

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)

Tarvale Lake (Moingal Lake- मोईंगल तळे)

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

Village Shiroda, Taluka Ponda

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°20'35.02" N to 15°20'29.22" N

Longitude: From 74°01'06.20"E to 74°01'11.47" E

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

Water Resource Department (WRD)

Section 2: Site Characteristics

2.1 Area of wetland (ha): 0.3 ha

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

Category	Subcategory
<input checked="" type="checkbox"/> Natural(Inland)	<input type="checkbox"/> Permanent lakes <input checked="" 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 5

2.4 Elevation(m above mean sea level) 12

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) 9.47 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 64.41 %

Plantation 24.6 %

Agriculture 8.46 %

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 Annex I - V and VI with site photographs to this document)

Section 3: Biodiversity

3.1 Notable plant species present in wetland

Arecanut(*Areca catechu*), Coconut(*Cocos nucifera*)

3.2 Notable animal species present in wetland

May be identified from the validated PBR

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

May be identified from the 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	Water is used for paddy field, arecanut and coconut plantation.
Fisheries	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
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	Cattle and buffalo from farm can go inside the wetland for bathing.
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 type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Groundwater recharge	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	It helps in replenish the ground water levels.
Water purification	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Filtering of water and at certain height, water remains throughout the year.
Acts as a sink for sediments	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Heavy sediment deposition in the water body and natural purification of the water takes place as the water body continuously receives percolated water.
Has significant cultural and religious values	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Ganapati visarjan was taking place earlier but this has not been carried out recently.
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	Water lilly(<i>Nymphaea</i> sp.)
Supports noteworthy animal species	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Meru, Wild boar
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	It supports life cycle of sungat, tiggur, shiggur, pitol, volayu.
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 checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	There is a small area in the wetland which is used for arecanut and is surrounded with boundaries.
Grazing	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Not assessed	Cattles graze along the periphery of the water body.
Religious practices	<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 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	Water is only used 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	Domestic animals enter the water body for bathing purpose.
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 type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	
Pollution	<input type="checkbox"/> High <input type="checkbox"/> Medium <input checked="" type="checkbox"/> Low	<input checked="" type="checkbox"/> Present <input 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 checked="" type="checkbox"/> Present <input type="checkbox"/> Potential	Desilting is proposed for this wetland.
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	Water Resource Department (WRD)	Statutory approval required
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			
Grazing	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence	Medium	Animal husbandry	
Discharge of treated sewage/ effluent / wastewater	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Goa waste management corporation	Statutory national and state legislation applicable.

Construction of boat jetties, and facilities for temporary use ,as pontoon bridges	<input checked="" type="checkbox"/> Regulated <input type="checkbox"/> Prohibited	<input type="checkbox"/> Wetland <input checked="" type="checkbox"/> Zone of influence			
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	Fisheries, Agriculture Department, Panchayat	Permission from authorities. Traditional activities may continue.
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 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		Goa waste management corporation	Statutory national and state legislation applicable.
2. Construction / development activities (for any purpose)	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Village panchayat	Approval required in zone of influence
3. Extraction of soil, mud, rocks for commercial purpose	<input type="checkbox"/> Regulated <input checked="" type="checkbox"/> Prohibited	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence		Village panchayat	Approval required

Section 8: Activities Proposed to be permitted

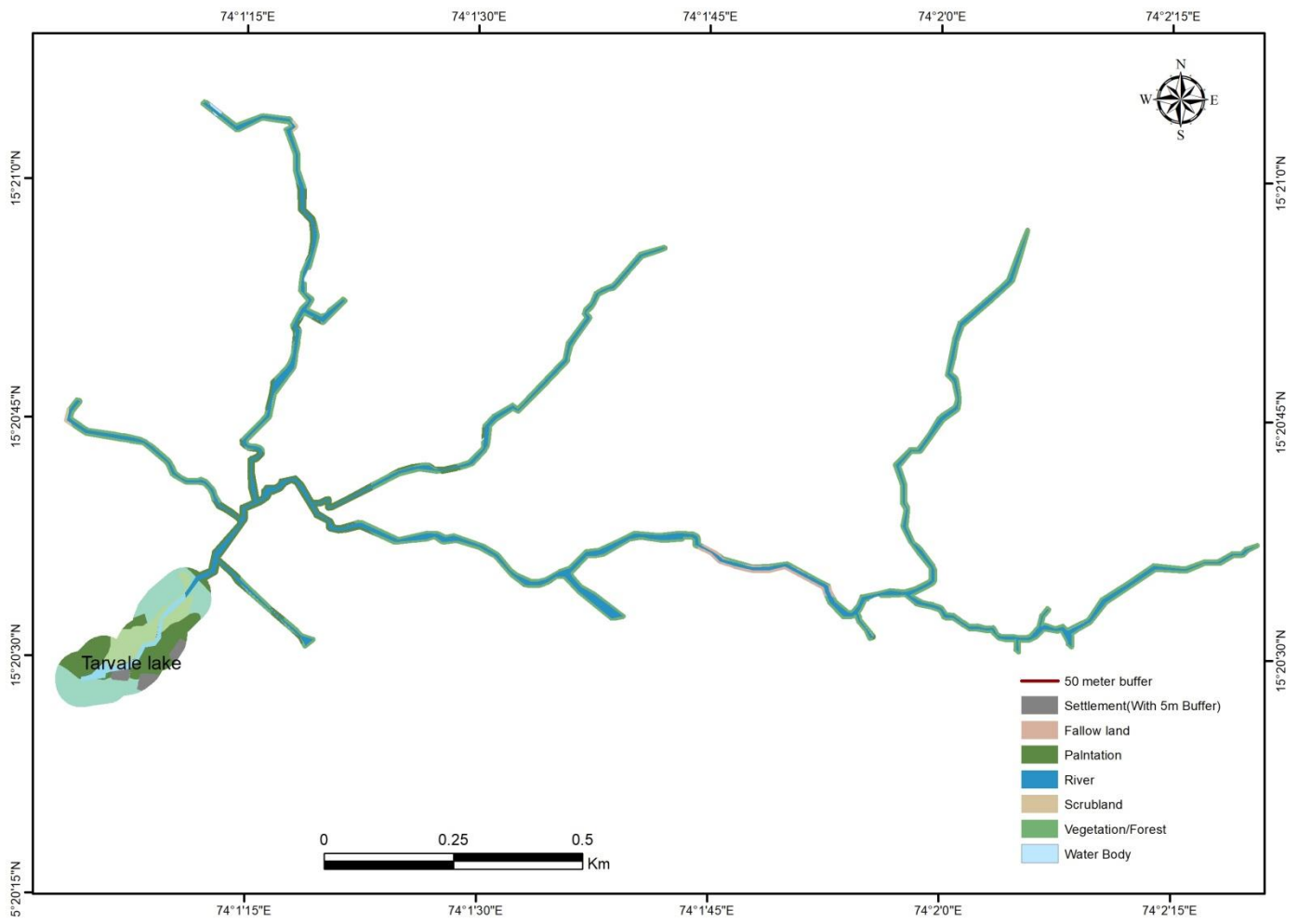
Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
Traditional Agriculture/ Paddy cultivation	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Wetland <input type="checkbox"/> Zone of influence	

Section 9: Listing of Available Scientific Resources Used

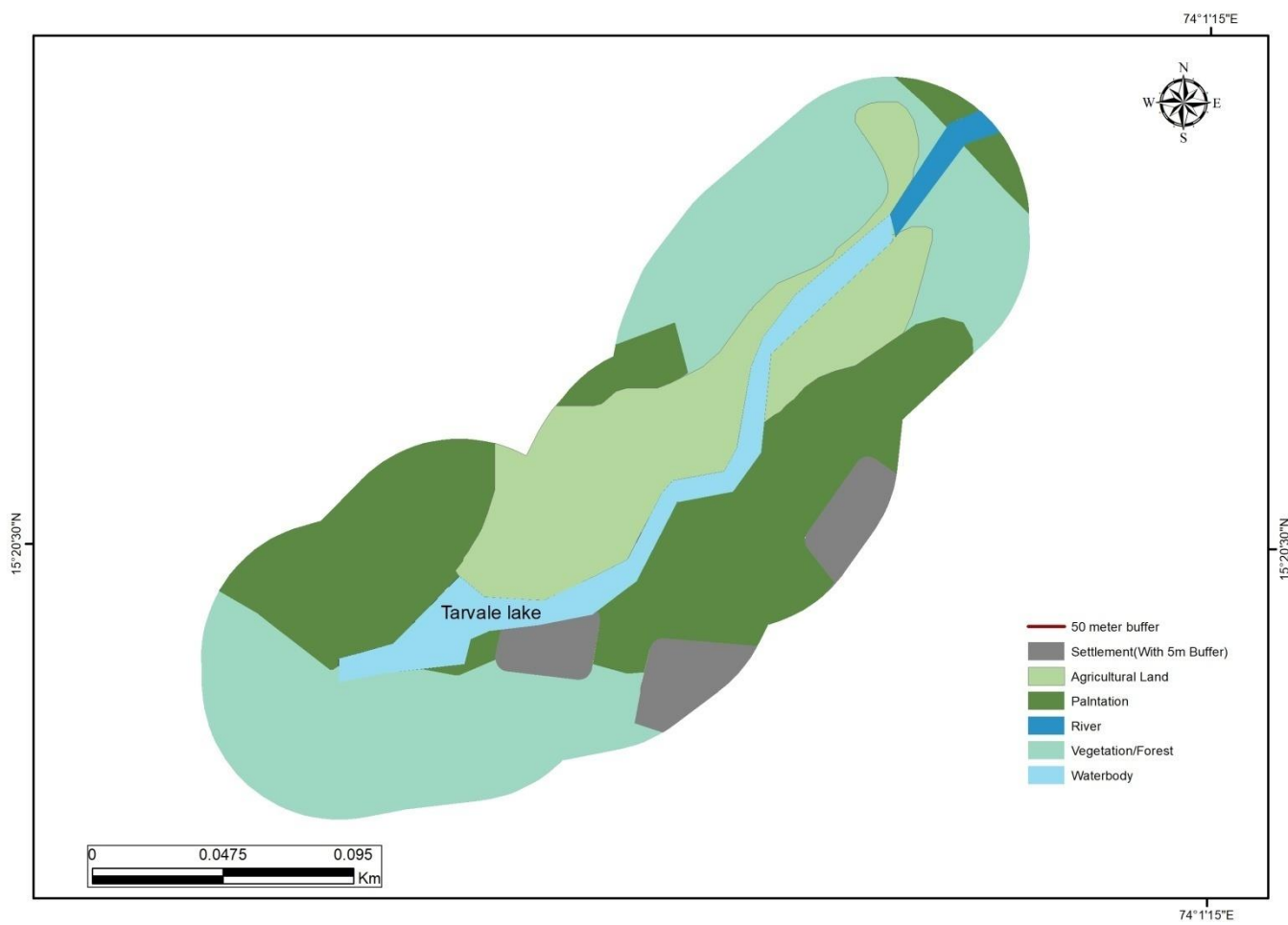
Table-I: LULC of Tarvale Lake

Tarvale Lake					
Sl:No:	LULC	Influence Zone		50 meter Buffer	
		Area(Hec)	Percentage Area	Area(Hec)	Percentage Area
1	Plantation	2.33	24.6	1.2	34
2	Vegetation	6.1	64.41	1.5	43
3	Scrubland	0.04	0.42	0	0
4	Fallowland	0.2	2.11	0	0
5	Agricultural land/ Paddy Field	0.8	8.46	0.8	23
	Total Area	9.47	100	3.5	100

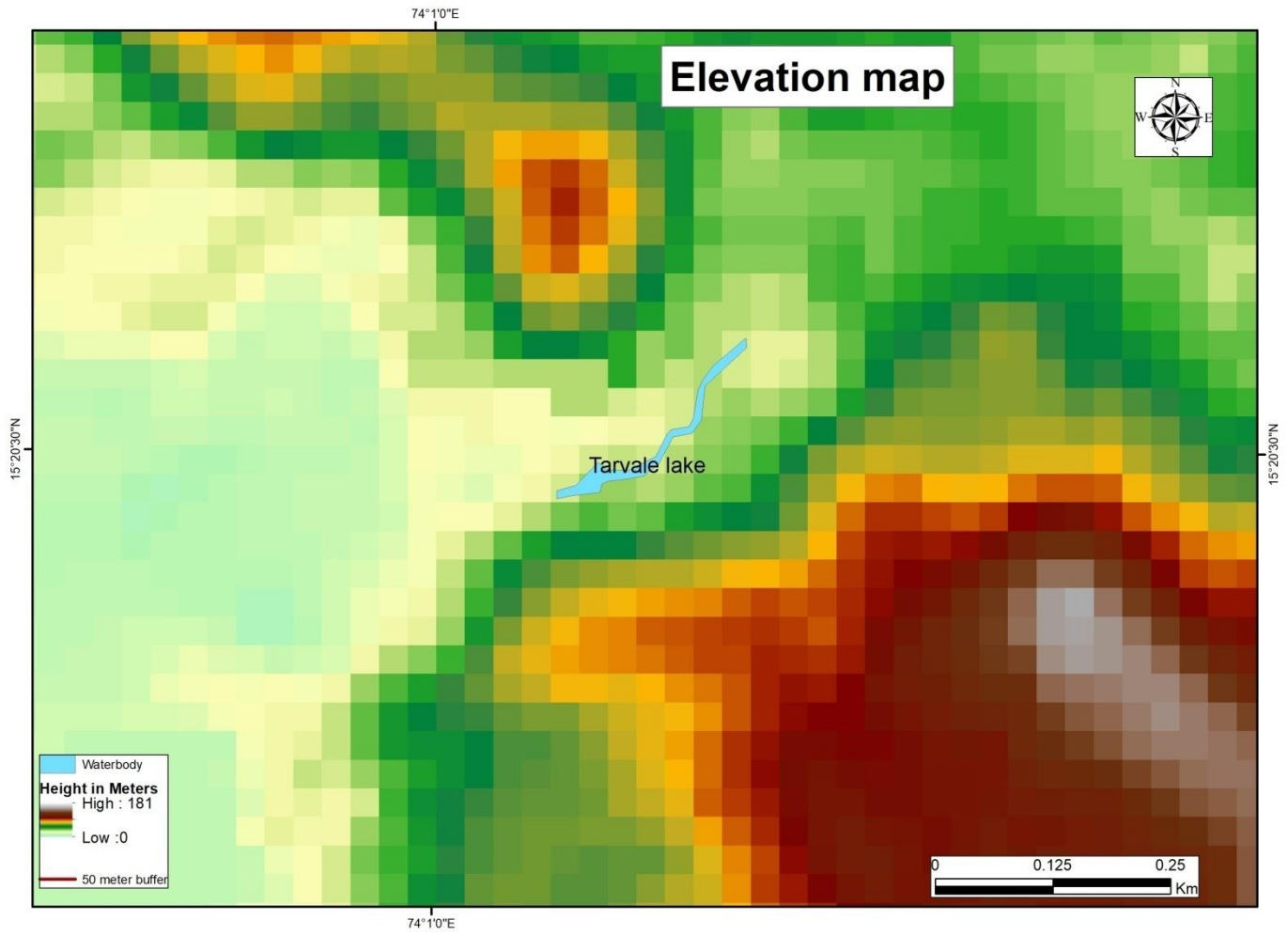
Annexure-I: LULC of the influence zone of Tarvale Lake



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



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



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

Annexure-V: Google image of Tarvale Lake



Annexure-VI: Site photographs of Tarvale Lake

