003	Natural
31		Black Buck	14-05-2003	Natural
32		Four horned antelope	25-05-2003	Accidents
33		Sported Spotted	27-05-2003	Natural
34		Sambar	27-05-2003	Natural
35		Black Buck	10-06-2003	Natural

36		Black Buck	13-06-2003	Natural
37		Wild Boar	05-07-2003	Natural
38		Black Buck	19-07-2003	Natural
39		Black Buck	07-08-2003	Natural
40		Black Buck	17-08-2003	Natural
41		Nilgai (White)	06-10-2003	Natural
42	2004	Chinkara	06-01-2004	Accidents
43		Nillgai	06-01-2004	Accidents
44		Sambar	09-02-2004	Accidents
45		Black Buck	30-11-2004	Accidents
46		Black Buck	04-12-2004	Accidents
47	2005	Sambar	06-02-2005	Natural
48		Spotted Deer	19-03-2005	Accidents
49		Spotted Deer	19-03-2005	Accidents
50		Spotted Deer	19-03-2005	Accidents
51		Spotted Deer	19-03-2005	Accidents
52		Spotted Deer	19-03-2005	Accidents
53		Spotted Deer	19-03-2005	Accidents
54		Spotted Deer	19-03-2005	Accidents
55		Spotted Deer	19-03-2005	Accidents
56		Spotted Deer	19-03-2005	Accidents
57		Spotted Deer	19-03-2005	Accidents
58		Spotted Deer	26-03-2005	Accidents
59		Spotted Deer	27-03-2005	Natural
60		Spotted Deer	04-04-2005	Natural
61		Black Buck	10-04-2005	Natural
62		Four horned antelope	19-11-2005	Accidents
63		Four horned antelope	19-11-2005	Death due to injury
64	2006	Black Buck	09-01-2006	Natural
65		Chinkara	09-01-2006	Shock
66		Bear	18-01-2006	Natural
67		Nillgai	23-01-2006	Natural
68		Nillgai	08-02-2006	Natural
69		Nillgai	12-02-2006	Natural
70		Chinkara	26-02-2006	Shock
71		Spotted Deer	01-03-2006	Natural
72		Spotted Deer	02-03-2006	Natural
73		Spotted Deer	07-04-2006	Natural
74		Black Buck	23-04-2006	Shock

75		Star Tortoise	17-06-2006	Natural
76		Black Buck	26-07-2006	Shock
77		Nilgai	15-08-2006	Flood on 14-08-2006
78		Chinkara	-25-08-2006	Infighting
79		Star Tortoise	25-08-2006	Natural
80		Four horn antilope	18-09-2006	Natural
81		Black Buck	18-09-2006	Natural
82		Nilgai	25-09-2006	Intites
83		Four horn antilope	14-10-2006	Natural
84		White Tiger Karan	15-10-2006	Gesto intitis
85		Black Buck	25-10-2006	Shock
86		Hill Maina	17-11-2006	Natural
87		Black Buck	23-11-2006	Death due to injury
88		Black Buck	04-12-2006	Natural
89		Spotted Deer	07-12-2006	Natural
90		Black Buck	13-12-2006	Natural
91		Tiger Malti	22-12-2006	Natural
92		Loin Raja	28-12-2006	Natural
93	2007	Black Buck	16-01-2007	Injury
94		Black Buck	28-01-2007	Infighting
95		Chinkara	25-02-2007	Internal Heamrrage
96		Black Buck	02-03-2007	Natural
97		Black Buck	03-03-2007	Pneumonia
98		Black Buck	08-03-2007	Shock
99		Chinkara	10-03-2007	Pneumonia
100		Chinkara	11-03-2007	Hepatitis
101		Tiger Chhotu	26-06-2007	Natural
102		Chinkara	26-07-2007	Pneumonia
103		White Tiger	12-10-2007	Hepatorino pethi
104		Tiger Goutam	06-12-2007	Bevesia
105	2008	Black Buck	07-01-2008	Shock
106		Wild Boar	06-04-2008	Verminous Pnemonia
107		Black Buck	13-04-2008	Shock
108		Black Buck	16-04-2008	Enteritis
109		Jackal	13-05-2008	Internal Heamerrage
110		Black Buck	14-05-2008	Natural
111		Spotted Deer	23-05-2008	Natural
112		Nilgai	29-05-2008	Heamerrage & Shock
113		Black Buck	16-06-2008	Maternal Heamerrage

114		Chinkara	17-06-2008	Hepatitis
115		Sambar	25-06-2008	Shock
116		Sambar	25-06-2008	Natural
117		Nillgai	25-06-2008	Asphyxia due to Ruminant
118		Sambar	26-06-2008	Natural
119		Black Buck	27-06-2008	Pneumonia
120		Spotted Deer	08-07-2008	Jackal Kill
121		Spotted Deer	15-09-2008	Jackal Kill
122		Wild Boar	21-09-2008	Natural
123		Jackal	06-11-2008	Natural
124		Spotted Deer	15-12-2008	Natural
125	2009	Spotted Deer	25-01-2009	Pythen kill
126		Wild Boar	18-01-2009	Trauma & Shock
127		Jackal	28-02-2009	Pneumonia
128		Black Buck	09-04-2009	Shock
129		Chinkara	02-08-2009	Shock
130		Black Buck	26-08-2009	Internal Hemorrhage
131		Black Buck	19-09-2009	Pneumonia
132		Four horned antelope	13-10-2009	Pneumonia
133		Black Buck	19-09-2009	Pneumonia
134		Nillgai	03-12-2009	Natural Death
135	2010	Sambar	15-01-2010	Natural Death
136		Chausinga	27-04-2010	Injured
137		Black Buck	04-05-2010	Natural
138		Black Buck	21-05-2010	Natural
139		Cheetal	09-06-2010	Crocodile kill
140		Black Buck	16-06-2010	Injured
141		Black Buck	22-11-2010	Natural
142		Sambar	16-01-2011	Jackal kill
143		Sambar	23-02-2011	Natural Death

Checklist of Birds

S.No	Nomenclature	Water/ Terrestrial/ Arboreal	Migratory/ Resident/ Local Migratory	Status
1	Little Grebe <i>Tachybaptus ruficollis</i>	water	M	Rare
2	Indian Shag <i>Phalacrocorax fuscicollis</i>	water	M	Uncommon
3	Little Cormorant <i>Phalacrocorax niger</i>	water	LM	Common
4	Large Cormorant <i>Phalacrocorax</i>	water	M	Rare
5	Darter <i>Anhinga rufa</i>	water	LM	Rare
6	Grey Heron <i>Ardea cinerea</i>	water	R	Common
7	Purple Heron <i>Ardea purpurea</i>	water	R	Less abundant
8	Large Egret <i>Ardea alba</i>	water	R	Common
9	Median Egret <i>Egretta intermedia</i>	water	R/LM	Less abundant
10	Little Green Heron <i>Ardeola striatus</i>	water	R/LM	Very rare
11	Night Heron <i>Nycticorax nycticorax</i>	Arboreal	R	Uncommon
12	Pond Heron <i>Ardcola grayii</i>	water	R	Common
13	Cattle Egret <i>Bubulcus ibis</i>	W/T	R	Common
14	Little Egret <i>Egretta garzetta</i>	W/T	R	Common
15	Chestnut Bittern <i>Ixobrychus cinnamomeus</i>	W/A	LM	Very rare
16	White Stork <i>Ciconia ciconia</i>	W	M	Extremely rare
17	Painted Stork <i>Mycteria leucocephala</i>	W/T	LM	Uncommon
18	Openbilled Stork <i>Anastomus oscitans</i>	W/T	LM	Common
19	Whitenecked Stork <i>Ciconia episcopus</i>	water	LM	Uncommon
20	Blacknecked Stork <i>Ephippiorhynchus asiaticus</i>	water	M	Extremely rare
21	White Ibis <i>Threskiornis aethiopica</i>	water	M	Less abundant
22	Glossy Ibis <i>Plegadis falcinellus</i>	water	M	Rare
23	Black Ibis <i>Pseudibis papillosa</i>	water	LM	Rare
24	Spoonbill	water	M	Common

	<i>Platalea leucorodia</i>			
25	Barheaded Goose	water	M	Uncommon
	<i>Anser indicus</i>			
26	Brahminy Duck	water	M	Common
	<i>Tadorna ferruginea</i>			
27	Comb Duck	water	LM	Common
	<i>Sarkidiornis melanotos</i>			
28	Lesser Whistling Teal	water	LM	Common
	<i>Dendrocygna javanica</i>			
29	Pintail	water	M	Common
	<i>Anas acuta</i>			
30	Common Teal	water	M	Uncommon
	<i>Anas crecca</i>			
31	Spotbill	water	LM	Common
	<i>Anas poecilorhyncha</i>			
32	Mallard	water	M	Very rare
	<i>Anas platyrhynchos</i>			
33	Gadwall	water	M	Common
	<i>Aas strepera</i>			
34	Wigeon	water	M	Common
	<i>Anas Penelope</i>			
35	Shoveller	water	M	Less abundant
	<i>Anas clypeata</i>			
36	Gargeny	water	M	Common
	<i>Anas querquedula</i>			
37	Common Pochard	water	M	Uncommon
	<i>Aytha ferina</i>			
38	Redcrested Pochard	water	M	Common
	<i>Netta rufina</i>			
39	White-eyed Pochard	water	M	Very rare
	<i>Aythya nyroca</i>			
40	Cotton Teal	water	M	Common
	<i>Nettapus coromandelianus</i>			
41	Blackwinged Kite	Terrestrial	R	Uncommon
	<i>Elanus caeruleus</i>			
42	Common Pariah Kite	Terrestrial	R	Common
	<i>Milvus migrans</i>			
43	Shikra	Terrestrial	R	Common
	<i>Accipiter badius</i>			
44	White-eyed Buzzard	Arboreal	R	Uncommon
	<i>Butastur teesa</i>			
45	Spotted Eagle	Terrestrial	M	Rare
	<i>Aquila clanga</i>			
46	Tawny Eagle	Terrestrial	LM	Very rare
	<i>Aquila vindhiana</i>			
47	Crested Serpent Eagle	Arboreal	R	Rare
	<i>spilornis cheela</i>			
48	Peregrine Falcon	Arboreal	LM	Extremely rare
	<i>Falco peregrines</i>			
49	Short toed Eagle	Terrestrial	R	Uncommon
	<i>Circaetus gallicus</i>			
50	Marsh Harrier	W/T	M	Common
	<i>Circus aeruginosus</i>			
51	Whitebacked Vulture	Terrestrial	R	Extremely rare

	<i>Gyps bengalensis</i>			
52	Indian Longbilled Vulture	Terrestrial	LM	Extremely rare
	<i>Gyps indicus</i>			
53	Palla's Fishing Eagle	W/T	M	Extremely rare
	<i>Haliaeetus leucoryphus</i>			
54	King Vulture	Terrestrial	R	Extremely rare
	<i>Sarcogyps calvus</i>			
55	White Scavenger Vulture	Terrestrial	R	Common
	<i>Neophron percnopterus</i>			
56	Kestrel	Terrestrial	R	Uncommon
	<i>Falco tinnunculus</i>			
57	Common Grey Quail	Terrestrial	R	Common
	<i>Coturnix coturnix</i>			
58	Rain Quail	Terrestrial	R	Rare
	<i>Coturnix coromandelica</i>			
59	Painted Partridge	Terrestrial	R	Extremely rare
	<i>Francolinus pictus</i>			
60	Grey Partridge	Terrestrial	R	Common
	<i>Francolinus pondicerianus</i>			
61	Red Jungle Fowl	Terrestrial	R	Rare
	<i>Gallus gallus</i>			
62	Common Peafowl	Terrestrial	R	Common
	<i>Pavo cristatus</i>			
63	Common Crane	water	LM	Uncommon
	<i>Grus grus</i>			
64	Sarus Crane	water	R/LM	Common
	<i>Grus antigone</i>			
65	White Breasted Waterhen	water	R	Common
	<i>Amaurornis phoenicurus</i>			
66	Indian Moorhen	water	R	Uncommon
	<i>Gallinula chloropus</i>			
67	Purple Moorhen	water	R/LM	Common
	<i>Porolyrio porphyrio</i>			
68	Coot	water	M	Common
	<i>Fulica atra</i>			
69	Bronze winged Jacana	water	R	Common
	<i>Metopidius indicus</i>			
70	Pheasant Tailed Jacana	water	R	Common
	<i>Hydrophasianus chirurgus</i>			
71	Black winged Stilt	water	R/LM	Common
	<i>Himantopus himantopus</i>			
72	Indian Courser	Terrestrial	R	Uncommon
	<i>Cursorius coromandelicus</i>			
73	Red wattled Lapwing	W/T	R	Common
	<i>Vanellus indicus</i>			
74	Spurwinged Plover	water	R	Rare
	<i>Vanellus spinosus</i>			
75	Yellow Wattled Lapwing	Terrestrial	R	Uncommon
	<i>Vanellus malabaricus</i>			
76	Curlew	water	M	Very rare
	<i>Numenius arquata</i>			
77	Blacktailed Godwit	water	M	Uncommon
	<i>Limosa limosa</i>			
78	Painted Snipe	water	M	Rare

	<i>Rostratula benghalensis</i>			
79	Common Snipe	water	M	Uncommon
	<i>Gallinago gallinago</i>			
80	Redshank	water	M	Rare
	<i>Tringa tetanus</i>			
81	Marsh Sandpiper	water	M	Less abundant
	<i>Tringa stagnatilis</i>			
82	Greenshank	water	M	Uncommon
	<i>Tringa nebularia</i>			
83	Spotted Sandpiper	water	M	Common
	<i>Tringa glareola</i>			
84	Common Sandpiper	water	M	Common
	<i>Tringa hypoleucos</i>			
85	Little Ringed Plover	W/T	M	Common
	<i>Charadrius dubius</i>			
86	Kentish Plover	W/T	M	Uncommon
	<i>Charadrius</i>			
87	Temminck's Stint	water	M	Uncommon
	<i>Clalidris temminckii</i>			
88	Ruff and Reeve	water	M	Very rare
	<i>Philomachus pugnax</i>			
89	Brownheaded Gull	water	M	Rare
	<i>Larus brunnicephalus</i>			
90	Blackbellied Tern	water	M	Very rare
	<i>Sterna acuticauda</i>			
91	River Tern	water	R/M	Common
	<i>Sterva aurantia</i>			
92	Yellowlegged Green Pegion	Arboreal	R	Rare
	<i>Treron phoenicoptera</i>			
93	Blue Rock Pegion	Terrestrial	R	Common
	<i>Columba livia</i>			
94	Ring Dove	Terrestrial	R	Common
	<i>Streptopelia decaocto</i>			
95	Red Turtle Dove	Terrestrial	R	Common
	<i>Streptopelia tranquebarica</i>			
96	Spotted Dove	Terrestrial	R	Common
	<i>Streptopelia chinensis</i>			
97	Little Brown Dove	Terrestrial	R	Common
	<i>Streptopelia senegalensis</i>			
98	Roseringed Parakeet	Arboreal	R	Common
	<i>Psittacula krameri</i>			
99	Blossomheaded Parakeet	Arboreal	R	Uncommon
	<i>Psittacula cyanocephala</i>			
100	Indian Cuckoo	Terrestrial	R	Rare
	<i>Cuculus micropterus</i>			
101	Hawk Cuckoo	Terrestrial	R	Uncommon
	<i>Cuculus varius</i>			
102	Pied Crested Cuckoo	Terrestrial	LM	Common
	<i>Clamator Jacobinus</i>			
103	Koel	Terrestrial	R	Common
	<i>Eudynamys Scolopacea</i>			
104	Coucal	Terrestrial	R	Common
	<i>Centropus sinensis</i>			
105	Barn Owl	Terrestrial	R	Uncommon

	<i>Tyto alba</i>			
106	Indian Great Horned Owl	Terrestrial	R	Uncommon
	<i>Bubo bubo</i>			
107	Spotted Owlet	Terrestrial	R	Common
	<i>Athene brama</i>			
108	House Swift	Terrestrial	R	Common
	<i>Apus affinis</i>			
109	Alpine Swift	Terrestrial	LM	Very rare
	<i>Apus melba</i>			
110	Crested Tree Swift	Terrestrial	R	Uncommon
	<i>Hemiprocne longipennis</i>			
111	Common Indian Nightjar	Terrestrial	R	Common
	<i>Caprimulgus asiaticus</i>			
112	Pied Kingfisher	water	R	Common
	<i>Ceryle rudis</i>			
113	Small Blue Kingfisher	water	R	Common
	<i>Alcedo atthis</i>			
114	Whitebreasted Kingfisher	W/T	R	Common
	<i>Halcyon smyrnensis</i>			
115	Stork Billed Kingfisher	water	M	Very rare
	<i>Pelargopsis capensis</i>			
116	Black capped Kingfisher	water	M	Extremely rare
	<i>Halcyon pileata</i>			
117	Bluetailed Bee-Eater	Terrestrial	LM	Uncommon
	<i>Merops philippinus</i>			
118	Small Green Bee-eater	Terrestrial	R	Common
	<i>Merops orientalis</i>			
119	Blue Jay	Terrestrial	R	Common
	<i>Coracias benghalensis</i>			
120	Hoopoe	Terrestrial	R	Common
	<i>Upupa epops</i>			
121	Common Grey Hornbill	Terrestrial	R	Uncommon
	<i>Tockus birostris</i>			
122	Coppersmith	Terrestrial	R	Common
	<i>Megalaima haemacephala</i>			
123	Blackbacked Woodpecker	Arboreal	R	Very rare
	<i>Chrysocolaptes festivus</i>			
124	Brown Capped	Dendrocopos	R	Uncommon
	<i>Pygmywoodpecker</i>			
125	Mahratta Woodpecker	Arboreal	R	Uncommon
	<i>Picooides mahrattensis</i>			
126	Goldenbacked Woodpecker	Arboreal	R	Uncommon
	<i>Dinopium benghalense</i>			
127	Eurasian wryneck	Arboreal	R	Uncommon
	<i>Jynx torquilla</i>			
128	Large Green Barbet	Arboreal	R	Common
	<i>Megalaima zeylanica</i>			
129	Indian Pitta	Arboreal	R	Uncommon
	<i>Pitta brachyuran</i>			
130	Redwinged Bushlark	Terrestrial	R	Uncommon
	<i>Mirafra erythroptera</i>			
131	Blackbellied Finch-Lark	Terrestrial	R	Common
	<i>Eremopterix grisea</i>			
132	Rufoustailed Finchlark	Terrestrial	R	Common

	<i>Ammomanes phoenicurus</i>			
133	Crested Lark <i>Galerida cristata</i>	Terrestrial	R	Common
134	Dusky Crag Martin <i>Hirundo concolor</i>	Terrestrial	R	Common
135	Swallow <i>Hirundo rustica</i>	Terrestrial	R	Common
136	Indian Cliff Swallow <i>Hirundo fluvicola</i>	Terrestrial	R	Common
137	Wiretailed Swallow <i>Hirundo Smithii</i>	Terrestrial	R	Common
138	Striated Swallow <i>Hirundo daurica</i>	W/T	R	Very rare
139	Baybacked Shrike <i>Lanius excubitor</i>	Terrestrial	R	Rare
140	Rufous backed Shrike <i>Lenius schach</i>	Terrestrial	R	Common
141	Golden Oriole <i>Oriolus oriolus</i>	Terrestrial	LM	Common
142	Black headed Oriole <i>Oriolus xanthornus</i>	Arboreal	R	Uncommon
143	Black Drongo <i>Dicrurus adsimilis</i>	Terrestrial	R	Common
144	Whitebellied Drongo <i>Dicrurus caerulescens</i>	Terrestrial	R	Uncommon
145	Racket-tailed Drongo <i>Dircrurus paradiseus</i>	Arboreal	R	Rare
146	Rosy Pastor <i>Sturnus roseus</i>	Terrestrial	M	Very rare
147	Brahminy Myna <i>Sturnus pagodarum</i>	Terrestrial	R	Common
148	Greyheaded Myna <i>Sturnus malabaricus</i>	Terrestrial	M	Uncommon
149	Indian Myna <i>Acridotheres tristis</i>	Terrestrial	R	Common
150	Bank Myna <i>Acridotheres ginginianus</i>	Terrestrial	LM	Rare
151	Pied Myna <i>Sturnus contra</i>	Terrestrial	R	Common
152	Tree Pie <i>Dendrocitta vegabunda</i>	Terrestrial	R	Common
153	House Crow <i>Corvus splendens</i>	Terrestrial	R	Common
154	Jungle Crow <i>Corvus macrorhynchos</i>	Terrestrial	R	Common
155	Common Wood Shrike <i>Tephrodornis pondicerianus</i>	Arboreal	R	Very rare
156	Blackheaded Cuckoo Shrike <i>Coracinamelanoptera</i>	Terrestrial	R	Very rare
157	Large Cuckoo Shrike <i>Coracina novaehollandiae</i>	Arboreal	R	Rare
158	Scarlet Minivet <i>Pericrocotus flammeus</i>	Arboreal	R	Rare
159	Small Minivet	Arboreal	R	Uncommon

	<i>Pericrocotus cinnamomeus</i>			
160	Whitebellied Minivet	Terrestrial	R	Rare
	<i>Pericrocotus erythropygius</i>			
161	Iora	Terrestrial	R	Common
	<i>Aegithina tiphia</i>			
162	Goldfronted Chloropsis	Arboreal	R	Rare
	<i>Chloropsis aurifrons</i>			
163	Goldmantled Chloropsis	Arboreal	R	Very rare
	<i>Chloropsis cochinchinensis</i>			
164	Red vented Bulbul	Terrestrial	R	Common
	<i>Pycnonotus cafer</i>			
165	Yellow-eyed Babbler	Terrestrial	R	Less abundant
	<i>Chrysomma sinense</i>			
166	Common Babbler	Terrestrial	R	Common
	<i>Turdoides caudatus</i>			
167	Large Grey babbler	Terrestrial	R	Common
	<i>Turdoides malcolmi</i>			
168	Jungle Babbler	Terrestrial	R	Common
	<i>Turdeides striatus</i>			
169	Redbreasted Flycatcher	Arboreal	M	Uncommon
	<i>Muscicapa parva</i>			
170	Tickel's Blue Flycatcher	Terrestrial	R	Less abundant
	<i>Muscicapa tickelliae</i>			
171	Paradise Flycatcher	Terrestrial	R	Rare
	<i>Terpsiphone paradise</i>			
172	Verditer Flycatcher	Arboreal	R	Rare
	<i>Muscicapa thalassina</i>			
173	Greyheaded Flycatcher	Arboreal	R	Common
	<i>Culicicapa ceylonensis</i>			
174	Whitebrow Fantail Flycatcher	Terrestrial	R	Uncommon
	<i>Rhipidura oureola</i>			
175	Ashy Wren-Warbler	Terrestrial	R	Common
	<i>Prinia socialis</i>			
176	Franklin's Wren-Warbler	Terrestrial	R	Less abundant
	<i>Prinia hodgsonii</i>			
177	Bristled Grassbird	Terrestrial	n/a	Recently discovered
	<i>Chaetornis striatus</i>			
178	Tailor Bird	Terrestrial	R	Less abundant
	<i>Orthotomus sutorius</i>			
179	Lesser Whitethroat	Arboreal	M	Common
	<i>Sylvia curruca</i>			
180	Bluethroat	Terrestrial	M	Very rare
	<i>Erithacus svecicus</i>			
181	Magpie Robin	Terrestrial	R	Common
	<i>Copsychus saularis</i>			
182	Black Redstart	Terrestrial	M	Common
	<i>Phoenicurus ochruros</i>			
183	Brown Rock chat	Terrestrial	R	Common
	<i>Cercomela fusca</i>			
184	Collared Bushchat	Terrestrial	M	Uncommon
	<i>Saxicola torquata</i>			
185	Pied Bush Chat	Terrestrial	R	Uncommon
	<i>Saxicola caprata</i>			
186	Indian Robin	Terrestrial	R	Common

	<i>Saxicoloides fulicata</i>			
187	Blue Rock Thrush	Terrestrial	R	Very rare
	<i>Monticola solitaries</i>			
188	Grey Tit	Arboreal	R	Uncommon
	<i>Parus major</i>			
189	Yellow cheeked Tit	Arboreal	R	Rare
	<i>Parus xanthogenys</i>			
190	Brown Rock Pipit	Terrestrial	R	Rare
	<i>Anthus similis</i>			
191	Paddyfield Pipit	Terrestrial	R	Common
	<i>Anthus novaeseelandiae</i>			
192	Thickbilled Flowerpecker	Arboreal	R	Uncommon
	<i>Dicaeum agile</i>			
193	Yellow Wagtail	Terrestrial	M	Uncommon
	<i>Motacilla flava</i>			
194	Yellowheaded Wagtail	Terrestrial	M	Uncommon
	<i>Motacilla citreola</i>			
195	Grey Wagtail	Terrestrial	M	Uncommon
	<i>Motacilla cinerea</i>			
196	White Wagtail	Terrestrial	R	Common
	<i>Motacilla alba</i>			
197	Large Pied Wagtail	Terrestrial	R	Common
	<i>Motacilla maderaspatensis</i>			
198	Purple Sunbird	Terrestrial	R	Common
	<i>Nectarimia asiatica</i>			
199	White eye	Terrestrial	R	Common
	<i>Zosterops palpebrosa</i>			
200	Yellow Throated Sparrow	Terrestrial	R	Common
	<i>Petronia xanthocollis</i>			
201	House Sparrow	Terrestrial	R	Common
	<i>Passer domesticus</i>			
202	Baya	Terrestrial	LM	Common
	<i>Ploceus philippinus</i>			
203	Red Munia	Terrestrial	LM	Very rare
	<i>Estrilda amandava</i>			
204	Spotted Munia	Terrestrial	LM	Rare
	<i>Lonchura punctulata</i>			
205	Whitebacked Munia	Terrestrial	LM	Very rare
	<i>Lochura striata</i>			
206	White Throated Munia	Terrestrial	LM	Common
	<i>Lonchura malabarica</i>			
207	Crested Bunting	Terrestrial	LM	Uncommon
	<i>Melophus lathamii</i>			

Appendix-XVII

List of butterflies in Van Vihar, Bhopal

S. No.	Common Name	Scientific Name	Group
1.	African Emigrant	Catopsilia florella	Whites & Yellows
2.	Blue Pansy	Junonia orithya	Brushfooted
3.	Blue Tiger	Tirumala limniace	Brushfooted
4.	Common Banded Awl	Hasora chromus	Skippers
5.	Common Evening Brown	Melanitis leda	Brushfooted
6.	Common Grass Yellow	Eurema hecabe	Whites & Yellows
7.	Common Indian Crow	Euploea core	Brushfooted
8.	Common Jezebel	Delias eucharis	Whites & Yellows
9.	Gram Blue	Euchrysops cnejus	Blues
10.	Great Eggfly (male)	Hypolimnas bolina	Brushfooted
11.	Grey Pansy	Junonia atlites	Brushfooted
12.	Lemon Pansy	Junonia lemonias	Brushfooted
13.	Lesser Grass Blue	Zizina otis	Blues
14.	Lesser Threering	Ypthima inica	Brushfooted
15.	Lime Butterfly	Papilio demoleus	Swallowtails
16.	Mottled Emigrant	Catopsilia pyranthe	Whites & Yellows
17.	One-spot Grass Yellow	Eurema andersoni	Whites & Yellows
18.	Plain Tiger	Danaus chrysippus	Brushfooted
19.	Rounded Pierrot	Tarucus extricatus	Blues
20.	Striped or Common Tiger	Danaus genutia	Brushfooted
21.	Tailless Line Blue	Nacaduba dubiosa	Blues
22.	Tawny Coster	Acraea violae	Brushfooted
23.	Tiny Grass Blue	Zizula hylax	Blues
24.	Yellow Pansy (female)	Junonia hierta	Brushfooted

List of Plants Found At Van Vihar

Trees

Local Name	Botanical Name
1. Achar	<i>Buchnanian lanzan</i>
2. Aam	<i>Mangifera indica</i>
3. Asta	<i>Buchnanian racemosa</i>
4. Imli	<i>Tamarindus indica</i>
5. Chichol	<i>Albizzia-odoratissima</i>
6. Aonla	<i>Embica officinalis</i>
7. Kachna	<i>Bouhinia varigeta</i>
8. Karan	<i>Pongamia pinnata</i>
9. Lendi	<i>Lagerstomia parviflore</i>
10. Kari	<i>Meliosa tomentosa</i>
11. Kala sira	<i>Albizzia lebbek</i>
12. Kullu	<i>Sterculia urens</i>
13. Kaim	<i>Mitragyna parviflora</i>
14 Khaju	<i>Phoenix sylvestris</i>
15. Khair	<i>Acacia catechu</i>
16. Baboo	<i>Acacia nelotica</i>
17. Gular	<i>Ficus glomarata</i>
18. Kasa	<i>Bridelia retusa</i>
19. Ghon	<i>Zyziphus xylopyrus</i>
20. Chiro	<i>Holoptelia integrifolia</i>
21. Palas	<i>Butes monosperma</i>
22. Jamu	<i>Syzygium cumini</i>
23. Tins	<i>Ougenia oogenensis</i>
24. Tend	<i>Diospyros mela</i>
25. Dudh	<i>Writia tinctoria</i>
26. Dhawad	<i>Anoegesus latifolia</i>
27. Nee	<i>Azadarictha indica</i>
28. Pipal	<i>Ficus religiosa</i>
29. Barga	<i>Ficus bengalensis</i>
30. Baher	<i>Terminalia balerica</i>
31. Be	<i>Ziziphus mauritiana</i>
32. Be	<i>Eagle marmalos</i>
33. Bij	<i>Pterocarpus marsupium</i>

34. Bhirr	<i>Chloroxylon swetenia</i>
35. Maharu	<i>Aelanthus excelsa</i>
36. Mahua	<i>Madhuca indica</i>
37. Rinzh	<i>Acacia leucophloea</i>
38. Lasor	<i>Cordia dichotoma</i>
39. Gura	<i>Albizia procera</i>
40. Sago	<i>Tactona grandis</i>
41. Saj	<i>Terminalia tomentosa</i>
42. Shisa	<i>Dalbergia sissoo</i>
43. Hingot	<i>Balenitis aegyptiaca</i>
44. Neelgir	<i>Eucalyptus spp.</i>

Shrubs and herbs

1. Aak	<i>Calotropis gigantea</i>
2. Karond	<i>Carrisa carandus</i>
3. Gokhro	<i>Xanthium indicum</i>
4. Dhudh	<i>Holarrhena antidycentrica</i>
5. Pawar (chiro)	<i>Cassia tora</i>
6. Beshara	<i>Ipomea fistulosa</i>
7. Marod	pha <i>Helicteres isora</i>

Climbers

1. Satawa	<i>Asparagus recemosu</i>
2. Mako	<i>Ziziphus oenoplia</i>
3. Kevach	<i>Mucuna pruriens</i>

Appendix-XIX

List Common Grasses/ Bamboo

S.No.	Botanical Name	Local Name	English Name
1	<i>Andropogon echoenanthus</i>		
2	<i>Aristida adscensionis</i>	Sinka , Sukla	
3	<i>Apluda mutica</i>	Bhanjuri	
4	<i>Cenchrus Ciliaris</i>	Anjan	
5	<i>Coix aquatic</i>	Sankru	
6	<i>Cynodon dactylon</i>	Doob	Barmuda grass
7	<i>Dendrocalamus strictus</i>	Bans	Male bamboo
8	<i>Dicanthium annulatum</i>	Zargu, barlu	
9	<i>Eleusine indica</i>	Jhingri	
10	<i>Eragrostis pilosa</i>	Chiriya	
11	<i>Eragrostis tenella</i>	Bhurbhushi	
12	<i>Heteropogon contortus</i>	Lampa	Spear grass
13	<i>Imperata cylindrica</i>	Dhab	Cogon-grass
14	<i>Setaria glauca</i>	Bandhari	Foxtail grass
15	<i>Themeda triandra</i>	Gunaiya	
16	<i>Vetiveria zizanioides</i>	Khus-khus	
17	<i>Saccharum spontaneum</i>	Kans	
18	<i>Paspalidium sanguinale</i>	Takri	Crab grass

Appendix – XX

Budget Allotment and Expenditure

Year Wise Non - plan budgetary allocation (2001 -2002)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non plan 110 Wildlife 2899 National Park	01 Pay & Allowances	3885000	5165215
		02 Wages	1300000	2362177
		03 TA	50000	83787
		04 Office Exp.	200000	200004
		05 POL	160000	290849
		23 Other Exp.	1000000	3158000
		24 Maintenance	150000	181694
		31 Compensasion	5000	0
		Total	6750000	11441726
2	10-2406 Non plan 110 Wildlife 2899 National Park	070-4349 Road Repairing	150000	160298
		6218 Building Repairing 02 Wages	130000	130000
		077 Purchase of Materials	75000	33280
		05 Others	100000	126021
		004 Fire Protection	100000	98143
3	10-2406 Plan	Maintenance	7000	3613
		Total	7312000	11993081
Year Wise Non - plan budgetary allocation (2002 -2003)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non plan 110 Wildlife 2899 National Park	01 Pay & Allowances	5790000	5338703
		02 Wages	1945000	2795081
		03 TA	130000	146202
		04 Office Exp.	295000	265000
		05 POL	140000	394972
		23 Other Exp.	2140000	2482474
		24 Maintenance	180000	223528
		31 Compensasion	145000	0
		Total	10765000	11645960
	210-2406 Non plan 110 Wildlife 2899 National Park	070-4349 Road Repairing	100000	101929
		6218 Building Repairing 02 Wages	120000	95690
		077 Purchase of Materials	55000	55004
		05 Others	400000	399998
		004 Fire Protection	60000	59601
	10-2406 Plan	Maintenance	250000	250000
		Total	11750000	12608182

Year Wise Non - plan budgetary allocation (2003 -2004)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non plan 110 Wildlife 2899 National Park	01 Pay & Allowances	6084000	5362404
		02 Wages	3500000	3359961
		03 TA	100000	154386
		04 Office Exp.	255000	445537
		05 POL	100000	99936
		23 Other Exp.	2200000	2638030
		24 Maintenance	100000	99557
		31 Compensasion	100000	1212
		Total	12439000	12161023
2	10-2406 Non plan 110 Wildlife 2899 National Park	070-4349 Road Repairing	100000	25807
		6218 Building Repairing 02 Wages	100000	103879
		077 Purchase of Materials	2000	3055
		004 Fire Protection	100000	49476
		Total	302000	182217

Year wise Non-Plan budgetary allocations (2004-2005)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan 110 Wildlife 2899 National Park	11 Pay & Allowances	5170000	6834594
		12 Wages	4070000	3632802
		21TA	100000	133043
		22 Office Exp.	1154000	2125639
		51 Other Exp.	2183000	2254433
		33 Maintenance	95000	212264
		31 Compensation	85000	7556
		TOTAL	12857000	15200331
2	10-2406 Non Plan 110 Wildlife 2899 National Park	070-4349 Road Repairing	50000	48229
		6218 Building Repairing 02 Wages	35000	36165
		077 Purchase of Materials	15000	22422
		004 Fire Protection	100000	66141
		TOTAL	200000	172957

Year wise Non-Plan budgetary allocations (2005-2006)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan 110 Wildlife 2899 National Park	01 Pay & Allowances	6280000	6790206

		12 Wages	4600000	3463140
		21TA	140000	177501
		22 Office Exp.	721000	1947846
		51 Other Exp.	2160000	1986754
		33 Maintenance	90000	466623
		31 compensation	90000	0
		04 Rashan cost & Feed	66000	1048540
		800 prizes	30000	0
		TOTAL	14111000	15880610
2	10-2406 Non Plan	070-4349 Road Repairing	0	6759
	110 Wildlife 2899			
	National Park			
		6218 Building Repairing	15000	15000
		02 wages		
		077 Purchase of Materials	35000	34962
		004 Fire Protection	69000	62308
		7882 Lantana & weeds eradication	600000	418397
		TOTAL	719000	537426

Year wise Non-Plan budgetary allocations (2006-2007)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan	01 Pay & Allowances	6616000	6740135
	110 Wildlife 2899			
	National Park			
		12 Wages	4200000	4199925
		21TA	150000	149761
		22 Office Exp.	984500	1253087
		51 Other Exp.	2660000	2700758
		33 Maintenance	171000	150061
		31 Compensation	90000	0
		04 Rashan cost & Feed	0	1048540
		800 Prizes	10000	0
		TOTAL	14881500	15193727
2	10-2406 Non Plan	070-4349 Road Repairing	0	0
	110 Wildlife 2899			
	National Park			
		6218 Building Repairing	60000	59396
		02 Wages		
		077 Purchase of Materials	90000	93478
		004 Fire Protection	525000	474437
		7882 Lantana & weed eradication	580000	577968
		TOTAL	1255000	1205289

Year wise Non-Plan budgetary allocations (2007-2008)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan	01 Pay & Allowances	7802500	7917645
	110 Wildlife 2899			
	National Park			

		12 Wages	5200000	5439533
		21TA	200000	129331
		22 Office Exp.	1538000	1477997
		51 Other Exp.	2450000	2597391
		33 Maintenance	200000	198964
		31 Compensation	60000	0
		04 Rashan cost & Feed	490000	489877
		800 Prizes	8000	0
		TOTAL	17948500	18250738
2	10-2406 Non Plan	070-4349 Road Repairing	50000	50223
	110 Wildlife 2899			
	National Park			
		6218 Building Repairing	575000	574974
		02 Wages		
		077 Purchase of Materials		
		004 Fire Protection	400000	399950
		7882 Lantana & weed eradication	714000	725891
		TOTAL	1739000	1751038

Year wise Non-Plan budgetary allocations (2008-2009)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan	11 Pay & Allowances	92,12,000	1,00,43,487
	110 Wildlife 2899			
	National Park			
		12 Wages	58,00,000	57,80,261
		21 TA	2,00,000	1,80,414
		22 Office Exp.	14,27,000	13,84,727
		51 Other Exp.	23,00,000	22,98,977
		33 Maintenance	1,40,000	1,39,947
		3896 Compensation	30,000	20,416
		34 Rashan cost & Feed	2,00,000	1,99,893
		1411 prizes	8,000	2,600
		TOTAL	19317000	20050722
2	10-2406 Non Plan	070-4349 Road Repairing	-	-
	110 Wildlife 2899			
	National Park			
		6218 Building Repairing		
		12 wages for Bldg Repairs	1,10,000	92,772
		34 Purchase of Materials	1,65,000	1,64,132
		12 Fire Protection Wages	1,25,000	1,24,806
		7882 Lantana, weeds eradication & Well const.	6,34,000	6,27,536
		7882 Execution of Working Plan 12 wages	11,40,000	10,15,592
		TOTAL	2174000	2024838

Year wise Non-Plan budgetary allocations (2009-2010)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan	11 Pay & Allowances	9648800	10820497
	110 Wildlife 2899	16 Pay & Allowances	565057	1400573
	National Park			
		12 Wages	60,00,000	58,53,711
		21TA	1,10,000	91,671
		22 Office Exp.	16,68,960	16,49,556
		51 Other Exp.	10,00,000	999997
		33 Maintenance	145000	143877
		14 Compensation	4000	3868
		TOTAL		
2	10-2406 Non Plan	070-4349 Road Repairing	100000	75333
	110 Wildlife 2899	7882 Working plan	19,40,000	19,38,104
	National Park			
		6218 Building Repairing	70,000	68,807
		02 Wages		
		077 Purchase of Materials	2,40,000	2,39,617
		004 Fire Protection	1,00,000	99,770
		6530 State share	8,10,000	7,97,989
		2723 Admn. Development	2,83,220	2,00,395
		TOTAL		

Year wise Non-Plan budgetary allocations (2010-2011)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	10-2406 Non Plan	11 Pay & Allowances	14165000	14605387
	110 Wildlife 2899	16 Pay & Allowances	1182600	1163520
	National Park			
		12 Wages	65,00,000	6499357
		21TA	1,70,000	169554
		22 Office Exp.	1712000	1606990
		51 Other Exp.	13,00,000	1298917
		33 Maintenance	125000	98197
		14 Compensation	4000	0
2	10-2406 Non Plan	070-4349 Road Repairing	150000	149485
	110 Wildlife 2899	7882 Working plan	160000	158368
	National Park			
		034 Purchase of Materials	240000	239206
		004 Fire Protection	100000	99943
		6540 State share	1993000	769396
		2723 Admn. Development	-	-

Year Wise Non - plan budgetary allocation of Central Assistance (02 - 03)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	Development of National Park & Sanctuary	Construction of Boundary Wall	7	7000000
		Purchase of Gypsy	4.25	424781
		Wireless sets wireless Fees	2	449931
			5	
		Pasture Development	1	100000
		Purchase of digital Video Camera	0.4	40000
		Purchase of Scanner	0.25	25000
		Total	19.9	1739712
Year Wise Non - plan budgetary allocation of Central Assistance (03 - 04)				
S.N.	Budget Head	Sub Head	Sanction Amount	Expenditure
1	Development of National Park & Sanctuary	Arrangement of water facilities including installation of bore well near the Range office & procurement of pipe lines.	2	199996
2		Raising of bamboo plantation with chain link fence to keep undamaged it from free ranging herbivores - 2ha.	2	193931
3		Construction of patrolling Camps at ; i) junction of boundary of SAF & musem. (ii) Barseem bara.	3	90245
4		Procurement of motor cycles for patrolling - 02 nos. @ Rs.0.50 Lakh each	1	0
5		Laying of HDPE pipe lines up to a location situated at plateau protion of the park - 5000 mts @Rs.50/m	2.5	0
6		Contruction of waste wair for the exsiting earthen dam near the "Crocodile enclosures"	0.7	0
7		Weed eradication along the bank of Upper lake side - 50ha. @ Rs. 0.015 lake/ha.	0.75	0
8		Construction of shed of booking counter for Gate no. 1& 2 @Rs.0.50 lakh each	1	99993
9		Extension of publicity to creat awareness among the visitors, particularly among children - 50 batches of school children	1	0
10		Spacial repair of Director office campus	2	199992
11		Procurement of wireless sates & spare batteries - 14 nos. @ Rs. 0.165 lakh each	2.31	229093
12		Procurement of data processing computer, laser printer & other accessories - 1nos.	1	100000
		Total	19.26	1113250
		RECURRING EXPENDITURE		
1		Repair of roads-5kms@0.10 Lakh/km.	0.5	0
2		vehicle maintenance LS	2	146174
3		P.O.L. – LS	2	199331
		Total	4.5	345505
		Grant TOTAL	23.76	1458755

	GOI Share - 100% Non Recurring & 50% of Recurring expenditure	21.51	0
	Less unspent balance	0.00288	0
	Net Release	21.507071	0

Year wise budgetary allocations of Central Assistance (2004-05)			
S.N.	Budget Head	Sanction Amount	Expenditure
1	Development of National Park & Sanctuary	Deepening of existing pond -1 no.	1.00 92000
2		Extension and publicity to create awareness among the visitors, particularly among children	2.00 0
3		Development of Interpretation Centre for Reptiles - 1 no.	3.00 64544
4		Up-gradation of veterinary facility	2.00 0
5		Procurement of solar pumps - 1 no.	2.40 0
6		Procurement of solar pump- 1	2.098 209734
7		Spill over works: Construction of patrolling camps	1.00 82086
8		Procurement of Motor cycle - 2 no.	2.50 0
9		Laying HDPE pipelines	0.70 0
10		Construction of waste weir for the existing earthen dam near crocodile enclosure	0.75 0
11		Weed eradication along the bank of Upper lake side	1.00 0
		Extension of publicity to create awareness among the visitors	
		Recurring Expenditure	
12		POL = Rs. 2.00 lakh (50% CS) = Rs. 1.00 Lakh	2.00 99925
13		Office expenses = Rs. 2.00 Lakh (50 % CS) = Rs. 1.00 Lakh	2.00 31025
		Repair of roads - Rs. 0.50 lakh (50 % CS)	0.50 0
		Total	20.698 579314
1		Less unspent balance	8.65 0
2		Net release	12.048 146174
3		First installment	5.80 199331

Year wise budgetary allocations of Central Assistance (2005-06)				
S.N.	Budget Head		Sanction Amount	Expenditure
1	Development of National Park & Sanctuary	Construction Patrolling camp near Lion enclosure - 1 No.	3.00	0
2		Replacement of damaged Chain link fence materials grouted over boundary wall to act as physical barrier to reduce the chances of trespass and unauthorised entry of stray dogs-3000 mtrs.	2.75	224261
3		Procurement of Solar energy run illuminated lamp for use in the patrolling camps - 2 sets Rs. 0.30 Lakh each	0.60	62475
4		Installation of solar water lifting pumps of 1800 watt capacity for supply of water to Barseem Bada & Bamboo plantation area- 1 No.	3.25	0
5		Installation of one bore well with network of HDPE pipeline for a length of 800 mts for supplying water to fodder production area LS	4.00	287348
6		POL for patrolling vehicle - LS (50% CSS)- Rs. 1.00 lack	1.00	100000
7		Fodder production for supplementation to free ranging herbivores- LS	1.00	100000
8		Special renovation of office building - 1 no. (50% CSS)- 1.50 lack	1.50	150000
9		Spill over work / Revalidation Development of interpretation centre for reptiles - 1 no.	2.35	116002
10		Laying of HDPE pipelines	2.50	240600
11		Construction of waste weir for the existing earthen dam near crocodile enclosure	0.70	45000
12		Weed eradication along the bank of upper lake side	0.75	9864
13		Purchase of Vehicle (Service vehicle) Grand Ambassador-	4.30	430000
		Total	27.70	1653420
		Less unspent balance	8.41	-
		Net release	19.29	0

Year wise budgetary allocations of Central Assistance (2006-07)				
S N	Budget Head		Sanction Amount	Expenditure
	Development of National Park & Sanctuary	Spill over works / Revalidation		
		32 Small construction works		
1		Construction of patrolling camp near Lion enclosure- 1 No.	300000	299815

2		Replacement of damaged chainlink fence materials grouted over boundary wall to act as physical barrier to reduce the chances of trespass and unauthorised entry of stray dogs-3000 mtrs.	163000	162921
3		Installation of solar water lifting pumps of 1800 watt capacity for supply of water to Barseem Bada & Bamboo plantation area - 1 No.	325000	0
4		Installation of bore well with network of HDPE pipeline for a length of 800 mtrs. For supplying water to fodder production area - LS	113000	111568
5		Development of Interpretation centre for reptiles- 1 No.	119000	118813
6		Laying of HDPE pipelines	9000	8453
7		Construction of waste weir for the existing earthen dam near crocodile enclosure	25000	24698
		12 wages		
8		Weed eradication along the bank of upper lake side	63000	61675
		Fresh APO		
		12 wages		
9		Soil and water conservation by constructing gully plus, loose boulder check dams & brush wood check dams in five major nallas on north-west aspect of hill in Van Vihar - 25 ha.	200000	200627
10		Pasture development - 20 ha.	200000	200010
		32 Small construction works		
11		Augmentation of water supply by digging & construction of open well - 1 no. & digging water holding trench - 1 no for wild animals	200000	39320
		63 Machines		
12		Trap & transport cage for rescued animals - 1 no.	50000	48076
13		Rescue equipment - 1 no.	50000	49909
14		Providing walkie to park personnel - 15 no.	50000	51000
		12 wages		
15		Repair of road to ensure better commuting of vehicles for patrolling in the park - 25 km.	200000	199980
		32 Small construction works		
16		Strengthening of Interpretation centre & office - 1 no.	200000	199970
17		Putting solar lights in Interpretation Centre & Office - 1 no.	400000	421410
		35 Advertisement & Publicity		
18		Printing of brochures & pamphlets & other reading materials	50000	49914
19		Subscription of Veterinary books & journals - 1 year	50000	31247
		Additional APO		
20		Motor boat for water ways patrolling - 1 no.	200000	106819

2		Strengthening communication system to ensure safety of wildlife by providing wireless hand sets to park personnel-15 no.	50000	50396
1				
2		Capacity building training workshop- 6 no.	60000	51754
		Total	3077000	2488375
		Less unspent balance	11.17	0
		Net release	19.60	0
		First installment	NIL	0
		Final installment	19.60	
		10-2406 (6539)		
		10-2406 (6539) National Park & Sanctuary Development Vehicle purchase (23 Nos)	3180000	3180000
		Total	3180000	3180000

Year wise budgetary allocations of Central Assistance (2007-08)				
S.N.	Budget Head		Sanction Amount	Expenditure
1	Development of National Park & Sanctuary	Procurement of Engine and OBM boat accessories (Spill over Works)	200000	199310
2		Augmentation of water supply by digging & construction of open well - 1 no. & digging water holding trench for wild animals (Spill over Works)	200000	199846
3		Strengthening State Wildlife Rescue Squad by procuring essential equipments	100000	90241
4		Purchase of video camera SONY DCR DVD 908 EF for photo documantation	50000	49391
5		Procurements of books for liabrary	50000	49402
6		Printing of brochures pamphlets & other publicity materials	50000	50000
7		Habit enhancement in leopard enclosure	150000	125821
8		Construction of water supply facilities for wild animals including the white tiger housing facility.	400000	397515
9		Construction of Pump house	200000	199539
10		Procuring Pumping sets for facilitating improved water avaiability.	100000	96215
11		Construction of water impounding structure at Aviary & Gharial enclosure	600000	599191
		Provision of inverted puddle trench in existing tank	205000	195691
12		Pasture Development for herbivoures	200000	198364
13		Procuring food suppliment for wild animals	100000	73133
14		Weed eradication - Lantana, Parthenium and Ipomea	200000	199926
15		Construction of wacher hut	100000	99504
16		Procuring Vaccines, Life Saving Drugs and Machines for wild Animals	150000	149986
17		Recurrent Activity (Including 50% share of		

		State Govt.)		
18		Maintenance of Roads	100000	100000
		Total	3155000	3073075
		Recurring Cost (Central share)	100000	100000
		Grand Total	3255000	
		Total Central Share	3155000	
		Eligible first installment	2489000	
		Unspent balance	588600	
		Net first installment	1900000	

Year wise budgetary allocations of Central Assistance (2008-09)

S.N.	Budget Head	Item of expenditure	Sanction amount	Expenditure
	Development of National Park & Sanctuary	Non recurring activities		
1		Construction of water supply facilities	100000	84302
2		Construction of pump house.	200000	157831
3		Procurement of water pumps & accessories	100000	98858
4		Construction of Chainlk Fence on the lake side	500000	500415
5		Furnishing and display in Interpretation centre Ramu gate & Vihar Vithika	500000	483316
6		Soil Moisture conservation	500000	493664
		Sub Total	1900000	1818386
		Recurring activities (including 50% share from State Government)		
7		Trainings & Workshop	100000	100000
8		Publications of Brochures, booklets, books etc.	100000	73722
9		Purchase of life saving drugs and vaccines for wild animals	100000	99862
10		Eradication of weeds grass meadow and along the road	200000	199633
11		Grass production (Fodder farm) at Barssem bara	200000	199075
12		Maintenance of roads	356000	339049
13		Publications, books, journals printing	100000	83236
		Sub Total	1156000	1094577
		Recurring activities (central share)	578000	547289
		Grand Total	3056000	2912963
		Total central share	2478000	2365675

Year wise budgetary allocations of Central Assistance (2009-10)			
S.N.	Budget Head	Sanction Amount	Expenditure
Non Recurring activities			
1	Construction of water supply facilities (Revalidation / spill over works)	0.157	15569
2	Construction of pump house (Revalidation / spill over works)	0.422	41822
3	Furnishing & display in Interpretation centre (Revalidation/Spill over works)	0.167	16800
4	Procurement of range finder	0.500	50000
5	Procurement of search lights	0.100	9980
6	Procurement of digital camera for monitoring & documentation	0.100	10000
7	Furnishing & display in Interpretation centre	2.000	38952
8	Establishment of Hand pump	2.000	7929
9	construction of water tank to water supply	2.000	199107
Non Recurring Sub Total		7.446	
Recurring activities			
10	Eradication of weeds including lantana	4.000	397917
11	Mopping up operation of lantana eradicated area	1.200	121095
12	Conducting census of free ranging wild animals	0.250	3137
13	Way side exhibits display boards	1.000	98604
14	Maintenance of water holes	1.000	-
15	POL and Maintenance for vehicle	1.000	99543
16	Fire protection measures	0.700	71652
17	Training & workshop	0.500	50000
18	Conducting nature education programmes for stake holders	1.500	42384
19	Veterinary care	1.000	99999
Recurring Sub Total		12.150	984331
Grand Total		19.596	1441590
Total Central Share		19.596	1441590
Unspent Balance			74191
Net 1st Installment		14.560	1367399
Eligible 1st installment		15.680	1441590

Year wise budgetary allocations of Central Assistance (2010-11)			
S.N.	Budget Head	Sanction Amount	Expenditure
Non Recurring activities			
1	Establishment of Handpump (Revelidation 2009-10)	124900	124900
2	Grass meadow development for providing fodder to herbivores	200000	199579
3	Procurement of startures for rescue squad	20000	20000
4	Construction of toilets under Eco Tourism near Tiger bara	200000	115396
5	Construction of boundary wall of staff quarter at Prempura	311000	196337
6	Construction of shelters on sit outs	200000	200000
Non Recurring Total		1055900	856212

	Recurring activities		
7	Eradication of advance growth of babool (Acacia nilotica)	150000	147660
8	Completion of furnshing and display in interpretation	161000	0
9	Mopping up operation of lantana and other weeds	360000	360000
10	Purchase of medicines, life saving drugs and vaccines for animals & animals keepers	100000	80987
11	Procurement of feeding material, food supplement, salt lick, mineral supplement etc. for wild animals	100000	99895
12	POL and Maintanance for vehicle	100000	82846
13	Maintenance of roads	150000	148527
14	Fire protection measures	70000	58026
15	Training / workshops	50000	49970
16	Publication of brochures, booklets, books	50000	5960
17	Conducting nature education / public awareness programme for children other stakeholders and public etc.	100000	0
	Recurring Sub Total	1391000	1033871
	Grand Total	2446900	1890083
	Total Central Share	1957000	1890083
	1st Installment	1957000	1890083
	Unspent Balance	124900	124900
	1st installment	1832100	1765183

Appendix – XXI
Budget Allotment and Expenditure Park Development Fund
Meetingwise and Workwise

Meeting date	S.No.	Details of Work	Allotment	Expenditure
01/06/00	1	Maintainance of battery vehicle	264000	17715
	2	Dustbin Fiber Glass	22000	24750
	3	Biodigreedable Card carry Bags	10000	5000
	4	White tiger Toilet	50000	61065
	5	Water management	100000	101795
	6	Publicity works	11310	1131
	7	Labour Ranckot	35000	33750
	8	Telephone service	50000	56539
	9	Steel plate Front of Enclosure	28000	27852
	10	TShirt,Cap,Stickres,Bages	100000	110883
	11	Farshikaran front of Black Bear Enclosure	25000	24867
	12	Farshikaran front of White Bear Enclosure	25000	24625
	13	Maintainance of Bihar Bithica and opentheater	15000	14995
	14	Maintainance of roof gate No.12	400000	40724
	15	Construction of shed and window by Ticket mangment	400000	40064
	16	printing of entry tickets	10000	25811
	17	Onarium account of devlopment fond office	2400	2400
	18	Onarium account of devlopment fond head office	2400	2400
	19	P.N.T Deptt. of Springlar set	25000	24698
		Total	617510	621243
10/08/00	1	Payment of leb technitian	500000	78100
	2	Road plantation of bihar beethika	20000	19990
	3	Pabliciti matairial and construction of shope front of all enclose	12000	18977
	4	construction of tempreri shade front of wildlife encloser	25000	24811
	5	constuction of road to bettry vehicle	150000	164021
	6	purches of rain coat distribution to daily wages leber	7600	7220
	7	eradication of parthenium	150000	116301
	8	eradication of parthenium and lentana	150000	-
	9	onarium of office and head office	4800	4800
	10	safari mobile vehicle MPO2 – 4347 maintainance & POL	36000	36958
	11	Distribution of dress to daily wages	45000	43180
	12	Purches of truncklisation gun one number	100000	93474
	13	Trevaes expenses of wild life speslist for wildlife of van vihar	50000	49983
		Total	800400	657815
13/11/00	1	eradication of parthenium and lentana	80000	79577
	2	boreing including pump with pipe line	74000	75253
	3	Purches of 5 mobile	70000	85680
	4	extantion of magar enclose	75000	75000
	5	extantion of barseen bara	100000	98853
	6	Purches of computer with inter PCO	85000	86381
	7	Onarium of wildlife Doctor	8000	12000
	8	Maintanaince of water coolar	5400	7710
	9	Maintanaince of bihar beethika	75000	77359
		Total	672400	597813

14/05/01	1	Construction of puliya to safari road	12000	12000
	2	Farshikaran work front of Toilet	7000	7000
	3	Safari road in pillar construction	2000	2000
	4	Construction of feeding pan trolley encloser to wild life animal	35000	34984
	5	Construction of tiket countre gate No. 2	45000	44997
	6	Construction of old RCC Boundary wall	85000	85000
	7	Transperency display	15000	-
	8	Construction of chainlink fence to kachhua bara moat height	30000	12668
	9	Constrction of whater hole in panther bara	5000	4993
	10	Purches of photocopy machine	100000	100000
	11	Purchase of fax machine	15000	15000
	12	Purchase of UPS/Scanner/Internet	10000	3395
	13	whater manegment with pipe line	100000	99985
	14	Computer furniture Purchase & computer training	10000	6700
	15	Intercom	20000	20000
	16	Payment of sweeper	25000	25000
	17	Payment of ciment bill	30149	30149
	18	Payment of pipe line matarial	22053	22053
	19	Construction of boundry wall piller	500000	499982
	20	Construction of nursery	100000	99834
	21	Crall develop of syamu tiger	100000	100000
	22	Plantation	200000	199988
	23	U sape whater chenal front of magari bara	200000	199996
	24	Sample testing cheetal & wild boar to other palace	100000	99997
	25	Construction of boundry wall near gate no. 1	82000	81998
	26	Maintainance of tata sumo vehical no. MPO24854	90000	90000
	27	Purchase of GPS to kanha rate	25400	0
	28	Purchase of sento compass	7000	0
	29	Purchase of malti media projector	300000	300000
	30	Onarium member of developement fond commeti	5000	0
	31	meeting of tiger sale	46502	46502
		Total	2324104	2223321
20/08/01	1	Purches of lebtop computer	200000	99850
	2	Payment of maltimedia projector	13800	13800
	3	Maintainance of bihar beethika	100000	99995
	4	Wild life week 2001	50000	50000
	5	Construction of boundry wall	100000	99999
	6	Onarium of developement fond office and head office	4800	4800
	7	Other works of tata sumo maintainance	20000	23600
	8	Construction of shade to battry vehical	30000	32089
	9	Daily wages dress	6500	6200
		Total	525100	430333
01/06/02	1	White tiger bara to water management of tourist	25000	
	2	Water management of tourist fate no.1	25000	
	3	Construction of lior bara tourist facility	300000	271252
	4	One tiger bara construction of tourist facility	300000	169442
	5	Purchase of digital vidio camera	50000	460000
	6	Chital shift in chital bara	10000	
	7	Construction of chatgar	30000	29960
	8	Maintainance of Vihar vithica	50000	31536

	9	Publicity works	100000	86366
	10	Servant facility	100000	83320
	11	Lab techenitian & Field asstt.	50000	10813
	12	White bear bara fence height	100000	25650
	13	Water collection infrastructure of bird vihar nall	100000	98422
	14	Purchase of scaner	25000	16000
	15	Purchase of sidi player & sidi	10000	6050
	16	Construction of water channel	50000	49793
	17	Plantation work	15000	6884
	18	Nursery work	15000	11673
	19	Purchase of Firdge PCCF WL Office	20000	9490
	20	Purchase of two air coler PCCF WL Office	5000	5000
		Total	1380000	957651
21/02/03	1	Maintainance of Vihar Vithica	100000	99993
	2	Publicity work	50000	49996
	3	Telephone expenditure	10000	9690
	4	Seat management of tourist	50000	
	5	Plantation work	5000	4745
	6	Nursery work	5000	4445
	7	Development of bird feed palace	25000	22134
	8	Construction of titli park	50000	
	9	Construction of feeding patform & trolly lion,panther, tiger encl.	100000	19534
	10	Sporting scope	100000	37250
	11	Well deeping	60000	60225
	12	Construction of padling earthdam & pitching work of bird vihar	100000	100000
	13	Study for ecotoursum & polution	18000	18000
	14	Purchase of ledger printer	15000	15000
	15	P,O,L, & Maintainance of govt vehicle	100000	100000
	16	Onarium of PCCF WL office clerk	2400	2400
		Total	790400	543412
160/09/03	1	Development of natural road forest	150000	150000
	2	Construction of pagoda in nature trail propose to national park Bhopal	150000	150047
	3	Display board	50000	50000
	4	Propose to wild life week year 2003	125000	124998
	5	Electronic gate to van vihar national park	400000	
	6	Purchase wheel chair & strature & medical	25000	14376
	7	Purchase one A.C. to board room	45000	45279
	8	Guest protocol	40000	39998
	9	Establish of van vihar Snake park four rom	400000	494621
	10	Establish of van vihar snake par four room snakes	157000	157000
	11	Wild life photo & picture show van vihar	50000	49994
	12	Computer working of van vihar Bhopal	50000	50000
		Total	1642000	1326313
06/01/04	1	Water management with pipe line	460000	459852
	2	Construction of extra enclosure tiger bara by road size 40x20m	400000	358689
	3	Establish telephone for gate no.2	6000	8626
	4	PCCF WL ofice development	130000	117232
	5	PCCF WL ofice development	75000	68028

	6	Souvenirs purchase	100000	99921
	7	Water cooler repair	45000	42893
	8	Field assistant on contractual basis	36000	11129
	9	Gift on entry ticket sale	20000	
	10	Telephone exp.	20000	19976
	11	Vihar Vithika maintenance	125000	124663
		Total	1417000	1311009
06/10/04	1	Snake park maintenance	150000	147751
	2	Snake park maintenance	100000	
	3	Pump house construction	40000	
	4	Tank for otter	150000	17989
	5	Repair of tank near tiger housing	75000	24345
	6	Computer for entry gate ticketing	300000	306558
	7	Tree guard for planting	65000	32520
	8	Enclosure for Rini tigress and cubs	400000	368679
	9	Enclosure for Rini tigress and cubs	400000	368679
	10	Labour for watch tower near new tiger housing	60000	26295
	11	Uniform for daily wagers	50000	41230
	12	Telephone exp.	40000	40148
	13	Battery for battery operated bus	100000	101281
	14	Caps purchase for selling to tourist	20000	200472
	15	Celebration of wildlife week	200000	200472
	16	Honorarium for PCCF staff	5000	5000
	17	Honorarium for Director staff	5000	5000
	18	Painting and white washing	50000	49971
		Total	1930000	1438993
28/05/05	1	Purchase of photocopy machine	150000	143310
	2	Treatment of staff	20000	20321
	3	Health examine camp for VVNP employee	25000	8843
	4	Chainlink fence repair and paint	400000	377369
	5	Maintenance of Bear enclosure wall	50000	22080
	6	Electric motor in panther enclosure	25000	0
	7	Deepening of tank and canal	200000	108863
	8	Deepening of Bageecha well	70000	35372
	9	Satkar Exp.	50000	5000
	10	Celebration of wildlife week	300000	300000
	11	Cage for animal transportation	65000	62011
	12	Quarantine for small animals	400000	374424
		Total	1755000	1502593
20/09/05	1	Purchase of GPS	25000	19795
	2	Purchase of Santo compass	7000	6412
	3	Purchase of Laptop	100000	102567
	4	Sitting arrangement for tourist	50000	50208
	5	Wheelchair for handicapped	10000	14376
	6	Prize of tickets	20000	0
	7	Construction of panther housing enclosure	780000	524393
	8	Construction of wild cafe	300000	243939
	9	Health status monitoring and surveillance of wildlife	110000	
	10	Additional construction of crocodile enclosure	142000	145677
	11	Poster for publicity and advertisement	50000	50000

	12	Construction of butterfly park	50000	41033
		Total	1644000	1198400
11/03/06	1	Water facility for tourist at sarpentorium	59000	58128
	2	Modification of snake chamber for water snake	41800	0
	3	Signage painting on main road	30000	18527
	4	Improvement and renewvation of exhibited	100000	29253
	5	Toilet construction of Ramu gate	60000	65500
	6	Battery bus repair	105000	90523
	7	Telephone exp.	60000	60521
	8	Celebration of Tiger week	50000	50000
	9	Education interpretation	50000	49447
	10	Honourarium	4800	4800
	11	Camera purchase	13000	3825
	12	Celebration of Wildlife week	70000	70000
	13	Production of green fodder	93000	44037
	14	PCCF WL ofice renewvation	300000	295696
	15	Improvement and renewvation of exhibited	60000	29726
		Total	1096600	869983
12/04/06	1	Confrence room development in vihar vithika	342000	341078
	2	Addl. worl for cafeteria	59500	594461
	3	Sitouts at viharvithika for visitors	67000	66698
	4	Curtains for amphytheater in vihar vithika	38000	38002
		Total	1042000	1040239
26/10/06	1	POL for Govt. vehicle	200000	196967
	2	LCD Projector Purchase	100000	99936
	3	Construction of store room	480000	487384
	4	Purshase of deepfreezer	50000	29125
		Total	830000	728322
09/02/07	1	Payment of electric bill	609746	602317
	2	Invertor installation	56650	56650
		Total	687396	658967
11/04/07	1	Stationary for tickets	16000	14600
	2	Toilet materials	12000	6212
	3	Lights on gate	12000	1702
	4	Maintenance of battery operated bus	20000	12423
	5	Maintenance of snake park	65000	29379
	6	Electric line at snake park	22000	21515
	7	Interpretation renovation	200000	143979
	8	Dustbin on main road	62500	37060
	9	Toilet construction at vihar vithika	544000	282995
	10	Celebration of bird watching camp	20000	20000
		Total	973500	615804
01/08/07	1	Electric exp.	700000	152334
	2	Watercooler maintenance	15000	6931
	3	Maintenance of tourist places	63000	63000
	4	POL for Govt. vehicle	150000	42026
	5	AC for confrence hall	202746	209180
		Total	1130746	558561
28/11/07	1	Purchase of aquagaurd and watercooler	104000	82319
	2	Celebration of bird watching camp	20000	20000

	3	Purchase of photocopy machine	55000	51448
	4	Jatty establishment	100000	0
	5	Honorarium	4800	0
	6	Celebration of wildlife week 07	695000	515998
	7	Amount received from Ecotourism	35472	35472
	8	Construction of new tiger housing	0	5604
		Total	1014272	996012
05/06/08	1	Uniform for daily wagers	91346	57165
	2	Health facility for wildlife	350152	287085
	3	Upgradation of wildlife health	1400000	1195378
	4	Celebration of bird watching camp	20000	20000
		Total	1861498	1559628
03/03/13	1	Stationary for tickets	19600	10751
	2	Toilet materials	2212	2000
	3	Maintenance of snake park	69956	64445
	4	Maintenance of battery operated bus	50423	24410
	5	Maintenance of tourist places	70000	3728
	6	Maintenance of signages	94000	0
	6	Raincoat for dailywages	82476	0
	7	Celebration of wildlife week	350000	350000
	8	Upgradation of Veterinary hospital	390000	304845
	9	Floaring at vihar vithika	83700	69136
	10	Addl. amount for toilet at vihar vithika	120000	119072
	11	Equipments for housing cleaning	200000	0
		Total	1532367	959763
24/12/08	1	Baffalow meat purchase for animals	800000	800805
	2	Chainlink fence of boundary wall	6200000	755567
	3	Electric cable purchase	231800	194250
	4	Water cooler purchase	48544	49635
	5	Furniture purchase	13100	13061
	6	Saucer construction	80000	51178
	7	Deepening and cleaning of well	100000	1470
	8	Cycle purchase	15000	14910
	9	Construction of cycle stand	100000	0
	10	Safety gaurd for rescue squad	20000	17800
	11	Satkar Exp.	60000	18173
	12	POL for Govt. vehicle	350000	263625
	13	Addl. exp. for wildlife week	30000	30117
	14	WAZA membership	100000	0
		Total	130000	30117
16/06/09	1	Toilet cleaning material	30000	26593
	2	Satkar Exp.	75000	74943
	3	Repair of water cooler	36000	19579
	4	Maintenance of tourist places	75000	74912
	5	Sim payment	51000	43628
	6	POL for Govt. vehicle	240000	239945
	7	Maintenance of wireless sets	20000	0
	8	Labours for tourist area	84000	83291
	9	Maintenance of signages	155000	19830
	10	Maintenance of battery operated bus	100000	0
	11	Electric exp.	488000	487548
	12	Maintenance of golf cart	200000	26605

	13	Cleaning house	84000	83291
	14	Computerised ticket	210000	153050
	15	Audio guide for tourist	783200	0
	16	Sitouts for visitors	200000	18241
	17	Ralling and floars at tiger bara	376000	375842
	18	Cafeteria store construction	100000	62405
	19	Water facility for tourists	132550	103230
	20	Golf cart purchase	1300000	1223569
	21	Parking	245344	118672
		Total	5221094	3488133
16/10/09	1	Misc. exp.	400000	393449
	2	Upgradation of booking window	190000	173980
		Celebration of wildlife week	500000	348746
		Meeting Panna commetti	100000	69683
		Total	1190000	985858
13/01/10	1	computrised facility of booking window	119350	0
	2	Invertor installation	37400	0
	3	Lion display housing	600000	195653
	4	Uniform for daily wagers	3000	0
		Total	759750	1953653
29/06/10	1	Stationary for teckting	60000	45532
	2	Toilet material	9000	5661
	3	Maintenance of snake park	94000	82561
	4	Satkar exp.	51000	33847
	5	Water cooler and establiser	5000	0
	6	telephone exp.	37000	19916
	7	POL for Govt .vehicle	240000	111478
	8	Cleaning of tourist area	12000	0
	9	Electric exp.	120000	118893
	10	Medicines	45000	44985
	11	Shed construction on sitouts	500000	262042
	12	Cefeteria approach road	430000	428543
	13	Group insurance	12000	10324
	14	Emphytheater	500000	483147
	15	Toilets at snake park	200000	199348
	16	Gallery construction at snake park	150000	0
	17	Chaink for lion bara partision	173000	140438
	18	Shed construction on water holes	180000	0
	19	Boulder pitching on pond	235000	234855
	20	Wildlife conservation award	50000	0
	21	Book publication of rescue squad	200000	180829
	22	Wildlife advisory board meeting exp.	40000	39812
	23	Baffalow meat for animals	1840000	1818278
		Total	5183000	4260489

Entry Fee Notification

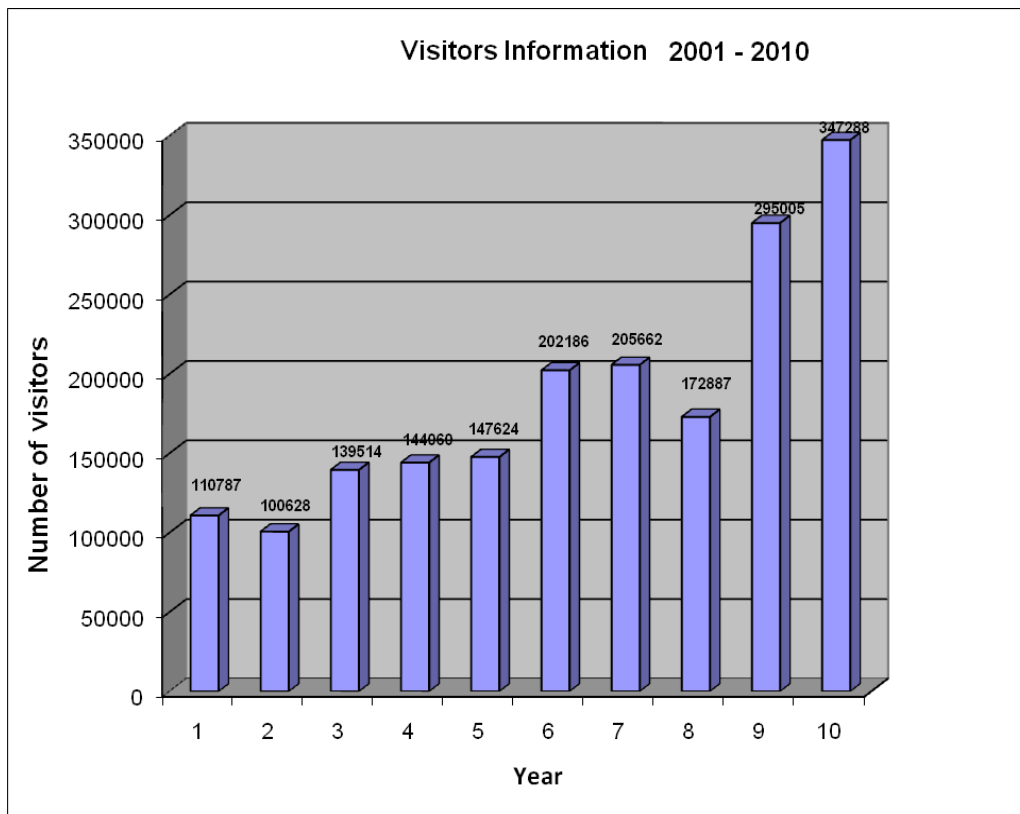
Entry Fees is applicable as per the rate fixed by the Govt. of Madhya Pradesh Vide order No. F/14/ 82/ 1988/10-2 dated 21.09.2010 is as under :-

S.N.	Particulars	Indian	Foreigner
1	Per person / Cycle	Rs. 20.00	Rs. 200.00
2	Light vehicle - Car, Jeep, Gypsy (including 1 to 5 person)	Rs. 150.00	Rs. 600.00
3	Light vehicle - Car, Jeep, Gypsy (including 6 to 8 person)	Rs. 200.00	Rs. 800.00
4	Scooter, Motorcycle, Moped & other two wheelers.	Rs. 50.00	Rs. 500.00
5	Auto Rickshaw (1 - 4 person)	Rs. 100.00	Rs. 1000.00
6	Mini bus (9 - 32 person)	Rs. 600.00	Rs. 2500.00
7	Battery Operated Van Ticket (each)	Rs. 40.00	Rs. 220.00
8	Tele-film/Tele documentary	Rs. 5000.00	Rs. 15000.00
9	Cine Film	Rs.15000.00	Rs. 40000.00

Visitors Information

Details of Visitors entered in Van Vihar National Park, Bhopal
(Jan.2001-Dec. 2010)

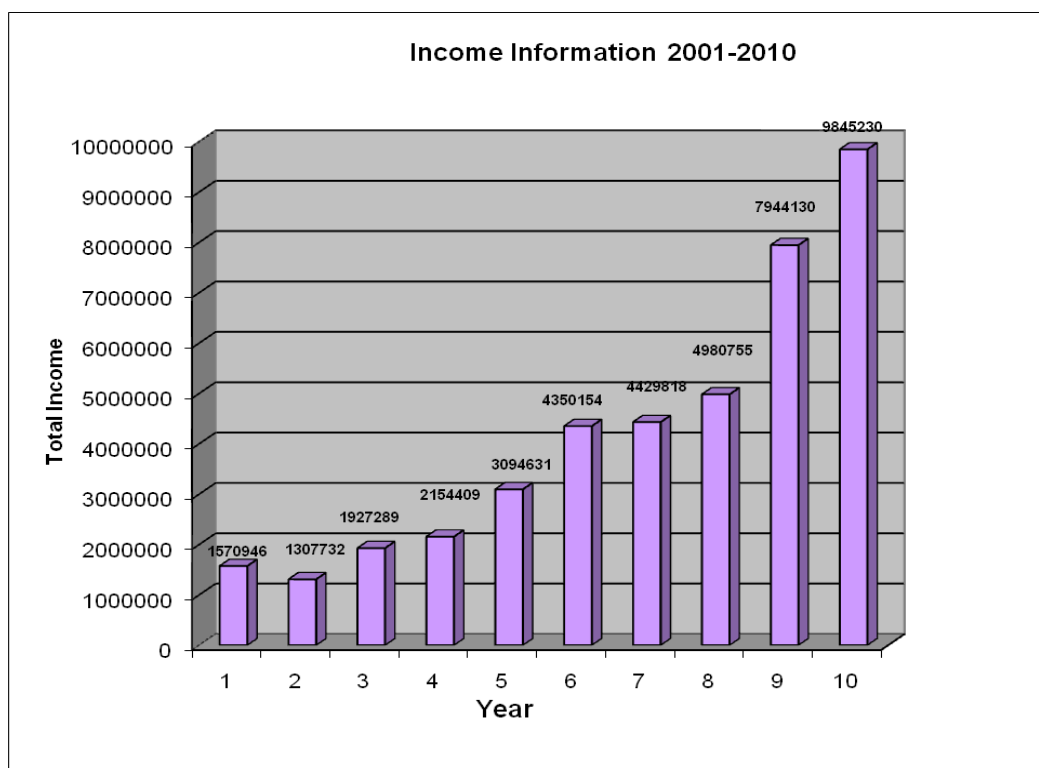
Month	Year									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Jan.	10013	6950	7973	10131	8675	21550	10971	10337	21375	28350
Feb.	7607	5490	9713	9447	8169	12912	7931	8514	15919	21989
Mar	6224	5511	7582	5664	7428	13129	10928	6422	13930	18906
Apr	8301	7162	8906	11638	8529	17779	13665	8742	13271	22081
May	11907	11034	11146	20121	12471	28771	24265	16047	20618	29270
Jun	15252	16867	16663	24008	14728	31340	28227	24969	28477	34285
Jul	11242	11180	15503	14858	12794	22125	21412	16950	37492	38811
Aug	9767	7555	18431	13244	17534	11753	25081	15734	36505	37348
Sep	9513	8087	12335	11043	13874	6706	17044	9689	22238	26247
Oct	3755	4498	6462	6117	9422	8830	12713	10323	20307	26389
Nov	6789	7107	10497	7828	18934	11676	13918	16820	28269	26828
Dec	10417	9187	14303	9961	15066	15615	19507	28340	36604	36784
Total	110787	100628	139514	144060	147624	202186	205662	172887	295005	347288



Appendix – XXIV Park Development Fund Collection

**Details of Income in Van Vihar National Park, Bhopal
(Jan.2001- Dec. 2010)**

Month	Year									
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Jan.	145659	101639	113906	142217	186607	449371	262330	367620	537780	764930
Feb.	106214	82331	138317	132494	172545	280200	196265	281840	425350	622360
Mar	84606	80281	107222	80403	163329	283057	254413	215970	378600	533960
Apr	117521	101819	120769	158391	179437	371619	304565	295845	364190	621060
May	160819	149921	156702	268507	254676	587469	525370	551040	565920	814900
Jun	206691	126977	223576	317322	301495	646288	601840	725060	837110	967180
Jul	148413	151975	211023	200732	229196	466489	472755	426680	995880	1081250
Aug	154132	102906	249959	182774	374946	273297	533035	394830	928770	1052420
Sep	130913	110560	171273	150845	281083	146034	261360	246770	569900	735670
Oct	51572	64056	91251	135102	196328	209095	279680	243600	589500	753290
Nov	113997	99746	142217	170756	399059	270385	310225	457390	750180	798210
Dec	150409	135521	201074	214866	355930	366850	427980	774110	1000950	1100000
Total	1570946	1307732	1927289	2154409	3094631	4350154	4429818	4980755	7944130	9845230



Appendix - XXV

Average maximum and minimum temperature

S.no	Year	Jan.		Feb.		Mar.		Apr.		May		June	
		Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm
1	1998	23.6	10.8	27.6	12.4	31.9	15.9	38.4	22.3	42.1	26.8	37.9	26.4
2	1999	25.4	9.3	27.1	14.7	34.5	16.6	40.8	21.9	41	26.6	35.3	24.3
3	2000	25.8	9.8	26	10.5	32.7	15.6	40.2	22.8	38.4	35.1	35.8	24.9
4	2001	25.7	11.0	29.8	13.1	34.1	17.8	38.2	21.5	40.7	26.3	37.8	23.9
5	2002	24.9	9.5	28.3	13.1	34.1	17.6	39.8	22.3	42.3	27.7	37.7	25.5
6	2003	26	10.7	27.7	14.5	34.6	17.1	39.9	23.0	41.2	26.3	37.8	26.3
7	2004	24.3	11.0	28.6	12.5	36.8	18.4	39.9	23.8	40.4	26.9	37	26.1
8	2005	24.5	11.0	28.5	12.99	34.4	18.93	33.4	21.88	40.9	26.66	39.7	27.88
9	2006	26.5	11.1	33.3	15.5	31.2	17.1	38.5	22.2	39.8	25.4	37.4	26.2
10	2007	26.1	11.2	29	14.4	33.4	17.6	39.6	21.7	40.4	27.2	38	26.5
11	2008	24.8	10.10	26.8	10.7	37.9	18.4	38.8	21.8	40.4	25.0	33.4	24.0
12	2009	26.5	13.8	31.0	14.4	35.6	18.6	39.4	22.6	42.2	27.9	39.2	25.8
13	2010	25.0	9.9	28.4	13.9	35.8	19.3	40.2	24.0	41.2	28.1	39.3	27.0

S.no	Year	July		Aug.		Sept.		Oct.		Nov.		Dec.		
		<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	
1	1998	30.6	23.7	30.2	23.7	31.2	23.2	32.3	21.2	28.9	15.4	27.6	27.6	10.0
2	1999	29.9	23.4	28.5	22.4	29	21.7	30.1	18.5	29.9	14.0	25.4	9.3	
3	2000	29.3	23.1	30.3	23.0	31.6	21.7	35.2	18.9	31.2	15.4	27.7	10.2	
4	2001	28.5	22.9	29	22.9	33.8	22.0	33.3	19.6	30.4	14.1	28.1	11.2	
5	2002	33.3	24.2	28.5	22.4	31.3	21.4	34.7	19.2	31	15.0	29.2	13.2	
6	2003	30.8	23.8	28.9	22.9	28.6	22.3	31.7	18.1	31.6	16.6	27.7	12.4	
7	2004	32.7	23.9	27.7	22.9	32.9	22.8	32.1	19.3	26.4		26		
8	2005	30.6	23.25	229.6	22.88	30.6	23.06	32.1	18.55	30.1	13.56	25.3	10.28	
9	2006	29.6	23.6	27.8	22.8	31.1	22.5	32.9	19.7	29.7	15.5	26.8	12.9	
10	2007	30	23.5	29.8	23.2	31.1	22.7	33.1	16.1	31	14.4	26.1	12.2	
11	2008	31	23.3	23.2		32.1	22.24	34.3	18.8	30.2	14.91	28.7	13.32	
12	2009	30.9	24.5	30.5	23.5	32.7	22.6	32.4	18.7	27.9	15.4	26.6	13.5	
13	2010	32.1	24.4	30.1	23.6	31.0	21.3	32.8	20.5	29.6	18.4	24.6	11.0	

Highest Maximum And Lowest Minimum Temperature During The Month

S.no.	Year	Jan.		Feb.		Mar.		Apr.		May		June	
		Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm
1	1998	28.7	5.0	32.4	8.8	38.2	11.6	40.6	17.8	45.0	22.1	43.5	23.2
2	1999	30.6	5.0	34.0	10.1	39.8	12.0	42.6	17.0	44.2	23.3	39.7	21.5
3	2000	37.4	5.2	31.7	7.0	38.0	10.6	42.5	19.0	43.5	20.0	40.0	21.3
4	2001	32.6	4.1	34.6	8.4	38.1	13.4	43.3	18.1	44.4	21.9	40.0	21.2
5	2002	31.0	6.0	34.7	7.8	38.4	12.4	43.1	17.8	44.6	22.9	44.4	23.1
6	2003	32.4	5.2	34.2	11.0	39.8	7.8	43.3	19.0	43.9	22.5	44.9	21.5
7	2004	30.0	7.4	35.2	5.4	40.5	13.5	42.3	19.9	43.9	22.5	44.6	22.7
8	2005	28.9	6.4	34.1	6.4	38.0	15.5	41.4	18.1	44.4	27.7	43.8	23.8
9	2006	31.5	6.8	37.6	11.0	36.6	14.1	41.6	17.8	44.0	20.9	40.9	23.9
10	2007	32.2	8.6	33.5	10.4	39.2	12.4	43.4	18.8	43.0	21.5	43.2	23.2
11	2008	30.2	5.6	34.4	5.5	38.6	14.2	43.1	16.4	42.0	20.0	41.0	22.2
12	2009	33.0	10.2	35.4	11.0	38.0	15.0	44.4	18.6	44.5	25.0	42.4	21.4
13	2010	28.8	5.5	34.4	10.2	39.5	15.4	43.4	17.0	46.0	24.1	43.6	22.2

S.no	Year	July		Aug.		Sept.		Oct.		Nov.		Dec.	
		<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>
1	1998	36.0	21.0	34.6	21.6	34.5	21.2	34.3	15.9	32.6	9.2	30.5	6.9
2	1999	36.9	21.5	31.8	21.6	32.1	20.1	32.8	14.6	33.1	9.5	28.8	7.0
3	2000	36.0	20.0	33.6	21.8	35.5	19.6	37.4	15.4	33.7	11.6	31.2	7.0
4	2001	32.0	20.8	32.2	21.6	37.4	19.6	36.0	15.3	35.2	9.4	32.4	7.0
5	2002	36.3	22.1	35.5	21.4	35.9	19.1	38.1	14.4	34.4	11.9	31.7	9.9
6	2003	34.5	22.0	32.7	21.5	31.2	21.3	34.6	13.8	33.5	13.5	31.8	6.6
7	2004	38.4	21.5	31.8	21.1	36.0	21.0	34.6	16.2	35.1	11.8	28.6	9.7
8	2005	34.6	21.0	34.2	20.8	35.5	20.0	33.7	13.9	32.3	11.4	29.5	7.0
9	2006	35.8	21.9	31.9	21.6	33.2	19.6	35.6	16.9	32.0	12.5	31.4	9.0
10	2007	34.4	22.0	32.5	21.8	33.8	19.7	35.1	15.1	34.2	9.9	30.0	7.9
11	2008	34.5	22.1	32.0	20.0	34.0	19.0	36.4	14.0	34.3	10.5	32.1	8.5
12	2009	36.6	22.6	33.6	22.5	36.5	21.0	34.6	14.0	33.6	9.6	29.2	8.6
13	2010	35.5	22.5	33.6	22.4	34.5	19.6	35.5	16.5	33.8	14.6	27.8	7.6

Appendix - XXVII

Relative Humidity (%)

S.no	Year	Jan.		Feb.		Mar.		Apr.		May		June	
		Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm	Maxm	Minm
		8.30	5.30	8.30	5.30	8.30	5.30	8.30	5.30	8.30	5.30	8.30	5.30
1	1998	74.4	47.3	58.3	35.8	47.1	29.8	37.8	19.5	36.0	16.7	58.7	44.1
2	1999	58.8	36.5	71.5	43.0	35.2	20.0	22.2	11.2	43.2	20.1	70.4	51.4
3	2000	64.3	37.7	-	-	33.5	15.8	26.5	12.8	52.1	36.2	69.0	50.5
4	2001	56.1	37.7	36.6	21.5	31.7	19.5	28.8	14.2	45.1	27.0	74.4	57.9
5	2002	60.5	36.4	55.0	31.3	37.3	18.8	32.1	20.4	47.5	25.3	48.2	48.3
6	2003	55.7	33.7	64.9	40.2	31.9	15.1	31.1	17.8	32.7	17.5	66.9	47.2
7	2004	77.1	48.9	54.9	30.8	32.5	17.2	35.0	17.5	45.6	24.4	64.6	47.1
8	2005	74.3	37.7	52.6	28.0	46.1	23.9	27.6	19.7	36.2	-	55.4	38.6
9	2006	62.48	36.39	55.0	26.92	63.64	41.41	47.56	33.35	55.4	38.0	67.76	44.93
10	2007	66.96	44.74	66.9	44.92	46.51	27.70	34.6	22.46	45.38	26.67	63.0	45.56
11	2008	64.74	40.20	45.068	25.65	40.29	21.45	31.4	17.56	44.19	23.74	74.70	63.50
12	2009	79	49	54	28	41	26	36	28	39	21	57	37
13	2010	75	46	68	40	41	21	31	17	34	16	54	35

S.no	Year	July		Aug.		Sept.		Oct.		Nov.		Dec.	
		<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>	<u>Maxm</u>	<u>Minm</u>
		8.30	5.30	8.30	5.30	8.30	5.30	8.30	5.30	8.30	5.30	8.30	5.30
1	1998	84.3	71.8	86.6	76.3	84.7	74.3	67.4	54.0	60.9	49.4	57.9	36.2
2	1999	83.8	71.0	86.8	78.2	86.9	80.1	73.3	63.5	51.3	37.8	65.3	42.0
3	2000	86.9	75.5	80.5	72.0	74.3	58.9	47.3	27.3	45.3	32.4	50.1	29.6
4	2001	87.8	78.7	88.1	75.2	69.7	50.5	67.3	47.9	74.6	33.5	56.0	34.6
5	2002	74.5	49.7	89.1	81.5	77.1	55.2	54.1	32.0	57.2	37.6	60.8	39.2
6	2003	86.7	75.4	88.9	81.5	90.5	79.8	65.6	42.5	59.3	46.1	67.4	44.9
7	2004	80.2	67.0	89.6	81.5	76.7	57.7	62.7	41.3	50.7	37.7	63.2	38.7
8	2005	86.1	78.3	86.3	90.9	86.3	74.9	66.0	-	57.7	40.8	68.1	49.4
9	2006	91.96	82.58	94.61	84.29	86.86	74.46	69.48	53.74	72.0	54.60	75.22	55.09
10	2007	87.16	79.32	89.54	76.16	87.23	71.36	57.90	31.96	56.36	40.66	64.41	45.67
11	2008	85.38	70.45	90.0	77.12	85.70	68.1	63.06	42.45	62.46	42.20	69.61	41.90
12	2009	89	78	86	73	81	60	66	55	75	59	83	61
13	2010	87	73	92	82	82	64	67	49	78	63	74	50

Appendix - XXVIII

Wind speed

S.n	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1998	4.3	4.4	4.5	5.5	10.1	11	10.9	9.1	9.8	5.4	10.7	3.8
2	1999	6.2	7.9	5.5	5.7	9.2	9.6	9.8	9.4	8.3	5.9	4	4.3
3	2000	4.9	DNA	6.9	7.5	6.9	10.1	9.1	7.8	6.8	3	3.2	2.9
4	2001	4.9	4.3	5.4	16.7	8.9	11.5	9.5	6.3	5.5	4	4.1	4.6
5	2002	6	5.7	5	7.2	11.1	8.9	10.5	7.5	7.2	5.7	5	6.7
6	2003	6.6	10.6	5.9	8	12.5	16.2	8.8	9.1	9.3	10.1	12.8	6.6
7	2004	10.3	8.9	11.3	14	14.1	19.5	12.3	12.6	9.5	7.6	8.3	6.3
8	2005	7.6	11.3	11	9.9	6.4	8.6	8.5	5.5	3.4	1.7	1.1	1.5
9	2006	2.8	3	3.7	4.1	5.4	5.5	5.7	4.6	2.7	2.6	2.3	3.2
10	2007	2.9	3.2	3.7	3.7	5.5	6.2	4.5	2.1	3.1	2	2	3.1
11	2008	3.4	3.3	3.6	4.1	6.1	7.9	10	5.7	5.6	3.7	3.7	2.4

Appendix - XXIX

Rainfall data in mm

S.no	Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	1998	0	0.2	40.9	13.1	0.4	138.5	336.4	237	222.7	19.6	4.4	0
2	1999	0	33.6	0	0	14.7	98.8	433.2	193.2	460.2	87	0	0
3	2000	0	0.8	2	0	64.2	86.8	568.7	29.7	24.8	0	0	0
4	2001	4.2	2	2	1.8	65.2	276.2	288.3	173.3	5.8	66.3	0	0
5	2002	0	28.8	15	14.6	12.2	114.2	35.8	540.9	101.8	1.5	13.6	0.2
6	2003	1.8	36.7	0	3	0	187.4	464.3	223.7	244.3	0.3	3.5	1.2
7	2004	64.7	0	0	0.6	1.3	45.9	238.6	410	19.2	11.3	1.3	0
8	2005	1.3	1.6	14.3	0.7	0.6	44.9	604.4	149.2	238.7	0.5	0	0
9	2006	0	0	108.8	17.3	94	64.6	300.6	903.9	386.6	1.8	3.6	2
10	2007	0.2	21.3	0	0.3	12.1	34.7	406	173.6	236.2	0	0	1
11	2008	0	0	11.6	1.8	8.8	151.6	219.7	147.4	129.2	1.1	9.5	0
12	2009	36.3	0.0	0.0	2.6	1.2	111.9	528.3	110.6	130.2	143.1	114.2	36.2
13	2010	12.4	8.2	3.6	0.0	0.2	76.7	244.9	200.0	76.3	50.8	113.4	5.1

Appendix – XXX

List of Buildings

S.N.	Name of building	No.	Place
1	Ramu Gate	1	Van Vihar
2	Cheeku Gate	1	Van Vihar
3	Safari Office	1	Van Vihar
4	Feed House	1	Van Vihar
5	Water Tank Rescue	1	Van Vihar
6	Water Tank Pahadi Baba	1	Van Vihar
7	Watch Tower Rescue	1	Van Vihar
8	Watch Tower Central	1	Van Vihar
9	Management Office	1	Van Vihar
10	P.M.House	1	Van Vihar
11	Incinerator Room	1	Van Vihar
12	Pump House	9	Van Vihar
13	Keeper Gallery	2	Van Vihar
14	Vihar Vithika Interpretation	1	Van Vihar
15	Auditorium	1	Van Vihar
16	Confrence Hall	1	Van Vihar
17	Cafeteria	1	Van Vihar
18	Tourism Office	1	Van Vihar
19	Director Office	1	Van Vihar
20	Store Room	1	Van Vihar
21	Hospital	1	Van Vihar
22	Residential Quarter I Type	8	Prempura
23	Residential Quarter G Type	3	Kolar
24	Residential Quarter H Type	2	Kolar
25	WFP Godown	1	Prempura
26	Management / Monitoring House	1	Van Vihar
27	Herbivores Quarantine	1	Van Vihar

Appendix – XXXI

List of Fire Line

Unit	Particulars	Length in km	Breadth in mt.
Safari	Around the Lion enclosure	2.050	12
	Hyena Encl. to Bear Encl. Lion Encl. to Old Tank	1.200	12
	Human Museum Boundary to Chhatghar Main Fire Line	2.225	12
	Both Entrance Gate between Main Road	4.800	12
	Total	10.275	
	Inside the Bara	1.710	6
	Inside the Tiger Enclosure	0.600	6
	Partition of Tiger Bara	0.750	6
	Inside the White Tiger	1.075	6
	Inside the Bear Enclosure	0.460	6
	Inside of old Hyena Bara	0.315	6
	Inside the Lion Enclosure	2.000	6
	Inside of Lion Bara	6.300	6
	Inside the Bear Enclosure	1.700	6
Around the Rescue Centre	3.000	6	
Total	17.910		
Forest Roads			
Safari	Safari Office to New Tiger Housing	2.000	6
	Querentine Tiraha to Rescue Centre Tiraha	2.000	6
	New Tiger Housing to Old Tiger Housing	1.000	6
	Pahari Baba and New Tank Link Road	0.500	6
	Heeraman Baba to Rescue Link	1.000	6
	Lion and Bear Housing Road	0.500	6
	Gate No. 1 to Lion Housing and Link Road	2.000	6
	Near boundary line of Stop dam link road	1.500	6
	Total	10.500	
	Gate No. 1 to 2 Boundary wall's fire line	3.200	6
	Around the both Watch Tower	0.800	6
	Around the Director office and Vet. Hosp.	0.600	6
	Both sides of Gondel Building Bamboo Plantation	0.950	6
	Plus sign of fire line between Grass Ground	2.000	6
Near water boundary chainlink fence	5.400	6	
Total	12.950		
Management	Watch tower Tri sector to Rescue Centre Tiraha	1.500	6
	Watch Tower to Water Tank Link Road	0.500	6
	Gate no. 2 to Barseem Bara Valley and Rescue Centre Tiraha	3.000	6
	Management office to Barseem Bara Tank and Valley Link	1.500	6
	Snake park to Valley Link Road	1.000	6
	New Tiger Tiraha to Management Office	2.000	6
	A road inside the Barseem Bara	1.500	6
	Total	11.00	6
Total 6 Mtr. Breadth		52.36	6
Total 12 Mtr. Breadth		10.275	12

Detail of Boundary Wall

S.N.	Section	lenth in Mt.	Dust Wall			Cement Wall construction			Chain link	
			Lenth	height	Condition	Lenth	height	Year	height	Year
	0-1	0								
1	1-2	20				20	2	2006	2	2006
2	2-3	20				20	2	2006	2	2006
	3-4	20				20	2	2006	2	2006
	4-5	20				20	2	2006	2	2006
	5-6	20				20	2	2006	2	2006
	6-7	20	9	1.8	Need repair	11	2	2006	2	2006
	7-8	20	20	1.8	Need repair				2	Old
	8-9	20	20	1.8	Need repair				2	Old
	9-10	20	20	1.8	Need repair				2	Old
	10-11	20	20	1.8	Need repair				2	Old
	11-12	20	8	1.8	Need repair	12	2	2006	2	2006
	12-13	20				20	2	2006	2	2006
	13-14	20	11	1.6	Need repair	9	2	2006	2	2006
	14-15	20				20	2		2	Old
	15-16	20	8	1.6	Need repair	12	2	2006	2	2006
	16-17	20				20	2		2	Old
	17-18	20				20	2		2	Old
	18-19	20				20	2		2	Old
	19-20	20				20	2		2	Old
	20-21	20				20	1.7	2003	2	2003
	21-22	20				20	1.7	2003	2	2003
	22-23	20				20	2	2006	2	2006
	23-24	20	14	1.4	Need repair	6	2	2006	2	2006
	24-25	20	18	1.4	Need repair	2	2	2006	2	2006
	25-26	20	8	1.8	Need repair	12	2	2006	2	2006
	26-27	20	20	1.7	Need repair				2	Old
	27-28	20	20	1.7	Need repair				2	Old
	28-29	20	12	1.6	Need repair	8	1.7	2003	2	2003
	29-30	20	20	1.8	Need repair				2	Old
	30-31	20	20	1.8	Need repair				2	Old
	31-32	20	20	1.8	Need repair				2	Old
	32-33	20	20	1.8	Need repair				2	Old

	33-34	20				20	2	2010-11	2	2010-11
	34-35	20				20	2	2010-11	2	2010-11
	35-36	20				20	1.8	2003		2003
	36-37	20				20	1.8	2003	2	2003
	37-38	20				20	1.8	2003	2	2003
	38-39	20				20	1.8	2003	2	2003
	39-40	20				20	1.8	2003	2	2003
		6				6	1.8	2003	2	2003
	40-41	14				14	2	2006	2	2006
	41-42	20				20	2	2003	2	2003
	42-43	20				20	2	2006	2	2006
		4				4	2	2006	2	2006
	43-44	16				16	1.8	2004	2	2004
		3				3	1.8	2004	2	2004
	44-45	17				17	3	2008	2	2008
		8				8	3	2008	2	2008
	45-46	12				12	1.8	2004	2	2004
	46-47	20				20	1.8	2004	2	2004
		9				9	1.8	2004	2	2004
	47-48	11				11	3	2008	2	2008
	48-49	20				20	3	2008	2	2008
	49-50	20				20	3	2008	2	2008
	50-51	20				20	3	2008	2	2008
	51-52	20				20	2	2010-11	2	2010-11
	52-53	20				20	2	2010-11	2	2010-11
	53-54	20				20	2	2010-11	2	2010-11
	54-55	20				20	2	2010-11	2	2010-11
	55-56	20				20	2	2010-11	2	2010-11
	56-57	20				20	2	2010-11	2	2010-11
	57-58	20				20	2	2010-11	2	2010-11
	58-59	20				20	2	2010-11	2	2010-11
	59-60	20				20	2	2010-11	2	2010-11
	60-61	20				20	2	2010-11	2	2010-11
	61-62	20				20	2	2010-11	2	2010-11
	62-63	20	1	1.7	Need repair	19	2	2007	2	2007
	63-64	20	19	1.7	Need repair	1	2	2007	2	2007

	64-65	20	20	1.7	Need repair				2	Old
	65-66	20	20	1.7	Need repair				2	Old
	66-67	20	20	1.7	Need repair				2	Old
	67-68	20	20	1.7	Need repair				2	Old
	68-69	20	20	1.7	Need repair				2	Old
	69-70	20	20	1.7	Need repair				2	Old
	70-71	20	20	1.7	Need repair				2	Old
	71-72	20	20	1.7	Need repair				2	Old
	72-73	20	20	1.7	Need repair				2	Old
	73-74	20	20	1.7	Need repair				2	Old
	74-75	20	14	1.7	Need repair	6	1.7	2004	2	2004
	75-76	20	16	1.7	Need repair	4	1.7	2004	2	2004
	76-77	20	20	1.7	Need repair				2	Old
	77-78	20	20	1.7	Need repair				2	Old
	78-79	20	20	1.7	Need repair				2	Old
	79-80	20	20	1.7	Need repair				2	Old
	80-81	20	20	1.7	Need repair				2	Old
	81-82	20	20	1.7	Need repair				2	Old
	82-83	20	20	1.7	Need repair				2	Old
	83-84	20	20	1.7	Need repair				2	Old
	84-85	20	20	1.7	Need repair				2	Old
	85-86	20	20	1.7	Need repair				2	Old
	86-87	20	20	1.7	Need repair				2	Old
	87-88	20	20	1.7	Need repair				2	Old
	88-89	20	20	1.7	Need repair				2	Old
	89-90	20	20	1.7	Need repair				2	Old
	90-91	20	20	1.7	Need repair				2	Old
	91-92	20	20	1.7	Need repair				2	Old
	92-93	20	20	1.7	Need repair				2	Old
	93-94	20	20	1.7	Need repair				2	Old
	94-95	20	20	1.7	Need repair				2	Old
	95-96	20	6	1.7	Need repair	14	1.5	2005	2	2005
	96-97	20	20	1.7	Need repair				2	Old
	97-98	20	13	1.7	Need repair	7	1.7	2006	2	2006
	98-99	20	20	1.7	Need repair				2	Old
	99-100	20	20	1.7	Need repair				2	Old

	100-101	20	5	1.7	Need repair	15	1.7	2004	2	2004
	101-102	20	7	1.7	Need repair	13	1.7		2	Old
	102-103	20	20	1.7	Need repair				2	Old
	103-104	20	20	1.7	Need repair				2	Old
	104-105	20	20	1.7	Need repair				2	Old
	105-106	20	14	1.7	Need repair	6	1.7		2	Old
	106-107	20	14	1.7	Need repair	6	1.7		2	Old
	107-108	20	20	1.7	Need repair				2	Old
	108-109	20	20	1.7	Need repair				2	Old
	109-110	20	20	1.7	Need repair				2	Old
	110-111	20	14	1.7	Need repair	6	1.8	2006	2	2006
	111-112	20	5	1.7	Need repair	15	1.8	2006	2	2006
	112-113	20	14	1.7	Need repair	6	1.7	2005	2	2005
	113-114	20				20	3	2010-11	2	2010-11
	114-115	20				20	3	2010-11	2	2010-11
	115-116	20				20	3	2010-11	2	2010-11
	116-117	20				20	3	2010-11	2	2010-11
	117-118	20				20	3	2010-11	2	2010-11
	118-119	20				20	3	2010-11	2	2010-11
	119-120	20				20	3	2010-11	2	2010-11
	120-121	20				20	3	2010-11	2	2010-11
	121-122	20				20	3	2010-11	2	2010-11
	122-123	20				20	3	2010-11	2	2010-11
	123-124	20				20	3	2010-11	2	2010-11
	124-125	20				20	3	2010-11	2	2010-11
	125-126	20				20	3	2010-11	2	2010-11
	126-127	20				20	3	2010-11	2	2010-11
	127-128	20				20	3	2010-11	2	2010-11
	128-129	20				20	3	2010-11	2	2010-11
	129-130	20				20	3	2010-11	2	2010-11
	130-131	20				20	3	2010-11	2	2010-11
	131-132	20				20	3	2010-11	2	2010-11
	132-133	20				20	3	2010-11	2	2010-11
	133-134	20				20	3	2010-11	2	2010-11
	134-135	20				20	3	2010-11	2	2010-11
	135-136	20				20	3	2010-11	2	2010-11

	136-137	20				20	3	2010-11	2	2010-11
	137-138	20				20	1.8	2004	2	2004
	138-139	20				20	1.8	2004	2	2004
	139-140	20				20	1.8	2004	2	2004
	140-141	20	9	1.7	Need repair	11	1.8	2004	2	2004
	141-142	20	6	1.7	Need repair	14	1.8	2004	2	2004
	142-143	20	5	1.7	Need repair	15	1.8	2003	2	2003
	143-144	20	6	1.7	Need repair	14	1.8	2003	2	2003
	144-145	20	20	1.7	Need repair				2	Old
	145-146	20	20	1.7	Need repair				2	Old
	146-147	20				20	3	2008	2	2008
	147-148	20				20	3	2008	2	2008
	148-149	20				20	3	2008	2	2008
	149-150	20				20	3	2008	2	2008
	150-151	20				20	3	2008	2	2008
	151-152	20	14	1.7	Need repair	6	3	2008	2	2008
	152-153	20	20	1.7	Need repair				2	Old
	153-154	20	20	1.7	Need repair				2	Old
	154-155	20	20	1.6	Need repair				2	Old
	155-156	20	20	1.6	Need repair				2	Old
	156-157	20	20	1.6	Need repair				2	Old
	157-158	20	20	1.6	Need repair				2	Old
	158-159	20	20	1.6	Need repair				2	Old
	159-160	20	15	1.6	Need repair	5	1.7	2003	2	2003
	160-161	20				20	1.7	2004	2	2004
	161-162	20				20	1.7	2004	2	2004
	162-163	20				20	1.7	2004	2	2004
	163-164	0								0
	G.T.	3240	1425			1815				

Appendix – XXXIII

Detail of Chainlink Fence

S.N.	Pillar no	Old existing Fencing	Old Fencing of 06-07 Repaired	New fencing 08-09	Total
1	1-2	86			86
2	2-3	87			87
3	3-4			330	330
4	4-5			175	175
5	5-6			495	495
6	6-7			195	195
7	7-8			290	290
8	8-9			450	450
9	9-10			320	320
10	10-11			288	288
11	11-12			204	204
12	12-13		52	198	250
13	13-14		98		98
14	14-15		103		103
15	15-16		100		100
16	16-17		115		115
17	17-18		80		80
18	18-19		103		103
19	19-20			180	180
20	20-21			105	105
21	21-22			125	125
22	22-23			275	275
23	23-24			210	210
24	24-25			220	220
25	25-26			105	105
26	26-27			155	155
27	27-28			70	70
	Total	173	651	4390	5214

Appendix – XXXIV

List of Animal Adoptions

S.no.	Name	Date	Species	Animal name	Period	Amount
1	Ku. Abhineeta Das Gupta Bhopal	01.01.09	Python	-	1 month	720
2	Shri Rakesh Guglani Panipat Hariyana	10.01.09	Python	-	6 month	3300
3	Shri Gulrej Ahemed Bhopal	23.01.09	Femlae Tiger	-	3 month	36000
4	Smt. Meena & Shri MK Gupta Bhopal	28.01.09	Male Panther	Trega	1 month	5760
5	Smt. Sandhya & Shri Pushpendra Jain Bhopal	24.02.09	Ratel	-	3 month	2400
6	MP State Mining corp. ltd. Bhopal	24.02.09	Female Tiger	Shweta	1 year	125000
7	Shri Anil Kumar Ramesh Bhai Tanwani Kolhapur	25.02.09	Crocodile	-	1 month	3600
8	Smt. Meena & Shri MK Gupta Bhopal	02.03.09	Panther-M	Trega	1 month	5760
9	Mohd. Zafar Bhopal	17.03.09	Bear	-	1 month	7680
10	Sushri Sudhakar Hardikar	25.03.09	Panther-F	Rakhi	1 year	50000
11	Sushri Sudhakar Hardikar	25.03.09	Hyeana-M	Akela	1 year	30000
12	Tata Indicom	21.04.09	Lion-M	Indar	1 year	110000
13	Tata Indicom	05.05.09	White Tiger-M	Bhagat	1 year	125000
14	Tata Indicom	05.05.09	Panther-M	Trega	1 year	50000
15	Peepules group	23.05.09	Panther-F	Mohini	1 year	50000
16	The nature valenteers group	23.05.09	White tigress	Lalita	1 year	125000
17	Shri Prashant Dubey	26.07.09	Python	-	6 month	3300
18	NHDC	07.10.09	Tiger-M	Kanha	1 year	125000
19	Allahabad bank	04.01.10	Tiger-F	Basni	1 year	125000
20	Allahabad bank	04.01.10	Panther-M	Agni	3 month	14400
21	Allahabad bank	04.01.10	Albino bear-F	Kamli	3 month	19200
22	State bank of India	31.01.10	Tigress	Sita	1 year	125000
23	Smt. Sandhya & Shri Pushpendra Jain Bhopal	24.02.10	Panther-F	Catreena	1 month	5760
24	Mohd. Zafar Bhopal	22.03.10	Python	-	1 month	720
25	Gyan Ganga Institute & technology BhopalVsDuksykWth	15.04.10	Panther	-	1 month	5760
26	Mohd. Shakeel	21.04.10	Python	-	1 month	720

27	Savier college	24.04.10	Python	-	1 year	6000
28	Preeti and Sharad Tamot	14.08.10	Pyhton	-	3 month	1800
29	Tata Tele services	13.09.10	White tiger-M	Bhagat	1 year	125000
30	Allahabad bank	14.10.10	White toger-F	Lalita	1 year	125000
31	Smt. Sandhya & Shri Pushpendra Jain Bhopal	24.2.11	Python	-	1 year	6000
32	Local head office SBI Bhopal	21.3.11	Tigress	Sita	1 year	125000
33	Local head office SBI Bhopal	21.3.11	Tiger –M	Kanha	1 year	125000
	Total					1668880

List of Rescue Squad Materials

S.no.	Particulars	Required qty.
1	Trape cage for carnivora	
1.1	Trape cage for Tigers	2
	Trape cage For Leopards	2
1.2	Transportation Box for rs	1
	Transportation for leopards	2
2	Cages for other animals	LS
2.1	Transportation crates for monkey	2
2.2	Transportation crates for others – Birds, Reptiles	2
3	Other articles	
3.1	Nets 3×3 mtr. Gap 2×2 "	9 sq.mt.
3.2	Ropes – ½ " dia	LS
	Plastic and nylon rope length 5 mt.	2
	Jute rope length 5 mt.	2
	Mountaineering rope length 5 mt.	2
3.3	Ropes of different sizes and gauge	LS
3.4	Blind fold cloth	2
3.5	Rope ledger length 50 ft. rope dia 2"	Jute 1 Cotton 1
3.6	Knives and plier size 8"	2
3.7	Muzzler of different sizes	2
3.8	Multiple function toolkit with drill machine	1
3.9	Auto release catcher	LS
3.10	Auto release snare pole	LS
3.11	Snake tong	LS
3.12	Hanging Balance upto 250 kg.	1
3.13	Stretcher	LS
	Folding body	1
	Crome body	1
3.14	Nyline rubber belt width 3 – 4" length 2-3 mt.	LS
3.15	Hand sprayer Min. 10 lt. capacity to maintain temperature	1

3.16	Mountaineering rope	LS
3.17	Mountaineering harness full body adjustable	1
	Laneyard for harness	1
3.18	Tafhone tape to lock jaw of crocodile	LS
3.19	Tent and sleeping bages	LS
3.20	Winch including trypode	LS
3.21	Collapsible alluminium ledger lenth 20 ft.	1
3.22	Mountaineering globes	1
3.23	Ply board size 2×3 ft. and 2-3 mm gauge with hole	1
3.24	GI or MS pipe 2" dia length 2,3 and 4 mt.	6-10
3.25	Wireless including to walky set	LS
3.26	GPS	LS
3.27	Range finder	LS
3.28	Binacular	LS
3.29	Still and vedio camera	LS
3.30	Utility box medium or big size	LS
a	Ceasor medium size	1
b	Knife medium and big size	2
c	Bucket 15 lt. with mug	1
d	Pick axe	1
e	Spade	1
f	Axe small and medium	2
g	Crow bar 4 & 6 ft. in length	2
h	Hammer 4 kg.	1
i	Hack saw 8" with extra blade	1
j	Jury cane 20 lt. capacity	1
k	Gunny bags / canvas bags or canvas sheet 2×2 mt.	10
l	Search light	1
m	Torch	2
n	Binding wire	LS
o	Nylone pipe ½" dia and 20' length	1
p	Nutbolts diferent sizes	LS
q	Nails diferent sizes	LS

r	Plastic bags	LS
s	Rope and needle with threads	LS
t	Water bottle 2 lt.	5
u	similar uniform	LS
v	Dangri and jackets	4
w	Towel / napkin	LS
x	Bedsheet	LS
y	Carpet	LS
z	Cotton	LS
z i	Gamchha	LS
	Chemical Immobiliser	
	First aid box	
1	First aid box for staff	1 set
2	Tincture iodine	100 ml.
3	Tincture benzoine	100 ml.
4	Botro clote	100 ml.
5	Sprit	500 ml.
6	Potacium perpagnet powder	50 gm.
7	Anticeptic cream	LS
8	Norflox TZ	LS
9	Tablet antiallergic	LS
10	Paracitamole	LS
11	Electrol & glucose	LS
12	Heelax spray	LS
13	Injection	LS
14	Band aid	LS
15	Cotton	LS
16	Bandage	LS
17	Adhesive tape	LS
18	Syringe	LS
19	Needle	10

20	Anti venome kit	LS
	First aid box for animals	
1	Tincture iodine	100 ml.
2	Tincture benzoine	100 ml.
3	Sprit	500 ml.
4	Potacium perpagnet powder	50 gm.
5	Anticeptic cream	LS
6	Dressing kit	LS
7	Disposible needle	LS
8	Injection	LS
9	Xylazine	2
10	Ketamine	2
11	Yohimbine	LS
12	Trochore canula	1
13	Paracetamole	5
14	Analgesic	5
15	Digepalm	5
16	Cevit-e	2
17	Dexona	5
18	Atropine	10
19	Doxoprane	5
20	Adreneline	5
21	Titness toxide	10
22	Vitamin K	LS
23	Long acting antibiotic	15
	Equipments	
1	Darting equipments	LS
2	Blow pipe	LS
3	Dart and needle of diferent sizes	LS
4	Barrel inject	LS
5	Special barrel carbon syringe 5-20 cc	LS

6	Syringe 5 ml	10
7	Syringe 3ml	25
8	Syringe 2ml	25
9	Syringe 1ml	25
10	Practice needle U 30 V	LS
11	Practice syringe	LS
12	Needles	25
13	K 100 V elephant kanula	10
14	1530 V 2 pkts.	20
15	2030 V 4 pkts.	40
16	2040 V 4 pkts.	40
17	Preventing pines	5
18	Syringe connectors	5
19	Silicone sleives green and red	4 pkts.
20	Silicone oil	2 vilas
21	Distilled water	LS
22	CO2 cylender for model 4 V	2
23	Safety caps for syringe	50
24	Foot pump with mt.	5
25	Gun case	1
26	Pencil box to keep syringes	LS
27	Equipments box	4
28	Mobile refridgereter	1
	Rescue vehicle	
1	Main wildlife rescue vehicle	1
2	Supporting vehicle for staff	1

List of Rescue Operations

S.no.	Date of Rescue	Date of Information	Source of information	Name of animal		Place						Place of animal during rescue
				Common	Scientific	Village	Tehseel	Division	District	Circle	State	
1	2	3	4	5	6	7	8	9	10	11	12	13
1	09-01-07	09-01-07	FD Satpura Tiger Reserve	Elephant	Elephas maximus	STR	STR	STR	Hoshang abad	Hoshang abad	MP	Elephant camp
2	14-03-07	13-03-07	DFO Shivpuri	Tiger	Panthera tigris	Shivpuri	Shivpuri	Shivpuri	Shivpuri	Shivpuri	MP	National Park Enclosure
3	03-05-07	02-05-07	DFO South Seoni	Panther	Panthera pardus	Rukhad	Seoni	South Seoni	Seoni	Seoni	MP	Enclosure
4	26-08-07	26-08-07	DFO Vidisha	Hyeana	Visisha	Visisha	Visisha	Visisha	Visisha	Bhopal	MP	Agrucultre feild
5	03-11-07 04-11-07	02-11-07	DFO Ujjain	Spotted deer	Axis axis	Ujjain	Ujjain	Ujjain	Ujjain	Ujjain	MP	Enclosure
6	16-11-07	16-11-07	Suptd. Ratapani	Jackal	Canis aureus	Obedullganj	Gauhar ganj	Obedullganj	Raisen	Bhopal	MP	Well
7	23-07-08	23-07-08	DFO Bhopal	Monkey	Bhopal	Kohephiza	Hujur	Bhopal	Bhopal	Bhopal	MP	Garden
8	13-08-08	13-08-08	DFO Bhopal	Monkey	Bhopal	Kohephiza	Hujur	Bhopal	Bhopal	Bhopal	MP	Garden
9	22-08-08	22-08-08	DFO Bhopal	Crocodile	Crocodylus palustris	Obedullganj	Gauhar ganj	Obedullganj	Raisen	Bhopal	MP	River

10	5/9/2008	05-09-08	DFO Bhopal	Gharial	Gavialis gangeticus	Nehru Nagar	Huzur	Bhopal	Bhopal	Bhopal	MP	Nalah
11	29-09-08	29-09-08	Villager	Crocodile	Crocodylus palustris	Prempura	Huzur	Bhopal	Bhopal	Bhopal	MP	Bhadbhada
12	30-09-08	30-09-08	Villager	Monkey	Macaca mulatta	Malvi Nagar	Huzur	Bhopal	Bhopal	Bhopal	MP	Private building
13	17-12-08	17-12-08	DFO Bhopal	Bear	Melursus ursinus	Goal	Huzur	Bhopal	Bhopal	Bhopal	MP	Agricultural feild
14	30-01-09	30-01-09	SOS Wildlife	Bear	Melursus ursinus	Van Vihar	Huzur	Bhopal	Bhopal	Bhopal	MP	Enclosure
15	21-03-09	21-03-09	DFO Obedullaganj	Tiger	Panthera tigris	Ratapani	Gohatganj	Obedullaganj	Raisen	Bhopal	MP	Water pond
16	23-10-09	23-10-09	DFO Obedullaganj	Bear	Melursus ursinus	Ratapani	Gohatganj	Obedullaganj	Raisen	Bhopal	MP	Agricultural feild
17	22-01-10	22-01-10	SDO Sehore	Panther	Panthera pardus	Ashta	Ashta	Sehore	Sehore	Bhopal	MP	Village
18	13-01-11	13-01-11	Animal keeper	Panther	Panthera pardus	Van Vihar	Huzur	Van Vihar	Bhopal	Bhopal	MP	Enclosure

Details of snake rescued and released during last 4 years

Sr.	Name of snake	Scientific name	Detail of rescued & released snake				
			2007	2008	2009	2010	Total
1	Indian Kobra	Naja Naja	122	163	177	248	710
2	Russel viper	Duboja Russelli	66	88	180	138	472
3	Rat Snake	Plyas ucosa	531	395	481	359	1766
4	Water snake	Xenochropis-Piscator	209	127	204	150	690
5	Sandboa	Eryx-Coricus	39	41	65	53	198
6	Indian rock Python	Python Modurus	17	10	26	17	70
7	Red Sandboa	Dendrelaphis Tristis	6	10	0	16	32
8	Sankhara	Lycodon aulicus	16	1022	44	19	1101
9	Raser	Argryogena Fasciolata	4	12	31	19	66
10	Gilahariya	Coelognathus Helena	28	9	19	4	60
11	Seeta ki lat	Amphiesma Statartum	22	17	24	16	79
12	Monitor lizard	Monitorlized	5	18	31	31	85
13	Green snake	Macropisthodon	6	2	2	3	13
14	Kraite	Bungarus Caeruleus	3	22	7	24	56
15	Domai	Eryx Johnil	0	0	6	3	9
	Total		1074	1936	1297	1100	5407

Girth Classwise Number of Trees Per Ha.

S.no.	Local Name	Botanical Name	Girth Classwise Volume									Total	Percent
			11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100		
1	Landia	<i>Lagerstroemia parviflora</i>	0.352941	13.47059	28.235	24.1176	11.235					77.4118	31.74%
2	Dudhi	<i>Wrightia tinctora</i>	1.411765	6.882353	12.529	5.05882	1.4118					27.2941	11.19%
3	Kuretha	<i>Holarrhena antidysenterica</i>	8.705882	11.76471	3.6471	0.70588						24.8235	10.18%
4	Bel	<i>Aegle mermelos</i>	0.705882	8.411765	8.7647	2.58824	0.3529					20.8235	8.54%
5	Tendu	<i>Diospyros melenaxylon</i>	0.705882	2.117647	6.9412	2.82353	0.3529					12.9412	5.31%
6	Dhawra	<i>Anogeissus latifolia</i>	1.058824	5.117647	5.8824	0.35294	0.3529					12.7647	5.23%
7	Siras	<i>Albizia lebeck</i>	0.352941	1.058824	2.8235	3.94118	3.9412					12.1176	4.97%
8	Kari	<i>Milium tomentosum</i>		1.823529	3.6471	5.41176	1.0588					11.9412	4.90%
9	Babool	<i>Acacia nilotica</i>				0.35294	3.2941	2.588	1.412	0.3529		8	3.28%
10	Gurjan	<i>Lannea coromandelica</i>		1.411765	2.5882	2.52941	0.7059					7.23529	2.97%
11	Amaltas	<i>Cassia fistula</i>	0.352941	1.764706	1.7647	0.35294						4.23529	1.74%
12	Jamrasi	<i>Elaeodendron glaucum</i>		0.705882	2.8824		0.3529					3.94118	1.62%
13	Baheda	<i>Terminalia bellarica</i>		1.117647	1.8235	0.35294			0.353			3.64706	1.50%
14	Khair	<i>Acacia catechu</i>	0.352941	0.705882	1.4118	0.70588						3.17647	1.30%
15	Ghont	<i>Zinziphus xylopara</i>		0.705882	0.7059	0.70588						2.11765	0.87%
16	Karanj	<i>Pongamia pinnata</i>		0.705882					1.118			1.82353	0.75%
17	Chiroi	<i>Holoptelia integrifolia</i>				1.11765			0.353			1.47059	0.60%
18	Saaj/Saaja	<i>Terminalia tomentosa</i>		0.352941	0.3529		0.3529					1.05882	0.43%
19	Palash	<i>Butea monosperma</i>			0.3529					0.3529	0.3529	1.05882	0.43%
20	Semal	<i>Bombax ceiba</i>				0.35294	0.3529	0.353				1.05882	0.43%
21	Remjha	<i>Acacia leucophloea</i>					0.7059	0.353				1.05882	0.43%
22	Papda	<i>Gardenia latifolia</i>			0.3529	0.35294						0.70588	0.29%
23	Kem	<i>Mitragyna parvifolia</i>		0.352941	0.3529							0.70588	0.29%
24	Sisham	<i>Daibergia sissoo</i>						0.353				0.35294	0.14%
25	Kullu	<i>Sterculia urnens</i>							0.353			0.35294	0.14%
26	Menhar	<i>Randia dumetorum</i>					0.3529					0.35294	0.14%
27	Eucalyptus	<i>Eucalyptus facata</i>							0.353			0.35294	0.14%
28	Lasoda	<i>Cardia dichotoma</i>									0.3529	0.35294	0.14%
29	Kakar	<i>Flacourtia rhomentchi</i>		0.352941								0.35294	0.14%
30	Sainta	<i>Bauhinia malabarica</i>		0.352941								0.35294	0.14%
	Grand Total		14	59.17647	85.059	51.8235	24.824	3.647	3.941	0.7059	0.7059	243.882	
	Percentage		5.74%	24.26%	34.88%	21.25%	10.18%	1.50%	1.62%	0.29%	0.29%	100.00%	

Important Value Index of Different Vegetation Categories

S.No.	Local Name	Botanical Name	Type	IVI
1	Sen	<i>Cenchrus ciliaris</i>	GRASS	3.082
2	Gunai	<i>Themeda quadrivalvis</i>	GRASS	8.904
3	Gauma	<i>Triticum aestivum</i>	GRASS	1.027
4	Lampa	<i>Heteropogon contortus</i>	GRASS	20.205
5	Lapusari	<i>Aristida hystrix</i>	GRASS	15.411
6	Satgathiya	<i>Borreria articularis</i>	GRASS	3.767
7	Fulera	<i>Apluda mutica</i>	GRASS	5.479
8	Chiriyi ghans	<i>Vetiveria zizanioides</i>	GRASS	9.589
9	Bhajura	<i>Apluda mutica</i>	GRASS	2.055
10	Urai	<i>Vetiveria zizanioides</i>	GRASS	1.027
11	Bans	<i>Dendrocalamus strictus</i>	GRASS	8.274
	Total			78.822
	Average IVI for grasses			7.166
12	Daab	<i>Desmostachya bipinnata</i>	HERB	1.712
13	Jungli mung	<i>Vigna trilobata</i>	HERB	2.740
14	Kali jiri	<i>Vernonia anthelmintica</i>	HERB	2.055
16	Gazerghans	<i>Partgenium hysterophorus</i>	HERB	17.808
17	Dudhi	<i>Euphorbia hirta</i>	HERB	7.715
18	Shankhpushi	<i>Convolvulus pluricaulis chiosy</i>	HERB	16.024
19	Pamaar	<i>Cassia tora</i>	HERB	29.970
20	Ghamera	<i>Eclipta prostrata</i>	HERB	8.605
21	Ardajhara	<i>Achyranthes aspera</i>	HERB	3.561
22	Parvai	<i>Heteropogon contortus</i>	HERB	1.780
23	Chirchita	<i>Bidens biternata</i>	HERB	18.694
24	Van tulsii	<i>Ocimum canum</i>	HERB	11.869
25	GumarGathua	<i>Leonotis nepetaefolia</i>	HERB	0.890
26	Jungli tillee	<i>Sesamum indicum</i>	HERB	3.425
27	Gwar	<i>Atylosia scarabaeoides</i>	HERB	1.712
28	Bhumianwla	<i>Phyllanthus niruri</i>	HERB	0.890
	Total			129.452
	Average IVI for Herbs			7.615
29	Tendu	<i>Diospyros melenaxylon</i>	SHRUB	8.215
30	Ber	<i>Zizyphus mauritiana</i>	SHRUB	2.447
31	Timerua	<i>Ehretia laevis</i>	SHRUB	3.766
32	Kurentha	<i>Holarrhena antidysenterica</i>	SHRUB	66.467
33	Lentana	<i>Lantana camera</i>	SHRUB	15.343
34	Makore	<i>Kirganelia reticulata</i>	SHRUB	13.492
35	Jharberi	<i>Zizyphus nummularia</i>	SHRUB	2.958
36	Ghont	<i>Zizyphus xylopyra</i>	SHRUB	2.575
37	Karel	<i>Capparis aphylla</i>	SHRUB	11.342
38	Chirol	<i>Holoptelia integrifolia</i>	SHRUB	2.298
39	Menhar	<i>Catunaregam uliginosa</i>	SHRUB	1.894
40	Marod Fali	<i>Helicteres isora</i>	SHRUB	2.575
41	Dhatoora	<i>Datura innoxia</i>	SHRUB	2.702
42	Sander	<i>Bothriochloa intermedia</i>	SHRUB	3.638
	Total			139.712
	Average IVI for Shrubs			9.979

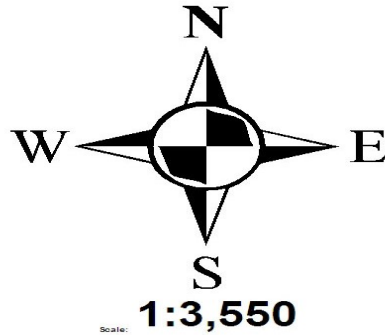
43	Fang	<i>Rivea hypocrateriformis choisy</i>	CLIMBER	72.158
44	Chirenta	<i>Cocculus hirsutus</i>	CLIMBER	67.542
45	Kachriya	<i>Cucumis prophetarum</i>	CLIMBER	5.434
46	Jungli karela	<i>Monordica charantia</i>	CLIMBER	10.325
47	Karench	<i>Mucuna prurita</i>	CLIMBER	6.61
	Total			162.069
	Average IVI for Climbers			32.414
48	Landia	<i>Lagerstroemia parviflora</i>	TREE	71.209
49	Dudhi	<i>Wrightia tinctora</i>	TREE	23.599
50	Kuretha	<i>Holarrhena antidysenterica</i>	TREE	20.539
51	Bel	<i>Aegle mermelos</i>	TREE	19.303
52	Tendu	<i>Diospyros melenaxylon</i>	TREE	14.997
53	Dhawra	<i>Anogeissus latifolia</i>	TREE	10.845
54	Siras	<i>Albizia lebeck</i>	TREE	17.647
55	Kari	<i>Miliusa tomentosa</i>	TREE	17.151
56	Babool	<i>Acacia nilotica</i>	TREE	17.939
57	Gurjan	<i>Lannea coromandelica</i>	TREE	8.702
58	Amaltas	<i>Cassia fistula</i>	TREE	6.993
59	Jamrasi	<i>Elaeodendron glaucum</i>	TREE	5.731
60	Baheda	<i>Terminalia bellarica</i>	TREE	7.825
61	Khair	<i>Acacia catechu</i>	TREE	5.052
62	Ghont	<i>Zinzyphus xyloeyra</i>	TREE	4.422
63	Karanj	<i>Pongamia pinnata</i>	TREE	7.403
64	Chirol	<i>Holoptelia integrifolia</i>	TREE	5.247
65	Saaj/Saaja	<i>Terminalia tomentosa</i>	TREE	3.862
66	Palash	<i>Butea monosperma</i>	TREE	2.027
67	Semal	<i>Bombax ceiba</i>	TREE	6.073
68	Remjha	<i>Acacia leucophloea</i>	TREE	4.783
69	Papda	<i>Gardenia latifolia</i>	TREE	2.026
70	Kem	<i>Mitragyna paryfolia</i>	TREE	1.891
71	Sisham	<i>Daibergia sissoo</i>	TREE	2.311
72	Kullu	<i>Sterculia urnens</i>	TREE	2.762
73	Menhar	<i>Randia dumetorum</i>	TREE	1.971
74	Eucalyptus	<i>Eucalyptus facata</i>	TREE	2.762
75	Lasoda	<i>Cardia dichotoma</i>	TREE	1.615
76	Kakar	<i>Flacourtia ramontchi</i>	TREE	1.656
77	Sainta	<i>Bauhinia malabarica</i>	TREE	1.656
78	Korikandha	<i>Scilla hyacinthiana</i>	TREE	182.128
79	Bhilara	<i>Ampelocissus latifolia</i>	TREE	17.872
80	Remjha	<i>Acacia leucophloea</i>	TREE	12.15
81	Khajoor	<i>Phoenix sylvestris</i>	TREE	6.917
82	Neem	<i>Azadirachta indica</i>	TREE	1.894
83	Babul	<i>Acacia nilotica</i>	TREE	16.959
	Total			537.920
	Average IVI for Trees			14.94

List of Digitised Maps

1. Composite Map
2. Tourism Zone
3. Water Management Map
4. Vegetation Map

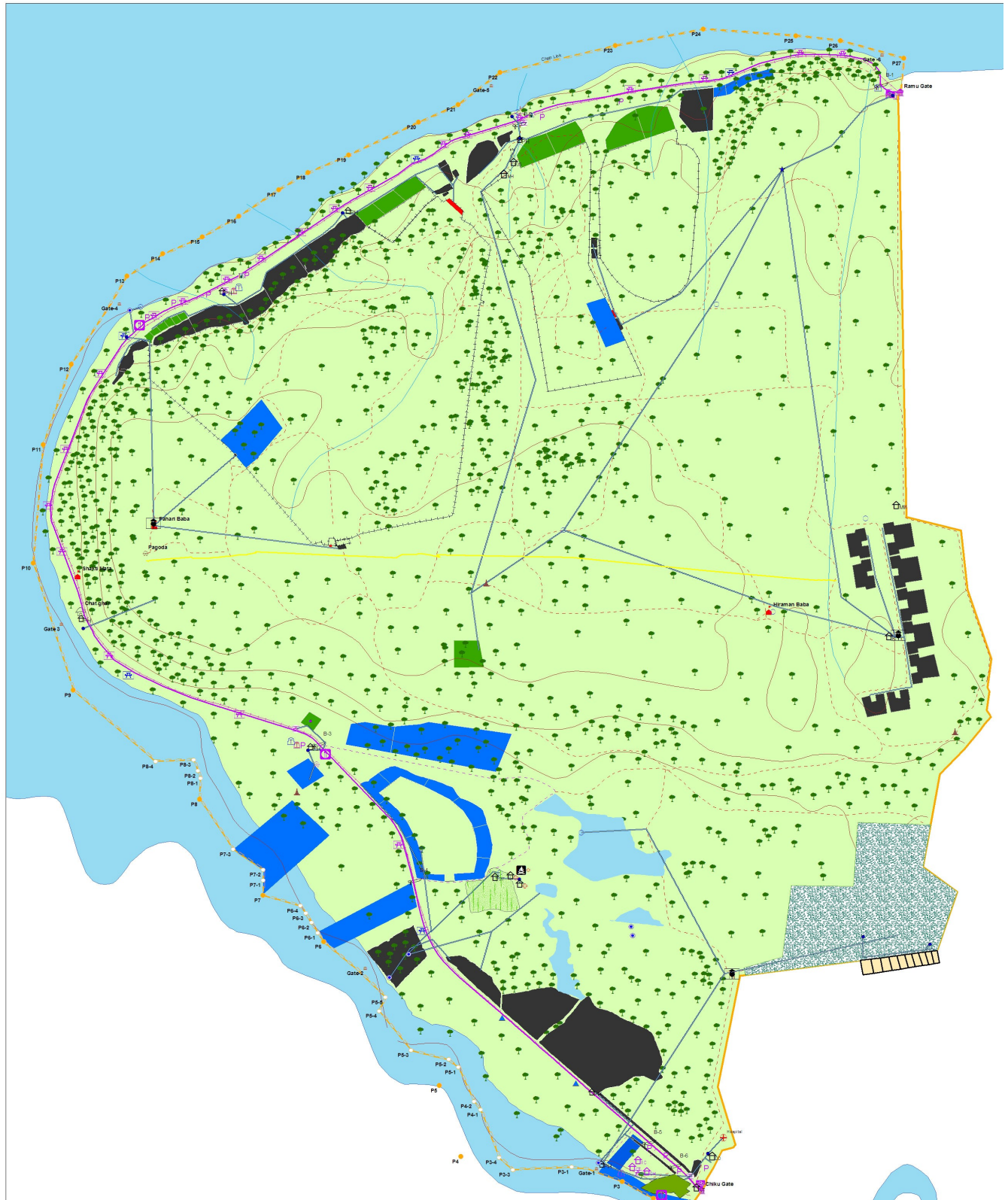
VAN VIHAR NATIONAL PARK, BHOPAL

COMPOSIT MAP



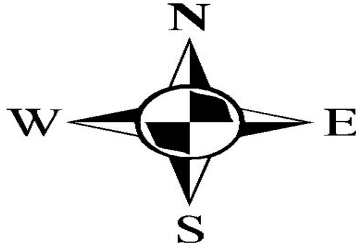
	Boundry Wall		Meet House
	Chain Link Fencing		M M House
	Main Pole		Unit Office Manegment
	Intermediat Pole		Unit Office Tourism
	Chain Link Gate		Unit Office Safari
	Service Path Way		Wireless Station
	Main Road		S O S Kitchen
	Visitores Path ways		Safari Store
	Electric Line		Safari Shade
	Electric Transformer		Watch Tower
	Religious Place		Barrier
	Pagoda		Hospital
	Contour		Incinerator
	Tree Cover		P M Room
	Fire Line		Enclosure
	Bicycle Stand		LR Lion Rescue Enclosure
	Entry Gate		TR Tiger Rescue Enclosure
	New praposed Sit Out		BR Bear Rescue Enclosure
	Sit Out		PD Panther Display Enclosure
	Toilet Existing		LD Lion Display Enclosure
	Toilet New Praposed		TD Tiger Display Enclosure
	Toilet to be Dismantal		To be Modified
	Parking		New Praposed
	Snake Interpretation		Existing
	Cafeteria & Kiosk		To be Dimental
	Drinking Water		Water Bodies
	TubeWell		Buildings
	Well		Bamboo Area
	Dyke		
	Over Head Tank		
	Pump House		
	Water hole		
	Sump well		

VAN VIHAR NATIONAL PARK BHOPAL (M.P.) Composit Map



VAN VIHAR NATIONAL PARK, BHOPAL

TOURISM ZONE



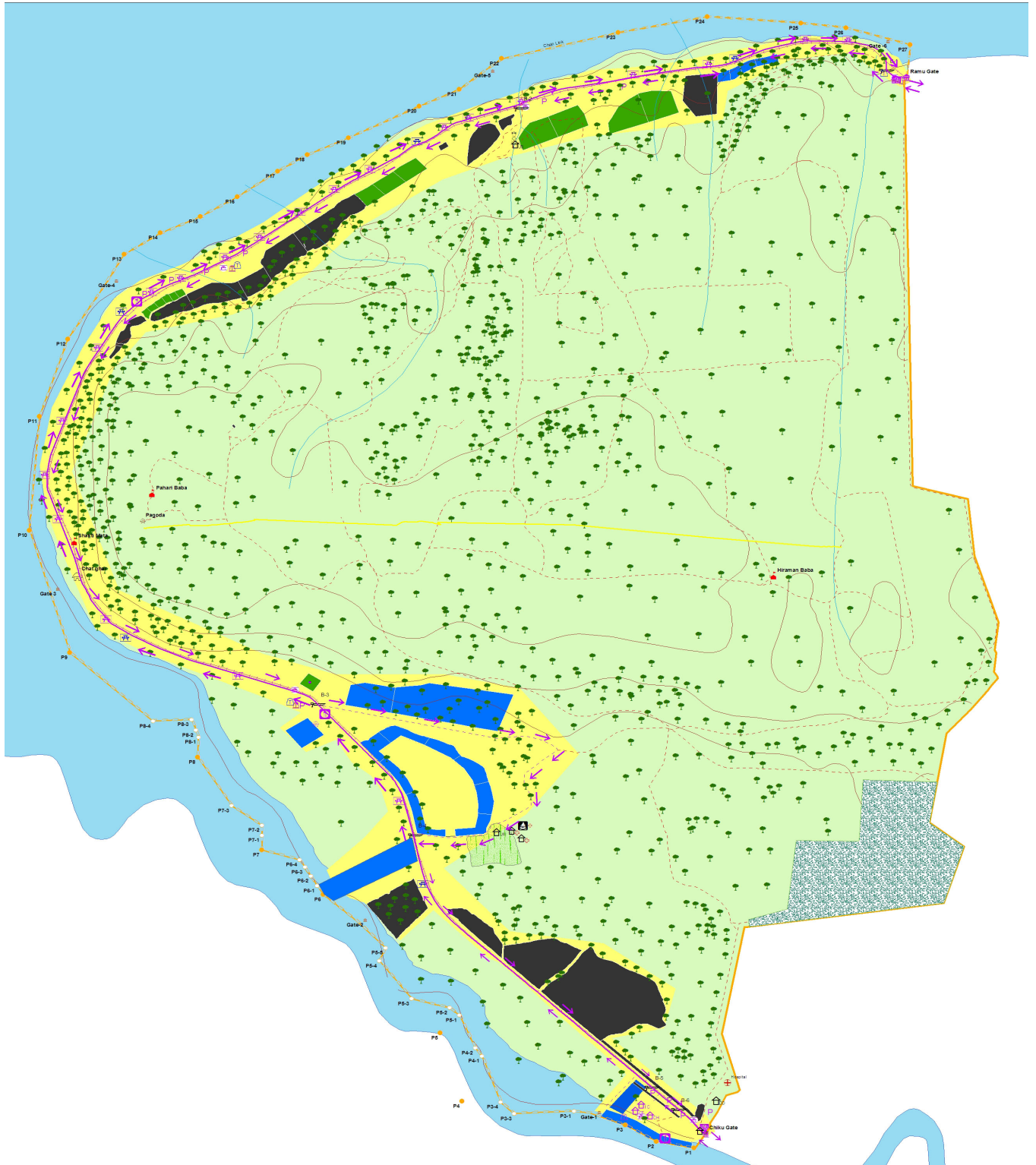
Scale: 1:3,500

LEGEND:

<ul style="list-style-type: none"> Boundary Wall Chain Link Fencing Main Pole Intermediate Pole Chain Link Gate Service Path Way Main Road Visitors Path way Electric Line Religious Place Pagoda Contour Line Tree Cover Fire Line Wireless Station Watch Tower Barrier 	<ul style="list-style-type: none"> BD Bear Display Enclosure PD Panther Display Enclosure LD Lion Display Enclosure TD Tiger Display Enclosure Bamboo Area Barseem production area Water Body Building <p>Status of Enclosures:</p> <ul style="list-style-type: none"> To be Modified New Proposed Existing To be Dismantled
--	---

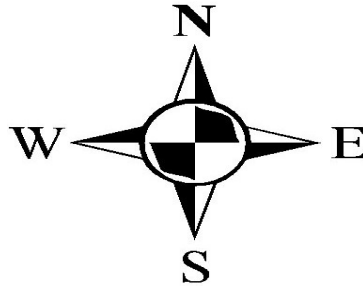
<p>Management Buildings</p> <ul style="list-style-type: none"> Director Office Unit Office Tourism Unit Office Safari Unit Office Management S O S Kitchen Meet House M M House Hospital Incinerator P M Room Pump House TH Tiger Housing PH Panther Housing BH Bear Housing LH Lion Housing 	<p>Visitor's Amenity</p> <ul style="list-style-type: none"> Tourism zone Tourist Circulation Route Interpretation Center Confrence Hall Open Theater Pagoda Sit Out Toilet Parking Drinking Water Cafeteria & Kiosk Snake Display / Interpretation Entery Gate Bicycle Stand
---	---

VAN VIHAR NATIONAL PARK BHOPAL (M.P.) Tourism Zone



VAN VIHAR NATIONAL PARK, BHOPAL

WATER MANAGEMENT



Scale: 1:3,500

LEGEND:

<ul style="list-style-type: none"> Boundary Wall Chain Link Fencing Main Pole Intermediate Pole Chain Link Gate Service Path Way Main Road Visitors Path way Electric Line Religious Place Pagoda Contour Line Tree Cover Fire Line TubeWell Well Water hole Sump well Drainage Dyke Pipe Line Over Head Tank Wireless Station Watch Tower Barrier 	<ul style="list-style-type: none"> Enclosure Bear Rescue Enclosure Lion Rescue Enclosure Tiger Rescue Enclosure Bear Display Enclosure Panther Display Enclosure Lion Display Enclosure Tiger Display Enclosure Bamboo Area Barseem production area Water Body Building <p style="text-align: center;">Status Of Enclosures</p> <ul style="list-style-type: none"> To be Modified New Proposed Existing To be Dismantled
--	---

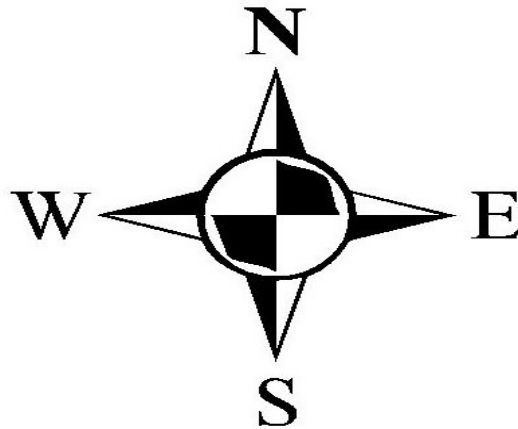
<p>Management Buildings</p> <ul style="list-style-type: none"> Director Office Unit Office Tourism Unit Office Safari Unit Office Management S O S Kitchen 	<p>Visitor's Amenity</p> <ul style="list-style-type: none"> Interpretation Center Confrence Hall Open Theater Pagoda Sit Out
---	---

VAN VIHAR NATIONAL PARK BHOPAL WATER MANAGEMENT







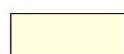







VAN VIHAR NATIONAL PARK, BHOPAL

VEGITATION MAP



1:3,500

-  Boundry Wall
-  Chain Link Fencing
-  Main Pole
-  Chain Link Gate
-  Electric Line
-  Contour
-  Blank rocky
-  Dense mixd
-  Grass land
-  Karangi Plantation
-  Low density
-  marshy land

VAN VIHAR NATIONAL PARK, BHOPAL

VEGETATION MAP

