

PART – I

Chapter – 1

1.1 Introduction

Domestication of wild animals and birds is as old as human civilization. The present day domestic animals and birds being associated with us are the descendants of their wild ancestors. The wild animals such as elephant, lion, tiger, peafowl etc. have occupied prestigious and divine status in religious and cultural traditions of Indian societies besides playing key role in maintaining ecological equilibrium. In the fitness of things, it is necessary that the wild animals sharing the ecosystems with us are protected and conserved for posterity. While conservation efforts are consistently being made at national level and state level to protect and conserve wild animals and plants in their natural habitat, it has become necessary to pursue our continued efforts to conserve wild animals and plants in zoological parks and botanic gardens as well, to cover their risk of being lost from wild. Therefore, it is relevant to protect and conserve wild animals and birds in captivity so as to compliment national initiatives in ex-situ conservation.

1.2 History

The Thrissur zoo was built in the year 1885 by Dewan Peshkar Shankarayya of erstwhile Cochin State. It was named Viyyur Park. spotted deer, sambhar deer, leopard, wild boar and selected species of monkeys were the first to feature in the collection of the zoo. As this zoo was located slightly away from the township, the number of visitors started dwindling with passage of time. By 1898, the zoo was incurring a huge loss to the Government exchequer and soon it was decided to shutdown. The inmates were thereupon shifted to the Madras People's Park. The Viyyur central jail was built in this area later on.

In 1912, the Cochin state museum was inaugurated. It was also decided to set up a zoo in the same premises. In 1914, the existing Thrissur zoo was inaugurated. sambhar deer (2 pairs), spotted deer (5 pairs), wild boar (3pairs) and Malabar giant squirrel (2 pairs) were the first inhabitants of the new Zoo. These animals were donated by the Maharaja of Cochin from Trippunithura palace. One leopard, one rock Python and two tigers were soon added to this group. In 1915, modern cages were built. A hyena and a lion from Bordeaux zoo (In exchange for a black panther), 2 male lions and a 15 feet long King cobra were also added to the collection. The reptile house in Thrissur zoo then had remarkable collection of snakes.

The existing zoo having more than 40 species of animals and birds in its collection is facing acute shortage of space. This has caused series of problems for the animals and birds under display as well as the zoo managers. There is a need for providing reasonably spacious and naturalistic living facilities to its inmates. Hence, it is proposed to shift the facility to a larger site at Puthur.

The Central Zoo Authority, New Delhi has also recommended for shifting of the existing Thrissur Zoo to another site where sufficient space is available for rehabilitating the animals. In compliance of the directions of the Central Zoo Authority, the state government has decided to establish a zoological park at Puthur which is 12 Kms away from Thrissur town to accommodate the animals under display in Thrissur Zoo.

1.3 Establishment and management of captive facility at Puthur is aimed at achieving the goals envisaged in the National Zoo policy, 1998. The said goals are listed below.

- Captive breeding of endangered species of wild animals and birds for augmenting their depleting populations in wild.
- Enlisting public support and empathy in favour of national conservation efforts through education and awareness

programmes to zoo visitors and general public.

- Promoting wildlife research aimed at evolving improved management strategies for in- situ wildlife conservation.

1.4 Features of the area proposed for establishment of Zoological Park at Puthur

1.4.1 Legal status:

The total extent of the proposed site is 136.90 hectares and the legal status of the area is reserved forest notified under the provisions of Kerala Forest Act' 1961. The land falls within the territorial jurisdiction of Pattikkad Range of Thrissur Forest Division. The said area is comprised of two bits; One of the bits having 65.29 ha. forms part of Manappilly Hill Reserve and another bit having 71.56 ha. forms part of Mannur Reserved Forests. The entire area is surrounded by cultivated fields and human habitations.

1.4.2 Topography:

The entire area is comprised in three inter connected hillocks having gentle to steep slopes. There is no water body in the area.

1.4.3. Flora and Fauna

Out of 136.90 ha of area, 65.29 ha. supports almost pure crop of bamboo planted in 1982. Sparse growth of natural regeneration of local species is also seen coming up here and there. The remaining 71.56 ha. of area supports cashew plantation raised in 1960 originally and augmented in 1981. The cashew growth is quite thick with canopy density of approximately 0.7. Miscellaneous growth comprising of teak (*Tectona grandis*), Anjili (*Artocarpus hirsuta*), Chadachi (*Grewia tilaefolia*), Silk cotton (*Bombax ceiba*), Irul (*Xylia xylocarpa*), Pala (*Alstonia scholaris*), Thanni (*Terminalia bellerica*), Vanga (*Pterocarpus marsupium*), Maruthi (*Terminalia paniculata*) etc. can also be seen in this site.

There is enough evidence confirming the presence of wild boar, porcupines, jungle cat, mangoose etc. in the area. Peafowl, spotted dove. common myna, jungle myna, crow pheasant, bulbul, tree pie, barn owl are also sighted in the area.

1.4.4. Climate

Because of the proximity to the Arabian sea, Thrissur enjoys a tropical climate with least climatic variations. The temperature varies between minimum of 24 degree Celsius and maximum of 33 degree Celsius throughout the year.

The first monsoon showers of the year usually start during late May and slowly increase and intensity and merge with the South West Monsoons. The South West monsoon lasts from June – September followed by a short dry spell. The North East monsoon starts in October and extend up to the beginning of December. Heavy showers generally occur during this season. The average annual rainfall in Thrissur is 2100 mm.

1.4.5 Approach

The site is located 12 km North of Thrissur town. It can be approached by road. The nearest airport is Cochin International Airport, Nedumbassery, which is located 55 km away from the site.

1.4.6 Pollution

The area where the zoological Park is proposed to be established does not have any industries in its vicinity. Pollution due to vehicular traffic is also negligible. There were granite quarries in the vicinity but none of them is operational now. Good greenery found in and around the area helps in keeping pollution under check.

Chapter – 2

Appraisal of Present arrangement and constraints

Thrissur zoo has been functioning in a small area of just 13 acres located in the heart of the town. The existing area is grossly inadequate for modernizing the captive facility. Further development of the zoo at its existing location is not possible as a set of museums is also functioning in the very same premises.

Besides lack of sufficient land, the zoo also requires expert and trained, manpower for its effective management. As management of Museums as well as the zoo has been looked after by one and the same set of staff and supervisors, specialization or expertise in the field of management of zoo is not given due weightage. Although it is very necessary to have specialized team of personnel separately for managing zoo as well as museum such arrangement is not in existence in Thrissur zoo. This has affected management of both museums as well as the zoo.

2.1 Collection Plan

As such no collection plan as to the animals and birds on display in Thrissur zoo exists at present. The facility primarily caters to the tourist needs and is not much concerned with the very objectives that any present day zoo should function for. The details of animals and birds displayed in the zoo are enclosed as **Annexure – III**.

2.2 Research

No Research activities are carried in the field of wildlife biology, animal nutrition, animal behavioural aspects etc. by zoo personnel or any outside agencies. It may not happen until professional and scientific temperament is infused into the zoo management and appropriate infrastructural facilities are put in place.

2.3 Conservation breeding

No efforts are made in this line as the area available for the zoo is not enough and appropriate.

2.4 Education and awareness

The job is required to be attended by the education officer who is meant for both zoos in Trivandrum as well as in Thrissur without any assistance in terms of man power or infrastructural facilities. Therefore, structured education and awareness programmes are not being organized in the Zoo.

PART – II

Chapter – 1

FUTURE OBJECTIVE INCLUDING MISSION STATEMENT/THEME

The Thrissur Zoo has been functioning with the display of more than 40 species of animals and birds since more than a century in a very small area of 13 acres located in the heart of Thrissur town. Art Museum, Natural History Museum are also functioning in the same premises. The existing display of animals and birds is outdated as spacious open enclosures for animals and birds are to be provided as per the modern concept of zoo management. Although the Central Zoo Authority, New Delhi has strongly recommended that the animals and birds under display should be provided with open enclosures and better healthcare facilities, it has become difficult for the Department of Museums and Zoos to comply with the directions of the Central Zoo Authority.

Subsequently the Government of Kerala has decided to establish a new zoological park at Puthur for shifting the animals under display in Thrissur Zoo. Accordingly, this master plan is being formulated. It is proposed that the new zoological park after completion will be managed by the Kerala Forest Department. The new set up may prove better as experienced forest officers are likely to be involved in management of zoological parks in future.

3.1 Objective

1. Ex-situ conservation of endangered and endemic species of animals and birds with special focus on animals and birds endemic and endangered in Western Ghats.

2. Complimenting in-situ national conservation efforts through coordinated planned breeding of animals and birds endemic and endangered in Western Ghats and augmenting depleting populations in Wild.
3. Enlisting public support in favour of protection and conservation of wildlife and their habitats through wildlife education and interpretation.
4. Promoting wildlife research aimed at scientific management of wildlife and their natural habitat on long term sustainable basis.
5. Rescue and rehabilitation of injured animals and birds.
6. Providing wholesome entertainment opportunities to zoo visitors, without losing sight of the core objectives listed above.

3.2 Mission

“Collection and display of animals and birds in accordance with the modern concept of zoo management aimed at accomplishing the vision set for the zoological park”.

3.3 Vision

“A zoological park where wild animals and birds live in their natural surroundings where people visit and get enlightened about biodiversity conservation and its uses”.

3.4 Conservation message intended to be communicated to zoo visitors

'Live and let live'

Chapter – 2

FUTURE ACTION PLAN

4.1 Display of animals and birds in the zoological Park

4.1.1 Theme followed for display

The area identified and set apart for establishing a zoological park at Puthur is highly undulating having sloppy terrain. Hence, setting up a zoo in such rugged terrain throws real challenge for the zoo designers in designing appropriate enclosures besides limiting the freedom of locating animal enclosures to suit any selected theme. For instance, display of African fauna such as hippo, giraffe, zebra, African bison, ostriches etc. cannot be located in one single spot in the site at Puthur if “zoo-geographic” theme of display is thought of, as it is difficult to find level ground suitable for displaying these species. Therefore, considering the nature of the site, it is proposed to follow more than one theme for display of animals and birds.

4.2 Animal collection plan

It is necessary that the animals and birds selected for display in Puthur conform to the objectives, mission and vision set for the zoological park. Therefore, the animal collection should necessarily have animals and birds of Western Ghats which are rare, endemic and endangered and which can be displayed in suitable natural setting. It is also important that certain mega species including exotics are displayed in the park so that large number of visitors are attracted to the park to enable zoo management to organize nature awareness and education programmes to more and more people. Considering various factors governing display of animals and birds, the collection plan is required to be finalized. The list of birds and animals proposed to be included in

the collection plan for the proposed zoological park at Puthur is enclosed separately as **Annexure – II**.

4.3 Captive Breeding of Endangered Animal and Birds

4.3.1 Mammals

Nilgiri tahr (*Hemitragus hylocrius*)

Nilgiri tahr, the South Indian mountain goat inhabiting high altitude mountains & cliffs in selected habitats in the South Indian States of Kerala and Tamil Nadu is a rare and endangered species endemic to Western Ghats. It is confined to very few populations in the wild. The largest population of the goat is protected in high altitude grasslands of Rajamalai hills at Munnar in Idukki District of Kerala State. The Rajamalai hills has been declared to be National Park viz Eravikulam National Park in 1978 with an extent of 97 Sq.Km and protection given to the species.

The Nilgiri Tahr is found in small isolated populations in similar mountainous habitats located in the States of Kerala and Tamil Nadu also and these populations are dwindling year by year due to various biotic pressures. Therefore, it is necessary to take up captive breeding of the species in the proposed Zoological Park at Puthur with the aim of building up captive population to explore the possibilities of augmenting the dwindling in-situ populations. It is pertinent to mention that Nilgiri Tahr was successfully bred in captivity in Thrissur Zoo during the period from 1962 - 1975. The relevant records reveal that 23 births had taken place during the said period. It is also seen mentioned in the said record that a good number of animals were transferred to West Germany in 1972. Going by the success in captive breeding of tahr in the past, the proposed Zoological Park may prove worthwhile carrying it forward.

An appropriately designed housing facility for captive breeding of Nilgiri Tahr will be put up in the area earmarked and shown as 34 in the layout plan. The site selected is steep slope having rocky outcrop, which is ideal for the species.

Lion tailed macaque (*Macaca silenus*)

Lion-tailed macaque is one of the highly endangered macaques in the world. Its natural populations being confined to limited habitat ranges in the evergreen and semi-evergreen forests of Kerala, Karnataka and Tamilnadu, its long term survival is greatly threatened. Considering the conservation status of the species, the Central Zoo Authority has designated Thiruvananthapuram zoo, Mysore Zoo and Vandalur Zoo for implementation of co-ordinate captive breeding programme for Lion-tailed macaque. The Central Zoo Authority has been funding the programme since a decade. The Thiruvananthapuram zoo has successfully bred the species since 2000. It is only appropriate that the ongoing captive breeding programme for Lion-tailed macaque is extended to the proposed Zoological Park also, as it is located within the natural habitat range of the species. The founder population of LTM can be built up from out of the existing captive stock in South Indian Zoos and rescue centres. The assistance of the Central Zoo Authority in terms of finance, technical input and co-ordination among concerned zoos can be availed. If animals are not available in zoos, founder population can be built from wild populations after obtaining sanction from competent authority.

An appropriately designed housing facility for captive breeding of Lion Tailed Macaque will be put up in the area earmarked and shown as 35 in the layout plan.

4.4 Master Layout Plan

The master lay out plan is prepared as per the guidelines prescribed by the Central Zoo Authority on a contour map of the site where the new park is proposed to be set up at Puthur. The following features are shown in the plan.

- (a) Proposed Entry-exit plaza
- (b) Proposed display of animals and birds
- (c) Visitor amenities
- (d) Feed, water & electricity supply
- (e) Veterinary Health care facilities
- (f) Quarantine facility for new arrivals
- (g) Administration infrastructure (buildings)

4.4.1 Area Selected for Zoo:

The total extent of the forestland earmarked and selected for establishment of zoo at Puthur is 139.90 ha. The entire area is comprised of three bits interconnected. The area is surrounded on all sides by human habitations. The area earmarked is undulating, rugged with moderate to steep slopes. There are hardly any flat locations or any water bodies in the site. Therefore, it is proposed to limit developmental activities to the foot hill region of one of the three sub-bits as it is rather difficult to put up display in other bits due to difficult gradient.

4.4.2 Entry-Exit plaza

The choice of selection of site for entry-exit plaza was limited by non availability of flat ground at different locations. Hence, there was no options left but to select small bit of about 4500m² area located opposite to the existing Kainur village office, on the roadside. About 4500m² (75m x 60m) area is chosen for the purpose.

Entry-exit gate, ticket counter, security room, refreshment stall, interpretation centre, zoo shop, parking slots etc. are required to be designed and constructed appropriately with professionally laid formal gardens in this area.

Appropriate audio-visual programmes are required to be arranged for educating the park visitors to enable them to gain maximum understanding about the animals and birds on display in the Zoological park with regard to their ecological significance and necessity to conserve them. They are also required to be sensitized to follow rules and regulations of the Zoological park for making their visit memorable. The interpretation centre is proposed to be put up at the entrance to the park itself in order to accomplish this purpose.

The civil structures proposed in the premises of entry- exit plaza are required to be constructed with bare minimum concrete so as to make the structures eco-friendly and aesthetically pleasing. The area earmarked for putting up of the above structures is marked as 1, 2 and 3 in the layout plan.

4.4.3 Display of Animals and Birds:

Considering the uneven gradient of the land, the foot hill region of one of the three sub-bits of selected area has been chosen for setting up various enclosures for animals and birds, visitor amenities such as rest places, drinking water facilities, toilets etc. besides the administrative infrastructure required for running the park. As it has been mentioned in the previous chapter, display of animals and birds is proposed based on more than one theme. The layout of enclosures for animals and birds from the beginning till the end is proposed in the following order.

- Mammals - Herbivores and Ominivores
- Mammals - Carnivores
- Mammals - Exotics

- Reptiles, and
- Birds

4.4.3.1 Mammals - Herbivores & Omnivores

Deers:

Suitable location earmarked for putting up of spacious enclosures for deers and antelopes are indicated and marked as 4, 5, 6, 7 and 14. Each enclosures will be more than 2000m² in extent with appropriately designed barriers. Separate holding areas, night shelters, feeding platforms will be designed for each enclosure in addition to spacious display area. The enclosures can be used to house spotted deer, sambhar deer, hog deer as well as antelopes such as black buck, nilgai etc.

Bears

The enclosures proposed for housing Sloth Bear, Himalayan Black Bear are earmarked and shown as 12 and 13 in the master layout. Each enclosure will be designed with sufficient space for meeting the biological, physiological and behavioural requirements of the animals. Night shelters, feeding areas and display facilities will be provided therein.

Macaques & Langurs:

As shown in the lay out, areas marked as Sl. No 15, 16, 17 are proposed for displaying macaques and langurs. Individual enclosures will have appropriately designed animal barriers. Separate night shelters, feeding cubicals, keepers' gallery, etc will be constructed for each of the enclosures in addition to spacious display area. Planting inside the enclosure, providing environmental enrichment for increasing the vertical space of the enclosures will be undertaken.

4.4.3.2 Mammals - Carnivores

Big Cats

Enclosures marked as Sl. No 18, 19, 20 are meant to display Royal Bengal Tiger, Asiatic Lion and Panther respectively. Approximate extent of each enclosure is about half an acre. In case of tiger and lion enclosures, dry moats will be provided as barrier at the viewer side and chain link fence will be constructed as barrier on remaining sides. Keepers' gallery, night shelter, feeding cubicle, kraals, squeeze cages etc. will be constructed for each enclosure beside nicely designed species display ground. In case of Panther, approximately an extent of 800 m² of area shall be enclosed from all sides including the topside with nicely designed steel structure. Keeper's gallery, night shelter and feeding cubicals, kraal, squeeze cages will also be provided along with naturalistic display area.

Lesser Carnivores

Smaller carnivore mammals including hyena, wild dogs or jackals etc. are proposed to be displayed in the open enclosures marked and shown in the lay out plan as Sl. No 24 and 25 respectively. Each such enclosure may require an area of about 300 m² Separate night shelters, feeding cubicles etc. shall be designed and constructed.

Small Mammal House

Animals such as civets, squirrels, jungle cats etc need small spaces for their display and hence individual enclosures are not generally made for housing them. A single structure aesthetically designed can be used for displaying them with appropriate natural elements such as perches, hides, water troughs etc provided in

separate cubicals. The space chosen for putting up of this structure is marked as Sl. No 10.

4.4.3.3 Mammals-Exotics

It is necessary to display exotic animals such as zebra, giraffe, hippopotamus etc. which are crowd pullers. More people should visit the zoo so that more people can be enlightened about Wildlife Conservation through education and interpretation. The area marked and shown at 21, 22 and 23 is proposed for display of exotic animals. The enclosures with display area as well as night shelters, feeding cubicles, keepers gallery shall be designed and constructed. The extent of each enclosure shall be around 800 m². The viewers side of the enclosures will be provided with dry moat as barrier and the remaining sides shall have chain linked fence or suitable barrier with naturalistic rock work.

A river shaped water body surrounded by grass land along side the water body simulating the natural habitat of Hippo will be provided in the enclosure meant to house Hippopotamus. A Kraal, feeding cubicals, keeper gallery will also be designed appropriately.

4.4.3.4 Reptiles

Crocodiles

The enclosures marked as 26 and 27 are intended for display of crocodiles. Two species of crocodiles viz: Muggar and Gharial which are already in the collection of Thrissur zoo can be housed in these enclosures. Each enclosures will be designed with approximately 600 m² enclosed space. Water body, sand banks and other natural features shall be provided in each enclosure. Display of more species of crocodiles can be considered subject to availability of suitable space.

Reptile house:

In order to display various species of snakes, turtles, tortoises, monitor lizards etc, a nicely designed reptile house is required to be put up. About 500 m² area is set apart for the purpose and marked 28. The entire structure will be divided into cubicals of suitable sizes, and animals housed with required facilities. Keepers gallery, visitor gallery will also be provided suitably. Environmental enrichment in each cubicles will be carried out depending upon the species displayed. Signages shall be put up in the most attractive and informative manner.

4.4.3.5 Birds**Terrestrial**

It is proposed to provide for the display of various species of birds, both native as well as exotics at appropriate locations selected in the field. Separate aviaries are required to be designed for different species of birds depending upon specific requirements of space, nesting facility etc.. Perches for roosting, water trough etc. with appropriate environmental enrichment will also be provided. The areas set apart for putting up aviaries are shown in the layout plan as 8, 9, 30, 31, 32 and 33. It is desirable to locate aviaries with display of attractive birds including exotic birds at the end of visitor flow. Thus, display of birds is planned accordingly.

Birds of Prey

Vultures, Owls and such birds of prey are proposed to be displayed in the area earmarked and shown as 29 in the layout plan. Mesh covered enclosures with sufficient height will be designed for housing these birds. Appropriate perches, relief areas will be provided too.

Aquatic

Water birds like Flemings, Swans, Pelicans, Ibises, Spoonbills etc. will be housed in this enclosure. This enclosure will have a large pool

towards the centre. Perches and nesting boxes will be provided at various places. The floor of the enclosure will be landscaped and there will be a stream and a waterfall leading to the pool. Three different feeding areas will be provided with concrete floors. Trees and shrubs will be planted inside. The area earmarked for the enclosure is marked as 11 in the layout plan. This aviary covers around an area of 400 m² and is covered all around with link mesh and will be rodent proofed.

Features common to all bird enclosures

1. All the bird enclosures will be rodent proofed.
2. All the aviaries will have double door entry mechanism to prevent escape of birds.
3. Breeding facilities will be located behind the displays.
4. Appropriately designed water pools will be provided in aviaries housing water birds
5. Nest boxes and hiding places will be provided in all aviaries.
6. Appropriate perches shall be provided through actual planting of small trees, shrubs/providing dead branches or wood etc.
7. The aviaries should have adequate shade and protection from rains.

In addition to the display of animals and birds, the following facilities are also proposed to be provided in the park.

4.4.4 Butterfly Park:

As the zoos are the centres of biodiversity conservation and education, it is recommended to develop around an acre of suitable land within the park premises as butterfly park. This would primarily involve planting of selected flowering herbs/shrubs which are known to attract various species of butterflies such as bird

cherries, butterfly hosts etc, display of informative and interpretative signages with appropriate and attractive photographs of butterflies. A nicely laid out park will go a long way in attracting visitors and imparting valuable knowledge and information on the importance of conservation of butterflies aimed at maintaining ecological equilibrium.

4.4.5 Nature Education Trail

The site selected for establishment of zoological park at Puthur provides ample opportunities for organizing trekking programmes for interested public, especially, younger generation, on guided routes. A well laid trek path with informative and interpretative signages can be provided for taking the interested persons through the forest area which is not used for display of animals and birds. Taking trekkers through forest areas supporting different types of vegetation, topography, will provide them with enriching and rewarding experience. Using live size models of prehistoric animals such as dinosaurs for interpretative purpose along the trek routes may be also be thought of.

4.5 Visitor Amenities

Although the area chosen for establishment of Zoological Park is undulating and uneven in topography, efforts shall be made to lay roads and walkways meant to be used by visitors along contours so that all visitors irrespective of young or old can walk through the park at ease. Appropriately designed rest places, drinking water points, toilets etc are proposed for visitors for providing them with minimum required comfort, peaceful ambience to sight animals as far as possible in natural settings without having to face any inconvenience. Appropriate signages are also required to be provided in the park premises so as to enable visitors to move at ease and learn more and more about animals and birds under

display and the need to conserve them. Similarly, restaurant facilities will be made available at suitable location outside the display area. Possibility of providing battery operated transport for carrying visitors through the park may have to be examined.

The visitor amenities proposed to be provided in the Zoological Park are shown in the layout annexed to the masterplan.

4.6 Feed, Water, Electricity Supply

The primary responsibility of the park management is to ensure scientific and nutritive diet, potable water, timely health care and naturalistic housing for all the animals and birds on display in the park so as to keep them healthy and to enable visitors to see and enjoy healthy animals in natural settings. The park management will have no stone unturned to accomplish this responsibility. Required number of transport vans for transport and distribution of feed, water, medicines etc are required to be purchased and operated on daily basis.

A separate road for transport and supply of animal feed, medicines etc. has been proposed in the Park as shown in the layout. This service road is proposed to be aligned along the upper side of the animal display as shown in the lay out This is provided for ensuring timely supply of feed, water, medicines etc. to the inmates of the Park without inconveniencing the visitors. Underground water supply and electric lines, fire hydrants are also proposed to be laid along this road as shown in the master plan layout which is annexed to the master plan. This arrangement will ensure supply of feed, medicines, water supply and electricity for proper upkeep and management of animals and birds on display.

Appropriately designed zoo store and kitchen required for storage, preparation and distribution of animal feed is proposed to be constructed at the place earmarked and shown as 37 in the layout plan.

The store and kitchen will be furnished with modern facilities including cold storage.

4.7 Veterinary Health Care

Modern infrastructure and modern methods of medical interventions will be ensured for providing veterinary health care facilities to the animals and birds on display. Veterinary hospital with all facilities including inpatient wards, operation theatre, laboratories, squeeze cages etc. together with most modern hospital equipments and appliances will be made available. Scientifically designed inpatient wards should be constructed with squeeze cages wherever required. Incubation, artificial hatchery and intensive care facilities shall be provided in the hospital. Services of experienced, competent veterinary surgeons and assisting staff shall also be made available in the hospitals. The location proposed for the construction of Zoo hospital is earmarked and shown as 42 in the Master layout annexed to this Masterplan. Post-mortem facility will be provided at the appropriate location.

4.8 Quarantine Facility

For screening animals reaching the zoological park either by acquisition from other Zoos or through rescue, quarantine facility located away from the display zone is provided. The area earmarked for this purpose is shown as 43 in the layout plan. The quarantine facility will be comprised of all basic requirements for housing, monitoring health, treatment etc of animals and birds arrive at the park a new.

4.9 Waste Disposal cum Burial Site

The area earmarked for this purpose is shown as 36 in the layout plan. A mechanism for treating organic wastes generated in the Zoological

Park will be put in place at the earmarked site. Vermi Composting can be introduced for treatment of organic waste. Incinerator, if, required will also be installed.

4.10 Administrative Infrastructure

It is proposed to put up an administration building to house offices of Director and sub-ordinate officers holding charge of various sections of park management close to the park premises. The area earmarked for putting up the structure is shown as 38 in the layout plan.

Chapter – 3

PERSONNEL PLANNING

5.1 This chapter is meant to deal with the human power, skill and expertise required to run the zoological park smoothly towards realizing the objective, mission and ultimately vision set for the park. The zoological park should have Directorate at the top with various sub-units coming under its administration for the smooth functioning of the park. The staffing pattern required to be provided at the Directorate of Zoological park and various sections in the zoological park is suggested as follows.

1. Directorate of Zoological Park
2. Animal wing
3. Garden section
4. Veterinary wing
5. Education wing
6. Engineering & maintenance section
7. Security section

An officer of and above the rank of Conservator of Forests as decided by the Government may be appointed as the Director of the Zoological Park. He shall be assisted by Assistant Conservator of Forests and a team of ministerial staff in the Directorate and Assistant Conservator of Forests and a team of staff in the field. The administrative set up proposed for the Zoological Park is given in the next page.

The staff pattern proposed in the Directorate of Zoological park as well as for various wings/sections in the Zoological Park is detailed in the **Annexure – I.**

Chapter – 4

DISASTER MANAGEMENT

6.1 The zoo management is expected to be in preparedness round the clock to tackle effectively natural calamities such as fires, floods, cyclones, landslides feed supply, law and order break down etc. Certain key measures required to be taken in respect of natural calamity mitigation are suggested below.

6.1.1 Fires:

As explained in the initial chapters in part I of the master plan, the forest area chosen for establishing Puthur Zoological Park is of hilly nature having undulating topography. By and large developmental activities including display of animals and birds, visitor roads and pathways, rest place and toilets, service facilities etc are proposed to be carried out in the foot hill areas having comparatively better gradient. The upper portions of hillocks supporting largely bamboo and other miscellaneous growth are proposed to be protected and maintained as such. The bamboo crop found all over the area is about 38 years old and it is expected to flower in a period of 2-3 years. When the entire crop in the area flowers and all clumps dry, it would become a potential fire hazard in future. Therefore, immediate action suggested to be taken to extract bamboo in the entire area. The entire bamboo can be allotted to M/s.HNL for extraction immediately so that the clumps can be uprooted wherever needed. Uprootal of bamboo clumps in the foothill area where developmental activities are proposed can be taken up.

Urgent steps required to be taken in case of occurrence of fire in the Zoological Park are suggested below.

- i. On noticing fires inside the zoo, there should be a system of sound alarm to gather required number of staff who are trained in operating fire gadgets installed at every keepers'

gallery in the animal enclosures and arrange to douse the fire.

- ii. Concurrently, inform the fire service immediately about the fire break in the zoo. Conduct the fire force to the exact spot of fire occurrence for dousing fire, on their arrival.
- iii. Stop entry of visitors temporarily into zoo to enable the zoo management to carry out fire prevention measures smoothly. Direct the visitors who are already inside the Zoo to move to safer location.
- iv. As far as possible drive all animals into the night shelters for safety.
- v. Keep round the clock watch and ward to ensure that fires have been completely put off and the zoo is safe.
- vi. Document all the events and take corrective steps if required for tackling similar contingencies in future.

6.1.2 Floods and Cyclones

It is unlikely in the given situation. However, if required, a contingency mitigation mechanism will be put in place to rescue the affected animals under display.

6.1.3. Feed Supply Break Down:

- i. Going by the experience of zoo management atleast since 10 years in the state, supply of diet for zoo animals and birds has never been severely effected except on selected days of strikes/hartals and so on. However the following measures are suggested to overcome the problem of break down of feed supply if happens. It is advisable to set apart a few hectares land in the neighborhood of zoo premises for raising fodder/grasses. Fodder species of shrubs and trees such as jack, grewia (chadachi), caryota palm, grasses etc. including bamboo can be raised and protected as 'feed reserve'.

- ii. Urgent action be pursued by the Director of Zoological Park for fetching dietary items when required to be procured from neighbouring states of Tamil Nadu or Karnataka. The assistance of the local zoo officials in the concerned state may be sought to ensure that quality items are procured.
- iii. Cold storage facilities should also be installed in zoo store for stocking dietary articles for carnivore animals.
- iv. The practicability of feeding carnivores on alternate days or providing reduced diet without affecting animal health can be studied and practiced.

6.1.4. Law and Order Breakdown

Going by experience of zoo management for decades, law and order breakdown in zoo premises has never been a serious problem. However it is suggested that the Director of the proposed Thrissur Zoological Park, Puthur deploys efficient security system so as to enable the zoo management to meet any small problems that may arise in the park. It is also suggested that a good Liaison is maintained with the local police authorities to tackle such possible situations.

Chapter – 5

CONTINGENCY PLAN

7.1 Zoo management calls for round the clock attention and care of managers as it involves precious speechless lives. Any delay or laxity on the part of the management for whatever reasons will cost heavily and therefore, a definite mechanism should be in place to deal with any contingency that may arise in Zoos. Thus, it is absolutely necessary to be in preparedness always to tackle the contingencies listed below.

- Escape of animals from enclosures
- Visitors getting injured
- Outbreak of epidemics
- Snake bite
- Breakdown of power supply
- Arrangement of food in case of contingency
- Fighting among animals
- Monkey and dog menace
- Animals rescued from wild

It is necessary that a mechanism has to be in place to perform the following tasks.

- i. to develop a protocol as to early detection of occurrence of contingency, the person/team of persons to initiate immediate action and the appropriate strategies to be employed in a given situation.
- ii. to impart required training and skills to the persons/ team of persons identified to handle various likely contingencies
- iii. to procure, Stock and maintain all the basic tools and equipments required for tackling contingencies

- iv. Actual execution in the field the appropriate strategy successfully
- v. to document the protocol followed in each case in tackling problems, find out lapses if any and follow lessons learnt in future

7.2 Constitution of a Committee

Whenever a contingency is encountered by the zoo management, every staff should be clear in mind as to whom the information should reach first for timely initiation of mitigative measures. Therefore, it suggested that a committee with the following members be constituted.

- 1) Director, Zoological park
- 2) ACF in-charge of the Zoological park
- 3) Sr. Veterinary Surgeon
- 4) Range Officer/ Zoo Supervisor in-charge of mammals
- 5) Range officer/Zoo supervisor in-charge of Reptiles
- 6) Supervisor of security staff

The committee should develop a protocol of action to be followed for each contingent problems that is likely to happen in the park so as to ensure the following.

- Timely detection of problem
- Ensuring timely availability of tools and equipments
- Initiating timely action

7.3 Tools and equipments suggested for procurement

- | | | |
|---|----------------------------|---------------------|
| 1 | Capture cage | - 3 Nos |
| 2 | Immobilising equipments | - Required quantity |
| 3 | Immobilising medicines | - Required quantity |
| 4 | First aid medicines | - Required quantity |
| 5 | Polyvalent antivenom vials | - 5 nos |
| 6 | Emergency lamps/torches | - 5 nos |

Chapter – 6

CAPACITY BUILDING

Management of Zoological park should be based on most modern scientific principles and professionalism. No captive facility can be run, therefore, without equipping and empowering every member involved in park management with updated knowledge and skills in zoo management. Therefore capacity building training programme should be planned and implemented as suggested below.

8.1 Induction training programmes

Presently, there is no system of imparting training to zoo personnel at the time of their entry to service. As Zoological Parks are institutions where staff and officers are required to handle both speechless animals and birds on the one hand and zoo visitors coming from different backgrounds on the other, the staff and officials in the Zoological Park should necessarily be given induction training at the time of their entry to the institution. The duration of training programmes, institutions where training programmes have to be organized etc. should be worked out by the Director, Zoological Park.

8.2 In-service Training Programmes

It is also necessary to organize in-service training courses to all the staff and officers working in the Zoological Park such as animals keepers, supervisory staff, garden staff, veterinary surgeon, educational officers and others so as to enable them to understand and use developing technology in the field of management of animals and birds in terms of their housing, nutrition and Health care, and management of zoo visitors etc.. In-service

training programmes may also expose the zoo staff to the advanced protocols followed for captive breeding of endangered animals and birds. The training programmes can be availed from both institutions within the Country and as well as outside. It is desirable to depute selected zoo staff to visit well maintained zoos in the World with the objective of bringing home the best practices.

Chapter – 7

FINANCIAL FORECAST FOR IMPLEMENTATION OF THE MASTERPLAN

9.1 The project may require a minimum of five years for implementation in the field if everything goes well including finance. As it is not possible to forecast the project cost accurately due to the reasons such as unconventional nature of works, remote worksite, drastic variations in cost of construction materials etc., the financial forecast given hereunder may be taken as indicative. However as per the forecast given hereunder, it would require Rs.9331 lakhs of funds for implementing the plan. **According to the funding norms followed by the Central Zoo Authority, New Delhi, Rs.1225 lakhs is expected from the Central Zoo Authority for implementing the Master Plan. The rest of the funds required for implementing the Master Plan has to be met from the State exchequer.**

Capital Expenditure

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In Lakhs)
1	Construction of boundary wall using rubble/cement blocks on the boundary adjoining human habitations	400.00
2	Construction of chainlink fence on the boundary running through forest area	100.00
3	Construction of administrative building for the zoological park at Puthur	150.00
4	Construction of zoo store and kitchen block	100.00
5	Construction of residential quarters for staff and officers	200.00
6	Construction of zoo hospital including quarantine facilities, inpatient wards, procurement of hospital appliances, equipments etc.	250.00
7	Construction of entry – exit plaza with ticket counters, cloak room, security room, interpretation centers, zoo shop etc.	150.00

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In Lakhs)
8	Construction of roads and walkways for visitors	300.00
9	Construction of service road for supply of feed/medicines to animals	250.00
10	Laying underground drainage along the roads with ducts	300.00
11	Laying of underground water supply and electrical lines	350.00
12	Digging wells, construction of storage tanks, pump houses & providing water supply systems	400.00
13	Installation of fire control systems	100.00
14	Uprooting bamboo and landscaping works including development of gardens, providing garden lights, walk ways etc.	200.00
15	Construction of open enclosure for animals	2375.00
16	Construction of Small Mammal House	100.00
17	Construction of reptile house	300.00
18	Construction of aviary for birds of prey	225.00
19	Construction of aviary for terrestrial birds	200.00
20	Construction of aviary for aquatic birds	100.00
21	Construction of open aviary for flightless birds	50.00
22	Construction of off-display breeding facilities for LTM and Nilgiri Tahr	150.00
23	Shifting of existing animals from Thrissur zoo	20.00
24	Acquisition of birds and animals	200.00
25	Visitor facilities such as drinking water, rest places, toilets, transport etc.	150.00
26	Education and interpretative materials including signages	10.00
27	Purchase of vehicles, furniture, electronic items.	75.00
28	Establishing Butterfly Park	10.00
29	Developing Nature Trail including display of interpretative objects, signages etc.	10.00
30	Infrastructure for vermicompost making	10.00
31	Waste disposal mechanism	10.00
32	Miscellaneous	55.00
	Total	7300.00
33	Cost escalation at 20%, 30%, 40% and 50% on the estimated expenditure for 2013-14, 2014-15, 2015-16 and 2016-17 respectively	2031.00
	Grand Total	9331.00

Recurring Expenditure

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In Lakhs)
1	Establishment including salary and allowances of officers and staff	250
2	Cost of animal feed	125
3	Water and electricity charges	10
4	Expenses for animal health care	5
5	Maintenance of infrastructure	40
6	Maintenance of vehicles, tools and equipments.	10
7	Miscellaneous	10
	Total	450

Chapter – 8

ACTION PLAN FOR IMPLEMENTATION OF MASTERPLAN

10.1 It is proposed to implement the master plan in a project period of five years starting from 2012-13 to 2016–17. The year-wise phasing of works is listed below.

2012–13

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
1	Construction of boundary wall using rubble/cement blocks on the boundary adjoining human habitations	300.00
2	Construction of administrative building for the zoological park at Puthur	75.00
3	Construction of Zoo store and kitchen block	50.00
4	Construction of roads and walkways for visitors	100.00
5	Construction of service road for supply of feed/medicines to animals	75.00
6	Laying underground drainage along the roads with ducts	100.00
7	Laying of underground water supply and electrical lines	100.00
8	Digging wells, construction of storage tanks, pump houses & providing water supply systems	100.00
9	Installation of fire control systems	50.00
10	Uprooting bamboo and landscaping works including development of gardens, providing garden lights, walk ways etc.	10.00
11	Miscellaneous	15.00
Total		975.00

2013–14

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
1	Construction of boundary wall using rubble/cement blocks on the boundary adjoining human habitations	100.00
2	Construction of chainlink fence on the boundary running through forest area	50.00
3	Construction of administrative building for the zoological park at Puthur	75.00
4	Construction of zoo store and kitchen block	50.00
5	Construction of residential quarters for staff and officers	100.00
6	Construction of zoo hospital including quarantine facilities, inpatient wards, procurement of hospital appliances, equipments etc.	100.00
7	Construction of entry – exit plaza with ticket counters, cloak room, security room, interpretation centers, zoo shop etc.	50.00
8	Construction of roads and walkways for visitors	100.00
9	Construction of service road for supply of feed/medicines to animals	100.00

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
10	Laying underground drainage along the roads with ducts	100.00
11	Laying of underground water supply and electrical lines	150.00
12	Digging wells, construction of storage tanks, pump houses & providing water supply systems	200.00
13	Installation of fire control systems	25.00
14	Uprooting bamboo and landscaping works including development of gardens, providing garden lights, walk ways etc.	10.00
15	Construction of Small Mammal House	40.00
16	Construction of aviary for aquatic birds	50.00
17	Deer/Antelope enclosures	75.00
18	Bear enclosures	75.00
19	Monkey enclosures	250.00
20	Hippo enclosure	100.00
21	Miscellaneous	10.00
	Total	1810.00
	Cost escalation at 20%	362.00
	Grand Total	2172.00

2014–15

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
1	Construction of chainlink fence on the boundary running through forest area	50.00
2	Construction of zoo hospital including quarantine facilities, inpatient wards, procurement of hospital appliances, equipments etc.	150.00
3	Construction of entry – exit plaza with ticket counters, cloak room, security room, interpretation centers, zoo shop etc.	50.00
4	Construction of service road for supply of feed/medicines to animals	75.00
5	Laying underground drainage along the roads with ducts	100.00
6	Laying of underground water supply and electrical lines	100.00
7	Digging wells, construction of storage tanks, pump houses & providing water supply systems	100.00
8	Installation of fire control systems	25.00
9	Uprooting bamboo and landscaping works including development of gardens, providing garden lights, walk ways etc.	80.00
10	Construction of Small Mammal House	60.00
11	Construction of reptile house	100.00
12	Construction of aviary for birds of prey	100.00
13	Construction of aviary for terrestrial birds	100.00
14	Construction of aviary for aquatic birds	50.00
15	Visitor facilities such as drinking water, rest places, toilets, transport etc	50.00
16	Waste disposal mechanism	10.00
17	Deer/Antelope enclosures	125.00
18	Bear enclosures	75.00
19	Monkey enclosures	250.00

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
20	Tiger enclosure	200.00
21	Lion enclosure	200.00
22	Hippo enclosure	100.00
23	Crocodile enclosure	100.00
24	Miscellaneous	10.00
	Total	2260.00
	Cost escalation at 30%	678.00
	Grand Total	2938.00

2015–16

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
1	Construction of residential quarters for staff and officers	100.00
2	Construction of entry – exit plaza with ticket counters, cloak room, security room, interpretation centers, zoo shop etc.	50.00
3	Uprooting bamboo and landscaping works including development of gardens, providing garden lights, walk ways etc.	50.00
4	Construction of reptile house	150.00
5	Construction of aviary for birds of prey	100.00
6	Construction of aviary for terrestrial birds	50.00
7	Construction of open aviary for flightless birds	50.00
8	Construction of off-display breeding facilities for LTM and Nilgiri Tahr	100.00
9	Shifting of existing animals from Thrissur zoo	10.00
10	Acquisition of birds and animals	50.00
11	Visitor facilities such as drinking water, rest places, toilets, transport etc	50.00
12	Purchase of vehicles, furniture, electronic items.	25.00
13	Establishing Butterfly Park	5.00
14	Developing Nature Trail including display of interpretative objects, signages etc.	5.00
15	Infrastructure for vermicompost making	10.00
16	Panther enclosure	100.00
17	Jaguar/Puma enclosure	100.00
18	Hyaena enclosure	50.00
19	Jackal enclosure	50.00
20	Wild dogs enclosure	50.00
21	Wolf enclosure	50.00
22	Giraffe enclosure	50.00
23	Crocodile enclosure	100.00
24	Miscellaneous	10.00
	Total	1365.00
	Cost escalation at 40%	546.00
	Grand Total	1911.00

2016–17

Sl. No.	Name of Work/Activity	Estimated Cost (Rs. In lakhs)
1	Construction of roads and walkways for visitors	100.00
2	Uprooting bamboo and landscaping works including development of gardens, providing garden lights, walk ways etc.	50.00
3	Construction of reptile house	50.00
4	Construction of aviary for birds of prey	25.00
5	Construction of aviary for terrestrial birds	50.00
6	Construction of off-display breeding facilities for LTM and Nilgiri Tahr	50.00
7	Shifting of existing animals from Thrissur zoo	10.00
8	Acquisition of birds and animals	150.00
9	Visitor facilities such as drinking water, rest places, toilets, transport etc	50.00
10	Education and interpretative materials including signages	10.00
11	Purchase of vehicles, furniture, electronic items.	50.00
12	Establishing Butterfly Park	5.00
13	Developing Nature Trail including display of interpretative objects, signages etc.	5.00
14	Giraffe enclosure	25.00
15	Zebra enclosure	50.00
16	Indian Gaur enclosure	75.00
17	Porcupine enclosure	25.00
18	Otter enclosure	100.00
19	Miscellaneous	10.00
	Total	890.00
	Cost escalation at 50%	445.00
	Grand Total	1335.00

10.2 Source of finance

The Central Zoo Authority generally advance 100 percent financial assistance for putting up open enclosures for endangered species of animals and birds as also for improving animal nutrition and health care etc.. Accordingly, Rs.1225 lakhs of assistance can be expected from the CZA. The rest of the financial requirement which forms major part is required to be met by the State Government.

10.3 Implementing Agency

The State Government has decided to implement the master plan as approved by the competent authority through the Kerala Forest Department. As the works involved in developing the Zoological Park are unconventional in nature and have to be executed very carefully without damaging the naturalness of the site and the works have to be carried out and completed within the stipulated time, an appropriate mechanism has to be put in place for implementation of the plan. It is suggested that the most competent agency is entrusted with the implementation of the plan so as to ensure best end results. As the zoological park being proposed is the latest one in the country, the park when established should have the most modern enclosure designs and facilities for animals and birds in the park.

Although, the locations at which enclosures for animals and birds are to be constructed has been indicated in the master layout plan, each enclosure/aviary has to be carefully designed by expert and experienced zoo designers. Designing individual enclosures is extremely crucial and extraordinarily important in the context of the site selected for establishing the zoological park being sloppy and undulating in nature. If due importance is not given to this aspect, it may result in total destruction of the naturalness and aesthetics of the site selected for the zoological park. Therefore, it is suggested that actual designing of individual enclosures/aviaries should be got done by expert and experienced zoo designers and the same got counter checked and approved by a team of designers.

10.4 Management of Zoological Park involving feeding, healthcare and upkeep of wild animals and birds has been a challenge to park management as slightest laxity on its part at any time will result in far reaching consequences. Park management cannot afford to take chance; whether it is a matter of animal housing or it is a matter of supply of feed and water or, a matter dealing with healthcare. Safety of visitors in the park can never be ignored either. At every step, timely action has to be initiated and problems of any sort arising in the park solved then

and there. Park management cannot postponed any work for want of routine sanction or approval of competent authority required as per rules. Keeping in mind the peculiar and emergent nature of works and contingencies that arise in Zoological Parks, it is advisable to put in place an appropriate mechanism which enables park management to run the park smoothly. Therefore, it is suggested that a committee may be constituted with full delegation of powers for granting of sanction/approval for works required to be carried out in connection with the park. This arrangement will avoid inordinate delay generally encountered by park management in obtaining government sanction/approval in a routine manner for carrying out works. The proposed committee may be designated as Empowered Committee having the following composition.

1.	Hon'ble Minister for Forests	Chairman
2.	Local MLA	Member
3.	Representative of the CZA, Govt. of India	Member
4.	Principal Secretary, Forests & Wildlife	Member
5.	Principal Secretary, Finance	Member
6.	PCCF & Chief Wildlife Warden	Member
7.	Secretary, Planning & Economic Affairs	Member
8.	Chief Engineer (Buildings & Local Works)	Member
9.	Chief Engineer, Kerala Water Authority	Member
10.	Director, Department of Museums and Zoos	Member
11.	Director, Animal Husbandry Department	Member
12.	Director, Thrissur Zoological Park	Member Convenor

C.S.Yalakki
Chief Conservator of Forests
Kerala Forest Department

Annexure – I**Proposed staff pattern in the Directorate of Zoological Park**

Sl. No.	Designation	No. of posts	Pay scale	Suggested mode of appointment
1	2	3	4	5
1	Director (Conservator of Forests)	1	37400 - 67000, GP 8900	Re-deployment from Kerala Forest Department
2	Protocol Officer (Assistant Conservator of Forests)	1	24040 - 38840	Re-deployment from Kerala Forest Department
3	Administrative Assistant	1	24040 - 38840	Recruitment from PSC
4	Senior Superintendent	1	18740 - 33680	Recruitment from PSC
5	Head Accountant	1	14620 - 25280	Recruitment from PSC
6	U.D. Clerk	4	13210 - 22360	Recruitment from PSC
7	L.D. Clerk	4	9940 - 16580	Recruitment from PSC
8	U.D. Typist	1	13210 - 22360	Recruitment from PSC
9	L.D. Typist	1	9940 - 16580	Recruitment from PSC
10	Draftsman	1	13210 - 22360	Recruitment from PSC
11	Driver	2	10480 - 18300	Recruitment from PSC
12	Peon	2	8730 - 13540	Recruitment from PSC

Animal Wing

Sl. No.	Designation	No. of posts	Pay scale	Suggested mode of appointment
1	2	3	4	5
1	Assistant Conservator of Forests	1	24040 - 38840	Re-deployment from Kerala Forest Department
2	Range Officer	4	20740 - 36140	Recruitment from PSC
3	Foresters	3	13900 - 24040	Recruitment from PSC
4	Junior Superintendent	1	16180 - 29180	Recruitment from PSC
5	U.D.Clerk	1	13210 - 22360	Recruitment from PSC
6	L.D. Clerk	1	9940 - 16580	Recruitment from PSC
7	Store Keeper	2	9940 - 16580	Recruitment from PSC
8	Animal Keepers	30	8960 - 14260	Recruitment from PSC
9	Sanitation workers	3	8500 - 13210	Contract basis
10	Drivers	2	10480 - 18300	Recruitment from PSC
11	Peon	2	8730 - 13540	Recruitment from PSC
12	Gardeners	15	8960 - 14260	Recruitment from PSC
13	Ticket counter staff	3	13210 - 22360	Recruitment from PSC

Veterinary Wing

Sl. No.	Designation	No. of posts	Pay scale	Suggested mode of appointment
1	2	3	4	5
1	Sr. Veterinarian	1	20740 - 36140	Deputation from Animal Husbandry Department
2	Jr. Veterinarian	1	20740 - 36140	Deputation from Animal Husbandry Department
3	Veterinary Assistant	2	10480 - 18300	Deputation from Animal Husbandry Department
4	Wildlife Biologist	1	Rs.30,000/- (consolidated sum)	Contract Basis
5	Radiologist	1		Outsource whenever required contract basis
6	Lab Assistants	2	10480 - 18300	Direct recruitment from PSC
7	Animal Keepers	3	8960 - 14260	Direct recruitment from PSC
8	Sanitation workers	1	8500 - 13210	Contract basis
9	Sweeper	1	8500 - 13210	Contract basis
10	Peon	1	8730 - 13540	Direct recruitment from PSC

Education Wing

Sl. No.	Designation	No. of posts	Pay scale	Suggested mode of appointment
1	2	3	4	5
1	Education Officer	1	21240 - 37040	Direct recruitment from PSC
2	Interpretation guides	2		Outsourced from VSS
3	Sales Assistants	2		Outsourced from VSS

Engineering & Maintenance section

Sl. No.	Designation	No. of posts	Pay scale	Suggested mode of appointment
1	2	3	4	5
1	Assistant Engineer (civil)	1		Direct recruitment from PSC
2	Electrician	1	9940 - 16580	Contract basis
3	Masons	2	8730 - 13540	Contract basis
4	Carpenter	1	9940 - 16580	Contract basis
5	Plumber cum Pump Operator	1	8960 - 14260	Contract basis

Security section

1	Security Supervisor	2	Rs. 500/day	Contract Basis
2	Security guards	10	Rs. 400/day	Contract Basis

Depending upon the policy decision required to be taken by the Government on redeployment and continuance of officers and staff already working for management of Thrissur Zoo, the requirement of staff can finally be decided.

Annexure – II

Proposed Collection Plan for Zoological Park at Puthur

Sl No.	Name of the species	Conservation status	Founder population required for display			Mode of acquisition
			Male	Female	Total	
1	2	3	4(a)	4(b)	4(c)	5
	Mammals					
1	Indian Gaur	VU	2	2	4	From other zoo
2	Spotted deer	VU	5	15	20	Available in Thrissur Zoo
3	Sambar deer		5	15	20	Available in Thrissur Zoo
4	Barking deer		5	10	15	From other zoo
5	Hog deer		5	10	15	Available in Thrissur Zoo
6	Black buck	EN	5	15	20	Available in Thrissur Zoo
7	Nilgiri Tahr	EN	5	10	15	From other zoo
8	Nilgai		5	10	15	From other zoo
9	Sloth bear	VU	2	3	5	Available in Thrissur Zoo
10	Himalayan Black bear	VU	2	3	5	From other zoo
11	Bonnet macaque	LR-NT	3	5	8	Available in Thrissur Zoo
12	Rhesus macaque	LR-NT	3	5	8	From other zoo
13	Lion tailed macaque	EN	3	5	8	Available in Thrissur Zoo
14	Nilgiri langur	VU	3	5	8	From other zoo
15	Common langur	LR-NT	3	5	8	From other zoo
16	Malabar giant squirrel	EN	2	3	5	From other zoo
17	Common otter	EN	2	3	5	From other zoo
18	Slender loris	LR-NT	2	3	5	From other zoo
19	Small indian civet	LR-NT	2	3	5	From other zoo
20	Royal Bengal Tiger	EN	2	2	4	Available in Thrissur Zoo
21	Lion	EN	2	3	5	Available in Thrissur Zoo
22	Leopard	LR-NT	2	2	4	Available in Thrissur Zoo
23	Hyena	LR-NT	2	2	4	From other zoo
24	Jungle cat	LR-NT	2	2	4	Available in Thrissur Zoo

SI No.	Name of the species	Conservation status	Founder population required for display			Mode of acquisition
			Male	Female	Total	
1	2	3	4(a)	4(b)	4(c)	5
25	Wild dogs	EN	2	3	5	From other zoo
	Reptiles					
1	Crocodile Mugger	EN	3	6	9	Available in Thrissur Zoo
2	Crocodile Gharial	EN	3	6	9	Available in Thrissur Zoo
3	Indian Rock python	LR-NT	1	2	3	Available in Thrissur Zoo
4	King cobra	LR-NT	2	3	5	Available in Thrissur Zoo
5	Krait	LR-NT	2	2	4	Available in Thrissur Zoo
6	Cobra	LR-NT	2	2	4	Available in Thrissur Zoo
7	Vipers	LR-NT	2	2	4	Available in Thrissur Zoo
8	Vine snake	LR-NT	1	2	3	Available in Thrissur Zoo
9	Rat snake	LR-NT	1	2	3	Available in Thrissur Zoo
10	Sand boa	LR-NT	2	2	4	Available in Thrissur Zoo
11	Trinket snake	LR-NT	2	2	4	Available in Thrissur Zoo
12	Water snake	LR-NT	2	2	4	Available in Thrissur Zoo
13	Indian monitor lizard	VU	1	2	3	From other zoo
14	Indian Star tortoise	VU	2	4	6	Available in Thrissur Zoo
15	Flapshelled turtle	LR-NT	1	2	3	Available in Thrissur Zoo
	Birds					
1	Indian peafowl	EN	2	3	5	Available in Thrissur Zoo
2	Roseringed parakeets		5	10	15	Available in Thrissur Zoo
3	Alexandrine parakeets		5	10	15	Available in Thrissur Zoo
4	Spotted doves		5	5	10	From other zoo
5	Malabar grey hornbill		2	3	5	From other zoo
6	Great Indian hornbill	EN	2	3	5	From other zoo
7	Spoon bill	EN	5	5	10	From other zoo
8	Black ibis	EN	5	5	10	From other zoo
9	Grey heron		3	3	6	Available in Thiruvananthapuram zoo

SI No.	Name of the species	Conservation status	Founder population required for display			Mode of acquisition
			Male	Female	Total	
1	2	3	4(a)	4(b)	4(c)	5
10	White stork		3	3	6	From other zoo
11	Painted stork		3	3	6	From other zoo
12	Adjutant stork		2	2	4	From other zoo
13	Rosy pelican		2	3	5	From other zoo
14	Malabar hornbill		2	3	5	From other zoo
Exotic Animals & Birds						
	Mammals					
1	Giraffe		1	2	3	From other zoo
2	Zebra		1	2	3	From other zoo
3	Hippo		2	3	5	Available in Thrissur Zoo
	Birds					
1	Ostrich		2	2	4	Available in Thiruvananthapuram zoo
2	Emu		2	2	4	From other zoo
3	Cassowary		2	2	4	From other zoo
4	Sulfur Crested Cockatoo		2	3	5	From other zoo
5	Hyacinth macaw		2	2	4	From other zoo
6	Scarlet macaw		2	2	4	From other zoo
7	Greenwinged macaw		2	2	4	From other zoo
8	Blue and gold macaw		2	2	4	From other zoo
9	Golden pheasant		2	3	5	From other zoo
10	Silver pheasant		2	3	5	From other zoo
11	Khaleej pheasant		2	3	5	From other zoo
12	Lady amhrest pheasant		2	3	5	From other zoo

Annexure - III

Present collection of animals in the Trichur Zoo

Sl. No.	Name of Animals	Male	Female	Unsexed
1	Bear Himalayan Black	1	1	0
2	Black Buck	1	0	0
3	Calotes	0	0	1
4	Cat Jungle	1	2	0
5	Civet Common Palm – cat	2	1	3
6	Civet Indian Small	0	1	0
7	Cobra Indian (spectacled)	0	0	9
8	Collared Dove	0	0	1
9	Cormorant Little	0	0	4
10	Crocodile (Gharial)	4	0	0
11	Crocodile Marsh (Mugger)	1	0	0
12	Deer Hog	8	8	15
13	Deer Sambar	13	26	13
14	Deer Spotted	32	98	26
15	Heron Night	0	0	1
16	Hippopotamus	1	1	0
17	Jackal	2	6	0
18	Kite Brahminy	0	0	2
19	Kie Pariah/Black Kite	0	0	7
20	Koel	1	0	0
21	Leopard (Panther)	4	0	0
22	Leopard (Black)	1	0	0
23	Lion	1	0	0
24	Macaque Bonnet	12	20	34
25	Macaque Lion Tailed	1	0	0
26	Macaque Rhesus	0	1	0
27	Mithun	2	1	0
28	Tortoise (Star)	0	0	1
29	Owl Barn	0	0	9
30	Owl Brown Fish	0	0	10
31	Owl Mottled wood	0	0	2
32	Parakeet Rose ringed	0	0	26
33	Peafowl	5	9	2

Sl. No.	Name of Animals	Male	Female	Unsexed
34	Pelican Rosy/White	0	0	2
35	Pigeon	0	0	24
36	Porcupine Indian	1	1	0
37	Python Indian –Rock	0	0	2
38	Sand Boa	0	1	2
39	Snake Rat / Dhaman	0	0	1
40	Stork Adjutant	0	0	1
41	Stork Painted	0	0	1
42	Stork white	0	0	1
43	Stork White Neck	0	0	1
44	Lesser whistling Teal	1	1	0
45	Tiger	2	0	0
46	Tortoise (Travancore)	0	0	2
47	Turtle (unidentified)	0	0	1