

**APPENDIX  
(See Rule 6)**

**FORM – ‘A’**

**Form for seeking prior approval under Section 2 of the proposals  
by the State Governments and other Authorities**

**PART-I**

**(to be filled up by User Agency)**

**A. General Details**

**A-1. Project Details**

- (i) Proposal No.: SW/83673/2018
- (ii) Name of the Project for which Forest Land is required: Thrissur Zoological Park-Wildlife Conservation and Research Centre.
- (iii) Short narrative of the proposal and project/scheme for which the forest land is required.

This application is for post facto sanction for diversion of 136.85 hectares of forest land falling in Manappilly hill and Mannur hill reserve forests falling in Pattikkad Forest Range in Thrissur Forest Division in Kerala. The above two reserve forests lie as a contiguous unit in the midst of human habitations all around. The site lies in Puthur and Kainoor Villages of Thrissur District. Total extent of the reserved forest is 136.85 hectare and the entire area is proposed to be utilized for relocating the existing State Zoo at Thrissur which is in existence since 1912. Presently 65.29 hectares falling in Manappilly Hill reserve support bamboo plantations planted in 1982 which now has started showing signs of gregarious flowering. Remaining 71.56 hectares falling in Mannur hill reserve support Cashew Plantation of 1960 which presently consist of over-mature trees with lot of blanks. The original forest belonged to the forest type of moist deciduous, belonging to Eco class I. At present the status is open forests.

The decision to relocate Thrissur Zoo from the present location to Puthur was under active consideration of the State Government in compliance of the direction of the Central Zoo Authority since 2005. This proposal was mooted when it was found that the Zoo functioning 5.26 hectare of land in the midst of Thrissur town did not have adequate

space for designing enclosures for exhibit of animals as per the standards fixed under the Recognition of Zoo Rules, 2009.

The State Government issued formal orders as per G.O (MS) 16/2012/F&WLD dated 24-02-2012. Copy of this order is enclosed as **Annexure-1**. Thereby, 136.85 hectares of forest land was identified at Puthur in Thrissur Forest Division and accordingly the Master (layout) Plan was prepared. This Master (lay out) Plan was approved by the Central Zoo Authority as per F. No. 19-113/92-CZA(140)(M)/1618 dated 31-08-2012. Copy of this letter is enclosed as **Annexure-2**. The Master Plan of the Zoological Park at Puthur (Relocation of State Museum and Zoo, Thrissur) was approved by the Central Zoo Authority as per F. No. 19-113/92-CZA (140)(Vol. I) (M)/2235 dated 20-02-2013. Copy of this letter is enclosed as **Annexure-3**.

The implementation of Thrissur Zoological Park is being carried out by following the modern zoo concept of *Nature Immersion Techniques* and the entire Zoo design is tuned towards providing natural environment to the animals. The objectives of the proposed Zoological Park are ex-situ conservation of endangered and endemic species of Western Ghats, breeding of animals and birds endemic and threatened in western Ghats, seeking public support for conservation, promoting wildlife research, rescue and rehabilitation of animals along with providing nature based education to the visitors of the Zoo.

The relocation of State Museum and Zoo has been taken up since 2008 as a forestry activity as per the guidelines issued by the Ministry of Environment and Forest as per F No. 11 -66/2004-FC dated 13/11/2007. As per these guidelines, *“activities required to be done in zoos as per the approved management plan will not attract the provisions of the Forest (Conservation) Act, 1980, provided such activities are necessary for the management of animals and imparting education and have prior approval of Central Zoo authority”*. The CZA has also clarified the same as per the letter F. No. 19-113/92-CZA (140) (M) dated 23.12.2008 in response to the query from the Director of Museums and Zoos, Thiruvananthapuram and specifically mentioned that *“the question of seeking Forest (Conservation) Act, 1980 for the acquisition of land for the purpose of translocation of the Thrissur Zoo to the new site in Puthur shall not be required”*. Hence

the relocation process started and proceeded substantially over the years as a forestry activity aimed at wildlife conservation and education. Copies of the above communications are enclosed as **Annexure-4** and **Annexure-5** respectively.

The Working Plan of Thrissur Forest Division approved by the Central Government under section 2 of the Forest (Conservation) Act, 1980 records about Puthur Zoological Park as follows: *“The Thrissur Zoo, currently situated in 13 acres of land in the heart of the town, will be shifted to the Puthur facility when it is ready. The Zoological Park will come up in 150 acres of forest land at Puthur. The master plan worth Rs 130 crore (as per earlier project proposals) has been prepared after consulting with world renowned Zoo designer Jon Coe. The basic idea of the Zoological Park at Puthur is to virtually immerse the visitors in the same natural habitat as that of the animals in the park. The idea ‘landscape immersion’ infused fresh thinking of watching the animals in their natural habitat instead of showcasing them in cages”*. Extract of the Working plan is enclosed as **Annexure-6**.

The State Environment Impact Assessment Authority has given Environmental Clearance for the project as per EC No. 37/2018 dated 17-03-2018. The Environment Management Plan imposes strict conditions towards environmental safeguards. A copy of this order is enclosed as **Anenxure-7**.

Master layout design and individual enclosure design are done by John Coe, world famous Zoo designer from Australia. All the designs have been completed. Detailed cost estimate for all the facilities have been prepared by the Central Public Works Department, the executing agency for the Project, engaged by the Government of Kerala.

It may be seen that the physical execution of works is in full swing now. Central Zoo Authority has approved with requisite corrections, the detailed designs of 12 enclosures as per F.No. 19-113/92-CZA (140) (Vol.I) (NS)/7546 dated 06-08-2015. The work of 4 enclosures for Nilgiri Langur, Lion Tailed Macaque, Great Aviary and Indian Gaur is nearing completion. The construction of Bio-diversity centre for Amphibians, Reptiles, lesser mammals, nocturnal animals etc., the enclosure for Mugger-Crocodile

and Gharial, the enclosures for Tiger, Lion, Leopard, three enclosures for Deer, Orientation Centre, Arrival and Parking area, Service roads, Zoo-Administrative Office, Zoo Hospital and ancillary facilities etc., is in the beginning stage. CPWD is entrusted as the executing agency for the project. As per the Work Based Schedule, we are expected to complete the project by October, 2020.

Almost 10 lakh seedlings of trees, bamboos, palms, shrubs, climbers, ground cover and water plants are being raised for planting in the exhibit area and visitor area and the whole project is an Afforestation Project too. The actual forest area required for the construction of facilities for the Zoological Park is 18 hectares which works out to around 13% of the total forest area. The plan of the park for enclosures and other zoo facilities are spread over an area of 48 ha, within which the construction (non-forest use) area is limited to 18 Ha.

From the above report it may be seen that the relocation process is proceeding as a forestry activity with due approval of the Central Zoo Authority which is the statutory authority for recognizing zoos in India. Now the present application is submitted in the light of the guidelines issued by the Ministry of Environment, Forest and Climate Change in F. No.11-29/2015-FC dated 30.05.2017 which reads as follows: *“the establishment of Zoo and Wildlife Safari whether stationary or mobile, where captive animals are kept for exhibition to the public but does not include a circus and an establishment of a licensed dealer in captive animals, are non site specific activities and therefore clearance under FC Act is required after exploring alternative land use.”* A copy of this letter is enclosed as **Annexure 8**.

- (iv) **State in which Project is implemented:** Kerala
- (v) **Category Of the Proposal:** Others
- (vi) **Shape of the Forest Land proposed to be diverted:** non-linear
- (vii) **Estimated Cost of the Project (Rupees in lakhs):** 36000
- (viii) **Area of Forest land proposed for diversion:** 136.85 Ha

(ix) **Non- Forest land required for this Project (in Ha): 0**

(x) **Total Period for which the forest land is proposed to be diverted (in years): 200**

#### **A-2 Details of User Agency**

- (i). **Name :** KERALA FOREST AND WILDLIFE DEPARTMENT
- (ii). **Address1 :** Forest Headquarters, Vazhuthacaud P.O, Thiruvananthapuram
- (iii). **Address2 :** NIL
- (iv). **State :** Kerala
- (v). **District :** Thiruvananthapuram
- (vi). **Pin :** 695014
- (vii). **Landmark :** Near Police Headquarters
- (viii). **Email address :** [pccf.for@kerala.gov.in](mailto:pccf.for@kerala.gov.in)
- (ix). **Landline Telephone No. :** 0471-2339593
- (x). **Fax No. :** 471-2338808
- (xi). **Mobile No. :** 9447979002
- (xii). **Website (if any):** forest.kerala.gov.in
- (xiii). **Legal status of User Agency:** State Government

#### **A-3. Details of Person Making Application**

- (i). **Name:** Deepa K S.
- (ii). **Gender:** Female
- (iii). **Designation:** Deputy Conservator of Forests
- (vi). **Address 1:** Thrissur Zoological Park Project, Puthur P.O, Kurisumoola, Thrissur
- (viii). **State:** Kerala
- (ix). **District:** Thrissur
- (x). **Tehsil:** Thrissur
- (xi). **Pin:** 680014
- (xii). **Landmark:** Near Kurisumoola Bus Stop
- (xiii). **Email Address:** [thrissurzoologicalpark@gmail.com](mailto:thrissurzoologicalpark@gmail.com)
- (ix). **Address 2:** 'Damodghar', AGRA B-18, Koorkenchery, Thrissur, Kerala - 680007

(x) Copy of documents in support of the competence/authority of the person making this application to make application on behalf of the User Agency: Uploaded.

**B. Details of land required for the Project**

B-1. List of proposal submitted in Past							
S.no.	Proposal Status.	Proposal No.	Moef File No.	Area Proposed for Diversion(Ha.)	Area Diverted(Ha.)	Date of In-Principle Approval	Date of Final Approval
NIL							

**B-2. Details of forest land proposed to be diverted**

**B- 2.1 Details of Divisions involved**

Details of Divisions involved			
S.no	Division Name	Forest Land(ha.)	Non-Forest Land(ha.)
1.	Thrissur	136.85	0

**B- 2.2 Details of Districts involved**

District wise breakup			
S.no	Division Name	Forest Land(ha.)	Non-Forest Land(ha.)
1.	Thrissur	136.85	0

B- 2.3 Village wise breakup

Villages wise breakup			
S.no	Village	Forest Land(ha.)	Non-Forest Land(ha.)
1	Kainoor	71.567	0
2	Puthur	65.2953	0

B- 2.4 Component wise breakup

Component wise breakup			
S.no	Component	Forest Land(ha.)	Non-Forest Land(ha.)
1	Arrival and Parking Zone	2.608	0
2	Orientation Centre	0.232055	0
3	Biodiversity Centre	0.3231	0
4	Mugger Crocodile and Gharial	0.18286	0
5	Great Aviary	0.5311	0
6	Nilgiri Langur	0.1931	0
7	Deer Exhibit 1	0.2028	0
8	Deer Exhibit 2	0.2062	0
9	Deer Exhibit 3	0.3012	0
10	Lion Tailed Macaque	0.2066	0
11	Leopard Exhibit	0.2057	0
12	Tiger Exhibit	0.2069	0
13	Asiatic Lion Exhibit	0.2129	0
14	Indian Gaur Exhibit	0.3023	0
15	Giraffe, Zebra, Eland and Ostrich Exhibit	0.675347	0
16	Hippopotamus Exhibit	0.2317	0
17	Himalayan Black Bear	0.175	0
18	Sloth Bear Exhibit	0.321423	0

19	Nilgiri Thar	0.472059	0
20	Nilgiri Thar 2	0.291906	0
21	Raptor Aviary Exhibit	0.1499	0
22	Grassland Birds Exhibit	0.0854	0
23	Jackal Exhibit	0.17568	0
24	Dhole Exhibit	0.158755	0
25	Hyena Exhibit	0.178623	0
26	Tram and Service Roads	1.9775	0
27	Visitor Path	2.3	0
28	Service Roads	0.78	0
29	Compound Wall	0.3192	0
30	Tram Stations	0.04674	0
31	Comfort Stations	0.098521	0
32	Water Tanks and Treatments	0.112	0
33	Sewage Treatments and Sewerage Lines	0.1568	0
34	Underground Plumbing Lines	0.112	0
35	Rainwater Drains and Ponds	2.2558	0
36	Administrative Block	0.12	0
37	Zoo Hospital	0.12	0
38	Inpatient- Ward	0.0675	0
39	Isolation and Quarantine Exhibit	0.0675	0
40	Autopsy Room	0.048	0
41	Prey Animal Breeding and Holding Pen	0.048	0
42	Dormitory	0.01	0
43	Fodder Storage	0.01	0
44	Kitchen Herbivores	0.02	0
45	Kitchen Carnivores	0.012	0
46	Staff Quarters	0.12	0
47	Electrical Substation	0.09	0
48	Directors Quarters	0.12	0
49	Staff Quarters (proposed)	0.12	0

Total area under construction is 18 Ha.



**C. Maps of Forest land proposed to be diverted**

- a. Survey of India Topo sheet in 1: 50000 scale showing the location of the reserved forest. The entire area of the reserved forest (136.85 Ha) is proposed for the purpose.

Map enclosed

- b. Map of the area as per Google map showing the boundary where constructions are proposed.

Map enclosed

- c. Detailed survey sketch of the forest land in 1: 45 m scale.

Map enclosed

- d. Lay out plan of the construction area.

Map enclosed

#### **D. Justification for locating the Project in forest land and details of alternatives examined:**

The Thrissur State Zoo is presently run by the Department of Museum and Zoos. It is housed in a portion of 5.26 Ha in Thrissur town where State Museum also is functioning. There is no land available in this location for providing facilities to the animals as per the Recognition of Zoo Rules, 2009. So the Central Zoo Authority has directed way back in 2005 to relocate the Zoo to a more spacious area. In 2012, the Kerala Government has decided to transfer the Zoo to Kerala Forest Department and thereby the work of establishment of the Zoological Park in forest area at Puthur was taken up. It is a fact that in the State of Kerala, where per capita land holding is 0.12 Ha., it is practically difficult to find out non-forest land for establishing the Zoo. Therefore it was finally decided by the State Government to relocate the Zoo to the forest area at Puthur. It may be seen that the location of the Project in forest area is justified due to the following reasons:

- a. Practical difficulty in locating non-forest land of the size required to establish a Zoological Park.
- b. The proposal is not for establishing a new Zoo, but for relocating animals in the existing Zoo at Chembukavu (in the midst of Thrissur town) which was established in 1912.
- c. Kerala Government has decided in 2012 to transfer the administration of State Zoo at Thrissur from the Department of Museum and Zoo to Kerala Forest Department.
- d. The proposed forest land is a small chunk of reserved forest (isolated bit of forest land) admeasuring 136.85 hectare which lies in the midst of human habitation. The location is about 8 Km away from the Thrissur town.
- e. The forest doesn't house any wild life because of non contiguity with main forest land.
- f. The original Moist Deciduous Forests in the area was clear felled as early as 1960 and planted with Teak and Cashew. Later Teak was replaced by Bamboo in 1982. The Bamboo plantation is about to flower gregariously.
- g. The construction activities for the purpose of Zoo are limited to the Bamboo Plantation area.
- h. There are no recognized rights of scheduled tribes population and other forest dwellers in the forest area.

- i. The location is very close to Kerala Forest Research Institute, Peechi, College of Forestry, Vellanikkara and Veterinary College, Mannuthy. This is advantageous for availing scientific service for research in in-situ management of wildlife.

**E. Employment likely to be generated**

The Project is likely to generate employment in the following ways:

- a) Regular or permanent employment 39
- b) Temporary 134

**F. Displacement of People due to the Project, if any**

No displacement of People involved in the project

### G. Details of Cost-Benefit analysis for the Project

Cost-Benefit analysis worked out for the project is as follows:

<b>Estimation of Cost-Benefit ratio for Forest Diversion Project in connection with Thrissur Zoological Park</b>								
<b>Estimation of Cost of Forest Diversion</b>								
Item								Amount in Rs Lakhs
1	Direct project cost							
	Year 1	Year 2	Year3					
	11716.32	14127.33	10156.35					
	0.893	0.797	0.712	Discounting @ 12 %				
	10462.67	11259.482	7231.321					
						Total		28953.477
2	Ecosystem services losses due to proposed forest diversion							
		Area for NPV Calculation in Ha	Rate of NPV in Rs lakhs/Ha	Total NPV				149.869
		20.53	7.3	149.869				
3	Loss of animal husbandry productivity including loss of fodder							
		NPV	10 % of NPV					
		149.869	14.9869					14.9869
4	Cost of Human resettlement- In this project there is no resettlement cost							0
5	Loss of public facilities and administrative infrastructure ( Roads, buildings, schools, dispensaries, electric lines, railways etc) on forest land, which would require forest land if these facilities were diverted due to the project- No such loss of public facilities in this case							0
6	Possession value of forest land diverted							
		NPV	30% of NPV					
		149.869	44.9607					44.9607

7	Cost of suffering to oustees- no such cost in this project							0
8	Habitat fragmentation cost- In this project there is no case of habitat fragmentation as the forest is an isolated patch and is not forming part of habitat of wildlife. However a cost value is assigned as per the cost norms							
		NPV	50 % of NPV					
		149.869	74.9345					74.9345
9	Compensatory Afforestation and soil and moisture conservation Cost							
	Area of the CA plantation on degraded forest land @ 30 % of the forest land diverted							
	Area	41Ha						
	Year	Cost/ha	Total Cost	Discounting Factor @ 12 %	Discounted cost			
	1	1	41	0.8929	41.8929			
	2	0.8	32.8	0.7972	33.5972			
	3	0.5	20.5	0.7118	21.2118			
	4	0.25	10.25	0.6355	10.8855			
	5	0.25	10.25	0.5674	10.8174			
				Total	118.4048			118.4048
							<b>Total Cost</b>	<b>29356.6329</b>
	<b>Computation of benefits of forest diversion</b>							
1	Direct benefit from the project calculated based on the fee collected from the visitors including entry fee, fee for camera, income from cafeteria, parking fee, Membership fee, sponsorship etc and accounting for operating cost, staff cost, animal feeding cost, etc							

	Year	Net Income from Operation	Discounting factor	Discounted amount				
	1	2958.185	0.893	2641.65921				
	2	4083.05082	0.797	3254.1915				
	3	4775.52615	0.712	3400.17462				
	4	8784.64736	0.636	5587.03572				
	5	7888.86771	0.567	4472.98799				
	6	8642.28705	0.507	4381.63953				
	7	9388.34396	0.452	4243.53147				
	8	10095.6555	0.404	4078.64483				
	9	11321.2717	0.361	4086.9791				
	10	12603.0295	0.322	4058.17549				
			Total	40205.0195				40205.0195
2	Benefits to the economy due to the Zoo Project- it is estimated that there will be increased business in the locality, increase in value of land property in the locality, increase in professional tax and increase in GST due to the establishment of the project. Income estimated in the year 1 is Rs 18900000							
	Year	Amount	Discounting factor	Discounted amount				
	1	189	0.893	168.777				
	2	207.9	0.797	165.6963				
	3	228.69	0.712	162.82728				
	4	251.559	0.636	159.991524				
	5	276.7149	0.567	156.897348				
	6	304.386	0.507	154.323702				
	7	334.825	0.452	151.3409				
	8	368.307	0.404	148.796028				
	9	405.138	0.361	146.254818				
	10	445.652	0.322	143.499944				
			Total	1558.40484				1558.40484
3	Economic benefits due to direct and indirect employment due to the project.-The project is estimated to generate 39 permanent employment and 134 contract employment when commissioned. The benefit is worked out and discounted							

	Year	Benefit to the employees	Discounting factor	Discounted Benefit				
	1	364.515	0.893	325.511895				
	2	368.889	0.797	294.004533				
	3	373.31	0.712	265.79672				
	4	377.79	0.636	240.27444				
	5	382.32	0.567	216.77544				
	6	386.91	0.507	196.16337				
	7	391.56	0.452	176.98512				
	8	396.25	0.404	160.085				
	9	401.01	0.361	144.76461				
	10	405.82	0.322	130.67404				
				2151.03517				2151.03517
4	Economic benefits due to compensatory afforestation- it is presumed that the compensatory afforestation forest will accrue benefits in the form of fodder from 10th year onward, timber , NWFP etc from the 20th year etc. The following computation is made							
4.1	Value of timber and fuel wood- It is assumed that the forest produces .5 cu.m of timber annually /hectare from 20th year onwards, valued at Rs .5 lakh per cu.m							
	year	Timber & F.W in Cu.m.	Value per Cu.m	Total Value	Discounting factor	Discounted amount		
	21	20	0.5	10	0.0768	0.768		
	22	20	0.55	11	0.068	0.748		
	23	20	0.605	12.1	0.0601	0.72721		
	24	20	0.665	13.3	0.0532	0.70756		
	25	20	0.732	14.64	0.0471	0.689544		
					Total	3.640314		3.64
4.2	Value of NTFP- it is assumed that from 20th year onward NTFP @ 200 kg valued at Rs 100/kg will be collected.							
	year	Quantity of NTFP in Kg	Value per Kg	Total Value	Discounting factor	Discounted amount		
	21	200	0.001	0.2	0.0926	0.01852		
	22	200	0.0015	0.3	0.0826	0.02478		
	23	250	0.002	0.5	0.0738	0.0369		
	24	300	0.0025	0.75	0.0659	0.049425		

	52	350	0.003	1.05	0.0588	0.06174		
					Total	0.191365		0.191365
4.3.	Value of ecotourism-It is assumed that annually 20000 visitors visit the forest area							
	Year	No. of Visitors	Visitor fee	Amount in Rs lakhs	Discounting factor	Discounted amount		
	11	20000	0.00025	5	0.2875	1.4375		
	12	20000	0.00025	5	0.2567	1.2835		
	13	22000	0.0003	6.6	0.2293	1.51338		
	14	22000	0.0003	6.6	0.2046	1.35036		
	15	25000	0.0005	12.5	0.1827	2.28375		
					Total	7.86849		7.86849
4.4	Value of ecological services of forests. This is NPV. The forest is expected to fully serve ecological functions from 20th year onward.							
	Value of NPV after 20 years @ Rs 40 lakhs per ha				41	40	1640	
	Discounting factor						0.0926	
	Discounted value						151.864	151.864
4.5	carbon sequestration value- It is estimated that 1 ha of fully stocked forest stock 2.195 MT of carbon and the market rate is 73 \$ per MT now. After 20 years it is assumed that the carbon value will increase to 200\$ per MT							
	Carbon stock of 41 ha of forest after 20 years.				41	2.195	89.995	
	Value in \$						17999	
	Value of carbon in Rs lakhs						12.239	
	Discounting factor						0.0926	
	Discounted value						1.133331	1.133331
						<b>Total Benefit</b>		<b>44079.1567</b>
				<b>Benefit/Cost</b>				<b>1.50150587</b>



#### **H. Status of Environmental Clearance**

Environmental clearance for the project has been issued by the State Environment Impact Assessment Authority as per EC No. 37/2018 dated 17-03-2018. A copy of this order is enclosed as **Anenxure-7**. The Environment Management Plan imposes strict conditions toward environmental safeguards.

#### **I. Status of Wildlife Clearance**

The Project is not coming in the purview of any Protected Area or Eco sensitive zone.

#### **J. Applicability of special provisions governing Scheduled Areas**

Project area is not a part of any Scheduled Area.

#### **K. Status of settlement of rights under the Forest Rights Act,2006 on the forest land proposed to be diverted**

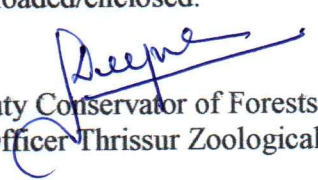
There is no Scheduled Tribe inside the proposed diverted land for the Project.

#### **L. Details of lands identified for Compensatory Afforestation**

The following areas of D graded forest lands is identified in Wadakkanchery Range of Thrissur Division

Sl No.	Location	Area (hectare)	Village
1	Wadakkanchery Hills	10	Wadakkanchery
2	2005 Mayanoor Pulpwood Plantation	5	Kondazhy
3	2011 Nelluvai <i>Acacia mangium</i> Plantation	28	Nelluvai
4	Kottakunnu	9	Varavoor
5	Mayannur	8	Kondazhy

Maps of areas identified for Compensatory Afforestation is uploaded/enclosed.

  
Deputy Conservator of Forests &  
Special Officer Thrissur Zoological Park