

**Annex 2: Format for preparing Brief Document**

State / Union Territory: GOA

Name and address of person(s) compiling this information CSIR NIO & GSBB

**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)

Cottambi Lake (कोठंबी तळे)

1.2 Name of the Village(s), Municipal area(s)

Village Cottambi, Quepem Taluka, Municipal area

1.3 Name of the District(s) in which wetland complex is located

South Goa

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

Latitude: From 15°14'55.17" N to 15°14'59.43" N

Longitude: From 74°03'23.41" E to 74°03'26.36" E

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

Comunidade of Quepem

**Section 2: Site Characteristics**

2.1 Area of wetland/wetlands category (ha): 1.1 ha

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

Category	Subcategory
<input checked="" type="checkbox"/> Natural(Inland)	<input checked="" 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 flood plain <input type="checkbox"/> Permanent fresh water 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 type="checkbox"/> Natural(Coastal)	<input type="checkbox"/> Coastal lagoon <input type="checkbox"/> Estuary <input type="checkbox"/> Intertidal mud, sand or salt flats <input 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) Maximum 1.82 m

2.4 Elevation(m above mean sea level) 3 m

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)     Circum neutral (5.5–7.4)     Alkaline (>7.4)

Not known

e) Water salinity

Fresh (<0.5g/l)     Brackish (0.5 –30g/l)     Euhaline (30- 40g/l)

Hyper saline(>40g/l)     Not known

f) Nutrient in water

Eutrophic     Mesotrophic     Oligotrophic

Not known

2.6 Climatic setting

- a) Annual Rainfall (mm) 2918mm
- b) Temperature (°C) Minimum 33°C Maximum 20°C
- c) Humidity (%) Minimum 67% Maximum 84%
- 2.7 Area of zone of influence(in ha) 278.5 ha [Ref.paras32-34of the guidelines on wetlands]
- 2.8 Major land use within zone of influence (provide as approximate % of catchment area)

Forests	<u>53</u> %
Plantation	<u>0</u> %
Agriculture	<u>23.6</u> %
Settlements (Rural)	<u>15</u> %
Settlements (Urban)	<u>0</u> %
Industrial	<u>0</u> %

(Detailed LULC of influence zone and 50m buffer is given in Table-I below)

- 2.9 Map of wetland complex and zone of influence

(Enclosed as Annexure I- IV and V as site

photographs to this document)

### **Section 3: Biodiversity**

- 3.1 Notable plant species present in wetland

*Pandanus* sp., *Colocasia esculenta* (Taro plant ), *Salvinia molesta*, *Salvinia minima*

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- 3.2 Notable animal species present in wetland

*Merops philippinus* (Blue tailed bee-eater), *Merops orientalis* (Green bee-eater), *Hirundo smithii* (Wire tailed swallow), *Haliastur Indus* (Brahminy kite), *Ardeola* (Pond heron), *Egretta garzetta* (Little egret), *Anhinga melanogaster* (Oriental darter), *Vanellus indicus* (Red wattled lapwing), Rock pigeon, Catfish, Prawns, *Etroplus* sp.

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

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3.4 Major plant invasive alien species

*Salvinia molesta* and *Salvinia minima*

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3.5 Major animal invasive alien species

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#### 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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Paddy cultivation when the lake water dries partially
Fisheries	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Shrimps, Katava, Crabs, Chikade found in this lake and local people tie a bag net to the sluice gate to collect fish.
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	Water is used for buffalo bathing and wallowing.
Medicinal plants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Pandanus</i> sp.
Is a recreational site	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Buffering communities from extreme events as floods and storms	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	It is vast basin area, stores all the monsoon runoff water which helps buffer the surrounding area from flooding
Groundwater recharge	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	At certain height, water remains throughout the year.
Water purification	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Natural purification of the water takes place as the water body continuously receives percolated water from upstream areas.
Acts as a sink for sediments	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sediment and any excess nutrients from landward side settles in the water body.
Has significant cultural and religious values	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sateri temple located along the periphery of the lake has religious significance.
Is a site for recreation and tourism	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Although, the adjacent Temple may attract local tourists
Supports noteworthy plants species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Pandanus</i> sp.
Supports noteworthy animal species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Anhinga melanogaster</i> (Oriental darter)
Site of high congregation of migratory water birds	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Supports life cycle of fish or amphibians	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Shrimps, Katava, Crabs & Chikade
Mining	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
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 (upto 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 type="checkbox"/> No <input type="checkbox"/> Not assessed	Shrimps, Katava, Crabs & Chikade are harvested by traditional means
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	During dry season, lake partially dries and village people use it for paddy cultivation.
Grazing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	Grazing by buffalos is observed in the surrounding area.
Religious practices	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Sateri temple along the periphery of the water body and Ganesh visarjan
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 checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Local people use the water mainly for agriculture.
Bathing or wallowing of domestic animals	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	For grazing and wallowing of buffalo by the villagers.
Plying of boats	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	
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 checked="" type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	During monsoon, the outflow of water is through sluice gate and the destination of water is Kushawati River.
Pollution	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	
Unsustainable harvest of biological resources	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	
Mining	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	
Siltation	<input type="checkbox"/> High <input checked="" type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	lake needs to be desilted
Encroachment	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	
Spread of invasive species	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" type="checkbox"/> Potential	
Any other, please list	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low	<input type="checkbox"/> Present <input type="checkbox"/> Potential	

## Section 7: Activities Proposed to be Prohibited (other than those listed in Rule 4 (2) of Wetland Rules and Regulated

Activity	Whether prohibited or regulated	Regulation within wetlands or zone of influence	If regulated, indicate the level of regulation (in terms of people, restricted area or any other)	Name of department / agency responsible for regulation / prohibition	Additional information, if any
Withdrawal of water / impoundment/diversion or any other hydrological intervention	Regulated	<input checked="" type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	High	Water Resource Department	Statutory approval required
Harvesting of resources (living / non-living)	Regulated	<input checked="" type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Mid	State Fishery Department	Only traditional activities to continue
Grazing	Regulated	<input checked="" type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Low	State Forest Department	

Discharge of treated sewage/ effluent / wastewater	Prohibited	✓Wetland ✓ Zone of influence	High	State Public Works Department	Statutory national and state legislation applicable
Construction of boat jetties, and facilities for temporary use ,as pontoon bridges	Restricted	✓Wetland ✓ Zone of influence	High	State Public Works Department	Statutory approval required for new activities within the wetland boundaries and buffer
Aquaculture, agriculture and horticulture activities within the wetland boundaries.	Regulated	✓Wetland ✓ Zone of influence	Mid	Fishery, Agriculture & Horticulture Department	Traditional activities may continue
Any other, please list 1. Disposal of solid waste/untreated sewage	Prohibited	✓Wetland ✓ Zone of influence		Panchayat/ Corporation/ Municipality	Approval required for the solid waste management
2. Construction activities	Prohibited	✓Wetland ✓ Zone of influence		Panchayat/ Corporation/ Municipality	Approval required
3. Extraction of soil, mud, rocks for commercial purpose	Prohibited	✓Wetland ✓ Zone of influence		Panchayat/ Corporation/ Municipality	Approval required

### Section 8: Activities Proposed to be permitted

Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
Traditional Agriculture/ Paddy cultivation	✓	✓Wetland ✓ Zone of influence	
Traditional fishery	✓	✓Wetland ✓ Zone of influence	Traditional fishing activities proposed to carry out in the lake
Traditional Religious activities	✓	✓Wetland ✓ Zone of influence	

**Section 9: Listing of Available Scientific Resources Used**

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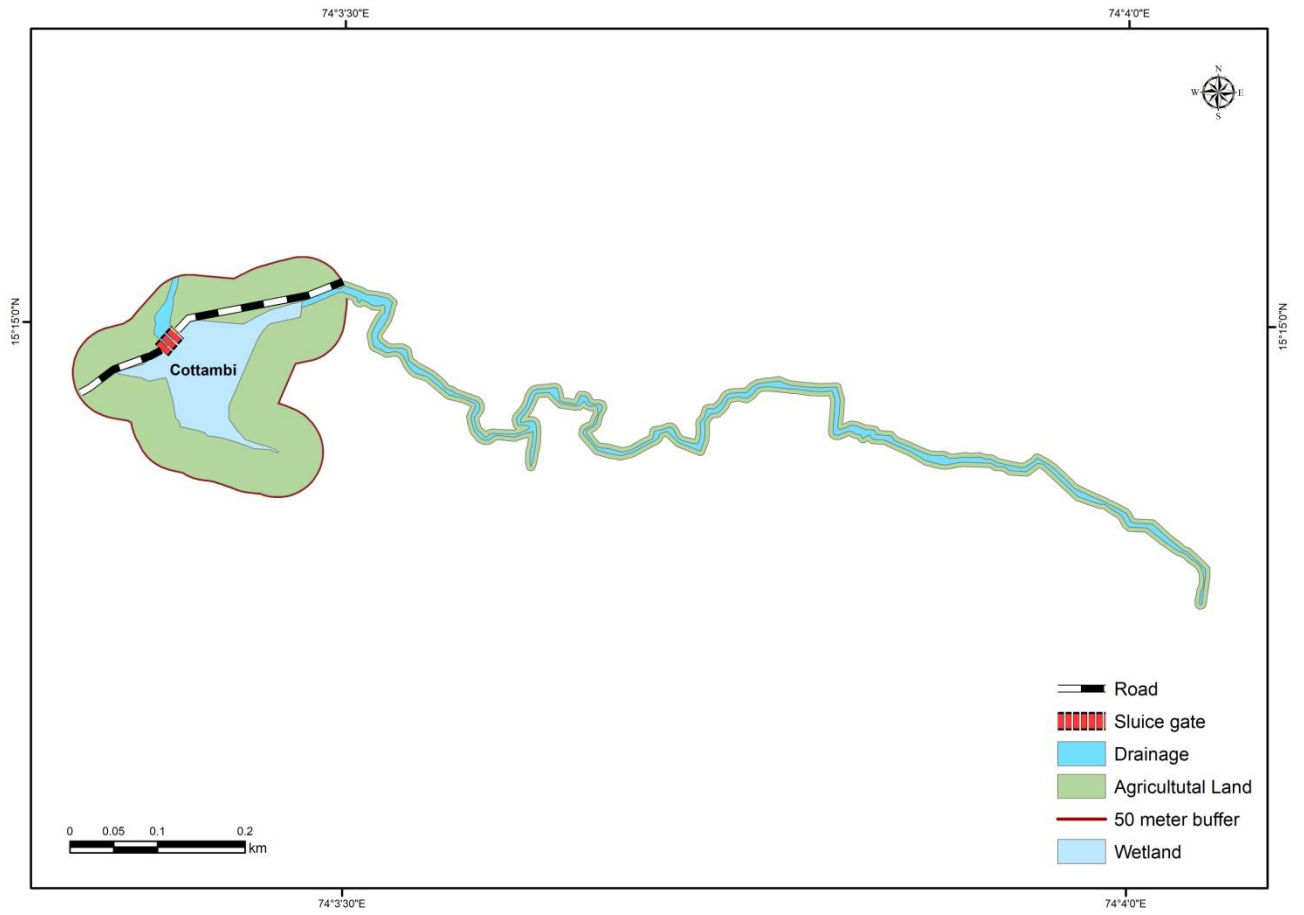
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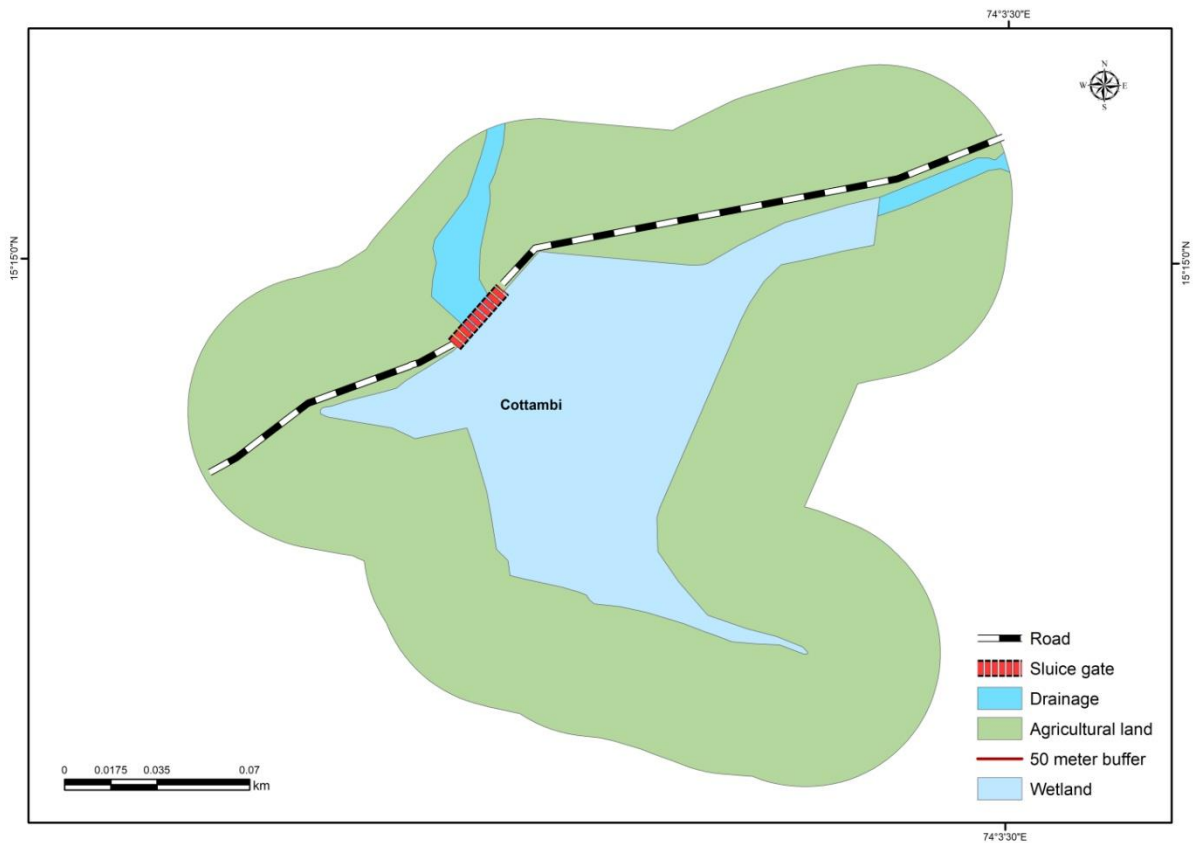
Table-I: Area table of LULC of Cottambi Lake

<b>Cottambi Lake</b>					
<b>Sl.No:</b>	<b>LULC</b>	<b>Influence Zone</b>		<b>50 meter Buffer</b>	
		<b>Area(Hec)</b>	<b>Percentage Area</b>	<b>Area(Hec)</b>	<b>Percentage Area</b>
1	Agricultural land	5.71	100	4.2	100
	<b>Total Area</b>	<b>5.71</b>	<b>100</b>	<b>4.2</b>	<b>100</b>

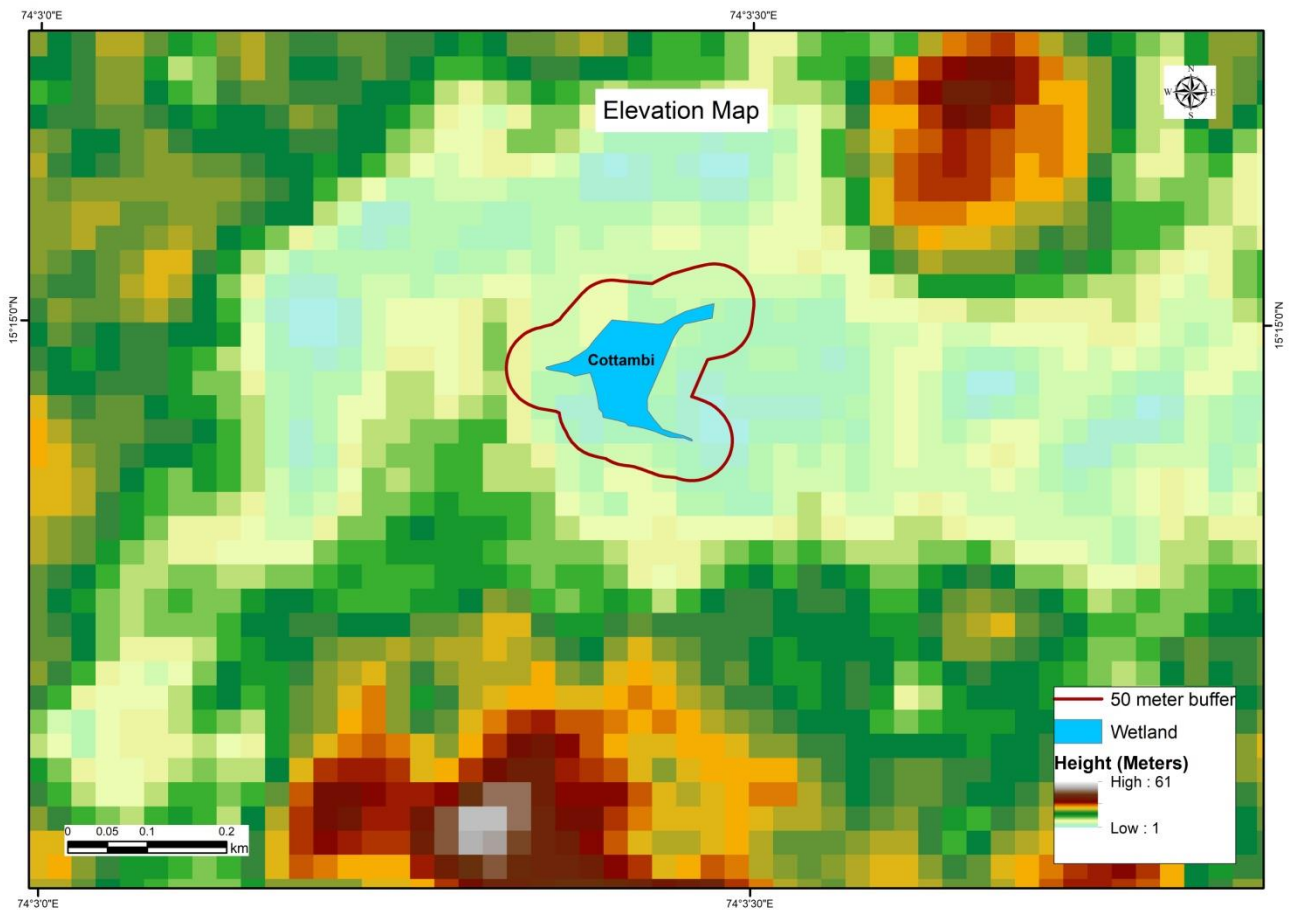
# Annexure-I: LULC of the influence zone of Cottambi Lake



Annexure-II: LULC of 50m buffer of Cottambi Lake



Annexure-III: Elevation (DEM) map of Cottambi Lake





Annexure-V: Google image of Cottambi Lake



Annexure-VI: Site photographs of Cottambi Lake



