



MASTER PLAN OF THE ZOOLOGICAL GARDEN, ALIPORE

2016 - 2017 to 2036 - 2037

A Plan for future development


Prepared by
Director
Zoological Garden,
Alipore

Counter signed by
Member Secretary
West Bengal Zoo Authority

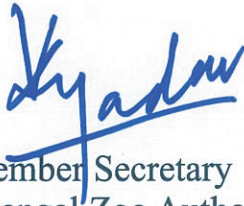
Counter signed by
Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden,
West Bengal

CERTIFICATE

This is to certify that the Master Plan (2016-17 to 2036-37) for the scientific and long term management of the Zoological Garden, Alipore, Kolkata has been prepared in consultation with the Technical Committee of West Bengal Zoo Authority and suggestions of the expert group on Zoo Designing of Central Zoo Authority. Technical Committee of the Central Zoo Authority approved the Master Plan on its 82nd meeting held on 22nd March, 2017.



Director
Zoological Garden,
Alipore, Kolkata



Member Secretary
West Bengal Zoo Authority



Principal Chief Conservator of Forests,
Wildlife & Chief Wildlife Warden,
West Bengal

Master Plan is approved subject to the condition that the responsibility of mobilizing the Financial resources for implementation of the Master Plan will be the sole responsibility of Zoological Garden, Alipore, Kolkata.

Dr. D.N. Singh, IFS
Member Secretary
Central Zoo Authority
Ministry of Environment, Forests & Climate Change
Government of India

Historically zoos were established to meet the curiosity of the people in respect of animals and to entertain them as well. Conservation of wild animals and the threat of extinction did not get any attraction to the managers of the zoos in those days probably due to their abundance in nature. With the establishment of the Zoological Society of London in 1826, utility of zoos was realized but even then animals continued to be kept in cages. In 1907, Carl Hagenback developed the concept of barless moated enclosures and this concept of display of animals giving emphasis on the biological and psychological need of the captive animals influenced the managers of the zoos around the world.

With the tremendous growth of human population and development of infrastructure like roads, buildings etc. as a support system of growing human population, over exploitation of natural resources started leading to depletion of forests. As a consequence, animal populations day by day become fragmented leading to loss of genetic variability and ultimately enter into extinction vortex.

Under the circumstances, the role of zoos has also dramatically changed. The menagerie of 19th Century developed into Zoological Park in 20th Century and ultimately the same evolved into conservation centre in 21st Century. Over the period of times, the objectives of establishing a menagerie have changed from mere exhibitionism, entertainment and amusement into research, education and ex-situ conservation specially to complement in-situ conservation.

In National Zoo Policy, 1998, it has clearly been mentioned that the main objective of the zoos shall be to complement and strengthen the national efforts in conservation of the rich bio-diversity of the country, particularly the wild fauna. In the said policy, it has also been mentioned that zoos shall prepare a long term master plan for development to ensure optimum utilization of the land, water, energy and finance.

In such changing scenario, we have taken the task of master planning of the Zoological Garden, Alipore for the first time. In conformity with the stated objectives and proposed animal collection plan of the zoo, future action plan has been set out. Phasing out of species as well as specimens of some species has been mentioned with the demolition of outlived houses/enclosures of the zoo. Visitors circulation, landscaping, proposed new enclosures, zoo hospital and other necessary components of the zoo like gates & ticket counter, office buildings, store, rest-sheds, drinking water spots etc. have been indicated in the layout plan of the zoo.

I, on behalf of this zoo, would like to pay my heartfelt gratitude to Sri S. K. Patnaik, IFS.(Retd.), former Additional Principal Chief Conservator of Forests, Orissa and Ex-Director of Nandankanan Zoological Park, Orissa who guided us in preparing the Master Plan of the Zoological Garden, Alipore.

It may not be out of the context to mention that during preparation of the Master Plan in its present form, the regular guidance and advice were extended by Dr. B.R. Sharma, IFS, the then Member Secretary, West Bengal Zoo Authority and Shri V.K. Yadav, IFS , Additional Principal Chief Conservator of Forests & Member Secretary, West Bengal Zoo Authority for which we shall remain ever grateful to them.

I am sure the proposed revised Master Plan of the Zoological Garden, Alipore will definitely lead us towards the stated objectives of the zoo in the next twenty years of duration.



(Shri Asis Kumar Samanta, IFS)

Director
Zoological Garden, Alipore

Dated : The 19th August, 2016.

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PART - I
CHAPTER - I

1.1 Introduction

The Zoological Garden, Alipore was established in the year 1875 on both sides of the Alipore Road leading from Zerrut Bridge to the National Library. In the British regime the proposed site for establishing the Alipore Zoo was situated on the outskirts of Kolkata.

The citizens of Kolkata at that time came forward with generosity in the process of establishing the Zoo with financial help and they also donated animals from their collections to the zoo.

Mullick House was the first animal house constructed within the Zoo with the financial help of Raja Rajendra Mullick Bahadur, the first Indian donor. Fowls and pheasants were kept within this house and they started to breed as early as in February, 1876. Followed by Mullick House, Burdwan House presently known as open air moated enclosure for lions, was constructed at a cost of Rs.35,000/-, the entire amount of which was donated by the Maharaja of Burdwan. Gradually other animal houses / enclosures came into being and named after their donors and to name a few of them are Buckland House, Ezra House, Gubbay House, Dumraon House, Swarnamoyee House, Murshidabad House, Jhind House, Schwendler House etc.

Since the Zoological Garden, Alipore was established in the early part of the British regime, as in the other captive animal facilities in the world then, underlined objective of establishing the garden was perhaps entertainment and amusement of the general public of the growing city along with the hinterland of Eastern India.

During the existence of one hundred and thirty four years, the Zoological Garden, Alipore has successfully bred several endangered species like, tiger, Indian lion, leopard, fishing cat, Indian one horned rhinoceros, brow-antlered deer, swamp deer, chinkara, black buck, nicobar pigeon, spoonbill, common peafowl, marsh crocodile etc. Some exotic species like kangaroo, wallaby, giraffe, zebra, eland, banteng, jaguar, puma, baboon, common marmoset, different varieties of pheasants, black swan, Carolina duck etc. were also bred successfully at this zoo. The Zoological Garden, Alipore has the distinction in successful transportation of zee bred giraffe to Arignar Anna Zoological Park, Chennai, National Zoological Park, New Delhi and Lucknow Zoological Park, Lucknow.

Over the period of time the zoo developed enormously, but such growth was quantitative not qualitative as one expects it to be at present day scenario. After the establishment of Central Zoo Authority in India in the year 1992, open air moated enclosures for primates, white tiger, Indian elephants and Indian lions were constructed with the financial help of Central Zoo Authority. During this period, open air moated

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enclosure for hippopotamus was also constructed with the financial assistance of Government of West Bengal.

Even after construction of the aforesaid enclosures in the Zoological Garden, Alipore, development of the zoo was haphazard and not based on a definite plan. The Central Zoo Authority recommended to prepare a longterm Master Plan for future development of the zoo as it is mandatory for every recognised zoo to have a longterm Master Plan for its development as per Rule 10(51) of the Recognition of Zoo Rules, 1992. For obvious reason in the year 2008, the then Managing Committee of this zoo took a decision to prepare a Master Plan for 20 years duration so as to develop the zoo in conformity with the modern lines. Accordingly, Managing Committee of the Zoological Garden, Alipore invited Shri S. K. Patnaik, former Additional Principal Chief Conservator of Forests of Orissa and Ex- Director of Nandankanan Zoological Park, Bhubaneswar, Orissa. Shri Patnaik paid visit to the zoo and gave his remarks in connection with preparation of Master Plan for the Zoological Garden, Alipore.

Managing Committee of the Alipore Zoo decided to prepare the Master Plan of the zoo on the basis of the aforesaid advice of Shri S.K. Patnaik for a duration of 20 years in four phases with a provision to review the same after every five years. The draft copy of the said Master Plan for a period from 2009 – 2010 to 2028 – 2029 along with the Master Lay Out Plan of the Zoo was forwarded to the Central Zoo Authority for their approval on 27.03.2009. The Master Lay Out Plan of the Zoological Garden, Alipore was approved by the Central Zoo Authority on 18.12.2009.

1.2 History

The history of the Zoological Garden, Alipore dates back as far as 1842. In 1842, Dr. John McClelland the Curator, Bengal Asiatic Society's Museum formulated a plan for establishment of Zoological Garden in Calcutta which was published in the Calcutta Journal of Natural History entitled "Proposal to form a Zoological Garden in Calcutta". But the said plan did not attract any notice at that time.

Dr. Joseph Bart Fayrer, the then President of the Asiatic Society of Bengal formulated another plan in 1867 for establishment of a zoo. The plan had immense impact on the public, but due to non-availability of suitable site, the said plan could not be materialized.

In 1873, Carl Louis Schwendler, Postmaster to the Government of India submitted a suitable plan for establishing a zoological garden. Due to non-availability of suitable site, the said plan was kept in abeyance.

Finally, in 1875, the then Lt. Governor of Bengal, Sir Richard Temple constituted a Committee to find out a suitable site for establishing a zoological garden. The said Committee chose the land on each side of the Alipore Road leading from Zerrut Bridge to Belvedere.

The site was approved by the Lt. Governor of Bengal on 24th September, 1875.

A sum of Rs.5000/- was sanctioned for the immediate purpose of laying out only a part of the grounds on the Western side of the Belvedere Road and erecting only a few cheap and temporary structures for the reception of animals. Mr. Schwendler readily donated his fine collection of specimens and by December, 1875 a sizeable menagerie was established with the spontaneous contributions from a number of donors.

The first Committee of Management was set up under a Government resolution of December 9, 1875 and the Managing Committee comprising of five members met for the first time on 10th December, 1875.

The Managing Committee then settled the rates of admission fees and threw open the gate of the Zoological Garden, Alipore on the 1st of May, 1876.

The history of the Zoological Garden, Alipore would be incomplete without paying tribute to Rai Bahadur Ram Brahma Sanyal who was the first Superintendent of the Zoological Garden, Alipore. After inception of the Zoological Garden, Alipore, the then Managing Committee of the zoo wanted to engage a suitable candidate as the Superintendent of the zoo. Dr. George King, Professor of Botany of the Medical College of Calcutta and one of the members of the Managing Committee of the zoo, engaged Ram Brahma Sanyal who was a medical student and was unable to continue his studies due to problems with his eyesight, as an ordinary worker in the year, 1876. Sanyal worked hard and in a few months he was promoted and given more responsibilities including nutrition and medical care of the growing number of animals. Pursuant to the recommendation of the Managing Committee of the Zoological Garden, Alipore, Shri Ram Brahma Sanyal started to work as the acting Superintendent of the zoo from April, 1878. Finally, he was appointed as the Superintendent of the Zoological Garden, Alipore in April, 1880.

Ram Brahma Sanyal used to record all his observations in respect of the housing, feeding, reproductive behavior and treatment of captive wild animals in the daily registers of the Zoological Garden, Alipore. All these observations encouraged him to write the book, "A Handbook Of The Management Of Wild Animal In Captivity In Lower Bengal". This book was the first of its kind and was published in the year 1892.

A review of the said book was published in the leading scientific journal, "Nature". Soon after the publication of the said review in "Nature", Shri Sanyal became famous in his field and was made corresponding Member of Zoological Society of London.

1.3 **Vision :**

The vision of the Zoological Garden, Alipore is to provide future direction for modernization & upgradation of the Zoo to such extent that in spite of being one of the oldest Zoos of India , it can be at par with one of the best Zoos of the country. For that purpose the available resources, planned breeding, research etc. would be the essential tools keeping in mind the constraints, limitations and inherent challenges of an old Zoo.

1.4 **Mission :**

The mission of the Zoological Garden, Alipore is “ Conservation of wild animals of Eastern India with special reference to the animals of Lower Gangetic basin and fresh water wetland fauna and education & research for sustainable conservation of wild fauna which are under severe threat due to biotic interference.”.

1.5 **Strategy of the Zoo :**

The strategy of this Zoo is fulfill the vision and mission in a slow but steady mood to present it as a modern zoo in spite of having the ever increasing visitor flow (in the year 2015 – 2016 , the annual foot fall was 30,93,290) and the changed scenario in contemporary demand of the young generation.

1.6 **Objectives of the zoo :**

It is intended to develop this zoo on modern lines in conformity with the National Zoo Policy, 1998 with the following objectives in mind :

- i) Make Alipore Zoo a conservation breeding centre of prominence in Eastern India with focus on species of the region with special emphasis on wetland fauna.
- ii) Make the zoo a centre for conservation and awareness for the visiting public, particularly the young ones, taking advantage of the large visitation of the metropolis and the surrounding region.
- iii) To initiate and conduct the research on wildlife in captivity and to disseminate the results thereof to other captive animal facilities for conservation of animals in this wild.

1.7 **Topography of the land**

Since the zoo area is situated on the alluvial deposits of river Hooghly and lies on its flood

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plains, it is generally flat to moderately sloping with a natural meandering water body lying on the northern side of the zoo premises covering an area of 18.81 hectares. The elevation of the zoo is 6.4 metre from MSL (Mean Sea Level). It lies in 22°32' N and 88° 20' E.

1.8 Geology :

Zoological Garden, Alipore is situated on the east bank of Hooghly river in the famous deltaic Bengal basin, the largest one in the world developed by the action of Ganga-Brahmaputra river system and nearly 120 Km away from the Bay of Bengal. Bengal basin comprises three structural unit: shelf or platform in the west; central hinge or shelf/slope break; and deep basinal part in the east and southeast. Kolkata is located atop the western part of the hinge zone which is about 25 km (16 mi) wide at a depth of about 45,000 m (148,000 ft) below the surface. The shelf and hinge zones have many faults, among them some are active. Total thickness of sediment below the Kolkata is nearly 7,500 m (24,600 ft) above the [crystalline basement](#); of these the top 350–450 m (1,150–1,480 ft) is [quaternary](#), followed by 4,500–5,500 m (14,760–18,040 ft) of [tertiary](#) sediments, 500–700 m (1,640–2,300 ft) trap wash of [cretaceous](#) trap and 600–800 m (1,970–2,620 ft) Permian - [Carboniferous Gondwana](#) rocks. The quaternary sediments consist of clay, silt, and several grades of sand and gravel. These sediments are sandwiched between two clay beds: the lower one at a depth of 250–650 m (820–2,130 ft); the upper one 10–40 m (30–130 ft) in thickness.

1.9 Rock and Soil :

Soil structure of the Zoo is loamy alluvial and the same is not rocky.

1.10 Flora and Fauna in Zoo Premises :

Flora and Fauna found in the Zoo premises are annexed with this plan (Annexure I).

1.11 Climate :

The climatic condition which prevails in this part of West Bengal is moderate. In summer season which starts in March and ends with the onset of rainy season in June, maximum temperature shoots upto 40°C with an average of 36°C. Winter season sets in December and ends in the month of February. The minimum temperature during winter season goes down to 10°C with an average of 13° C.

1.12 Rainfall :

Here monsoon starts in the 1st week of June and ends in the month of October. The yearly rainfall of

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Kolkata is 1641.4mm. Highest recorded rainfall in a day was 369.6 mm.

1.13 Season :

The season may be divided into four seasons such as summer season, monsoon season, post-monsoon season and winter season. Summer season starts from March and ends at the month of May followed by monsoon season which ends in the month of October. November is the post-monsoon season. Winter season constitutes with the months of December, January and February.

1.14 Approach :

The Zoological Garden, Alipore with an area of 20.49 hectare is located at a distance of about 10 Km. from the Howrah Railway Station and approximately 27 Km. from the Netaji Subhas Chandra Bose International Airport. The zoo is about 7 Km. from the Sealdah Railway Station.

The Zoological Garden, Alipore is well connected with the roads of the city and is approachable from every corner of Kolkata and suburbs.

1.15 Demography of the surrounding area :

Kolkata district occupies an area of 185 km² (71 sq mi). The current population of Kolkata in 2016 is 50,17,208. The overall literacy rate of Kolkata is 87.14%.

1.16 Legal status of the land :

The total area of the zoo is 20.49 hectare out of which an area of 18.811 hectare of land lies on the Western side of the Alipore Road leading from zerrut bridge to National Library. The zoo proper having entrance and exit gates, administrative building, store, animal enclosures etc. has been set up in the aforesaid 18.811 hectre of land which is bounded by a periphery wall of 2.1 metre high.

On the opposite side of the zoo proper, the Zoological Garden, Alipore is having another 1.681 hectre of land on which the zoo Hospital, Aquarium, Nursery and staff quarters are located.

This 20.49 hectare of land is owned by the Government of West Bengal and was used to manage by the Managing Committee, Zoological Garden, Alipore till 2009. The said Managing Committee was constituted by the State Government and time to time the same was reconstituted by the Government of West Bengal. After the issue of theft of 8 nos. of Common Marmoset from the Zoological Garden, Alipore, the management of

Zoological Garden, Alipore has been vested upon West Bengal Zoo Authority.

1.17 Sources of pollution, if any :

As the Zoo is situated within Kolkata metropolis, the chances of air and noise pollution in the adjoining areas of the Zoo cannot be ruled out. However, the Zoo is delimited by a 2.1 m high boundary wall where the free movement of automobiles is totally restricted and thereby the chance of direct pollution within the Zoo premises is minimized. Furthermore, nearly one third of the land mass of the Zoo is covered with big trees , shrubs, herbs and grasses. Hence, the ultimate effect of the urban background is curtailed down to a great extent.

CHAPTER - II

APPRAISAL OF THE PRESENT ARRANGEMENTS AND CONSTRAINTS

2.1 Animal section

The Zoological Garden, Alipore was established in the year 1875. In the 19th Century, animals of the zoo were housed in cages. In those days, ungulates and some penioned birds like cranes, storks, pelicans and swans were maintained in open air enclosures and there was no open air enclosure for tiger, lion, bears, elephant and primates.

The Mullick House was the first animal house constructed within the Zoo with the financial help of Raja Rajendra Mullick Bahadur, the first Indian donor. Fowls and pheasants were kept within this house and they started to breed as early as in February, 1876. Fishing Cats and Jungle Cats were exhibited here. As the cages of the said house were too artificial and a new Lesser Cat cage has been constructed, the Mullick House has been converted into an open type interpretative shed.

Burdwan House which was built in 1879 wherein lions and also in some occasions tigers were exhibited, was remodelled and an open air space was developed along the dens of the house. The same house was further remodelled into an open air moated enclosure to house lions of the zoo. In the year 1957, an open air moated naturalistic enclosure for tiger was constructed. As the bears of the zoo were housed in small cages having concrete floor, the Managing Committee of the Zoological Garden, Alipore took a decision to construct an open air moated enclosure with natural ambience. In the year 1985, the said bear enclosure was constructed in the South-east corner of the zoo.

With financial assistance of Central Zoo Authority, several open air moated enclosures like enclosure for elephant, primates, white tiger and lions were constructed. During this period, with financial help of Government of West Bengal the old Hippo enclosure of the zoo which was formerly known as Buckland House, was remodelled and developed into an open air moated enclosure.

As some of the animal houses like Echidna Enclosure, Fishing Cat Cage, Goral Paddock (where gorals were exhibited), Cat Cage used for keeping lesser cat like jungle cat & mongoose , Kiosk House where cockatoos were exhibited & Jungle Fowl Enclosure where fowls , pheasants & Java Sparrows were exhibited, have outlived their utility and because of that fact these animal houses have been demolished and the available space is being utilized for formal gardening.

An open air enclosure with glass viewing facility has been constructed for Bengal Tiger at the area

where earlier white fallow deer were exhibited. After relocation of white fallow deer from this site to an open air enclosure beside the kangaroo enclosure, the said enclosure for Bengal tiger was constructed. A new set of night shelter would be constructed aligning the open air enclosure for white tiger. After constructing the said night shelters , the existing old small carnivore house wherein tigers are exhibited and which is situated in between the white tiger enclosure and newly built Bengal tiger enclosure, would be demolished and greeneries would be developed in the available space . The greeneries would act as screen between the structures of tiger enclosures and visitors of the zoo.

The naturalistic leopard and jaguar enclosures are being constructed near the white tiger enclosure with a view to create a carnivore zone within the zoo. As the enclosure for lesser cat has already been constructed, the lynx house wherein jungle cats are exhibited and which is situated beside the extended part of the old pheasant house would be demolished and jungle cats would be exhibited at the lesser cat enclosure.

There is a lone Ostrich exhibited in an open air enclosure beside the newly constructed enclosure for Bengal Tiger. The said Ostrich would be shifted to one of the paddocks of white fallow deer and the available space will be utilized to house Striped Hyaena. Beside the present Ostrich enclosure, there is an aviary. The birds of this aviary will be accommodated in other aviaries of the zoo and this aviary will be demolished. With this available space together with adjoining area, new enclosures will be constructed to house Indian Wolf, Wild Dog and Jackal and thereby, the Carnivore zone could be established.

The Reptile House having smaller cubicles with tiled floor to house snakes and lizards of the zoo was not at all conducive for the reptiles. In the centre of the Reptile House, there was one pool having some divisions wherein some muggers were exhibited. As the Reptile House was too artificial one, the said Reptile House has been renovated & remodeled naturalistically with bigger cubicles so as to provide more space to the reptiles.. The central pool has also been renovated suitably to house land & water monitors.

Marsh crocodile, gharial and salt water crocodile has been relocated in the newly constructed open air naturalistic enclosures with three divisions situated in front of the Reptile House and because of relocation of crocodiles near the Reptile House, the area has become the Reptile Zone of the Zoo.

Presently assamese monkeys, bonnet monkeys and common langurs are exhibited at a animal house, known as Gubbay House. The said house is not at all conducive to house those primates. Assamese monkeys, bonnet monkeys and common langurs would be gradually phased out from the animal collection of the Zoological Garden, Alipore. Gubbay House would be converted suitably into nocturnal house to exhibit porcupines , pangolin, slow loris and other nocturnal animal of this region.

Nilgais and barking deer are being exhibited at Sonebursa enclosure. Nilgais would be phased out

from the zoo by shifting them to other zoos and barking deer would be shifted to the barking deer enclosure of the zoo and then the Sonebursa enclosure will be restructured to house Kangaroos.

The existing deer paddocks starting after the Reptile House up to the south west corner has been restructured & remodelled to provide more space to deer of the Zoo. The wet moat of all the deer enclosures has been covered with packed earth. Moreover, service passage on the rear side of all the paddocks has been provided so that respective keeper of the paddock could enter the paddock from the rear end only so as to minimize disturbance caused to the ungulates. Another service passage has been provided from the main road bisecting both of the paddocks of the sambar deer so that Keeper could enter from this passage to move either towards the paddock of black buck or to the paddock of brow-antlered deer.

New set of night shelters and kraals have also been provided in those paddocks so that in necessity respective deer could easily be restrained manually. Here in these paddocks, Brow-antlered Deer, Sambar Deer, Spotted Deer, Black Bucks are being exhibited. Mouse Deer will be exhibited in this zone.

The old abandoned Gharial pool situated in this corner will be suitably remodeled to house Otter in future.

The Swamp Deer and Barking Deer enclosures have already been remodelled suitably.

After carrying out the aforesaid developments in the deer paddocks, the south- east corner of the zoo can be considered as the herbivore zone of the Zoo.

Cockatiels, budgerigars and parakeets were exhibited in the Insect house. The said house has been suitably restructured to house some species of cockatoos & grey parrots.

The existing open air moated enclosure for Indian elephants was constructed in the year 1999 In the said enclosure three Indian elephants were exhibited. The Member Secretary, Central Zoo Authority issued a circular bearing No. 7-5/2006 CZA (Vol. II) dated 07.11.2009 regarding Banning elephants from zoo collections wherein it was stated that Elephants are banned from zoo collections throughout the country with immediate effect. It was also stated in the said circular that all captive elephants in zoos should be rehabilitated in elephant camps / rehabilitation camps / facilities available with the forest department at National Parks / Wildlife Sanctuaries / Tiger Reserves for departmental use. But finally, as per minutes of the stakeholders consultative meeting on “Elephants Upkeep in Zoos” held on 18th March, 2013 by the Central Zoo Authority, Zoological Garden, Alipore was allowed to keep 2 elephants in an area of 1 hectare. To provide 1 hectare area to the elephants of the Zoological Garden, Alipore, the New Small Carnivora House wherein leopards & jaguar are being exhibited, has to be demolished after shifting

leopards & jaguar from this house to the proposed leopard & jaguar enclosures of the Zoo. Moreover, adjoining portion of the ornamental lake has to be incorporated in the design so as to make the total area of the proposed elephant enclosure 1 hectare . Appropriate steps are being taken to get necessary approval from the Central Zoo Authority in respect of construction of proposed elephant enclosure of the Zoological Garden, Alipore.

The open air enclosure for lion which is a very old structure, was remodelled in the year 2003. The condition of the roof of the said enclosure is very bad and the same has to be repaired.

Aligning the Pheasant House, cages have been constructed to house emu and other birds. Some cages of the pheasant house would be renovated & remodeled and other cages of the said house would be demolished. After demolition of those cages, available space would be developed into formal garden.

Presently there are three (2,1) Hippopotamus at this Zoo. For the purpose of better management of Hippo enclosure, the present Hippo enclosure has been remodeled by constructing a new paddock with night shelter.

It is proposed to provide necessary substrate, furniture etc. so as to enrich the existing animal houses of the Zoological Garden, Alipore wherever the same is needed.

It may be mentioned here that most of the aforesaid changes would be taken after due consideration of the comments and inadequacies communicated by Central zoo Authority time to time.

The mammals, birds and reptiles of the Zoological Garden, Alipore are presently exhibited in the following enclosures, cages etc.

A.	<u>Mammalian Enclosure</u>		<u>No.</u>
(a)	Open air type enclosure	...	12
(b)	Open air moated enclosure	...	10
(c)	Caged type enclosure	...	7
B.	<u>Enclosures/Houses etc. for birds</u>	...	11
C.	Open air moated enclosures for Crocodiles	...	3
D.	Reptile House	...	<u>1</u>
Total			<u>46</u>

Presently following numbers of mammals, birds and reptiles are exhibited at the Zoological Garden, Alipore (as on 31.03.2016).

Type of animals	No. of species.	No. of specimens
Mammals	29	159
Birds	57	904
Reptiles	19	205

Contd.....12

The stock position of the mammals, birds and reptiles of the zoo as on 31.03.2016 are annexed (Annexure III).

Following staff are working in the animal section of the zoo.

		<u>No of staff</u>
Animal Supervisor	..	2
Head Keeper	..	4
Senior Keeper	..	6
Junior Keeper	..	27

To record the detail biological data of the animals of the Zoo, one Zoo Biologist was appointed on contract basis.

20 persons on contract basis had been deployed through an agency in this section to assist the regular keepers of the zoo.

The Animal Section of the Zoological Garden, Alipore is divided broadly into two sections. These two sections are headed by respective Animal Supervisor. Everyday the Animal Supervisors move around the zoo to supervise the work of Head Keepers and also collect reports from the respective Head Keepers of the aforementioned sections in respect of health status of the animals. Finally, they submit a daily report to the Veterinary Surgeons in the prescribed format for taking further action. The Junior Keepers and Senior Keepers of the zoo clean water troughs, food troughs/trays and animal enclosures/houses/cages etc. everyday. They also receive animal feed from the store of the zoo for offering the same to respective animals. On receipt of the food items for the respective animals, keepers of the zoo carry the same to the respective animal enclosures/houses/cages etc. in hand trolleys.

The role of the Curator of animals is very important in a large Zoo and the said role is being carried out by the Assistant Director of the Zoological Garden, Alipore .

Aquarium

There is one Aquarium for the fishes of fresh water situated just opposite to the main entrance gate of the zoo. The Aquarium is having 17 Nos. of big tanks, 12 Nos. of medium sized tanks and 24 Nos. of small tanks. The dimensions of the aforesaid tanks are given below:

<u>Big tank.</u>	-	9'-8" (length) x 3'-2" (width) x 4'-3" (height)
<u>Medium sized tank</u>	-	6'-0" (length) x 2'-0" (width) x 3'-4" (height)
<u>Small tank</u>	-	2'-0" (length) x 1'-6" (width) x 1'-6" (height)

The tanks of the aquarium are very artificial and the said tanks would be decorated in befitting manner.

Following staff are engaged at the Aquarium of the zoo.

		<u>No of staff</u>
Curator	....	Nil
Supervisor	....	Nil
Tank attendant	....	4

There is a regular supply of potable water from the zoo proper to the aquarium to carry out necessary cleaning of the tanks of the aquarium. Water is first store in an underground reservoir of the aquarium and then the same water is passed through a overhead filter for supply of filtered water to the respective tanks of the aquarium. Every day tank attendants cleaned undigested food particles and other waste products from each tank by siphoning the same. Moreover, power filters are installed in some tanks for further filtration of water. Tubifex, dry food, mutton etc. are supplied to the fishes as their food. There are off display tanks wherein ailing fishes are treated whenever necessary. Fishes are procured from the local market for display of the same at the aquarium.

2.2 Veterinary section

The Veterinary Hospital is situated on the opposite side of the zoo proper with dispensary, basic diagnostic facilities, operation theatre, X- ray facilities, indoor patient ward with squeeze cages, isolation ward, quarantine ward and post-mortem room. Necessary medicines including live saving drugs are kept in the dispensary of the zoo hospital so as to treat the ailing animals in necessity and also to provide necessary supplementation. The zoo hospital is equipped with tranquilising equipments like dart gun, blow pipe and tranquilising drugs. The Veterinary Surgeons, Field Assistant and keepers of the zoo hospital handle those tranquilising equipments.

The zoo hospital has following staff :

		<u>No of staff</u>
1.	Veterinary Officer	.... 3
2.	Veterinary Field Assistant	.... 1
3.	Keeper	.... 1
4.	Sweeper	.... 1

One person on contract basis had been deployed through an agency to render assistance in this section.

There is no post of X-ray technician at the zoo hospital. The management of the zoo used to engage X-ray technician as an when required on daily payment basis.

In addition to the Veterinary Officer of the Zoo, one full time Veterinarian has been regularly deputed / posted by the ARD Department, Government of West Bengal in the post of Assistant Director Pathological-cum-Diagnostic Laboratory situated at the Veterinary Hospital of the zoo for performing pathological and diagnostic tests of the zoo inmates.

The Supervisors of the animal section submit written report to the Veterinary Surgeons of the zoo in the prescribed format daily. On the basis of the said report, Veterinary Surgeons treat the animals of the zoo. Depending upon the health conditions of the animal, Veterinary Surgeons of the zoo either treat the ailing animals within the respective cage/ house/ enclosure or take appropriate steps to shift the animal to the indoor ward of the Zoo Hospital. Moreover, the Veterinary Surgeons move around the zoo daily to inspect the health status of the inmates.

As a routine practice, the Veterinarians meet the Director of the zoo regularly to discuss about the health conditions of the animals. During emergency, the Veterinarians along with the Assistant Director, discuss the situation immediately with the Director to take appropriate decisions without making any delay.

Faecal samples are examined at random or in necessity specifically tested in every month by the zoo veterinarians in respect of presence of helminthic ova / protozoan parasite. Moreover, standardisation process for urine and blood biochemistry of wild animals of the zoo is under process. Deworming of animals are done regularly. Prophylactic measures against Trypanosomiasis in respect of tigers, lions, panthers and jaguars and Tuberculosis in respect of deer, antelopes, giraffes and primates of the zoo are regularly carried out by the Veterinarians of the zoo. Vaccination against FMD is done for elephant. Schedules have been prepared for regular test for parasitic load.

At present there is arrangement for quarantine of birds and some mammals like lesser cats, porcupine etc. at the zoo Hospital, while there is no facility to quarantine ungulates. Presently quarantine of ungulates is being done at the vacant extreme south west corner of the zoo.

2.3 Store & feed supply section

The store is located near the administrative office of the zoo. The store building with cement flooring has a separate meat processing unit. After receiving the buffalo meat, the same is weighed in presence of the Store Keeper and Veterinary Surgeon of the zoo. The quality of the meat is checked daily by the Veterinary Surgeon. After checking the quality of the meat, the same is processed and is distributed for offering the same to the tigers, lions, leopards, jaguars and muggers etc. of the zoo. Every day after distribution of feed items, kitchen and floor of the store are cleaned.

There is one kitchen in the store building having gas oven wherein several food items are cooked and delivered to respective keepers for offering the same to the animals of the zoo.

There is neat finished elevated concrete slab in the store building. Such elevated slab has been constructed for preparation of food in order to avoid contaminations from the floor. After receiving required food items from the Store Keeper, respective keepers of the zoo process the same on the said elevated slab for offering the same to the inmates of the zoo.

Including meat all the food items are regularly checked by Veterinary Surgeons of the zoo for quality testing.

The store of the zoo has two separate rooms for storing crushed maize, wheat bran, barley, oat, gram, ground nut oil cake etc. respectively. It has another room wherein electrical appliances, different types of ropes, m.s. wire, water can, food trays etc. are kept together with dismantled materials like m.s. flat, angles, etc. Chain linked wire net of different gauges and meshes are stored in a separate room of the store. Cement and paddy straws are stored in a separate room having partition wall in between.

Besides all the food stuff, electrical articles like switches, bulbs, fluorescent tubes, electrical wires etc. and cement, brick, sand, m.s. iron flat, angle, rod, wire net, binding wire, wood, different types of ropes etc. are received by the Store Section of the zoo for supplying the same in carrying out petty maintenance work of the zoo.

The Store Section has following staff :

		<u>No of staff</u>	
1.	Store Keeper	....	1
2.	Peon	....	1
3.	Mazdoor	....	1

3 persons on contract basis had been deployed through an agency in this section to assist in the regular activities of the store.

One kitchen Supervisor (Dietician) has been appointed on contract basis to supervise the diets of the animals of the zoo.

The authorities of the Zoological Garden, Alipore have never faced the problem of non-supply of perishable food items even in the event of flood or general strike in West Bengal and however, two deep fridges have been procured to store perishable food items.

2.4 Sanitation section

The sanitation of the animal enclosures, houses, cages, aviaries and zoo hospital is maintained by the Keepers concerned. Besides the keepers one Sweeper is engaged for maintaining the cleanliness of the zoo

hospital. Sanitation of the surrounding area of animal enclosures, houses etc. is maintained by the cleaning agency of the zoo.

Sanitation of the animal enclosures, houses, cages etc. of the Zoological Garden, Alipore is being done as follows.

- | | | | |
|-----|--|---|---|
| 1. | Sweeping of the cages & enclosures | - | Done daily except Deer Paddocks and Rhino Enclosure wherein the same are done once in a week. |
| 2. | Washing of the floor of the night shelters with disinfectant | - | Done daily |
| 3. | Lime & Potassium Permanganate wash | - | Done at a stipulated interval |
| 4. | Disposal of faecal matters | - | Done daily |
| 5. | Disposal of garbage | - | Done daily |
| 6. | Simple cleaning of drinking water troughs & feed trays | - | Done daily |
| 7. | Lime water wash of drinking water troughs | - | Done once in a week |
| 8. | Water sanitation | - | Specific & potent water sanitiser is used regularly for sanitation of water used in all the aviaries for the purpose of drinking. |
| 9. | Simple cleaning of wet moats by removing weeds | - | Done monthly |
| 10. | Simple cleaning of the water pool by changing water | - | Done daily in case of carnivorous animals |

There are three Sweepers in this section. Out of the three Sweepers, one Sweeper as stated above works in the zoo hospital. Two Sweepers are mainly engaged to clean the staff quarters complexes and the sewer line of the zoo. The Sanitary Supervisor supervise the works of sanitization of the Zoo premises.

There are four toilet complexes with several units within the premise of Zoo. These toilet complexes are regularly cleaned by the cleaning agency of the Zoological Garden, Alipore in addition to the total cleaning of the Zoo premise and the solid wastes are disposed regularly before 8:00 am. Special cleaning of the total premise of the Zoo is provided on the days of rush period during winter season.

2.5 Maintenance section

The civil, electrical and mechanical works of the zoo are carried out by this section.

The section has following staff.

	<u>No. of staff</u>
1. Sub-Assistant Engineer(Civil)	1
2. Sub-Assistant Engineer(Electrical)	1
3. Works Assistant	1
4. Fitter	Nil
5. Mazdoor (to perform the activities of Fitter)	2
6. Mason	1
7. Mazdoor to assist Mason	1
8. Assistant Wireman	1
9. Mazdoor to assist Asstt.Wireman	1
10. Carpenter	1
11. Mazdoor to assist Carpenter	1
12. Pumpman	Nil
13. Mazdoor to assist Pumpman	1

Two persons on contract basis had been deployed through an agency to render assistance in this section .

To carry out the plumbing and sanitary works of the zoo, plumbing agency is engaged on annual contract.

Minor equipments including drill machines necessary to carry out petty works have been provided to this section. There is no welding machine in this section. On necessity, welding is done on engaging contractor on contract basis. Hand trollies have been provided to the Fitter and Masson of the zoo to carry wire net, angles, flats, bricks, cement and sand etc. from the store to the respective working site.

The Carpenter and the Assistant Wireman of the zoo have been provided with necessary equipments to carry out petty works.

Contd.....18

There is a workshop adjacent to the Store of the zoo wherein Fitter, Electrician and Carpenter carry out some of the maintenance work.

Major civil, electrical and mechanical works are carried out by engaging respective contractors while minor repairing works are done by departmental staff.

The Sub-Assistant Engineers supervise the work of his departmental staff i.e. Fitter, Carpenter, Mason and Asst. Wireman and also the works carried out by the contractor engaged by the Zoological Garden, Alipore.

2.6 Security section

The security of the zoo is maintained by this section. The security section has following staff.

		<u>No. of staff</u>
1. Head Durwan	....	3
2. Mate Durwan	....	2
3. Durwan	....	1

Other than aforesaid staff appointed by the authorities of this zoo, security staff from private agency are also engaged to look into the security of the Zoological Garden, Alipore. As per seasonal requirement, the agency deploys security guards to look after the security of the Zoo as well as to prevent teasing, feeding etc to the animals of the Zoo by the visiting public. They also deploy male and female security guards for smooth running of the entrance gates of the Zoo as well as Aquarium.

2.7 Water supply section

At present the Zoological Garden, Alipore is receiving potable water from the Kolkata Municipal Corporation and by gravity water is stored in an underground reservoir. Water is then lifted to the overhead reservoir having the capacity of storing 1,32,500 litres of water and is distributed to several enclosures of the zoo like White Tiger Enclosure, Old Small Carnivora House, White Fallow Deer Enclosure, Ezra House (Giraffe Enclosure), Gubbay House, Reptile House, Dumraon House, Chimpanzee Enclosure, Sonebursa Enclosure, Brow-antlered Deer Paddock, Sambar Deer Paddock, Spotted Deer Paddock, Swamp Deer Paddock, Aquarium and some drinking water spots. The said reservoir and the pump room are situated near the Reptile House of the zoo.

There is a deep tube well having overhead reservoir with the capacity of storing 30,700 litres of water, situated near the Buckland House (Open air enclosure for Hippopotamus). Water is lifted to the said water reservoir and distributed to the animal enclosures like Pheasant House, Buckland House, New Small Carnivora House, Open air moated enclosure for Elephant, Jhind House, Open air moated enclosure for Tiger and some drinking water spots.

There is another deep tube well situated near the Dumraon House wherein primates are exhibited.

After lifting water with the help of submersible pump, water is stored in three masonry drinking water tanks situated near Hoolock Island, Open air enclosure for Tiger & Primates respectively and is also distributed to the Dumraon House, Peafowl Enclosure, Gayal Paddock, Kangaroo Enclosure, Barking Deer Enclosure, Open air moated enclosure for Bear, Store etc.

Aforesaid supply of potable water is sufficient for carrying out the work of cleaning of the enclosures as well as for the purpose of drinking of the zoo inmates and the visitors.

There are two more deep tubewells at the Zoological Garden, Alipore. One of the said deep tubewells is situated behind the zoo auditorium and the other one is situated in the nursery of the zoo. Water is distributed to the auditorium, staff quarters and zoo hospital with the help of these tubewell.

2.8 Disposal of solid & liquid waste- sewerage

The liquid wastes generated at the zoo are drained out with the help of sewer line of Kolkata Municipal Corporation by using the existing sewer lines of the garden.

The solid wastes generated by the inmates of the zoo and visiting public are dumped on some particular points of the zoo. To clean the said solid wastes, the authority of the zoo has engaged a private agency who takes away the same with the help of a lorry. The work of cleaning of solid wastes is supervised by the Head Mali of the zoo. Moreover, the Deputy Director and Assistant Director also supervise the work of Head Mali specially in respect of regular cleaning of the zoo.

After carrying out post-mortem, carcasses of birds and reptiles of the zoo are buried in the hospital campus. After post-mortem followed by mutilation of skin, nails etc., mammalian carcasses are handed over to the representative of Kolkata Municipal Corporation for burring the same at their burial ground.

2.9 Visitors amenities

To facilitate smooth entry of visitors and crowd management, a new Entrance Ticket Plaza has been constructed. There are 18 fully automated electronic turnstile gates connected to main server which has complete automation of bar-coded ticket checking with special entry provision for physically challenged visitors. The entire data generation is automated enabling the Zoo management to monitor the number of visitors inside the premise. It has been observed that this newly constructed automated entrance gates are helping visitors to enter the Zoo smoothly. There is another entry gate on the National Library Avenue. Normally this gate remains closed to the visitors but during rush period i.e in the months of December & January this gate remains opened for the entry of the visitors to the Zoo.

There are 6 Nos. of rest sheds at various points of the Alipore Zoo which facilitate the visitors of the zoo

to take rest. Other than these rest sheds, there are some sitting arrangements around some trees of the garden for the visiting public. Rest sheds and other sitting arrangements surrounding some trees of the zoo appears to be sufficient during lean period. When the number of visitors increases i.e. during the month of December, January, and February, visitors use lawns of the zoo together with those rest sheds for taking rest.

There are 2 Nos. of old toilet complexes having several units. Beside the air-conditioned restaurant, a new toilet complex with several units has been constructed. Another toilet complex with several units has also been constructed at the northern end of the Zoo. The toilet complex situated near the National Library Avenue gate has been suitably renovated. After demolition of the old toilet complex situated near the Marmoset enclosure, a new complex would be constructed.

Wheel chairs are made available for the physically challenged visitors of the zoo at free of charge.

Measures have been taken for introduction of battery operated vehicles to facilitate the hassle free movement of the aged and physically challenged persons including small kids during the lean period at a nominal cost. The facility will be withdrawn during the heavy rush period in winter season keeping in view the non-feasibility of plying such vehicles in congested road.

Potable drinking water is available at various points of the zoo for the visitors.

During rush period, a first aid camp is set up near the main entrance gate of the Alipore Zoo for the visiting public.

Public address system is also made available to help the visitors during the rush period at the entrance gate so that the sound of microphone could not reach inside the zoo.

Student concessions are issued for one hundred students of an institution on educational excursion in a day except on Sundays and holidays, on application submitted by the head of the institution well in advance. No student concession is given from 15th December to 15th January.

During the period from 25th December to 1st January, all the Sundays of the month of January and 26th January, on an average fifty five thousands of visitors visit the zoo. To assist the visitors during rush period, Scouts are engaged at the Zoological Garden, Alipore. To maintain the law and order situation of the zoo during these rush days, Police personnel are deployed in the zoo. As the zoo proper is only 18.81 hectare, during rush period, the zoo becomes overcrowded and as such the lawns of the zoo suffer from heavy wear and tear. During these days, lawns, roads and hedges are cleaned by sprinkling water.

2.10 Lawns & gardens – landscape section

The cleanliness of the roads, lawns, maintenance of hedges, plantations of trees etc. are carried out by

the staff of this section. When the visiting hours is over on every rush day, the lawns and roads of the zoo are cleaned with water after drawing the same with the help of potable pump machine. The said work of cleaning is done on contract basis.

A nursery situated on the opposite side of the zoo proper is maintained and seasonal flowers are grown here by this section. Different varieties of seasonal flowers are also grown in the flower beds of the zoo and the same is maintained by the staff of this section.

This section is equipped with nursery equipments like lawn mowers, spades, prunners, hedge shears, sickles, garden rakes, sprayers, water cans, hose pipes, hand trollies etc.

The Head Mali of the zoo everyday allots duties of the Mate Malies to supervise the work of Mazdoors.

The Mazdoors of the zoo clean the roads, lawns including the surrounding area of different enclosures, cages, houses and aviaries. Under the supervision of the Head Mali and or Mate Mali, Mazdoors grow seasonal plants in the flower beds of the zoo and the also plant trees, if required.

The section has following staff :

		<u>No. of staff</u>
1.	Head Mali	1
2.	Mate Mali	3
3.	Mali-mazdoor	23

One person on contract basis had been deployed through an agency to render assistance in this section.

As a part of beautification work of the Zoological Garden, Alipore, lawns with hedges have been developed in some patches of the Zoo.

2.11 Animal Collection plan

Initially the denizens of Kokata donated their fine collection of animals to the Zoological Garden, Alipore. Some animals were also collected from abroad. Before enactment of Wildlife Protection Act, 1972, animals were also purchased from the private dealers. In those days animals were procured from other zoos on exchange basis.

After enactment of Wildlife Protection Act, 1972 and introduction of Recognition of Zoo Rules, 1992, animals were procured by way of exchange between the recognized zoos.

Apart from this, the Directorate of Forests, Government of West Bengal used to hand over some seized or rescued animals for their safe upkeep at this zoo.

The proposed animal collection plan of the Zoological Garden, Alipore has been indicated in the Part II of this plan.

2.12 General zoo administration section

The policy making and financial management of the Zoological Garden, Alipore is vested upon the Governing Body of the West Bengal Zoo Authority.

Day to day management is looked into by the Director of the zoo. To assist the Director in his day to day management, there is one Deputy Director and one Assistant Director.

The administration section is having the following staff.

			<u>No. of staff</u>	<u>Vacancy, if any</u>
1.	Director	....	1	Nil
2.	Deputy Director	....	1	Nil
3.	Assistant Director	....	1	Nil
4.	Head Clerk	....	1	Nil
5.	Accountant	....	1	Nil
6.	Stenographer	....	1	Nil
7.	Cashier	....	1	Nil
8.	U.D. Clerk	....	3	1
9.	L.D. Clerk	....	4	4
10.	Gate Supervisor	....	1	1
11.	Ticket Clerk	....	10	8
12.	Cash Collecting Sarkar	....	Nil	1
13.	Peon	....	7	Nil
14.	Demonstrator	....	Nil	1
15.	Assistant Demonstrator	....	Nil	1
16.	Librarian	....	Nil	1
17.	Assistant Librarian	....	Nil	1
18.	Technical Assistant	....	Nil	1
19.	Label Writer	....	Nil	1

Contd.....23

Since appointment on regular basis against permanent vacancy has temporarily been stopped, three of such posts of L.D.Clerks have been filled up by six full time personnel on contractual basis.

One post each of Technical Assistant, Demonstrator, Librarian and Assistant Librarian is lying vacant. Necessary steps would be taken to fill up the posts.

2.13 Research

As such at present there is no research wing at the zoo. Some of the officers of the zoo had carried out research on different aspects of wild animals on various occasions. Time to time students of various universities is engaged to carry out research on various aspects of animal biology.

There is a Zoo Biologist and a provision of Research Assistant.

The main objectives of this wing will be as follows:

1. Marking of animals as far as practicable.
2. Maintenance of Animal History Cards.
3. Animal Record Keeping – entry of observations in daily report .
4. Maintenance of studbook and herdbook.

The daily routine of the research section would be chronologically followed and it would start from the keepers level and would be submitted to the Assistant Director of the Zoo by the Zoo Supervisors which in turn would be submitted to the Director of the Zoo via Veterinary Officers. The ultimate compilation of the all these data will be done by the Zoo Biologist , once it is checked by the Director.

Till date there was no systematic planning for conducting research work in project mode. In future , this Zoo will avail the facility of small grant fellowships sponsored by Central Zoo Authority or other research organisation like CSIR & UGC. The researchers will be engaged under specific projects for solving the problems faced by the Zoological Garden, Alipore since recent past. Some of which may be;

- a) The probable reason for discontinuation of arrival of migratory birds at the lake of the zoo.
- b) Impact of the excess crowd and the long term practice of the visitors to take eatables within the Zoo premises on the Zoo animals particularly in winter season.
- c) Analysis of health records with emphasis on causes death, treatments provided, trend of birth & death ratio and the probable reasons for anomalies, if any.
- d) To study the history of Zoos in West Bengal and India with a view to improve the management of the Zoo

to make it at par with national and if possible, international standard.

2.14 Conservation breeding

Steps would be taken to conduct conservation breeding programme after proper stabilization and standardization of desired heterozygosity of the suitable and well established endemic species of the Zoological Garden, Alipore.

A conservation breeding programme on Brow-antlered Deer (*Cervus eldii eldii*) sponsored by the Central Zoo Authority has been initiated at this zoo involving Assam State Zoo, Guwahati, Monipore Zoo and National Zoological Park, New Delhi. The objective of the said programme is to study the heterozygosity of the individual Brow-antlered Deer of the aforesaid four zoos of India by DNA analysis from the faecal samples of the target species for finding genetically suitable individuals towards recommendations of steps to be taken for conservation breeding of the said species. The said DNA analysis has been carried out by LaCONES, Hyderabad.

This Zoo is the participating Zoo in the conservation breeding programme of Grey Peacock Pheasant.

An off display area in the South – East corner of the Zoo has been identified and the same has been shown in the proposed Master Lay Out Plan of this Zoo, Here conservation breeding programme will be initiated for the highly endangered wetland species of West Bengal like Fishing Cat, Otter, Water Monitor etc. and fruit Bats after studying the feasibility of the programme.

2.15 Education and awareness

The post of Zoo Educator along with one education assistant and one Library Assistant have been created in this Zoo. Education and awareness programmes are presently carried out by the Zoo Educator of the said section taking advice from the Director, Deputy Director and Assistant Director of the zoo.

There are educational signages on different animals of the zoo to provide an idea about the animals to the visitors. Beside this, guide book is also available for the visitors.

To increase the awareness among the people regarding conservation of wildlife , the Animal Adoption Programme had been launched by Zoological Garden, Alipore in the month of August, 2013 and the initial motivation response was satisfactory. Total 38 number of wildlife lovers (Individuals & Corporate Houses) were involved through animal adoption process consisting of total 47 number of mammals & birds. This process is dynamic and will continue either through renewal or fresh proposal.

The motivation schemes like “ Friends of Zoo” and “ Zoo volunteer” are in the pipe line and a good response is expected from the interested people of Kolkata.

Technical assistance and guidance are given to the students of Master Degree in Zoology, B.V.Sc. & A.H. and M.V.Sc. on regular basis.

Efforts are being taken for compilation of the published research works based on this Zoo and its captive & free ranging animals in form of a compendium and at the same time digitization and uploading in the website of the Zoo.

2.16 Accommodation of staff

Most of the staff has been accommodated on opposite side of the zoo. All the staff quarters are located on the opposite side of the main entrance gate of the Zoological Garden, Alipore.

Some of the staff quarters have almost lost their utility, these quarters will be renovated. Moreover, four new buildings are on the way of construction in the residential complex of the Zoo for proper accommodation of the staff.

2.17 Administrative office

There is one old office building near the exit gate of the zoo. Office chambers of Director, Deputy Director and Assistant Director were formerly within this old block. In 2003, adjacent to the old office block, a new office building had been constructed to accommodate the office chambers of Director, Deputy Director and Assistant Director.

Staff of the administrative section, Sub-Assistant Engineers and Work Assistant is using the old office block.

As this is a very old zoo of historical importance, a record room to preserve records of the zoo is very much needed and the same will be constructed on the top of the new office premises.

2.18 Library

There is a library within the Zoological Garden, Alipore with very rare books and journals. Books on wildlife, management of wildlife specially in captivity, journals on wildlife etc. would be procured to develop this library as one of the finest library on wildlife in the Eastern India. Facility of photocopy will be available here to help the users of this library. Students of zoology, life science & wildlife and scholars on these subjects will have the access to this library.

2.19 Nature Interpretation Centre :

The establishment of a Nature Interpretation Centre is under way within the old heritage building where formerly reptiles were kept. In the said interpretation centre, there will be informative panel boards on the major animals of the Zoo. These boards display the common name, scientific name, distribution, habitat, habits and reproductive behavior of the major mammals, birds and reptiles of the Zoological garden, Alipore. There will be the facility of user friendly touch screen kiosks to provide information on animals which will be very much informative and attractive to the school going children. There will be further scope to use it as an auditorium having the multidimensional projection system based on nature and wildlife themes.

2.20 Auditorium :

There is an auditorium, known as “Ram Brahma Sanyal Smriti Sadan” situated on the opposite side of the main exit gate of the Zoological Garden, Alipore. This auditorium with the capacity of 350 seats will be renovated in a befitting manner. Here films on nature & wildlife will be screened. Drama related with nature will be staged. Moreover, talks and quizzes on nature, environmental issues and wildlife will be arranged.

2.21 Restaurant , food stall & kiosk :

Presently there are one air conditioned restaurant, nine nos of ice cream kiosks and two food stalls in the Zoological Garden, Alipore. All these eating house and stalls are spread all over the zoo at several locations and as a result during rush period garbage generated out of these food stalls give a bad appearance to the zoo. Instead of having scattered food stalls, it has been decided that a food court would be constructed near the open space of the giraffe enclosure. In the proposed food court all the eating houses and food stalls would be accommodated. Moreover, visitors of the zoo would be allowed to take food at this restricted eating zone which in turn will facilitate to clean garbage generated out of leftover food etc. and thereby it is expected that the aesthetics of the zoo will be better.

2.22 Parking Area :

There is a small parking facility just opposite the main exit gate of this Zoo. Due to space constraint, it is not possible to set up a parking plaza within the premise of the Zoological Garden, Alipore

However, a parking plaza has been selected by the PWD, West Bengal near the Zoo and construction of the same is under way. The visitors of the Zoo will have the access to park their vehicles at this site.

2.23 Incinerator :

Installation of incinerator will be difficult as the Zoo is located in the middle of the city. The burning of carcasses gives foul smell and because of that local people opposed it in the past as surrounding areas of the Zoo has residential and as well as five important hospitals & four schools nearby. Therefore, it is proposed to bury the carcasses in the vacant land of the Zoo.

PART - II

CHAPTER – III

Future Objective :

3.1 Vision :

To provide future direction for modernization & upgradation of the Zoological Garden, Alipore to such extent that in spite of being one of the oldest Zoos of India , it can be at par with one of the best Zoos of the country. For that purpose the available resources, planned breeding, research etc. would be the essential tools keeping in mind the constraints, limitations and inherent challenges of an old Zoo.

3.2 Mission :

The mission of the Zoological Garden, Alipore is “Conservation of wild animals of Eastern India with special reference to the animals of Lower Gangetic basin and fresh water wet land fauna and education & research for sustainable conservation of wild fauna which are under severe threat due to biotic interference.”.

3.3 Strategy of the Zoo :

The strategy of this Zoo is fulfill the vision and mission in a slow but steady mood to present it as a modern zoo in spite of having the ever increasing visitor flow (in the year 2015 – 2016 , the annual foot fall was 30,93,290) and the changed scenario in contemporary demand of the young generation.

CHAPTER – IV

4.1 Future action plan

The aim of the future action plan is to provide direction for development of the Zoological Garden, Alipore in coming twenty years i.e. 2014 – 2015 to 2034 – 2035 with the provision to review the plan after 10 years. The proposal is based on available resources, planned breeding, research and for convenience of the management, the proposal has been prepared section wise. While formulating the proposal, recommendations of the Central Zoo Authority made after evaluation of the zoo from time to time were kept in view.

4.1.1 Display theme

Over the past one hundred and thirty four years, the zoo grew up haphazardly without any planning and at this point of time, it would be very difficult to reorient the enclosures/cages etc. to house the animals of the zoo in accordance with a definite display theme like taxonomic theme, zoogeographic theme, ecological theme, behavioural theme etc. For the convenience of the zoo management, “broad taxonomic display” is proposed to be adopted as far as feasible and the said display will be as follows :

- (a) Big cats like tigers, leopards, jaguars etc.
- (b) Lesser cats like jungle cat, fishing cat and leopard cat.
- (c) Ungulates
- (d) Marsupials
- (e) Bears
- (f) Primates
- (g) Giraffe, hippopotamus, elephant
- (i) Reptiles including crocodilians
- (j) Aviary birds
- (k) Water birds
- (l) Flightless birds like emu & ostrich.

It is intended that in future various animals of the Zoological Garden, Alipore would be displayed in accordance with the aforesaid display theme, but as the zoo is very old and the enclosures / houses / cages were built haphazardly to house various animals, it would not be feasible to relocate those animal houses so as to keep the animals in accordance with the display theme. Therefore, we will have to compromise with the proposed display theme in the following cases.

i) According to future action plan, it is intended that all the aviaries should be relocated in the space available between new reptile house and white tiger enclosure of the zoo. But at present 13 nos. of aviaries of the zoo are situated at different points and as such it would be practically impossible to relocate all those aviaries in the proposed site. Therefore, it is proposed that aviaries like Birds of Prey House (where pheasants, peafowls etc. are exhibited), Pheasant House (where mainly pheasants are displayed), Rodent House (where pheasants, hornbill etc. are maintained), Schwindler House (where cockatoos, macaws and grey parrots are kept), Major S.C.Dutta Aviary (where cockatoos and grey parrots are exhibited) and Insect House (where some species of cockatoos would be housed), would continue to exist in the respective existing sites as the available space of the proposed site is less to accommodate those aviaries.

ii) According to future action plan of the proposed Master Plan of the zoo, it is intended to accommodate all the big cats like tiger, lion, leopard and jaguar in the close vicinity of the open air white tiger enclosure. But again the available space is not enough to accommodate all the big cats beside the white tiger enclosure of the zoo. Therefore, the open air moated enclosure for tiger & open air moated enclosure for lion though situated on other part of the zoo i.e. the said enclosures are not situated by the side of the present white tiger enclosure, would continue to exist in the existing sites only and the same would not be relocated in the proposed site for the aforesaid reason.

iii) It is intended to devote the available space of the Southern part of the zoo to ungulates and primates only. The open air moated enclosure for bears is located in this area and it would not be feasible to relocate bears in other part of the zoo. Therefore, it is proposed that the existing open air moated enclosure for bears would continue to exist in the southern part of the zoo.

iv) The giraffes of the zoo are housed in the Ezra House situated on the Eastern bank of the ornamental lake of the zoo. As the giraffes are maintaining good health and breeding regularly in the said house, it is proposed that the giraffes of the zoo would not be relocated to the area for ungulates rather they would remain in the existing site only.

4.1.2 Proposed animal collection plan

Keeping in view of the theme of the Zoological Garden, Alipore, in the collection plan main thrust would be given on the indigenous species specially those of Eastern India.

It is intended to maintain those endangered species for which facilities and trained personnel are available at the Zoological Garden, Alipore.

Together with the indigenous animals, some exotic animals like kangaroo, chimpanzee, common

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marmoset, zebra, giraffe, hippopotamus, jaguar, exotic pheasants, cockatoos, macaws, emu, mute swan, black swan, black necked swan, mandarin duck and carolina duck would be housed in the zoo as the Zoological Garden, Alipore has the experience and expertise to maintain those exotic animals in captivity.

Sl. No	Name of the animal	Present stock	Proposed population size	Remarks
1.	Himalayan Black Bear	1,2	1,2	
2.	Sloth Bear	1,2	1,2	
3.	Black Buck	5,3	4,8	
4.	Fishing Cat	2,1,2	2,2	
5.	Jungle Cat	2,0	2,2	
6.	Swamp Deer	2,3	3,4	
7.	Brow-antlered Deer	6,4	4,8	
8.	Indian Elephant	0,2	0,2	
9.	Common Langur	4,3	0	This species would not be displayed.
10.	Bonnet monkey	5,1	0	This species would not be displayed.
11.	Assamese Monkey	3,4	0	This species would not be displayed.
12.	Leopard	1,2	2,2	
13.	Indian Lion	0,1	2,4	
14.	Bengal Tiger	2,5	2,4	
15.	White Tiger	2,2	2,2	
16.	Striped Hyaena	2,0	2,2	
17.	Large Indian Squirrel	0	2,2	
18.	Indian One Horned Rhinoceros	1,0	1,2	
19.	Hamadryas Baboon	0,1	2,4	
20.	Chimpanzee	1,0	2,2	
21.	Barking Deer	11,10	5,10	
22.	White Fallow Deer	0,1	0	This species would not be displayed.
23.	Spotted Deer	10,8,5	5,10	
24.	Sambar Deer	1,4	2,4	
25.	Giraffe	4,4	3,5	
26.	Jaguar	0	2,2	
27.	Hippopotamus	2,1	1,2	
28.	Hybrid Lion	1,2	0	Hybrid Lions would be phased out.
29.	Common Marmoset	1,4,1	4,12	
30.	Porcupine	1,1,1	2,4	
31.	Nilgai	2,2	0	This species would not be displayed.
32.	Grant's Zebra	1,31	2,4	
Mammals to be added to the collection				
1.	Leopard Cat	Nil	2,4	Leopard Cat would be exhibited at the Lesser Cat enclosure.

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Sl. No	Name of the animal	Present stock	Proposed population size	Remarks
2.	Mouse Deer	Nil	2,6	This species would be exhibited at herbivore zone .
3.	Four-horned antelope	Nil	2,4	This species would be exhibited at herbivore zone .
4.	Wild Dog	Nil	2,4	This species would be exhibited at new enclosure
5.	Indian Wolf	Nil	2,4	
6.	Jackal	Nil	2,2	
7.	Slow Loris	Nil	2,2	This species would be exhibited at proposed nocturnal House
8.	Pangolin	Nil	2,2	
9.	Grey Kangaroo	Nil	3,3	Would be exhibited at the restructured enclosure
	Presently exhibited Birds			
1.	Common peafowl	7,4	10,8	
2.	Spoonbill	0,0,25	0,0,40	
3.	Budgerigar	319	0	This species would not be displayed.
4.	Red Vented Bulbul	0,0,5	0,0,6	
5.	Red Whiskered Bulbul	0,0,2	0,0,6	
6.	Cockatiel	52	50	
7.	Cockatoo	12	15	
8.	Sarus Crane	4	6	
9.	Cape Crowned Crane	1,2	2,2	
10.	Dove	166	0	
11.	Mandarin Duck	2,2	10,10	
12.	Crested Serpent Eagle	0,0,1	0,0,2	
13.	Finches	0,0,28	0,0,30	
14.	Goose	0,0,39	0,0,40	
15.	Pied Hornbill	1,0	2,2	
16.	White Ibis	0,0,6	0,0,15	
17.	Brahminy Kite	0,0,1	0,0,2	
18.	Pariah Kite	0,0,0	0,0,2	
19.	Koel	2,2	3,3	
20.	Red Wattled Lapwing	0,0,1	0,0,4	This species would not be displayed.
21.	Love Bird	0,0,5	0	This species would not be displayed.
22.	Blue & Yellow Macaw	3,4,12	10,10	
23.	Red & Blue Macaw	1,1	4,4	
24.	Hill Myna	0,0,13	0,0,20	
25.	Blossom Headed Parakeet	1,0	2,4	
26.	Large Indian Parakeet	5,2	4,6	
27.	Quaker Parakeet	0,0,10	0,0,15	
28.	Red Breasted Parakeet	0,0,5	2,4	
29.	Rose Ringed Parakeet	0,0,46	0,0,30	
30.	Blue Rose Ringed Parakeet	0,0,4	0	This species would not be displayed.
31.	Grey Parrot	0,0,2	2,4	
32.	Rosy Pelican	0,0,4	0,0,8	

Sl. No	Name of the animal	Present stock	Proposed population size	Remarks
33.	Spot Billed Pelican	0,0,2	0,0,6	
34.	Bhutan Grey Peacock Pheasant	7,1	4,4	
35.	Chinese Silver Pheasant	4,3	4,4	
36.	Golden Pheasant	6,3	6,6	
37.	Kalij Pheasant	2,3	4,4	
38.	Reeve's Pheasant	2,1	4,4	
39.	Ring Necked Pheasant	0,1	3,3	
40.	Lady Amherst's Pheasant	1,4	4,4	
41.	Green Imperial Pigeon	0,0,5	0,0,15	
42.	Homer Pigeon	0,0,8	0	This species would not be displayed
43.	Adjutant Stork	0,0,3	2,2	
44.	Painted Stork	0,0,22	0,0,25	
45.	Violaceous touracou	0	2,2	
46.	Grey Go Away Bird	1,0	2,2	
47.	Mute Swan	0,0,1	2,2	
48.	Black Swan	0,0,3	2,2	
Avian Species to be added to the collection				
1.	Green Pigeon	Nil	5,5	
2.	Carolina Duck	Nil	5,5	
3.	Black Necked Swan	Nil	2,2	These species would be exhibited at the big lake of the zoo. As these birds would not be exhibited in the existing aviaries the question of shortage of space would not arise.
Presently Exhibited Reptiles				
1.	King Cobra	0,0,1	2,2	
2.	Monocellate Cobra	0,0,4	0,0,8	
3.	Spectacled Cobra	0,0,2	0,0,4	
4.	Common Krait	0,0,3	0,0,4	
5.	Indian Rock Python	1,1,12	2,8	
6.	Checkered Keelback Water Snake	0,0,5	0,0,10	
7.	Russell's Viper	0,0,5	3,3	
8.	Indian Rat Snake	0,0,14	0,0,10	
9.	Golden Tree Snake	0,0,18	5,5	
10.	Vine Snake	0,0,29	5,5	
11.	Banded Krait	0,0,10	0,0,8	
12.	Indian Star Tortoise	0,0,37	0,0,40	
13.	Aldabra Giant Tortoise	1,1	2,2	
14.	Green Iguana	0	4,6	
15.	Water Monitor	0,0,12	4,4	
16.	Yellow Monitor	0,0,11	5,5	
17.	Marsh Crocodile	1,9,8	1,9	
18.	Salt Water Crocodile	3,3	3,3	
19.	Gharial	0,5	2,2	

Sl. No	Name of the animal	Present stock	Proposed population size	Remarks
Reptilian Species to be added to the collection				
5.	Bronze back Tree Snake	Nil	5,5	Would be exhibited at the Reptile House
8.	Land Monitor	Nil	4,4	
3.	Anaconda	Nil	2,2	

Collection Plan of Fishes for the Aquarium of the Zoo

Sl. No	Name of Fish	Stock	Proposed population size	Remarks
1.	Blue Acara	40		This species would not be displayed.
2.	Yellow Acara	40		This species would not be displayed.
3.	Asiatica	2	6	
4.	Angel	29	50	
5.	Auratus	5	0	This species would not be displayed.
6.	Cherry Barb	7	0	This species would not be displayed.
7.	Tiger Barb	98	50	
8.	Tiger Barb (Albino)	8	0	This species would not be displayed.
9.	Tinfoil Barb	23	25	
10.	Green Tiger Barb	80	25	
11.	Rosy Barb	40	25	
12.	Manila Carp	7	15	
13.	Japanese Koi Carp	20	25	
14.	Jewel Cichlid	4	25	
15.	Zebra Cichlid	8	53.	
16.	Texas Cichlid	56	25	
17.	Albino Cichlid	2	0	This species would not be displayed.
18.	Leopard Cichlid	6	0	This species would not be displayed.
19.	Fire Mouth Cichlid	25	25	
20.	Lemon Cichlid	40	25	
21.	Zebra Danio	23	0	This species would not be displayed.
22.	Discus	5	6	
23.	Silver Doller	32	25	
24.	Feather Fin	4	6	
25.	Cat Fish (Albino)	25	0	This species would not be displayed.
26.	Parrot Fish	13	15	
27.	Razor Fish	7	0	This species would not be displayed.
28.	Crocodile Fish	3	10	
29.	Rohu Fish	2	0	This species would not be displayed.
30.	Red Tail Cat Fish	0	2	
31.	Gold Fish	70	50	
32.	Leopard Cat Fish	3	0	This species would not be displayed.
33.	Hifinned Leopard Cat fish	5	0	This species would not be displayed.

Sl. No	Name of Fish	Stock	Proposed population size	Remarks
34.	Glass Cat Fish	6	0	This species would not be displayed.
35.	Alligator Gar	2	2	
36.	Guppy	250	50	
37.	Dwarf Gourami	15		This species would not be displayed.
38.	Cosby Gourami	23	15	
39.	Giant Gourami	5	6	
40.	Pearl Gourami	10	15	
41.	Golden Gourami	14	15	
42.	Kissing Gourami	15	25.	
43.	Blue Loach	1	6	
44.	Leporinus	6	12	
45.	Lyre Tail Molly	25	0	This species would not be displayed.
46.	Sail Fin Molly	15	24	
47.	Red Molly	111	0	This species would not be displayed.
48.	Black Molly	115	25	
49.	Baloon Molly	18	25	
50.	Silver Molly	63	25	
51.	Magur (Albino)	4	0	This species would not be displayed.
52.	Oscar	7	24	
53.	Paku	25	15	
54.	Piranha	0	6	
55.	Ramirezi	17	0	This species would not be displayed.
56.	Red Tail Black Shark	27	12	
57.	Silver Shark	5	24	
58.	Red Fin Shark	12	15.	
59.	Black Rainbow Shark	6	32.	
60.	Green Terror	40	25	
61.	Tiger Shark	34	20.	
62.	Tiger Shark (Albino)	19	24.	
63.	Severum	5	6	
64.	Senegal	5	6	
65.	Sunset Variatus	23	0	This species would not be displayed.
66.	B.A.Tetra (Albino)	13	0	This species would not be displayed.
67.	Black Tetra	38	25	
68.	Red Eye Tetra	36	0	This species would not be displayed.
69.	Serpae Tetra	67	25	
70.	Red Tail Tetra	10	25	
71.	Sword Tail	173	100	
72.	Platy Variatus	34	24	
Fishes to be added to the collection				
1.	Cardinal Tetra	Nil	25	
2.	Hockeystick Tetra	Nil	25	
3.	Flowerhorn Cichlid	Nil	4	
4.	Clown Loach	Nil	6	
5.	Arowana	Nil	2	

4.1.3 Description of the layout plan

The layout map of the Zoological Garden, Alipore drawn on a scale of 1:1000 showing natural resources i.e. water body, trees etc., animal houses, enclosures, cages etc., visitors circulation, entrance gates and ticket counters, store, zoo hospital, Aquarium, rest sheds, drinking water spot, office building etc. is annexed with this plan (Annexure II). The Master Layout Plan was approved by Central Zoo Authority under their letter No. 19-45/92-CZA (328) (Vol. IV) (M) dated 18.12.2009. But as some changes have been proposed in the plan, the Master Layout Plan of the zoo needs further approval.

4.1.4 Proposal to address the inadequacies and shortcoming identified in the appraisal report :

4.1.4.A Animal section

The animal section forms the most important nucleus of any zoo. While locating any enclosure for a species, various aspects of vegetation, topography etc. has to be kept in mind.

Depending upon the space available for a species, the maximum number of individuals of that species has to be fixed so that their normal biological and psychological needs are fulfilled. The enclosures should be designed to meet those needs of the species as well as easy viewing by the visitors. Environmental enrichment is another aspect that has to be given due importance for ensuring physical and psychological wellbeing of the animals.

Squeeze cages have to be installed in all the enclosures for carnivorous animals so as to restrain the carnivorous animals in necessity.

Proper drainage facilities has been provided so that liquid wastes are drained out of the enclosures without contaminating the surrounding enclosures. There are arrangements for cleaning and disposal of solid waste of the animals from the enclosures/cages without creating any risk to the animals and safety of the staff as well.

While constructing any enclosure, care should be taken in maintaining the natural slope of the enclosure so that during heavy rain fall storm water should swept out of the enclosures in natural process.

All the enclosures/cages/houses should have potable water supply system.

4.1.4.A.i Demolition, restructuring and remodelling of enclosures

This is a very old zoo with haphazard built in structures. It is intended to carry out the developmental work of the zoo without affecting the movement of the visitors and aesthetics of such old zoo.

Demolition of Enclosures

i) The Old Elephant Strand :

The Old Elephant Strand where earlier Elephants were exhibited, is presently used as storing place to

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keep iron structures which are being used for constructing several enclosures. This elephant strand will be demolished so as to remove unwanted structure within the premise of Zoo.

ii) Old small Carnivora House :

This is a very old structure. It lies between the newly constructed open air enclosure for the Bengal Tiger with glass viewing facility and the open air moated enclosure for white Tiger. After constructing a set of new night shelters aligning the curtain wall of the open air moated enclosure for White Tiger, this house would be demolished. In the vacant place, trees would be planted to create a screen between the visitors and the structures of the Tiger enclosure.

iii) Lynx House :

Here Lesser cats were exhibited. As the new Lesser Cat Enclosure has been constructed, this house has lost its utility. Being very old structures, this house would be demolished to get rid of unnecessary structure from the premise of the Zoo.

iv) A portion of Pheasant House :

New set of cages have already been constructed aligning the old cages. After remodeling some old cages of the Pheasant House, remaining cages would be demolished. The vacant place would be utilized for formal gardening.

v) New Small Carnivora House :

After constructing Leopard & Jaguar enclosures and shifting of Leopard & Jaguar to the new enclosure, this house would be demolished and the vacant place would be included within the proposed Elephant enclosure of the Zoo.

Restructuring of enclosures

i) Sone Bursa Enclosure :

The Sone Bursa Enclosure would be restructured suitably to house Grey Kangaroos.

Remodelling of enclosures

i) Open air enclosure for Elephants :

There is an open air enclosure for Elephants at the Zoological Garden. In accordance with the directive

of the Central zoo Authority, the said enclosure has to be remodelled and the area of the enclosure should be one hectare for two Indian Elephants.

After demolition of New Small Carnivora House as has been already stated in the present plan and shifting of animals of this house to the proposed Leopard & Jaguar enclosures, the vacant available area will be included in the proposed remodelled Elephant enclosure. Moreover, a portion of the lake of the Zoological Garden, Alipore has to be included within the paddock area of the enclosure, so as to make the total area of the proposed enclosure one hectare.

ii) Gubbay House

At present Assamese monkey, bonnet monkey and common langur are exhibited in this house. It has been indicated in the proposed animal collection plan that Assamese monkey, bonnet monkey and common langur would be phased out. The Gubbay House was constructed during the British period. Being heritage building, this house can not be demolished. This house would be remodelled into nocturnal house to exhibit Porcupine and Slow loris.

Dumraon house

In this house presently bonnet monkeys and common langurs are kept. The bonnet monkeys and common langurs are mostly deformed and therefore, the same cannot be exhibited.

4.1.4.A.ii Construction of new enclosures

As indicated in the animal section of the appraisal of the present arrangements and constraints, naturalistic open air enclosures for Indian Wolf, Wild Dog and Jackal would be constructed after demolishing the Birds of Prey House.

4.1.4.B Veterinary section

- a) Facilities have been developed to carry out pathological examination for the purpose of diagnosis of diseases of the animals. Histopathological examination, if needed, is being carried out at the Institute of Animal Health & Veterinary Biologicals, Belgachia, Kolkata, Department of ARD, Government of West Bengal.
- b) Repairing and painting of squeeze cages and other cages wherein ailing animals are kept for treatment, would be done immediately whenever found necessary.
- c) Colour washing of the ward of the indoor patient ward of the zoo hospital would be done periodically.

4.1.4.C Store and feed supply section

At present all the non-perishable food items are kept in two rooms having elevated concrete slab two feet above the floor level to avoid contamination and minacity of pests.

Two deep fridges have been installed in the store of the Zoological Garden, Alipore to store meat for

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the carnivorous animals.

With the help of pressure cleaner, floors of the store are cleaned regularly so as to maintain the hygiene of the store of the Zoological Garden, Alipore.

4.1.4.D Sanitation section

The present arrangement of sanitation of the animal enclosures, houses, cages, aviaries, zoo hospital and surrounding area of the animal enclosures etc. are found to be effective.

4.1.4.E Security section

Present security arrangement with deployment of the regular Durwans and private security agency has been found effective. But day by day as the question of security is becoming alarming, the security arrangements have to be tightened by adopting following measures.

- i) Walky-talky has been provided to the security personnel, so that they would master additional man power in the event of any emergency situation.
- ii) More lathis would be provided to the security staff.
- iii) Closed circuit camera associated with television (CCTV) has been installed at the main gate of the Zoo to monitor the entry & exit of the visitors & other persons. CCTV has also been installed within the Reptile House of the Zoo to monitor the activities of the visitors at Reptile House. CCTV would be installed at other sensitive points of the Zoo to tighten the security system of the Zoo.
- iv) Modern alarming system would be set up so as to alert all concerned staff in the event of any emergent situation.

4.1.4.F Water supply section

The Zoological Garden, Alipore is not facing any problem and or difficulty in respect of supply of water. Since this is very old zoo, some of the underground pipe lines would require replacement. The work would be done in phase.

4.1.4.G Visitors amenities

Signages with arrow marks & layout map of the zoo have been placed at different points to guide the visitors to locate the different animals and visitors amenities so as to maintain visitor's circulation as well.

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4.1.4.H Lawns & gardens – landscape section

Some of the open spaces which would be available after demolishing some existing enclosures or restructuring some enclosures of the zoo would be utilized suitably for landscape gardening. The Zoological Garden, Alipore was established on moderately flat land. Some hillocks or some undulations with greenaries would be added with the present condition, so as to add more curiosity and attraction amongst the visiting public of the zoo.

4.1.4.I General zoo administration section

Computers have been provided in the establishment section , accounts section, maintenance section and store section of the zoo so as to carry out all the works electronically. Health records of the animals of the Zoo are being maintained electronically.

4.1.4.J Research

Under the leadership of the Director, Zoological Garden, Alipore, a research team would be set up after recruitment of full time Biologist to carry out the research on ethological and parasitological aspects of the zoo inmates in collaboration with the Department of Zoology, University of Calcutta.

4.1.4.K Conservation breeding

Steps would be taken to carry out conservation breeding programme for the endangered wetland species like fishing cat, otter, water monitor etc. and fruit bat at the Zoological Garden, Alipore.

4.1.4.L Education & awareness

With the guidance of the Directorate of Forests, Government of West Bengal, a programme on education and awareness for the visitors would be formulated so as to spread awareness to the visiting public of the Zoological Garden, Alipore in respect of in-situ conservation.

CHAPTER – V
PERSONNEL PLANNING

As such, the Zoological Garden, Alipore never had definite personnel planning and therefore, there was no practice of reviewing of requirement of personnel in respect of management of zoo. But as the regular recruitment of employees against permanent vacancy has been stopped by the State Government and since 2006 every year 6 to 8 staff are retiring from their services, assessment of personnel has become emergent issue in respect of overall management of the Zoological Garden, Alipore.

To cope with the aforesaid situation, on contract basis required staff are recruited .

Statement showing existing staff against sanctioned strength

Sl No	Name of Post	Post sanctioned	Post filled up	Proposed
1.	Director	1	1	
2.	Deputy Director	1	1	
3.	Assistant Director	1	1	
4.	Veterinary Officer	2	1	1 no. to be filled up.
5.	Head Clerk	1	1	
6.	Accountant	1	1	
7.	Stenographer	1	1	
8.	Cashier	1	1	
9.	Upper Division Clerk	4	3	1 no. to be filled up.
10.	Store Keeper	1	1	
11.	Lower Division Clerk	7	4	3 nos.to be filled up.
12.	Demonstrator	1	0	1 no. to be filled up.
13.	Assistant Demonstrator	1	0	1 no. to be filled up.
14.	Cash Collecting Sarkar	1	0	1 no. to be filled up.
15.	Librarian	1	0	1 no. to be filled up.
16.	Assistant Librarian	1	0	1 no. to be filled up.
17.	Gate Supervisor	2	1	1 no. to be filled up.
18.	Ticket Clerk	18	10	
19.	Sub-Assistant Engineer (Civil)	2	2	
20.	Sub-Assistant Engineer (Electrical)	1	1	
21.	Work Assistant	2	1	1 no. to be filled up.
22.	Fitter	1	1	
23.	Carpenter	1	1	
24.	Assistant Wireman	1	1	
25.	Mason	1	1	
26.	Pumpman	1	1	
27.	Technical Assistant	1	0	1 no. to be filled up.
28.	Field Assistant	1	1	

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Sl No	Name of Post	Post sanctioned	Post filled up	Proposed
29.	Peon	7	7	
30.	Sweeper	5	3	2 nos. to be filled up.
31.	Label Writer	1	0	
32.	Animal Supervisor	2	2	
33.	Head Keeper	4	4	
34.	Senior Keeper	6	6	
35.	Junior Keeper	54	27	27 nos. to be filled up.
36.	Head Mali	1	1	
37.	Mate Mali	3	3	
38.	Mali Mazdoor	60	30	
39.	Head Durwan	3	3	
40.	Mate Durwan	3	1	
41.	Durwan	60	1	
42.	Curator of Aquarium	1	0	1 no. to be filled up.
43.	Aquarium Supervisor	1	0	1 no. to be filled up.
44.	Tank Attendant	6	4	

Manpower Requirement (Approved by the Governing Body , West Bengal Zoo Authority)

Sl. No	Name of the Post	Number of the post
1.	Director	1
2.	Deputy Director	1
3.	Assistant Director	1
4.	Veterinary Officer	2
5.	Assistant Engineer	1
6.	Zoo Biologist	1
7.	Zoo Educator	1
8.	Sub-Assistant Engineer (Civil)	1
9.	Sub-Assistant Engineer (Electrical)	1
10.	Kitchen Supervisor (Dietician)	1
11.	Zoo Supervisor	2
12.	Estate / Security Supervisor	1
13.	Garden Supervisor	1
14.	Sanitary Supervisor	1
15.	Research Assistant	1
16.	Education Assistant	1
17.	Library Assistant	1
18.	Laboratory Assistant	1
19.	Veterinary Assistant	2
20.	Assistant Zoo Supervisor	4
21.	Assistant Estate / Security Supervisor	4
22.	Assistant Garden Supervisor	1
23.	Assistant Sanitary Supervisor	1
24.	Gate keeper	8

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25.	Driver	1
26.	Zoo Keeper	30
27.	Mahut	2
28.	Cook	2
29.	Head Clerk	1
30.	Accountant	1
31.	P.A	1
32.	Store Keeper	1
33.	UDC/OA/TA	7
34.	LDC	7
35.	Ticket Clerk	12
Total Permanent		105
	Support Staff (On Contract)	
	Security	90
	Name of the Post	Number of the post
	Sanitation	20
	Garden	20
	Attendant	20
	Animal Attendant	32
	Total on Contract	182
	Grand Total	287

The sanctioned strength in the animal section is 66, but at present 42 personnel are working in this section. Therefore, 24 posts are vacant in this section. To cope up with the day to day activities in this section, 20 animal attendants have been recruited on contract basis. 90 Security staff has been deployed through an agency to monitor smooth entry as well as exit of the visitors through main entrance gate of the Zoo. They are also posted at the Aquarium for entry & exit of the visitors at that point as well as posted at animal enclosures to prevent teasing, feeding etc. of the animals of the Zoo.

Animal Wing :

To facilitate the daily execution of work as well as proper monitoring and supervision , the total animal wing of Zoological Garden, Alipore has been divided into two ranges – South and North and each range further subdivided into two sections. Finally, each section is again subdivided into four beats, the details of which are given below :

Incharge : Assistant Director

South Range

Section : a

Beat No : 1 : Zebra Enclosure, Marmoset Enclosure, White Fallow Deer Enclosure & Kangaroo Enclosure

Beat No : 2 : Bear enclosure & Barking Deer Enclosure

Beat No : 3 : Sonebursa Enclosure (Nilgai, Barking Deer) & Brow-antlered Deer Enclosure

Beat No : 4 : Swamp deer , Blackbuck , Spotted Deer & Sambar Deer Enclosures

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Section : b

Beat No : 1 : Swarnamoyee House & Murshidabad House

Beat No : 2 : Reptile House & Crocodile Enclosure (Gharial, Mugger & Salt Water Crocodile)

Beat No : 3 : Chimpanzee Enclosure, Open air enclosure for Primates (Baboons, other monkeys) ,
Rhino Enclosure & Gubbay House (Common Langurs, Assamese Monkeys)

Beat No : 4 : Proposed Leopard Enclosure , Proposed Jaguar Enclosure & Proposed Lesser Cat Cage
(Jungle Cat & Fishing Cat)

North Range

Section : c

Beat No : 1 : Schwendler House (Macaws , Cockatoos & Grey Parrot) , Jhind House (Spoonbill) ,
Major S.C.Dutta Aviary (Cockatoos) & Water Bird Aviary

Beat No : 2 : Giraffe

Beat No : 3 : Open air Lion Enclosure, New Small Carnivora House (Leopard & Jaguar)
& Open air Enclosure for Tiger

Beat No : 4 : Elephant Enclosure

Section : d

Beat No : 1 : Rodent House & Pheasant House

Beat No : 2 : Hippo Enclosure & Emu

Beat No : 3 : Open air enclosure for Bengal Tiger, White Tiger Enclosure & Old Small Carnivora House

Beat No : 4 : Ostrich & Birds of Prey House

CHAPTER – VI

DISASTER MANAGEMENT

The Zoological Garden, Alipore with its greenaries, animals, amenities for visitors and support systems is spreaded over a land of peace and tranquility and the same has never experienced the threat of disasters like fire, flood and cyclone. But such disasters and emergencies can not be ruled out in future. They can never be predicted. But the zoo has to be alert and prepared to face any such eventuality.

6.1 Fire control

Though there was no incident of disastrous firing at the Zoological Garden, Alipore, fire extinguishers have been set up at the Zoo Office, Zoo Hospital, Aquarium and Committee Room of this zoo. Moreover, to combat any eventuality of firing at the zoo, a team would be created to cope with the incident of firing, cyclone, flood or any other emergent situation.

6.2 Flood

Since 1875, the Zoological Garden, Alipore has never faced the problem of flood. Before the onset of every monsoon, all the sewer lines and drains are meticulously cleaned, so that even during heavy shower storm water could drain away. However, if such situation of flood arises, the aforesaid team would take appropriate steps to overcome the problems caused due to flood.

6.3 Cyclone situations

Like firing and flood, cyclone has never caused any sort of devastation at the Zoological Garden, Alipore. As there are lot of trees in the Zoo, some electrically / diesel operated saws have been purchased so that the mazdoors of the zoo under the supervision of Head Mali could clear any uprooted trees or fallen branches of trees from the road or from the animal enclosures as quickly as possible.

6.4 Law and order break down

Presently the security personnel are handling any law and order problem. Mobile sets have already been provided to the Security Personnel of the Zoological Garden, Alipore so that they would master additional man power in the event of any emergency situation like law and order break down. But if situation goes beyond control, local police authority is contacted so as to take appropriate steps against any out break of law and order situation.

However, it is proposed to provide alarm siren system like hooter / heard held microphone etc. in the zoo so as to alert cornered staff to combat the emergency situation and also to alert the visitors in this regard.

6.5 Feed supply

There is arrangement of storing non-perishable food items like wheat bran, crushed maize, gram, groundnut, powder gram, molasses, kagney, bazra, sunflower seed, kusum seed, barley, oat etc. in the store of the Zoological Garden, Alipore. The authorities of the zoo have never faced the problem of non-supply of perishable food items even in the event of flood or general strike in West Bengal. However, steps would be taken to install a deep fridge in the store of the Zoological Garden, Alipore to store perishable food items for a couple of week so as to combat the aforesaid eventuality.

To face the situations, the zoo should have emergency equipments like diesel powered generator, diesel pump, diesel operated saws, chains, ropes etc.

Training drill : The staff should be trained to use the emergency equipments and periodic mock drills should be conducted to see that the equipments are fully functional and everyone knows what to do in an emergency situation.

Line of command : Sometimes persons who are in charge of directing any emergency operation, may be absent or otherwise not available. Suitable alternate line of command should be developed so that if situation so demands, the alternate command can be operational without affecting the functioning of the zoo.

CHAPTER – VII

CONTINGENCY PLAN

7.1 Animal rescued from wild

Whenever any animal strays from wild and enters into human habitation, the officials of the Directorate of Forests, Government of West Bengal take appropriate steps to rescue that animal. Rescued wild animals are sometimes treated in the Zoo Hospital and observed closely so as to release the same to their wild habitat safely.

Therefore, wild animals are not rescued by the zoo personnel as they have no authority to do so.

7.2 Escape of animals from enclosures

During any emergency like escape of animals from enclosure, the Animal Supervisors as well as Keepers & Security personnel of this zoo could inform the officers of the zoo to master requisite man power to restrain the escaped animals of the zoo. However, tranquilising gun, blow pipes with darts and necessary tranquilising drugs should always be kept ready in the Zoo Hospital so that on having the report of escaping of animal, staff of the Zoo Hospital could reach the spot immediately. At least four number of trap cages should be kept ready in animal section to secure any escaped animals. The alarm system should be in place to alert the security personnel of the zoo to evacuate or cordon off visitors from the site of incident.

7.3 Monkey and dog menace

Monkey & dog menace is not a problem of the Zoological Garden, Alipore.

7.4 Arrangement of food in case of strike

This issue has already been discussed under Chapter V of part II.

7.5 Snake bite

The Zoological Garden, Alipore has never been experienced any incident of snake bite. Hence, the management of the zoo never felt for creating any contingency plan in respect of snake bite.

But if such incidence would at all occur, the patient would immediately refer to the nearest super speciality Government Hospital which is situated only about 2 K.M. away from this zoo. However, small quantity of potent antivenom should be kept in stock with the zoo and be readily available.

7.6 Visitors getting injured / visitors falling inside enclosure

During rush days first-aid camp is set up near the main entrance gate of the zoo to provide first-aid to any injured visiting public of the Zoological Garden, Alipore. During lean period, if any incident of injury would happen to any visitor or staff, immediately patient would be referred to nearest Government Hospital which is situated 2 K.M. away from the zoo.

To prevent any incidence of falling of visitors inside animal enclosure, private security staff are deployed at vulnerable animal enclosures of the Zoological Garden, Alipore. Moreover, there are stand off barriers at all the enclosures and signages have been placed stating not to cross the stand off barriers of the enclosures. More and above, ladders made up of polypropylene rope have been procured to take out any visitor from the moat.

7.7 Fighting among animals

If incidence of fighting amongst animals occur, immediately steps are taken to separate those animals followed by securing them in the respective night shelters. After securing the animals in night shelter, the reason of such fighting is ascertained so as to stop any recurring incidence of fighting among animals. Due to fighting amongst animals if any animal gets injury, immediately necessary treatment is rendered.

7.8 Epidemics

Incidence of epidemics of animals of the zoo are very rare as these animals are not exposed to the free living animals. However, some vector borne diseases like Trypanosomiasis may occur and turn into epidemic, if prophylactic measures are not administered. Chemo-prophylactic measure against Trypanosomiasis is being carried out twice in a year as routine practice.

If any animal would die in suspected case of epidemic, immediately post-mortem will be carried out to ascertain the disease and the pathological materials would be sent to the Institute of Veterinary Biologicals, A.R.D. Department, Government of West Bengal.

If it is found that there is a chance of epidemic in the zoo, an expert veterinary team is formed in consultation with the Director, A.R.D. Department, Government of West Bengal. According to the advice of such team, steps are taken to combat the possibility of out-break of epidemic.

7.9 Breakdown of power supply

Usually power cut does not prevail in the vicinity of the Zoological Garden, Alipore.

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However, to face such circumstance, if at all, generator set has been installed to run the electronically operated gates , store and office of the Zoo. Another set has also been installed at the Veterinary Hospital compound for smooth running of all the activities at the veterinary hospital of the Zoo in case of any failure in power supply.

CHAPTER - VIII

CAPACITY BUILDING

Usually any newly appointed Keeper is allowed to work under an experienced Keeper of the zoo so that he might be trained to carry out his duties. Keepers also interact with the retired staff of the zoo as a part of in-house training. Keepers training programmes are arranged to train the keepers.

Moreover, Keepers of the zoo are time to time nominated to undertake Keepers training programme organized by other zoos of India.

The personnel who are generally engaged in connection with the management of captive animals used to undergo training organized by different zoos in India by the financial assistance of the Central Zoo Authority.

CHAPTER – IX

E - governance

- i) The process of keeping data on animals of the Zoo electronically has already been started. Medical records of the animals are also being maintained electronically.
- ii) Animal feed received at the store of the Zoo and daily as well as monthly food consumed by the animals is maintained with the help of a soft ware.
- iii) The data of accounts as well as of establishment sections are being maintained electronically.
- iv) E- tender has been started for any tender having the value of Rs. 5.00 lakhs or more as per the order of Finance Department of Government of West Bengal.
- v) The fully automated entrance gates with bar coded tickets for the entry of visitors to the Zoo are in operation since 8th February, 2013.
- vi) Close circuit cameras associated with television (CCTV) have been set up to supervise the smooth entry of visitors through the said electronically operated entry gates. Moreover, the main exit gate of the Zoological Garden, Alipore is also under CCTV surveillance.
- vii) CCTV has been installed at the viewers gallery of the Reptile House to monitor occurrence of any untoward situation.
- viii) CCTV has been installed at Chimpanzee enclosure. It will be installed at Marmoset enclosure, Tiger enclosures with glass viewing facility and aviary of Macaws & Cockatoos.
- ix) A website having the address www.kolkatazoo.in has been in operation since 2009.

CHAPTER – X

BROAD BUDGET ANALYSIS

10.1 Construction and development

The Alipore Zoological Garden is categorized as large zoo which was established as far back as 1875. The maintenance cost of this old zoo is gradually increasing. In course of more than 139 years, some of the enclosures have become outdated and outlived its utility and for which immediate replacement and or demolition of the same are necessary. This zoo usually receives funds from the State Government both under Plan and Non-Plan head. This zoo also receives grant from Central Zoo Authority under specific programme. The annual expenditure on staff salaries and allowances, food of animals, maintenance works etc. is borne by the Non-Plan grant sanctioned by the State Government. During the last financial year i.e. 2015-2016, this zoo has received Rs 13,30,00,000.00 as Non-Plan grant.

The genral requirement of fund for execution of the present Master Plan for the period from 2016-2017 to 2036-2037 is as follows:

Year Wise Budget for Establishment of Zoological Garden, Alipore, Kolkata
Under West Bengal Zoo Authority

Sl. No	Item of works	Financial Target & Budget Requirement (Rs. In lakhs)				
		2016-2017	2017-2018	2018-2019	2019-2020	2020-2021
1	Remodelling of Hippo Enclosure	30				
2	Remodelling of Elephant Enclosure	250				
3	Construction of Food Plaza	130				
4	Renovation of Open Air Enclosure fo Lion		100			
5	Construction of Staff Quarters		25	25	25	25
6	Remodelling Nocturnal House		75	25		
7	Construction of New Toilet facility		30	30		
8	Construction of Hyaena Enclosure				50	
9	Construction of Indian Wolf Enclosure				50	
10	Construction of Wild Dog Enclosure			50		
11	Construction of Jackal Enclosure				25	25
12	Remodelling of Kangaroo Enclosure		60			
13	Remodelling of Aviary				25	25
14	Completion of Restaurant Work		50			
15	Remodelling of Primate Enclosure			40		
16	Renovation of Aquarium		60	40	25	
Total		410	400	210	200	75

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10.2 Year Wise Operational Cost of Zoological Garden, Alipore

Sl. No	Description	Estimated Budget (Rs. in lakhs)																			
		2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30	2030-31	2031-32	2032-33	2033-34	2034-35	2035-36
1	Salaries & Allowances	621.08	652.13	684.74	718.98	754.93	830.42	913.46	1004.81	1105.29	1215.82	1398.19	1607.92	1849.11	2126.47	2445.44	2934.53	3521.44	4225.72	5070.87	6085.04
2	Contribution of Funds	79.62	83.60	87.78	92.17	96.78	106.46	117.10	128.81	141.69	155.86	179.24	206.13	237.05	272.61	313.50	376.20	451.43	541.72	650.07	780.08
3	Food of Animals	267.01	280.36	294.38	309.10	324.55	357.01	392.71	431.98	475.18	522.69	601.10	691.26	794.95	914.20	1051.33	1261.59	1513.91	1816.69	2180.03	2616.04
4	Medicines for Treating Zoo Animals	5.03	5.28	5.55	5.82	6.11	6.73	7.40	8.14	8.95	9.85	11.32	13.02	14.98	17.22	19.81	23.77	28.52	34.22	41.07	49.28
5	Maintenance of Animal Enclosures	36.68	38.51	40.44	42.46	44.58	49.04	53.95	59.34	65.28	71.80	82.57	94.96	109.21	125.59	144.42	173.31	207.97	249.56	299.48	359.37
6	Maintenance of Electric Lines	11.57	12.15	12.76	13.39	14.06	15.47	17.02	18.72	20.59	22.65	26.05	29.95	34.45	39.61	45.56	54.67	65.60	78.72	94.46	113.36
7	Maintenance of Roads, Pathways etc	25.00	26.25	27.56	28.94	30.39	33.43	36.77	40.45	44.49	48.94	56.28	64.72	74.43	85.60	98.44	118.12	141.75	170.10	204.11	244.94
8	Maintenance of Pipe lines & Drains etc.	24.79	26.03	27.33	28.70	30.13	33.15	36.46	40.11	44.12	48.53	55.81	64.18	73.81	84.88	97.61	117.13	140.56	168.67	202.40	242.88
9	Gardening & Landscapping	6.07	6.37	6.69	7.03	7.38	8.12	8.93	9.82	10.80	11.88	13.66	15.71	18.07	20.78	23.90	28.68	34.42	41.30	49.56	59.47
10	Procurement & Transfer of Animals	1.95	2.05	2.15	2.26	2.37	2.61	2.87	3.15	3.47	3.82	4.39	5.05	5.81	6.68	7.68	9.21	11.06	13.27	15.92	19.11
11	Cleaning of Zoo Premises	44.57	46.80	49.14	51.60	54.18	59.59	65.55	72.11	79.32	87.25	100.34	115.39	132.70	152.60	175.49	210.59	252.71	303.25	363.90	436.68
12	Petty Maintenance Works & Other Miscellaneous Expenditure																				
		117.39	123.26	129.42	135.89	142.69	156.96	172.65	189.92	208.91	229.80	264.27	303.91	349.50	401.92	462.21	554.65	665.58	798.70	958.44	1150.13
	Total	1240.76	1302.80	1367.94	1436.33	1508.15	1658.97	1824.86	2007.35	2208.08	2428.89	2793.23	3212.21	3694.04	4248.15	4885.37	5862.45	7034.94	8441.92	10130.31	12156.37

ANNEXURE – I

a) Flora :

The Zoological Garden, Alipore is rich in planted trees and some of the trees of the zoo are mentioned below :

1.	Golden Champa	<i>Michelia champaca</i>
2.	Debdar	<i>Polyalthia longifolia</i>
3.	Weeping Debdar	<i>Polyalthia longifolia var. pendula</i>
4.	Anatto	<i>Bixa orellana</i>
5.	Nagesar	<i>Ochrocarpus longifolius</i>
6.	Dilo Oil Tree	<i>Callophylum inophyllum</i>
7.	Red Silk Cotton Tree	<i>Salmaalial malabarica</i>
8.	Baobab	<i>Adansonia digitata</i>
9.	Dung Tree	<i>Sterculia foetida</i>
10.	Buddha's Coconut	<i>Pterygota alata</i>
11.	Paradise Apple	<i>Citrus grandis</i>
12.	Stone Apple	<i>Aegle marmelos</i>
13.	Neem Tree	<i>Azadirachta indica</i>
14.	Spanish Mahogany	<i>Swietenia mahagoni</i>
15.	Bastard Mahogany	<i>Swietenia macrophylla</i>
16.	Indian Cherry	<i>Zizyphus jujuba</i>
17.	Mango Tree	<i>Magnifera indica</i>
18.	Indian Beech	<i>Pongania pinnata</i>
19.	Sisso	<i>Dalbergia sisso</i>
20.	Flame Of The Forest	<i>Butea monosperma</i>
21.	Asoka Tree	<i>Saraca indica</i>
22.	West Indian Mountain Rose	<i>Brownea coccinea</i>
23.	Tamarind	<i>Tamarindus indica</i>
24.	Indian Laburnum	<i>Cassia fistula</i>
25.	Kanchan	<i>Bauhinea variegata</i>
26.	Peacock Tree	<i>Adenanthera pavonina</i>
27.	Indian Gum Arabic Tree	<i>Acacia arabica</i>
28.	Black Siris	<i>Albizzia lebbek</i>
29.	Belleric Myrabolan	<i>Terminalia belerica</i>
30.	Black Myrabolan	<i>Terminalia chebula</i>
31.	Arjun	<i>Terminalia arjuna</i>
32.	Chakwa	<i>Anogeissus acuminata</i>
33.	Black	<i>PalmSyzygium cumini</i>
34.	Guava	<i>Psidium guayava</i>

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35.	Lemon-scented Eucalypt	<i>Eucalyptus citriodora</i>
36.	Small Indian Oak	<i>Barringtonia acutangula</i>
37.	Cannon Ball Tree	<i>Couroupita guianensis</i>
38.	Pride Of India	<i>Lagerstroemia speciosa</i>
39.	Kadam	<i>Anthocephalus indicus</i>
40.	Indian Medlar	<i>Mimusops elengi</i>
41.	Mohwa	<i>Madhuka latifolia</i>
42.	Teak	<i>Tectona grandis</i>
43.	Sal	<i>Shorea robusta</i>
44.	White Teak	<i>Gmelina arborea</i>

Fauna :

There are some free ranging birds found in the Zoological Garden, Alipore. The list of such birds are given below :

1.	House Crow	<i>Corvus splendens</i>
2.	House Sparrow	<i>Passer domesticus</i>
3.	Indian Myna	<i>Acridotheres tristis</i>
4.	Jungle Myna	<i>Acridotheres fuscus</i>
5.	Pied Myna	<i>Sturnus contra</i>
6.	Redvented Bulbul	<i>Pycnonotus cafer</i>
7.	Red Whiskered Bulbul	<i>Pycnonotus jocosus</i>
8.	Whitecheeked Bulbul	<i>Pycnonotus leucogenys</i>
9.	Common Babler	<i>Turdoides caudatus</i>
10.	Tailor Bird	<i>Orthotomus sutorius</i>
11.	Magpie Robin	<i>Copsychus saularis</i>
12.	Grey Wagtail	<i>Motacilla cinerea</i>
13.	Purple Sunbird	<i>Nectarina asiatica</i>
14.	Little Cormorant	<i>Phalacrocorax niger</i>
15.	Night Heron	<i>Nycticorax nycticorax</i>
16.	Common Pariah Kite	<i>Milvus migrans</i>
17.	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>
18.	Ring Dove	<i>Streptopelia decaocto</i>
19.	Spotted Dove	<i>Streptopelia chinensis</i>
20.	Roseringed Parakeet	<i>Psittacula krameri</i>
21.	Koel	<i>Eudynamys scolopacea</i>
22.	Crow Pheasant	<i>Centropus sinensis</i>

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23.	Whitebreasted Kingfisher	<i>Halcyon smyrnensis</i>
24.	Crimsonbreasted Barbet	<i>Megalaima haemacephala</i>
25.	Golden Oriole	<i>Oriolus oriolus</i>
26.	Blackheaded Oriole	<i>Oriolus xanthornus</i>

There is a lake situated in the north – western part of the zoo. Migratory birds during winter season used to visit this lake. Previously every year the migratory birds used to arrive in the lake by the month of October and after staying for a couple of months in the lake, they used to leave the lake by the end of March. During their stay at this lake, everyday they used to leave the lake at dusk and move to outskirts of Kolkata for feeding and again on the next day at dawn they come back at the lake for safe resting.

Earlier following birds used to visit the lake of the zoo.

1.	Lesser Whistling Teal	<i>Dendrocygna javanica</i>
2.	Large Whistling Teal	<i>Dendrocygna bicolor</i>
3.	Comb Duck	<i>Sarkidiornis melanotos</i>
4.	Spotbill Duck	<i>Anas poecilorhyncha</i>
5.	Garganey Teal	<i>Anas querquedula</i>
6.	Pintail	<i>Anas acuta</i>

In the late seventies, during the month of January nearly 14 to 15 thousands of migratory birds used to be wintering at this lake. But after late nineties, during winter season the number of migratory birds in the lake came down to few hundred only. During 2007-2008, only 50 to 100 lesser whistling teals visited the lake in the month of February, 2008 and after staying 10 to 15 days, they left the lake. Though the causes can not be established beyond doubt, it could be due to rapid urbanisation of the entire outskirts of the city.

Civets, mongooses and fruit bats are the free ranging wild mammals of this zoo. Amongst the said mammals, thousands of fruit bats draw the attraction of the visiting public of the Zoological Garden, Alipore.

Amongst the reptiles, rat snake, checkered keelback water snake, common wolf snake and garden lizards are found in the zoo.

ANNEXURE – II

LAYOUT PLAN

ANNEXURE III

Stock of animals of the Zoological Garden, Alipore as on 31.03.2016

ANNEXURE IV

List of building other than animal enclosures

1. Library room
2. Store
3. Old office building
4. New office building
5. Air conditioned restaurant
6. 4 nos. of toilet complexes

List of heritage building

1. Library room
2. Old office building
3. Nature Interpretation Centre
4. Gubbay House
5. Burdwan House (Open air enclosure for Lion)
6. Ezra House (Giraffes are exhibited here)

ANNEXURE V

G.O in respect of constitution of West Bengal Zoo Authority

ANNEXURE VI

**G.O in respect of handing over management of Zoological
Garden, Alipore to West Bengal Zoo Authority**