

Annex 2: Format for preparing Brief Document

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)

Betal Temple Lake (बेताल देवूळ तळे)

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

Village Querim, Ponda Taluka

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

South Goa

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

Latitude: From 15°27'18.86" N to 15°27'21.43" N

Longitude: From 74°00'06.48" E to 74°00'06.51" E

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

Querim Village Panchayat, Ponda

Section 2: Site Characteristics

2.1 Area of wetland (ha): 0.4 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 3.5

2.4 Elevation(m above mean sea level) 88 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 springs

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) 3.44 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>75.58 %</u>
Plantation	<u>10.7 %</u>
Agriculture	<u>0 %</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 as site
photographs to this document)

Section 3: Biodiversity

3.1 Notable plant species present in wetland

Reeds green algae, *Nymphaea* sp. (Water lily)

3.2 Notable animal species present in wetland

Egretta garzetta (Little egret), *Microcarbo niger* (little cormorant), *Dendrocygna javanica*
(lesser whistling duck), *Alcedo atthis* (small blue kingfisher)

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

May be identified from validated PBR

3.4 Major plant invasive alien species

None

3.5 Major animal invasive alien species

None

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	Used to water plantation(Kulhaghar)
Fisheries	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Only in monsoon hook and line fishing is done
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	Used by cattle for wallowing
Medicinal plants	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
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	Acts as a large reservoir for runoff water protecting the surrounding from possible floods
Groundwater recharge	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	At certain level, standing 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. Provides de-silting, settling of silt from rainwater runoff
Acts as a sink for sediments	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Has significant cultural and religious values	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sangoda(Sateri Devi) Palki
Is a site for recreation and tourism	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Supports noteworthy plants species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Nymphaea</i> sp.
Supports noteworthy animal species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Egretta garzetta</i> , <i>Microcarbo niger</i> , <i>Dendrocygna javanica</i> , <i>Alcedo atthis</i>
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	Supports life cycle of small fishes
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	
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	
Grazing	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	
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	Satteri devi palki
Withdrawal of water for domestic use	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" 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	Used for arecanut plantation
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	Used for buffalo wallowing
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 checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	Outflow has changed 15 years ago causing flooding of surrounding areas
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 type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input type="checkbox"/> Present <input checked="" 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	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Controlled by locals/ Panchayat	Withdrawal controlled by locals
Harvesting of resources (living / non-living)	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Low	Controlled by locals	Only traditional activities to continue
Grazing	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Village Panchayat	
Discharge of treated sewage/ effluent / wastewater	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	High	Village Panchayat	Statutory national and state legislation applicable

Construction of boat jetties, and facilities for temporary use ,as pontoon bridges	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Village Panchayat	Statutory national and state legislation applicable
Aquaculture, agriculture and horticulture activities within the wetland boundaries.	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Agriculture/ Fishery Department	Was done earlier in monsoon
Encroachment	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Village panchayat	Statutory national and state legislation applicable.
Poaching	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Forest Department	Statutory national and state legislation applicable.
Any other, please list	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Village Panchayat	Statutory national and state legislation applicable
1. Disposal of solid waste/untreated sewage	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Village Panchayat	Statutory national and state legislation applicable
2. Construction/ development activities (for all purposes)	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Water Resource Department/ Panchayat	Statutory national and state legislation applicable
3. Extraction of soil, mud, rocks for commercial purpose	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Village Panchayat	Statutory national and state legislation applicable

Section 8: Activities Proposed to be permitted

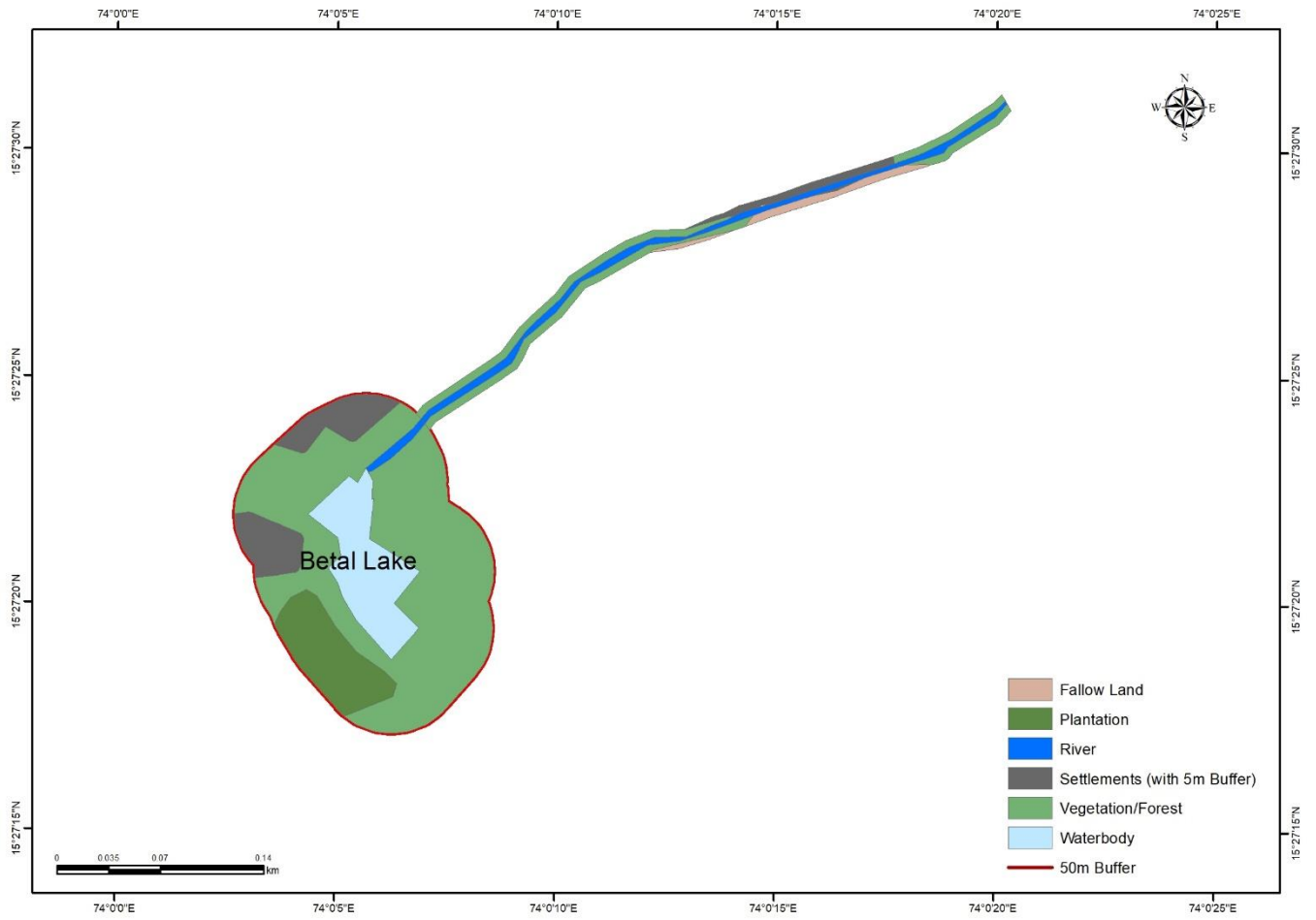
Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
Traditional fishery	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence	
Traditional Religious activities	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Shantadurga Devi zatra and sangod to continue

Section 9: Listing of Available Scientific Resources Used

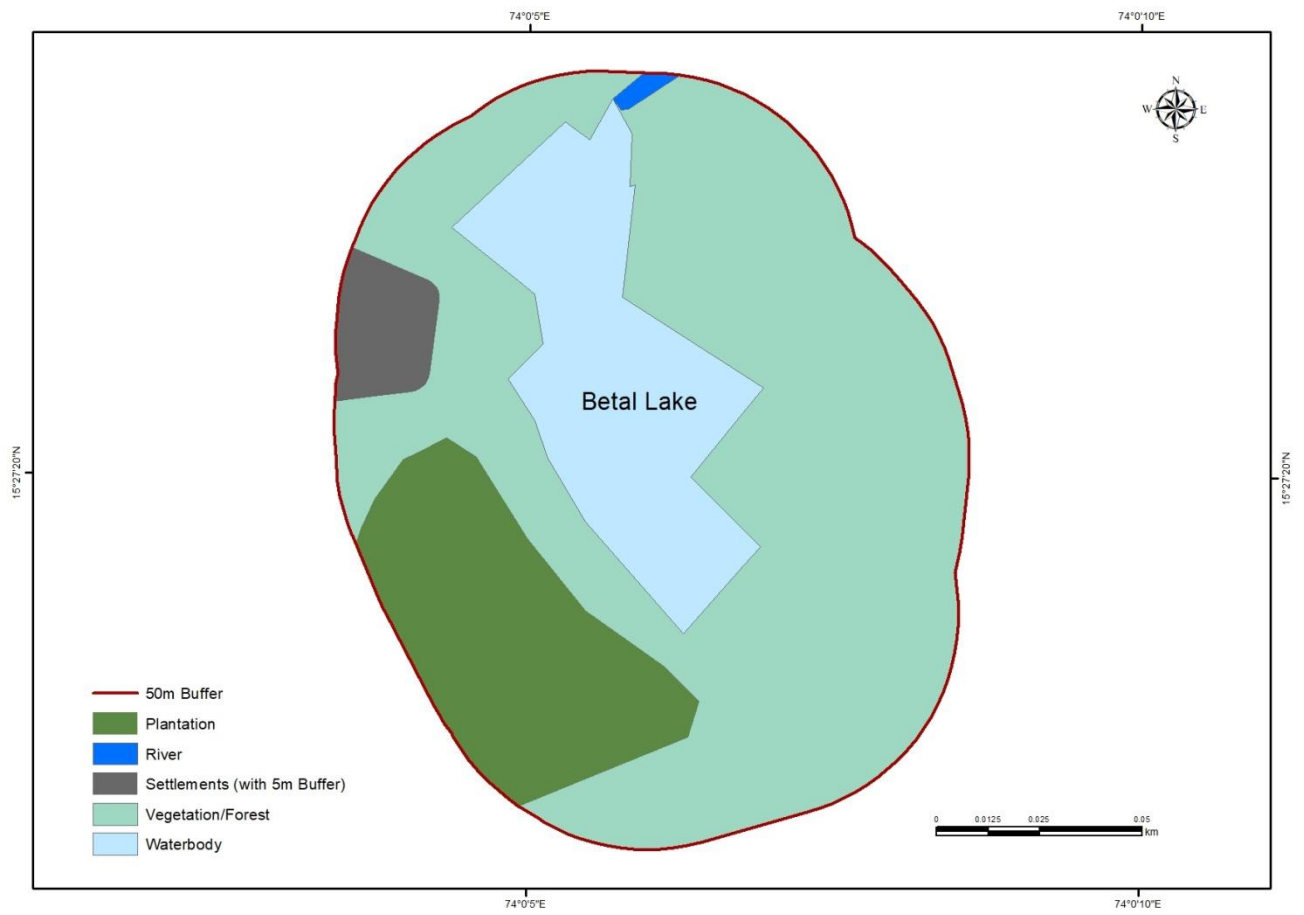
Table-I: Area table of Betal Temple Lake

Betal Temple Lake					
Sl:No:	LULC	Influence Zone		50 meter Buffer	
		Area(Hec)	Percentage Area	Area(Hec)	Percentage Area
1	Plantation	0.37	10.76	0.37	17.05
2	Vegetation	2.6	75.58	1.4	64.52
3	Fallow land	0.07	2.03	0	0.00
4	Betal temple waterbody	0.4	11.63	0.4	18.43
	Total Area	3.44	100	2.17	100

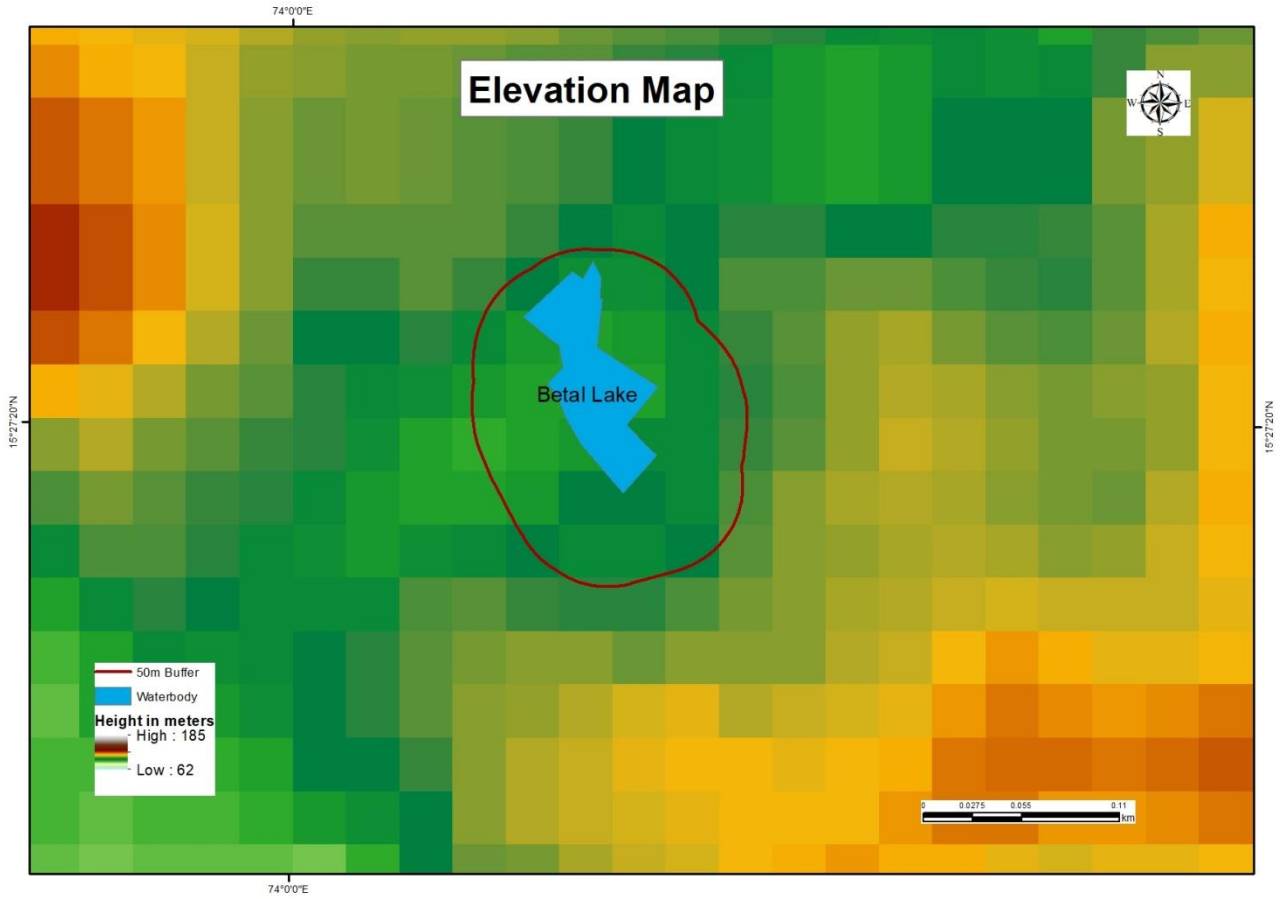
Annexure-I: LULC of the influence zone of Betal temple Lake



Annexure-II: LULC of 50m buffer of Betal temple Lake



Annexure-III: Elevation (DEM) of Betal temple Lake



Annexure-IV: Survey map of Betal temple Lake

Annexure-V: Google image of Betal temple Lake



Annexure-VI: Site Photographs of Betal temple Lake

