

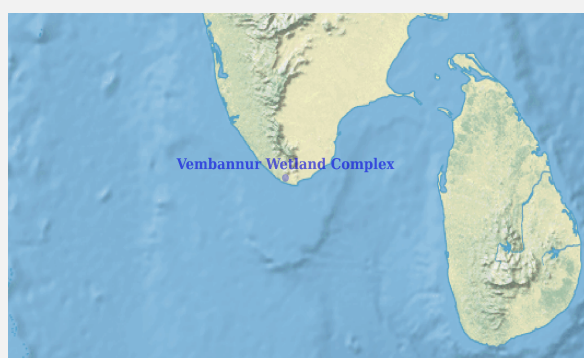


# Ramsar Information Sheet

Published on 3 August 2022

## India

### Vembannur Wetland Complex



Designation date	8 April 2022
Site number	2474
Coordinates	08°10'54"N 77°22'34"E
Area	19,75 ha

## Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

## 1 - Summary

### Summary

Vembannur wetland is a human-made inland tank, spanning around 20 ha and situated near Vembannur, a small hamlet in Rajakkamangalam Block, in Kanniyakumari District. It comes under Melasankarankuzhi Panchayath, located 8 km from district headquarters Nagercoil, 4 Km from Rajakkamangalam & 736 km from State capital Chennai, & is near to Bay of Bengal. Vembannur wetland forms the southernmost tip of peninsular India. This wetland forms part of the Important Bird and Biodiversity Area (IBA) and hence part of BirdLife International Data Zone. About 250 species of birds have been recorded in the district. The site hosts around 12% of the total non-breeding population of garganey. Around 5 rare, endemic & threatened flora are present within the Site. The tank is believed to have been constructed in the regime of Pandyan king Veeranarayana. The tank and the Therrakal canal were designed to take water from River Pazhayar for irrigation purposes. The River Pazhayar and Vembannur wetland collects the entire drainage of the valley and irrigates a substantial part of Nanchilwadu.

## 2 - Data & location

### 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

##### Responsible compiler

Institution/agency	Tamil Nadu State Wetland Authority
Postal address	O/o Additional Principal Chief Conservator of Forests & Member Secretary Tamil Nadu State Wetland Authority No.1, Jeenis Road, Panagal Building, VIII Floor, Saidapet, Chennai 600 015 Tamil Nadu, INDIA

##### National Ramsar Administrative Authority

Institution/agency	Ministry of Environment, Forest & Climate Change
Postal address	Office of the Secretary Ministry of Environment, Forest & Climate Change Indira Paryavaran Bhavan, Jorbagh Road New Delhi - 110 003 INDIA

#### 2.1.2 - Period of collection of data and information used to compile the RIS

From year	<input type="text" value="2002"/>
To year	<input type="text" value="2021"/>

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	<input type="text" value="Vembannur Wetland Complex"/>
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## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

b) Digital map/image  
<1 file(s) uploaded>

Former maps	<input type="text" value="0"/>
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##### Boundaries description

Boundaries of Vembanur wetland include the following:  
North: Survey Number 290, 292, 326, 327 of Alur 'A' village, Pannaivakkal (Pantivakkal)  
East: Survey number 510/11 of Vembanur village, Pannaivakkal (Pantivakkal)  
South: Alur to Aasaripallam road  
West: Alur to Aasaripallam road

### 2.2.2 - General location

a) In which large administrative region does the site lie?	close to Bay of Bengal, comes under Melasankarankuzhi Panchayath; located 8km towards W from Nagercoil, 4km from Rajakkamangalam & 736km from Chennai; surrounded by Kurunthancode, Nagercoil, Thackalai & Agastiswaram blocks towards W, E, N & E respectively
b) What is the nearest town or population centre?	Padmanabhapuram, Nagercoil, Karungal & Unnamalaikadai are nearby cities

### 2.2.3 - For wetlands on national boundaries only

- a) Does the wetland extend onto the territory of one or more other countries? Yes  No
- b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes  No

### 2.2.4 - Area of the Site

Official area, in hectares (ha):	<input type="text" value="19.746"/>
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Area, in hectares (ha) as calculated from GIS boundaries 19.746

### 2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
WWF Terrestrial Ecoregions	Vembanur falls under the Tropical and Sub-tropical Moist Deciduous Forest of Southern Asia: Western India

Other biogeographic regionalisation scheme

Vembanur wetland falls under the WWF Terrestrial Ecoregions of the world Tropical and Sub-tropical Moist Deciduous Forest with a specific biogeographic region being Malabar Coast Moist Forest. More than 95% of the ecoregion's natural habitat has been cleared or converted. Moist southern forests are converted into coconut plantations and rice paddies, and the northern forests into teak, rosewood, and rubber plantations. No large blocks of intact forest habitat exist now, although several smaller forest fragments are being preserved by local people as sacred groves. The site retains the classification and is placed as the lowland moist deciduous forests in the Malabar Coast Moist Deciduous Forests [IM0124].

Other biogeographic regionalisation: Topographically Kanyakumari district is broadly classified biogeographically as (1) coastal region, (2) middle region and (3) mountainous region. Coastal region stretches from SE to W, and has small townships like Anjugramam, Puthalam, Thamaraiikulam, Vattakottai etc., on the SE and Colachel, Muttom, Thengapattanam etc., on the West Coast. The mountainous region of the Southern Western Ghats provides continuous wall along the northern side of the district. Many estates of Rubber, Cardamom, Tapioca etc., are present in these hilly ranges. The Middle region (plains) contains a large number of wetlands and irrigation canals showing the richness of hydrophytes, which provides a wintering and staging ground for a number of migratory waterfowls and a breeding ground for residents birds. Small townships are surrounded by paddy fields. Coconut, banana, mango, and jack fruit are some of the commonly cultivated plants. Vembanur typically belongs to the middle region. The region contains a large number of wetlands and irrigation canals showing the richness of hydrophytes, which provides a wintering and staging ground for a number of migratory waterfowls and a breeding ground for resident birds.

Manakadan, Ranjit; Khan, Asif N. (March 2020). "Birds of the Indian Subcontinent — In a Nutshell". Buceros. BNHS-ENVIS. 24  
 Henry, A.N. and M.S. Swaminathan. 1981. Observations on the vegetation of Kanyakumari district, Tamil Nadu, Bulletin of the Botanical Survey of India 23 (3 & 4): 135-139.

### 3 - Why is the Site important?

#### 3.1 - Ramsar Criteria and their justification

<no data available>

Criterion 2 : Rare species and threatened ecological communities

Criterion 3 : Biological diversity

Justification

Vembannur sustains a spectacular congregation of waterbirds and waders within the biodiversity hotspot. The wetlands supports significant populations of plants like *Commelina caroliniana*, *Cyrtococcum longipes*, *Eriochrysis rangacharii*, *Indotristicha ramosissima*, *Tephrosia purpurea* and fauna like *Anhinga melanogaster*, *Pelecanus philippensis*, *Sterna aurantia*, *Threskiornis melanocephalus*, and *Tringa guttifer*, which is representative and significantly helps in maintaining the biodiversity of the region owing to a large variety of ecological functions performed by the above mentioned diverse range of species.

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further information

Vembannur has a diverse habitat including large and deep reservoirs with several islets and surrounding irrigated agricultural fields which provide good nesting and foraging habitats for birds. This diversity of habitats enables the wetland to act as an important breeding site for birds and other fauna, where the following species nest in large numbers: *Anhinga melanogaster*, *Pelecanus philippensis*, and *Threskiornis melanocephalus*. Thus, the site provides support to the species listed above during the critical stage of their life.

Criterion 6 : >1% waterbird population

Optional text box to provide further information

Wetland regularly supports 1% of the threshold population of Spot-billed Pelican and Oriental White ibis. Based on the census data from 2020 to 2022 on an average, the site supported 1600 individuals of Spot-billed Pelican representing 1.5% of the biogeographic population and 1568 individuals of Oriental White ibis representing 1.08% of the biogeographic population.

#### 3.2 - Plant species whose presence relates to the international importance of the site

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<b>Plantae</b>								
TRACHEOPHYTA/ LILIOPSIDA	<i>Commelina caroliniana</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Listed as Endemic species	This is an endemic species to the India Subcontinent. It is commonly found in fields, swamps and irrigated fields. It was introduced in South Carolina in the year 1696 and spread across to the southern east part of the U.S. It is also present in Philippines and Guam. In India, it is found in Andaman, Delhi, Gujarat, Goa, Kerala, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh. The species has been located from 32 localities in the India sub-continent.
TRACHEOPHYTA/ LILIOPSIDA	<i>Cyrtococcum longipes</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	NT	<input type="checkbox"/>	It is considered as Rare and Endemic species in India	This is a perennial grass which is rare and endemic to areas of dry deciduous and evergreen forests.
TRACHEOPHYTA/ LILIOPSIDA	<i>Eriochrysis rangacharii</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	January 2021, assessment conducted by Western Ghats Plant Specialist Group (WGPSG) of the Species Survival Commission of IUCN, it has been suggested that this species being rare and endemic, may be added to the IUCN Red list category for conservation	Factors influencing the perceived decline of <i>Eriochrysis rangacharii</i> , a rare endemic swamp grass species of the Nilgiri plateau in the Western Ghats of India were studied. This species had been listed as "presumed extinct" for over 100 years in the Red Data Book of Indian Plants.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Indotristicha ramosissima</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	This is considered as a rare and endemic species in India	This is threadlike Riverweed, a free-floating herb with branched stems which gets attached to rocks in the waterbodies. The plants that occur in upstream regions have shorter stems as compared to lower stream areas. This is native to Southern Western Ghats region.
TRACHEOPHYTA/ MAGNOLIOPSIDA	<i>Tephrosia purpurea</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	EN	<input type="checkbox"/>	Listed as Endemic under IUCN and available in the BSI Portal	This endangered species serves as roosting vegetation for the visiting birds. It has a strong positive correlation with the vegetation structure of the site and the bird diversity. It is used by local communities as cattle feed, manure, fish poison, as well as in ethnomedicine.

*Tephrosia purpurea* (Common name- *Tephrosia*; Local name-Kavali), belongs to Family Fabaceae and is an Indigenous species found in India, mostly in poor soils. It is used as fish poison and as cattle feed and manure. It is also used in ethnomedicine.

*Eriochrysis rangacharii*: This grass is used by the Todas, a local ethnic community, to thatch their temple roofs. Study was conducted in 2001-2002 in five swamps in the Upper Bhavani region of the Nilgiris. Two swamps were intensively grazed by livestock, one was burnt in 1995, one was surrounded by exotic pine plantation, and the last was an "undisturbed" control. Species richness, number of native species, number of exotic species, frequency of occurrence, cover, and average height of *E. rangacharii* were recorded in each swamp. The study concluded that grazing, affected *E. rangacharii* leading to the increase in the proportion of invasive species.

### 3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence <sup>1)</sup>	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
<b>Birds</b>																	
CHORDATA/ AVES	<i>Anhinga melanogaster</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule I of the Indian Wildlife Protection Act 1972	Highly protected species (under the said Act) because of ecological significance and declining population Breeding has been recorded in the site.
CHORDATA/ AVES	<i>Pelecanus philippensis</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1600	2020 - 2022	1.5	NT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule I of the Indian Wildlife Protection Act 1972	Highly protected species (under the said Act) because of ecological significance and declining population Breeding has been recorded in the site.
CHORDATA/ AVES	<i>Sterna aurantia</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		Vulnerable species and contributes to the biodiversity of the region.
CHORDATA/ AVES	<i>Threskiornis melanocephalus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1568	2020 - 2022	1.08	NT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Schedule I of the Indian Wildlife Protection Act 1972	Highly protected species (under the said Act) because of ecological significance and declining population Breeding has been recorded in the site.
CHORDATA/ AVES	<i>Tringa guttifer</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Needs complete protection	Endangered species and highly contributes to the biodiversity of the region.

1) Percentage of the total biogeographic population at the site

### 3.4 - Ecological communities whose presence relates to the international importance of the site

<no data available>

## 4 - What is the Site like? (Ecological character description)

### 4.1 - Ecological character

The Vembannur wetland is man-made and was created primarily for the purpose of irrigation. The wetland supports more than 2000 hectares of agricultural land on which more than 1000 families are dependent. Due to the depth and extension of the tank has a great ability to act like a sponge during flood season. On the South & South-West, Vembannur is bounded by Indian Ocean and Arabian Sea. It receives rainfall from both the South West (Jun-Sep) and North East (Oct-middle Dec) monsoons. This man-made wetland forms part of the Important Bird and Biodiversity Area (IBA) and hence part of the Bird Life International Data Zone. It is an important feature of the Earth's landscape, not only a significant source of perennial water, but provide valuable habitats to plants and animals, avifauna, irrigation to the agricultural fields, moderate the hydrological extreme events (drought and floods), influence microclimate, enhances aesthetic beauty of the landscape and extend many recreational opportunities. This can be categorized as direct use values with consumptive & non consumptive uses such as drinking, irrigation, fishing, eco-tourism etc.,. Indirect use values lies with the beneficiary located away from the lake, potential future use & non-use social benefit of availability of a healthy water resource for future generation. The surrounding area has drinking water supply from Panchayat board and bore wells for their regular needs and the wetland water is used for irrigation. In addition, Indian Lotus planting and cultivation is another important economic activity. The wetland provides a suitable habitat for birds and supports a diversity of fish species. Further, it is an important feeding and breeding ground for birds and therefore it supports some of the key migratory bird flyways for the avifauna. Fishing activity is permitted inside the wetland. The wetland plays the primary role of buffering by acting as a sponge during events of floods and extreme rainfall. It is a major source of groundwater recharge. There is significant runoff from the surrounding catchment area and the wetland acts as a sink for sediments. Over 20 key species & 50 other common and/or resident birds have been reported. Out of these, 12 are endemic and four species are threatened. Birds such as spot-billed pelican (*Pelecanus philippensis*), darter (*Anhinga melanogaster*), Northern pintail (*Anas acuta*), common teal (*Anas crecca*), spotbill duck (*Anas platyrhynchos*), garganey (*Anas querquedula*) and common coot (*Fulica atra*) congregate in these tanks, sometimes in thousands. The site is an important foraging ground for threatened species. Being surrounded by human habitations & agricultural fields, there are no wild large mammal. Various species of commercial fish are found. 5 rare, endemic & threatened flora are present in the site. 2 species namely *Alocasia macrorrhizos* and *Kyllinga squamulata* are new distributional record for the flora of Tamil Nadu. Rare and endemic plants (*Commelina hasskarlii*, *Cyrtococcum longipes*, *Indotristicha ramosissima* and *Eriochrysis rangacharii*) have also been collected from the wetlands of the study area. The present collection clearly indicates that wetlands are conservation pockets of some rare and endemic plants.

### 4.2 - What wetland type(s) are in the site?

#### Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
6: Water storage areas/Reservoirs		1	19.746

#### (ECD) Habitat connectivity

Water-received from Kodaiyar basin (Pazhayar+Paraliyaru +Tamirabarani; Kodayar-major tributary) catchment area; Verani, Alur wetland & Anandanar river channel; drains out via sluices-lower end of Pannaivakkal stream ending in Rajakamangalam to Arabian Sea

### 4.3 - Biological components

#### 4.3.1 - Plant species

##### Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Acacia auriculiformis</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Albizia lebbek</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Azadirachta indica</i>	
TRACHEOPHYTALILIOPSIDA	<i>Cyperus compressus</i>	
TRACHEOPHYTALILIOPSIDA	<i>Cyperus rotundus</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Delonix regia</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Derris indica</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Eclipta prostrata</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Ficus religiosa</i>	
TRACHEOPHYTALILIOPSIDA	<i>Hydrilla verticillata</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Morinda coreia</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Nelumbo nucifera</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Nymphaea alba</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Nymphaea lotus</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Peltophorum pterocarpum</i>	
TRACHEOPHYTALILIOPSIDA	<i>Pistia stratiotes</i>	
TRACHEOPHYTAPOLYPODIOPSIDA	<i>Salvinia natans</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Samanea saman</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Syzygium cumini</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Tectona grandis</i>	
TRACHEOPHYTALILIOPSIDA	<i>Typha angustifolia</i>	
TRACHEOPHYTALILIOPSIDA	<i>Vallisneria natans</i>	

##### Invasive alien plant species



Phylum	Scientific name	Impacts
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Prosopis juliflora</i>	Actual (major impacts)

Optional text box to provide further information

The introduction of this invasive species to address erosion problems, has turned this into an invader species. It has started off invading the river banks and slowly extended to the agricultural lands, as well as adjacent dryland areas. The negative impacts of this species are that its rapid spread has a bearing on the Ecosystem Services. Despite partially the invasion offsets by provisioning of firewood and charcoal needs of the local communities, there is difficulty in controlling its rapid growth as the threats to Ecosystems Service, people's livelihoods and lifestyles exceed the benefits it may offer.

Since the negative impacts of this invasive species may far exceed the benefits, the solution would be to have an integrated research approach that considers both services and disservices among different groups, so that it may be addressed appropriately and solutions could be identified for suitable action.

#### 4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Accipiter badius</i>				
ARTHROPODA/INSECTA	<i>Acisoma panorpoides</i>				
ARTHROPODA/INSECTA	<i>Acraea violae</i>				
CHORDATA/AVES	<i>Acridotheres fuscus</i>				
CHORDATA/AVES	<i>Acridotheres tristis</i>				
CHORDATA/AVES	<i>Acrocephalus dumetorum</i>				
ARTHROPODA/INSECTA	<i>Aethriamanta brevipennis</i>				
CHORDATA/AVES	<i>Alcedo atthis</i>				
CHORDATA/AVES	<i>Amaurornis phoenicurus</i>				
CHORDATA/AVES	<i>Anas poecilorhyncha zonorhyncha</i>				
CHORDATA/AVES	<i>Anastomus oscitans</i>				
ARTHROPODA/INSECTA	<i>Anax immaculifrons</i>				
CHORDATA/AVES	<i>Anthus rufulus</i>				
ARTHROPODA/INSECTA	<i>Apis cerana</i>				
CHORDATA/AVES	<i>Apus affinis</i>				
CHORDATA/AVES	<i>Ardea alba</i>				
CHORDATA/AVES	<i>Ardea cinerea</i>				
CHORDATA/AVES	<i>Ardea purpurea</i>				
CHORDATA/AVES	<i>Ardeola grayii</i>				
ARTHROPODA/	<i>Argiope anasuja</i>				
ARTHROPODA/INSECTA	<i>Ariadne ariadne</i>				
ARTHROPODA/INSECTA	<i>Ariadne merione</i>				
CHORDATA/AVES	<i>Artamus fuscus</i>				
ARTHROPODA/INSECTA	<i>Azanus ubaldus</i>				
ARTHROPODA/INSECTA	<i>Badamia exclamationis</i>				
ARTHROPODA/INSECTA	<i>Brachythemis contaminata</i>				
ARTHROPODA/INSECTA	<i>Byblia ilithyia</i>				
ARTHROPODA/INSECTA	<i>Camponotus compressus</i>				
ARTHROPODA/INSECTA	<i>Castalius rosimon</i>				

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
ARTHROPODA/INSECTA	<i>Catopsilia pomona</i>				
ARTHROPODA/INSECTA	<i>Catopsilia pyranthe</i>				
CHORDATA/AVES	<i>Centropus sinensis</i>				
ARTHROPODA/INSECTA	<i>Cepora nerissa</i>				
CHORDATA/AVES	<i>Ceryle rudis</i>				
CHORDATA/ACTINOPTERYGII	<i>Channa striata</i>				
CHORDATA/AVES	<i>Chlidonias hybrida</i>				
ARTHROPODA/INSECTA	<i>Chorthippus brunneus</i>				
ARTHROPODA/INSECTA	<i>Chrysocoris stollii</i>				
CHORDATA/AVES	<i>Cinnyris asiaticus</i>				
CHORDATA/AVES	<i>Cinnyris lotenius</i>				
CHORDATA/AVES	<i>Cisticola juncidis</i>				
CHORDATA/AVES	<i>Clamator jacobinus</i>				
ARTHROPODA/INSECTA	<i>Colotis danae</i>				
ARTHROPODA/INSECTA	<i>Colotis etrida</i>				
ARTHROPODA/INSECTA	<i>Colotis fausta</i>				
CHORDATA/AVES	<i>Columba livia</i>				
CHORDATA/AVES	<i>Coracias benghalensis</i>				
CHORDATA/AVES	<i>Corvus macrorhynchos</i>				
CHORDATA/AVES	<i>Corvus splendens</i>				
ARTHROPODA/INSECTA	<i>Cratilla lineata</i>				
CHORDATA/AVES	<i>Cuculus canorus</i>				
ARTHROPODA/INSECTA	<i>Cupido lacturnus</i>				
CHORDATA/ACTINOPTERYGII	<i>Cyprinus carpio</i>				
CHORDATA/AVES	<i>Cypsiurus balasensis</i>				
ARTHROPODA/INSECTA	<i>Danaus chrysippus</i>				
ARTHROPODA/INSECTA	<i>Danaus genutia</i>				
ARTHROPODA/INSECTA	<i>Delias eucharis</i>				
CHORDATA/AVES	<i>Dendrocitta vagabunda</i>				
CHORDATA/AVES	<i>Dendrocygna javanica</i>				
ARTHROPODA/INSECTA	<i>Diabolocantops innotabilis</i>				
CHORDATA/AVES	<i>Dicrurus macrocercus</i>				
CHORDATA/AVES	<i>Dinopium benghalense</i>				
ARTHROPODA/INSECTA	<i>Diplacodes trivialis</i>				
ARTHROPODA/INSECTA	<i>Dysdercus cingulatus</i>				
ARTHROPODA/INSECTA	<i>Edales pandava</i>				
CHORDATA/AVES	<i>Egretta garzetta</i>				
CHORDATA/AVES	<i>Egretta intermedia</i>				

Phylum	Scientific name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Eremopterix griseus</i>				
ARTHROPODA/INSECTA	<i>Euchrysops cnejus</i>				
CHORDATA/AVES	<i>Eudynamys scolopaceus</i>				
CHORDATA/AVES	<i>Euodice malabarica</i>				
ARTHROPODA/INSECTA	<i>Euploea core</i>				
ARTHROPODA/INSECTA	<i>Eurema hecabe</i>				
ARTHROPODA/INSECTA	<i>Euthalia aconthea</i>				
CHORDATA/MAMMALIA	<i>Felis chaus</i>				
CHORDATA/AVES	<i>Francolinus pondicerianus</i>				
ARTHROPODA/INSECTA	<i>Freyeria putli</i>				
CHORDATA/AVES	<i>Fulica atra</i>				
CHORDATA/MAMMALIA	<i>Funambulus palmarum</i>				
CHORDATA/AVES	<i>Gallinula chloropus</i>				
ARTHROPODA/	<i>Gasteracantha geminata</i>				
ARTHROPODA/INSECTA	<i>Gomalia elma</i>				
ARTHROPODA/INSECTA	<i>Graphium agagemnon</i>				
ARTHROPODA/INSECTA	<i>Graphium doson</i>				
CHORDATA/AVES	<i>Gymnoris xanthocollis</i>				
CHORDATA/AVES	<i>Halcyon smyrnensis</i>				
CHORDATA/AVES	<i>Haliastur indus</i>				
ARTHROPODA/INSECTA	<i>Hasora chromus</i>				
CHORDATA/MAMMALIA	<i>Herpestes edwardsi</i>				
CHORDATA/AVES	<i>Hieraetus pennatus</i>				
CHORDATA/AVES	<i>Hirundo rustica</i>				
CHORDATA/AVES	<i>Hydrophasianus chirurgus</i>				
ARTHROPODA/INSECTA	<i>Hypolimnas bolina</i>				
ARTHROPODA/INSECTA	<i>Hypolimnas misippus</i>				
ARTHROPODA/INSECTA	<i>Ictinogomphus rapax</i>				
CHORDATA/AVES	<i>Iduna rama</i>				
ARTHROPODA/INSECTA	<i>Ixias marianne</i>				
CHORDATA/AVES	<i>Ixobrychus sinensis</i>				
ARTHROPODA/INSECTA	<i>Jamides bochus</i>				
ARTHROPODA/INSECTA	<i>Jamides celeno</i>				
ARTHROPODA/INSECTA	<i>Junonia almana</i>				
ARTHROPODA/INSECTA	<i>Junonia atlites</i>				
ARTHROPODA/INSECTA	<i>Junonia hierta</i>				
ARTHROPODA/INSECTA	<i>Junonia iphita</i>				
ARTHROPODA/INSECTA	<i>Junonia lemonias</i>				
ARTHROPODA/INSECTA	<i>Junonia orithya</i>				

Phylum	Scientific name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
ARTHROPODA/INSECTA	<i>Lampides boeticus</i>				
CHORDATA/AVES	<i>Lanius cristatus</i>				
CHORDATA/AVES	<i>Lanius vittatus</i>				
ARTHROPODA/INSECTA	<i>Lathrecista asiatica</i>				
CHORDATA/AVES	<i>Leptocoma zeylonica</i>				
ARTHROPODA/INSECTA	<i>Leptosia nina</i>				
ARTHROPODA/INSECTA	<i>Leptysmia marginicollis</i>				
CHORDATA/MAMMALIA	<i>Lepus nigricollis</i>				
CHORDATA/AVES	<i>Lonchura malacca</i>				
CHORDATA/AVES	<i>Lonchura punctulata</i>				
MOLLUSCA/GASTROPODA	<i>Lymnaea stagnalis</i>				
CHORDATA/MAMMALIA	<i>Macaca radiata</i>				
ARTHROPODA/MALACOSTRACA	<i>Macrobrachium rosenbergii</i>				
CHORDATA/AVES	<i>Megalaima haemacephala</i>				
CHORDATA/AVES	<i>Megalaima zeylanica</i>				
ARTHROPODA/INSECTA	<i>Melanitis leda</i>				
CHORDATA/AVES	<i>Merops orientalis</i>				
CHORDATA/AVES	<i>Merops philippinus</i>				
CHORDATA/AVES	<i>Metopidius indicus</i>				
CHORDATA/AVES	<i>Microcarbo niger</i>				
CHORDATA/AVES	<i>Milvus migrans</i>				
CHORDATA/AVES	<i>Motacilla flava</i>				
CHORDATA/AVES	<i>Motacilla maderaspatensis</i>				
CHORDATA/MAMMALIA	<i>Mus musculus</i>				
CHORDATA/AVES	<i>Mycteria leucocephala</i>				
ARTHROPODA/	<i>Myrmaplata plateoides</i>				
ARTHROPODA/INSECTA	<i>Neorthacris acuticeps</i>				
ARTHROPODA/INSECTA	<i>Neptis hylas</i>				
CHORDATA/AVES	<i>Nettapus coromandelianus</i>				
ARTHROPODA/INSECTA	<i>Neurothemis tullia</i>				
CHORDATA/AVES	<i>Nycticorax nycticorax</i>				
ARTHROPODA/INSECTA	<i>Oecophylla smaragdina</i>				
CHORDATA/ACTINOPTERYGII	<i>Oreochromis niloticus</i>				
ARTHROPODA/INSECTA	<i>Oriens goloides</i>				
ARTHROPODA/INSECTA	<i>Orthetrum sabina</i>				
CHORDATA/AVES	<i>Orthotomus sutorius</i>				
ARTHROPODA/	<i>Oxyopes birmanicus</i>				
ARTHROPODA/INSECTA	<i>Pachliopta aristolochiae</i>				
ARTHROPODA/INSECTA	<i>Pachliopta hector</i>				

Phylum	Scientific name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
ARTHROPODA/INSECTA	<i>Pantala flavescens</i>				
ARTHROPODA/INSECTA	<i>Papilio demoleus</i>				
ARTHROPODA/INSECTA	<i>Papilio polymnestor</i>				
ARTHROPODA/INSECTA	<i>Papilio polytes</i>				
CHORDATA/MAMMALIA	<i>Paradoxurus hermaphrodites</i>				
ARTHROPODA/INSECTA	<i>Paragomphus lineatus</i>				
ARTHROPODA/INSECTA	<i>Parantica aglea</i>				
CHORDATA/AVES	<i>Pastor roseus</i>				
CHORDATA/AVES	<i>Pavo cristatus</i>				
CHORDATA/AVES	<i>Phalacrocorax fuscicollis</i>				
ARTHROPODA/INSECTA	<i>Phalanta phalantha</i>				
CHORDATA/MAMMALIA	<i>Pipistrellus coromandra</i>				
CHORDATA/AVES	<i>Plegadis falcinellus</i>				
ARTHROPODA/INSECTA	<i>Polistes stigma</i>				
CHORDATA/AVES	<i>Porphyrio porphyrio</i>				
ARTHROPODA/INSECTA	<i>Potamarcha congener</i>				
ARTHROPODA/INSECTA	<i>Potanthus pseudomaesa</i>				
CHORDATA/AVES	<i>Prinia inornata</i>				
CHORDATA/AVES	<i>Prinia socialis</i>				
ARTHROPODA/INSECTA	<i>Pseudozizeeria maha</i>				
CHORDATA/AVES	<i>Psittacula krameri</i>				
CHORDATA/MAMMALIA	<i>Pteropus giganteus</i>				
CHORDATA/AVES	<i>Pycnonotus cafer</i>				
ARTHROPODA/INSECTA	<i>Rathinda amor</i>				
ARTHROPODA/INSECTA	<i>Rhyothemis variegata</i>				
ARTHROPODA/INSECTA	<i>Riptortus pedestris</i>				
CHORDATA/MAMMALIA	<i>Rousettus leschenaultii</i>				
CHORDATA/AVES	<i>Sarkidiornis melanotos</i>				
CHORDATA/AVES	<i>Saxicoloides fulicatus</i>				
ARTHROPODA/INSECTA	<i>Spalgis epius</i>				
ARTHROPODA/INSECTA	<i>Spialia galba</i>				
CHORDATA/AVES	<i>Spilopelia chinensis</i>				
ARTHROPODA/	<i>Stegodyphus sarasinorum</i>				
ARTHROPODA/INSECTA	<i>Sternocera chrysis</i>				
CHORDATA/AVES	<i>Streptopelia decaocto</i>				
CHORDATA/AVES	<i>Sturnia pagodarum</i>				
ARTHROPODA/INSECTA	<i>Suastus gremius</i>				
ARTHROPODA/INSECTA	<i>Suastus minuta</i>				

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/AVES	<i>Tachybaptus ruficollis</i>				
ARTHROPODA/INSECTA	<i>Tajuria jehana</i>				
ARTHROPODA/INSECTA	<i>Talicada nyseus</i>				
ARTHROPODA/INSECTA	<i>Tarucus plinius</i>				
ARTHROPODA/INSECTA	<i>Tellervo septentrionis</i>				
CHORDATA/AVES	<i>Terpsiphone paradisi</i>				
ARTHROPODA/INSECTA	<i>Tetragonula iridipennis</i>				
ARTHROPODA/INSECTA	<i>Trilophidia annulata</i>				
CHORDATA/AVES	<i>Tringa glareola</i>				
ARTHROPODA/INSECTA	<i>Troides minos</i>				
CHORDATA/AVES	<i>Turdoides affinis</i>				
CHORDATA/AVES	<i>Upupa epops</i>				
CHORDATA/AVES	<i>Vanellus indicus</i>				
ARTHROPODA/INSECTA	<i>Xylocopa latipes</i>				
ARTHROPODA/INSECTA	<i>Ypthima ceylonica</i>				
ARTHROPODA/INSECTA	<i>Ypthima chenu</i>				
ARTHROPODA/INSECTA	<i>Zizeeria karsandra</i>				
ARTHROPODA/INSECTA	<i>Zizeeria otis</i>				
ARTHROPODA/INSECTA	<i>Zizula hylax</i>				

Invasive alien animal species

Phylum	Scientific name	Impacts
CHORDATA/ACTINOPTERYGII	<i>Clarias gariepinus</i>	Actual (major impacts)
CHORDATA/ACTINOPTERYGII	<i>Oreochromis mossambicus</i>	Actual (major impacts)

Optional text box to provide further information

**Clarias gariepinus and Oreochromis mossambicus:**

These are invasive species. Their presence makes the water more turbid, increases the algal blooms, resulting in decreased growth of aquatic macrophytes. Excess nutrients entering the wetland and the feeding habits of the carp result in suspension of sediment and nutrients. The nutrients fuel the algal blooms, which reduce the water quality and ultimately eliminates the submerged aquatic vegetation. With the loss of submerged vegetation, the water quality continues to deteriorate and fish species and quality declines.

#### 4.4 - Physical components

##### 4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Aw: Tropical savanna (Winter dry season)

The area experiences tropical savanna type of climate with an average annual rainfall of 1456.8 mm

##### 4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

Entire river basin

Upper part of river basin

Middle part of river basin

- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Vembanur wetland is human-made perennial water; ecotourism area, created primarily for irrigation. Pandyan king constructed tanks & is named after him as Veeranarayana Mangalam Therrakal canal; built to use water from River Pazhayar to tanks Thathiarkulam, Theroorkulam & Puthukiramamkulam. Pazhayar collects entire drainage & irrigates large part of Nanchilwadu. Main Pazhayar stream passes Bhuthapandikottar, Thazhakudi & Suchindram tanks entering Manakudi estuary; located towards Tirunelveli dist. NE of GoM. S & SW is bounded by Indian Ocean & Arabian Sea. Site receives water from Kodaiyar basin (Pazhayar, Paraliyaru & Tamirabarani; Kodayar-major tributary) catchment area of 1646.96 km<sup>2</sup>; basin receives water from W.Ghats, Kanyakumari, from SW & NE monsoon; Kodayar river basin of Agasthiyamalai supplies water except during drought; water-also from Verani, Alur wetland & Anandanar river channel; drains out via sluices at lower Pannaivakkal stream ending in Rajakamangalam to Arabian Sea.

#### 4.4.3 - Soil

- Mineral
- Organic
- No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes  No

Please provide further information on the soil (optional)

Major part of the Kodayar river basin area near Vembanur is underlain by gneissic terrain of hard crystalline rocks which include Charnotites and Khondalites. Migmatite Gneiss and granites over lain the hard drops and are identified as Warhalai sand stones. The Physiography around Vembanur is plain area with parental material gneiss while the top layer of the soil comprises sandy clay, clay content increases with respect to increase in depth of the pond the annual rain fall of the region is 985 mm; the hottest month is April and coldest month is January of every year.

#### 4.4.4 - Water regime

##### Water permanence

Presence?	
Usually permanent water present	No change

##### Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from precipitation	<input checked="" type="checkbox"/>	No change
Water inputs from surface water	<input checked="" type="checkbox"/>	No change

##### Water destination

Presence?	
Feeds groundwater	No change

##### Stability of water regime

Presence?	
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology:

The average depth of the Vembanur wetland is 7 m. The elevation of the Vembanur pond is about 19 m from Mean Sea Level. Wetland is categorized as fresh water wetlands as the salinity level is 0.1. The main source of water for the wetland is rainfall, the surrounding runoff from the catchment area and from the Pannaivakkal (Pantivakkal) Stream originating from the Veranai & Alur water pond and Anandanar channel originating from the Peachiparai and Perunchani dams. The water in the wetland is mostly of perennial nature with the exception of running dry during the years of deficit rainfall. The water also helps in replenishing the ground water of surrounding land areas. The PH of the water is 6.5-8.5. Total hardness recorded in all the selected station was found to be maximum 283mg/l during the summer, and minimum value during winter season 105mg/l. The water is turbid. Dissolved Oxygen is 6.7-6.9 per mg liter while Biological Oxygen Demand ranges between 3.01-4.9 mg per liter. The wetland was observed to have aquatic vegetation such as water hyacinth, water velvet, water spinach, small white morning glory, water cabbage, common duck meat, water fern, Indian lotus etc. Agricultural fields withdraw water from the wetland.

(ECD) Connectivity of surface waters and of groundwater

Water from rainfall and runoff (as mentioned above, help in replenishing the groundwater.

#### 4.4.5 - Sediment regime

- Significant erosion of sediments occurs on the site
- Significant accretion or deposition of sediments occurs on the site
- Significant transportation of sediments occurs on or through the site
- Sediment regime is highly variable, either seasonally or inter-annually
- Sediment regime unknown

(ECD) Water turbidity and colour

Water colour is light blue and grey; turbidity not measured

(ECD) Water temperature Average temperature of water not known 4.4.6 Water

4.4.6 - Water pH

- Acid (pH<5.5)
- Circumneutral (pH: 5.5-7.4 )
- Alkaline (pH>7.4)
- Unknown

4.4.7 - Water salinity

- Fresh (<0.5 g/l)
- Mixohaline (brackish)/Mixosaline (0.5-30 g/l)
- Euhaline/Eusaline (30-40 g/l)
- Hyperhaline/Hypersaline (>40 g/l)
- Unknown

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic
- Mesotrophic
- Oligotrophic
- Dystrophic
- Unknown

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar  ii) significantly different  site itself:

- Surrounding area has greater urbanisation or development
- Surrounding area has higher human population density
- Surrounding area has more intensive agricultural use
- Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

The wetland area is a perennial water. The Pandyan king was known to have had the tanks constructed in the district. Veeranarayana Mangalam is named after him; had built the Therrakal canal to take water from River Pazhayar to the tanks Thathiarkulam, Theroorkulam & Puthukiramankulam. Pazhayar collects entire drainage to irrigate Nanchilwadu. The main Pazhayar stream passes Bhuthapandi-kottar, Thazhakudi & Suchindram tanks, enters Manakudi estuary. Tanks-located towards Tirunelveli district NE of Gulf of Mannar. S & SW the site is bounded by Indian Ocean & Arabian Sea. Vembanur wetland is manmade, created primarily for irrigation. The wetland receives water from Kodaiyar basin its Catchment area (Pazhayar, Paraliyaru & Tamirabarani; Kodayar-major tributary), of 1646.964 km<sup>2</sup>. Kodaiyar basin receives water from W.Ghats, Kanniyakumari dist, that receives both NE & SW monsoon. Kodayar river basin of Agasthiyamalai Biosphere Reserve supplies these man-made wetlands permanently except for some drought years. Vembanur pond receives water from Verani, Alur wetland & Anandanar river channel. The water from Vembanur drains out via sluices at lower end of Pannaivakkal stream ending in Rajakamangalam to Arabian Sea. Major part of the Kodayar river basin area is underlain by gneissic terrain of hard crystalline rocks which include Charnotites and Khondalites. Migratite Gneiss & granites overlain the hard drops & are identified as Warhalai sand stones. Physiography around Vembanur is plain area with parental material gneiss while the top layer of the soil comprises sandy clay; clay content increases with increase in depth of the pond; annual rainfall=985 mm; hottest month is April & coldest month is January every year. Due to depth and extension of area, tank has great ability to act like sponge during floods. Recent pollution discharge into the wetland led to invasive species like Water hyacinth due to which water carrying capacity is also reduced to greater extent.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	High
Fresh water	Drinking water for humans and/or livestock	High
Fresh water	Water for irrigated agriculture	High

Regulating Services



Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	High
Erosion protection	Soil, sediment and nutrient retention	High
Climate regulation	Local climate regulation/buffering of change	High
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climatic processes	High
Hazard reduction	Flood control, flood storage	High
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	High
Recreation and tourism	Nature observation and nature-based tourism	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Sediment retention	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	High
Nutrient cycling	Carbon storage/sequestration	High
Pollination	Support for pollinators	High

Optional text box to provide further information

Anthropogenic activities are affecting the habitat of water birds. Vembanur wetland is currently being used for water collection for house hold work and livestock bathing. These activities disturb the water birds in the pond. The invasive Water hyacinth are slowly encroaching much of the area, accounting for nearly 60%, retarding growth of babul trees. This will impact many near threatened bird species visiting the site. In addition to water, dwindling wetland area and loss of natural habitats are major limiting factors for biodiversity and ecological integrity of this Conservation Reserve. Water shortage due to low rainfall pushes wetland flora and fauna to their limits of endurance. Shoreline and mud flats, which are indispensable with the survival of shorebirds, other large wading birds and even ducks and geese, are gradually diminishing because of encroachments, conversion of the wetlands for other purposes, and rapid proliferation of invasive vegetation. Tilapia is a very common invasive species that was recorded. Although there are introduced common carps in the wetland the extent of their invasion is not documented and needs a detailed study. The wetland does not show major change in the pattern of water and outflow. Human activities due to nearby rural settlements is posing a problem due to the indiscriminate use of natural resources and conversion of the wetlands into non-wetland use. Recent pollution discharges into the wetland led to the flourishing nutrition and invasive species like Water hyacinth due to which water carrying capacity of the wetland has reduced to great extent.

Within the site: 1000s

Outside the site: 10000s

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes  No  Unknown

4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland

Description if applicable

The history of this wetland is age old. It is known that kings contributed a great deal to the irrigation facilities. Copper plate inscriptions from the 9th century mention Pasumkulam, Venchikulam, Nedumarthukulam, Perumkulam, Elemchikulam and Konadunkulam. The Pandyan king Veerananarayana was known to have had some of the tanks constructed. Veerananarayana Mangalam is named after King Veerananarayana, who built the Therrakal canal to take water from River Pazhayar to the tanks Thathiarkulam, Puthukiramamkulam and Theroorkulam. The famous Suchindram tank was built about 1,000 years ago. It is fed from the Kumari Dam constructed across Pazhayar (also called Palayar) below Sabari Dam. The Sabari and Kumari Dams may be more than 1000 years old. The River Pazhayar collects the entire drainage of the valley and irrigates a substantial part of Nanchilwadu. The main Pazhayar stream passes through Bhuthapandi-kottar, Thazhakudi and Suchindram tanks and enters the Manakudi estuary. These tanks were located towards Tirunelveli district on the northeast of the Gulf of Mannar. As stated above, Vembanur supports more than 2000 hectares of agricultural land on which more than 1000 families are dependent. Agriculture is undertaken around wetland. Water from the wetland is used for irrigation purposes. In addition, Indian Lotus planting and cultivation is another important economic activity. The surrounding area has drinking water supply from Panchayat board and bore wells for their regular needs and the wetland water is used for irrigation. Fishing for their own consumption as well as to sell in the local market. There are four temples and three mosques in the vicinity of the wetland. Cultural activities are undertaken during specific festivals. Agriculture is practiced around the wetland and commercial fishing activities are undertaken. The wetlands receive a good population of Nature enthusiasts and Tourists. In addition, Vembanur play the primary role off buffering by acting as a sponge during events of floods and extreme rainfall. It is major source of ground water recharge. There is a significant runoff from the surrounding catchment area and the wetland acts as a sink for sediments.

ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

Description if applicable

Same points as mentioned in section (i)

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples

Description if applicable

As mentioned above, the local population are engaged in agricultural activities, and so are dependent completely on the sanctuary for irrigation and livestock purposes. Vembanur supports more than 2000 hectares of agricultural land on which more than 1000 families are dependent.

iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

Description if applicable

A few cultural activities are organized in the temple near the wetland during specific festival times.

#### 4.6 - Ecological processes

<no data available>

## 5 - How is the Site managed? (Conservation and management)

### 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
Provincial/region/state government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Provide further information on the land tenure / ownership regime (optional):

The wetland comes partly under the jurisdiction of Tamil Nadu Forest Department (TNFD), Kanyakumari and The Public Works Department (PWD).

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Tamil Nadu Forest Department, Kanyakumari District

Provide the name and/or title of the person or people with responsibility for the wetland:

District Forest Officer, Kanyakumari Division

Postal address:

O/o The District Forest Officer,  
Kanyakumari Division,  
Government Timber Depot,  
Vadasery, Nagerkoil 629 001  
Tamil Nadu  
INDIA

Additional E-mail address: dmukkm@gmail.com

E-mail address:

kkforestdiv@yahoo.com

## 5.2 - Ecological character threats and responses (Management)

### 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Housing and urban areas	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Drainage	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water abstraction	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Salinisation	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Water releases	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Livestock farming and ranching	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Vegetation clearance/ land conversion	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Agricultural and forestry effluents	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>
Garbage and solid waste	Medium impact		<input type="checkbox"/>	<input checked="" type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Habitat shifting and alteration	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Droughts	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Temperature extremes	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Storms and flooding	Medium impact		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Comes under the Indian Wildlife Protection Act, 1972		<a href="https://legislative.gov.in/sites/default/files/A1972-53_0.pdf">https://legislative.gov.in/sites/default/files/A1972-53_0.pdf</a>	whole
Vembannur wetland is notified under the section of 36 A of The Wildlife Protection Act 1972		<a href="http://www.wiienviis.nic.in/Databa se/Tamil_Nadu_7838.aspx">http://www.wiienviis.nic.in/Databa se/Tamil_Nadu_7838.aspx</a>	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area		<a href="http://datazone.birdlife.org/site/factsheet/suchindram-therur-ve mbannoor-iba-india">http://datazone.birdlife.org/site/factsheet/suchindram-therur-ve mbannoor-iba-india</a>	whole

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation
- VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems

<no data available>

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Proposed

Other:

A management plan is proposed and pending for approval. The plan includes interventions such as livelihood promotion through trainings for making handicrafts products from water hyacinth collected from these wetlands. Public cooperation and participation in conservation of this site can be expected to increase with speedy implementation of the management plan due to following factors: (i) The number of heronry birds would increase and their droppings would enrich the irrigation water. For farmers who find it difficult to obtain organic manure, this will be a boon. (ii) With increase in wildlife tourism in this area, the local restaurants, hotels, shops, vehicle hirers, etc. would be greatly benefited. Employment opportunities too would be increased directly and indirectly. The training programme to be conducted by the Reserve Authority would also help the local motivated young people to become informed guides for tourists who require assistance.

There are some misconceptions, created especially by encroachers in the vicinity, that the birds are destroyers of their crop. A systematic awareness programme to demonstrate the benefits of birds and the Reserve to the local people would remove this wrong notion. However, one may expect some unrest from encroachers who have occupied the lands that are part of the wetlands for farming, commercial purposes or dwelling places. It is a serious conservation issue not only for ecological integrity of the reserve, but also for the socio-economic welfare of the general public because of the dwindling wetlands and needs to be handled judiciously even before the local people have had an opportunity to realize the indispensability and full potential of these wetlands for their own prosperity and posterity.

Vision and objectives: The vision of the management plan is to conserve the wetland birds and biodiversity of Vembanur for long term socio-economic well-being of the entire local community. In order to realize this vision, the following supporting objectives needs to be systematically executed - i. Protect and enhance and maintain the ecological integrity and biodiversity of the wetland; ii. Safeguard the last stronghold of the migratory and resident wetland birds of the biogeographic area; iii. Promote and regulate wildlife & eco-friendly tourism; iv. Develop the wetland through conservation education and scientific research; v. Enhance environmental awareness of local stakeholders; vi. Provide long-term indirect support to farmers in reaping bumper harvest of paddy & banana without heavy use of chemical fertilizers; vii. Restore & regulate traditional fishing of native and not commercial fishes.

To achieve the above objectives following components are required-(a) protection (b) habitat & species management (c) Wildlife tourism (d) eco-development (e) environment education, (f) research & monitoring, as well as (g) imparting training to local communities for promoting alternate livelihoods.

### 5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes  No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes  No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

Interpretation programme envisaged for Wetland Conservation Programme, would cater to Wildlife tourism and Conservation education. It is aimed to connect all visitors to wetland birds, other biotic & abiotic components of the tropical fresh water/estuarine ecosystems, which are indispensable for the socio-economic wellbeing of local people, country & the world, in addition to aesthetic, educational & scientific value. These efforts would rekindle interest of visitors to nature & invaluable functions, and send them back as ambassadors of conservation. The programme is executed in two fronts-physical facilities & expert services. Physical facilities comprises actual field conditions & indoor learning. Field facilities will include nature trails, birds watching platforms/towers. Indoor interpretation facilities will include models, picture, written & vocal information, graphics and signages. Expert services for outdoor & indoor would be made available to visitors through subject specialists.

### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water quality	Proposed
Soil quality	Proposed
Plant community	Proposed
Plant species	Proposed
Animal community	Proposed
Animal species (please specify)	Proposed

A Conservation Reserve Management committee formed under sec 36 B of The Wildlife Protection Act 1972. This will be part of the management authority.

## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

- Manakadan, R. and Kannan, V. (2003) A study of Spot-billed Pelican *Pelecanus philippensis* with special reference to its conservation in southern India, Final Report, Mumbai: Bombay Natural History Society.
- Henry, A.N. & M.S. Swaminathan. 1981. Observations on the vegetation of Kanniyakumari district, Tamil Nadu, Bulletin of the Botanical Survey of India 23 (3 & 4): 135-139.

#### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<1 file(s) uploaded>

v. site management plan

<1 file(s) uploaded>

vi. other published literature

<no file available>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Flock of lesser whistling duck ( Tamil Nadu State Wetland Authority, 16-09-2021 )



Indian Pond Heron ( Tamil Nadu State Wetland Authority, 16-09-2021 )



Intermediate Egret ( Tamil Nadu State Wetland Authority, 16-09-2021 )

#### 6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation