

State / Union Territory: Goa

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

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)

Pali Lake (Pali Tollem, पाली तळे)

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

Davorlim-Bicarpalim Village, Salcete taluka

- 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°14'59.86" N to 15°14'49.31" N

Longitude: From 73°59'37.38"E to 73°59'45.31"E

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

Davorlim Village Panchayat, Water Resource Department (WRD)

Section 2: Site Characteristics

- 2.1 Area of wetland/wetlands category (ha): 4.4 ha

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

Category	Subcategory
✓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 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 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 20

2.4 Elevation(m above mean sea level) 29 m

2.5 Water regimes

a) Main source of water (tick all applicable)

☒ Rainfall ☐ Groundwater ☐ Catchment run off ☐ Direct / indirect inflow from river

☒ Others please specify Natural spring

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)

☐ Hypersaline (>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 20°C Maximum 33°C
- c) Humidity (%) Minimum 67% Maximum 84%

2.7 Area of zone of influence(in ha) 29.83 ha [Ref.paras32-34of the guidelines on wetlands]

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

Forests/vegetation	<u>43 %</u>
Plantation	<u>0 %</u>
Agriculture	<u>0.8 %</u>
Settlements (Rural)	<u>0 %</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- V and VI, VII as site
photographs to this document)

Section 3: Biodiversity

3.1 Notable plant species present in wetland

Anacardium occidentale (Cashew tree), *Zizipus* sp., *Acacia* sp., Poaceae (Grass)

3.2 Notable animal species present in wetland

Pavo cristatus (Peacock), *Panthera pardus* (leopard), Cervidae (Deer), *Microcarbo niger* (Little cormorant), *Haliastur Indus* (Brahminy kite), *Vanellus indicus* (Red wattled lapwing), *Milvus migrans* (Black kite), *Alcedo atthis* (Small blue kingfisher), *Crocodylus* sp.(Crocodile), Snakes.

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

Leopard

3.4 Major plant invasive alien species

3.5 Major animal invasive alien species

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	Cultivation of Paddy field
Fisheries	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Traditional fishing is carried out by the local people (eg. Tigur, pitol, crab, prawns)
Cultivation of aquatic food plants	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
For buffalo wallowing and use of domesticated animals	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Medicinal plants	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Medicinal plants like gannari zad, Shivari plant along the periphery of the water body.
Is a recreational site	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Local tourism
Buffering communities from extreme events as floods and storms	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	During monsoon the water body gets flooded and the excess water passes through a drainage wall to the fields.
Groundwater recharge	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	At certain height, the water remains throughout the year
Water purification	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	The water body receives continuous percolated water and because of this natural purification takes place.
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 which act as a sink for sediments.
Has significant cultural and religious values	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Way of the cross takes place during lent
Is a site for recreation and tourism	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Supports local recreation along the water body.
Supports noteworthy plants species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Anacardium occidentale</i> , <i>Zizipus</i> sp
Supports noteworthy animal species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Leopard, deer, crocodile
Site of high congregation of migratory water birds	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Different birds visit during winter
Supports life cycle of fish or amphibians	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Fishes complete their life cycle in the water body
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 checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Traditional fishing is carried out by the local people (eg. Tigur, pitol, crab, prawns)
Fishing under lease from government department	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" 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 checked="" 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 checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	
Agriculture or horticulture within wetland	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Water used to irrigate fields
Grazing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Used by cattle
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	Way of the cross during lent
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	Water goes downstream where it is used for irrigation during April and May
Bathing or wallowing of domestic animals	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Cattle bath in the downstream of water body.
Plying of boats	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	Long time ago on trial basis.
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	
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 checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	
Siltation	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	
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 type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Panchayat	Regulate to benefit farmers. Statutory approval required
Harvesting of resources (living / non-living)	Regulated	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Panchayat	Only traditional activities to continue.
Grazing	Regulated	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Panchayat	

Discharge of treated sewage/ effluent / wastewater	Regulated	✓Wetland <input type="checkbox"/> Zone of influence	High	Panchayat	National and state legislation applicable.
Construction of boat jetties, and facilities for temporary use ,as pontoon bridges	Prohibited	✓Wetland ✓Zone of influence		Panchayat	Statutory approval required for new activities within the wetland boundaries and buffer
Aquaculture, agriculture and horticulture activities within the wetland boundaries.	Regulated	✓Wetland <input type="checkbox"/> Zone of influence	Medium	Panchayat	Traditional activities may continue.
Any other, please list 1. Disposal of solid waste/untreated sewage	Prohibited	✓Wetland <input type="checkbox"/> Zone of influence		Panchayat	Statutory national and state legislation applicable.
2. Construction activities	Prohibited	<input type="checkbox"/> Wetland ✓Zone of influence		Panchayat	Approval required
3. Extraction of soil, mud, rocks for commercial purpose	Prohibited	<input type="checkbox"/> Wetland ✓Zone of influence		Panchayat	Approval required.

Section 8: Activities Proposed to be permitted

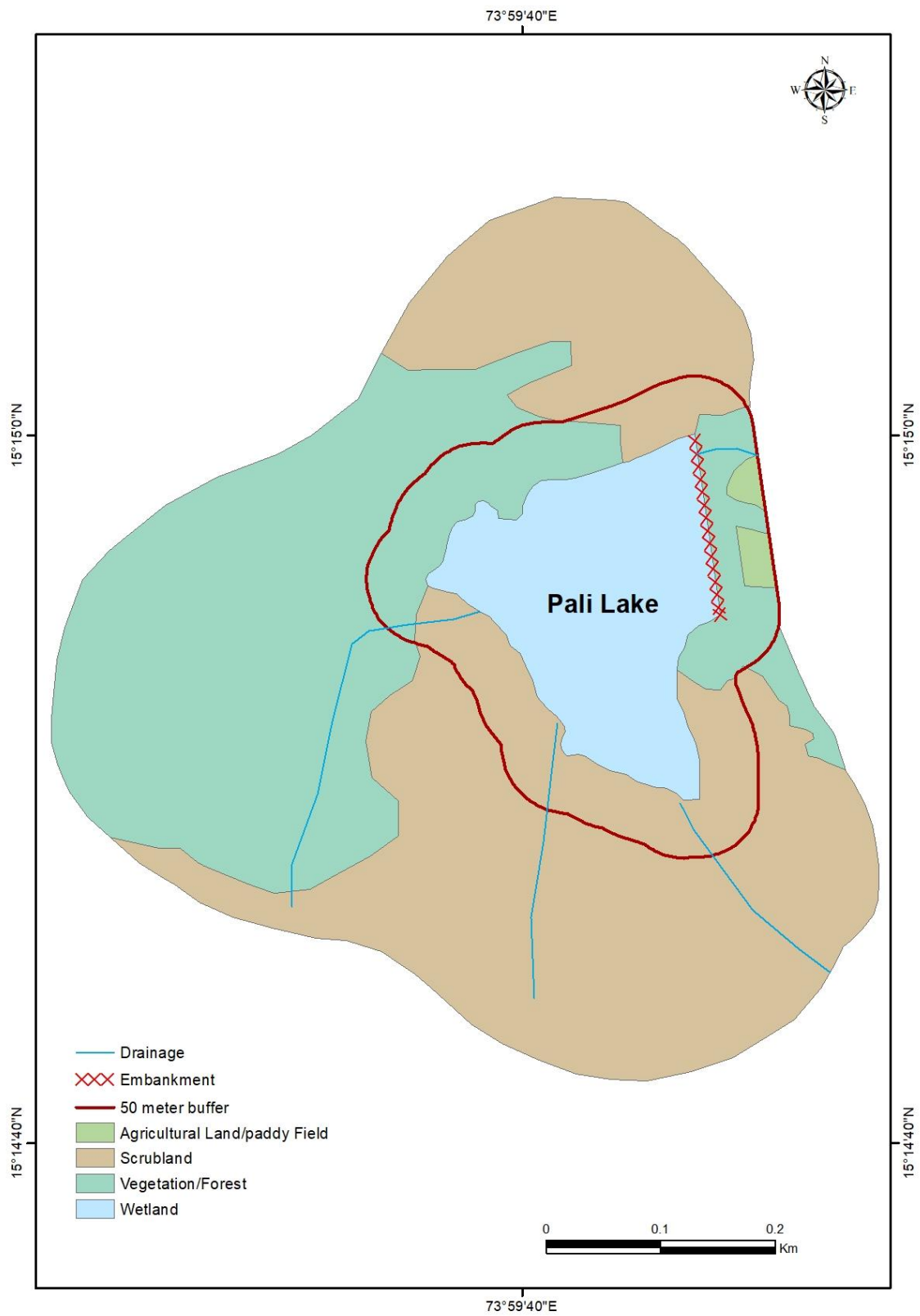
Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
Traditional Agriculture/ Paddy cultivation	✓	<input type="checkbox"/> Wetland ✓Zone of influence	
Traditional fishery	✓	✓Wetland <input type="checkbox"/> Zone of influence	

Section 9: Listing of Available Scientific Resources Used

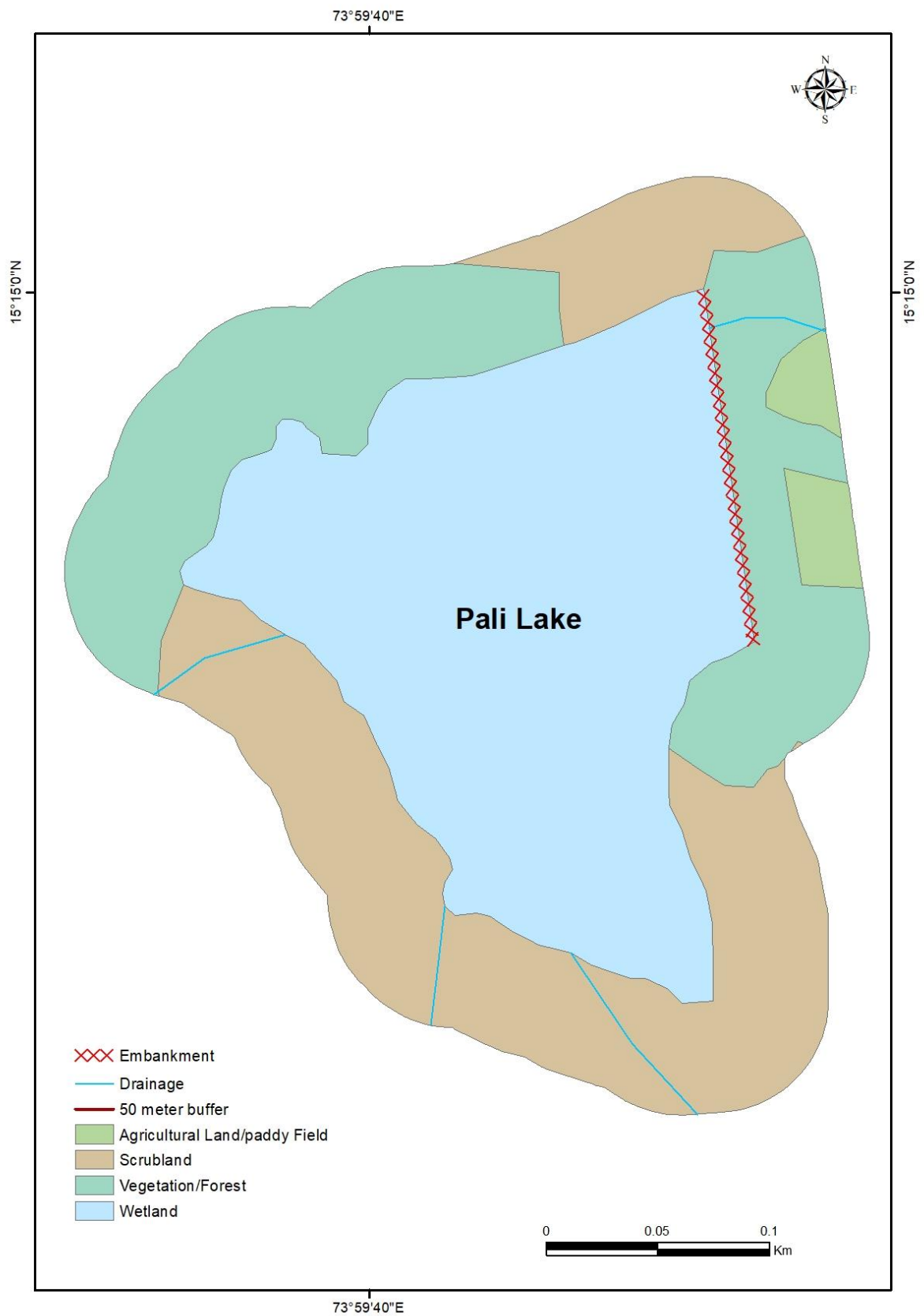
Table-I: LULC of Pali Lake

Pali Lake					
Sl.No:	LULC	Influence Zone		50 meter Buffer	
		Area(Hec)	Percentage Area	Area(Hec)	Percentage Area
1	Agricultural land	0.23	0.8	0.2	3.6
2	Vegetation	12.8	43	2.5	44.6
3	Scrubland	16.8	56.2	2.9	51.8
	Total Area	29.83	100	5.6	100

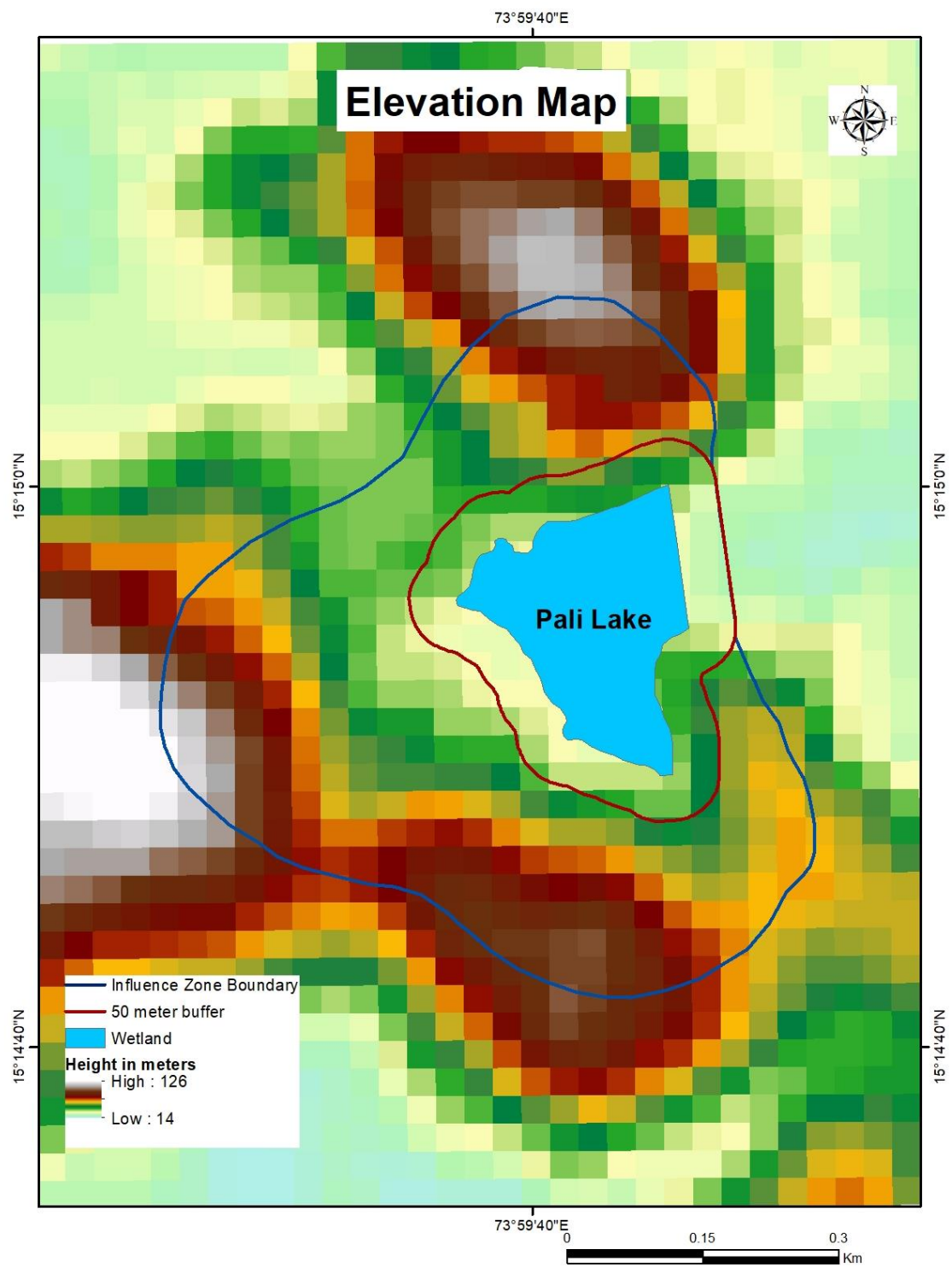
Annexure-I: LULC of the influence zone of Pali Lake



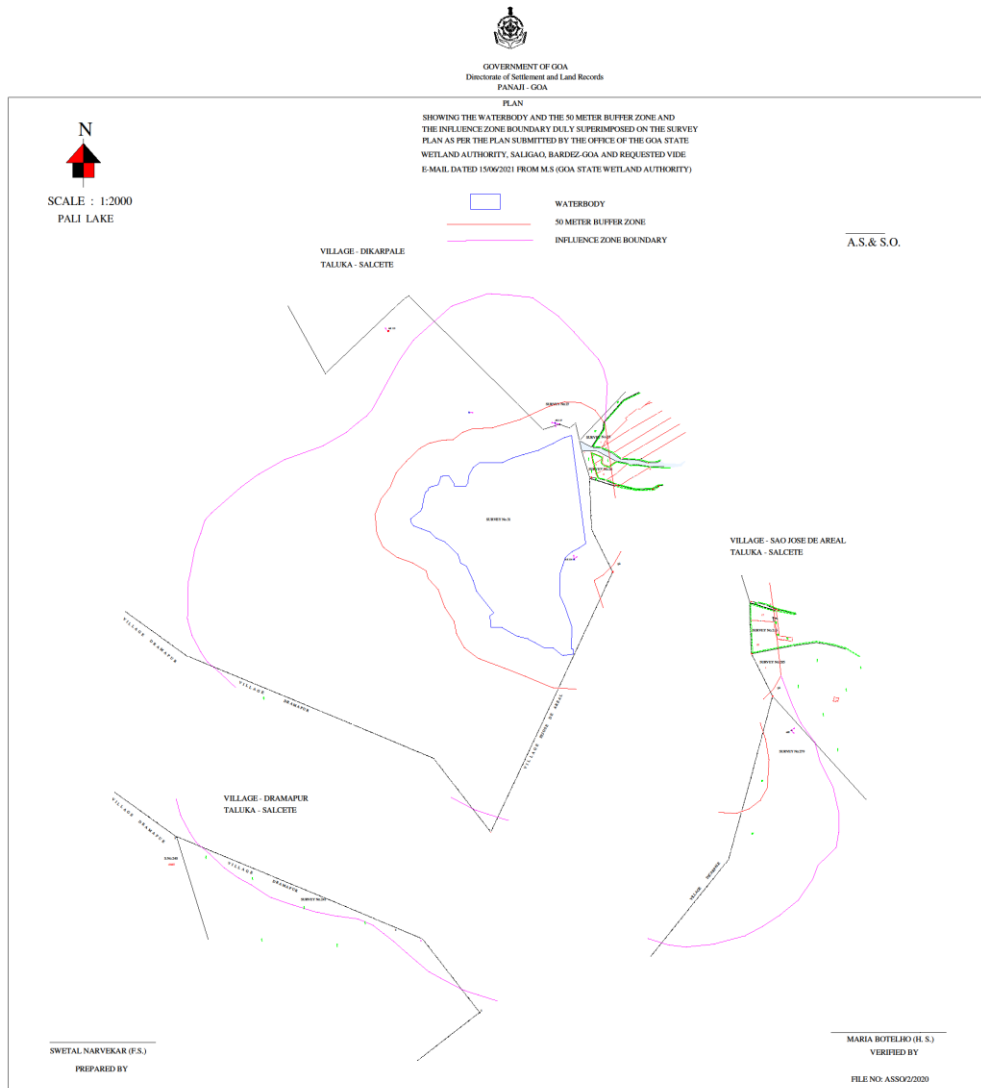
Annexure-II: LULC of 50m buffer of Pali Lake



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



Annexure-IV: Survey map of Pali Lake showing influence zone



Annexure-V: Google image of Pali Lake



Annexure-VI: Site photographs of Pali Lake



Annexure-VII: Diversity of Pali Lake

