

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)

Toyyar Lake (Toyyar Tollem, तोयार तळे)

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

Village Chimbel, Tiswadi Taluka

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

North Goa

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

Latitude: From 15^o29'10.85"N to 15^o29'14.76"N

Longitude: From 73^o53'07.09"E to 73^o53'13.91"E

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

Chimbel Village Panchayat and Water Resource Department (WRD).

Section 2: Site Characteristics

2.1 Area of wetland/wetlands category (ha) 1.55 ha

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

Category	Subcategory
✓Natural(Inland)	✓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 20m

2.4 Elevation (above mean sea level) 52 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 Natural springs, open wells at the bottom

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) 2918 mm
- b) Temperature(°C) Minimum 33°C Maximum 20°C
- c) Humidity (%) Minimum 67% Maximum 84%

2.7 Area of zone of influence(in ha) 26.31 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 61.95 %

Plantation 0 %

Agriculture 0 %

Settlements (Rural) 0 %

Settlements (Urban) 0 %

Industrial 0 %

(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 with site photographs to this Document)

Section 3: Biodiversity

3.1 Notable plant species present in wetland

Lantana camara,

Acacia sp.

3.2 Notable animal species present in wetland

Sus scrofa (Wild boar), *Indian crested porcupine*, *Gallus gallus*(red jungle fowl), *Pavo cristatus* (Peacocks), *Ciconia episcopus* (Wolly-necked stork) *Sturnia pagodarum* (Brahmini starling) *Phalacrocorax fuscicollis* (Indian cormorant) *Ardea purpurea* (Purple heron) *Bubulcus ibis* (Cattle egret), *Milvus migrans* (Black kite) *Corvus splendens* (House crow) *Tachybaptus ruficollis* (Little grebe) *Columba livia* (Rock pigeon) *Centropus sinensis* (Greater coucal) *Eudynamis scolopaceus* (Asian koel) *Porphyrio poliocephalus* (Grey headed swamphen) *Amaurornis phoenicurus* (White breasted waterhen) *Vanellus indicus* (Red wattled lapwing) *Metopidius indicus* (Bronze winged

jacana) *Microcabo niger* (Little cormorant) *Halistur indus* (Brahminy kite), *Alcedo atthis* (Common kingfisher) *Merops orientalis* (Green bee eater) Fresh water terrapin

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

Ciconia episcopus (Wolly-necked stork).

3.4 Major plant invasive alien species

Lantana camara and *Acacia* sp.

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	For cultivation of vegetables and paddy.
Fisheries	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Commercial Fishing done by local village people by hook and line fishing, fishes like Tigr, Tilapia, Guppies, Pittol are found in this lake.
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	Lake water is used for the buffalo bathing and 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	During monsoon, flooding occurs due to heavy rainfall and the water passes through the canal to paddy field.
Groundwater recharge	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	At certain height, water remains throughout the year and the lake is fed by natural springs.
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.
Acts as a sink for sediments	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sediment and any excess nutrients from surface runoff settles in the water body.
Has significant cultural and religious values	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
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>Lantana camara</i> , <i>Acacia</i> sp.
Supports noteworthy animal species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Ciconia episcopus</i> (Wolly-necked stork). <i>Sus scrofa</i> (Wild boar). Indian crested porcupine <i>Gallus gallus</i> (Red jungle fowl).
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	Tigr, Tilapia, Pittol, Guppies are found in the lake and amphibians.
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 carried out commercially by local village people.
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not assessed	
Grazing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Water body is used for grazing of buffalo.
Religious practices	<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 domestic use	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Lake water is used by the local people for the domestic use.
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	Agriculture mainly for paddy fields and vegetables downstream
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 village people.
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	
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 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 checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	<i>Lantana camara</i> and <i>Acacia</i> sp.
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	Regulated	✓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	Prohibited	✓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	High	Panchayat/ Corporation/ Municipality	Statutory national and state legislation applicable
2. Construction activities	Prohibited	✓Wetland ✓Zone of influence	High	Panchayat/ Corporation/ Municipality	Approval required
3. Extraction of soil, mud, rocks for commercial purpose	Prohibited	✓Wetland ✓Zone of influence	High	Panchayat/ Corporation/ Municipality	Approval required

Section 8: Activities Proposed to be permitted

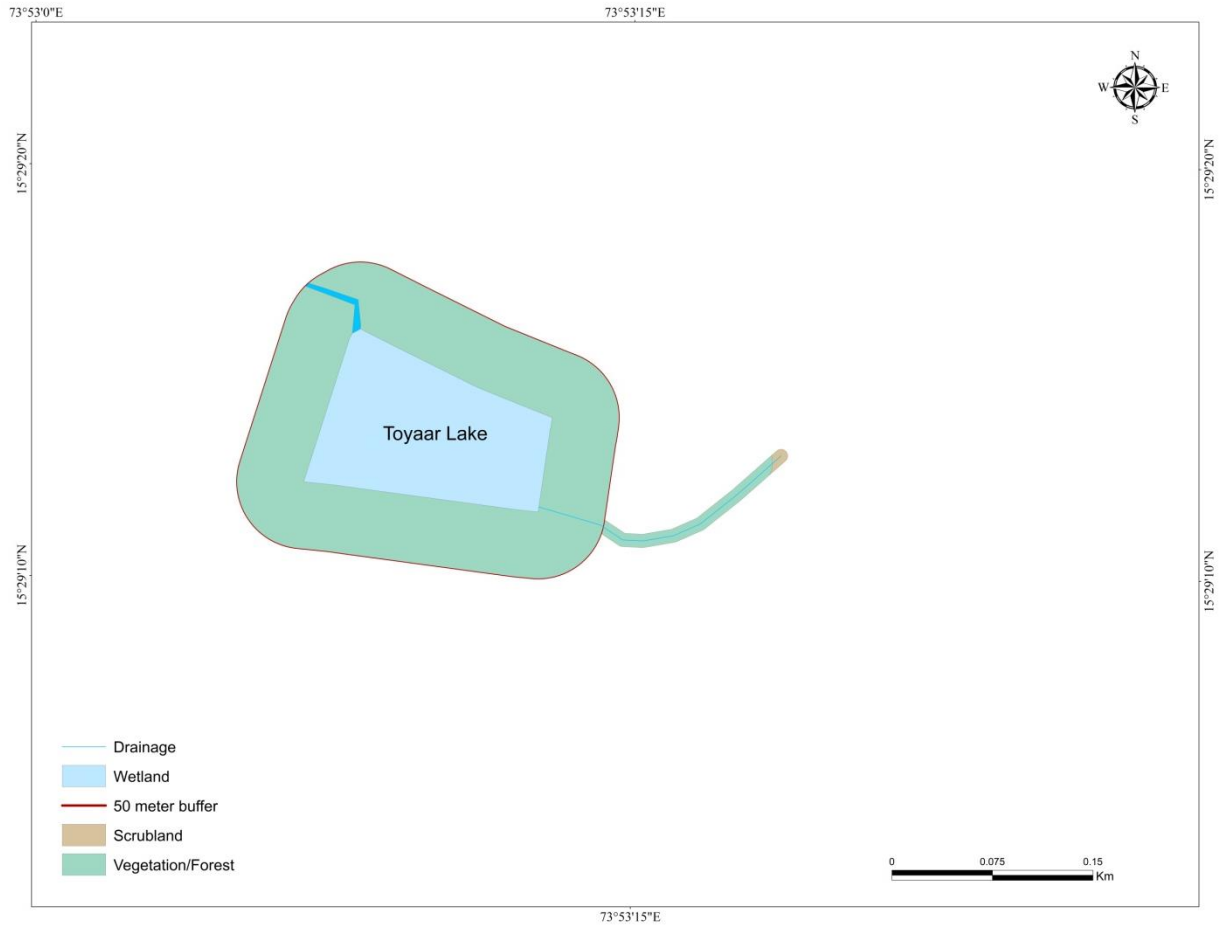
Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
Traditional Agriculture/ Paddy cultivation	✓	✓Wetland ✓Zone of influence	
Traditional fishery	✓	✓Wetland ✓Zone of influence	By local village people
Traditional Religious activities	✓	✓Wetland ✓Zone of influence	

Section 9: Listing of Available Scientific Resources Used

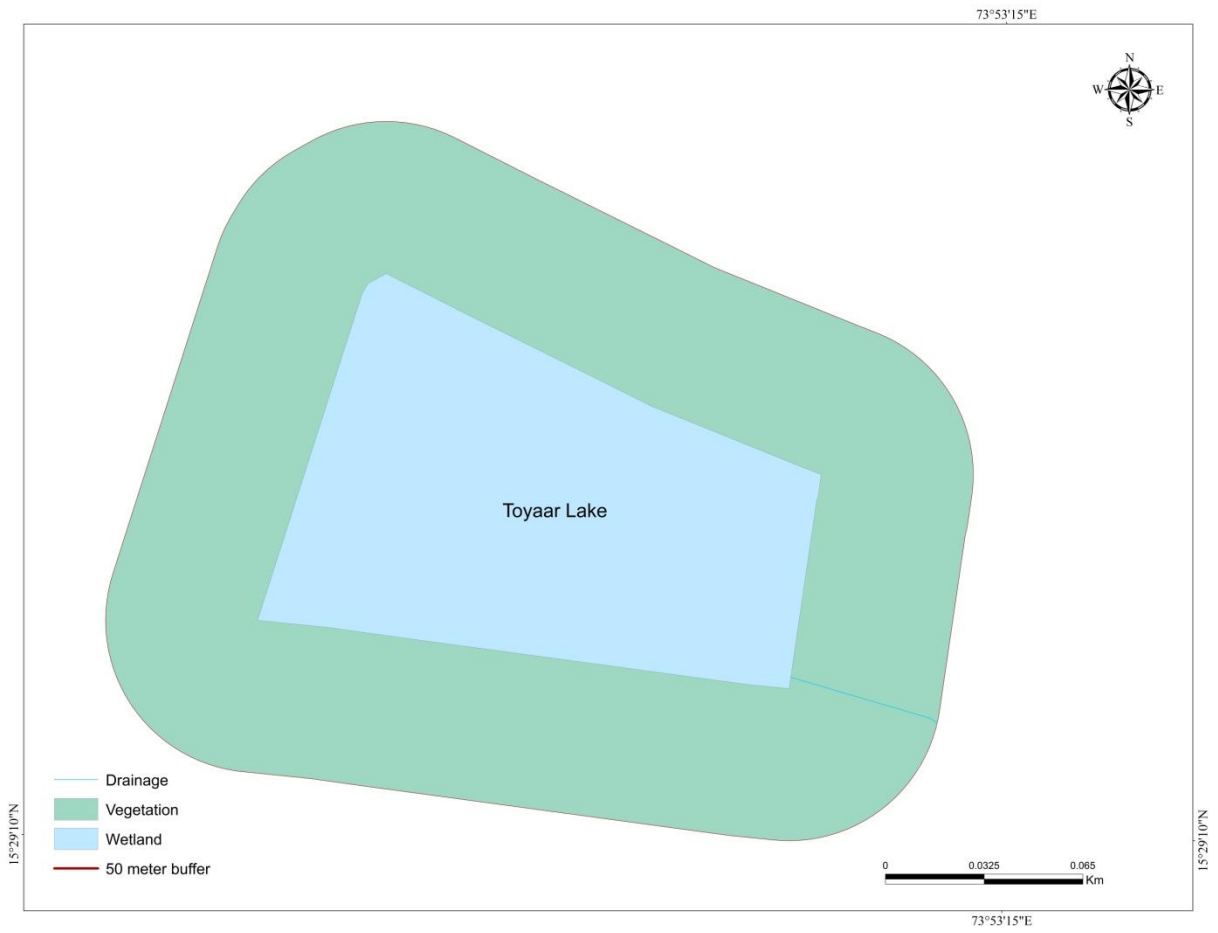
Table-I: Area table of LULC of Toyaar Lake

Toyaar Lake					
Sl.No:	LULC	Influence Zone		50 meter Buffer	
		Area(Hec)	Percentage Area	Area(Hec)	Percentage Area
1	Vegetation	3.59	100	3.43	100
	Total Area	3.59	100	3.43	100

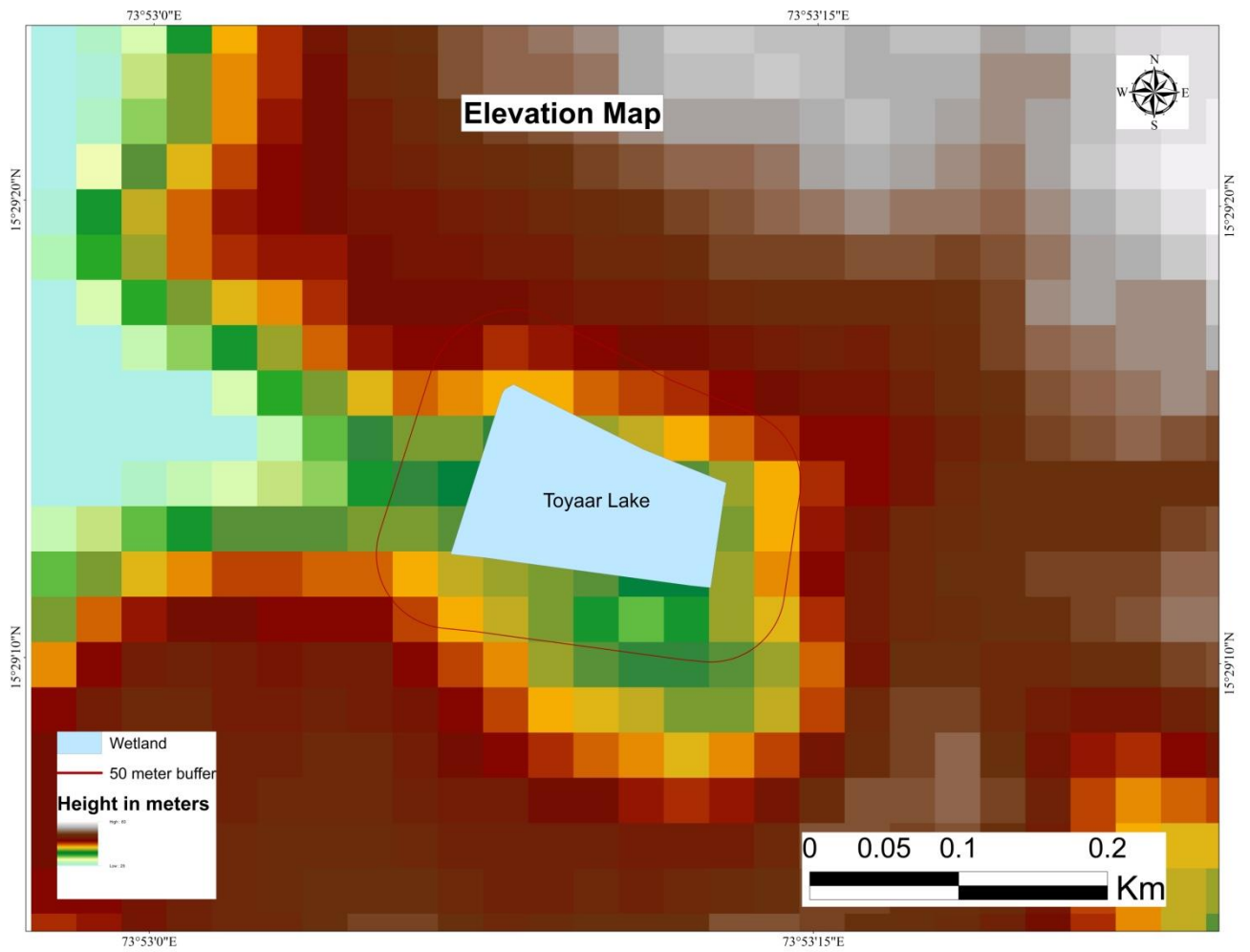
Annexure-I: LULC of the influence zone with elevation Contour of Toyaar Lake



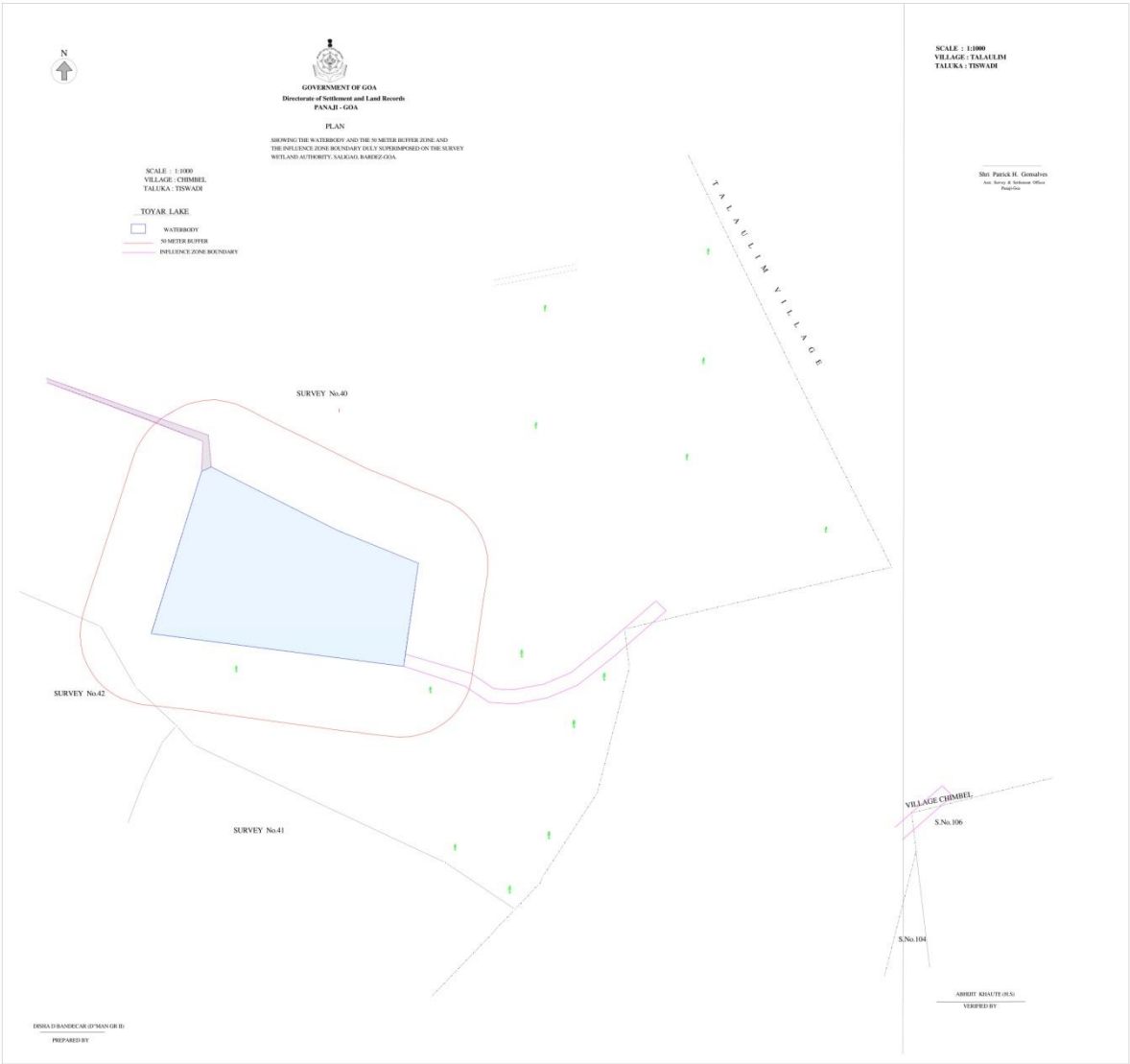
Annexure-II: LULC of 50m buffer of Toyaar Lake



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



Annexure-IV: Survey map of Toyaar Lake showing influence Zone



Annexure-V: Google map of Toyaar Lake



Annexure-VI: Site photographs of Toyaar lake



