

**BRIEF DOCUMENT OF**  
**KORAPUZHA – AGALAPUZHA WETLAND COMPLEX**

State / Union Territory : Kerala

Name and address of person(s) compiling this information :

1. Member Secretary, State Wetland Authority, Kerala (Director, Directorate of Environment and Climate Change, Govt. of Kerala), 4th Floor, KSRTC Terminal Complex, Thampanoor, Thiruvananthapuram-1.
- 2.

**Section 1: Identification, Location and Jurisdiction**

**1.1** Name of the Wetland (Alternative names, including in local language should be given in parenthesis after official name): **Korapuzha – Agalapuzha Wetland Complex**

**1.2** Name of the Village(s), Tehsil(s), Municipal area (s):

Villages: Elathur, Kakkodi, Thalakulathur, Arikulam, Atholi, Chenancheri, Chengottukavu, Keezhariyur, Mudadi, Payyoli, Thikodi, Thurayur, Ulliyeri, Viyyur, Panthalayani

Taluks: Kozhikode and Quilandy

Panchayat: Kakkodi, Thalakulathur, Arikulam, Atholi, Chenancheri, Chengottukavu, Keezhariyur, Mudadi, Panthalayani, Payyoli, Thikodi, Thurayur, Ulliyeri, Naduvannur, Chelannur, Viyyur

Municipality: Quilandy, Payyoli

Corporation: Kozhikode

**1.3** District(s) in which wetland complex is located: Kozhikode

**1.4** Geographical coordinates (Latitude and Longitude, to degree, minutes and second)

: Latitude: From 11°19'20.747" to 11°31'8.536"N

: Longitude: From 75°38'22.347" to 75°48'0.678"E

**1.5** Name of the Department/Agency which has jurisdiction over the wetland/wetlands complex:

Local Self Governments, State Wetland Authority Kerala (SWAK), Irrigation Department and Kerala Coastal Zone Management Authority (KCZMA).

**Section 2: Site Characteristics**

**2.1** Area of wetland / wetlands category (ha) : 1660.16

**2.2** Wetland type (Please tick appropriate categories and sub-categories)

Category	Subcategory
<input type="checkbox"/> Natural (Inland)	<input type="checkbox"/> Permanent lakes <input type="checkbox"/> Seasonal/ intermittent lakes <input type="checkbox"/> Permanent streams/ creeks <input type="checkbox"/> Seasonal/ intermittent streams/ creeks <input type="checkbox"/> Oxbow <input type="checkbox"/> River floodplain <input type="checkbox"/> Permanent freshwater marshes <input type="checkbox"/> Seasonal/ intermittent freshwater marshes <input type="checkbox"/> Shrub-dominated wetlands <input type="checkbox"/> Tree-dominated wetlands <input type="checkbox"/> Geothermal wetlands <input type="checkbox"/> Karst and other subterranean hydrological systems
<input checked="" type="checkbox"/> Natural (Coastal)	<input type="checkbox"/> Coastal lagoon <input checked="" type="checkbox"/> Estuary <input type="checkbox"/> Intertidal mud, sand or salt flats <input checked="" type="checkbox"/> Mangroves <input type="checkbox"/> Coral reefs
<input type="checkbox"/> Human-made	<input type="checkbox"/> Aquaculture pond <input type="checkbox"/> Tank <input type="checkbox"/> Saltpan <input type="checkbox"/> Dam / Reservoir

**2.3** Depth (m) : Data not available

**2.4** Elevation (m above mean sea level): 0 to 1100 (Including Zone of Influence)

**2.5** Water regimes

a) Main source of water (tick all applicable)

- Rainfall     Groundwater     Catchment runoff     Direct / indirect inflow from river  
 Others, please specify \_\_\_\_\_

b) Water permanence

- Mostly permanent     Mostly intermittent

c) Destination of water from wetland

- Feeds groundwater     To downstream catchment     To river     To sea

d) Water pH

- Acid (< 5.5)     Circumneutral (5.5 – 7.4)     Alkaline (> 7.4)     Not known

e) Water salinity

- Fresh (< 0.5 g/l)     Brackish (0.5 – 30 g/l)     Euhaline (30- 40 g/l)  
 Hypersaline (>40g/l)     Not known

f) Nutrient in water

- Eutrophic     Mesotrophic     Oligotrophic     Not known

2.6 Climatic setting

a) Annual Rainfall /Snowfall(mm) :3800

b) Temperature (°C) :No data available

c) Humidity (%) : No data available

2.7 Area of zone of influence (in ha) : 64348.55ha

2.8 Major land use within zone of influence (provide as approximate % of catchment area)

Forests : 2.29

Plantation	: 4.68
Agriculture	: 32.03
Settlements (Rural) and (Urban)	: 58.02
Water body	: 2.68
Industrial	: 0.30

## 2.9 Map of wetland complex and zone of influence

### Section 3: Biodiversity

#### 3.1 Notable plant species present in wetland

**Mangroves:** *Acanthus ilicifolius*, *Avicennia officinalis*, *Bruguiera gymnorrhiza*, *Excoecaria agallocha* and *Rhizophora mucronata*.

**Riparian Flora:** *Cinnamomum malabattrum*, *Cryptocoryne sivadasanii*, *Dipterocarpus indicus*, *Eragrostis riparia*, *Eriocaulon cuspidatum*, *Eriocaulon heterolepis*, *Holigarna arnottiana*, *Homonoia retusa*, *Hopea ponga*, *Indotristicha ramosissima*, *Lagenandra meeboldii*, *Lindernia manilaliana*, *Lindernia oppositifolia*, *Myristica malabarica*, *Nymphoides macrosporum*, *Ochlandra travancorica*, *Ochreinauclea missionis*, *Rotala macrandra*, *Rotala malampuzhensis*, *Salacia fruticosa*, *Utricularia lazulina*, *Vateria indica* and *Xanthophyllum arnottianum*

**Aquatic ferns:** *Acrostichum aureum*, *Ceratopteris thalictroides*, *Marsilea minuta*, *Osmunda regalis*, *Pistia stratiotes*, *Salvinia molesta*

#### 3.2 Notable animal species present in wetland

**Fishes:** *Sparidentex jamalensis*, *Horabagrus brachysoma*, *Mystus armatus*, *Arius sp.*, *Heteropneustes fossilis*, *Dawkinsia filamentosa*, *Amblypharyngodon melettinus*, *Devario malabaricus*, *Ambassis gymnocephalus*, *Lutjanus indicus*, *Scatophagus argus*, *Anabas testudineus*, *Channa striata*, *Etroplus suratensis*, *Pseudetroplus maculatus*, *Nemato losanasus*, *Dayella malabarica*, *Caranx heberi*, *Hyporhamphus xanthopterus*, *Liza melanoptera*, *Penaeus indicus*, *Lutjanus argentimaculatus*, *Siganus javus*, *Anodontostoma*

*chacunda*, *Scomberomorus commersonii*, *Leiognathus equulus*, *Etroplus maculatus*, *Gerres longirostris*, *Mugil cephalus*, *Leiognathus brevirostris*, *Rastrelliger kanagartha*, *Sardinella longiceps*, *Sillago sihama*, *Crenimugil seheli*

**Birds:** Little Cormorant, Western Reef-Heron, Blue-tailed Bee-eater, Clamorous Reed Warbler, Red-whiskered Bulbul, Rock Pigeon, Lesser Sand-Plover, Lesser Black-backed Gull, Great Crested Tern, Lesser Crested Tern, Gray Heron, Little Egret, Indian Pond-Heron, Brahminy Kite, Greater Coucal, Greater Sand-Plover, Kentish Plover, Indian Cormorant, Great Egret, Intermediate Egret, Cattle Egret, Jungle Owlet, Stork-billed Kingfisher, White-throated Kingfisher, Rose-ringed Parakeet, House Crow, Ashy Prinia, Blyth's Reed Warbler, Barn Swallow, Black-headed Gull, Brown-headed Gull, Black Kite, Common Kingfisher, Black-capped Kingfisher, White-cheeked Barbet, Rufous Treepie, Large-billed Crow, Common Tailorbird, Common Myna, Purple-rumped Sunbird, Curlew Sandpiper, Common Sandpiper, Slender-billed Gull, Sandwich Tern, Golden-plover sp., Oriental Magpie-Robin, Spotted Dove, Asian Koel, Indian Swiftlet, Purple Heron, Plain Prinia, Yellowbilled Babbler, Purple Sunbird, Western Yellow Wagtail, Blyth's Pipit, Alpine Swift, Whimbrel, Pale-billed Flowerpecker, wagtail sp., Striated Heron, Sanderling, Green Bee-eater, Mongolian Short-toed Lark, Black-rumped Flameback, Vernal Hanging-Parrot, Loten's Sunbird, Greater Racket-tailed Drongo, Little/Saunders's Tern, Common Greenshank, Black-headed Ibis, Common Tern, Little Tern, Little Swift, Ashy Woodswallow, Great Knot, Jungle Babbler, Common Redshank, Black-crowned Night-Heron, Asian Palm-Swift, Whiskered Tern, Pallas's Gull, Caspian Tern, Lesser Whistling-Duck, Broad-billed Sandpiper, Gray Wagtail, Black Drongo, Terek Sandpiper, White-breasted Waterhen, Pied Kingfisher.

### 3.3 Species of conservation significance (rare, endangered, threatened, endemic species):

Plants: *Nymphoides macrospermum* (CR), *Vateria indica*, *Hopea ponga*, *Myristica malabarica*, *Ochreinauclea missionis* (VU), *Dipterocarpus indicus*, *Lindernia manilaliana* (EN)

Animals: *Scomberomorus commersonii* (NT), *Horabagrus brachysoma*, *Hyporhamphus xanthopterus* (VU)

### 3.4 Major plant invasive alien species

*Salvinia molesta*, *Ageratum conyzoides*, *Alternanthera philoxeroides*, *Eichhornia crassipes*, *Ipomoea cairica*, *Mikania micrantha*, *Mimosa diplotricha*, *Wedelia trilobata*

### 3.5 Major animal invasive alien species

No data available

#### Section 4: Ecosystem services

Importance	Relevant for the site (please tick yes or no)	If Yes, Details (upto 50 words for each category)
Source of drinking water for people living and around	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
Source of water for agriculture	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
Fisheries	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Elathur estuary of the Korapuzha River is a well known fish landing centre in Kozhikode district.
Cultivation of aquatic food plants	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	-
For buffalo wallowing and use of domesticated animals	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Not quantitatively assessed
Medicinal plants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Medicinal plants like <i>Acanthus ilicifolius</i> , <i>Avicennia officinalis</i> , <i>Centella asiatica</i> are reported
Is a recreational site and tourism	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	People enjoy the evening breeze and associated activities like fishing, swimming etc. in the wetland.
Buffering communities from extreme events as floods and storms	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Not quantitatively assessed
Groundwater recharge	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Not quantitatively assessed
Water purification	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Not quantitatively assessed
Acts as a sink for sediments	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Not quantitatively assessed
Has significant cultural and religious values	<input type="checkbox"/> Yes <input type="checkbox"/> No	Not observed here
Supports noteworthy plants species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Supports noteworthy plant species as mentioned in section 3.1

Importance	Relevant for the site (please tick yes or no)	If Yes, Details (upto 50 words for each category)
Supports noteworthy animal species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Supports animal species as mentioned in section 3.2
Site of high congregation of migratory water birds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Migratory birds like <i>Numenius arquata</i> , <i>Arenaria interpres</i> , <i>Tringa glareola</i> are spotted here
Supports life cycle of fish or amphibians	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Not quantitatively assessed
Mining	<input type="checkbox"/> Yes <input type="checkbox"/> No	No data available
Any other, please list		

#### Section 5: Pre-Existing Rights and Privileges

Nature of right and privilege	Relevant for the site (please tick yes or no)	Does this negatively impact the wetland's ecological health?	Brief description (up to 50 words for each category)
Community Fishing (without any lease or permission from government department)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	The local people engaged in, the harvest or processing of fishery resources to meet their dietary needs and sustenance.
Fishing under lease from government department	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-
Harvest of plants (without any lease or permission from government department)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-
Harvest of plants under lease from government department	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-
Agriculture or horticulture within wetland	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-

Nature of right and privilege	Relevant for the site (please tick yes or no)	Does this negatively impact the wetland's ecological health?	Brief description (up to 50 words for each category)
Grazing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-
Religious practices	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	Not observed
Withdrawal of water for domestic use	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-
Withdrawal of water for agriculture or fisheries	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	-
Bathing or wallowing of domestic animals	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	Not assessed
Plying of boats	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Country boats used for fishing & local transport
Any other, please list here	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	

### Section 6: Present and Potential Threats

Threat	Degree	Present or Potential	Additional information, if any
Changes in water inflow and outflow	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	May be a threat in future due to climate change
Pollution	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	Study by Subburaj et al., (2015) observed higher values of chloride, total dissolved solids, sulphates and hardness. Which indicates that the water is highly polluted by some external sources. The pollution may be



Threat	Degree	Present or Potential	Additional information, if any
			due to the unplanned development and unscientific way of excavation, anthropogenic activities and other developments near the river and estuaries which lead to the intrusion of seawater into the river.
Siltation	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	Not quantitatively assessed
Encroachment	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	Not quantitatively assessed
Spread of invasive species	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	Invasive species like <i>Ageratum conyzoides</i> , <i>Alternanthera philoxeroides</i> , <i>Eichhornia crassipes</i> , <i>Ipomoea cairica</i> , <i>Mikania micrantha</i> , <i>Mimosa diplotricha</i> , <i>Wedelia trilobata</i> , are observed
Loss of mangrove diversity	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	Mangrove ecosystem has been affected in terms of sand deposit due to anthropogenic activities in the upstream of rivers.
Any other, please list			

**Section 7: Activities Proposed to be prohibited (other than those listed in Rule 4(2) of Wetlands Rules)**

Activity	Prohibited within wetlands or	Details of specific area wherein	Name of department / agency	Additional information, if any
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	zone of influence	activity is prohibited	responsible for regulation	
	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			

### Section 8: Activities Proposed to be regulated

Activity	Place a tick mark if relevant	Regulation within wetlands or zone of influence	Level of regulation (in terms of people, restricted area or any other)	Name of department / agency responsible for regulation	Additional information, if any
Withdrawal of water / impoundment/diversion or any other hydrological intervention	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	Within the wetland Complex	Wetland Management Unit (WMU), SWAK, Irrigation Department, and KCZMA in CRZ areas	Large scale withdrawal or impoundment need to get prior permission from the WMU/SWAK, and KCZMA in CRZ areas.
Discharge of treated sewage/ effluent / wastewater	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	Within the wetland complex	Wetland Management Unit, SWAK, KSPCB, KCZMA in CRZ areas	Need to get prior permission from the Wetland Management Unit/SWAK, and KCZMA in CRZ areas.
Aquaculture, agriculture and horticulture activities within the wetland boundaries.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland / Wetlands complex boundary	Within the wetland complex	Wetland Management Unit, SWAK, PCB,	Large scale commercial activities need to get prior permission from

Activity	Place a tick mark if relevant	Regulation within wetlands or zone of influence	Level of regulation (in terms of people, restricted area or any other)	Name of department / agency responsible for regulation	Additional information, if any
		<input type="checkbox"/> Zone of influence		KCZMA in CRZ areas	the Wetland Management Unit/SWAK, and KCZMA in CRZ areas.
Silt removal & sand mining	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	Applicable to the wetland complex only	Wetland Management Unit, SWAK, Revenue Department, and KCZMA in CRZ areas	Need to take prior permission from the Wetland Management Unit/SWAK, and KCZMA in CRZ areas.
Any other, please list	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence			

**Section 9: Activities Proposed to be permitted**

Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
	<input type="checkbox"/>	<input type="checkbox"/> Wetland / Wetlands complex boundary <input type="checkbox"/> Zone of influence	

**Section 10: Listing of Available Scientific Resources Used**

1. Kerala State Biodiversity Board, 2018. Impact of Floods/ Landslides on Biodiversity “Assessment of Plant diversity including Aquatic flora, Riparian vegetation etc. in the flood/ Landslides affected areas of Chaliyar, Korapuzha and Kuttiyadi rivers” Final Report Submitted to Kerala State Biodiversity Board
2. Kerala State Biodiversity Board, 2018. Impact of Flood/ Landslides on Biodiversity Community Perspectives <https://ebird.org/hotspot/L2514969>
3. Shilta, M. T., Babu, P. P. S., Asokan, P. K., Vinod, K., Sukumaran, S., Joseph, I., &Abhijith, R, 2022. New Record of Fanged Seabream, *Sparidentex jamalensis* (Perciformes: Sparidae) From Indian Waters. *Thalassas: An International Journal of Marine Sciences*, 38(1), 377-384.
4. Shilta, M. T., Suresh Babu, P. P., Vinod, K., Asokan, P. K., Imelda, J., &Abhijith, R, 2020. Seasonal availability of commercially important fish seeds in estuaries of Kozhikode, Kerala. *Marine Fisheries Information Service; Technical and Extension Series*, (243), 21-25.
5. Subburaj M, Mity Thambi & Mahesh G, 2015. Physico-Chemical Analysis of Korapuzha River and Estuaries: *Journal of Shipping and Ocean Engineering* 5-131-135
6. Vijayakumar, A and Fabiola, M, 2021. Ichthyofaunal Diversity of Korapuzha River, Calicut, Kerala: *Journal of Emerging Technologies and Innovative Research*.

## CHECKLIST

- Responsible agency has been clearly identified and details of contact person included
- Wetland/ wetlands complex boundary has been delineated using GIS and firmed up by adequate ground truthing
- Wetland/ wetlands complex map has been provided at required scale
- Zone of influence has been delineated and included in wetland map or a separate map
- Wetland zone of influence is sufficient to manage all activities
- Site’s importance have been listed, and for major categories, justification is provided
- Site’s biodiversity values are listed, and for major categories, justification is provided
- List of pre-existing rights and privileges is provided
- Consistency or inconsistency of pre-existing rights and privileges is indicated to be best of available knowledge
- Threats to site are listed, and for major categories details are provided

- Activities prohibited, beyond those already listed in Rule 4(2) have been mentioned
- List of activities to be regulated within wetlands and zone of influence is provided
- List of activities to be permitted is provided

**Annexure I :**



**Annexure II :**

