



MASTER PLAN

of

SIDDHARTH GARDEN AURANGABAD MUNICIPAL CORPORATION ZOO



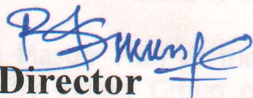
**AURANGABAD MUNICIPAL
CORPORATION AURANGABAD**


(2014-15 TO 2024-25)

CERTIFICATE

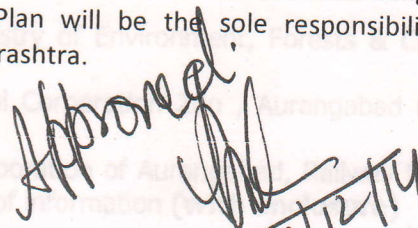
This is certified that the Master Plan of the Siddharth Garden Aurangabad Municipal Corporation Zoo, Aurangabad has been prepared by Aurangabad Municipal Corporation, through its consultant Dr. G.D. Khedkar, Director, Paul Hebert Centre for DNA Barcoding and Biodiversity studies, Dr. Babasaheb Ambedkar Marathawada University, Aurangabad for the period of ten years (2014-2024).

The Master Plan is prepared as per the guidelines of CZA.


Zoo Director
Siddharth Garden
Municipal Corporation Zoo,
Aurangabad (M.S.)
Date: 15/12/2014.


Commissioner
Aurangabad Municipal Corporation
Aurangabad (M.S.)
Date: 15/12/2014.

Master Plan of the Aurangabad Municipal Zoo, Aurangabad is approved in the 70th Meeting of the Technical Committee of CZA held 1st July, 2014 subject to conditions that the mobilizing financial resources for the implementation of the Master Plan will be the sole responsibility of the Aurangabad Municipal Corporation, Aurangabad, Maharashtra.


31/12/14

B. S. BONAL, IFS
Member Secretary
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I am deeply indebted to the Hon'ble Mayor of corporation Smt.Kala Oza and Hon'ble Commissioner Dr.H.S.Kamble who provided their valuable support and guidance for creating infrastructure and facilities to for the captive animals.

I offer my sincere thanks to Shri.A.S.Dogra & Dr.A.K.Malhotra, members of expert group of CZA zoo designing for their valuable suggestion and guidance in planning this zoo on scientific lines.

I have received encouraging support from Hon'ble member secretary of CZA Shri.B.S.Bonal. Member Secretary-CZA also recommended to Hon'ble Commissioner of AMC to develop the zoo scientifically during his visit on 29th march 2013 . I thank him for his valuable suggestions & guidance for the preparation of master plan.

I wish to record my thanks to Mr.P.Ahraham, Architect, Shri.Mansingh Patil, President, Animal lovers Association, Shri.Dilip Yardi,Honorary wildlife warden, Shri.Kishor Gathadi,Secretary, Nisarg Mitra Mandal for their regular visits & continued support & assistance for development & creative activity of zoo.

Last but not the least I wish to place on record the constant support and encouragement from Dr.G.D.Khedkar, Director, PHCDBS, Dr.B.A.M.U. Aurangabad in the preparation of Master Plan & other developmental activities.


Director,

AMC Zoo, Aurangabad



Dr. Harshadeep Kamble
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PREFACE

Aurangabad Zoo is popularly known as Siddharth Garden & Municipal corporation Zoo. It was established by Municipal Corporation in the year 1984. Many experts have contributed for its growth & development. I wish to congratulate all my predecessors for their innovative tradition and practices. Improvement and development activities is a regular feature in any established institute. For better development & improvement a Master Plan covering all aspects is a must.

Being the first Master Plan of the zoo, there is a quiet bit of history, traditions and events reflected in the plan. Infrastructures like interpretation center, service roads, underground cabling, drainage, sewage & STP are priority in the Master Plan.

AMC Zoo will use this unique facility to build up conservation consciousness among the peoples, that will assist in creating a pro environment lobby force for protecting biodiversity of our unique state with its diverse ecosystems along with the regions diverse range of plant and animal species.

In proposed planning the Zoo will have 34 acres with naturalistic enclosures to 189 Zoo Animals of 24 species. As Aurangabad is a world class tourist destination due to famous Ellora & Ajanta caves, quite good number of visitors visiting this Zoo unique in this region. The expenditure included in Master Plan for construction, development , urgent activities and day to day maintenance would be approximately Rs.49 Crores for next 10 years period.

I specially thanks to the Member Secretary of CZA and Members of expert group for their valuable suggestions and guidance during the Zoo visit. I also appreciate the efforts of Director & his entire zoo staff who had contributed directly or indirectly in accomplishing this task.

(DR. HARSHADEEP KAMBLE)

Commissioner

Aurangabad Municipal Corporation



Mrs. Kala Ravinandan Oza

Mayor

Municipal Corporation Aurangabad (Sambhajinagar)

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Ref : No./AMC/Mayor / 549 / 2014

Date : 19/4/2014

FOREWORD

It gives me immense pleasure to put on record foreword for the Master Plan of this AMC Zoo.

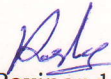
Ex-situ conservation facilities like Zoos, Aquariums and Botanical Gardens are the main resources for conservation now a days. The conservation facilities protect endangered species outside their habitat. Siddharth Garden Aurangabad Municipal corporation Zoo is one of the zoo where conservation facilities are there. The Municipal Corporation, Aurangabad established a small zoo called Siddharth Garden Aurangabad Municipal corporation Zoo. It was established in 1984. Total area of zoo is about 17 acres which will be increased to 34 acres after its development.

Previously the zoo was established only for displaying few animals like rabbit, jackal, monkey, civet cat & birds like peacock, duck and herbivores like black buck, nilgai & samber. But after 1990, concept of the zoo changed as preservation of endangered species, education of visitors about wildlife, display of wild animals in near natural conditions . Then zoo collected lion, tiger, leopard, white tiger & elephant.

AMC zoo concentrated on wildlife education and established a Vasundhara Cinema theater to provide information & knowledge to viewers through various wildlife films. A new interpretation center will be constructed which will have the facilities of exhibition, audio visuals & lectures.

This AMC zoo is focused on providing better services, animal management & enrichment. Veterinary health care will be of high standard. For this a veterinary hospital with all diagnostic & treatment facilities has been proposed in the master plan. The master plan has been prepared for the duration of 10 years which will be implemented in phases.

I congratulate Director, his team & consultant for preparing this valuable document.

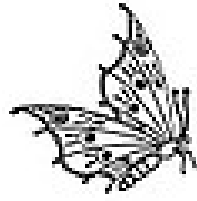

(Mrs Kala Ravinandan Oza)
Mayor

Aurangabad Municipal Corporation
Aurangabad (M.S)

**The love for all living creatures is
the most noble attribute of man**

-Charles Darwin





1. INTRODUCTION

1.1. History of Siddharth Garden Aurangabad Municipal Corporation Zoo

During the year 1984, Aurangabad Municipal Corporation established a small zoo named Siddhartha Garden and Municipal Corporation Zoo located in the heart of the city. Exact geographic location of this zoo is $19^{\circ} 52'46$ N, $75^{\circ} 18' 57$ E, sprawled over an area of about fourteen acres. Main purpose of establishing this zoo was to exhibit small animals like rabbit, jackal, monkey, civet cat, bird like peacock, duck and some herbivores like black buck, nilgai, sambar deer, etc.

Afterwards in 1990, the aim of the zoo transformed to preserve endangered species of animals, exhibit of wild animals, their conservation, public education and awareness. The part of this development brought in the lion, the tiger, leopards, white tiger, elephant and bear to the zoo. Successive development of zoo continued under the esteemed guidance of Central Zoo Authority, New Delhi.

As a part of zoo education and awareness creation, Municipal zoo established a small cinema theater, the Vasundhara (35mm) in year 1995 for visualizing various wildlife films. During the last year almost 83,000 audiences, enjoyed wild life shows at this theater.

Successively, in the same year a snake park established in the zoo with due permission from Central Zoo Authority. Fifteen species of snakes, which include rat snake, python, Russell's viper, cobra, common krait, trinket, earth boa etc. are under display of this snake park. Almost 6,58,000 visitors visited this snake park during last year. The snake park is a good education center for snake lovers.

Aviary is also developed during year 1995, having display for eight species of water birds (painted stork, spoonbill, ducks, flamingo, white peacock, Indian peacock and egret).

Alongside to above-mentioned species, presently the zoo displays twenty-four species of wild animals. Being a small zoo with limited area, zoo experienced certain difficulties in animal breeding programme as well as in accommodating new animal procurements. On the other side the popularity of the zoo increased over the years, resulting increase in number of visitors to many folds. To encounter these difficulties, Aurangabad zoo had decided to extend the zoo premises by incorporating space of adjoining garden for further development. The Governing body accorded permission to this decision in their meeting.

1.2. Vision of the Zoo

Aurangabad is an important destination on national and international map for tourism, education and industrial development. Aurangabad Municipal Corporation takes this opportunity for effective awareness among the people through its zoo that will assist in creating a pro-environment lobby force for protecting biodiversity. As concern, Maharashtra state is having very diverse agro climatic conditions that support unique biodiversity associated with the semi-arid grasslands, forests and the aquatic ecosystems.

1.3. Mission statement

To develop a state of the art zoo with a focus on contented animals and conservation education for visitors, through a proactive interpretation approach.

1.4. Strategy of the Zoo

Our zoo strategizes emphasis on three major initiatives as below;

- i. To support conservation of endangered species.*
- ii. To create awareness among masses about wild life conservation.*
- iii. To brand worthwhile experience of the zoo visit.*

1.5. Objectives of the Zoo

The objective of the Zoo is to display and conserve the important species from Marathwada region specifically and Maharashtra state in principal. It will strive to achieve the following objectives;

- i. Captive breeding and an attractive display of common and endangered species from Marathawada, Western Ghats and Deccan Plateau of Maharashtra*
- ii. Educating the zoo visitors on the role of modern zoos in wildlife conservation through appropriate signage, interpretive exhibits and an effective extension literature etc*
- iii. Conducting research on the behavioral, biological and veterinary aspects of captive animals*
- iv. To sustain a lifetime care facility*

1.6. Physical features and topography of the zoo

The general topography of the area is largely plain. The area has a moderate slope towards the Kham River and sewage line passes from west side and south side of the zoo. The enclosures have been designed to use the slope so that visitors can see animals across the moats. The undulating topography provides a more natural habitat for the animals.

The soil has been protected by growing thick vegetation in most of the zoo areas which helped in checking the soil erosion.

1.7. Geological features of the region

The geological formation of the region is characterized by the Deccan traps (upper cretaceous to lower Eocene). The granite rocks have given rise to red as well as black cotton soils. Major part of the region has deep black soil derived from the trap rock. A mixture of laterite and black soils, for example is encountered in eastern part together with sandy soil along riverbank.

1.8 Flora and Fauna

A. Flora

Please refer the list of flora at **Annexure-I** (page no. 126)

B. Fauna

Please refer the list of Fauna of the zoo at **Annexure-II** (page no. 127)

1.9 Climate, seasons and rainfall

The weather in general is dry and extreme. The average day temperature ranges from 27.7°C to 38°C, while it falls from 26.9°C to 20°C during night. Similarly, summer and winter temperature also varies greatly. The highest temperature during summer day is recorded

as 43.3°C while the lowest temperature during winter nights is recorded as 6.0°C. Relative humidity is extremely low for major part of the year (35 to 50%), while it is highest (85%) during monsoon.

The rainy season is considered from middle of June to the end of September, which is followed by a sultry period during the end of September to the middle of November. The winter season commences from the middle of November and concludes by the end of the January followed by a dry hot summer from February to middle of June. Summers are in general full of dusty winds.

The normal average rainfall is about 90 cm, but is rather variable form year to year. It has decreased considerably in the recent years. The major amount of South West monsoon precipitation is received on the West Coast of India due to the Sahyadri ranges and only a small amount escapes through high hills, which are received by the Deccan Plateau. The region, thus falls in the shadow zones of the Sahyadris. More climatic data for city is tabulated in figure 1.

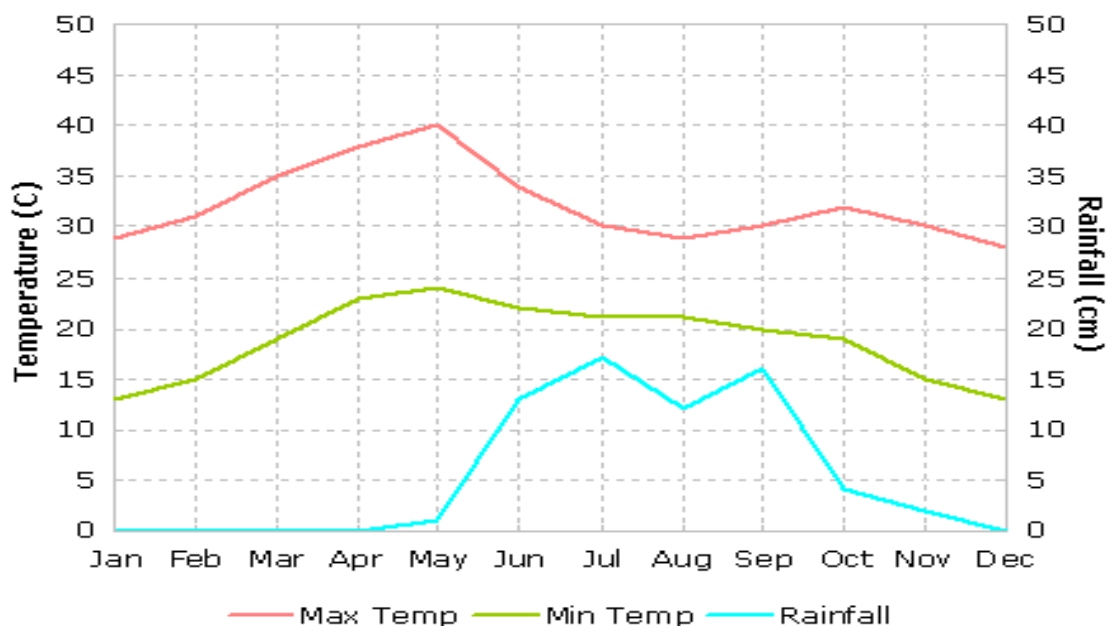


Figure1. Climatic data of Aurangabad city

1.10 Approach

The Siddhartha garden Aurangabad Zoo is situated centrally in the city of Aurangabad near central bus stand and at a distance three kilometers from Railway station and fourteen kilometers away from Chikalthana airport. The Jalna-Nagar-Pune highway is 0.5 km away from the zoo.

1.11 Demography of surroundings

With spacious campus, the zoo is sprawled over an area of about thirty-four acres. The zoo campus is surrounded from all sides by roads and residential colonies. Major land used around the zoo shows mixed land use. The landmark near the zoo is the presence of central bus station on the east side of the zoo.

1.12 Legal status of the land

The land of the zoo belongs to the Aurangabad Municipal Corporation and has no encumbrances. The copy of notification of ownership of land is enclosed at **Annexure-III** (page no.128).

1.13 Source of pollution

Aurangabad is one of the fast growing cities in India. The heavy traffic on the road causes noise pollution, but no study has been done to know the impact of noise pollution on zoo inmates. The Kham River that flows on western side and sewage drain on southern side of the zoo may contribute in air pollution, no scientific study is being undertaken on this aspect.

1.14 Present status of the zoo

Description of existing Facilities and constraints

1.14.1 Description of Existing Layout Plan

The Municipal Corporation zoo Aurangabad, is located near the city bus stand. It has an area of about fourteen acres and presently it displays 24 species of animals comprising of 189 specimens. In addition, zoo is hosting 35 species of fish comprising of 442 specimens. About 7-8 lacs visitors visit the zoo annually. The layout plan has been drawn on scale 1:1000 with contour interval of 5 meters. There is no plan of display and animals have been exhibited haphazardly. The visitors enter the zoo from the main road and move on left hand side. After passing through interpretation center, the visitors see the first exhibit of aquarium. After visiting aquarium the visitor move into the main zoo premises following the same main road. The first exhibit is of Black Buck followed by Sambar, Pea fowl and Nilgai. The snake park is located adjoining to the Nilgai enclosure. After visiting Snake Park visitors move towards right to see Bonnet monkey, wolf, jackal, bear, alligator, panther, tiger, and lion on the same track. On the right side opposite to the lion enclosure, the Vasundhara theatre is located. After visiting the film show in theater the visitors move in a loop towards the gardens and finally for exit. A single road serves the visitors movement, food distribution and other services. The animals have been displayed on the both the sides of the road. The one round of the zoo is about one kilometer.

The Kham River flows on the northern side and a sewage drain from the city on the southern side of the zoo. Public amenities are located at three different locations. There is a food kiosks located on western side of the Sidhartha garden.

The plan lacks segregation of visitors and service road. A few exhibits are small in size and lack basic facilities. Such exhibits have proposed for demolition. The existing layout plan of the zoo is placed at **Annexure IV** (page no.129).

1.14.2 Existing Facilities

A brief description of different existing facilities is mentioned in the appraisal part of the master plan.

1.15 Difficulty faced in the past

The Aurangabad Municipal Corporation zoo faced few challenges in the past. For example, on one occasion, the old enclosure of white tiger was broken due to rust and erosion, and white tigress escaped out of it. Although the tigress was caught immediately without any casualty, but the zoo understood the shortage of staff at supervisory and at lower level as well and strongly realized the lack of support from the rescue team.

1.16 Achievements

The Aurangabad Municipal Corporation zoo has been successful in breeding animals like tiger, white tiger, elephant, deer and antelope. An additional area of twenty acres has been acquired and added in the existing area of fourteen acres. The zoo displays large cats in spacious enclosures. The aquarium displays 35 species of fish comprising of 442 specimens. The aquarium and snake park are quite popular among the visitors. Mostly children and women participants show their interests in poisonous and non-poisonous snakes. Accordingly, we are having

updated information charts. All snake species in snake part are DNA barcoded for species identification using exuviate. This is the first attempt of this kind in India. A peer reviewed scientific manuscript published in Mitochondrial DNA Journal. The lush green garden provides ample space for the visitors to sit and relax. The washroom, drinking water points are in access during the zoo tour for the visitors as visitor amenities. The zoo regularly shows films on wild life in its Vasundhara theatre. Awareness campaign and competition for the visitors and school students are organized in collaboration with various NGO regularly and through volunteering activities.



2. APPRAISAL OF PRESENT PLAN

Appraisal of the present plan and challenges

Presently, the Aurangabad Municipal Corporation Zoo is spread over an area of fourteen acres. Twenty-four species of animals are under display of the zoo includes total number of 189 specimens. The Kham River is flowing on the north side and a city sewage drain on south side of the zoo.

Appraisal of different section

2.1 Animal Section

This section is responsible for looking after day-to-day animals care and their house keeping. It ensures cleanliness and maintenance of enclosures and surroundings. The staff of the section strives hard to maintain hygienic conditions of the enclosures as well provide clean food and water.

2.1.1 Duties and Responsibilities

- i.* Cleaning of the animal enclosures, night houses and surroundings daily.
- ii.* Providing feed & water to the animals and to submit regular ration requisition according to need.
- iii.* Reporting the issues related to animals health, feeding, mating, breeding etc.
- iv.* Ensuring safe capturing and transportation of animals when requires.
- v.* Liaising with veterinary section for health problems and treatment, maintenance section for repair and continuation of civic services.
- vi.* Record keeping and inventories of different sections.

2.1.2 Existing equipment

At present, this section is equipped with all basic facilities like transport cages, hand trolleys, nets, ropes, pipes, squeeze cages and cleaning material. The zoo has also tranquilizing gun, mosquito killing machine, coolers, spray pumps, gardening utensils, grass shredders. For official works computers, LCD projectors, printers, cupboards, emergency lamps etc. is available.

2.1.3 Existing staff

Table 2.1. Existing staff

Sr. No	Post	No. of sanctioned post	Filled	Vacant	Pay Scale
1	Live Stock Supervisor	1	1	--	On daily wages
2	Animal Keepers	3	3	--	4440-7440(GP 1300)
3	Care takers	8	8	--	4440-7440(GP 1300)
4	Attendant/Labour	33	33	--	4440-7440(GP 1300)

2.1.4 Status of Animals

The status of animals as on January 1st 2014 is given in **Annexure-V** (page number 130-131).

2.1.5 Single animals

The list of single animal is as depicted in table 2.2.

Table 2.2. List of single animals

Sr. no.	Name of animal	Male	Female
1	Jackal	1	0
2	Wolf	0	1
3	Bonnet Monkey	1	0
4	Rhesus Monkey	0	1
5	White Peacock	0	1

2.1.6 Surplus Animals

The list of surplus animals is as mentioned in table 2.3.

Table 2.3. List of surplus animals

Sr. no.	Name of animal	Male	Female
1	Sambar	5	10
2	Bengal tiger	1	1
3	Black buck	8	12



2.1.7 Appraisal of existing animal enclosures

The description of existing enclosures is given as under

Table 2.4. Enclosure details for the Bengal tiger

Sr. no.	Particulars	Details
1	Existing enclosure area	1700 Sq. meter
2	Night shelter area	72 Sq. meter
3	Kraal area	1.5 x 4 x 2 Sq. meter
4	Moat (Width and depth)	W- 8m; D- 5m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted & unrepairable
	<i>ii. Night shelter</i>	Eroded, need reconstruction
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires demolition and reconstruction.



Table 2.5. Enclosure details for the White tiger

Sr. no.	Particulars	Details
1	Existing enclosure area	1520 Sq. meter
2	Night shelter area	72 Sq. meter
3	Kraal area	1.5 x 4 x 2 Sq. meter
4	Moat (Width and depth)	W-8m,D-5m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded, unrepairable
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Reconstruction requires



Table 2.6. Enclosure details for the lion

Sr. no.	Particulars	Details
1	Existing enclosure area (Sq.m.)	378
2	Night shelter area (Sq.m.)	72
3	Kraal area (Sq.m.)	1.5 x 4 x 2
4	Moat (Width and depth)	W-8m,D-5m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires reconstruction

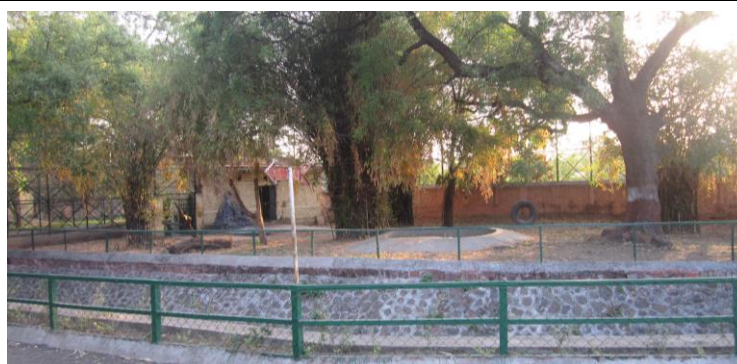


Table 2.7. Enclosure details for the leopard

Sr. no.	Particulars	Details
1	Existing enclosure area	374 Sq. meter
2	Night shelter area	20 Sq. meter
3	Kraal area	1 x 2 x 1.2 Sq. meter
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Relocation suggested



Table 2.8. Enclosure details for the Jackal

Sr. no.	Particulars	Details
1	Existing enclosure area	25 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.9. Enclosure details for the Hyena

Sr. no.	Particulars	Details
1	Existing enclosure area	25 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.10. Enclosure details for the wolf

Sr. no.	Particulars	Details
1	Existing enclosure area	25 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.11. Enclosure details for the porcupine

Sr. no.	Particulars	Details
1	Existing enclosure area	25 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.12. Enclosure details for the Civet cat

Sr. no.	Particulars	Details
1	Existing enclosure area	25 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.13. Enclosure details for the sloth bear

Sr. no.	Particulars	Details
1	Existing enclosure area	126 Sq. meter
2	Night shelter area	30 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	leaking
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires repair

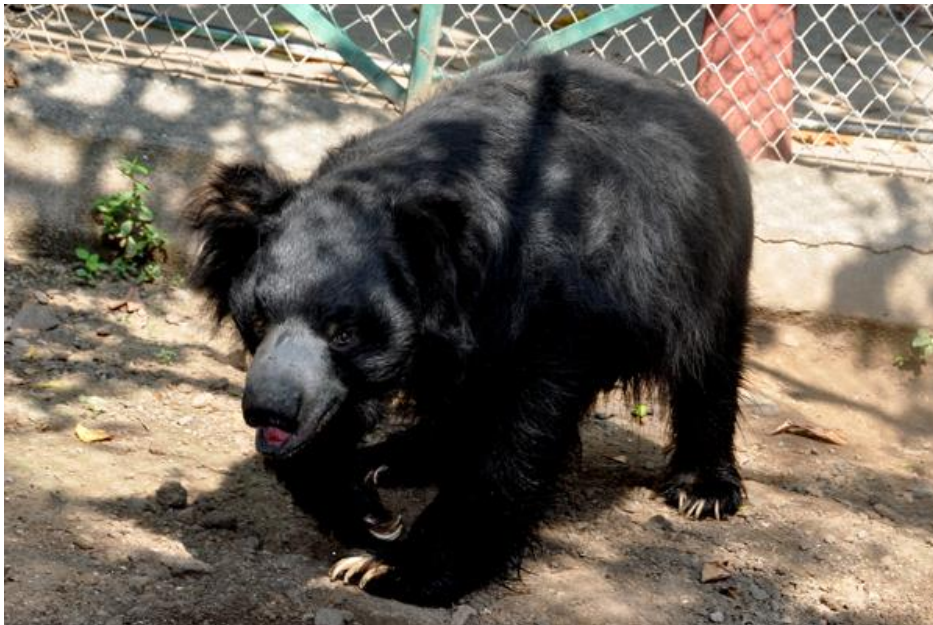


Table 2.14. Enclosure details for the Nilgai

Sr. no.	Particulars	Details
1	Existing enclosure area	1495 Sq. meter
2	Night shelter area	196 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	W-6m,D-3m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires repair



Table 2.15. Enclosure details for the Sambar deer

Sr. no.	Particulars	Details
1	Existing enclosure area	2900 Sq. meter
2	Night shelter area	196 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	W-6m,D-3m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.16. Enclosure details for the Chital

Sr. no.	Particulars	Details
1	Existing enclosure area	3200 Sq. meter
2	Night shelter area	28 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	W-6m,D-3m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires repairing



Table 2.17. Enclosure details for the Black buck

Sr. no.	Particulars	Details
1	Existing enclosure area	2000 Sq. meter
2	Night shelter area	45 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	W-6m,D-3m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires repair



Table 2.18. Enclosure details for the Chinkara

Sr. no.	Particulars	Details
1	Existing enclosure area	2000 Sq. meter
2	Night shelter area	50 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	W-6m,D-3m
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires repairing

Table 2.19. Enclosure details for the Bonnet monkey

Sr. no.	Particulars	Details
1	Existing enclosure area	56 Sq. meter
2	Night shelter area	10 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.20. Enclosure details for the Rhesus monkey

Sr. no.	Particulars	Details
1	Existing enclosure area	56 Sq. meter
2	Night shelter area	10 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.

Table 2.21. Enclosure details for the common langoor

Sr. no.	Particulars	Details
1	Existing enclosure area	25 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.

Table 2.22. Enclosure details for the common crocodile

Sr. no.	Particulars	Details
1	Existing enclosure area	720 Sq. meter
2	Night shelter area	--
3	Kraal area	--
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Medium
	<i>ii. Night Shelter</i>	--
	<i>iii. Floor</i>	--
	<i>iv. Roof</i>	--
	<i>v. Sewage</i>	Good
	<i>vi. Drinking Water</i>	Tap water
	<i>vii. Flush water</i>	Tap water
6	Future aspect	Requires improvement



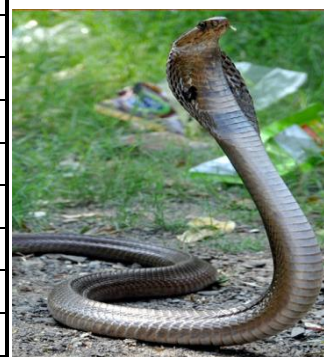
Table 2.23. Enclosure details for the Emu

Sr. no.	Particulars	Details
1	Existing enclosure area	620 Sq. meter
2	Night shelter area	12 Sq. meter
3	Kraal area	--
4	Moat	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Does not meet CZA norms, will be demolished.



Table 2.24. Enclosure details for the snakes

Sr. no.	Particulars	Details
1	Existing enclosure area	1000 Sq. meter
2	Night shelter area	--
3	Kraal area	5 x 3 (16 Boxes)
4	Moat (Width and depth)	--
5	Existing Condition	
	<i>i. Fencing</i>	Rusted
	<i>ii. Night Shelter</i>	Eroded
	<i>iii. Floor</i>	Eroded
	<i>iv. Roof</i>	Satisfactory
	<i>v. Sewage</i>	Satisfactory
	<i>vi. Drinking Water</i>	Available
	<i>vii. Flush water</i>	Available
6	Future aspect	Requires improvement



2.1.8 Constraints

- i.* No post of animal curator or RO.
- ii.* Inadequate staff.
- iii.* Infrastructure of old enclosure is in poor state.
- iv.* Sewage and drainage system are not proper.
- v.* Chain link fence of animal houses is rusted and broken.
- vi.* Steel material rusted and eroded.
- vii.* Enclosures of monkey, jackal, hyena, wolf etc. do not conform to CZA guidelines.
- viii.* Inadequate equipments.

2.2 Veterinary section

The veterinary section looks after the health care of animal. There is no full time veterinary doctor; however, the Director of the zoo is himself a veterinarian. The section has well equipped veterinary hospital having operation theatre with basic facilities, in-patient wards, tranquilization equipments, small laboratory and post mortem room.

2.2.1. Duties and responsibilities

- i.* Regular inspection of the zoo animals and their treating them.
- ii.* Formulation of diet and quality control of feed issued to zoo animals.
- iii.* To follow prophylactic protocols, periodical examination of fecal matter, blood, etc.
- iv.* Periodic de-worming, vaccination and disinfection of animals.
- v.* Planning breeding strategy of endangered species and their husbandry.
- vi.* To take measures for preventive disease control in zoos.
- vii.* Physical and chemical capture of zoo and strayed animals.

2.2.2 Existing equipments

This section has two tranquilizing guns, operation table, all surgical instruments and required medicines

2.2.3 Existing staff

Table 2.25. Existing staffing pattern under Veterinary section

Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale
1	*Veterinary Officer	-	-	-	-
2	Compounder	1	-	1	5200-20200 (GP1800)
3	Lab Technician	-	-	-	-
4	Animal Keeper	1	-	1	4440-7440 (GP 1300)
5	Attendant	1	-	1	4440-7440 (GP 1300)

**Zoo Director looks after animal healthcare, as he is a veterinarian.*

2.2.4 Constraints

- i. Inadequate technical staff and animal keepers.
- ii. Lack of equipments like sonography, hydraulic OT table electronic microscope, bone cutting machine and sterilization equipments.

2.3 Store and Kitchen Section

There are two rooms, one is for storage of dried grasses and other for implements & equipments located behind office. The kitchen has two rooms, one for cleaning and chopping of vegetables and other for storage of grains. There is one fridge to store beef, chicken, fruits and vegetables. This section receives feed supply daily and keeps in the containers. The food is supplied as per requirement of animals.

2.3.1 Duties and responsibilities

- i.* To procure, store and supply the feedstuffs as per requirement.
- ii.* To get the quantity of food checked by the Veterinarian.
- iii.* To keep the store neat and clean.
- iv.* To prepare the food as per schedule.
- v.* To procure special diet items for lactating and sick animals as per veterinarian's advise.
- vi.* To procure items as required by maintenance and other sections.
- vii.* To keep record of the purchase and disposal of all the items.

2.3.2 Existing equipments

It has a weighing machine, containers, buckets, trolley and kitchen wares.

2.3.3 Existing staff

Table 2.26. Existing staffing pattern under Store and Kitchen Section

Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale
1	Store keeper	-	-	-	-
2	Cook	1	1	-	4440-7440 (GP 1900)
3	Driver	1	1	-	4440-7440 (GP 1900)
4	Attendant	2	2	-	4440-7440 (GP 1800)

2.3.4 Daily Feed Requirement

The food is received because of average daily requirement. Veterinary staff on regular basis checks the quality.

Table 2.27. The average daily consumption of food

Sr.No.	Particulars of Food	Quantity
1	Fruits and Vegetable	17 Kg.
2	Beef	141 kg.
3	Grass	444 Kg .Sugarcane-40 Kg.
4	Fish	8.5 Kg.
5	Grains, etc.	123 Kg.
6	Milk	3 lit.
7	Bread (Packet)	18 Nos.

2.3.5 Constraints

- i.* Inadequate space to store food ingredients and fodder.
- ii.* Inadequate staff.
- iii.* There is no platform to load and unload material.
- iv.* There is no kutti machine.
- v.* Storage area should have more height and adequate ventilation

2.4. Horticulture and Sanitation Section

There is no horticulture and sanitation section as such. The garden superintendant of corporation and its supervisors look after the maintenance of garden and lawn.

The corporation sweepers do the sweeping and cleaning of the zoo area. The toilets are out sourced on the BOT basis. The corporation is responsible for keeping the campus pollution free and naturalness of the zoo.

2.4.1 Duty and responsibilities

- i. To maintain lawns, trees, hedges and plants.*
- ii. To remove weed from lawns and hedges etc.*
- iii. To provide water to lawns and trees.*
- iv. To remove and collect all dry leaves from lawns.*
- v. To remove uprooted / dead trees when ever occasion arises.*
- vi. Cleaning of roads, paths.*
- vii. To remove and disposal of garbage, leftover food, animals waste, bones, fallen leaves, cut grasses, weeds, tobacco pouches and plastic items.*
- viii. Regular cleaning of drinking water coolers and tanks.*

2.4.2 Existing equipments

This section has lawn movers, grass cutter machines, pipes, water pumps, trolleys and brooms etc.

2.4.3 Existing staff

Corporation provides the staff for horticulture and sanitation works. This staff is not under zoo administration. Zoo has one gardener, which looks after maintenance of lawn and watering of plants.

2.4.4 Constraints

The staff of horticulture is not under the administrative control of zoo department.

2.5 Maintenance section

This section is responsible for the maintenance of animals enclosures, roads and pathways, construction work, plumbing, electrical, carpentry and masonry works etc. The corporation engineers undertake the major construction works; however, zoo carries out day-to-day maintenance work.

2.5.1 Duty and responsibilities

- i. *Construction of buildings, animal enclosures, roads, path, and service lines.*
- ii. *Maintenance of all buildings, animal enclosures, service lines etc.*
- iii. *Repair and strengthening of steel sections, doors, partitions, up slides etc. by welding.*
- iv. *Lubrication of sliding/partition/gates/doors/pulleys/pressure pumps etc. to ensure their proper functioning*
- v. *Dewatering of moats/ponds/wallow pools/water bodies, as and when required.*
- vi. *Repair pressure pumps/heaters/coolers and other miscellaneous equipments and to maintain them functional.*
- vii. *Replacement of damaged steel wire ropes of up-slide partitions/gates of animal enclosures.*

2.5.2 Existing equipment

They have workshop tools for undertaking repairs & maintenance works.

2.5.3 Existing staff

Table 2.28. Existing staffing pattern under maintenance Section

Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale
1	Plumber	1	1	-	5200-20200(GP-1900)
2	Electrician	1	1	-	5200-20200(GP-1900)

2.5.4 Constraints

- i. *Lack of well-equipped workshop and store facilities.*
- ii. *Inadequate technical staff and skilled labour.*
- iii. *Inadequate labour.*
- iv. *Not under the zoo department.*

2.6 Security section

There is no security section as such. Only Security guard –cum- attendants are deputed for patrolling and for miscellaneous works.

2.6.1 Duty and responsibilities

- i. To patrol the zoo area and to protect government property*
- ii. To maintain law and order and the entrance inside the zoo*
- iii. To assist public in lost and found*
- iv. To control vandalism, pick pocketing and teasing of animals*

***Note:** As stated above that, there is no security section, so outsourced guards perform the above-mentioned duties.*

2.6.2 Existing equipments

As security is outsourced, so equipments are provided by the outsourced agency.

2.6.3 Existing staff

Only two security guards of AMC are posted.

2.6.4 Constraints

- i. No separate section*
- ii. No supervisor*
- iii. Untrained staff*
- iv. Lack of communication network*
- v. No frisking equipment*
- vi. No public address system*

***Note:** The work of security section has been outsourced.*

2.7 Water supply system

The water is supplied to the zoo area through two wells located one behind statue of Buddha & another besides the snake park for gardening and other purposes. Aurangabad Municipal Corporation also supplies water to the zoo for drinking purpose.

2.8 Solid and liquid waste management

The solid waste includes animal excreta, leftover food, dry and fallen leaves, cut grasses and public waste. The quantum of waste is around 500 kg per day. Solid waste is collected by the corporation employees and dumped at the dumping area. Some vegetative waste material is used for composting.

The liquid waste includes washing water from enclosures, animal urine, toilets and drinking water points. The liquid waste is disposed off by internal sewage lines in to city sewage line.

2.9 Drainage system

There are open drains which take out the excess water in to the near by river during monsoon.

2.10 Electricity supply system

The Municipal Corporation has established a sub station near the swimming pool of AMC adjoining to the zoo boundary. The zoo is getting adequate supply from this sub station.

2.11 Visitor amenities

Aurangabad Municipal Corporation zoo is visited by 7-8 lakhs of visitors annually. The number of visitors remains high on Sunday and holidays. The visitors include adult, old, women, children and students. Following amenities have been provided to the visitors;

i. Drinking water points

There are three drinking water points, one near the Vasundhara theatre, one in front of Elephant enclosure and another near Aquarium.

ii. Toilets

There are two toilet facilities, provided one near aquarium and another near the aviary enclosure.

2.12 Animal collection plan (Existing)

It is given in the **Annexure-V**, (page -130-131).

2.13 General Zoo Administration Section

This section overall looks after the requirements and maintenance for its smooth running. This section also undertakes correspondence with corporation, state ministry, CZA, zoos and other departments. It also prepares the plan and non-plan budget.

The Director is responsible for the operation and maintenance of the zoo. He is assisted by live stock supervisor, office superintendant and support staff. The Director reports to the Commissioner Municipal Corporation and zoo advisory board.

2.13.1 Duty and responsibilities

- i. To maintain diary and dispatch of letters.*
- ii. To invite tenders for supply of diet articles.*
- iii. To process for out-sourcing the various works and to engage manpower on contract.*
- iv. To coordinate various meetings.*
- v. To undertake correspondence with state ministries. CZA, corporation, other zoo's and other departments*
- vi. To procure furniture, stationary liveries for employees etc.*
- vii. To prepare plan and non-plan budget and revise estimates.*
- viii. To issue salary slip, GPF statement and form 16 of Income Tax.*
- ix. To maintain record of visitor data and revenue collected.*
- x. To submit monthly statement of expenditure to department.*
- xi. To prepare duty roaster for booking counters.*
- xii. To maintain cash book, contingency register, cheque and challan register.*
- xiii. To deposit cash collected from gate.*
- xiv. To keep record of entry tickets.*
- xv. To send attendance details to account & admin. section of AMC.*

2.13.2 Existing equipments

The Director has an official vehicle, computer facilities and furniture and book shelves, cupboards for secretarial staff.

2.13.3 Existing staff

Table 2.29. Administrative staff

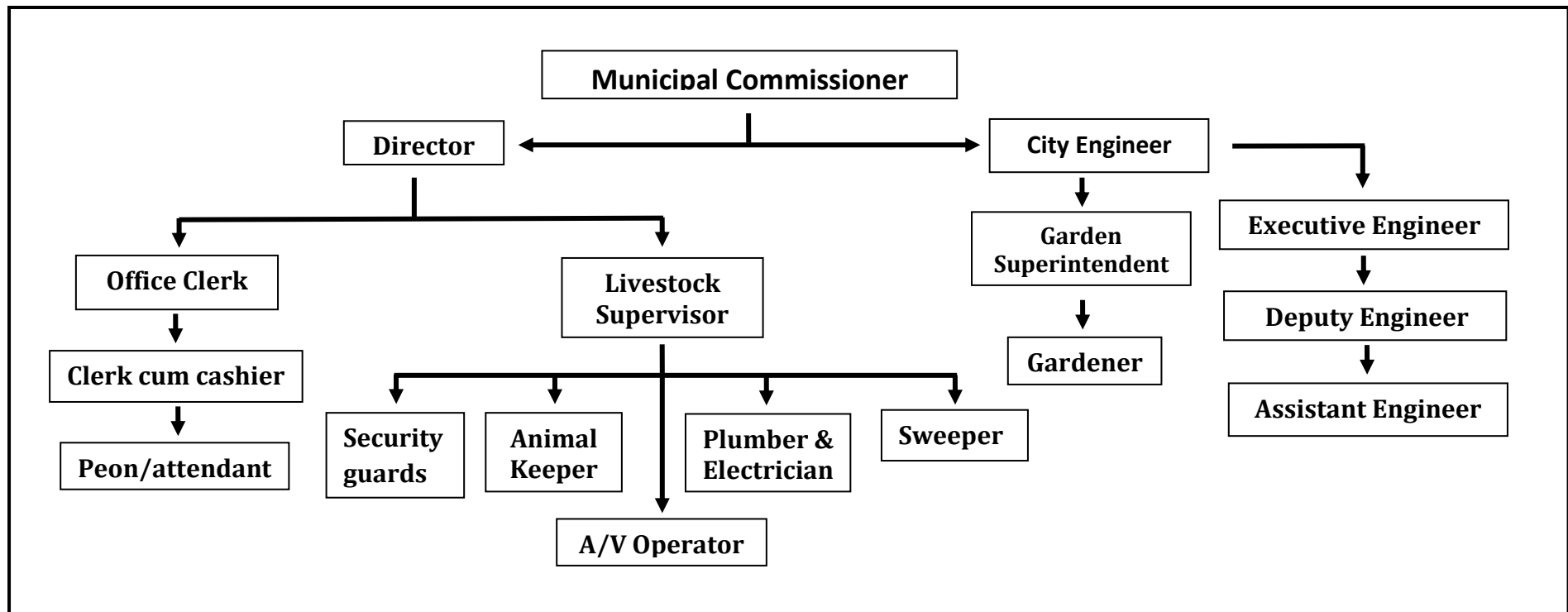
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale
1	Director	1	1	-	15600-39100(GP 5400)
2	Senior clerk	1	1	-	5200-20200 (GP 1900)
3	Junior Clerk	1	1	-	5200-20200 (GP 1800)
4	Ticket clerk-cum-Cashier	1	1	-	5200-20200 (GP 1900)
5	Ticket Checker	1	1	-	4440-7440 (GP 1800)
6	Peon	2	2	-	4440-7440 (GP 1800)

2.13.4 Constraints

- i. Inadequate staff*
- ii. Inadequate office equipments*
- iii. Inadequate space*

2.13.5 The hierarchy of the present administration is given as under

The proposed organization chart is as follows



2.14 Research section

The zoo does not have any research section.

2.15 Conservation breeding

The Aurangabad Municipal Corporation zoo is neither coordinating or participating institute in conservation breeding programme.

2.16 Education and awareness section

There is no education section as such in the zoo, however awareness programmes like screening of films, painting competition, distribution of pamphlets, wild animal save campaign are conducted by the staff. The animal information signsages have been fixed at each enclosure. There is audio visual theatre known as Vasundhara in the campus where films on wildlife are shown.

2.16.1 Existing Staff

Table 2.30. Existing staff of education and awareness section

Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale
1	Audio Visual Operator	1	1	-	4440-7440(GP 1800)
2	Attendant	1	1	-	4440-7440(GP 1300)

2.16.2 Constraints

There is no education section as such.

2.17 Any other unique activity

DNA barcoding of zoo animals being conducted for all animals.

2.17.1 Aquarium

Aquarium was established in 1997. It has an area of approximately of 2000 Sq. m. Presently there are 36 species of fish for display for visitors. The aquarium is very popular among the visitors. The visitor move in a circular way to see all the exhibits .The water is tested regularly by AMC. Adequate arrangements have been made for light and aeration for the fish tanks. It will be renovated and expanded in near future, because of its popularity and uniqueness in this region.

2.17.2 Snake Park

AMC established a snake park in 1996. It has an area of 500 Sq. m. It has a well-defined entrance and exit for visitors. Like aquarium, it is also popular among the visitors. There are 11 species of snakes including poisonous & non-poisonous snakes. It will be renovated and expanded in near future.

2.17.3 Nisarg Mitra Mandal (friendship club for nature)

NGO conduct various activities through animal friendship club for wildlife awareness and welfare of wild animals. These activities includes organization of wild life week, Snake awareness program, Drawing & essay competition, debate competition, etc. on the issue related to wild life among school and college students every year.



3. OBJECTIVES, VISION & MISSION

There will be no change in Aurangabad Municipal Corporations Zoo's future objectives, vision, mission and the theme. Future development will be strictly adhered as under;

3.1 Objectives of the Zoo

The objective of the Zoo is to display and conserve the important species from Marathwada region specifically and Maharashtra state in principal. It will strive to achieve the following objectives;

- i. Captive breeding and an attractive display of common and endangered species from Marathawada, Western Ghats and Deccan Plateau of Maharashtra.*
- ii. Educating the zoo visitors on the role of modern zoos in wildlife conservation through appropriate signage, interpretive exhibits and an effective extension literature etc.*
- iii. Conducting research on the behavioral, biological and veterinary aspects of captive animals.*
- iv. To sustain a lifetime care facility.*

3.2 Vision of the Zoo

Aurangabad is an important destination on national and international map for tourism, education and industrial development. Aurangabad Municipal Corporation take this opportunity for effective awareness among the people through its zoo that will assist in creating a pro-environment lobby force for protecting biodiversity. As concern, Maharashtra state is having very diverse agro climatic conditions that support unique biodiversity associated with the semi-arid grasslands, forests and the aquatic ecosystems.

3.3 Mission statement

To develop a state of the art zoo with a focus on contented animals and conservation education for visitors, through a proactive interpretation approach.

3.4 Theme

Efforts have been made to display animals in their natural environmental way as well as their biological grouping according to the taxonomical scheme in most of the cases. Visitors will see the animals of a particular group in one location for better understanding of their behavior and differences.

The visitors will have exhilarating experience of different taxonomical group as under;

- i. Herbivores*
- ii. Reptiles*
- iii. Large cats*
- iv. Small cats*
- v. Felids*
- vi. Primates*
- vii. Bird (flight less, water and grassland birds)*

3.5 Strategy to achieve objectives

3.5.1 Ex-situ conservation

The display of AMC zoo includes most of the endemic species of animals like; tiger, panther, bear, hyenas, wolf, fox, crocodile and peafowl. Efforts will be given to provide adequate space for movement, health care and balance diet for the breeding and longevity of all animal species. The animal section will be strengthened by the recruiting technical staff and upgrading their skill by various trainings.

3.5.2 Education and awareness

In order to achieve the objective, an education cum research section will be established for the zoo with adequate highly skilled manpower and infrastructure like interpretation center, high quality extension literature and audio visual aid.

This section will develop the education and awareness programme as under;

- i.* To develop interactive signage.
- ii.* Animal information charts.
- iii.* To conduct guided tours, organize lectures and talks.
- iv.* To publish guide book, brochures, guide map and leaflets about the zoo and its inmates.
- v.* To organize orientation programmes for the selected group.
- vi.* To conduct various competitions on the eve of wildlife week and other specific days.
- vii.* To involve volunteers, common public and NGO's to take up various awareness activities.



4. FUTURE ACTION PLAN

4.1 Future planning

The future planning is aimed at providing directions for development of this zoo for next ten years (i.e. 2014-2024) which will be reviewed then for next planning. The development plan is based on the availability of facilities, resources and climatic conditions. The action plan is laid in consultation with CZA guidelines as well as the opinion from various zoo experts. The development has been planned keeping in view the strategy to achieve the prescribed objectives.

4.2 Animal collection plan

Aurangabad Municipal Corporation zoo is aimed to display various animals keeping in view the local ecological conditions, habitat, climate and the resources available. The zoo falls under category of small zoo's having animal collection plan as prescribed by CZA as mentioned below;

<i>i.</i> Species of local area / ecosystem	60% of the total species displayed
<i>ii.</i> Species of the region	20% of the total species displayed
<i>iii.</i> Species of the nation	10% of the total species displayed
<i>iv.</i> Exotic species	10% of the total species displayed

For detailed animal collection plan please refer table 4.1 A, B, C & D.

Table 4.1. Animal collection plan of Aurangabad Municipal Corporation is as under

Sr. No.	Species	Existing stock				Proposed collection				Animals to be acquired				Proposed area (sq. meter)
		M	F	US	Total	M	F	US	Total	M	F	US	Total	
A. MAMMAL SPECIES														
1	Tiger (<i>Panthera tigris</i>)	4	4	--	8	--	--	--	--	--	--	--	--	3078
2.	White Tiger (<i>Panthera tigris</i>)	2	2	--	4	3	3	--	6	1	1	--	2	2558
3	Lion (<i>Panthera leo</i>)	--	--	--	--	2	3	--	5	2	3	--	5	1271
4	Panther (<i>Panthera pardus</i>)	1	1	--	2	2	3	--	5	1	2	--	3	620
5	Sloth Bear (<i>Melursus ursinus</i>)	1	1	--	2	2	3	--	5	1	2	--	3	1079
6	Indian Civet cat (<i>Vierricula indica</i>)	3	2	--	5	3	2	--	5	--	--	--	--	120
7	Hyena (<i>Hyena hyena</i>)	1	1	--	2	2	3	--	5	1	2	--	3	666
8	Jackal (<i>Canis aureus</i>)	1	0	--	1	2	3	--	5	1	3	--	4	634
9	Wolf (<i>Carnis lupus</i>)	0	1	--	1	2	3	--	5	2	2	--	4	1023
10	Sambar (<i>Cervus unicolor</i>)	8	24	--	32	5	10	--	15	3	14	--	17*	1604
11	Chital (<i>Axis axis</i>)	1	1	--	2	2	3	--	5	1	2	--	3	2881
12	Black Buck (<i>Antilope cervicapra</i>)	19	22	--	41	5	10	--	15	14	12	--	26*	1818
13	Chinkara (<i>Gazella bennetti</i>)	--	--	--	--	2	3	--	5	2	3	--	5	1308
14	Neelgai (<i>Boselaphus tragocamelus</i>)	3	6	--	9	3	6	--	9	--	--	--	--	3540
15	Elephant (<i>Elephas maximus</i>)	--	2	--	2	--	2	--	2	--	--	--	--	NA
16	Porcupine (<i>Hystrix indica</i>)	2	2	--	4	2	3	--	5	--	1	--	1	136
17	Rhesus Monkey (<i>Macaca mulatta</i>)	--	1	--	1	2	3	--	5	2	2	--	4	636
18	Grey Langur (<i>Presbytis entellus</i>)	1	1	--	2	2	3	--	5	1	2	--	3	623
19	Bonnet Monkey (<i>Macaca radiata</i>)	1	--	--	1	2	3	--	5	1	3	--	4	944

Sr. No.	Species	Existing stock				Proposed collection				Animals to be acquired				Proposed area (sq. meter)
		M	F	US	Total	M	F	US	Total	M	F	US	Total	
B. BIRD SPECIES														
20	Pea fowl ordinary (<i>Pavo cristatus</i>)	1	1	--	2	2	3	--	5	1	2	--	3	300 (combine)
21	Pea fowl white (<i>Pavo cristatus</i>)	--	1	--	1	2	3	--	5	2	2	--	4	--do--
22	Painted stork (<i>Ibis leucocephala</i>)	--	--	--	6	--	--	--	6	--	--	--	--	648 (combine for sr. no.22-26)
23	Spoon bill (<i>Platalea regia</i>)	1	2	--	3	2	3	--	5	1	1	-	2	--do--
24	Ducks (<i>Different species</i>)	--	--	--	4	--	--	--	10	--	--	--	6	--do--
25	Indian goose(<i>Eleusine indica</i>)	--	--	--	6	--	--	--	6	--	--	--	--	--do--
26	White Egret (<i>Egretta sp.</i>)	--	12	--	12	--	--	--	12	--	--	--	--	--do--
27	Emu (<i>Dromiceius novaehollandiae</i>)	--	2	--	2	2	3	--	5	2	1	--	3	530

Sr. No.	Species	Existing stock				Proposed collection				Animals to be acquired				Proposed area (sq. meter)
		M	F	US	Total	M	F	US	Total	M	F	US	Total	
C. REPTILES SPECIES														
28	Marsh Crocodile (<i>Crocodilus palustris</i>)	2	1	--	3	2	2	--	4	--	1	--	1	720
29	Common Turtle (<i>Dermochelys coriacea</i>)	--	--	--	7	--	--	--	7	--	--	--	--	100
30	Star tortoise(<i>Geochalone elegans</i>)	--	--	--	49	--	--	--	49	--	--	--	--	200
31	Cobra (<i>Naja naja</i>)	--	--	--	13	--	--	--	13	--	--	--	--	A common area of 1000 sq. meter will be divided for all snake species in different kraals as per CZA standard norms.
32	Russell Viper (<i>Vipera russelli</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
33	Krait (<i>Bungarus fasciatus</i>)	--	--	--	2	2	2	--	4	1	1	--	2	
34	Water snakes (<i>Cerberus rynchops</i>)	--	--	--	20	--	--	--	20	--	--	--	--	
35	Python (<i>Python molurus</i>)	--	--	--	4	--	--	--	4	--	--	--	--	
36	Sand Boa (<i>Eryx johnii</i>)	--	--	--	2	2	2	--	4	1	1	--	2	
37	Earth Boa (<i>Eryx johnii</i>)	--	--	--	3	2	3	--	5	1	1	--	2	
38	Grass Snake (<i>Natrix natrix</i>)	--	--	--	8	--	--	--	8	--	--	--	--	
39	Trinket Snake(<i>Coegnatus helena helena</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
40	Rat Snake (<i>Ptyas mucosa</i>)	--	--	--	12	--	--	--	12	--	--	--	--	
41	Banded racer	--	--	--	4	--	--	--	4	--	--	--	--	

Sr. No.	Species	Existing stock				Proposed collection				Animals to be acquired				Proposed area (sq. meter)
		M	F	US	Total	M	F	US	Total	M	F	US	Total	
D. FISH SPECIES														
42	Gold fish (<i>Carassius auratus</i>)	--	--	--	20	--	--	--	20	--	--	--	--	A common area of 463.06 sq. meter will be divided for all fish species in different aquaria as per requirement of fish species.
43	Silver moully (<i>Poecilia latipinna</i>)	--	--	--	20	--	--	--	20	--	--	--	--	
44	Tangerin (<i>Percina aurantiaca</i>)	--	--	--	20	--	--	--	20	--	--	--	--	
45	Black moully (<i>Poecilia latipinna</i>)	--	--	--	20	--	--	--	20	--	--	--	--	
46	Black moor (<i>Carassius auratus</i>)	--	--	--	16	--	--	--	16	--	--	--	--	
47	Parl gorami (<i>Trichogaster leri</i>)	--	--	--	12	--	--	--	12	--	--	--	--	
48	Redcap Fish (<i>Hoplarchus psittacus</i>)	--	--	--	16	--	--	--	16	--	--	--	--	
49	Widow tetra fish (<i>Gymnocorymbus ternetzi</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
50	Green tiger fish (<i>Puntius semifasciolatus</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
51	Jwell fish (<i>Hemichromis bimaculatus</i>)	--	--	--	12	--	--	--	12	--	--	--	--	
52	Blue gorami (<i>Trichogaster trichopterus</i>)	--	--	--	12	--	--	--	12	--	--	--	--	
53	Blue marf fish	--	--	--	10	--	--	--	10	--	--	--	--	
54	Shivram fish	--	--	--	16	--	--	--	16	--	--	--	--	
55	Red finshark (<i>Epalzeorhynchus munense</i>)	--	--	--	12	--	--	--	12	--	--	--	--	
56	Copper gold fish (<i>Carassius auratus</i>)	--	--	--	16	--	--	--	16	--	--	--	--	
57	Red mully (<i>Mullus surmuletus</i>)	--	--	--	12	--	--	--	12	--	--	--	--	

Sr. No.	Species	Existing stock				Proposed collection				Animals to be acquired				Proposed area (sq. meter)
		M	F	US	Total	M	F	US	Total	M	F	US	Total	
FISH SPECIES contd...														
58	Tiger barb (<i>Puntius tetrazona</i>)	--	--	--	06	--	--	--	06	--	--	--	--	A common area of 463.06 sq. meter will be divided for all fish species in different aquaria as per requirement of fish species
59	Scat fish (<i>Scatophagus Argus</i>)	--	--	--	20	--	--	--	20	--	--	--	--	
60	Rosy barb (<i>Puntis conchoni</i>)	--	--	--	16	--	--	--	16	--	--	--	--	
61	Dollar fish (<i>Metynnis argenteus</i>)	--	--	--	04	--	--	--	04	--	--	--	--	
62	Angel fish (<i>Pterophyllum scalare</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
63	Maral fish (<i>Leuzea carthamoides</i>)	--	--	--	6	--	--	--	6	--	--	--	--	
64	Lazer fish (<i>Corydorus Aeneus</i>)	--	--	--	20	--	--	--	20	--	--	--	--	
65	Tin fine barb fish (<i>Barbus schwanefeldi</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
66	Koi (<i>Cyprinus carpio</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
67	Osker fish (<i>Astronotus ocellatus</i>)	--	--	--	4	--	--	--	4	--	--	--	--	
68	Sukker fish (<i>Gastromyzon sp.</i>)	--	--	--	14	--	--	--	14	--	--	--	--	
69	Shark (<i>Labeo chrysophekadion</i>)	--	--	--	15	--	--	--	15	--	--	--	--	
70	Rohu (<i>Labeo Rohita</i>)	--	--	--	16	--	--	--	16	--	--	--	--	
71	Golden gorami (<i>Trichogaster trichopterus</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
72	Mangoor (<i>Clarius batrachus</i>)	--	--	--	10	--	--	--	10	--	--	--	--	
73	Shubhamkin fish	--	--	--	10	--	--	--	10	--	--	--	--	
74	Albino tiger shark (<i>Holothuria argus</i>)	--	--	--	5	--	--	--	5	--	--	--	--	
75	Common carp (<i>Cyprinus carpio</i>)	--	--	--	12	--	--	--	12	--	--	--	--	
76	Spotbarb fish (<i>Puntius conchoni</i>)	--	--	--	10	--	--	--	10	--	--	--	--	

4.3. Description of revised layout plan

Aurangabad Municipal Corporation zoo is centrally located near central bust station of Aurangabad. A total area of zoo as per new layout plan is 34 acres. It includes 14 acres of land of existing zoo and 20 acres have acquired from the Siddharth garden so as to have sufficient space available for the zoo development. As per the CZA guidelines, new layout plan of zoo has been prepared by Dr. G. D. Khedkar, Paul Hebert Centre for DNA Barcoding & Biodiversity Studies, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. The layout plan has been drawn on the scale of 1:1000 and as per the topography of the site. Contour lines have been taken at an interval of 5x5 meters. The existing features like the Kham river, sewage drain, parking, interpretation centre, aquarium, gardens, roads, path, veterinary hospital, rescue centre, animal enclosures and public amenities (drinking water, wash room and resting shelters, etc.) have been shown. Proposed features like improved visitor's circulation plan, service roads, disposal of carcasses, ticket window and other supporting activities have been shown. The colour code, which has been used for drawing master layout plan, includes;

Black colour for the existing animal enclosures;

Green colour for the enclosure, which is to be modified;

Red colour for proposed demolition of existing enclosure and

Blue colour for proposed construction of new enclosures.

The arrangement of various enclosures is followed in a definitive pattern according to their biological and behavioural grouping as under;

- i. *Aquarium*
- ii. *Bird (flight less, water and ground birds)*
- iii. *Herbivores*
- iv. *Reptiles*
- v. *Large cats*
- vi. *Small cats*
- vii. *Felids*
- viii. *Primates*

Due care had been taken to have enough space for movement, hide and brisk walking in all enclosures as per CZA guidelines. A visitor circulation plan is designed in such a way that there may not be overlapping of roads like service road and visitor circulation. Also, all enclosures are planned in such a way that the animal night shelter/housing may not be visible to the visitors.

4.4 Visitor circulation

The visitor circulation starts from ticket window in a one way movement from left to right followed by interpretation centre, aquarium, bird enclosure (flight less, water and ground birds), herbivore exhibits. The herbivores enclosures will be followed by Snake Park and reptiles. The road will navigate in a small loop towards right track to show large cats like tiger, lion and panther. At the end of carnivore enclosures, the visitor will have the option for visiting the

Vasundhara theatre to enjoy wildlife movies. Afterwards visitor can proceed following same road to see the Sambar deer, Civet cat, Porcupine and members of small carnivores (Jackal, Hyena and Wolf), and then move in a loop to Sloth Bear and finally through Primates enclosures to the exit. The directional signages are proposed at different crossings to guide the visitors for a proper exhibit viewing. This will aid in finding the proper exhibits of interest to the visitors.

The one round of the zoo through this circulation plan will be of about 1.5 kilometer. It will take about two hour and thirty minutes to see the zoo by walk. All the service lines have been marked in the layout plan. Please refer detailed design map of layout plan at **Annexure VI** (page no. 132). The enclosed revised layout plan has been approved by CZA experts group in its 40th meeting held on 23.04.2013.

4.5. Services

The zoo proposes to provide services for its operation and maintenance in the following way;

i. Supply of feed and essential items

A separate entrance through a service gate has been proposed near the eastern side of the zoo for the purpose of feed supply, animal rescue and routine activities of service staff. A service road connecting to all night shelters has been proposed for unobstructed movement of service vehicle for feed supply, regular maintenance and treatment of the animals. The service gate and the network of service road can be seen in the layout plan.

Internal services like water management system, solid waste disposal system, liquid waste disposal (sewage), drainage system and electricity supply systems are proposed as below;

4.5.1. Water management system

The water is obtained from the following sources;

- i. Bore wells.*
- ii. Municipal Corporation water supply.*
- iii. Recycled wastewater through STP.*

Majority water supply for gardening comes through the two bore wells for the zoo, of which one bore well is located near Snake Park and another behind the Buddha Statue. The water required for drinking purpose comes from Aurangabad Municipal Corporation water supply system through an overhead tank having 50000 liters storage capacity. Water quality of bore well and AMC water supply is tested by Public Health Department Laboratory, Aurangabad. For details please refer **Annexure VII** (Page no. 133).

Drinking water is supplied through a network of water supply lines for the visitor's amenities, animals and offices. The drawing of drinking water distribution system is detailed in map at **Annexure VIII** (page no.134). As per the suggestions of expert group on zoo consultation a sewer water treatment plant is proposed for treating the sewer discharge of the city is on the west side of zoo. This treated water will be recycled and used for horticulture, garden and nursery purpose.

The projected water requirement for the zoo is given in table 4.2 and 4.3.

Table 4.2. Drinking water requirement

Sr. No.	Items	Drinking water requirement in liters*	Non-potable water requirement in liters*
1	Animal enclosures (1 to 31)	2000	20000
2	Aquarium	1000	5000
3	Toilets, water points	-	5000
4	Canteen/kiosk	1000	2000
5	Office/ field office	500	2000
6	Veterinary hospital, rescue centre, quarantine and post mortem facility	200	500
7	Store	100	500
8	Interpretation centre	500	2000
9	Work shop	100	200
10	Miscellaneous	600	6800
	Total	6000	44000

Table 4.3. Non-potable water requirement

Sr. No.	Items	Non potable water requirement in liters*
1	Lawns	10000
2	Nursery	10000
3	Hedges	10000
4	Moats	50000
5	Fountain	20000
6	Water bodies	50000
8	Miscellaneous	50000
	Total	200000

Total potable water requirement is 50000 liters per day and non-potable water requirement is 200000 liters per day.

** The water requirement has been calculated on the basis of existing consumption and expected requirement due to expansion and popularity.*

4.5.2. Solid Waste Disposal

The solid waste of the zoo will consist of following materials;

- i. Leftover food*
- ii. Fecal matter*
- iii. Fallen leaves*
- iv. Grasses*
- v. Garbage*

It has been proposed to segregate the biodegradable waste and non-degradable waste. This waste will be disposed-off by the municipal corporation personnel. The biodegradable waste will be used for composting like vermicomposting and running a biogas plant etc.

4.5.3 Liquid Waste Disposal (Sewage)

The liquid waste includes water from enclosure washing, animal urine and flush of excreta and public amenities. Drainage lines of all carnivore enclosures on side of the Kham River will be attached to the sewer line parallel to the river. Drainage line of all herbivore, reptiles and birds enclosures on south border of zoo will be attached to the sewer line parallel to old AMC sewer line. New sewer line network is proposed to replace old sewage line, which will cater the sewage discharge of the whole area to the STP. This wastewater will be treated and re-circulated for horticulture, washing and cleaning purpose. The STP is designed considering demands for next 10 years. Please refer **Annexure IX** (page no. 135) for internal sewage disposal system.

4.5.4. Drainage System

During heavy monsoon showers, the low-lying areas of the zoo may have waterlogging issues. In such situations, excess water will be drained-off by a network of pipelines and open drains as detailed in map at **Annexure X** (page no.136).

4.5.5. Electricity Supply System

The Maharashtra state electricity board supplies electricity to the zoo. A 64 KV electricity sub-station is located outside the zoo premises. It has adequate capacity to supply power to the zoo. The details of the electricity requirement are given in table 4.4. For detailed electricity supply and distribution plan, please refer **Annexure XI** (page no.137).

Table 4.4. Power requirement

Sr. No.	Items	Power requirement (in KV)
1	Gate	5
2	Parking	5
3	Aquarium	5
4	Interpretation centre	5
5	Store	5
6	Animal houses	5
7	Office / field office	5
8	All road sides	5
9	Pump house	5
10	Veterinary hospital	5
11	Work shop	5
12	Miscellaneous	5
	Total	60

4.6 Animal Section

As stated in the appraisal, the animal section is responsible for the up keep of animals and their houses so that they get a hygienic and naturalistic environment. Adequate measures will be taken to ensure the safety of animals, caretakers and visitors while designing the exhibit. Each exhibit will have proper drainage of excess water and arrangements for removal of excreta and residual waste. For this purpose it is proposed to have an additional staff requirement and other supporting facilities as detailed in table Table 4.5; 4.6.

Table 4.5. Additional staff requirement

Sr. no.	Post	No	Scale
1	Zoo Biologist	1	9300-34800 Grade Pay 4200
2	Head Animal Keeper	1	4440-7440 Grade Pay 1600
3	Animal Keeper	2	4440-7440 Grade Pay 1300
4	Attendant/Labour	-	4440-7440 Grade Pay 1300

Table 4.6. Equipment and vehicle requirement

Sr. no.	Items	Quantity
1	Nets	2
2	Ropes	5
3	Bamboos	10
4	Trollies	15
5	Squeeze Cages	6
6	Trap Cages	4
7	Animal transport van	01
8	Blindfold towels	10
9	Pipes	10
10	Search lights	4
11	Tranquillizing gun	1
12	Buckets	20
13	Blow pipes	2

4.6.1 List of animal enclosures to be demolished

- i. Pea fowl enclosure*
- ii. Emu enclosure*
- iii. Porcupine enclosure*
- iv. Jackal enclosure*
- v. Hyena enclosure*
- vi. Wolf enclosure*
- vii. Civet cat enclosure*
- viii. Bonnet monkey enclosure*
- ix. Rhesus monkey enclosure*
- x. Common langur enclosure*
- xi. Sloth bear enclosure*
- xii. Water birds enclosure*
- xiii. Elephant enclosure*
- xiv. Leopard enclosure*
- xv. Bengal tiger enclosure*
- xvi. White tiger enclosure*
- xvii. Lion enclosure*

The exhibits of above-mentioned species are smaller, dingy and do not conform to CZA norms for animal exhibits as stated in the appraisal report. All these enclosures will be replaced by the new enclosures as per the approved designs by the CZA.

4.6.2. Enclosures require renovation

- i. Aquarium*
- ii. Spotted deer enclosure*
- iii. Black buck enclosure*
- iv. Chinkara enclosure*
- v. Blue bull enclosure*
- vi. Snake park enclosure*
- vii. Crocodile enclosure*

4.6.3. Enclosures to be constructed

Following new enclosures proposed for construction as per the CZA approved layout plan.

- i. Pea fowl enclosure*
- ii. Water birds enclosure*
- iii. Emu enclosure*
- iv. Bengal tiger enclosure*
- v. White tiger enclosure*
- vi. Lion enclosure*
- vii. Leopard enclosure*
- viii. Sambar deer enclosure*
- ix. Civet cat enclosure*
- x. Porcupine enclosure*
- xi. Jackal enclosure*
- xii. Hyena enclosure*
- xiii. Wolfs enclosure*
- xiv. Sloth Bear enclosure*
- xv. Bonnet monkey enclosure*
- xvi. Common langur enclosure*
- xvii. Rhesus monkey enclosure*

(Note: elephant enclosure will not be constructed as per CZA directives)

4.6.4. Brief information of animal enclosures to be renovated

i. Aquarium

Cell size (meter)	Remarks
463.06 sq.m.	<p>Most of the aquarium tanks are old and need replacement with new spacious tanks. Aeration system needs replacement with approximate 200 cubic meter/hr. air dispensing capacity. Water filtration system needs reinstallation.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"><i>i. Aquatic vegetation need to be incorporated in the tanks.</i><i>ii. Aquarium lobby need beautification.</i><i>iii. Information charts need to be fixed.</i>

ii. Spotted deer enclosure

Cell size (meter) (LXBXH)	Enclosure size	Remarks
3.0 X 2.00 X 2.50	2851.00 sq. m.	<p>Housing needs renovation like creation canopy. Outer fence from viewing side need screening as well as haze plantation so as to avoid direct contact by visitors to animal. Thick vegetation screening from west end.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Growing vegetation</i> <i>ii. Shadow shelters</i> <i>iii. Boundary needs irregular shape by organizing plantation in a forest theme.</i> <i>iv. Drinking water facility creation in naturalistic manner.</i>

iii. Black buck

Cell size (meter) (LXBXH)	Enclosure area	Remarks
3.0 X 2.00 X 2.50	1818.00 sq. m.	<p>Housing needs renovation like creation canopy. Outer fence from viewing side need screening (70%) as well as haze plantation so as to avoid direct contact by visitors to the fence and animal. Renovation of moat.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Growing vegetation</i> <i>ii. Shadow shelters</i> <i>iii. Boundary needs irregular shape by organizing plantation in a forest theme.</i> <i>iv. Drinking water facility creation in naturalistic manner.</i>

iv. Chinkara

Cell size (meter) (LXBXH)	Enclosure area	Remarks
3.0 X 2.00 X 2.50	1308.00 sq. m.	<p>Housing needs renovation like creation canopy. Outer fence from viewing side need screening (70%) as well as haze plantation so as to avoid direct contact by visitors to the fence and animal. Thick vegetation screening from west end. Renovation of moat.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Growing vegetation</i> <i>ii. Shadow shelters</i> <i>iii. Boundary needs irregular shape by organizing plantation in a forest theme.</i> <i>iv. Drinking water facility creation in naturalistic manner.</i>

v. Blue bull

Cell size (meter) (LXBXH)	Enclosure area	Remarks
3.0 X 2.00 X 2.50	3540.00 sq. m.	<p>Housing needs renovation. Outer fence from viewing side need screening (70%) as well as haze plantation so as to avoid direct contact by visitors to the fence and animal. Thick vegetation screening from west end. Renovation of moat.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Growing vegetation</i> <i>ii. Shadow shelters</i> <i>iii. Boundary needs irregular shape by organizing plantation in a forest theme.</i> <i>iv. Drinking water facility creation in naturalistic manner.</i>

vi. Snake park

Cell size (meter) L X B X H	Remarks
1000.00 sq.m. (Kraal area 5X3 sq. m per species) 18 boxes	<p>Most of the snake housing is weird. Enrichment and naturalistic environment is required. Aeration, sunlight and internal visitor circulation need renovation.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Water fountains, water bodies and vegetation need to be established.</i> <i>ii. Lobby needs beautification.</i> <i>iii. Information charts need to be fixed.</i>

vii. Crocodile enclosure

Cell size (meter)	Remarks
720.00 sq. m.	<p>Outer fence from viewing side need screening (70%) as well as haze plantation so as to avoid direct contact by visitors to the fence and animal.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"><li><i>i. Renovation of water recycling system</i><li><i>ii. Growing aquatic vegetation</i><li><i>iii. Laying of sand and mud bed one the edge of water body</i>

viii. The Vasundhara wildlife theatre

Cell size (meter)	Remarks
230.00 sq. m.	Renovation of seating arrangement. Installation of Air conditioning system. Installation of improved sound system. <i>Enrichment proposed:</i> <i>i. Landscaping and providing ornamental plants</i> <i>ii. Singes and literature development</i>

4.6.5. Brief information of animal enclosures to be constructed

i. Bird aviary for peafowl

Cell size (meter) L X B X H	Proposed area (Sq. M.)	Remarks
2.0 X 1.50 X 2.50	Area of 300 sq. meter will be provided having 3 meter height (White or green peafowl)	<p>The minimum prescribed size by CZA for the outdoor enclosures will be followed.</p> <p>Bushy as well as branching plants will be planted.</p> <p>Each aviary will be a covered with wire mesh of size of 1" x 1".</p> <p>Enrichment proposed:</p> <ul style="list-style-type: none"> iv. <i>Wooden platform varying diameter will be provided</i> v. <i>Small size tree / bushes will be planted.</i> vi. <i>Nesting material will be provided.</i>

ii. Wetland Birds (Painted stork, Pelican, White ibis, Spoon bill and Adjutant stork)

Cell size (meter) L X B X H	Proposed area (Sq. M.)	Remarks
Cell construction is not required	648	<p>About 40 percent of the area will be in the form of water body.</p> <p>Small islands of different sizes (25 Sq.m to 75 Sq.m) with adequate trees and bushes will be created.</p> <p>The periphery of the water body will have thick row of typha plants.</p> <p>The depth of water body will be from 1 ft to 5 ft. There will be a system of releasing the water and its exit.</p> <p>The whole area will be covered with chain link fence. The height of chain link fence will be 8 m.</p> <p>Adequate food will be provided. Fish fry will be released to grow fish in the water body</p>

iii. Emu enclosure

Cell size (meter) L X B X H	Proposed area (Sq. M.)	Remarks
3.0 X 2.00 X 2.50	530	<p>The enclosures will be covered on three sides with 2" x 2" chain link fence of 2.5 meter high. The front or viewing side will have V-shaped dry moat with a depth of 1.5 m. and width of 3 m.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Australian plants / groove of bushes will be planted.</i> <i>ii. Grass land will be created.</i> <i>iii. Shallow water pool with fountain will be created.</i> <i>iv. Marble chips will be provided at 2-3 locations.</i> <i>v. Soft soil / nesting material (dry hay) will also be provided.</i>

iv. Bengal tiger enclosure

Cell size (meter)	Proposed area for enclosure (Sq. M.)	Remarks
200 sq. meter (Kraal area 1.5X4X2 sq. m per animal)	3078.00	<p>This enclosure will be constructed at the place of existing leopard enclosure, zoo directors office, store and adjoining area after demolition.</p> <p>The enclosures will be covered on three sides with 7.5 cm x 7.5 cm x 10g chain link fence of 8 m high. The front or viewing side will have V-shaped dry moat with a depth of 5 m and width of 8 m.</p> <p>New night shelter will be built having service road approach.</p> <p>Entrance from night shelter to enclosure will be hide by bamboo and/or other suitable plantation.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Grove of bushes will be provided</i> <i>ii. Caves and water bodies using rocky landscape will be developed.</i> <i>iii. Wooden logs will be provided.</i> <i>iv. On south side tinted and toughened glass cabin having nose-to-nose viewing will be provided.</i>

v. White tiger enclosure

Cell size (meter)	Proposed area for enclosure (Sq. M.)	Remarks
200 sq. meter (Kraal area 1.5X4X2 sq. m per animal)	2588.00	<p>This enclosure will be constructed at the place of existing Bengal tiger and adjoining area after demolition.</p> <p>The enclosures will be covered on three sides with 7.5 cm x 7.5 cm x 10g chain link fence of 8 m high. The front or viewing side will have V-shaped dry moat with a depth of 5 m and width of 8 m.</p> <p>New night shelter will be built having service road approach.</p> <p>Entrance from night shelter to enclosure will be hiding by bamboo and/or other suitable plantation.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Grove of bushes will be provided</i> <i>ii. Caves and water bodies using rocky landscape will be developed.</i> <i>iii. Wooden logs will be provided.</i>

vi. The lion enclosure

Cell size (meter)	Proposed area for enclosure (Sq. M.)	Remarks
<p>200 sq. meter</p> <p>(Kraal area 1.5 X 4 X 2 sq. m per animal)</p>	<p>1271.00</p>	<p>This enclosure will be constructed at the place of existing white tiger and adjoining area after demolition.</p> <p>The enclosures will be covered on three sides with 7.5 cm x 7.5 cm x 10g chain link fence of 8 m high. The front or viewing side will have V-shaped dry moat with a depth of 5 m and width of 8 m.</p> <p>New night shelter will be built having service road approach.</p> <p>Entrance from night shelter to enclosure will be hiding by bamboo and/or other suitable plantation.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Grove of bushes will be provided</i> <i>ii. Caves and water bodies using rocky landscape will be developed.</i> <i>iii. Wooden logs will be provided.</i>

vii. Leopard enclosure

Cell size (meter)	Proposed area for enclosure (Sq. M.)	Remarks
<p>200 sq. meter</p> <p>(Kraal area 1 X 2 X 1.2 sq. m per animal)</p>	<p>620.00</p>	<p>This enclosure will be constructed at the place of existing lion enclosure and adjoining area after demolition.</p> <p>The enclosures will be covered on all sides with 7.5 cm x 7.5 cm x 10g chain link fence of 8 m high. The front or viewing side will have chain link and haze screening .</p> <p>New night shelter will be built having service road approach.</p> <p>Entrance from night shelter to enclosure will be hiding by bamboo and/or other suitable plantation.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>iv. Grove of bushes will be provided</i> <i>v. Caves and water bodies using rocky landscape will be developed.</i> <i>vi. Wooden logs will be provided.</i>

vii. Sambar Deer enclosure

Cell size (meter) (LXBXH)	Enclosure area	Remarks
3.0 X 2.00 X 2.50	1604.00 sq. m.	<p>Housing will be newly constructed behind the Vasundhara wildlife theatre.</p> <p>Outer fence from viewing side need screening (70%) as well as haze plantation so as to avoid direct contact by visitors to the fence and animal.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Growing vegetation</i> <i>ii. Shadow shelters</i> <i>iii. Boundary needs irregular shape by organizing plantation in a forest theme.</i> <i>iv. Drinking water facility creation in naturalistic manner.</i>

viii. Civet cat enclosure

Cell size (meter) L X B X H	Enclosure area Sq. M.	Remarks
1.8 X 1.50 X 2.00	200.00	<p>This enclosure will be constructed behind the Vasundhara wildlife theatre in newly assigned area.</p> <p>The enclosures will be covered on all sides with 1.5 x 1.5 inch chain link fence</p> <p>The viewing will be through fence. The fenced sides will have over grown shrubs to conceal the metallic parts.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Small bushes will be provided.</i> <i>ii. Burrows/ dens will be made.</i> <i>iii. Small logs will be fixed.</i> <i>iv. Wooden ladder will be provided.</i> <i>v. A darkness will be maintained in the cubicle.</i> <i>vi. Drinking water facility creation in naturalistic manner.</i>

ix. Porcupine enclosure

Cell size (meter) L X B X H	Enclosure area Sq. M.	Remarks
2.0 X 1.50 X 1.50	136.00	<p>This enclosure will be constructed behind the Vasundhara wildlife theatre in newly assigned area. The exhibits will be covered by 5 cm x 5 cm x 12g chain link fence of 2.5 m high on all sides with top open. The foundation will be of concrete masonry 1 m deep to check the digging of tunnels for escape. Sixty percent of the arena will be kept kaccha.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Sandy soil will be provided for making burrows.</i> <i>ii. Adequate shady trees will be planted.</i> <i>iii. Drinking water facility creation in naturalistic manner.</i>

x. Hyena, Jackal and Wolf

Cell size (meter) L X B X H	Enclosure area (sq.m)	Remarks
2.00 X 1.50 X 2.50	Jackal - 634.00 Hyena - 666.71 Wolf - 1023.00	<p>These enclosures will be constructed behind the Vasundhara wildlife theatre in newly assigned area.</p> <p>The enclosures will be covered on three sides with 5cm x 5cm x 10 g chain link fence of 2.5 meter high.</p> <p>The front or viewing side will have V-shaped dry moat (flat bottomed) with depth of 2.6 m and width of 5 m.</p> <p>The fenced sides will have over grown shrubs to conceal the metallic parts.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>i. Burrows / dens will be made.</i> <i>ii. Small old logs will be fixed for playing.</i> <i>iii. Carcass feeding will be done.</i> <i>iv. Groove of bushes will be provided .</i>

xi. Sloth Bear

Cell size (meter) L X B X H	Proposed area (Sq. M.)	Remarks
2.5 X 1.80 X 2.50	1679.00	<p>These enclosures will be constructed behind the Vasundhara wildlife theatre in newly assigned area.</p> <p>The enclosures will be covered on three sides with brick wall of 4 meter in height.</p> <p>The front or viewing side will have U shaped dry moat with a depth of 2.5 m and width of 5.5 meter.</p> <p>Enrichment proposed:</p> <ul style="list-style-type: none"> <i>i. The arena will be provided with natural vegetation including trees and tree logs, a pool, elevated wooden platform shall be provided.</i> <i>ii. Small logs will be fixed in cubicles.</i> <i>iii. Adequate shelter will be provided.</i> <i>iv. A cave will be created for breeding and shelter.</i> <i>v. A ladder to climb up to logs will be made.</i>

xii. Primates- Grey langoor, Bonnet macaque and Rhesus macaque

Cell size (meter) L X B X H	Proposed area (Sq. M.)	Remarks
1.8 X 1.50 X 2.50	Langoor : 623 Bonnet : 944 Rhesus : 636	<p>The enclosures will be island type having a U Or V-shaped dry or wet moat around with a depth of 5 m and width of 7 m for the Langoors. A depth of 4 m and width of 6 m for the monkey enclosure will be maintained. All the enclosures will be covered by chain link fence of 5 m in height with inclined inward steel plate of one meter width on the top. The steel plate should be placed at the angle of 60°.</p> <p><i>Enrichment proposed:</i></p> <ul style="list-style-type: none"> <i>vi. Trees and logs shall be provided.</i> <i>vii. Small logs will be fixed in cubicles.</i> <i>viii. Adequate shelter will be provided.</i> <i>ix. Rope for swinging will be fixed.</i> <i>x. Food will be provided 3 times a day.</i>

4.6.6 General works for improvements

- i. Recruitment of adequate technical and supportive staff.*
- ii. Repair and replacement of all defunct and broken steel section.*
- iii. Maintenance of masonry structure and carpentry structure.*
- iv. White wash and painting of steel sections.*
- v. Blocked sewage and water supply lines will be made functional.*
- vi. Improvement in habitat and enrichment of enclosures and surroundings.*
- vii. Damaged partition doors will be replaced.*
- viii. To provide a separate office for the animal section.*

4.7. Veterinary Section

Aurangabad Municipal Corporation Zoo has a well-equipped hospital. A full time veterinarian along with some support staff will be required as mentioned in table 4.7. The hospital has a clinic with basic facilities for treatment as described in the appraisal (see table 4.8 for ready reference).

Table 4.7. Additional staff requirement

Sr. no.	Post	Nos.	Pay Scale
1	Zoo veterinarian	1	15600-39100 (GP 5400)
2	Livestock supervisor	1	5200-20200 (GP 2400)
3	Lab. tech.	1	9300-34800 (GP 4200)
4	Compounder	1	5200-20200 (GP 1900)
5	Attendant	1	4440-7440 (GP 1300)

Table 4.8. Equipment and vehicle requirement

Sr. no.	Equipments/ Vehicle	Number
1	Veterinary Ambulance	1
2	Shadow less lump	1
3	General surgical equipment	1 operation set
4	Tranquilizing gun	2
5	Hydraulic Operation table	1
6	Microscope	1
7	Autoclave	1
8	Stretcher	1
9	Hatcher	1
10	Computer	1



4.7.1 Proposed improvement / modification in the veterinary section

- i. To recruit technical and support staff.*
- ii. To create a zoo hospital laboratory with lab equipments.*
- iii. To make room for zoo library.*
- iv. To create closed cell for ailing herbivore.*
- v. To create closed cell for ailing carnivore.*
- vi. Modern equipments and air-conditioning for Operation theater.*

4.7.2 Rescue center

An area of 418 Sq. meter has been allotted for rescue center and quarantine ward. The rescue center will have facilities as mentioned in table 4.9.

Table 4.9. Animal Rescue Centre

Sr. No.	Type	Area for facilities (including night house, Shelter and kraal)	No. of facilities
1	Carnivore	100 Sq. m	1
2	Herbivore	100 Sq. m	1
3	Small mammals	25 Sq. m	2
4	Birds	10 Sq. m	5
5	Reptiles	5 Sq. m	2

4.7.3 Quarantine/ Isolation Wards

Isolation ward for rescued and acquired animals will be constructed near the back entry gate of the zoo. An area of 50 Sq. m. will be kept for quarantine wards.

- i. Each cell will have light and air exposure.*
- ii. Each cell will have provision for medication and temperature monitoring facilities.*
- iii. The breakup of the area for different wards is given as under;*

Sr. no.	Ward	Area (sq. m)
1	Ward-1	20
2	Ward-2	10
3	Ward-3	10
4	Ward -4	10

4.8 Store and Kitchen Section

A well developed store is proposed to be constructed which will have ample space to store the food as well as maintenance material. It will have a storage room, feeding troughs, storage containers, kitchen, refrigeration room or cold storage for the storage of items like meat, milk, fish and fruit. It will have a weighing machine and a platform for loading and unloading store items.

Table 4.9. Additional staff requirement

Sr. no.	Post	Nos.	Pay Scale
1	Store keeper	1	5200-20200 (GP 1800)
2	Store assistant	1	4440-7440 (GP 1400)
3	Attendant	2	4440-7440 (GP 1300)

Table 4.10. Equipment and vehicle requirement

Sr. No.	Particulars	Quantity
1.	Computer	1
2.	Weighing machine	1
3.	Trolley	1
4.	Food containers of different capacities to be procured	As per need
5.	Feeding trough	As per need
6.	Keema machine	1
7.	Fodder cutting machine	1
8.	Utensils for kitchen	As per need
9.	Electronic weighing machine	1
10.	A small truck	1
11.	Cooking gas	1
12.	Office furniture	As per need
13.	Telephone facility	As per need

4.8.3. Proposed improvement / modification

New store will be made to store all store items.

4.9 Horticulture and Sanitation section

This section will provide naturalness in the park by maintaining natural flora. It will be responsible for all works related to plantation and maintenance of trees, gardens, lawns etc. This section will also look after the cleanliness and hygienic condition of the park. It will be responsible to remove leftover food, dung, cut grasses, fallen leaves, weeds and other items. All roads, foot-paths, toilets, drinking water points and rain shelters will be cleaned and maintained.

Table 4.11. Additional staff requirement for Horticulture and Sanitation Section

Sr. no.	Post	Nos.	Scale
1	Supervisor (Hort. & Sani)	1	5200-20200 (GP 2400)
2	Head gardener	1	4440-7440 (GP 1400)
3	Gardener	1	4440-7440 (GP 1300)
4	Sweeper	1	4440-7440 (GP 1300)

Table 4.12. Equipments and vehicle requirement

Sr. no.	Particulars	Nos.
1.	Lawn mover	2
2.	Grass cutter machine	2
3.	Pipe	10
4.	Trolley	5
5.	water pump	2
6.	Tractor and Trolley	1

4.9.1. Proposed improvement / modification

A separate office will be provided.

4.10 Maintenance Section

This section will undertake minor repair works of animal houses, field offices, road, path, bridge, bore wells and lying of service lines and maintenance thereof. The major construction works will be undertaken by the engineering wing of municipal corporation.

The work of maintenance will be outsourced as and when required

4.10.1 Additional staff requirement

No additional staff is required.

Table 4.13 Equipments and vehicle requirement

Sr. No.	Particulars	Quantity
1.	Welding machine	1
2.	Iron cutter	1
3.	Grinder	1
4.	Hole machine	1
5.	Mason equipment	1
6.	Electric equipment	1
7.	Plumbing equipment	1
8.	All sanitary equipments	1 set

4.10.2 Proposed improvement / modification

A office-cum-work shop with ample space for storing facility will be provided.

4.11 Security section

A new security section will be created whose office will be at the entrance. This section will be responsible to check the theft of government property, day & night patrolling, maintaining law & order, frisking of visitors and checking of tickets etc.

Table 4.14. Additional staff requirement for Security section

Sr. no.	Post	Nos.	Scale
1	Security supervisor	1	5200-20200 (GP 2400)
2	Security guards	8	4440-7440 (GP 1300)

4.11.1 Equipments and vehicle requirement

i. Torches

ii. Sticks

iii. Whistles

4.11.2. Proposed improvement / modification

i. A security office will be created at the entrance gate.

ii. A network of CC TV with terminal at entrance gate, director office, large carnivores area etc.

iii. PA system will also be installed covering whole zoo. Its announcement system will be with the security office.

4.12 Education and Awareness

As per CZA's norms on zoo education, zoo should inspire empathy for wild life, understanding and awareness about need of conservation of natural re-sources besides maintaining ecological

balance. This section will develop educational-cum-awareness program for the visitors and scheduled groups.

A separate education office within interpretation centre will be created near entrance. The interpretation centre will have an exhibit area, small auditorium with projector room, a class and open theatre. The office will have a office for educator and staff, store, library, toilets and drinking water facilities.

4.12.1 Additional staff requirement

No additional staff is required, Zoo biologist will look after the work of Education section

Table 4.15. Equipments and vehicle requirement

Sr. No.	Particulars	Quantity
1.	Projector	1
2.	DVD player	1
3.	Wheel chairs (For Disabled)	5
4.	Power point projector with computer	1
5.	A photo state machine	1
6.	PA system	1
7.	Computer with internet and printer	1
8.	Panel with stands	1
9.	Books / news paper/ periodicals	As per requirement
10.	Office furniture	As per requirement
11.	Telephone	As per requirement

4.12.2. Proposed improvement / modification

A new interpretation centre with all modern facilities for screening films, conducting workshops and exhibition will be constructed.

4.13 General Administration

A administrative section with spacious office will be created where staff of establishment-cum-accounts will work. This section will be responsible for overall administration and operation of the zoo.

Table 4.16. Additional staff requirement for administrative section

Sr. no.	Post	Nos.	Scale
1	Office superintendent	1	5200-20200 (GP 2400)
2	Computer operator	1	5200-20200 (GP 1900)
3	Clerk cum cashier	1	5200-20200 (GP 1900)
4	Office attendant	1	4440-7440 (GP 1300)

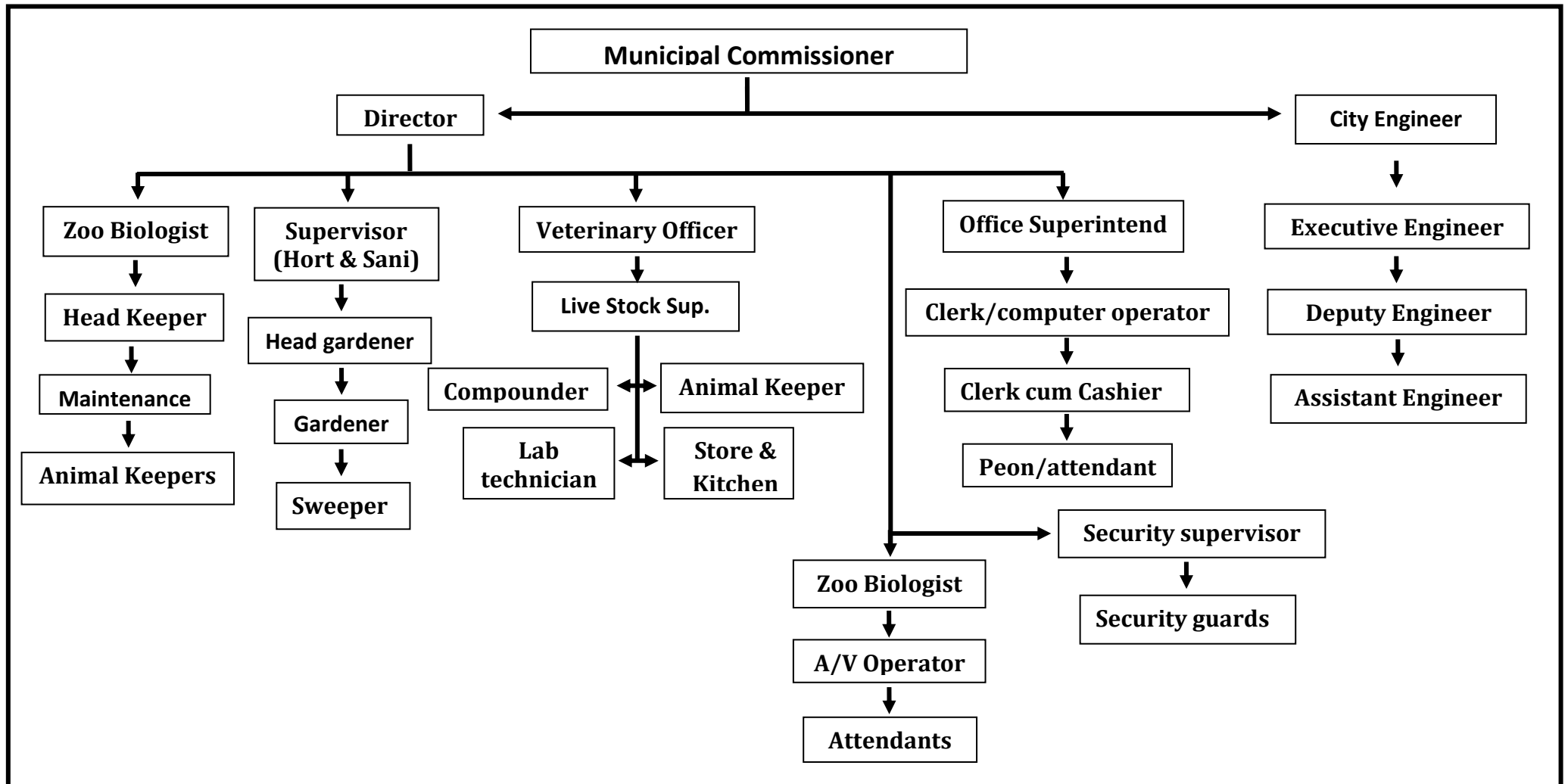
Table 4.17. Equipments and vehicle requirement

Sr. No.	Particulars	Quantity
1	Computer	1
2	Computer Table	1
3	Almirah	2
4	Miscellaneous	-

4.13.1. Proposed improvement / modification

A spacious office will be created with all office facilities.

4.13.2. The proposed organization chart



Note: Zoo biologists will look after the work of animal section, education section & maintenance section.

4.14. Visitors Amenities

Aurangabad zoo caters about 7-8 lacs visitors annually. This includes adult, children, students, wildlifers, old, disabled and foreigners. It opens all day except Tuesday. Some of existing public amenities proposed for renovation and improvisation are as below;

4.14.1. Parking

An area about 1000 sq m has been developed near the entrance gate for the parking of vehicles of the visitors.

4.14.2. Entry gate

New entry gate will be developed at the entrance which will have the following facilities;

- i. *Booking windows* : *Two*
- ii. *Cloak room* : *One*
- iii. *Entry and Exit gate* : *Separate for each*
- iv. *Security office* : *One*
- v. *Public address system* : *Will be set at interpretation centre*
- vi. *A ramp* : *where ever required.*

4.14.3. Kiosk

The facilities of present canteen will be improved. It will be established in the garden area. This will help to relax and refresh. A restaurant will be constructed on roof of parking area along with souvenir shop & others public interest facilities.

4.14.4. Wash room and drinking water facility

Two more toilets and drinking water points will be established.

4.14.5. Sitting benches and shelters

Twenty more sitting benches and shelters will be provided.

4.14.6. Wheel chairs

Five wheel chairs will be made available free of cost at the entrance to the physically challenged or senior citizen.

4.14.7. First-aid kit

It will be available at the entrance with security office, in the main office and veterinary hospital.

4.14.8. Garbage collection bins

Fifty garbage bins will be placed all over the zoo area.

4.15 Measures to check pollution arising due to Kham river & Sewage drain (on south side of zoo)

i. *The Kham river*

The Kham river is an old river flowing on the west side of zoo. It carries most of the cities sewage. In order to check pollution arising due to sewage, the corporation has initiated to install a STP plant at entrance of sewage under the scheme USSIDMT. The capacity of STP will be 5 MLD & project cost is 2.8 crores. The zoo authorities have taken the initiative to plant local species in a strip of 50 meter wide. The plantation along the river will check pollution arising due to sewage.

ii. *Sewage Drain*

This drain is located on the southern side of the zoo. It is major source of air pollution for the zoo since it carries sewage from some portion of Aurangabad city. The Aurangabad Municipal Corporation has taken action to install to STP plant on this drain under the scheme USSIDMT. The capacity of STP will be 5 MLD & cost is 2.8 crores. The zoo authorities have also planned to plant local species in a strip of 50 meter wide along the drain. The plant & STP are expected to check the pollution arising due to sewage.



5. PERSONNEL PLANNING

The Aurangabad Municipal Corporation Zoo, Aurangabad has an area of 34 acres. It will exhibit 24 species of animals and 35 species of fish comprising of 769 specimens. The zoo receives about 7-8 lacs visitors in a year. Most of the visitors include school and college students, families and tourists. Looking at the present challenges and betterment of zoo facilities, animal welfare and conservation, the development and expansion has been focused in the master plan for next ten years (2014-2024). Being a small, a hierarchy of category of small zoo has been proposed. This includes veterinary section, horticulture and sanitary, store, security, maintenance, education and administrative sections. The old and defunct exhibits will be replaced by new exhibits conforming to CZA guidelines. The norms of CZA to include technical staff in the personnel management has also been considered in total.

The proposed staffing pattern for this zoo is given at page on- 106. The existing and additional staff requirement of each section is given in following tables.

Table 5.1. Animal section

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No	Post	No.	Pay Scale
1	Live Stock Supervisor	1	1	-	On fix pay daily wages	1	Zoo Biologist	1	9300-34800 (GP 4200)
2	Animal Keepers	3	3	-	4440-7440 (GP 1300)	2	Head Animal Keeper	1	4440-7440 (GP 1600)
3	Care takers	8	8	-	4440-7440 (GP 1300)	3	Animal Keeper	2	4440-7440 (GP 1300)
4	Attendant/ Labour	33	33	-	4440-7440 (GP 1300)	4	Attendant/ Labour	10	4440-7440 (GP 1300)

Table 5.2. Veterinary section

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No.	Post	No.	Scale
1	Veterinary Officer*	-	-	-	-	1	Zoo veterinarian	1	15600-39100 (GP 5400)
2	Compounder	1	-	1	5200-20200 (GP1800)	2	Livestock supervisor	1	5200-20200 (GP-2400)
3	Lab Technician	-	-	-	-	3	Lab. tech.	1	9300-34800 (GP-4200)
4	Animal Keeper	1	-	1	4440-7440 (GP 1300)	4	Compounder	1	5200-20200 (GP-1900)
5	Attendant	1	-	1	4440-7440 (GP 1300)	5	Attendant	1	4440-7440 (GP-1300)

****Zoo Director looks after animal health care as he is a veterinarian.***

Table 5.3. Store and Kitchen Section

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No.	Post	No.	Scale
1	Store keeper	-	-	-	-	1	Store keeper	1	5200-20200 (GP 1800)
2	Cook	1	1	-	4440-7440 (GP 1900)	2	Store assistant	1	4440-7440 (GP 1400)
3	Driver	1	1		4440-7440 (GP 1900)	3	Attendant	2	4440-7440 (GP 1300)
4	Attendant	2	2	-	4440-7440 (GP 1800)		-	-	-

Table 5.4. Horticulture and Sanitation section

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No.	Post	No.	Pay Scale
1	Corporation provides the staff for horticulture and sanitation works	--	Nil	01	Not applicable	1	Supervisor (Hort. & Sani)	1	5200-20200 (GP 2400)
						2	Head gardener	1	4440-7440 (GP 1400)
						3	Gardener	1	4440-7440 (GP 1300)
						4	Sweeper	1	4440-7440 (GP 1300)

Table 5.5. Maintenance section

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No.	Post	No.	Scale
1	Plumber	1	1	--	5200-20200 (GP 1900)	--	nil	--	--
2	Electrician	1	1	--	5200-20200 (GP 1900)	--	--	--	--

The work of maintenance section will be outsourced as and when required

Table 5.6. Security section

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No.	Post	No.	Scale
1	Six security guards appointed on contract basis.	--	--	--	--	2	Security guard	8	4440-7440 (GP 1300)
						1	Security supervisor	1	5200-20200 (GP 2400)

Security guards will be hired on contract basis.

Table 5.7. Education and Awareness

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. No.	Post	No.	Scale
1	Audio Visual Operator	1	1	-	4440-7440 (GP 1800)		nil		
2	Attendant	1	1	-	4440-7440 (GP 1300)				

Zoo biologist will look after the work of Education section

Table 5.8. General administration

Existing Staff						Additional staff requirement			
Sr. No.	Post	No. of sanctioned post	Filled	Vacant	Pay Scale	Sr. no.	Post	No.	Scale
1	Director	1	1	-	15600-39100 (GP 5400)	1	Office superintendent	1	5200-20200 (GP 2400)
2	Senior clerk	1	1	-	5200-20200 (GP 1900)	2	Computer operator	1	5200-20200 (GP 1900)
3	Junior Clerk	1	1	-	5200-20200 (GP 1800)	3	Clerk cum cashier	1	5200-20200 (GP 1900)
4	Ticket clerk-cum-Cashier	1	1	-	5200-20200 (GP 1900)	4	Office attendant	1	
5	Driver	1	1	-	5200-20200 (GP 1800)				
6	Ticket Checker	1	1	-	4440-7440 (GP 1800)				
7	Peon	2	2	-	4440-7440 (GP 1800)				

Ten additional posts are required whereas 47 posts are existing

Table 5.9 Brief resume of personnel required for operation of the zoo

Sr. No.	Name of Post	No. of posts	Pay Scale	Basic Qualification
1	Veterinary Officer	1	15600-39100 (GP 5400)	B.Vsc with working experience of 2 years in the field.
2	Zoo biologist	1	9300-34800 (GP 4200)	M.Sc. in Zoology/wildlife OR B.Sc in Biology with 5 years working experience in the field.
3	Supervisor (Hort. & Sani.)	1	5200-20200 (GP 2400)	B.Sc in Biology with 5 years working experience in the field.
4	Security supervisor	1	5200-20200 (GP 2400)	University Graduate or Ex-service man atleast of the rank of Lt.
5	Store Keeper	1	5200-20200 (GP 1800)	Graduate from recognized university with 3 years experience of procurement of store items and their disposal
6	Office Superintendant	1	5200-20200 (GP 2400)	Graduate from recognized university with 5 years working experience in the cadre & knowledge of computer.
7	Computer operator	1	5200-20200 (GP 1900)	Graduate OR 12th passed with knowledge of computer operation.
8	Compounder	1	9300-34800 (GP 4200)	12th passed with certificate of Vet. Deploma with compounder course OR equivalent.
9	Lab Technician	1	5200-20200 (GP 1900)	12th passed with diploma in Lab technology.
10	Livestock supervisor	1	5200-20200 (GP 2400)	10 th or 12 th passed with diploma in Livestock supervisor & 5 years experience in the field.
11	Head Animal Keeper	1	4440-7440 (GP 1600)	Science Graduate OR 12th passed with experience of 3 years in the field.

12	Head gardener	1	4440-7440 (GP 1400)	12th passed with experience of 3 years in the field.
13	Store assistant	1	4440-7440 (GP-1400)	12th passed with knowledge of computer operation.
14	Clerk cum Cashier	1	5200-20200 (GP 1900)	Graduate OR 12th passed with knowledge of computer operation and cash handling.
15	Animal Keeper	2	4440-7440 (GP 1300)	10th passed OR Middle with 3 years working experience in the field.
16	Gardener	1	4440-7440 (GP 1400)	10th passed OR Middle with knowledge of gardening.
17	Sweeper	1	4440-7440 (GP1400)	Middle pass with multi skilled aptitude.
18	Attendant/Labour	14	4440-7440 (GP 1400)	10th passed OR Middle with multi skilled aptitude.
19	Security guard	8	4440-7440 (GP 1300)	10th passed OR Middle with multi skilled aptitude.



6. DISASTER MANAGEMENT

The Disaster Management Act 2005 defines “means a catastrophe, mishap, calamity or grave occurrence affecting any area, arising from natural or man cause, or by accident or negligence which results in substantial loss of life or human suffering or damage to, and destruction of property, or damage to, or degradation of environment, and is such a nature or magnitudes to be beyond the coping capacity of the community of the different area”.

Disaster management involves continuous planning, coordinating and implementation of measures for;

- i. Preparation to deal with disaster situation*
- ii. To prevent danger of threat*
- iii. Capacity building*
- iv. Immediate response to calamities*
- v. Evacuation, rescue, relief and rehabilitation*

Aurangabad Municipal Corporation Zoo has an area of 34 acres with lush green campus with ample vegetative cover. The undergrowth, dry leaves and twigs may pose problem of fire during summer. This park is likely to display over 769 animals including fish and about 7- 8 lakh visitors visit this park annually.

The potential hazards identified for the zoo are as under;

- i. Fire*
- ii. Flood*
- iii. Earthquake*
- iv. Thunder storm*
- v. Law and order problem*

6.1 Disaster Management Team

Disaster management team will include decision-making officers and support staff who aware the zoo topography, its inmates, facilities available and the contact person of other departments.

Members of the disaster management team

- i. Director of Zoo: Planning and decision-making*
- ii. Veterinary Officer: Veterinary officer will be the coordinator. He can summons person and resources during emergencies*
- iii. Unit coordinator: The zoo will be divided into different units or sections. Each section will work under the control and direction of unit coordinator as per plan*
- iv. Skilled / unskilled personnel: These include, para-vet staff, animal keepers, gardeners, guards, sweepers, drivers, cutter, plumber, electricians and labour. The number depends upon the magnitude of the problem*

6.2 Fire

In zoo fire accidents can have devastating impact on visitors, staff and its inmates. To avoid or minimize adverse impacts on animals and visitors, the zoo will avail the services of Fire Brigade, Aurangabad Municipal Corporation. Regular interaction will be made with the officers of fire brigade.

6.3 Flood

The zoo is located on the Eastern side of the Kham river and Northern side of sewage drain. The probability of occurrence of urban flood can not be ruled out.

In the event of flood, following measures would be taken;

- i. The animals would be displaced at higher level.*
- ii. Staff, pumps, fuel and lubricants will be readily available during rainy season.*
- iii. A truck with transport cages would also be kept ready.*
- iv. Veterinary staff with medicine and equipments would be kept ready.*
- v. Co-operation of other departments would be sought.*
- vi. All drains and sewage lines will be kept clean.*
- vii. Following equipments mentioned in table 7.1 would be kept ready.*

Table 7.1. Emergency essential equipments

Sr. No.	Items	No.
1	Flashlight / Torch light & Spare Batteries	03
2	First-aid Kit	02
3	Shovels	05
4	Axe	05
5	Generator (with sufficient fuel)	05
6	Tranquilizing Gun with drugs	02 set
7	Welding machine (with sufficient welding rods)	01
8	Ropes & Net	As per requirement
9	Transport cages (different sizes)	As per requirement
10	Electric saw	01
11	Construction & repair material	As per requirement
12	Gas cutter	01
13	Earth moving equipments	As per requirement
14	Ambulance	01
15	Truck	01
16	Diesel pump-portable (periodically checked)	01
17	Folding ladder	02
18	Adequate stock of consumables	As per requirement
19	Fixed & portable water jets	As per requirement

The department shall keep the contact no. of the persons dealing/ supplying the following items;

- i. Transport company*
- ii. Crane supplier*
- iii. JCB supplier*
- iv. Construction material supplier*
- v. Electrical item supplier*

Telephone numbers of all above will be made available at more than one location.

6.4 Earth Quake

The various steps will be to mitigate the problem. The staff will be given training as how to tackle such situation. The rescue operation will be undertaken by a team and procuring equipments have been described in the disaster management plan.

6.5 Thunder storm

We may have incidence of thunderstorm during April and May. The thunderstorm may be associated with violent squalls, accompanied by heavy rain. This may result in uprooting of large number of trees, which may fall on road and buildings. Immediate action will be taken to remove the fallen and uprooted trees.

6.6 Law and order problem

If the law and order problem arises within zoo employees and assistance from the police department will sought. The security personnel would also monitor the situation. The law and order problem will be tackled by taking the following measures;

- i. Adequate storage facilities will be available to store feed items at least for 7 days*
- ii. A deep freezer will be available to store beef for 2-3 days*
- iii. The cleaning of enclosures and distribution of feed items will be got done by contract labour under the guidance of supervisors*
- iv. In case the law and order problem arises in the city, the authorities will be requested to issue special permits for movement of essential zoo staff.*

6.7 Precautionary measures

6.7.1 Siren (Alarm) System

An alarm (siren) system will be fixed in the zoo premises with adequate range. It will be under the control of security personnel and is located in the security office. The siren will be used when unpredicted incident happens in the zoo premises.

6.7.2 Education of the Visitors

The zoo shall have a detailed written protocol for evacuating visitors in the event of crisis. There will 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. Directional boards will be fixed at appropriate locations leading to exit point for safely evacuation.

6.7.3 Animal Evacuation

During emergency, animals will be evacuated in vehicles and cages. The cages of different size will be kept ready for use. Trained personnel with protective equipments will be use at the time of evacuation. To deal with such situation provisions will been made for the equipments and other items.

6.7.4 Staff training and mock drill

The zoo will arrange staff training of each category to have a clear idea of emergency protocols. Head of each section will be responsible for training of persons of his department. The park will also conduct unscheduled mock drill to assess capability viz.,

- i. Preparation of various departments.*
- ii. Response time.*
- iii. Coordination.*
- iv. Time taken to resolve the issue.*

The Director will closely monitor the response.



7. CONTINGENCY PLAN

Aurangabad Municipal Corporation Zoo, is likely to display over 769 animals including fish in 34 acres and the number of visitors is 7-8 lakh per year. The problems are bound to arise due to one reason or other so it is necessary to have a contingency plan to attend such problems. Various problems and their remedial measures are given below:-

7.1 Animal rescued from wild

Two cages are reserved for bringing animals rescued from the wild. If animal is sick then treatment will be given to him and after becoming healthy, same will be shifted to local zoo or any other zoo or released into the wild as per direction of authorities and CZA. The rescue centre has been proposed with following aspects;

- i. All rescued, sick or injured wild animals will be rehabilitated back in the wild. The condition of the animals will be assessed after treatment and quarantine for 30 days. Thereafter decision will be taken by the authorities whether to release in wild or to keep in zoo.*
- ii. All seized wild animals are proposed to be rehabilitated back in the wild or in regular lifetime care facilities/zoo/rescue centre depending upon condition & suitability of the individuals within 30 days of the seizure after getting permission of the court dealing with the case.*
- iii. All rescued/abandoned young wild animals will be reared in nurseries attached to the veterinary facilities/hospital.*

The veterinary officer will be the incharge for the rescue squad and its operation. The other team members shall be as under;

- i. Zoo Biologist*
- ii. Security Personnel*
- iii. Compounder*
- iv. Head keeper*
- v. Animal keepers*
- vi. Attendant*

The vehicle with zoo will be used for transportation of manpower, material and rescued animal.

7.2 Escape of animal from enclosures

In case of escape of animals from enclosures is noted, the same cages & tranquilizing equipments meant for rescuing animal will be used to capture the animals. This action is to be taken with quickest possible time. The best way to check the escape of animal is to ensure that doors, shutter and locks are closed. The chain link fence is not broken, the trees are regularly pruned. Any weak point or gap identified during the inspection should be repaired and replaced immediately.

The following action will be taken immediately:-

- i. Announcement will be made to alert the security, staff and visitors.*
- ii. Public address system and siren will be used.*

Entry of visitors will be stop when dangerous animal escapes.

Reporting of escape:

Any staff seeing an animal outside the enclosure should immediately report to the following officers:-

- i. Director*
- ii. Veterinary officer*
- iii. Zoo Biologist*
- iv. Live Stock Supervisor*
- v. Supervisor (Horticulture & Sanitation)*

7.3 Monkey and dog menace

To control the monkey and dog menace following arrangement will be made;

- i. Boundary wall has been constructed up to such height so that no stray dogs can enter the zoo.*
- ii. Regular checking of boundary wall is being done to see the weak points/breaches/design defects which could be help stray animals to enter the zoo.*
- iii. Along the sewage drain, dense forest will be created.*
- iv. Two tranquilizer guns are kept ready so that animal can be tranquilized.*
- v. Two nets are there to catch the stray animals.*
- vi. Strict vigilance shall be kept at all the entry points by security staff to prevent entry of dogs and other stray animals. If any dog is sighted in side zoo premises, it would be captured on priority and handed over to the dog squad of AMC.*

7.4 Arrangement of food in case of strike (non supply by contractor)

- i. Zoo has sufficient storage space to store the food, however to meet out scarcity one new spacious store has been proposed.*
- ii. In case contractor do not supply the food then alternative contractors have been identified, the list with contact number is readily available.*
- iii. Zoo has its own vehicle which can be utilized for procuring food from any source inside or outside the city.*
- iv. For storing meat, one deep freezer of adequate capacity is already available which can serve to store beef for immediate requirement.*
- v. Required help will be taken from Municipal Corporation and forest department.*

7.5 Snake bite

The Zoo has ample trees and vegetation and is home for poisonous snakes. The zoo has a snake park, displaying poisonous snakes. There are chances that visitors as well as animal keepers can be bitten by these snakes. In order to meet such incidents, following arrangements are likely to be made;

- i. To maintain enough stock of anti snake venom at the zoo hospital.*
- ii. To carry the patient to the hospital without loss of time.*
- iii. To keep first aid kits at important locations of the zoo i.e. security room, main office, veterinary hospital and snake park.*

7.6 Visitors getting injured / visitors falling inside enclosure

It will be ensure that all enclosures have standoff barriers. Precautionary signages will be placed at prominent locations to avoid such incidences. However, in case any visitor falls inside the enclosure/moat, and gets injured then following measures will be taken:-

- i. Ropes and ladders would be available to take him out.*
- ii. Staff will be trained to manage such emergency.*
- iii. Patient will be given for first-aid immediately.*
- iv. Contact numbers of the nearest hospitals will be kept readily available for emergency.*

7.7 Fighting among animals

As per the revised guidelines of the CZA, enclosures are big and animal are less stressed so that the cases of animal fighting have been reduced. In case of fighting among animals occur, following are the measures to control it;

- i. Spray of water jet on fighting animals will be undertaken. Assistance from fire brigade will be sought, if necessary.*
- ii. Some crackers creating sound of high intensity will be kept in store, same can be used near fighting animal enclosure to make them apart.*
- iii. Two tranquilizer guns are available so that fighting animals can be tranquillized.*
- iv. Two nets are there to catch hold of fighting animals.*
- v. Ropes are also available to catch the fighting animals.*

7.8 Epidemics

The zoo follows the vaccination schedule strictly. A well equipped veterinary hospital is already there which has the required vaccines. The vaccines to ungulates and carnivores are given as per the schedule. Besides the above, following measures will be taken:-

- i. Extensive disinfection measures like spraying of disinfectants will be undertaken.*
- ii. To remove the infected animal from the group and keep it in isolation ward for treatment.*
- iii. To seek advice and guidance from the experts or veterinary institute.*

7.9 Breakdown of power supply

A diesel generator set with capacity of 01-135 KV will be installed in the main office. This DG set will start and switch off automatically. A system will be made to keep storage of diesel for three days. Contact numbers of Maharashtra State Electricity Board will be kept ready for repairing of the fault.

7.10 Free ranging / feral animal menace

The park has a number of free ranging animals like mongoose, rats and snakes. They are likely to prey upon the food given to animals or they can even bite. In order to check this menace, following actions will be taken;

- i. To make the chain link fence rodent and snakes proof*
- ii. To feed the animal in the cells and covered kraals*
- iii. To scare the free ranging animals with bamboo or crackers*



Skilled and knowledgeable personnel are essential to maintain and up-keep wild animal in-captivity. As time changes the new challenges will emerge and the staff is required to upgrade their skills and potential to handle any eventualities. Capacity building of different category of office staff and frontline personnel is very essential for better care of animals, providing better nature education and smooth function of the zoo.

8.1 In-house training

The functioning of zoo depends upon the skill and competence of the staff. The skill is required to be transferred to next generation for continuity and smooth running of the zoo. Therefore, it is proposed to organize training sessions with experienced people for the benefit of youngsters. A group of youngsters would be attached to such senior staff for some time, so that all the fine skills & nuances of animal handling and care could be learnt “on job”.

Interaction with retired staff

Tapping the experience of skilled and retired personnel is advantageous to maintain the zoo in good conditions. It is desirable to elicit the preferences of each person, and assign jobs to attain specialization in the field. In this background, it is planned to conduct interactive sessions with notable retired staff in animal keeping, horticulture, security, workshop and veterinary care.

Rewards to staff members

Motivation is important to sustain the interest of staff members. Cash awards may also be given to the animal keepers, gardeners and other staff with appreciation certificate for their exemplary work. Further it is also proposed to institute awards on annual basis to the best outstanding contributions, best animal keeper, best gardener and special award respectively in the following names;

- i. Municipal Corporation Mayor Memorial Award.*
- ii. Municipal Commissioner Memorial Award.*
- iii. The Director Memorial Award.*

8.2. Keepers training programme

Municipal Corporation Zoo, can organize keepers training programme from time to time to upgrade their knowledge in the scientific management of Park. The themes of the training may include crisis management and zoo emergencies, enrichment, management of birds. The keepers shall be trained to entrust them with higher responsibility and incentives.

8.3 Administrative training

The personnel working in administration section in the zoo shall be sent for training to improve their skills. Normally after initial recruitment, they will be working continuously without any opportunity to enhance their skills. Their talents need to be recognized and encouraged for exposure training for the benefit of the zoo.

8.4 Middle and top level training on zoo management

The Wildlife Institute of India and the Central Zoo Authority regularly conduct special and focused training and workshops on different aspects of wild life management and policy. Participation of top level management of park is must and essential to upgrade their knowledge and bring changes and adopt newer techniques as enunciated in national park policies and rules. The Zoo shall take the benefit of the training to have trained officers in the management for better results.

8.5 Zoo vets training

The works of the zoo vets are very important from the point of view of the healthcare management of animals. As the zoo shall house valuable animals and failure to diagnose and able to provide treatment in time may lose the valuable animals. Therefore, the veterinarians can get the benefit from the training conducted by Wildlife Institute and CZA.

8.6 Zoo educators training

As conservation education is one of the fundamental objectives of zoo, the educator shall be trained properly to organize training programme for the students and NGO's.

8.7 Zoo volunteers training

The volunteers should be given orientation training regularly, so that they can assist the zoo management in due necessities.

8.8 Training abroad

CZA also arranges short term training for zoo staff of this country in abroad. Every year one Director/ Curator of the zoo will be sent for training at New Jersey, USA. This zoo can avail this opportunity as and when occasion arises.



9. E- GOVERNANCE

The concept of e-governance is popularly followed in various government and non-government offices. Present is the age of information and efficiency of organization depends upon its information system. It not only helps managers at various levels in organization but also helps in dissemination of information to the needful. In this, the core strategy is to move ahead in a systematic manner and the approach should be to achieve the success step-by-step ensuring convenience, efficiency, transparency and reliability.

Aurangabad Municipal Corporation Zoo has proposed to develop different software for quick dissemination of information as under;

- i. Development of relevant software for various services provided by the zoo like e-generation of tickets.*
- ii. Development of digital guide map of zoo to avoid visitors from getting disoriented and moving haphazardly in all directions*
- iii. Development of updated specific website for Zoo*
- iv. Publication of Web Brochure for the visitor's information*
- v. To develop speedy communication between Municipal Corporation Zoo and Central Zoo Authority*

Uses of E-Governance System

It will help in the following ways;

- i. To maintain the profile of each employee*
- ii. To store inventory data of animal and feed schedule*
- iii. To store details of house facilities*
- iv. To record birth and deaths with causes*
- v. To record behavior and breeding biological aspect*
- vi. To record the hand rearing technique of babies*
- vii. To store the visitor data*
- viii. To record the ongoing research projects, if any*
- ix. To record the ongoing educational programme*
- x. To store stud book information*
- xi. To store animals history card information*
- xii. To record treatment of individual*

10. BUDGET ANALYSIS

The budget has been envisaged for next ten years and prepared by taking into consideration the CSR rates. After every ten years budget will be reviewed along with master plan.

10.1 Construction and development: Budget Analysis

Sr. no.	Description	Estimated Budget (Rs. in lacs)										Total
		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	
1	Boundary wall		25	15	10							50
2	Internal service lines											
	(1) Sewage		25	15								40
	(2) Water distribution		25	10	10							45
	(3) Electricity supply		25	10	10							45
	(4) Drainage		5	3	2							10
3	Water works											
	Over head tank (50000 ltr capacity)		15	5								20
4	i. Electricity supply system											
	ii. Power generator (35KV)		15									15
	iii. Street lightings		10		5	3	2					20
	iv. Service road lighting		10		5	3	2					20
	v. Parking & front gate lighting		5	5								10
	vi. All buildings		10	5	5	3	2					25
5	Main road		50	50	50							150
6	Service road		25	25	25							75
7	Visitor paths		10	10								20
8	Construction of office buildings. Approval of design and sanction to be obtained											
	(1) Director & Adm. Block		30	20								50
	(2) Store & Kitchen		10	10								20
	(3) Construction and maintenance		5	5								10
	(4) Entry gate with security office booking windows		20	10								30
	(5) Service gate		6	4								10
9	Construction of animal enclosures											
	(1) After getting approval of design, clearances & sanction for 13 new enclosures		300	500	500							1300
10	Renovation of old 11 enclosures & enrichment		15	25	10	10	10	10	10	10	10	110
11	Veterinary hospital		50	20	10							80
12	Horticulture & landscaping		15	10	10	10	10	5	5	3	2	70

Contd.

Sr. no.	Description	Estimated Budget (Rs. in lacs)										Total
		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	
13	Visitor amenities											
	i. Parking		10	5								15
	ii. Toilets			10	15							25
	iii. Water points				10							10
	iv. Shelter			10	2	3						15
	v. Benches			2	2	1						5
	vi. Cafeteria / kiosk			20	5	5						30
14	Interpretation center		20	10	10	10	10	10	5			75
	i. Exhibit gallery			0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	4
	ii. Auditorium		1	0.75	0.75	0.75	0.75	0.75	0.75	0.75	0.75	7
	iii. Class room		0.20	0.1	0.05	0.05			0.05	0.05		0.5
	iv. Library (Books etc.)		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	1.8
	v. Office of zoo biologist				10	5						15
	vi. Store				5							5
15	Installation of CCTV & PA system			15	10							25
16	Wireless System			10	10							20
17	Vehicle											
	i. Rescue squad vehicle (ambulance)				25							25
	ii. 4-wheelars (2)		20	10								30
	iii. 2-wheelars (2)		0.60	0.60								1.20
	iv. Rickshaw -2			0.05	0.05							0.1
18	Animal crates (5 Nos)		1	1	0.50							2.50
19	Animal procurement (all expenses)		5	5	5	5						20
20	Furniture & stationary		10	5	3	2	1	1	1	1	1	25
21	Equipments for all sections		10	5	5	3	2			1	1	27
22	Medicines, reagents, glass wares, tranquilization equipment & drugs for Vet. Hospital		5	5	5	5	2	2	2	2	2	30
23	Disaster management & contingency plan equipments		10	5	5	5						25
24	Development of all types of signages, published material		5	5	5							15
25	Store containers		5	3	2							10
26	Miscellaneous expenditure	10	25	10	10	15	15	15	5	5	5	115
27	Planning, architecture, engineering & zoo professional fees (2.5 % of Total construction & Planning, excluding salaries etc.)	0.25	20.85	22.38	19.95	2.23	1.43	1.11	0.73	0.58	0.56	70.1
29	Contingency (1 % of Total construction & Planning, excluding salaries etc.)	0.1	8.34	8.952	7.98	0.89	0.57	0.44	0.29	0.23	0.22	28.04
	Total	10.35	863.19	926.53	825.98	92.62	59.45	46	30.52	24.31	23.23	2902.24

A: Total cost of development and construction is : Rs. 2902.24 Lakhs.

10.2 Day to day maintenance

Sr. no.	Description	Estimated Budget (Rs. in lacs)										Total
		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	
1	Salaries	25	25	30	30	35	35	40	40	45	45	350
2	Out sourced payment	--	20	20	20	25	25	25	30	30	30	225
3	Feed	80	90	100	110	120	130	140	150	160	170	1250
4	Medicines	--	2	2	2	2.5	2.5	2.5	3	3	3	22.5
5	Telephone	--	1	1	1	1.1	1.1	1.1	1.2	1.2	1.2	9.9
6	Consumables	--	1	1	1	2	5	5	5	5	5	30
7	Miscellaneous	--	5	5	5	5	6	6	6	6	6	50
	Total	105	144	159	169	190.6	204.6	219.6	235.2	250.2	260.2	1937.4

B: Total cost of day to day maintenance is : Rs.1937.4 Lakhs.

Grand Total (A+B) : Rs.4839.64 Lakhs.

10.3 Estimated revenue generation

Sr. no.	Description	Estimated Budget (Rs. in lacs)										Total
		2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	
1	Gate money	200	210	220	230	240	250	260	270	280	290	2450
2	Cafeteria & kiosk		1	1	1.5	2	2.5	3	3	3	3	20
3	Musical fountain/ Amusement park	10	10	10	10	1.2	1.3	1.4	1.5	1.5	1.6	48.5
4	Aquarium	10	10	11	12	12	12	13	13	13.5	14	120.5
	Total	220	231	242	253.5	255.2	265.8	277.4	287.5	298	308.6	2639

C: Estimated revenue generation will be : Rs. 2639 Lakhs.



List of flora of Aurangabad Municipal Corporation Zoo

1. **Mango** (*Mangifera indica*)
2. **Supota** (*Achras zapotas*)
3. **Almond** (*Terminalia catoppa*)
4. **Neem** (*Azadirachta indica*)
5. **Bottle brush** (*Callistemon viminalis*)
6. **Ashoka** (*Saraca asoca*)
7. **Banyan** (*Ficus bengalensis*)
8. **Sweet lemon** (*Citrus sinensis*)
9. **Ramphal** (*Annona reticulata*)
10. **Fig** (*Ficus racemosa*)
11. **Jamun** (*Syzygium cumini*)
12. **Cocoonut palm** (*Cocos nucifera*)
13. **Bamboo** (*Bambusa vulgaris*)
14. **Gulmohur** (*Delonix regia*)
15. **Indian rubber tree** (*Ficus elastica*)
16. **Guava** (*Psidium guajava*)
17. **Tamarind** (*Tamarindus indica*)
18. **Shoe flower** (*Hibiscus rosasinensis*)
19. **Subabul** (*Leucaena leucocephala fabaceae*)
20. **Bougainvillea** (*Bougainvillea glabra*)
21. **Sandalwood tree** (*Santalum album*)
22. **Custard apple** (*Annona squamosa*)
23. **Babul** (*Acacia nilotica*)

List of Fauna of Aurangabad Municipal Corporation Zoo

A. Mammals

1. **Three striped palm squirrel** (*Funambulus palmadrum*)
2. **Common grey Mongoose** (*Herpestes edwardsii*)
3. **Indian palm civet** (*Paradoxurus hermaphroditus*)
4. **Common langur** (*Presbytis entellus*)

B. Birds

1. **Peacock** (*Pavo cristatus*)
2. **Parrot** (*Psittaci formes*)
3. **Pheasant** (*Phasianus colchicus*)
4. **Owl** (*Strigi formaers*)
5. **Jungle myna** (*Acridotheres fuscus*)
6. **Egret** (*Ardea alba*)
7. **Small blue king fisher** (*Alcedo coerulescens*)
8. **House crow** (*Corvus Splendens*)

C. Reptiles

1. **Common lizard** (*Hemidactylus frenatus*)
2. **Rat snake** (*Elaphe obsoleta*)
3. **Indian cobra** (*Naja naja*)
4. **Russell's viper** (*Daboia russelli*)

Annexure V

INVENTORY FORM 2013-2014

SCH-1 & SCH-2 (Wildlife Protection Act.) F. No. 21-03/2001 SM

Sr No	Species Mammals	Stock as on 1/10/2013				Quarter ending December -2013												Stock as on 31/12/2013					
		M	F	U	T	Birth			Acquisition			Disposal			Death			M	F	U	T		
						M	F	T	M	F	T	M	F	T	M	F	T						
1	Black Buck (<i>Antelope Cervicapra</i>)	19	22	-	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19	22	-	41
2	Common Palm Civet (<i>Paradoxurus hermaphroditus</i>)	03	02	--	05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	03	02	--	05
3	Jackal (<i>Canis aureus</i>)	1	-	--	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	--	1
4	Leopard (<i>Panthera Pardus</i>)	01	01	--	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	01	01	--	02
5	Macaque rhesus (<i>Macca mulatta</i>)	1	1	--	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	1	--	02
6	The Common Langur (<i>Presbytis entellus</i>)	--	01	--	01	-	-	-	1	-	1	-	-	-	-	-	-	-	-	1	01	--	02
7	Tiger (White) (<i>Panthera tigris</i>)	02	02	--	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	02	02	--	04
8	Indian Elephant (<i>Elephas maximus</i>)	--	02	--	02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	02	--	02
9	Wolf (<i>Canis lupus</i>)	--	01	--	01	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	01	--	01
10	Indian Porcupine (<i>Hystrix indica</i>)	02	02	--	04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	02	02	--	04
Total Mammals		29	34	--	63	-	-	-	1	-	1	-	-	-	-	-	-	-	-	30	34	--	64
1	Crocodile (<i>Crocodyus palustris</i>)	02	01	--	03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	02	01	--	03
2	Star tortoise	--	--	49	49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	--	--	49	49
Total Reptiles		2	01	49	52	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	01	49	52
Total Animals		31	35	49	115	-	-	-	1	-	1	-	-	-	-	-	-	-	-	32	35	49	116

INVENTORY FORM 2012-2013

SCH-1 & SCH-2 (Wildlife Protection Act.) F. No. 21-03/2001 SM

Sr No	Species	Stock as on 1/10/2013				Quarter ending December-2013												Stock as on 31/12/2013			
						Birth			Acquisition			Disposal			Death						
		M	F	U	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	U	T
A. BIRDS																					
1	Emu <i>(Promicelus avaeollandiae)</i>	-	02	-	02	-	-	-	-	-	-	-	-	-	-	-	-	-	02	-	02
2	Peacock	1	-	-	01	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	01
3	White Peacock	-	1	-	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	01
2	Water birds	-	-	27	27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	27
Total Birds		1	3	27	31	-	-	-	-	-	-	-	-	-	-	-	-	1	3	27	31
B. MAMMALS																					
1	Samber <i>(Cervus unicolor)</i>	8	24	-	32	-	-	-	-	-	-	-	-	-	-	-	-	8	24	-	32
2	Sopotted deer <i>(Axis axis)</i>	1	01	-	02	-	-	-	-	-	-	-	-	-	-	-	-	1	01	-	02
3	Striped Hyena <i>(Hyena hyena)</i>	01	01	-	02	-	-	-	-	-	-	-	-	-	-	-	-	01	01	-	02
4	Nilgai <i>(Blue bull)</i>	03	06	-	09	-	-	-	-	-	-	-	-	-	-	-	-	03	06	-	09
5	Sloth bear <i>(Melursu ursinus)</i>	01	01	-	02	-	-	-	-	-	-	-	-	-	-	-	-	01	01	-	02
6	Tiger <i>(Panthera tigris)</i>	03	03	-	06	-	-	-	-	-	-	-	-	1	-	1	02	03	-	05	
Total Mammals		17	36	-	53	-	-	-	-	-	-	-	-	1	-	1	16	36	-	52	
C. REPTILES																					
1	Tortoise	03	04	-	07	-	-	-	-	-	-	-	-	-	-	-	-	03	04	-	07
2	Snake	-	-	88	88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	88
Total Reptiles		03	04	88	95	-	-	-	-	-	-	-	-	-	-	-	-	03	04	88	95
Total Animals		21	43	115	179	-	-	-	-	-	-	-	-	1	-	1	20	43	115	178	

Annexure VII

Water testing report

Annexure - VII

Water Testing Report of AMC-200

SR. No.-11 Code -BRH-1

फॉर्म क्र.१

महाराष्ट्र राज्य सार्वजनिक आरोग्य सेवा

ग्रामीण/कुटीर रुग्णालय प्रयोगशाळा, ता. जिल्हा

ई. मेल - प्रादेशिक आरोग्य प्रयोगशाळा औरंगाबाद दूरध्वनी क्र. 23 78269

पाणी नमुन्याचा सूक्ष्मजीवीय अहवाल

पाठविणाऱ्यांचे नाव व पत्ता :- संचालक प्राणिसंरक्षण महानगरपालिका औरंगाबाद

पाठविणाऱ्यांचे पत्र क्रमांक व दिनांक :- 925/5.3.2014

प्रयोगशाळा संदर्भ क्रमांक :- 3,122

नमुना घेतल्याचा दिनांक :- 5.3.2014

नमुना पोहचल्याचा दिनांक :- 5.3.2014

परीक्षण सुरु केल्याचा दिनांक :- 5.3.2014

अ.क्र.	नमुन्याचा निश्चित केलेला क्रमांक	नमुन्याचे विवरण			MPN	100 ml परीक्षणाचे निष्कर्ष	अभिप्राय
		स्त्रोताचा प्रकार	स्त्रोताचे स्थानिक नाव	प्रभाग/वाडी/पाडा वस्तीचे इ. नाव			
					कोलीफॉर्म	थर्मोटोर	रिस्क
१		महानगरपालिका वस्ती	पाणी नमुना		0	-	पिण्यास योग्य (suitable for drinking purpose)

Note: This laboratory does not test the sample submitted. The results reported in this report relate only to the sample submitted.

अभिप्राय :- पिण्यास अयोग्य पाण्यावर प्रमाणित क्लोरिनच्या मात्रेसह योग्य ती प्रक्रिया करून व सूक्ष्मजीवीय पुनर्तपासणीनंतर पिण्यास योग्य असल्याची खात्री झाल्यानंतरच ते पाणी पिण्यासाठी वापरता येईल.

अहवाल क्रमांक : 1309 फोनद्वारे/तारेने कळविल्याचा दिनांक :-

दिनांक :- 11-3-14

प्रत सादर :

(१) गटविकास अधिकारी, पंचायत समिती

(२) जिल्हा आरोग्य अधिकारी, जिल्हा परिषद, जिल्हा

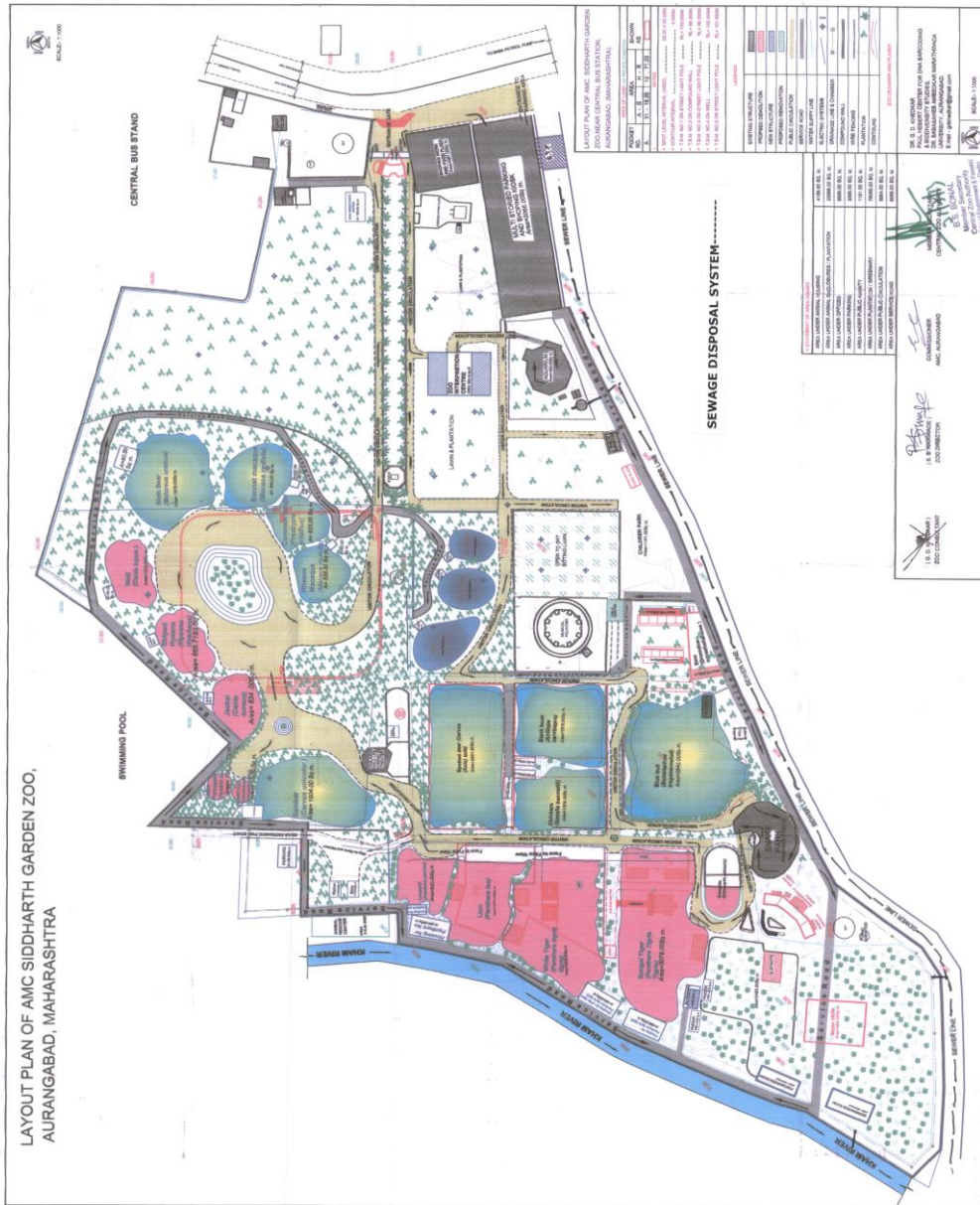
(३)

शा.फो.सि.मु., पुणे-१/१४-(७,००० प्रती)-१०-२०१२

Date:

ग्रामीण/कुटीर रुग्णालय
प्रादेशिक आरोग्य प्रयोगशाळा
औरंगाबाद


Map showing sewage disposal system




Map showing electricity supply system




Letters of CZA Regarding Master Plan



GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
Central Zoo Authority



जहाँ है हरियाली।
वहाँ है खुशहाली।।



F. No. 19-156/93-CZA(170)(Vol. III)(M) / 899 **DATE: 24.05.2012**

To
 The Municipal Commissioner
 Municipal Corporation,
 Aurangabad – 431 001 (Maharashtra)

Sub:- Revised Master (layout) Plan of the Aurangabad Municipal Zoo, Aurangabad.

Sir,
 Reference is invited to your letter No. Amc/CAHO/2012/386 dated 23.04.2012..

The revised Master (layout) Plan submitted for the long-term development of the Aurangabad Municipal Zoo, Aurangabad was scrutinized by the members of the Expert Group on Zoo Designing of the Central Zoo Authority and following rectifications are suggested:-

CAHO
G
6-6

Nandan

n.a. P

13/6/2012

CAHO 310
13/6/12

- (i) The layout plan sent seems to be of existing zoo as it shows existing enclosures in black color with suggested modification in green color and construction of new enclosure in blue color. As per observations made by Expert Group on 2nd August 2011, only slight modifications in existing zoo enclosures were to be carried out. Therefore, creation of new enclosures in the existing zoo are contrary to Expert Group's observations. This needs clarification.
- (ii) As the plan is to relocate the zoo at Mit Mita in Sector-40, Aurangabad so the layout plan of the new site is required to be prepared and submitted for the approval of CZA. The area of new site should also be mentioned.
- (iii) The operator should submit the animal collection plan in the following format

Species				Proposed collection				Animals to be acquired or removed				Remarks	
M	F	U.S.	Total	M	F	U.S.	Total	M	F	U.S.	Total		

...2/-

F:\madhu\dmaster plan\comments of subgroup D to the zoss.doc

- (iv) The operator should indicate the source of acquisition of animals.
- (v) Night houses are required to be marked in the existing ungulates enclosures. They should merge with the layout of the enclosure concerned.
- (vi) There is need to mark viewing side and service path in the layout plan of the existing zoo. Viewing should be restricted to one side of the enclosure only.

Yours faithfully,

(Signature)
(B. S. Bonal)

Member Secretary

Copy for favour of information & necessary action to:-

1. The Chief Wildlife Warden, Government of Maharashtra, Nagpur.
2. The Director, Aurangabad Municipal Zoo, Aurangabad, Maharashtra.
3. Sh. A. S. Dogra, Ex. PCCF (WL) and Member Expert Group on Zoo Designing of CZA.

(Signature)
(B. S. Bonal)

Member Secretary

- (i) The layout plan also seems to be of existing zoo as it does not show existing enclosures in black color with suggested modification in green color. The modification of new enclosures is also not clear. As per the comments of the expert group on the layout plan, the modifications in existing zoo enclosures were to be carried out. Therefore, creation of new enclosures in the existing zoo are contrary to Expert Group's observations. This needs clarification.
- (ii) As the plan is to relocate the zoo at Mir Mira in Sector-10, Aurangabad so the layout plan of the new site is required to be prepared and submitted for the approval of CZA. The area of new site should also be demarcated.
- (iii) The operator should submit the animal collection plan in the following format

Species	Proposed collection	Animals to be acquired or transferred	Remarks



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वहाँ है खुशहाली।।



GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
Central Zoo Authority



THROUGH REGISTERED POST

F. No. 19-156/93-CZA(170)(Vol. IV)(M) 3261

DATE: 02.08.2013

To

The Director
Aurangabad Municipal Zoo,
Aurangabad (Maharashtra).

**Sub:- Approval of Master (layout) Plan of the Aurangabad Municipal Zoo,
Aurangabad.**

Sir,

A copy of the approved Master (layout) Plan of the Aurangabad Municipal Zoo, Aurangabad duly authenticated by the Member Secretary on behalf of the Central Zoo Authority is enclosed herewith for your records.

You are hereby directed to ensure that all the developmental activities in the Aurangabad Municipal Zoo, Aurangabad must be in conformity with the Master (layout) Plan.

You are also asked to submit the detail Master Plan in consonance with approved Master (layout) Plan at the earliest for approval for this end.

Yours faithfully,

(B. S. Bonal)

Member Secretary

Encl: Signed Master (layout) Plan

Copy to the Chief Wildlife Warden, Government of Maharashtra, Nagpur (with enclosure).

(B. S. Bonal)

Member Secretary

Nandan
x.c.s.

for urgent n.a.

12/8/2013



GOVERNMENT OF INDIA
MINISTRY OF ENVIRONMENT & FORESTS
Central Zoo Authority



THROUGH E.MAIL

F. No. 25-1/2002-CZA (Vol. I)(M)

DATE: 20.02.2014

NOTICE

Sub:- Submission of Master Plan for the long-term development of the Zoo.

Your kind attention is drawn to the Rule 10, Sub-rule 3 (1) & (2) of the Recognition of Zoo Rules, 2009 (Notified on 10.11.2009), wherein it has been mandatory that the "Zoos which are in operation at the commencement of these rules, shall prepare and get the Master Plan approved from the date of commencement of these Rules". However, more than 4 years have passed, your zoo has not submitted the final copy of the Master Plan prepared following the enclosed guidelines and Check-list for approval from the Central Zoo Authority.

You are hereby directed to submit the four copies of Master Plan for scrutiny and according approval in the enclosed format within 30 days from the date of issue of this notice highlighting present status/ stages of procedures, failure to which Central Zoo Authority will be constraint to initiate necessary action for de-recognition of your zoo under Section 38 H of the Wild Life (Protection) Act, 1972.

Nandan

प्रोत्साहन कार्य

To *13/3/2014*

1. The Director, Aurangabad Municipal Zoo, Aurangabad, Maharashtra.
2. The Chief Wildlife Warden, Government of Maharashtra, Nagpur.

Encl: as above

CAHO 20/2/2014
13/3/2014

Yours faithfully,

B. S. Bonal
(B. S. Bonal)
Member Secretary