

**Master Plan  
Small Category Zoo  
Rohtak  
(2016-17 to 2025-26)**



**Forest Department  
Haryana**

# **Master Plan**

**Small Category Zoo**

**Rohtak**

**(2016-17 to 2025-26)**


**Wildlife Division Rohtak  
Haryana Forest Department**


**Master Plan**  
**Small Category Zoo**  
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**Wildlife Division Rohtak**  
**Haryana Forest Department**

**CERTIFICATE**

It is certified that the Master Plan for Small Category Zoo Rohtak, has been drafted as per rules & guidelines of CZA, keeping in view of local requirements for efficient Zoo Management.

  
Conservator of Forest  
(Wild Life)  
Panchkula.

  
Divisional Wildlife Officer,  
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Panchkula.

Master Plan of Rohtak Zoo Haryana for 2016-17 to 2025-26 is approved in the 79<sup>th</sup> Meeting of the Technical Committee of the Central Zoo Authority held on 24<sup>th</sup> August, 2016 subject to the condition that the responsibility of mobilizing the financial resources for implementation of the Master plan will be sole responsibility of the forest Department, Government of Haryana.

  
(Dr. D.N. Singh)  
Member Secretary  
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21/8/16

## PREFACE

Rohtak is one of the historical towns of Haryana, It is very close to the National Capital Delhi and falls in the NCR Zone. It has maximum literacy rate in the state and people here are very enthusiastic about wild animals. Keeping in view the location and local needs, Haryana Forest Department has established a Mini Zoo near Tilyar Lake. The Zoo at present has limited facilities of tourist attraction but still it has a large number of visitors. Keeping in view, the importance of the place, location of the zoo and also the interest of the visitors, it is endeavour of the Department to upgrade the Zoo with latest landscape and also other facilities in accordance with guidelines issued by CZA, Govt. of India.

The present Management Plan for Small Category Zoo Rohtak aims at providing a congenial environment for housing the zoo inmates, creating latest infrastructure for generating awareness and education among the public for protection and conservation of wildlife. It includes construction of proper enclosures for herbivores, carnivores, primates, reptiles and birds. The Veterinary Hospital with modern facilities, quarantine and store etc. will support the health-care of the zoo inmates. Day to day care facilities will be upgraded for ensuring better health of wild animals.

Landscape with natural ambience has been planned to provide a better aesthetic environment in the Zoo. Modern Information and Interpretation Centre will be developed for creating awareness about wildlife education, in-house training and awareness camps. The Zoo Management Plan has been drafted with a holistic approach to ensure efficient Zoo management.

I sincerely express my gratitude to all the officers/officials of the Forest Department who contributed in formulating this Plan. I hope that this Plan document will act as a technical guide for the staff in execution, implementation and achievement of targeted goals. It will also act as a guiding document for future Management Plans.

**Dr. P.P. Bhoj Vaid IFS  
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Master Plan Rohtak Zoo

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## ABBREVIATIONS

CZA	Central Zoo Authority
JLN	Jawahar Lal Nehru
Km	Kilo metre
Ha	Hectare
Sq m	Square metre

**Part-I**  
**INTRODUCTION**

**PART-I**  
**CHAPTER-1**  
**INTRODUCTION**

**1.1 History**

Established in 1986, mini zoo at Rohtak is situated on National Highway-10 at a distance of 4 km from Rohtak City towards Delhi (Near Tilyar Tourist Complex). Initially, it had 16 aviaries, 04 enclosures and 01 deer park. The total area of the zoo was about 10.4 ha including 2.88 ha of deer park. Twenty five species of animals and birds were kept in the zoo.

Consequent to the closure of four mini zoos in Haryana, it was decided to enhance the capacity of Rohtak Zoo by expansion of its area. Tourism Department, Haryana handed over the possession of 44 acres, 1 kanal, 7 marlas (17.8 ha) of land for the development of this Zoo. Out of this 2.93 acres were acquired for widening of road by Haryana Urban Development Authority. The total area of the zoo at present is 16.69 ha. The foundation stone for renovation and expansion of Rohtak Zoo was laid on 1<sup>st</sup> September 2007 by Chaudhary Bhupender Singh Hooda, Hon'ble Chief Minister of Haryana.

As per the provisions laid down in the Wildlife (Protection) Act, 1972 (Amended), it is mandatory to obtain permission from Central Zoo Authority (CZA), Govt. of India for setting up a zoo. Accordingly, the permission was sought and the zoo was accorded the status of Mini zoo (small category zoo) on 14<sup>th</sup> August 2008 and as such CZA granted recognition to Rohtak Zoo as a small category zoo upto 31/01/2017 vide letter no F.No 19-93/92-CZA(86)(Vol.V) (M)/4103 dt. 07/01/2014.

**1.2 Objectives**

Mini Zoo, Rohtak was established with a view to achieve the following objectives:

- Conservation, education and awareness generation among general people and to develop a healthy relationship between animals and human beings.
- Display of animals and birds for education and for the amusement of visitors.
- To provide a safe abode to the rescued wild animals, confiscated, injured, maimed, orphaned and sick animals.
- To maintain gene pool of the endangered wild animals and birds of Haryana.
- To protect animals from immediate and impending danger.

- To provide and develop methods of rearing, maintenance in captivity, veterinary and other care.
- To conduct research on various aspects of ecology and behaviour of wild animals.

### 1.3 Physical Features

Mini Zoo, Rohtak lies between  $28^{\circ} 19'30''$  to  $29^{\circ} 6'$  N latitude and  $76 13'$  to  $76 58'$  E longitude. The soil is deep alluvial in nature and shows great variations in physical and chemical characteristics. The texture of the soil is clayey loam to sandy loam. All four sides of the zoo are demarcated by the features which are mentioned below:

East side	-	Baba Mastnath Temple Asthal Bohar
West side	-	Tilyar Tourism Complex & Lake
South side	-	National Highway -10
North side	-	Village Garhi

#### 1.3.1 Topography of the area

The area belongs to Indo-Gangetic alluvial plains. There is no perennial river flowing through the district.

#### 1.3.2 Geology, rock & soil

The geological structure of the district consists of alluvial (recent), loam (Bhangar and Nadrak) and coarse loam (dahar and chaeknote). In fact, the district is a part of Indo Gangetic alluvial plain ranging from Pleistocene to recent age. Aeolian deposits of sub recent age cap the plains. Rocks forming the basement are not seen anywhere in the area.

The sediments consist of sand, silt, clay, gravel and kankar. The soil texture varies from sandy to clayey having a heterogeneous composition with frequent calcium carbonate layers at shallower depths. The soil is coarse to fine loam in texture in most of the area. The zoo area has been partially affected by salinity, brackish waters and compact kankar layer below root zone.

There is no rocky out crop seen in the area. Shallow ground water is widespread.

### 1.3.3 Flora and Fauna

**Fauna:** There are 20 species of wild animals in captivity, out of which there are 06 mammals, 01 reptile and 13 avians. Out of these captive animals, 4 species belong to Schedule-1 of WLP Act, 1972 and 01 species belongs to Part II of Schedule II of Wildlife (Protection) Act, 1972 (amended). The list of captive animals has been given in Annexure-A. Apart from captive species other species like Porcupine, Hare, Monkey, Cat, Common Mongoose, Squirrel and Snakes etc have also been kept in the zoo. Common birds visiting the area are Parakeets, Woodpecker, Kingfisher, Mynah, Owl, Vulture, Peafowl, Black Partridge, Koel, Pigeon, Phakta, Dhanesh.

**Flora:** The predominant vegetation in the zoo is mesquite (*Prosopis juliflora*). Other tree species found in the zoo are *Neem*, *Ficus*, *species*, *Jamun*, *Jamoa*, *Siris*, *Mulberry*, *Eucalyptus*, *Kikar*, *Pongamia*, *Holoptelia*, *Largerstromia* etc. List of species found in the zoo has been given in the Annexure-B.

### 1.3.4 Climate, rainfall, season

Climate of the zoo is sub-tropical to semi arid. It is characterized by excessive variation in temperature and relatively low rainfall which has created adverse conditions for the establishment and growth of tree species. The area experiences three distinct seasons in a year. The winter season lasts from mid-November to mid-March, summer from mid March to end of June and finally monsoon from July to mid September. The zoo experiences extreme heat during summer and extreme cold during winter. Hot winds locally called as "Loo" blow during the month of May and June. The maximum temperature touches 47<sup>0</sup> C in May, June while it drops down to 1<sup>0</sup> C in December and January. May and June are the hottest months, whereas December and January are the coldest.

The rainfall is erratic in respect of volume, place and time. Bulk of the precipitation (about 80%) is received through south-west monsoon (June to September). Average annual rainfall is about 550 mm. The minimum mean relative humidity varies from 17% during April/May to 95% during Aug/Sep. During Monsoon, the humidity is generally between 60-85% and there is decrease in humidity during post monsoon season. April and May are usually dry months with relative humidity less than 20% in afternoon.

### **1.3.5 Approach**

Zoo is situated on National Highway No-10, near Tiliyar Tourist Complex within the municipal limits of Rohtak town, which is 6 Km away from Rohtak Railway Station and 4 Km away from Rohtak Bus Stand.

The Zoo is well connected by road and rail (broad gauge line) with Delhi, Chandigarh, Jaipur and other important cities. There is a good network of roads all along the periphery of the town. Nearest airport is at New Delhi which is only 75 Km away from the zoo. Other important zoos near to this zoo are National Zoological Park, New Delhi, M.C. Zoological Park, Chhatbir (Punjab) Mini Zoo at Pipli (Kurukshetra, Haryana) and Jaipur Zoo.

### **1.3.6 Demography of the surrounding area**

The area of zoo is surrounded by beautiful trees and lake of Tilyar Tourist Complex. It has become a tourist spot along with the other famous places of Rohtak city like Baba Mast Nath Temple Asthal Bohar, Lal Masjid, Mata Darwaja Temple, Durga Bhawan Temple, Gaukarna Tirth and Bangla Sahib Gurudwara.

### **1.3.7 Legal status of the land**

The legal status of the land at present is protected forest.

### **1.3.8 Sources of pollution, if any**

No evident source of water pollution exists in the area. There is some noise pollution due to nearby NH but it has been minimized by vegetation. A green belt already exists, which ultimately reduces sound as well as vehicular pollution. Plantation of dense foliage species is prescribed in this plan to check pollution.

## **1.4 Present ground situation**

Rohtak zoo has been recognized as small category zoo by Central Zoo Authority, Govt. of India Vide the Notification No. F.No 19-93/92-CZA(86)(Vol.V) (M)/4103 dt. 07/01/2014(Annexure-C). At present some of the houses and enclosures require renovation. Facilities for visitors is meagre at present. Parking space is not available and veterinary care is not upto the mark. Facilities will be improved during implementation of the Plan.

### **1.4.1 Layout**

The approved Layout Plan (by CZA) of Mini Zoo (Small Category zoo) Rohtak is attached in Annexure-7 showing existing and renovated structures, structures to be demolished



and further proposed during the plan period. This Master Plan of Mini Zoo (Small Category zoo) Rohtak has been prepared as the recommendation of CZA new Delhi.

#### **1.4.2 Description of various facilities**

##### **Enclosures:**

**Tiger:** At present tiger enclosure is slightly undersized (total area 1680 sqm) without kraal and exhibit area. Only one male animal has been housed in this enclosure. According to master layout of Rohtak Zoo, existing tiger enclosure is to be renovated i.e. two new kraals shall be added to it so that it can fulfil the norms set by CZA.

**Leopard:** The area of leopard enclosure is 620 sqm which is also under sized and without kraal facility. Only one male animal has been housed. The existing leopard enclosure is also to be used for primates as per master plan. A new leopard enclosure having 1500 sqm area and with kraal has also been constructed during 2013-14 with the grant in aid provided by CZA.

**Bear Enclosure:** Bear enclosure is slightly undersized without kraal and without animals for the long time and it is to be used for primates as per master plan.

**Crocodile enclosure:** Old enclosure has been demolished as new crocodile enclosure with an area of 2800 sqm has been constructed. Nine crocodiles have been housed in new crocodile enclosure. As per master layout plan, Ghriyal enclosure is to be constructed by partitioning of the existing crocodile enclosure by wooden logs.

**Deer Park:** Presently total area of Deer enclosure is around 6000 sqm with 55 sqm shed and small water pond. The area has three parts of almost 2000 sqm each housing two species viz black buck (3+1+1=5) and sambar (1+1=2). Indeed all species live together hence one enclosure is sufficient at present, but after re-organization of zoo at least two enclosures will be required one for deer and one for antelopes having area 4000 sq m and 2000 sq mt respectively. As the existing deer enclosure is already having one shed and water pond, and a new shed for shelter and water pond is to be constructed for the black buck or antelope enclosure. Due to construction of service road the height of existing fencing of antelope enclosure falls short, therefore, height of wall will be increased.

**Other Enclosures:** Other than above enclosures, zoo has 14 more enclosures for housing birds and primates. The details of these 14 enclosures along use is given below:

Number	Area	Captive animal
Seven	4.00 sq mt each	Birds
Five	4.50 sq mt. each	Birds(3), one langur, one Jackal
One	172 sq mt.	Closed aviary for water birds

**Boundary:** The boundary of the zoo has been protected with a boundary wall of 2.4 m height area except a little area which would be used for residential and office purpose. Chain link fence above wall exists in some area. Chain-link fence above wall is required to be fixed at non-existing places to check the entry by intruders in the zoo. The western side boundary wall is of low height. The height will need to be increased after construction of service road.

**Water availability:** One tube-well is functioning satisfactorily to supply water to animals and visitors. Water quality is potable. One more tube-well as alternate source is recommended.

**Electricity:** Power supply to zoo comes from Dakshini Haryana Vidhyut Vitran Nigam. Power cut is not a problem so far and sufficient electricity is available as per requirement of the zoo. Complete power line has been setup in the zoo. A supplementary new line is proposed for new enclosures alongwith a generator set in order to have solution for power cut problem.

**Sewerage:** At present all sewerage is disposed in a Nala lying on outskirts of the zoo towards south-east part of zoo along new constructed road. Slope of the area is towards south-east and a drainage line already exists.. Solid waste of Tiliyar Tourist Complex and Rohtak Mini Zoo are disposed on municipal site.

**Visitor Amenities:** Utilities/ Sanitary facilities for the visitors exist, but there is only one toilet which is not sufficient for the visitors therefore one more toilet is proposed to be constructed. More dust bins are required to be installed for putting garbage by the visitors. The ticket window is in the form of a small room and window and gate are towards entrance gate. The entry of gate and ticketing area will be improved and will be made attractive during the Plan period.

The present rate of entry tickets is Rs. 10/- per adult and Rs. 5/- per child between 5-12 years of age. The zoo remains open for public from sunrise to sunset on all days of week except on Monday.

Sitting areas are also available for the visitors with few benches, but these are insufficient. Benches of wooden logs will be installed at the required places. Sheds for visitors are not available for summer and rainy season, therefore, sitting areas with shed at least two will be constructed for the visitors.

A small lawn with natural old tree is near IWL office serving as resting shed.

Children park/flowers/garden/restaurant/gazebo/marquee like facilities have not been developed so far. One water cooler is available in the centre of the zoo, which is centralized.

More water facilities are required which have been proposed in relevant section and shown in master layout plan of the zoo.

**Parking:** Presently, there is no proper parking area for the zoo. There is a small area near entrance, outside the boundary of zoo, which is used as parking space and this area belongs to Tilyar Tourism Complex. New parking is required and planned (1000 sq mt) under this master plan.

**Veterinary:** Veterinary facilities for zoo animals and birds are provided by local veterinary doctors of Animal Husbandry Department. Doctor's room is not available. Lot of rescued (seized, captured, accidental) animals come to zoo but due to lack of permanent veterinary facility, it is difficult to manage and treat such animals/birds. A Veterinary Doctor on contract basis and a Veterinary Assistant along with special veterinary block is proposed in the Master Plan.

**Staff:** Divisional Wildlife Officer at Rohtak is responsible for all the wildlife activities in Rohtak Circle with the support of wildlife/ territorial staff of forest department. The office of DWLO is located in zoo itself. Staff responsible for management of the zoo are- two Wildlife Inspectors, two Wildlife Guards, seven group D staff and one Keeper. Earlier, three staff members were residing within the old residential campus of the zoo, which was demolished during land acquisition for road construction. However, a lot of space is available for construction of residential and office campus in the zoo. Wildlife Inspector has adequate administrative as well as financial powers to purchase food, medicines and other necessary things and to carry out emergency and normal repairs of animal enclosure as may be necessary for proper upkeep and care of zoo animals with proper approval of Divisional Wildlife Officer who is drawing and disbursing officer and responsible for proper utilization of allotted budget. The responsibilities of present staff are mentioned below:

- I Wildlife Inspector, Rohtak Zoo - Day to day administration, general upkeep and maintenance of zoo.

II	Wildlife Inspector, Rohtak (Development work) - for the developmental works within the zoo.	
III	Two Wildlife Guards	One for general upkeep and maintenance of zoo and another for developmental works with in the zoo.
IV	Group-D	6
V	Keeper	1

**1.4.3 Difficulties faced for the management in the past:**

At one point of time, it was decided to exchange some area of the zoo (near entrance) with tourism and in lieu of this area, some area in northern part was to be added to the zoo. Fortunately, it was not implemented. However 2.93 acre area was transferred for road widening. Water logging is generally faced during rainy season in northern part of the zoo. The area needs to be filled with sandy soil to avoid flooding calamity in the zoo. However, no such calamity has been recorded in past.

**1.4.4 Achievements**

No remarkable achievements were recorded in the zoo so far.

**PART-I****CHAPTER-2****PRESENT ARRANGEMENT APPRAISAL AND CONSTRAINTS****1.0 Present Condition**

This Zoo was set up in 1986. Formerly it had 16 aviaries, 4 enclosures and 1 deer park in it. Only a few additions have been made so far. At present twenty species of animals and birds have been housed in the zoo. Out of this six are mammalian species, one reptile and 13 species of birds. Present condition has been revealed in following sub sections. As per norms of CZA, some of additions and alterations are proposed and some more facilities have to be included in accordance of status of small zoo.

**2.1 Animal Section**

The existing animals stock in zoo is given below:(as on 31 March 2014)

Sr. No.	Class	Species of Animals /Birds	Male/Female/Young			Total
			M	F	Y	
1.	<b>Mammals</b>					
		Tiger	01	--	--	01
		Leopard	01	--	--	01
		Black Buck	03	01	01	05
		Common Langur	01	01	--	02
		Jackal	01	02	--	03
		Sambar	01	01	--	02
2.	<b>Reptiles</b>	Crocodile	03	02	04	09
3.	<b>Birds</b>					
		Common pariah kite	01	01	--	02
		Rosy Pelican	02	--	--	02
		Parakeet	03	04	--	07
		Barn Owl	04	05	--	09
		White Ibis	03	04	--	07
		Budgerigar	11	09	--	20
		Silver Pheasant	--	01	--	01
		Cockatiel	04	04	--	08
		Love Birds	01	01	--	02
		Japanese Quail	17	12	--	29

	Guinea Fowl	01	01	--	02
	Comb Duck(Nakta)	03	01	--	04
	Spot Bill Duck	01	01	--	02
	<b>Total</b>	<b>62</b>	<b>51</b>	<b>05</b>	<b>118</b>

Animal enclosures are not appropriate as per CZA guidelines. Reorganisation, refurbishing and construction are required as per guidelines of CZA, and they are hence proposed in future planning section.

Birds kept in existing eight aviaries having 4.5-5.0 sqm area which give appearance of cages, need to be improved with bigger ones. One water bird aviary is having area of 172 sqm is also present.

One such house is having single species of primate i.e. common langur and one is having three Jackals. All these ten enclosures will be demolished as per the proposed plan.

Large animals are fed once a day with their full diet as prescribed by veterinarian. Feed is provided for the mammalian species in the feeding cells on a sterile surface. However, the animals are not allowed to stay on a hard surface beyond feeding time. Feed for the animals living in social group is placed at many locations as necessary to safeguard weak and young animals remaining undernourished.

In aviaries Parakeets, Love birds, Japanese quails, Budgerigars, Cocktail, Guinea fowl, Silver pheasant, Common Pariah Kite, Barn Owl, Rosy pelican, White ibis, Spot billed duck and Comb ducks are kept in standard water birds aviary which is the only aviary (sized around 172 sqm) with small water body in it. More enclosures are required for more diverse species including a few for rescued/ orphaned/ sick/ accidental animals. As required, zoo also acts as rescue centre according to proposed plan.

### 2.1.1 Veterinary Section

Local veterinary doctor and staff of Animal Husbandry Department is available instantly on call basis only. No permanent veterinary staff is present inside the zoo. But health check up for the captive wild animals and birds are arranged on regular intervals through the local veterinary doctor.

### 2.1.2 Store Facility and Feed Supply

Storage facility and food supply system for animals and birds is good and adequate. Food for each animal species is given according to the feeding schedule as prescribed by Chief Wildlife Warden, Haryana. Good quality food is given after

proper examination of feed. Special feed is also given according to prescription at regular intervals. Facilities in store room are to be improved. The feed supplied is hygienic and of high quality. Appropriate feed supplements are given as per recommendation of Veterinary Surgeon (VS).

Carnivores are fed with buffalo meat with bone. Owl is fed with chicken. Green/Dry fodder as well as feed supplement including salt is given to ungulates within the enclosures.

### **2.1.3 Sanitation**

Cleanliness is maintained in the zoo for up keep of the general health of birds and animals in the zoo. Each enclosure and surrounding area is cleaned regularly left over feed and other wastes are taken out and burnt regularly. Existing drainage system is not proper, hence a good drainage system is proposed.

### **2.1.4 Maintenance Section**

Maintenance of the zoo and animals is satisfactory. In case of untoward situation, maintenance system is strengthened as per the requirement through outsourcing. The staff posted there is responsible for maintenance and up keep of the zoo and zoo animals. As of now, staff strength for maintenance is insufficient.

### **2.1.5 Security Section**

No separate security section is available. However, general security measures are taken up by the existing staff. Round the clock staff is provided for general security concerns. Till date, no such incidence of theft damage etc. has been reported. However, there is need for deployment of armed security guards during night for better protection.

### **2.1.6 Water Supply**

There is one tube-well established within the zoo for ensuring water supply in the zoo where animals are kept. Underground pipelines have been laid down for this purpose. However, new pipelines will be required for new enclosures in future. One more tube-well is proposed as an alternative solution in the proposed plan.

### **2.1.7 Disposal of solid waste and liquid water**

Solid waste is taken off regularly and burnt in safe place to keep the area neat and clean and to maintain hygiene conditions in all the enclosures. The leftover food items, animal excreta etc. are being removed regularly from each enclosure and disposed off in a manner congenial to the general cleanliness of the zoo. Open channels in the enclosures are available to remove the sewerage from houses and



enclosures. Main sewerage channel is not been constructed so far. However, sewerage plan is also proposed for improvement of the system.

### 2.1.8 Visitor Amenities

On an average one lakh visitors visit the zoo per year. A few numbers of sitting shades and iron benches are available for the visitors. There is a small children park with a few facilities for the amusement of the children. Toilet and drinking water facilities are available at only one point which are not sufficient.

Visitor facilities have to be strengthened and of course new road network/visitor path is proposed in the Plan. Other visitor facilities like Reception Centre, Paragola, souvenir shops, splash pool are proposed in this plan.

### 2.1.9 Lawn and Garden

There is no proper lawn in the zoo. Small garden was developed in 2007-08, where ornamental plants were planted but is not in good condition. The land is fertile and has enough scope for development. Two malis are required to be deployed for proper care of the landscape works in the zoo.

### 2.1.10 Use of water logged area

Northern part of the zoo has a low lying area which remains waterlogged in the rainy season. Salt leaching is a problem in this part. There is plan to develop an open bird aviary in this area.

## 2.2 Collection Plan

There was no collection plan for this mini zoo whatsoever, animal is acquired or received, it is housed in zoo. However, for future planning, collection plan is proposed in relevant chapter.

## 2.3 General Zoo Administration:

The Divisional Wildlife Officer, Rohtak is the overall in-charge of the zoo. The other staff strength of the zoo is eleven. The hierarchy and distribution of work is given below:

### Staff position is as below:

- |    |   |   |
|----|---|---|
| I  | Inspector (Wildlife), Rohtak Zoo                      | - Day to day administration, general upkeep and maintenance of zoo. |
| II | Inspector (Wildlife), Rohtak<br>(Developmental works) | - for the developmental works within the zoo.                       |

- |     |                     |   |
|-----|---------------------|---|
| III | Two Wildlife Guards | - One for general upkeep and maintenance of zoo and another for developmental works within the zoo. |
| IV  | Group-D             | - 06  |
| V   | Keeper              | - 01  |

Present staff strength is quite insufficient to manage zoo in proper way.

#### **2.4 Research**

No research related to captive conservation & management of wild fauna has been conducted so far either by this department or any other academic institute. Management is trying to associate zoo with State Veterinary and Animal Husbandry University at Hissar.

#### **2.5 Conservation Breeding**

Conservation breeding is neither planned so far nor CZA has granted approval or for listed this zoo for any conservation breeding programme. Future research and conservation breeding programme will be conducted with the consultation of experts.

#### **2.6 Education and Awareness**

Animals and birds are exhibited for education and awareness. Other than exhibits, there are signboards depicting valuable information about the animals. Students from the schools and colleges are encouraged to visit the zoo. No proper signages, place of fixing signage or messages have been exhibited in this zoo. Hence, this is proposed in the Plan.

#### **2.7 Important locations of the Zoo**

Location of Rohtak Zoo is very important as it is situated at National Highway-10 on the eastern side of Tilyar Lake and tourism complex is located nearby. A complete tourist complex of Haryana Tourism Development Corporation, with facilities of lodging, boarding, restaurants, parking, boating and other recreational activities, are available near the zoo.

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**Part-II**

**FUTURE PLANNING**

**PART -II**

**CHAPTER -1**

**FUTURE OBJECTIVES**

**1.0 Future Objectives**

The basic objective of the management of zoos is to create awareness about conservation of wildlife. The main objectives are defined below:

- Conservation Education related to wildlife.
- To provide housing and upkeep to the orphaned animals of endangered species rescued from the wild.
- Exhibit and display of wild animals and birds in naturalistic conditions.
- To create awareness among public by organization of exhibitions and seminars.
- To collect and correlate the scientific data on the biology, behaviour and health care of various species of wild animals housed in zoo and use of same in the future management of the zoos.
- To Conduct research on the behavioural aspects of the wild animals in captivity.

**1.1 Mission Statement**

Rohtak Zoo has an area of 16.69 ha and the task is to re-furbish to make zoo to create housing facilities for maximum species with minimum stress to animals. The mission is to make this zoo an attractive and knowledgeable place where visitors repeatedly haul towards the place.

- Evaluation of the existing infrastructure, facilities, resources and services.
- Re-distribution and re-organization of area to re-construct and or re-furbish different enclosure.
- Creation of new enclosures with all facilities including enrichment.
- Visitor amenities addition and improvement.
- Making the exhibit attractive.
- New human resource management planning for future.

**1.2 Theme**

The theme of display will be as follows:

- i. Mixture of the broad taxonomic and behavioural theme would be best theme for this zoo.
- ii. This theme is adopted because of suitability local/ regional animals to the climate. Some species (i.e. Hippopotamus) will not be made part of thematic display. Under the present status of management of zoo taxonomic displays with few specialized display on bio-geographic/ecosystem themes is practical approach. Rescue section will be off-exhibit area.

### 1.3 Strategies

- Fostering sound techniques of husbandry of wild fauna in captivity.
- Education of people by organisation of nature camps, exhibitions, seminars, painting competitions and educational tours.
- Exhibition of wild animals and birds in bigger enclosures.
- Supporting and participating in scientist research in collaboration with Veterinary University and medical colleges.
- Providing satisfying experience to the visitors by way of providing public amenities, better landscape and keeping hygienic enclosures for animals, development of shady walking trails/tunnels, providing resting places, literature related to wildlife and many more.

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**CHAPTER-2**  
**FUTURE ACTION PLAN**

**2.0 Future Action Plan**

Future action plan deals with three major components:

- Construction of new enclosures to get new animals.
- Utilization of total area to provide best possible amenities to zoo inmates and visitors.
- Development of zoo in accordance with CZA guidelines

Work plan for various sections is given below:

**Animal Section**

- ❖ Renovation of tiger enclosure by addition of two new kraals and enhancement of area over 2000 sqm to house more than two animals. In this way the old tiger enclosure shall be utilized in a proper way.
- ❖ Construction of new lion enclosure over an area of 2000 sqm. The new lion enclosure shall be constructed in place of proposed tiger enclosure as it was approved in earlier lay out master plan.
- ❖ Construction of new bear enclosure covering an area of 1500 sqm to house a pair of sloth bear.
- ❖ Construction of new jackal and hyaena enclosure over an area of 500 sqm for each species.
- ❖ Refurbishing of the existing tiger enclosure, panther enclosure, bear enclosure according to guidelines of CZA and as per master layout of Rohtak Zoo. The existing enclosures do not fulfil the space requirement for the aforesaid animals. After modification, the existing tiger enclosure after addition of two kraals is to be used for the tiger. The existing bear enclosure after modification is to be used for primates i.e. two pairs of Bonnet Macaques shall be placed in this enclosure. Existing panther enclosure shall be used for Common Langur .
- ❖ To develop sewerage system for drainage of waste water coming from enclosures.
- ❖ New Gharial enclosure on an area of 1400 sqm with large water pond and sandy bank for basking will be constructed within the existing crocodile enclosure by partition with wooden logs.
- ❖ Crocodile enclosure on an area of 1400 sqm area with large water pond and sandy bank for basking.

- ❖ Construction of new turtle and tortoise enclosures will be developed in an area of 200 and 125 sqm respectively with water pond of appropriate size and depth.
- ❖ Herbivore enclosure or deer/antelope enclosure will be divided into two parts to avoid inter-species fights. Antelope area (black buck) is 2000 sqm and deer enclosure (for sambhar and spotted deer) is 4000 sqm with one water pond and resting shed in each enclosure.
- ❖ Nocturnal house will be constructed over an area of 200 sqm.
- ❖ Construction of new aviaries over an area of 1360 sqm to house the species such as love bird, golden pheasant, silver pheasant, parakeets, common pariah kite, rose ringed parakeets, barn owl, japanese quail, guinea fowl, cockatils and budgerigar etc.
- ❖ Enough greenery would be created in and around the enclosures to enrich and to give natural environment to the inhabitants.
- ❖ Construction of open aviary with mound near waterlogged area (7000 sqm) by planting tall trees on mounds.
- ❖ New aquarium will be constructed over an area of 100 sqm near nocturnal house.

#### **Visitor Section**

- ❖ Three new water points shall be constructed at various places in the zoo along with the visitor path to provide proper water facility for the visitors.
- ❖ Parking will be constructed on 1000 sqm area with omission for future expansion.
- ❖ Administrative block area will also be shaped and will be 4000 sqm on the southern part of the zoo.
- ❖ Big lawn with several sitting chairs/benches and two peragolas will be constructed over an area of 1100 sqm each at different places.
- ❖ The peragola near the crocodile enclosure will be supported by splash pool.
- ❖ A water fountain with sitting facility will also be added for attraction at some suitable place.
- ❖ One new toilet (for ladies and gents) will be constructed near the turtle enclosure for the facilities of visitors.
- ❖ New visitor path will be constructed with some loops. No stair or level change in visitor path to help physically challenged person.
- ❖ The green area in between the visitor path from bear enclosure to deer park and peragola will be developed as children park and lawn.

- ❖ Plantation of tall trees at appropriate places.
- ❖ A new interpretation centre with knowledgeable signage and exhibit boards to display animals history. A souvenir shop and central lobby will also be constructed near the interpretation centre.

#### **Veterinary and Rescue Section**

- ❖ Hospital around 1100 sqm supported by out patient ward, quarantine, post mortem room, small lab, freezers and generator set facility will be developed.
- ❖ Procurement of rescue equipments, medicines and drugs.
- ❖ Refurbishing and renovation of existing guard hut to convert into store. Kitchen will be constructed near veterinary hospital to facilitate easy inspection of food by the veterinarian.
- ❖ Rescue centre will be constructed over an area of about 350 sqm where animals rescued from the wild will be given shelter for a temporary period if needed and subsequently shifted elsewhere or released in the wild back.

#### **Miscellaneous**

- ❖ Permanent veterinary doctor along with Veterinary Assistant will be deployed on contract basis.
- ❖ Staff strength will be increased either by deployment of departmental staff or by out-sourcing agencies on contractual basis (i.e. security).
- ❖ The land not being used for animal enclosures or public pathways would be beautified using indigenous species of plants and plantation of flowering and evergreen shrubs along with some landscaping.
- ❖ One more tube well will be installed as an alternative water source.
- ❖ Animal signs, reference maps, warning signs, conveniences, finding way, some do's and don'ts type signs etc. will be fixed.
- ❖ Plantation of long rotation local species like neem, papri, kadam etc. would be done along the boundary wall of the zoo in two/three rows to provide enough buffer zone. Tall saplings some has plants and climbers will also be planted in the enclosures to give a homely feeling to the animals in the zoo. Plantation will be done in between the enclosures to remove undue stress due the presence of other animals.
- ❖ A lay out map/guide map will be drawn on a scale of 1:1000 showing all the features like enclosures, water bodies, natural pond, toilet, water pond, service



path, visitor path, parking area, water and electric supply lines and all visitor amenities shall be portrayed in the map.

- ❖ Another map showing the existing livestock will be displayed near the guide map.
- ❖ Ticket counter is just adjacent to the entry path. The main gate shall be renovated to give it big and gorgeous shape. The staff residential quarters will be separated by 2.4 m high wall.

## 2.1 Collection plan

There is no fixed animal collection plan for the mini zoo. Collection planning is the most important issue of this plan and hence, it will be described in the planning phase of this master plan.

### Proposed animal collection

Animal collection will depend upon availability of the area. Present animal collection is very poor and number of big mammals particularly carnivore are limited to two only (one tiger and one panther). To enhance and upgrade the capacity of the zoo, procurement of some attractive species is required. This will make zoo more attractive, educative for the visitors.

However, present and proposed animal collection for the future is given below:

### Present Animal Collection

Sr. No	Class	Species of Animals /Birds	Male/Female/Young			Total
			M	F	Y	
1	<b>Mammals Schedule-I</b>					
		Tiger	01	--	--	01*
		Leopard	01	--	--	01
		Black Buck	04	01	--	05
	<b>Schedule –II Part-II</b>	Jackal	01	02	--	03
	<b>Schedule-II Part-I</b>	Common Langur	01	01	--	02
	<b>Schedule-III</b>	Sambhar	01	01	--	02
2.	<b>Reptiles Schedule-1</b>	Crocodile	03	02	04	09

3.	<b>Birds</b>	Common pariah kite	01	01	--	02
		Rosy Pelican	02	--	--	02
		Parakeet	03	04	--	07
		Barn Owl	04	05	--	09
		White Ibis	03	04	--	07
	5	Budgerigar	11	09	--	20
	6	Silver Pheasant	--	01	--	01
	7	Cockatiel	04	04	--	08
	8	Love Birds	01	01	--	02
	9	Japanese Quail	17	12	--	29
	10	Guinea Fowl	01	01	--	02
	11	Comb Duck(Nakta)	03	01	--	04
	12	Spot Bill Duck	01	01	--	02
	13	<b>TOTAL</b>	<b>63</b>	<b>51</b>	<b>04</b>	<b>118</b>

\* Tiger was old and died of his natural death during the year 2015.

### Proposed Animal Collection

Following animal collection is proposed on the upgradation of the zoo:

Sr. No	Species	Present stock of animals as on 31 March-2014				Animal to be procured			Grand Total
		Mammals	Male	Female	Child	Total	Male	Female	
1	Tiger	01*	--	--	01	01	01	02	02
2	Lion	--	--	--	--	01	01	02	02
3	Panther	01	--	--	01	--	01	01	02
4	Sloth bear	--	--	--	--	01	01	02	02
5	Jackal	01	02	--	03	--	--	--	03
6	Hyaena	--	--	--	--	01	01	02	02
7	Black buck	03	01	01	05	--	02	02	07
8	Sambar	01	01	--	02	01	01	02	04
9	Spotted deer	--	--	--	--	02	02	04	04
10	Common Langur	01	01	--	02	01	01	02	04
	<b>Reptiles</b>								

1	Crocodile	03	02	04	09	--	--	--	09
2	Gharial	--	--	--	--	02	02	04	04
3	Tortoise	--	--	--	--	02	02	04	04
4	Turtle	--	--	--	--	02	02	04	04
	<b>Birds</b>								
1	Common pariah kite	01	01	--	02	--	--	--	02
2	Rosy Pelican	02	--	--	02	--	02	02	04
3	Parakeet	03	04	--	07	01	--	01	08
4	Barn Owl	04	05	--	09	--	--	--	09
5	White Ibis	03	04	--	07	01	--	01	08
6	Budgerigar	11	09	--	20	--	--	--	20
7	Silver Pheasant	--	01	--	01	01	--	01	02
8	Golden Pheasant	--	--	--	--	01	01	02	02
9	Cockatiel	04	04	--	08	--	--	--	04
10	Love Birds	01	01	--	02	--	--	--	02
11	Japanese Quail	17	12	--	29	--	--	--	29
12	Guinea Fowl	01	01	--	02	--	--	--	01
13	Comb Duck(Nakta)	03	01	--	04	--	01	01	05
14	Spot Bill Duck	01	01	--	02	--	--	--	01

\*Tiger was old aged and died of his natural death during the year 2015 so a new pair is proposed to be procured.

It is too early to decide from where the animals would be procured. CZA website is having the data base regarding surplus/extra animals available in other zoos of India. Construction of new houses/ refurbishing of old ones and many other related works will take at least one to two years in completion. Procurement of the animals will be done only after completion of proposed works.

## 2.2 Population size

Population of animals in zoo depends on the availability of the area. However, area proposed is more than the prescribed considering the future health of the animals. Minimum basic requirements of the mammalian species has been taken into consideration i.e. pair species/herm species / herd /group/ herd/ pack/ isolated/ single. Many other species i.e. birds/ aquatic/reptile will also quantify by their habits and environment.

### **2.3 Justification of keeping the endangered species**

All endangered species need to be provided special care and protection. To make people aware and sensitize future generation, conserving endangered species becomes mandatory. Conservation of the gene pool is other point of view for keeping these species in captivity.

A few more justifications for keeping endangered species are as below:

- Plenty of space is available.
- Past records to keep endangered species is good.
- Technical staff is available from Forest Department.
- Exhibit value.
- All possible facilities are available.
- Conservation and awareness value.

### **2.4 Layout plan of the zoo (Map 1:1000)**

Approved layout map of Mini Zoo (Small Category Zoo), Rohtak is attached as annexure on 1:1000 scale. Map depicts all the major structures with specification. Minor details below a particular scale could not be revealed in the map.

Layout map has been drawn on a scale of 1:1000 because area of the zoo is 16.69 ha only. On the same scale, one meter contour interval map has also been drawn. Since the area is flat and hardly, therefore, there are two to three contours in the area. Existing features like water bodies, natural drainage have been properly depicted. Direction, visitor circulation path, service path, amenities, site for disposal of carcass, water and electricity supply lines, solid and liquid waste disposal, approach road to the zoo and paths, parking arrangement, gates and barriers, administrative buildings {zoo office, ticket counter, veterinary hospital, rescue centre}, store kitchen, housing colony, roads have also been depicted in the map.

Other than the above features, the layout map showing existing animal enclosures (Black colour), enclosures to be modified (green colour) and the enclosures that need to be refurbished after demolishing the old structure (red colour), have also been marked. Proposed new enclosures are shown in blue colour.

## **2.5 Proposal to address the inadequacies**

The zoo has a lot of potential for development. All the shortcomings shall be removed during the plan period and the zoo will be developed as model zoo in small category zoos of the country.

## **2.6 Shortcoming identified.**

- Lack of staff
- Lack of proper advertisement.

## **2.7 Appraisal Report**

- ❖ Deer Park is enclosed by fencing over 20% of the Zoo area. This area will be cut down and divided into two parts to keep deer and antelope species separately to avoid any kind of fighting among the animals. However, the extra area i.e. old fodder farm behind the enclosure shall be developed as green area.
- ❖ Tiger will be kept in existing tiger enclosure after its renovation and addition of two nos. new kraals to form new standard outdoor open enclosure as the existing one is without kraal.
- ❖ As the existing leopard and bear enclosure are having smaller area than the prescribed and due to lack of proper squeeze cage and kraal, the new bear and leopard enclosure are to be constructed over an area of 1500 sqm each. Moreover new leopard enclosure has been constructed accordingly. However, the old enclosures of, leopard and bear are to be used for primates after refurbishing and renovation as per approved layout master plan.
- ❖ There is no enough vegetation in some animal enclosures. Refurbishing such enclosures includes shifting of primate as stated above and bird enclosures towards northern part. Space vacated by demolishing cubicles will be used for parking, Interpretation Centre, ticketing, souvenir shops, pergola etc.
- ❖ Separate signs in Hindi and English are placed at roof height which are not readable to the visitors. The signage will be prepared and fixed at the readable height.
- ❖ Although there is stand-off barrier just next to enclosure, it will be concealed by planting live hedges.

- ❖ The roofs of all the aviaries are made of wire mesh covered by Kana grass to make it thermal proof. Such enclosures will be thatched regularly to reduce heat in the summer.
  - ❖ At present there is small, mixed water birds aviary. However, open aviary with mounds is proposed.
  - ❖ Entrance gate will be re-constructed.
  - ❖ Parking is proposed.
  - ❖ New Gharial enclosure shall be constructed by bifurcating the existing crocodile enclosure.
  - ❖ New enclosures for small mammals like jackal, Hyaena and reptiles like turtle, tortoise and aquarium are proposed.
  - ❖ New Interpretation centre is proposed.
  - ❖ Re-organizing signage/circulation path/service path/chain link on boundary wall up gradation of boundary wall at some prominent places also proposed.
  - ❖ One more tube well proposed.
  - ❖ Generator room/ generator/ fire extinguisher/rescue equipment are proposed and existing inspector, wild life office may serve the purpose for generator room. / *Air Equipment room*
  - ❖ Out sourcing of security is proposed.
  - ❖ Kitchen/Store/quarantine/incinerator/hospital rescue centre are proposed.
- Above are the some of the short comings which are to be removed through this master plan.

### **2.8 New Activities.**

New activities will be taken in second phase when first phase will be complete.

- Modern interpretation centre.
- A big entrance with large display boards.
- Battery operated carts (four seater) and toy trains (future planning after commencing all proposed works).

**CHAPTER -3**  
**PERSONNEL PLANNING**

**3.0 Personnel Planning**

Managerial level staff is sufficient in present condition. Number of subordinate staff will have to be increased for proposed zoo setup specially the keeper and the security.

**3.1 Cadre strength**

Current cadre strength is as below;

- One Inspector Wildlife.
- One Sub-Inspector Wildlife.
- Two Wildlife Guards.
- Supporting Staff (Group D) Staff -6
- Keeper-1
- Vet. Officer on call.

Total=11

**Proposed cadre strength**

- Divisional Wildlife officer-1
- Inspector Wildlife- 01
- sub Inspector Wildlife- 01
- Wildlife Guards (In-charge animals)- 04
- Keeper- 10 Nos.
- Mali- 2 Nos.
- Security (out source) 5+5=10 (Day and Night) 10 no. armed personal for protection of the zoo round the clock on regular contract basis.
- Vet. Officer on contract-One
- Civil engineer/ drafts man for executing all new construction works properly on deputation/contract basis- One.

Total=31

Keepers – for animals keeping, maintenance, hygiene, record keeping, guiding visitors and other essential activities of the zoo.

**3.2 Plan including phasing of their deployment**

All activities/enclosure proposed will be completed in three years of time. In first year, supporting staff will be required and in subsequent second year two wildlife guards will be required. In third and final year, complete strength will be required. Within three

years, all new constructions and activities which are proposed under the Plan will be completed.

### **3.3 Outsourcing**

**Security:** Five security persons during day and five during night are required through outsourcing. Departmental staff is not possible for deployment for security due to scarcity of staff.

**Technical Support:** Experts will be invited during construction and running phase of the zoo to get better technical support on enclosures, houses, stand-off barriers etc.

**Interpretation:** Help of technical consultants will be taken for development of Interpretation Centre.

**Veterinary:** Veterinary experts having expertise in the field of wildlife will be employed by out-sourcing to get better health care and management for captive animals. Rescue and rehabilitation expert will also be invited for training of the staff. To get better management, health care, visitor amenities, enclosure enrichment and other development works, consultancy from experts will be taken.

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## **CHAPTER- 4 DISASTER MANAGEMENT PLAN**

### **4.0 Disaster**

Rohtak Mini Zoo has so far not experienced any major disaster problems. However the zoo should be always ready to meet any eventualities. Disasters often strike without any notice or in very short notice. The major disasters are mostly of natural calamities, which are identified hereunder:

- Law and Order break down
- Heavy rains causing water logging/ Floods
- Massive fire
- Abrupt stoppage of Food Supply.
- Entry of stray animals inside the zoo
- Escapes of Zoo animals
- Outbreak of Epidemic diseases
- Bomb Threat
- Earthquake
- Cyclones

### **4.1 DISASTER MANAGEMENT TEAM**

The efficient management of the disaster will be utmost priority in the zoo management. The well planned and timely attended disasters would minimize the damage which is possible through a team constituted for the purpose. The following is the team constituted as disaster management team having the jurisdiction over all units of the Zoo to address various kinds of disasters which are mentioned in the plan or otherwise.

1. Divisional Wildlife Officer, Team leader
2. District Wildlife Warden, Member
3. Veterinary Doctor, Member
4. Inspector, Wildlife (Zoo Incharge), Member
5. Range Forest Officer (Territorial) Member
6. Wildlife Guard

#### **4.2 Flow of information**

The concerned animal keepers or official in-charge of the place where such disaster take place shall immediately report to the Inspector Wildlife. The Inspector Wildlife, in-charge of the Zoo, immediately reports to the Divisional Wildlife Officer for immediate action. The Divisional Wildlife Officer after the receipt of such information shall immediately spring into action to combat and also to take stock of the situation.

The team shall immediately convene an emergency meeting to plan and mitigate the problem.

The disaster management team shall look into the following by conducting a regular meeting at least once in quarter and three meetings compulsorily in a year under the chairmanship of team leader. The Divisional Wildlife Officer will have annual meeting to reveal the meeting in the 1st month of financial year.

- 1) Assessment of risk.
- 2) Likely impact and damage likely to be caused. Falling of trees, flooding of enclosures, snapping of power lines, breaking of water supply, breaking of enclosures, barriers, and escape of animals. In most cases it shall affect the life of animals, their safety and security besides that of the zoo staff and visitors.
- 3) What shall be the line of command for facing such exigencies and alternate command module if first one fails.

- 4) Equipments needed to speed up restoration measures.
- 5) Training to the staff to meet such exigencies and operate such equipments.
- 6) Periodic mock drills to stimulate preparedness among staff and to test the working of the equipments, which shall be kept maintained all times.

In such an event, the zoo should be in a position to assess the damages and immediate steps to be taken.

- Assessment of risk
- Likely impact and damage likely to be caused. Falling of trees, flooding of enclosures, snapping of power lines, breaking of water supply, breaking of enclosures, barriers and escape of animals. In most cases it may affect animals, visitors and causes damage to property. Security system adopted may be breached and animals may escape zoo thus resulting in panic among public.
- To prevent spreading of epidemic.
- The guidance and command for facing such exigencies and also alternative command if the first command fails.
- Equipments needed to speed up restoration measures.
- Training to the staff to meet such exigencies and operate such equipments.
- Fire tracing need to be done.
- Security personnel to be alerted and mobilized by wireless communication.
- Power chain saws need to be kept handy
- Trapping cages should be kept ready.
- Suitable vehicles to be kept ready to meet any eventualities.
- Tranquilizing equipments and chemicals to be kept ready.
- Ambulance van should be requisitioned.

- First Aid arrangements to be ensured.
- Volunteers, Police personnel and other helping hands to be utilized.
- Periodic mock drills to stimulate preparedness among staff and to test the working conditions of equipments which shall be kept maintained at all times.
- To safeguard visitors from the area.
- Doctors and Hospitals need to be informed and the phone, fax, mail to be kept in access.

#### **4.3 Equipments required**

- Tractor/ Trolley
- Axes / Spades / Crowbars/ Shovels/ Spade
- Diesel operated Saw/ Power Chain Saw
- Ropes (Steel / Nylon)
- Manual Saws
- Diesel Pumping sets
- HAM Radio
- Guns with ammunitions
- Water tankers and hose pipes
- Kerosene / Gas lights / Candles and match box
- Training equipments
- First Aid kits
- Generator sets
- Torches and Batteries
- Rope / Iron ladders
- Spare Chain linked mesh, angular iron, poles, nut and bolts with tools for using them

- Hooters and whistle for alert and signaling
- Consumables like Diesel, Petrol, batteries

**4.4 Support from outside agencies:** We may have to seek support from the outside agencies since all the disasters cannot be handled with the zoo personnel. It is absolutely essential to maintain good rapport with Government and non Government agencies. Their contact numbers, address, Fax or E-Mail ID should be kept ready for pressing their service.

- Deputy Commissioner of the District.
- Superintendent of Police
- Reserve Police Battalion, Sunaria
- Police Control Room
- Fire Brigade
- Disaster Management Unit of the State
- Uttari Haryana Bijli Vitran Nigam
- Civil Hospitals/ Veterinary Hospital
- Ambulance
- Volunteers / NGOs.
- Veterinary Doctors
- National Dairy Research Institute, Karnal
- National Institute of Technology, Kurukshetra
- Department of Irrigation & Flood Control
- District Disaster Management Committee, Rohtak

## **4.5 Major Disasters**

### **4.5.1 Law and order break down**

If there is break down due to law and order problem, alternative to be planned for supply of feeding articles, and strike by employees etc. as per the advice of the District Collector/ Superintendent of Police, in order to evacuate the visitors in case of emergencies, second gate is being constructed on the northern and eastern side of the zoo. This gate is being used as service gate apart from using as the exit gate for visitors. To avoid any accidents and rush at the main gate, only visitors would be allowed to enter the Zoo.

### **4.5.2 Flood Control Strategies:**

The floods can be anticipated, so stress is to be laid for the preventive measures as per saying "prevention is better than cure". So far as Rohtak district is concerned, worse affected has been the Rohtak town itself, because its location is Bowl type i.e., flood water has to be dewatered by providing three no. lifts from the heart of the city. Rohtak area receives very moderate rain fall ranging from 500 mm to 650 mm annually. Flood has not been reported so far in the zoo but water logging and small floods are very frequent. The Zoo is located near JLN canal and Tiliyar Lake hence possibility of flood cannot be ruled out. Although, for proper drainage of storm water from Zoo area proper drainage line has been installed but all precaution will be taken to avoid flood.

#### **4.5.2.1 Flood-** The flood management strategy is as follows-

Pre flood management-

- Marking of previous year water logging areas.
- Cleaning of all channels/ Outlets

- Collection and removal of Garbage, litter and small wood from water routes and channels.
- Cleaning of all culverts and cause ways.
- Cleaning of inlets and outlets of lake and of all enclosures.
- Purchase of one motor boat and equipments
- Purchase of medicines.
- Storage of food materials at least for one week.
- • Alternate arrangement for safe drinking water. ◦
- Lifting of water from dry moats.
- The map will be maintained by the officer in charge of control room.
- Channels / culverts /cause ways will be cleared before the onset of monsoon
- Every year. (before 15th June ) The works will be done by the Inspector, Wildlife, In-charge and monitored by Divisional Wildlife Officer.

**During flood management** – The following strategies will be adopted during flood conditions:

- All weathers forecast will be kept in mind.
- For the regular watch over flood and animals more staff will be deployed.
- Zoo control room will have regular contact with District flood control room to have information about the possibilities of flood to do the needful.
- The diesel generator and Pipelines will be placed on place.
- Regular monitoring over supply of food.
- The motorboat will be ready to supply food and other things.
- Water pumps and generators will be procured to dewatering of flood water in nearby drains and JLN canal.

- The help of Irrigation and Drainage department will be taken during flood situation.
- Outer protection wall as well as inner walls constructed towards JLN canal and Tiliyar Lake will be regularly watched.

#### **Post flood management-**

- Drying of dry moats.
- Pumping of flood water from wet moats and refilling it.
- Drying of enclosures.
- Spray of lime in the moats, kraal and enclosures.
- Malaria treatment.
- Security and Health audit - Monitoring of assets and health of zoo animals
- Repair of infrastructure affected during flood.
- Treatment of sick zoo animals.

#### **4.5.3 FIRE CONTROL:**

Fire is not very frequent in the Rohtak Zoo but the possibilities of catching fire in zoo cannot be ruled out.

##### **4.5.3.1 Possible sources of forest fire-**

- Short circuiting in electric lines spreading all over the zoo.
- Jump fire from outside the zoo as many habitations and adjoining Agricultural fields located around the zoo.
- Fire due to wrong practices by the visitors like throwing of Bidi/ Cigarettes.

##### **4.5.3.2 Fire management-**

- Clearing fire lines along the roads, Zoo rail path and litter so collect will be deposited in the compost pits there only.
- Removal of fire hazards from the enclosures and moats.



- Pre fire seasons fire management works.
- Display of information regarding do's and don'ts
- Strict checking will be done at entry gate so that visitors cannot enter in zoo with match box/ lighter etc.
- Clearing rank vegetations along the roads.
- Purchase fire fighting tools like Bucket, fire rack, axe, spade, fire extinguishers water storage tanks etc.
- Lighting fire in the zoo will be strictly prohibited in any case except burning of carcass.
- The External power lines will be cut by the local Sub Station only on the request of Emergency coordinator.
- Wire cutters will be purchased for use in emergency.
- Ladders of different size, hard hats, torches, boots, etc. will be purchased in sufficient number and kept for ready use during emergency.
- Fire lines be cut near the animal enclosures
- Adequate supply of water for sprinkling on the animals and for dousing the fire be
- made available
- Measures be taken that the crowns of the trees of the animal enclosures are not caught fire. It is very much necessary in the Zoos where there is a lot of vegetation. As a precautionary measure lopping of the trees should be done at regular intervals.

#### **4.5.4 Abrupt stoppage of Food Supply**

An alternative method of supply of food to the animals is planned by providing stored food in emergency situation. The zoo storage is planned to provide deep

fridge facility which can store sufficient quantity of meat, chicken and fish to feed the carnivores. Further the enhanced facility in the store would accommodate the storage of emergency feeding articles like canned food, grains, and cereals etc., required for emergency situations. The sufficient quantity of hay, paddy straw, wheat and rice bran are also adequately stored to meet the emergencies.

#### **4.5.5. ESCAPE OF ANIMALS FROM ENCLOSURES:**

There is always a chance that animals can escape from their enclosures. The possibilities of escape of animals from their enclosures can be minimized by proper maintenance of enclosure and continuous watch over them and necessary precaution being taken. Accordingly the causes of escape, precaution to check them and protocol to be followed during escape are-

##### **4.5.5.1 Causes of escape**

Causes resulting to the escape of animals –

- Unclosed or partial closing of doors.
- Improper lock.
- Breaking of moat wall.
- Soil erosion in the moat.
- Breaking of fence in the enclosures.
- Fallen trunk of trees.
- Leaning trees and drooping branches of trees,
- Water filling in the dry moats.
- Excess water in the water filled moat.
- Weak and unstable case



- A gate, door or slide giving entrance to an enclosure must be so designed that an animal in the enclosure cannot lift the gate or door off its hinges or a slide off its tracks; or unfasten the security device such as locks

#### **4.5.6 Controlling escape of animals**

The following are the identified measures to prevent animal escapes

- The trees around the enclosures are to be trimmed regularly to avoid jumping the moat and enclosures to escape.
- The doors and sliding gate system be always kept in good condition with lock and chain
- The peripheral path of the safaris and the moat be regularly maintained
- The Chain link fencing mesh checked annual basis and repaired as and when required.
- All animal furrows along the perimeter boundary and enclosure will be plugged.
- All possible escape routes will be checked by the keepers and chaukidars regularly.
- The zoo is to be made well equipped to deal with the emergency. The necessary equipment's will be purchased as per the availability of budget.
- Readiness of the equipment's-
- All the cages and snares/traps will be kept painted, cleaned and oiled.
- Tranquilization kit and medicines will keep ready by zoo doctor.
- The equipment's will be examined every month by the Vet doctor/ DWLO.

- The exhibit area of all the enclosures will be flooded once in a month to check furrows/tunnels made by the housing animal or free moving animals (reptiles and rodents etc.)

#### **4.5.7 Measures to control the Stray Cattle/ Dog menace**

The adequate measures are to be taken to control the entry of stray cattle into the zoo by following:-

- All the vents, drainages and even to the entry gates, the cattle proof gratings to be fixed.
- Any stray dogs are noticed in the premises of zoo, safari and rescue centre are to be captured and release outside.
- Measures are to be taken to stop feeding by the visitors.
- The zoo animal feeding has to be done in the closed feeding kraal.
- The left out food from the visitors to be salvaged immediately.
- Visitor food courts are to be closed with proper barricading and provided with dustbins.

#### **4.5.8 EPIDEMICS**

This is generally occurs during monsoon in the month of August and September and when the season remains wet due to rain and cloudy weather causing conducive environment for the flies, vectors to breed and spread the infections. The aged carnivore animals will also have the problems during this season.

##### **Measures to control the epidemics**

The zoo has following preventive measures to control the epidemics.

- To cut and clear all weeds and vegetation around the holding houses to a radius of 20m.
- Fumigate the surroundings against the flies and vectors.

- To ensure the proper cleaning and drying of the floor of the holding houses. Antiseptic deodorants are preferred to clean the floor to get rid off contamination.
- Medicines will be kept ready for the known epidemic disease for administration when such noticed. Veterinary unit is always remains alert during the wet season.
- Care will be taken to make the premises free from leftovers of meat and other eatables.

#### **4.5.9 Evacuation of the visitors:**

The zoo will have a detailed written protocol for evacuating visitors in hours of every crisis. There should be provision of emergency exits and a public address system to communicate to the visitors, the routes to be followed to get out of the zoo in the event of any disaster/ crisis. Zoo security guards should ensure that visitors do not panic and get out of the zoo safely through the routes earmarked for the purpose.

#### **4.5.10 Bomb threat**

There is no history of bomb threat in this zoo. However, bomb threat will be referred immediately to the nearest police station and no visitor will be allowed to touch or tamper the object supposed to be dangerous/ posing threat.

#### **4.5.11 Earthquake**

Rohtak district falls in Zone IV of Earthquake Hazard Map of India. Earthquake is one of those natural disasters where man, machine and science have failed to forecast the occurrence and intensity of the earthquake. Therefore, preventive measures for ensuring safety of building, structures, communication facilities, water supply lines, electricity and life are of utmost priority. The help of district disaster management plan will be taken to tackle the situation. Soil type analysis before construction can help to accommodate on weak soils by adopting requisite safety

measures in design. Engineered structures, Architectural and engineering inputs together improve building design and construction practice. Proper, earthquake-resistant techniques for securing indoor fixtures, machinery and furnishings within proposed structures will be used during construction to minimize the 'risk of damage or injury from toppled objectives.

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## CHAPTER-5 CONTINGENCY PLAN

### **5.0 Contingency Plan**

Zoo should be well equipped and should be in the state of total preparedness to tackle with any contingency that may arise in the zoo and nearby area. There should be a detailed written plan of operation for dealing with each contingency with the responsibility of each zoo personnel clearly spelt out. Shortage of resources should be no excuse for any negligence in implementation of the plan. Absence of particular officer should not lead to any delay in tackling the situation.

There should be always an alternate decision taking authority in the absence of the officer designated for decision making. The contingencies that may arise in the zoo from time to time are briefly summarized as below.

#### **5.1 Animal rescued from wild.**

There are no large carnivores/ ungulates that may pose serious threat to the security of local people in the forest area adjoining the zoo. There are no thick forest/compact forests near the zoo. Therefore, the possibilities of rescue operations for wild animals are minimal. Therefore, no special plan is required for the purpose. Tranquilizing gun and cages maintained for dealing with escape of zoo animals could be used for the purpose.

#### **5.2 Escape of animals from enclosures**

The best strategy for dealing with the escaped zoo animals from the enclosures is to exercise constant vigilance to ensure that the doors, shutters, locks, enclosure barriers are of appropriate specifications and are strong enough to keep the animal confined in the enclosure. The latch and lock of the feeding cells in primate enclosures and bear enclosure should be beyond the reach of the animals.

Any weak point/gaps identified during the inspection should be repaired/ replaced immediately. All staff responsible for checking should be acquainted with minor repairing and must have minimum set up of repairing tools.

Constant vigil should be kept on the burrow made by zoo animals particularly jackal, mongoose, porcupine to check that there is no likelihood of these animals escaping out through these burrows. Deeper foundation of parapet/ toe wall would be of much use in safeguarding such events.



Chain link barriers, doors, windows should be painted and repaired once every year to prevent rusting and snapping and the weakened part should be replaced immediately.

Despite all precautions, some animals may escape from the animal enclosures due to various circumstances. These animals have to be captured on priority basis and put in enclosures strong enough to contain them. The equipments required to capture the animal are:

- (i) Tranquilizing gun
- (ii) Blow gun.
- (iii) Jab sticks
- (iv) Squeeze cage
- (v) Cages of different sizes
- (vi) Transport cages/crates
- (vii) Nets, and ropes
- (viii) Plastic Face Mask
- (ix) Poles, ropes
- (x) Gunny bags and plastic bags
- (xi) Big tarpaulin/sheet/canvas sheet

All rescue operation should be carried out in the physical presence of veterinary officer and animal curator.

### **5.3 Monkey and dog menace**

#### **Monkey Menace:**

1. The best safeguard to eliminate monkey menace is feeding all the zoo animals in feeding cells/ kraals covered from the top and putting the left-over food by animals in the bins having top cover and lock. The eating houses and restaurant shall also put the garbage/ half eaten food in the bins covered from the top. The visitors should not be allowed to take out eatables out-side the restaurant/ cafeteria.

2. Monkey population, can be managed by capturing and should be vasectomised/ tubectomised and treated for tuberculosis. Once these are infection free, they can be released in the nearby forests.

#### **Dog Menace:**

- (i) Proper maintenance of the boundary fence and immediate repair of breach, if any, is an effective measure for controlling the dog menace.
- (ii) Security staff at gate duty should exercise strict vigilance to prevent dogs from entering the zoo.

- (iii) Dogs, if any, entering the zoo should be captured on priority basis and handed over to the NGOs/ Municipal Corporation.
- (iv) Any dog which is sick and poses threat of infection to zoo animals should be eliminated.
- (v) Visitors should not be allowed inside zoo with their pets.

#### **5.4 Arrangement of food in case of strike (non supply by Contractor).**

The contractor either may fail to supply food for animals because of public strike, which break down or natural calamity or decide to not to supply for some legal dispute, non finalization/ expiring of contract, non availability of food item in the market or by any other reason. The food in such cases can be made available for the animals by:

- (i) Maintaining buffer stock of perishable food items for one or two days in deep freeze.
- (ii) Authorizing animal curator to procure the food supply from open market by making cash payment.

#### **5.5 Snake bite**

Snake bites are not uncommon in the area. It is must to keep anti-snake venom ready in the stock. The following points may be taken care.

- (i) Maintaining enough stock of anti-snake venom at the zoo.
- (ii) Carrying the patient to hospital without loss of time after injecting the anti-snake venom.
- (iii) Providing first aid including tying of bands.

#### **5.6 Visitors getting injured/ visitors falling inside enclosure**

##### **Visitors getting injured by zoo animals:**

- (i) Putting signboard on every enclosure to keep away from the enclosure.
- (ii) Providing effective stand-off barriers as per CZA guidelines.
- (iii) Keeping first aid kit/ box readily available at zoo hospital for attending and providing the patient preliminary care.
- (iv) Transport the patient to nearest hospital, if so required.

##### **Visitor falling inside the animal enclosure:**

It would not be very difficult for the security staff to check that no visitor climbs the parapet wall of the enclosure. However, in spite of all the precautions, any visitor jumps to any animal enclosure, the keeper shall attempt to take the animal into the feeding cells by putting food there. If this trick does not work, the animal would be chemically immobilized. Mean while, attempt would be made to keep the animal away from the visitor by shouting,

pocking with bamboo stick and throwing stones. Visitor would be taken out of the enclosure with the help of ladder/ropes. The animal curator would be physically present at the site during rescue operation.

### **5.7 Fighting among animals**

Effort should be made to drive back the fighting animals to the feeding cells. If that does not work, chemical immobilization can be resorted to. Fighting amongst some species is part of breeding behaviour. Zoo personnel would take care that they do not disrupt the breeding activity of the animals in their enthusiasm to stop fighting between the animals. Possibilities of infighting amongst animals can be minimized through gradual and planned introduction of a new animal in a group and only keeping such animals in a group which compatible.

In species like Barking deer and Primates, killing of sub-adult reaching adulthood by the dominant male are quite high. Such sub adults would be removed from the group and kept in kraals.

The security staff shall inform the Director/Curator about any such incidents occurring at night.

### **5.8 Epidemics**

Zoo shall ensure that all the animals in the zoo and the animals in the adjoining villages are provided prophylactic treatment including vaccination as per advice of the zoo veterinarian.

The diseases requiring vaccination are:

#### **Ungulates:** (i) Anthrax

- (iii) Foot and mouth disease
- (iv) Hemorrhagic Septicaemia
- (v) Trypanosomiasis
- (vi) Babesiosis

#### **Carnivores:**

- (i) Feline Panleucopenia
- (ii) Canine distemper
- (iii) Rhino tracheitis
- (iv) Feline calcivirus

As soon as some animal shows symptoms of an infectious disease, it should be removed immediately from the group and kept in isolation ward for treatment. Mass vaccination and panic herding the animal at a time should invariably be avoided. In case of doubt that some

animal has died of anthrax, no post-mortem should be done and the carcass buried/burned intact, to safeguard against other animals/keepers/vets being infected by anthrax.

**5.9 Breakdown of power supply**

There should be facility of power back up in shape of silent generator set for ensuring non-stop power supply to administrative block, zoo hospital and the pump house.

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**CHAPTER-6**  
**CAPACITY BUILDING**

**6.0 Capacity Building****6.1 Plan to Upgrade skills of zoo staff, interaction with other zoos-regional cooperation.**

Up gradation of the knowledge and technical skills of the zoo personnel is most crucial for effective functioning of the zoo. Training of all zoo personnel, therefore, has to be ongoing/ continuous process. There would be weekly/ monthly in house seminars. Zoo should also organize workshops using expertise available with other zoos in the country. The zoo personnel should be sent to the training programmes and workshops being organized for different level staff under the support of the Central Zoo Authority.

In the inception stages of the zoo, the Director, Zoo Ranger/Inspector, Zoo Supervisor and Animal Keeper should visit some of the well managed zoos of the country. It would be appropriate that the senior officers should also visit some best managed zoos to apprise themselves with the recent concepts of zoo management and planning. A workshop may be organized at Rohtak inviting few zoo experts of the country. The zoo veterinarian should have at least 15 days attachment with well managed zoos. Education Curator may undergo 15 days attachment course with Centre for Environment Education, Ahmedabad and the Research and Monitoring Officer may go for 15 days attachment with WII, Dehradun.

Zoo personnel handling animals should be ensured against communicable disease and injury. They should be paid appropriate amount as risk allowance.

A system of periodic evaluation should be put in place and the performance of each personnel should be reflected in Annual Confidential Report.

Incentive for up gradation of educational qualification/ technical skills should also be provided.

Constant visits of eminent people working in zoo related disciplines in veterinary colleges/ Agriculture universities should be arranged to give hands on training to zoo staff.

**Amenities to zoo staff**

- All the zoo personnel are expected to stay at zoo site where there are no civic amenities like shopping place, school hospital and recreation facilities. There should be a designated bus at zoo for the zoo staff which may be moving to various locations in the city at fixed time. The bus may also be used by the visitors at a rate fixed by Zoo Management Authorities.

- The unemployed wives of zoo subordinate staff may be encouraged to form cooperative society to run a departmental store in the residential colony and a souvenir shop within the zoo complex. They may be trained as zoo guides.
- Zoo should have a visiting doctor who sits in the dispensary in the residential colony for 3-4 hours daily and provide preliminary health care and vaccination facilities.
- A small guest house/ community centre may be provided in the residential colony where zoo personnel could have social and religious functions.

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**CHAPTER-7**  
**E-GOVRNANCE**

E-governance is a vital tool for bringing efficiency, transparency and reliability in zoo management. The Director, Dy. Director, Animal Curator, Education Curator/IWL and the Research and Monitoring Officer, would have knowledge of computers, which will be networked with a LAN and the data in the entire computer would be accessible to every officer. Important data on management of the zoo, the inventory of animals, details of housing facility, feeding schedule, births and deaths of animals, causes of death would be made accessible on the website of the zoo. Scientific or behaviour and biology of important animal/bird species and their conservation status would also be made available on the website.

Visitors should have the facility of booking their ticket at home through on-line booking system. The zoo ticketing system should also be computerized.

All the zoo workers may be given smart card through which time of their arrival and departure from the zoo may be entered in the computer. CCTVs could be provided for monitoring the visitor movement in the zoo and the functioning of security guards and zoo guides.

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**CHAPTER-8**  
**BROAD BUDGET ANALYSIS**  
**[FOR IMPLEMENTATION OF THE PLAN]**

**8.0 Budget****Broad Implementation of the Plan**

This master plan is a document for modernization cum reorganization of the Rohtak Mini Zoo. Keeping more species, creation of new enclosures, houses, kraal, developing visitor amenities, interpretation centre, parking and many others require budget to complete them. Indeed this plan will be completed in next three years. First two years would be the construction phase and the third year would be for execution (animal transport and housing in the zoo) year. The broad budget analysis for items proposed in this plan is given below:

**8 (A) Construction and Development**

**Construction and Development for this plan is as follows:-**

Sr. No	Particulars of Work	1 <sup>st</sup> year Rs. in Lakh	2 <sup>nd</sup> year Rs. in lakh	3 <sup>rd</sup> year Rs. in lakh	Total Cost Rs. In Lakh.
1	Renovation and Fencing of boundary wall	32.00	60	28	120.00
2	Const. of a zoo office(DWLO/IWL Office)	---	50.00	--	50.00
3	Const. of Nature interpretation Centre	---	50.00	--	50.00
4	Const. of New Lion enclosure	---	200.00	--	200.00
5	Renovation of existing Tiger Enclosure	--	30.00	--	30.00
6	Renovation of deer(sambhar and Spotted deer) Enclosure	--	20.00	--	20.00
7	Renovation of Antelope enclosure	--	20.00	--	20.00
8	Const. of Jackal enclosure	30.00	--	--	30.00
9	Const. of Hyaena enclosure	32.00	--	--	32.00
10	Const. of Bear enclosure	----	75.00	--	75.00



11	Const. of Gharial Enclosure	--	45.00	--	45.00
12	Const. of Tortoise enclosure	---	20.00	--	20.00
13	Const. of Turtle enclosure	---	20.00	--	20.00
14	Const. of bird aviary 10 nos.	130.00	--	--	130.00
15	Parking area development wall and roads	--	30.00	--	30.00
16	Const. of staff quarter(IWL(2)+WLG(2)+GD(6)	---	55.00	55.00	110.00
17	Const. of store room & Kitchen	---	20.00	--	20.00
18	Establishment of separate quarantine and Veterinary care unit	---	40.00	--	40.00
19	Const. of drinking water facility (2 no)/ toilet(1 no)/ sitting etc for visitors & installation of one additional tubwell.	12.00	8.00 Two no. drinking water facility & providing one additional Tube- well.	--	20.00
20	Const. of New metalled road including cause way and culverts peragola etc. as and where necessary (visitor path approx. 2 KM)	---	35.00	35.00	70.00
21	Construction of service path 1.5 KM.	----	40.00	40.00	80.00
22	Renovation of existing bear and panther enclosure to be developed as primate enclosure	---	30.00	45.00	75.00
23	Const. of educational signage	--	5.00	5.00	10.00
24	Const. of procurement and transportation of new collections	--	--	20.00	20.00
25	Establishment of sitting facilities	--	--	10.00	10.00
26	Const. of new entry gate, ticket counter	--	40.00	--	40.00

	with all facilities				
27	Digging of lake for formation of open aviary with mounds	--	--	25.00	25.00
28	Const. of Interpretation kiosk	--	25.00	--	25.00
29	Installation of submersible tube well with pipeline and pump house etc	--	20.00	--	20.00
30	Dev. of Drainage & Sewerage system.	73.00	27.00	--	100.00
31	Const. of Treatment & Post mortem room	--	20.00	--	20.00
32	Laying of new 3 face electric lines for zoo	--	20.00	--	20.00
33	Const. of aquarium for education and interpretation	--	20.00	--	20.00
34	Const. of Centre Lobi, souvenir shop for Interpretation centre	--	20.00		20.00
35	Const. of Nocturnal house	--	25.00	--	25.00
36	Const. of Rescue centre for injured wild animals/birds	25.00	--	--	25.00
37	Const. of Generator Room	--	5.00	--	5.00
38	Const. of trap cages/ transport cages and cost of rescue equipment	--	15.00	--	15.00
39	Landscaping	--	20.00	--	20.00
40	Costly Of Procurement and transportation of new collections	--	--	10.00	10.00
41	Const. of Graveyard	--	--	5.00	5.00
42	Computer System, provided with CCTV camera etc.	--	--	15.00	15.00
43	Establishment of Vet. Hospital with all necessary equipments	--	25.00	35.00	60.00
	<b>Total</b>	<b>334.00</b>	<b>1135.00</b>	<b>333.00</b>	<b>1802.00</b>

All the above works will be completed in a period of three years.

## 8 (B) Day to Day Maintenance (Figures in Rs. Lakhs)

Sr No	Particulars of work	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year	6 <sup>th</sup> year	7 <sup>th</sup> year	8 <sup>th</sup> year	9 <sup>th</sup> year	10 <sup>th</sup> Year	Total Cost
1	Supply of fodder and quality food materials to the zoo animals per year	27.00	30.00	33.00	36.00	40.00	44.00	48.00	53.00	58.00	65.00	434.00
2	Bush & grass cutting	1.50	1.70	1.90	2.10	2.30	2.50	2.70	2.90	3.20	3.30	24.10
3	Cost. of veterinary care of zoo animals per year and awareness activities celebration of birth day of zoo inmates, celebration of zoo day.	4.00	4.40	4.80	5.30	5.80	6.30	6.90	7.60	8.30	9.15	62.55
4	Cost of day to day cleaning and disposal of garbage & other per year	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	14.50
5	Cost of power supply bill	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	14.50
6	Repairing of capturing cages, water supply pipeline& equipments etc.	1.00	1.10	1.20	1.30	1.40	1.50	1.60	1.70	1.80	1.90	14.50
	<b>Total</b>	<b>35.50</b>	<b>39.40</b>	<b>43.30</b>	<b>47.30</b>	<b>52.30</b>	<b>57.30</b>	<b>62.40</b>	<b>68.60</b>	<b>74.90</b>	<b>83.15</b>	<b>564.15</b>

**CHAPTER-IX**  
**ANNEXURE TO THE MASTER PLAN**

- 1. Inventory (Stock position)**
- 2. Animal Collection Plan**
- 3. Proposed Area Utilization Plan**
- 4. Present Staff Position**
- 5. Flora & Fauna**
- 6. List of Buildings (Other than enclosures)**
- 7. Approved Master layout Plan and Contour map of Mini zoo Rohtak  
(1:1000)**

**Annexure-I**  
**INVENTORY (STOCK POSITON)**  
**PRESENT ANIMAL COLLECTION**

**Existing Animals stock in Mini Zoo(Small Category Zoo)Rohtak as on 31 March - 2014**

Sr. No	Class	Species of Animals /Birds	Male/Female/Young			Total
			M	F	Y	
1	<b>Mammals Schedule-I</b>					
		Tiger	01	--	--	01*
		Leopard	01	--	--	01
		Black Buck	04	01	--	05
	<b>Schedule –II Part-II</b>					
		Jackal	01	02	--	03
	<b>Schedule-II Part-I</b>					
		Common Langur	01	01	--	02
	<b>Schedule-III</b>					
		Sambhar	01	01	--	02
2	<b>Reptiles Schedule-1</b>					
		Crocodile	03	02	04	09
3	<b>Birds</b>					
	1	Common pariah kite	01	01	--	02
	2	Rosy Pelican	02	--	--	02
	3	Parakeet	03	04	--	07
	4	Barn Owl	04	05	--	09
	5	White Ibis	03	04	--	07
	6	Budgerigar	11	09	--	20
	7	Silver Pheasant	--	01	--	01
	8	Cockatiel	04	04	--	08
	9	Love Birds	01	01	--	02
	10	Japanese Quail	17	12	--	29

	11	Guinea Fowl	01	01	--	02
	12	Comb Duck (Nakta)	03	01	--	04
	13	Spot Bill Duck	01	01	--	02
		<b>Total</b>	<b>63</b>	<b>51</b>	<b>04</b>	<b>118</b>

- **Tiger was Old aged and died of his natural death during the year 2015.**

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**Annexure –II**  
**FUTURE ANIMAL COLLECTION PLAN**  
 (Small Category Zoo Rohtak)

Sr. No	Species	Existing stock of animals as on 31 March-2014				Animal to be procured (Future collection)			Grand Total
		Male	Female	Child	Total	Male	Female	Total	
	<b>Mammals</b>								
1	Tiger	01 *	--	--	01	01	01	02	02
2	Lion	--	--	--	--	01	01	02	02
3	Panther	01	--	--	01	--	01	01	02
4	Sloth bear	--	--	--	--	01	01	02	02
5	Jackal	01	02	--	03	--	--	--	03
6	Hyeana	--	--	--	--	01	01	02	02
7	Black buck	03	01	01	05	--	02	02	07
8	Sambar	01	01	--	02	01	01	02	04
9	Spotted deer	--	--	--	--	02	02	04	04
10	Common Langur	01	01	--	02	01	01	02	04
11	Rehsus Monkey	--	--	--	--	02	02	04	04
12	Bonnet Monkey	--	--	--	--	02	02	04	04
	<b>Reptiles</b>								
1	Crocodile	03	02	04	09	--	--	--	09
2	Gharial	--	--	--	--	02	02	04	04
3	Tortoise	--	--	--	--	02	02	04	04
4	Turtle	--	--	--	--	02	02	04	04
	<b>Birds</b>								
1	Common pariah kite	01	01	--	02	--	--	--	02
2	Rosy Pelican	02	--	--	02	--	02	02	04
3	Parakeet	03	04	--	07	01	--	01	08
4	Barn Owl	04	05	--	09	--	--	--	09

5	White Ibis	03	04	--	07	01	--	01	08
6	Budgerigar	11	09	--	20	--	--	--	20
7	Silver Pheasant	--	01	--	01	01	--	01	02
8	Golden Pheasant	--	--	--	--	01	01	02	02
9	Cockatiel	04	04	--	08	--	--	--	04
10	Love Birds	01	01	--	02	--	--	--	02
11	Japanese Quail	17	12	--	29	--	--	--	29
12	Guinea Fowl	01	01	--	02	--	--	--	02
13	Comb Duck(Nakta)	03	01	--	04	--	01	01	05
14	Spot Bill Duck	01	01	--	02	--	--	--	01

\*Tiger was Old aged and died of his natural death during the year 2015 so a new pair is proposed to be procured.

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**ANNEXURE-III**  
**AREA UTILIZATION PLAN**  
**Area utilization for proposed animal collection.**  
**SPECIES AND AREA**  
**(ZOO AREA-16.69 HACT.)**

Sr. No	Species (enclosures)	Area (sq mt)	No. Of animals (max.)	Remark
1	Tiger	2000	1 pair	
2	Lion	2000	1 pair	
3	Leopard	1500	1 pair	
4	Sloth bear	1500	1 pair	
5	Spotted deer	4000	2 pairs	
6	Sambar		2 pairs	
7	Antelope	2000	7 Nos.	
8	Jackal	500	3 nos.	
9	Hyeana	500	1 pair	
10	Primate(Two enclosures) renovated	1600 Approx.	2 pairs each of common langur, rhesus monkey and bonnet monkey.	Total 6 pairs.
11	Open aviary with mounds	7000	NA	
12	Mixed water birds aviary.	170	15 Nos.	
13	Birds aviary 10 nos.(terrestrial birds)	1360	80 Nos.	
14	Crocodile	1400	5+4=9 Nos.	
15	Gharial	1400	2 pair	
16	Turtle	200	2 pairs	
17	Tortoise	125	2 pairs	
18	Rescue centre	350	NA	

19	Incinerator	350	NA	
20	Quarantine	600	NA	
21	Vet. Hospital	850	NA	
22	Store/ kitchen	900	NA	
23	Admin. Block premises	4000	NA	
24	Parking	1000	NA	

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## Annexure- V

## LIST OF FLORA

## A. Existing plant species found within the Rohtak Zoo

## a. Angiospermic flora (Herb, Shurb, Tree, Climber)

Sr. No	Botanical Name	Local Name	Family
1	<i>Vachelia leucophloea</i> <i>Syn. Acacia leucophloea</i>	Nimber, Reru, Ronj	Fabaceae
2	<i>Acacia modesta</i>	Phulahi	"
3	<i>Acacia nilotica var. indica</i>	Kikar	"
4	<i>Acacia senegal</i>	Khairi	"
5	<i>Acacia tortilis</i>	Israeli Kikar	"
6	<i>Ailanthus excelsa</i>	---	Simaroubaceae
7	<i>Ailbizia lebbeck</i>	Kala Siris	Fabaceae
8	<i>Albizia pocera</i>	Safed Siris	Fabaceae
9	<i>Azadirachta indica</i>	Neem	Meliaceae
10	<i>Bauhinia variegata</i> <i>Phanera variegata</i>	Kachnar	Fabaceae
11	<i>Bonbax ceiba</i> <i>Syn. B. malabaricum</i>	Simbal	Malvaceae
12	<i>Butea monosperma</i> <i>Syn. B. frondosa</i>	Dhak, chichra, Palas	Fabaceae
13	<i>Callistemon lanceolatus</i>	Bottle brush	Myrtaceae
14	<i>Cassia fistula</i>	Amaltas	Fabaceae
15	<i>Cassia siamea</i>	---	Fabaceae
16	<i>Cordia dichotoma</i>	Lasura	Boraginaceae
17	<i>Crataeva nurvaea</i> <i>Syn. C. religiosa</i>	Bar	Capparaceae
18	<i>Dalbergia sissoo</i>	Shisham	Fabaceae
19	<i>Delonix regia</i> <i>Syn. Poinciana regia</i>	Gulmohar	Fabaceae

20	<i>Dispyros cordifolia</i>	Bistendu, Keindu	Ebenaceae
21	<i>Eucalyptus hybrid</i>	Safeda	Myrtaceae
22	<i>Ficus bengalensis</i>	Brah, Bargad	Urtiaceae
23	<i>Ficus glomerata</i>	Gullar	Moraceae
24	<i>Ficus infectoria</i>	Pilkhan	Moraceae
25	<i>Ficus palmate</i>	Anjir	Moraceae
26	<i>Ficus religiosa</i>	Peepal	Moraceae
27	<i>Holoptelia integrifolia</i>	Papri, Kanju	Moraceae
28	<i>Populus deltoides</i>	Poplar	Salicaceae
29	<i>Mangifera indica</i>	Aam	Anacardiaceae
30	<i>Morus alba</i>	Tut	Urticaceae
31	<i>Pongamia pinnata</i>	Papri	Fabaceae
32	<i>Prosopis juliflora</i>	Mesquite	Fabaceae
33	<i>Syzygium cuminii</i>	Jamoa, Jaman	Myrtaceae
34	<i>Leucaena leucocephala</i>	Subabul	Fabaceae
35	<i>Alstonia scholaris</i>	Alstonia	Apocynaceae
36	<i>Tamarix guavava</i>	Guava	Anacardiaceae
37	<i>Tamarix articulata</i>	Frash	Tamaricaceae
38	<i>Abutilion indicum</i>	Pathaka	Malvaceae
39	<i>Acacia jacquemontii</i>	Babul	Fabaceae
40	<i>Adhotada vasica</i>	Bansa	Acanthaceae
41	<i>Aerva javanica</i>	Bul	Amaranthaceae
42	<i>Calotropis procera</i>	Aak	Asclepiadaceae
43	<i>Cannabis sativa</i>	Bhang	Utricaceae
44	<i>Capparis decidua</i>	Kair	Capparaceae
45	<i>Datura stramonium</i>	Dhatura	Solanaceae
46	<i>Nerium oleander</i>	Kaner	Apocynaceae
47	<i>Trianthema portulacastrum</i>	Santhi	Aizoaceae
48	<i>Tribulus alatus</i>	Bhankri	Zygophyllaceae
49	<i>Withania somnifera</i>	Asgandha	Solanaceae

50	<i>Cuscuta reflexa</i>	Akash bel	Convolvulaceae
51	<i>Tinospora cordifolia</i>	Giloh	Menispermaceae
52	<i>Vallaris solanacea</i>	Dudhi bel	Solanaceae
53	<i>Cenchrus biflorus</i>	Bhurat	Poaceae
54	<i>Cynodon dactylon</i>	Dub	Poaceae
55	<i>Desmostachya bipinnata</i>	Dab	Poaceae
56	<i>Saccharum munja</i>	Sarkanda	Poaceae
57	<i>Saccharum spontaneum</i>	Kans	Poaceae
58	<i>Vetiveria zizanioides</i>	Panni	Poaceae
59	<i>Cymbopogon jwarancusa</i>	Anjan	Poaceae
60	<i>Grevillea robusta</i>	Silver Oak	Proteaceae

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## Annexure-V

## B-Medicinally important plants within the Rohtak Zoo.

Sr. No	Species		Medicinal use (s)
	Local Name	Botanical Name	
1	Ulat Kambal	<i>Abroma augusta</i>	Diabetes, uterus and heart disease
2	Puthakanda	<i>Achyranthes aspera</i>	Asthma, Skin and kidney disease
3	Kalamus	<i>Acorus calamus</i>	Fever, tension and asthma.
4	Adusa	<i>Adhotoda vasica</i> <i>Justicia vasica</i>	Cough, leprosy, asthma and blood purification.
5	Uchanti	<i>Ageraatum conyzoides</i>	Skin disease and antiseptic.
6	Gwar Patha	<i>Aloe vera</i>	Gas trouble, liver and blood purifier
7	Kadamb	<i>Anthocephalus cadamba</i>	It is a tonic which is useful in snake bite and throat.
8	Neem	<i>Azadirachta indica</i>	Use as antibacterial, antiviral, cures skin infections.
9	Maljan	<i>Bauhinia vahlii</i>	Used as aphrodisiac, tonic, cures dysentery
10	Aak	<i>Calotropis procera</i>	Fever, cough, indigestion
11	Amaltas	<i>Cassia fistula</i>	Used in fungal infectin, urinary troubles.
12	Sadabahr	<i>Catharanthus roseus</i>	Used to reduce blood.
13	Lasura	<i>Cordia myxa</i>	Useful in Skin and urinal problems
14	Kala Dhatura	<i>Datuara metel</i>	Use for relieving pain and fever
15	Awla	<i>Emblica officinalis</i>	Use as vitamin C tonic, antibacterial & stomachic.

16	Bar	<i>Ficus benghalensis</i>	Used as laxative
17	Pilkhan	<i>Ficus infectorea</i>	Asthma and tonic
18	Mehandi	<i>Lawsonia inermis</i>	For colours and liver diseases
19	Aam	<i>Mangifera indica</i>	Skin disease, Asthma and scorpion bite
20	Podina	<i>Mentha arvensis</i>	Stomachic, used in pesticides
21	Kaner	<i>Nerium indicum</i>	Swelling & Leprosy
22	Amrud	<i>Psidium guajava</i>	Use in dysentery
23	Anaar	<i>Punica granatum</i>	Used as anthelmintic and also used in anaemia
24	Putranjiva	<i>Putranjiva roxburghii</i>	Used in fever and health
25	Sarpghandha	<i>Rauwolfia serpentina</i>	Use to treat hyper tension, inomnia, nervous disorderks
26	Arandi	<i>Ricinus communis</i>	Used as laxative and in headache
27	Jamun	<i>Syzygium cuminii</i>	Used in diabetes, skin disease, throat & kidney diseases
28	Arjun	<i>Terminalia arjuna</i>	Used as cardio-tonic, antidysenteric, cures cirrhosis of liver
29	Giloy	<i>Tinospora cordifolia</i>	Used as astringent, analgesic, stomachic
30	Ashvagandha	<i>Withania somnifera</i>	Useful in T.B., weakness, Rheumatic, liver and indigestive diseases

## Annexure-V

## (C) List of Fauna

## (Free Ranging Animal of the Rohtak Zoo Campus)

Sr. No	Local Name	English Name	Scientific Name
1	Nyola	Common mongoose	<i>Herpestes edwardsii</i>
2	Khargosh	Hare	<i>Lepus nigricollis</i>
3	Gilheri	Three striped squirrel	<i>Funambulus palmatum</i>
4	Choocha, Musak	Common house rat	<i>Rattus rattus</i>
5	Girgit	Common garden lizard	<i>Calotes versicolor</i>
6	Goh	Monitor Lizard	<i>Varanus griseus</i>
7	Saanp	Common rate snake	<i>Ptyas mucosus</i>
8	Naag	Indian Kobra	<i>Naja naja</i>
9	Hara Mendak	Toad	<i>Bufo melanostictus</i>
10	Mendak	Frog	<i>Rana tigrina</i> <i>Syn, Hoblobatrachus tigrinus</i>
11	Chhota Pankaua	Lesser Cormorant	<i>Phalacrocorax niger</i>
12	Anjan	Grey Heron	<i>Ardea cinerea</i>
13	Bagula	Pond heron	<i>Ardeola grayii</i>
14	Gai Bagula	Cattel Egret	<i>Bubbulcus ibis</i>
15	Dhok	Painted Stork	<i>Ibis leucocephalus</i>
16	Kala Baja	Black ibis	<i>Pseudibis papillosa</i>
17	Chhoti Murgabi	Common Teal	<i>Anas crecca</i>
18	Gugraal	Spotbill Duck	<i>Anas poecilorhyncha</i>
19	Cheel	Black Kite	<i>Milvus migrans</i>
20	Shikra	Shikra	<i>Accipiter badius</i>
21	Ukab	Tawny Eagle	<i>Aquila rapax</i>
22	Kala Titar	Black Francolin	<i>Francolinus francolinus</i>
24	Bhoora Titar	Grey Francolin	<i>Francoinus Pondiceranus</i>
25	Mor, Mayur	Common Peafowl	<i>Pavo cristatus</i>
26	Jal Murgai	Water Hen	<i>Amaurornis phoenicurus</i>
27	Jal Murag	Coot	<i>Fulica atra</i>



28	Titheri	Redwattleed Lapwing	<i>Vanellus indicus</i>
29	Gahwal, Bugbad	Ruff and Reeve	<i>Philomachus pugnax</i>
30	Harial	Green Pigeon	<i>Treron phaenicoptera</i>
31	Kabutar	Blue Rockpigeon	<i>Columba livia</i>
32	Chitkabra Fakta	Spotted Dove	<i>Streptopelia chinensis</i>
33	Tota, Haria	Roseringed Parakeet	<i>Psittacula krameri</i>
34	Tuia Tota	Blossom Headed Parakeet	<i>Psittacula cyanocephala</i>
35	Koel	Koel	<i>Eudynamys scolopacea</i>
36	Mahoka	Crow Pheasant	<i>Centropus sinensis</i>
37	Kotri	Spotted Owlet	<i>Athene brama</i>
38	Chhota Kilkila	Common Kingfisher	<i>Alcedo atthis</i>
39	Hara Panninga	Green bee-eater	<i>Merops orientalis</i>
40	Neelkanth	Blue jay	<i>Coracias beghalensis</i>
41	Hudhud	Hoopoe	<i>Upupa epops</i>
42	Barbet	Crimsonbreasted Barbet	<i>Megalaima haemacephala</i>
43	Chandool	Crested Lark	<i>Galeria cristata</i>
44	Gharelu Ababil	House Swallow	<i>Hirundo rustica</i>
45	Pilak	Golden Oriole	<i>Oriolus oriolus</i>
46	Kotwal	King Crow	<i>Dicrurus adsimilis</i>
47	Myna	Common Myna	<i>Acridotheres tristis</i>
48	Darji	Tailor Bird	<i>Orthotomus sutorius</i>
49	Bulbul	Paradise fly Catcher	<i>Terpsiphone paradiso</i>
50	Kaua	House Crow	<i>Corvus splendens</i>
51	Dumani	Common Babbler	<i>Turdiodes caudatus</i>
52	Shama	Shama	<i>Corvus malabaricus</i>

53	Kali Chiri	Indian Robin	<i>Saxicoloides fulicata</i>
54	Sonchiri, Dhoban	White Wagtail	<i>Motacilla alba</i>
55	Shakkarkhora	Purple Sunbird	<i>Nectarinia asiatica</i>
56	Goraya	House Sparrow	<i>Passer domesticus</i>
57	Baya	Common Baya	<i>Ploceus philippinus philippinus</i>
58	Kala Pidda	Pied Bushchat	<i>Saxicola caprata</i>
59	Lal Munia	Red Munia	<i>Estrilda amandava</i>
60	Sar-Munida, Pidda	Whitethroated Munia	<i>Lonchura malabarica</i>

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**Annexure-VI**

**LIST OF BUILDING OTHER THAN ANIMAL ENCLOSURE**

IWL Residence - 01 (existing IWL residence is presently being used as office of DWLO Rohtak.

WLG Quarter - 01 (existing WLG quarter in Adm. Block presently being used as office of IWL protection Rohtak.

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