Annex 2: Format for preparing Brief Document

Excel code: 53

State / Union Territory:			Goa			
Nam	e and address of person ((s) compiling this information	CSIR- NIO & GSBB			
Secti	ion 1: Identification, Loc	ation and Jurisdiction				
1.1	Nameof theWetland (Alternative names, including in local language should be given in parenthes is after official name) Bondvol Lake (बॉण्डवोलतळे)					
1.2	Name of the Village(s)	, Municipal area(s)				
	Village Santacruz, Talu	ık Tiswadi				
1.3		in which wetland is located				
	North Goa					
1.4		res (Latitude and Longitude, to deg 7.28" Nto15 ⁰ 27'49.77" N	gree, minutes and second)			
	Lantude: From 13 2/3	7.28 Nt013 27 49.77 N				
	Longitude:From 73°50′	17.55"Eto73°50'30.74"E				
1.5	Name of the Departmen	nt/Agency which has jurisdiction of	over the wetland			
	Water Resource Depart	ment (WRD), Government of Goo	a, maintains the area.			
Secti	ion 2: Site Characteristic	s				
2.1	Area of wetland(ha):	<u>8 ha</u>				
2.2	Wetland type (Please tick appropriate categories and sub-categories)					
	Category	Subcategory				
	□Natural(Inland)	✓ Permanent lakes ☐ Seasonal/intermittent lak ☐ Permanent streams/creek ☐ Seasonal/ intermittent str ☐ Oxbow ☐ River floodplain ☐ Permanent freshwater ma	s eams/creeks			

☐ Seasonal/ intermittent freshwater marshes

☐ Karst and other subterranean hydrological systems

☐ Shrub-dominated wetlands☐ Tree-dominated wetlands☐ Geothermal wetlands

☐ Natural(Coast	☐ Coastal lagoon
al)	☐ Estuary
	☐ Intertidal mud, sand or salt flats
	☐ Mangroves
	☐ Coral reefs
✓Human-made	✓ Aquaculture pond
	☐ Tank
	☐ Saltpan
	☐ Dam /Reservoir

2.3	Depth (m) Maximum 12.14					
2.4 E	Elevation(m above mean se	a level) <u>7.49</u>				
2.5	Water regimes					
a)	Main source of water (tic	k all applicable)				
	✓Rainfall ✓Groundw	ater ✓Catchmentrunoff	□Direct / indirect	inflow from river		
	☐ Others please specify_	Natural springs				
b)	Water permanence					
	✓ Mostly permanent	☐Mostly intermittent				
c)	Destination of water from	n wetland				
	✓ Feeds groundwater	✓To downstream catchment	✓To river	✓To sea		
d)	Water pH					
	☐ Acid(<5.5)	✓Circumneutral (5.5–7.4)	□Alkaline (>7	.4)		
	□ Notknown					
e)	Water salinity					
	✓Fresh (<0.5g/l)	□Brackish (0.5 –30g/l))	□Euhaline (30	- 40g/l)		
	☐ Hypersaline(>40g/l)	□Notknown				
f)	Nutrient in water					
	□Eutrophic	□Mesotrophic	✓Oligotrophic			
	□ Notknown					
2.6	Climatic setting					

a)	Annual Rainfall(mm) $\underline{2.5-3}$					
b)	Temperature(°C)Minimum <u>20°C</u> Maximum <u>33°C</u>					
c)	Humidity(%) Minimum 67%	Maximum84%				
2.7	Area of zone of influence (in ha) 50.5	7ha [Ref.paras32-34of the guidelines on wetlands]				
2.8	Major land use within zone of influen	ce (provide as approximate % of catchment area)				
	Forests/vegetation	<u>84.63 %</u>				
	Plantation	%				
	Agriculture	%				
	Settlements (Rural)	%				
	Settlements (Urban)	%				
	Industrial	%				
	(Detailed LULC of influe	nce zone and 50m buffer is given in Table-I below)				
(Enclosed as Annex I –V and VI with s	ite				
ŗ	photographs to this document)					
Secti	on 3: Biodiversity					
3.1	Notable plant species present inwetlan	d				
Sygz	ygium caryophyllatum, Grewiatili folia	, Ficussp,Ziziphus rugosa,Glycosmis pentaphylla,				
Cary	ot aurens,Careya arborea,Carissa car	anda,				
3.2	Notable animal species present inwetla	and				
	Haliastur indus (Brahminy Kite); Milv	vusmigrans (Black Kite); Dicrurusmacrocercus				
	(Black drongo); Hirundorustica (Barn swallow); Botaurinae (Bitterns); Microcarboniger					
	(Little cormorant); Vanellusindicus (Red-wattled lapwing); Porphyrioporphyrio (Purple					
	Swamphen); Clanga hastate (Indian sp	ootted eagle); Haliaeetusleucogaster (White- bellied				
	sea eagle); Phalacrocoraxfuscicollis (1	Indian cormorant); Anhinga melanogaster (Oriental darter);				
	Cerylerudis (Pied kingfisher); Lissemy	espunctata (Indian flapshell turtle); Varanusbengalensis				
	(Monitor lizard). Civetcats, Porcupine					
	_					

.3	Species of conservation significance (rare, endangered, threatened, endemic species)				
.4	Major plant invasive alien species				
.5	Major animal invasive alien species				

Section 4: Ecosystem services

Importance	Delayer	nt for	If Vos Datails (unto 50 wands for each act access)
Importance	Relevant for the site (please		If Yes, Details (upto 50 words for each category)
	tick yes		
	no)		
Source of drinking water for people living and around		√No	There is a valve and overflow point build as a canal downstream. The overflow water along the canal is used for many different purposes by the village people.
Source of water for agriculture	√Yes	□No	Water is mainly used for paddy field, vegetables and fruit plants which is well taken care by the communidade
Fisheries	□Yes	√No	Earlier, fishes were bred in the lake and was available only for the community and controlled by communidade of Calapur
Cultivation of aquatic food plants	□Yes	√No	
For buffalo wallowing and use of domesticated animals	√Yes	□No	Local people use the water mainly for domestic use
Medicinal plants	√Yes	□No	Biodiverse and is full of medicinal plants around the lake.
Is a recreational site	□Yes	√No	
Buffering communities from extreme events as floods and storms	□Yes	√No	
Groundwater recharge	√Yes	□No	Water remains throughout the year at certain height, mainly because of the catchment and natural springs.
Water purification	√Yes	□No	Water from catchment area being medically pure and having natural filters with it, it purifies the water
Acts as a sink for sediments	√Yes	□No	Sediment and any excess nutrients from landward side get settles in the water body and natural purification of the water takes place.
Has significant cultural and religious values	√Yes	□No	Community itself takes care of farmer's occupation which is directly connected to the agriculture. There is stone bar on the embankment called "Rakandar" which protects Bondvol lake from all the bad vibes.
Is a site for recreation and tourism	□Yes	√No	
Supports noteworthy plants species	□Yes	√No	
Supports noteworthy animal species	√Yes	□No	Annexure A
Site of high congregation of migratory water birds	√Yes	□No	Main source of water of numerous migratory birds
			1

Supports life cycle of fish or amphibians	√Yes	□No	Annexure B
Mining	√Yes	□No	The details will be available after PBR completion
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)	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	
Fishing under lease from government department	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	
Harvest of plants (without any lease or permission from government department)	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	
Harvest of plants under lease from government department	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	
Agriculture or horticulture within wetland	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	The tenant is cultivating paddy and crop during dry season
Grazing	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	Few cattle grazing seen in the vicinity of the waterbody
Religious practices	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	Religious belief Associated with protector Of Bondvol Lake
Withdrawal of water for domestic use	□Yes ✓No	☐ Yes ✓ No ☐ Notassessed	Water downstream the lake is being used for laundry and irrigation
Withdrawal of water for agriculture or fisheries	√Yes □No	☐ Yes ✓ No ☐ Notassessed	The water from the lake is used to cultivate paddy
Bathing or wallowing of domestic animals	□Yes ✓No	☐ Yes ✓No ☐ Notassessed	
Plying of boats	□Yes ✓No	☐ Yes ✓ No ✓ Notassessed	
Any other, please list here	□ Yes □No	☐ Yes ☐ No ☐ Notassessed	

Section 6: Present and Potential Threats

Threat	Degree	Present or Potential	Additional information, if any
Changes in water inflow andoutflow	□ High □ Medium ✓ Low	□ Present ✓ Potential	Due to irrigation practices any misuse could create changes in water flow
Pollution	□ High □ Medium ✓ Low	Present ✓Potential	Analysis report from Goa State Pollution Control Board (GSPCB) shows fairly good
Unsustainable harvest of biological resources	□High □Medium√Low	□Present □Potential	Notobserved
Mining	□High □Medium√Low	□ Present □ Potential	Doesnotexist
Siltation	□High □Medium√Low	□Present ✓Potential	Only during ongoing construction practices are seen siltis deposited in the area of the lake
Encroachment	□High □Medium√Low	□ Present ✓ Potential	Absence of structure within Waterscape area of waterbody Offers potential encroachment
Spread of invasive species	□ High □ Medium ✓ Lo	w □ Present □ Potential	
Any other, please list	√High □Medium□Low	✓Present □Potential	Open defecation, disposal of garbage in the nearby areas and conduct of undesired Incidences by miscreants in the area should be controlled

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
	✓ Regulated □ Prohibited	□Wetland ✓Zone ofinfluence		Communidade of Calapur	Sluice gate is provisioned by WRD for effective

Harvesting of resources (living / non-living)	✓Regulated □Prohibited	□Wetland ✓Zone ofinfluence	Medium	Communidade of Calapur	Non- living resources should be limited and banned for commercial use
Grazing	✓ Regulated □ Prohibited	☐Wetland ✓Zone ofinfluence	Low	Communidade of Calapur	
Discharge of treated sewage/ effluent / wastewater	□Regulated ✓Prohibited	✓Wetland □Zone of influence	The entire notified wetland	GWSA and GPSC	Statutory national and state legislation applicable.
Construction of boat jetties, and facilities for temporary use , as pontoon bridges	□Regulated ✓Prohibited	✓Wetland □Zone of influence	High	GSTDC	Statutory national and state legislation applicable.
Aquaculture, agricultureand horticulture activities within the wetland boundaries.	✓ Regulated □ Prohibited	□Wetland ✓Zone of influence	Cultivation shall be limited to the surrounding of the water bodies in the season	GSWA	Due to the existing natural spring at the base of core wetland area, cultivation will be prohibited
Encroachment	□Regulated ✓Prohibited	✓Wetland □Zone of influence		Village Panchayat	Statutory national and state legislation applicable.
Poaching	□Regulated ✓Prohibited	✓ Wetland □Zone of influence			Statutory national and state legislation applicable.
Construction/devel opment activities(for all purposes)	□Regulated ✓Prohibited	✓ Wetland □Zone ofinfluence			
2. Extraction of soil, mud, rocks for commercial purpose	□Regulated ✓Prohibited	✓ Wetland □Zone ofinfluence			

Section 8: Activities Proposed to be permitted

Activity	Place a tick mark if relevant	Within wetlands or zone of influence	Additional information, if any
Preservation of this waterbody and maintaining quality of its significant catchment area especially no development zone, steep slopes and tree cover areas to ensure sustainability of this waterbody for future water security of local area.	~		Theboundaryofthewetland smaybereinforcedusingnat uralmeanssoastonotdisturb theecological character of the waterbody.
Decidingbestpossiblewiseu seofwetlandwithoutaffectin gorimpactingitsecologicalc haracterandservicesoffered presently	√	✓Zone of influence	Localbody,LocalBMC,Sta keholders,WRD,GSWAm aybeinvolvedinpreparingpl anandexecution

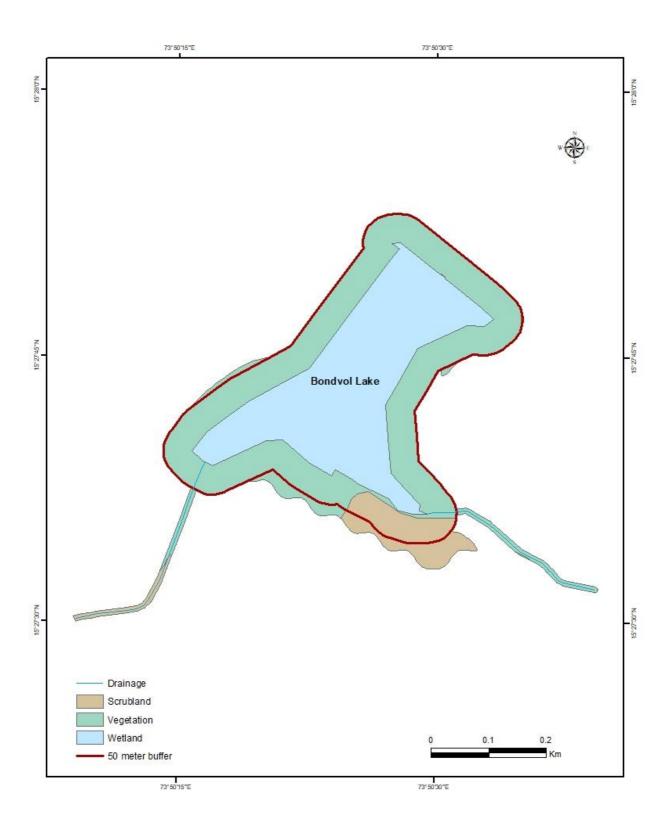
Section 9: Listing of Available Scientific Resources Used

Submissions and inputs made to GSWA and GSBB by various departments namelyForest Dept. WRD Dept, DSLR, TCP and local body while MS GSBB was also MS of task force.Inspection reports of GSBB, information from e bird, and other researchers from GoaUniversity, etc. have also had a significant input.

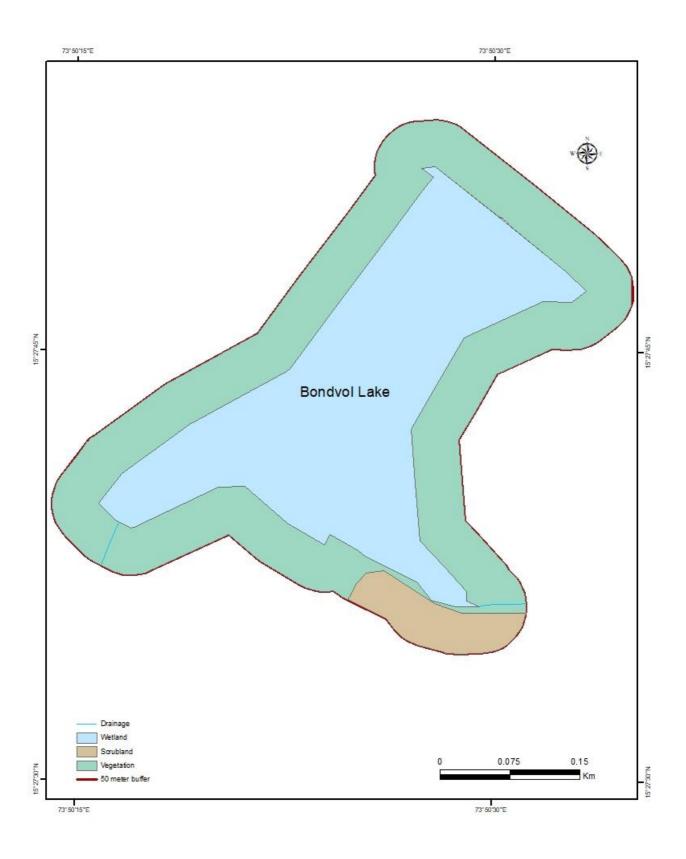
Table-I: LULC of Bondvol Lake

	Bondvol lake				
		Influence Zone		50 meter Buffer	
Sl.No:	LULC	Area(Hec)	Percentage Area	Area(Hec)	Percentage Area
1	Scrubland	1.68	15.37	0.8	8.7
2	Vegetation/Forest	9.25	84.63	8.39	91.3
	Total Area	10.93	100	9.19	100

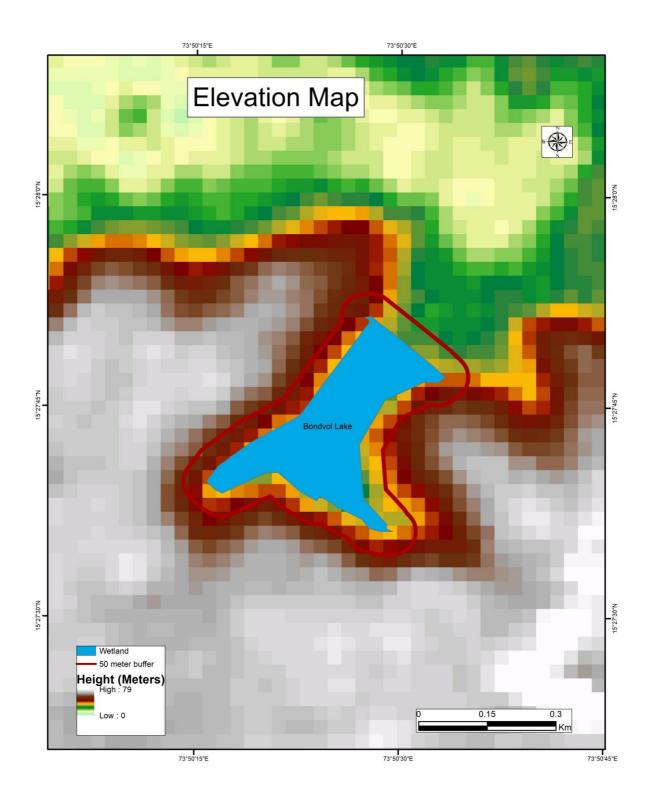
Annexure-I: LULC of the influence zone of Bondvol Lake



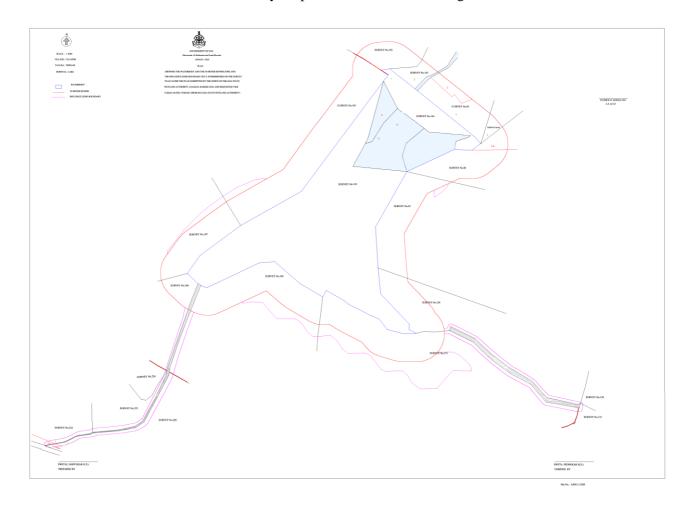
Annexure-II: LULC of 50m buffer of Bondvol Lake



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



Annexure-IV: Survey Map of Bondvol Lake showing influence zone



Annexure-V: Google image of Bondvol Lake







Annexure- VII: List of trees enumerated and indicative list of Flora found in the vicinity of Bondvol Lake

Sr.No	Local name of Flora	Botanical name	Number of Trees
1.	Aamado /Ambado	Spondia mangifera	10
2.	Aasali	Microcos paniculata	2
3.	Acacia (Australian)	Acacia auriculiformis	101
4.	Adki	Rauvolfia serpentina	2
5.	Arjun	Terminalia arjuna	112
6.	Ashok	Saracca indica	1
7.	Babal/Baban	Acacia arabica	1
8.	Badam	Terminalia catappa	4
9.	Bael/Bhel	Aegle marmelos	1
10.	Balo/Bayo	Cassia fistula	25
11.	Bedas Bhedas	Syzygium caryophyllatum	15
12.	Beni	Thespesia populnea	7
13.	Bhilamad	Caryota urens	379
14.	Bhirand	Garcinia indica	16
15.	Bibo	Semicarpus anacardium	96
16.	Bor	Zizyphus mauritiana	25
17.	Cashew	Anacardium occidentale	673
18.	Chafa/ Chaifa	Plumeria sps	2
19.	Chameli	Jasmine sps	1
20.	Chanado/ Chandado	Macaranga peltata	40
21.	Chara	Buchanania lanzan	11
22.	Chicku	Manilkara zapota	3
23.	Chinch / Tamarind	Tamarindus indica	27
24.	Chunna	Zizyphus rugosa	17
25.	Coconut	Cocos nucifera	130
26.	Custard apple/Aaater	Annona reticulata	1
27.	Dhaman/charcoal tree	Greivia tillifolia	5
28.	Dhavoruk	Sterculia urens	4
29.	Ghed/Gel	Randia deumatorum	7
30.	Ghoting	Terminalia bellerica	138
31.	Gulmohar	Delonix regia	7
32.	Hurro/Uro	Sapium insigne	324
33.	Jackfruit	Artocarpus heterophyllus	96
34.	Jambal	Syzgium cumini	26
35.	Kajaro Karo	Strychonos nux-vomica	257
36.	Kalamb	Mitragyna parviflora	2
37.	Kaner	Zizyphus oenoplia	1

38.	Karanj	Derris Scandens	1
19.	Karipatta	Murraya koeingi	2
40.	Karmal	Dillenia pentagyna	1
41.	Karvat/Kharvat	Ficus asperrma	142
42.	Kate Asan	Bridelia retusa	44
43.	Kel	Musa paradisiaca	2
44.	Kevan	Helicteres isora	142
45.	Khair	Acacia catechu	73
46.	Kinal/ Kindal	Terminalia paniculate	16
47.	Kudo/ Kaykudo	Tabernamontana heyneana	43
48.	Kumyo	Careya arborea	160
49.	MacadBhiran	Carallia brachiate	15
50.	Mad/Madi	Areca catechu	11
51.	Madat/Marat/ Raktredo/Hasan/ Crocodile bark tree	Terminalia tomentosa	146
52.	Mango	Mangifera indica	191
53.	Mashing	Moringa oleifera	1
54.	Moi	Lannea coromandalica	2526
55.	Nano	Lagerstroemia lanceolota	3
56.	Neem	Azadirachta indica	1
57.		Artocarpus altilis	2
	Nirpanas Oval	Mimusops elengi	39
58.	100.7.777	Annona muricate	21
59.	Palpanas	Erythrima indica	108
60.	Pangaro	Nyctanthes arbor-tristis	1
61.	Parijat		5
62.	Peepal (In al-family	Ficus religiosa	101
63.	Phanas /Jackfruit	Artocarpus heterophyllus	14
64.	Phatarphad	Glycosmis pentaphylla	32
65. 66.	Raintree Raktredo/Hasan/Marat/ Crocodile bark tree	Albizia saman Terminalia tomentosa	155
67.	Rito	Sapindus laurifolius	1
68.	Rumod	Ficus racemose	2
69.	Saton	Alstonia scholarias	12
		Bombax	1005
70.	Savar	malabaricum/ceiba	
71.	Shami	Prosopia cineraria	38
72.	Shivan	Gmelina arborea	35
73.	Sisum	Dalbergia latifolia	2
74.	Sona Phata	Oroxylum indicum	49
75.	Spathodia/Tulip tree/Pichkari	Spathodia campanulata	6

76.	Surang	Mammea suriga	10
77.	Taman	Lagerstroemia parviflora	7
78.	Teak/ Sal	Tectona grandis	27
79.	Tiki	Cinnamomum zeylanica	1
80.	Triphal	Zanthoxylum rhetsa	329
81.	Viral	Leucaena leucocephala	16
82.	Wad	Ficus bengalensis	3
83.	Zambo	Xylia xylocarpa	
84.	Jungli/Miscellaneous	- y y toour pu	15 >313
Total		8438	

Other prominent Herbs & Shrubs at Bondvol Lake:

Sr. No	Local name of Flora	Botanical Name
8.	Aduso	Adathoda vasica
12.	Aghado	Achyranthes aspera
5.	Asali	Microcos paniculata
10.	Bharmgi	Clerodendrum indicum
2.	Canna	Carissa caranda
17	Dudhshiri	Hemidesmus indicus
6.	Ghotvel	Smilax zeylanica
15.	Gundhurichi bhaji	Centella asiatica
11.	Nimgud/ Nirgundi	Vitex negundo
4.	Pitkoli	Ixora coccinea
14.	Punarnava	Boerhavia diffusa
9.	Rui	Calotropis gigantea
13	Suran	Amorphophullus campanulatus
3.	Taikilo	Cassia tora
1.	Uski	Calicopteris floribunda
16.	Wagchampho	Gloriosa superba
7.	Watakaka creeper	Watakaka volubis