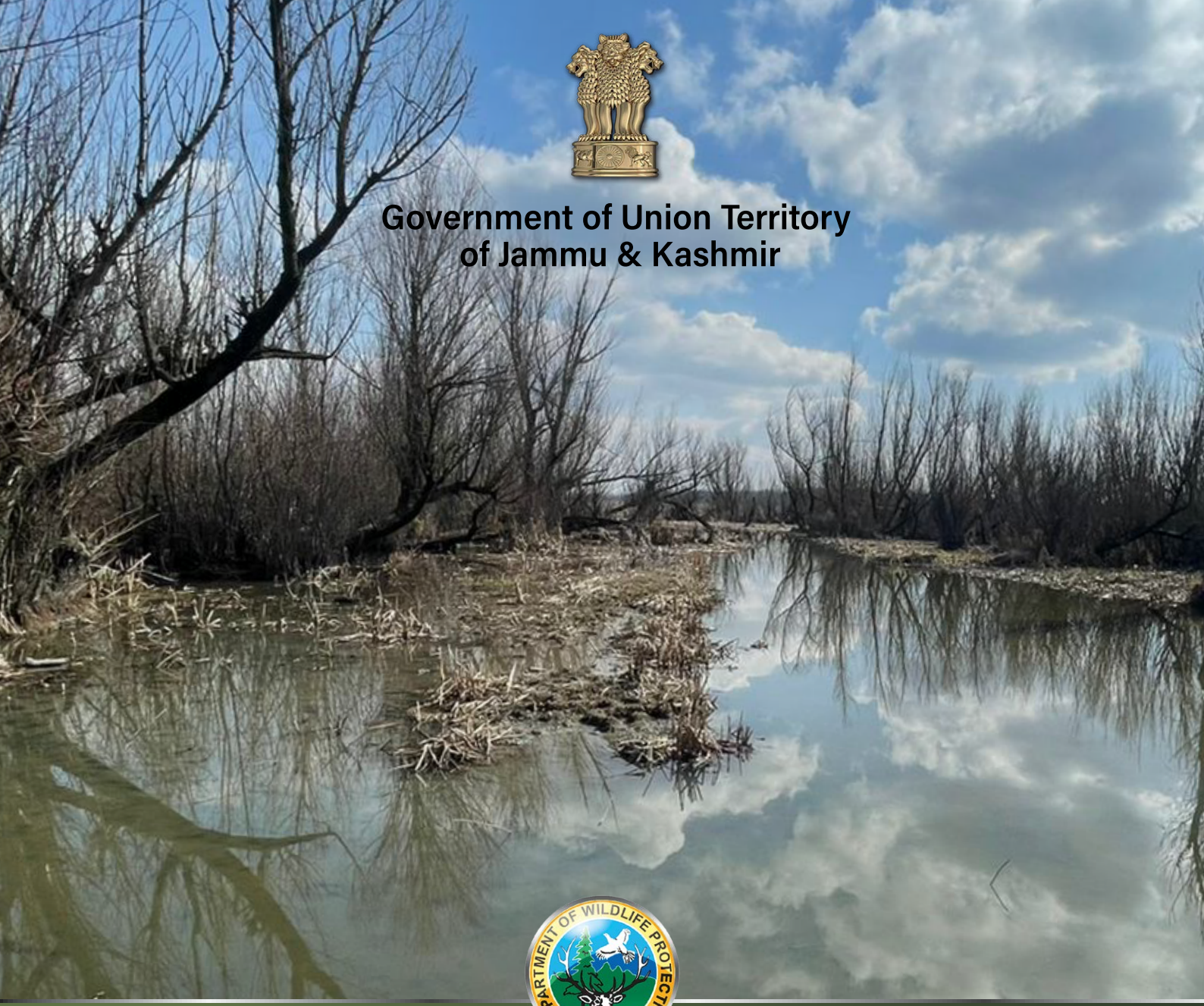


Government of Union Territory
of Jammu & Kashmir

Integrated Management Action Plan

WETLAND

CONSERVATION RESERVES KASHMIR

2022-2027

HOKERSAR, SHALLABUGH, HYGAM, MIRGUND, CHATTLUM,
FASHKOORI, KRENTCHOO, MANIBUGH

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Foreword

Jammu & Kashmir is bestowed with vast network of inland wetlands, including 03 Ramsar sites i.e wetlands of international importance. These wetlands besides providing suitable wintering ground for a large number of water birds, have great social, economic and cultural significance for the people of the region.

Department of Wildlife Protection, Jammu & Kashmir.is mandated for scientific management of all the wetlands, which have been declared as Conservation Reserves, under Wildlife Protection Act. Accordingly, department has formulated an Integrated Management Action Plan (IMAP) for eight Wetland Conservation Reserves, under its jurisdiction, in Kashmir Region The plan is an aggregate of strategies and actions for the preservation and biodiversity conservation, in these Wetlands. Management of these Wetland Conservation Reserves in Kashmir, will now be guided by an "Integrated Management Action Plan 2022-2027" which includes objectives of site management; management actions required to achieve the objectives; factors that affect, or may affect, various site features; monitoring requirements for detecting changes in ecological character and for measuring the effectiveness of management; and resources vor management implementation. This Integrated Management Plan will help to generate baseline information, communication with stakeholders and ensuring compliance with regulatory frameworks and policy commitments.

Integrated management planning has been organized, along five subcomponents, viz land and water resources management; biodiversity conservation; ecotourism development; livelihood improvement and institutional development. Specific Management interventions and project implementation mechanisms have been defined for each of the components, to achieve the management objectives identified under the action plan.

Management planning framework laid out in the document aims at striking a balance between wetlands ecosystem conservation for ensuring ecological integrity of these Wetlands and livelihood security to the fringe communities.

Integrated Management Action Plan (IMAP), outlines the commitment of Government, for conservation and management of the Wetland Conservation reserves, including Hokersar, which is a designated Ramsar Site, It has been prepared through comprehensive hydrological, ecological and social assessments involving various Government departments; community organizations, research institutions and local communities. Information collected from various sources has been analysed for identification of key issues, and helped in formulation of strategies under the IMAP.

I deeply compliment and commend Shri Rashid Yahya Naqash Regional Wildlife Warden Kashmir & his team for undertaking a rigorous exercise for understanding wetland related issues and prescribing solutions for their redressal, through the medium of a well-documented Integrated Management Action Plan, for eight Wetland Conservation Reserves.

I am sanguine that this IMAP, will service as a useful source of information for planners, policy makers and will also remain available as a scientific tool for managers to administer plans for conservation and sustainable wise use of Wetland resources.

Sanjeev Verma, IAS

सत्यमेव जयते



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PREFACE

Jammu & Kashmir is famous the world over for several of its important wetlands, which are directly linked to the livelihood requirements of the local population apart from their ecological, biodiversity and tourism values. Apart from being the primary habitat for hundreds of species of waterfowl, fish, mammals and insects, they receive a wide variety of migratory birds from Central Asian Flyway Zone during the winter months, which add to its beauty.

The valley of Kashmir in particular have been subjected to tremendous pressure on account of silt deposition, human interferences like encroachments, cultivation and habitat degradation on account of uncontrolled grazing and over extraction of fodder, fuel, fish wicker-willow and other wetland resources.

Conservation and sustainable development of all the Wetlands under the control of the Wildlife Department in Kashmir requires integrated planning and resource management at the Jhelum River basin level recognizing the interconnectedness of wetlands with their catchments. River basin level planning requires understanding of the carrying capacity of the river basin with a view to produce desired goods and services from limited resource base and achieve equitable quality of life while maintaining desired environmental quality in the region. The challenge, therefore, is to conserve wetland ecosystems along with their rich biodiversity while providing sustained economic benefits to the communities dependent upon these resources for their sustenance.

In order to address the issues and challenges of wetland conservation reserves, Department of Wildlife protection J&K has formulated integrated management action plan for undertaking various mitigatory measures in 5-year time period. An overall budget of Rs 46.70 Crores is envisaged for all the Wetland Conservation Reserves of Kashmir Region. Water Management, which is critical to the wetland rejuvenation has been allotted Rs 18.93 Crore, followed by Rs 13.15 Crore for Biodiversity Conservation and Rs 7.49 Crore have been apportioned for the Education Awareness and Eco-Tourism, besides, Rs 0.80 Crores for the Sustainable Resource Development and Livelihood Development and Rs 6.33 Crore for Institutional Development.

I congratulate Mr. Rashid Yahya Naqash Regional Wildlife Warden Kashmir & his team for taking serious efforts towards formulation of this Integrated Management Action Plan for eight wetland Conservation Reserves and documenting in the form of a report.

I hope this I MAP will act as a useful source of information for planners, policy makers and will act as scientific tool for managers to implement the plan for conservation and sustainable wise use of the resources.

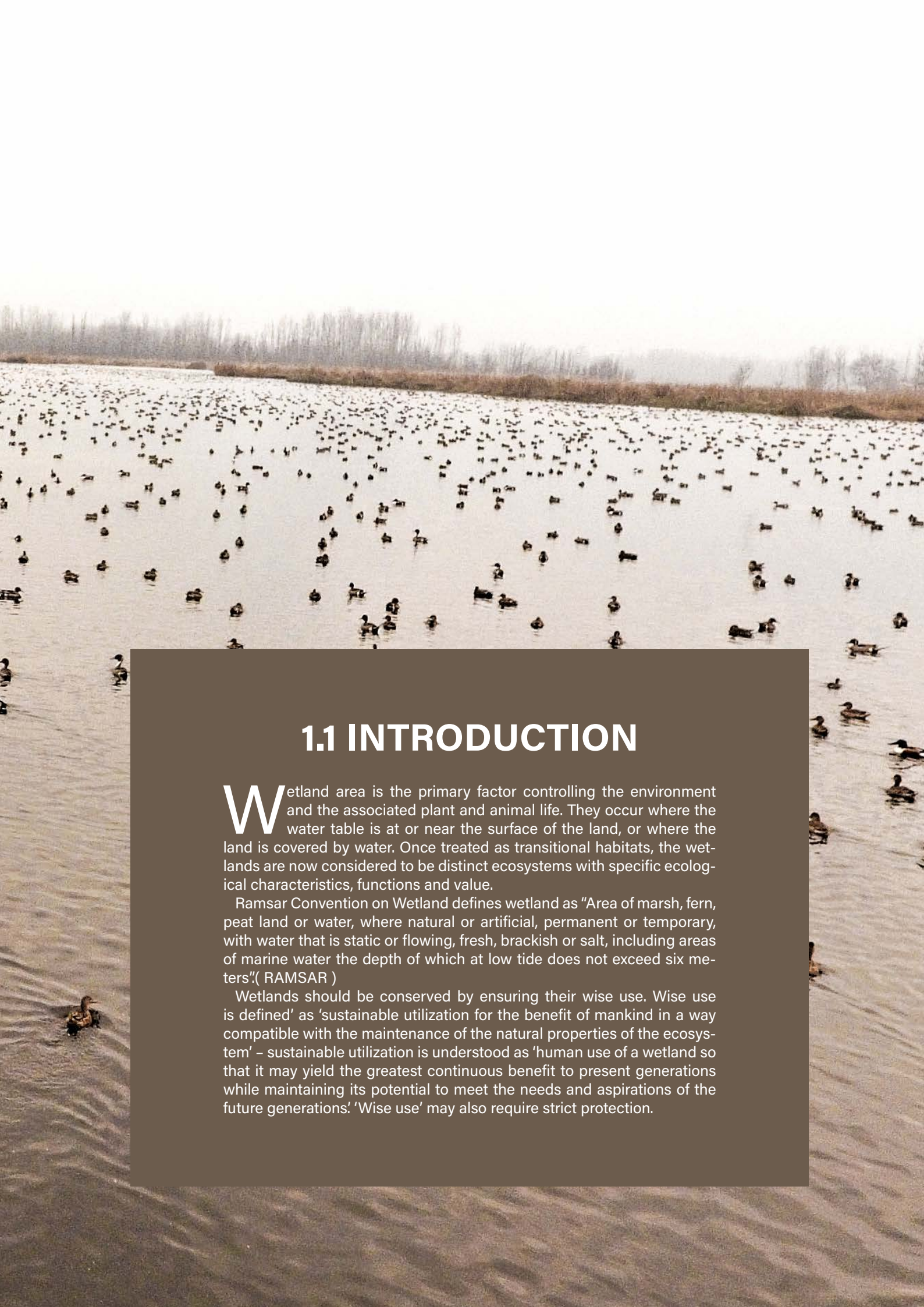
(Suresh Kumar Gupta) IFS

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1.1 INTRODUCTION

Wetland area is the primary factor controlling the environment and the associated plant and animal life. They occur where the water table is at or near the surface of the land, or where the land is covered by water. Once treated as transitional habitats, the wetlands are now considered to be distinct ecosystems with specific ecological characteristics, functions and value.

Ramsar Convention on Wetland defines wetland as "Area of marsh, fern, peat land or water, where natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters".(RAMSAR)

Wetlands should be conserved by ensuring their wise use. Wise use is defined' as 'sustainable utilization for the benefit of mankind in a way compatible with the maintenance of the natural properties of the ecosystem' – sustainable utilization is understood as 'human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of the future generations.' 'Wise use' may also require strict protection.



1.2 Functions & Value of Wetland: -

Wetlands are among the most productive ecosystems. They directly or indirectly support millions of people and provide goods and services to them. Various goods and services provided by wetland are as follows:

- Support all life forms through extensive food webs.
- Habitat to aquatic flora and fauna as well as numerous species of birds, including migratory species.
- Filtration of sediments and nutrients from surface water.
- Nutrient's recycling.
- Water purification.
- Flood Mitigation.
- Maintenance of stream flow.
- Ground water recharging.
- Provide drinking water, fishes, fodder, fuel etc.
- Control rate of runoff in urban areas.
- Buffer shorelines against erosion.
- Comprise an important resource for sustainable tourism, recreation and cultural heritage.
- Comprise an important resource for sustainable tourism, recreation and cultural heritage.
- Stabilization of local climate.
- Source of livelihood to local people.
- Genetic reservoir for various species of plants.

The Convention on wetlands of international importance popularly known as "Ramsar Convention" has been instrumental in highlighting the values and functions of wetlands.



1.3 Wetland Conservation Reserves:

The valley of Kashmir is characterized by a vast array of fresh water bodies of great ecological and socio-economic importance. These natural water bodies of Kashmir Himalayas are important for fisheries, agriculture and recreation. These wetlands also provide winter resort for a variety of birds for shelter, nesting and feeding. They also harbour a vast array of flora and fauna and thus exhibit rich biodiversity.

Jammu and Kashmir Wildlife (Protection) Act – 1978 Amended up to 2002.

- **Section 36. Declaration of Conservation Reserve**. – (1) The Government may, by notification, declare, any area other than an area comprised within a National Park or a Sanctuary, as a Conservation Reserve, for protecting flora and fauna and its habitat, specially area adjacent to National Park and Sanctuaries and those which link one Protected Area with another, with the participation of the local people, within substantially human inhabited areas; Provided that from the commencement of the Jammu and Kashmir Wildlife(Protection) (Amendment) Act, 2002, Game Reserves or Wetland Reserves or Chakore Reserves or Closed Areas, heretofore declared as such from time to time under this Act, shall be **deemed** to have declared as Conservation Reserves under this section.

- Wetlands Reserves (Game Reserves and State Rakhs) of Kashmir were notified by virtue of Order No: 710-C 1945 Dt:17-07-1945 (Notification 2 and 5) under Jammu and Kashmir Game Preservation Act-1942.

- Notification SRO 156 dated 15th April 1971- In pursuance of the provisions of the explanation to section 133-B of the Jammu and Kashmir Land Revenue Act 1996, as amended by Jammu and Kashmir Land Revenue (Amendment Ordinance,1971) the Government hereby specify in the Annexures 1,2,3,4,5,6 the areas, waters, water fields and floating fields of which the Gagribal and Dal Lake, Nigeen Lake, Anchar Lake, Mansbal Lake, Hokersar Lake and Haigam Rakh shall respectively comprise.

Annexure 5: Hokersar
Khasra Numbers: 1164,1165,1166,1167,1168,1169,1170,1171,1172,1173,1174,1175,1176,746 1236/745.

Annexure 6: Haigam Rakh
Khasra Numbers: 858/1,858,859/1,860,863,1406/1,2706/1,2749,2750,2758/2,27 69.

Existing Legal Framework:

Wildlife (Protection) Act, 1972:

36A. Declaration and management of a conservation reserve. — (1) The State Government may, after having consultations with the local communities, declare any area owned by the Government, particularly the areas adjacent to National Parks and sanctuaries and those areas which link one protected area with another, as a conservation reserve for protecting landscapes, seascapes, flora and fauna and their habitat:

Provided that where the conservation reserve includes any land owned by the Central Government, its prior concurrence shall be obtained before making such declaration. (2) The provisions of sub-section (2) of section 18, sub-sections (2), (3) and (4) of section 27, sections 30, 32 and clauses (b) and (c) of section 33 shall, as far as may be, apply in relation to a conservation reserve as they apply in relation to a sanctuary.

The Wetland Conservation Reserves in Kashmir notified under the Wildlife Protection Act and presently being managed by the Department of Wildlife Protection, Jammu & Kashmir are as under:

S.No	Name of the Wetland	District	Area in hec
1	Hokersar	Srinagar/ Budgam	1375
2	Shallabugh	Srinagar/ Ganderbal	1691
3	Hygam	Baramullah	719
4	Mirgund	Baramullah	406
5	Chattlam	Pulwama	42.60
6	Kranchoo	Pulwama	6.40
7	Manibough	Pulwama	5.30
8	Freshkhori	Pulwama	15.25



1.4 RESOURCE USE AND INTENSITY:

A total of 13 consumptive and non-consumptive resource use categories have been identified in these wetlands. Consumptive uses include reed harvesting, fuel wood collection, irrigation, paddy cultivation, peat collection, fishing, livestock grazing, clay gathering, fodder collection and agriculture; while the non-consumptive uses include domestic sewage discharge and solid waste disposal. Harvesting of the reeds is indicated as most intensively used resource. Four percent families depend fully for subsistence on wetland resources. Harvesting of reeds is a common resource use in all the Wetland Conservation Reserves in Kashmir.

The participatory rural appraisal with the village people reveals that in the zone of influence of all these wetlands, the major cultivated crop is paddy followed by vegetables, pulses, and fruits. The major fruit grown in this zone include Apple, Walnut, and Pear. A large number of fertilizers, pesticides, and fungicides are being used which include Endosulfan oil sprays in orchards. The fertilizers used include Urea, Di-amino-phosphate (DAP), and Muleate orthophosphate (MOP). The residues of these fertilizers, pesticides, often find their way into these wetlands through run-off. In addition to chemical fertilizers, the cattle dung as manure is also added to the fields and also kept for drying on the fringes of some of these wetlands. This manure also reaches the water body through runoff.

List of Villages Around 08 Wetland Conservation Reserves

S.No.	Name of the Wetland	District	Name of the Villages	No. of Villages	Population (As per the last census report)
1	Hokersar Wetland Reserve	Srinagar/ Budgam	Zainakote	13	5000
2			Khushipora		4000
3			Rishmwara		2500
4			Hajibagh		27000
5			Shariefabad		2800
6			Souibugh		11000
7			Darmuna		3500
8			Gutapur		1500
9			Churpora		2500
10			Guripora		8000
11			Gund Hassibhat		10000
12			Narbal		9000
13			Sozieth		8000
1	Haigham Wetland Reserve	Baramullah	Hanjipora	21	1000
2			Chitipora		1000
3			Hygam		1500
4			Trumgund		2000
5			Renji		2500
6			Hamre		3000
7			Chanderhama		3000
8			Andergam		4000
9			Lolipora		5000
10			Goshbugh		10000
11			Sohkul		2000
12			Gohal		2000
13			Tangepora		3000
14			Gulabwari		1000
15			Akhoonpora		1000
16			Wandakpora		1000
17			Radigam		1000
18			Tarzoo		15000
19			Amberpora		10000
20			Aalibagh		2000
21			Panzipora		1500
1	Shallabugh Wetland Reserve	Ganderbal/ Srinagar	Shallabugh	10	20000
2			Pathcondle		5000
3			Ghat		2000
4			Paribal		1000
5			Takanwaripora		10000
6			Bakshipora		4000
7			Tengpora		3000
8			Kreshbal		30000
9			Badiwoder		3000
10			Sangam		20000
1	Mirgund Wetland Reserve	Budgam/ Baramullah	Garth Narbal	15	2500
2			AlambalNarbal		1500
3			Gagerpora		3000
4			Check-i- Kawoosa		4000
5			Kawoosa Khalisa		7000
6			Mazhama		3500
7			Archanderhama		3000
8			Puran Saclershah		225
9			Habak Tangoo		3000
10			Arampora		5000
11			Bonichacal Arampora		700
12			Nowpora		125
13			Chnibal		7000
14			Malimar		2000
15			Mirgund village		6000
1	Manibugh Wetland Reserve	Pulwama	Tubagh	01	800
1	Kranchoo Wetland Reserve	Pulwama	Kranchoo	01	900
1	Chatlum Wetland Reserve	Pulwama	Bagh-e-Anayatullah	03	300
2			Lalpora		2500
3			Konibal		600
1	Freshkoori Wetland Reserve	Pulwama	Tulbagh	02	800
2			Namlabal		1300



1.5 THREATS AND CHALLENGES:

a) Siltation

Catchment degradation, deforestation and other anthropogenic activities have accelerated soil erosion resulting in floods. These floods increase sedimentation rate. These wetlands are fed by many perineal and seasonal water channels which are directly or indirectly linked to the River Jehlum basin or its offshoots, which bring water to these wetlands for their sustenance. However, they bring along with it huge amount of silt. In Hokersar, much of the siltation has occurred at the entry points of these feeding channels i.e. Soibugh to Hajibagh. In Shallabugh Wetland, the feeding Anchar Nallah has brought Sangam Beat under heavy silt while as in Hygam, Ningli Flood Channel and Baal Kul are responsible for siltation in the wetland. Siltation has occurred to such an extent that during summer one can walk easily across these these wetlands at different places. The negative impact of this massive inflow of silt is manifesting into three fields. Firstly, the silt is getting deposited in the beds of wetland making it less shallow. Secondly, it is resulting in the gradual decrease of the water spread within the wetland area, and thirdly, due to siltation there is shift in macrophytic community.

b) Weed Infestation:

The growth of aquatic weed species such as Hydrilla, Azolla, Spirodella, Salvinia, Lemna, Barberea vulgaris, Ceratophyllum, Nasturtium, Typha, Butomus umbellatus, Cyperus sp. and Potamegton is quite high and has assumed nuisance proportions. These weeds have posed great threats to all these wetland. The presence of such vegetation is the result of infestation of silt and nutrient enrichment. The growth of aquatic weeds is one of the major problems faced by all these wetlands. Notable change is reflected by the fast spread of Sparganum errectum replacing Phgramites australis to a greater extent in the wetlands.

c) Pollution:

Chemical fertilizers, animal wastes and detergents are added into these wetlands from the intensively cultivated catchments that results in eutrophication. Untreated domestic sewage from surrounding settlements also enters into the wetland. The uncontrolled use of insecticides and pesticides in paddy fields, apple orchards, and vegetable garden in the catchment also enter into the wetland. The potential source of nitrogen is heavy annual dosages applied to paddy fields and to vegetable fields.



d) Habitat Modification:

Studies have shown that the wetland plant species composition is highly sensitive to habitat modification. It is influenced by climate change, eutrophication, and other anthropogenic activities. It is revealed in various studies that there has been a considerable decline in the macrophytic diversity of these wetlands. The decrease in the number of species is attributed to increasing frequency of floods and increasing population around causing greater anthropogenic pressures on the wetland ecosystem. Floods and siltation are responsible for decline of species like Nelumbium nucifero, Eurayle ferox and Acorus calamus. Similarly species like Ceratophyllum demersum, Myriophyllum spicatum, Utricularia aurea, Nymphaea alba, Slum latijugum, Menyanthese trifoliata, Hippuris vulgaris, Bidens cerna, and Hydrocharisdubia have gone tremendous changes. Thus, there is a shift in macrophytes community during last 4 to 5 decades.

e) Degradation of Water Quality:

The use of agriculture fertilizers and pesticides, insecticides, fungicides etc in the catchments of Hokersar, Hygam, Mirgund and Shallabugh have affected the water chemistry. The fishery is seriously affected and many species of fish forming a good portion of food to birds are already declined.



f) Solid Waste:

Solid waste is also a challenge as the inhabitants of settlements around wetlands have tendency to throw solid waste into the wetlands. Such waste from homes and urban areas around wetlands can get into the wetlands due to irresponsible behaviour of individuals.

g) Encroachment:



The increasing population around all these Wetland Conservation reserves has resulted in the conversion of vast areas of the immediate catchment to agricultural land. The increasing demand for fire wood has brought a vast area of these wetlands for willow and poplar plantations by the local people. The plantation of these species has also been done in wetland periphery. The areas of wetlands near habitations are under constant threat of encroachment. At times, there are clashes between Departmental staff and encroachers as such attempts are thwarted.

During last two decades human settlements have come up very close to the perimeter of the Wetlands particularly Hokersar wetland. Besides, heavy silt deposition has resulted in silting up of the marginal lands of the wetland. These silted patches/portions of the wetland are seasonally brought under paddy cultivation by the local population also in some patches private plantations have also been raised in the wetlands. Department of Wildlife Protection however, not recognising this practice in the wetlands has registered many cases under Wildlife Protection Act, against the accused for seasonal occupation of these portions in the wetland conservation reserves and for any attempt to raise plantations or temporary structures.

At present there are many claims of locals residing in the vicinity of wetlands to have their private proprietary rights over some portions of the land existing in the wetlands under the control of Wildlife Department in Kashmir. Therefore, it was difficult to draw a distinction between status of these ownerships and encroachments in these wetlands. In order to ascertain the actual status of the land, The divisional administration ordered serious measures for undertaking joint demarcation of these wetlands. The district collectors (Dy. Commissioners, Assistant Commissioner Revenue, Tehsildars from Revenue Department, Wildlife Warden Wetland Division, Forest Demarcation and Photointerpretation Divisions jointly started demarcation exercises in the wetlands.

Based on the demarcation record except Hokersar in no other wetlands under the control of Wildlife Department in Kashmir has a private ownership of the land. In case of Hokersar ownership of the land falling in District Budgam as authenticated by the District Revenue Authorities shows private persons to the extent of **1338 K-14 M** and occupation under Section 5 and 4, **1724 K 5 M** and **968 K 11 M** respectively. In Hygam Wetland District Revenue authorities have authenticated ownership of **14133 Kanals** of demarcated land vests with Wildlife Department out of which **1713 K 2 M** of land is under seasonal paddy cultivation by locals and remains available for biodiversity conservation during the remaining period. However temporary structures have been raised on **91 K-06 M** in the shape of **56** Households and **95** others. Also, orchard plantation raised on **32 K 14 Marlas**. In Mirgund Kawosa jagir falling in Budgam District out of **6906 K 3 M** of land **4016 K 1 M** is State land under occupation of Wildlife Department,**2793 K 3 M** land under section 4 and under section 5 falls **96 K and 19 M** of land.

Action Plan to Evict/Remove Encroachments:

- In Hygam Wetland Department of Wildlife will work out a joint strategy with District administration, Police, Forest Protection Force and local community groups for eviction and removal and demolition of 56 house holders and 96 other structures. Notices under relevant laws and rules shall be served upon each encroacher to voluntarily evict the Government property within the stipulated time frame work failing which Eviction proceedings shall be initiated. The process of eviction and removal shall be completed in six months.
- In Hokersar, Hygam and Mirgund wetlands temporary occupation of portions of the land used for paddy cultivation shall be rendered unfit for next season by way of demolition of marginal and intersectional embankments thereby, making the area not only inaccessible but unfit for paddy cultivation as well.
- In Hokersar, Hygam, Shallabugh and Mirgund wetlands identified portions under private plantations shall be got cleared after issuing notices to each private plantation unit holder under the relevant rules. This exercise will be completed within a period of three months.
- **"Wise use"** of wetlands however, defined under the Ramsar Convention as "the maintenance of ecological character of wetlands shall be achieved through the implementation of ecosystem approaches, within the context of sustainable development".
- The status of the ownerships of land in wetlands as authenticated by the Revenue authorities is given under:

Statement showing the Details of Wetland / Hokersar of Tehsil Budgam

S.No	District	Tehsil	Name of Village	Name of Wetland Water Body	Properiatery Land							Section 5							Section 4							Section 4							Grand Total
					Residential		Under Crop		Vacant		Total	Residential		Under Crop		Vacant		Total	Residential		Under Crop		Vacant		Total	Residential		Under Crop		Vacant		Total	
					K	M	K	M	K	M		K	M	K	M	K	M		K	M	K	M	K	M		K	M	K	M	K	M		
1	Budgam	Budgam	Dharmuna	Hokersar / Soibugh	52	5	782	5	-	-	834-10	-	-	655	7	-	-	655-7	-	-	-	-	603	-	603	-	-	-	-	1268	7	1268-7	3361-4
2	-do-	-do-	Soibugh		81		227	15	195	9	504-4	-	-	-	-	1068	18	1068-18	-	-	-	-	365	11	365-11	-	-	-	-	843	6	843-6	2781-19
3	-do-	-do-	Rakhi Aarath		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17090		17090	17090
			Total		**135**	**5**	**1010**	**0**	**195**	**9**	**1338-14**			**655**	**7**	**1068**	**18**	**1724-5**					**968**	**11**	**968-11**					**19201**	**13**	**19201-13**	**23233-3**

Statement showing the Details of Wetland / Hokersar of Tehsil Central Shalteng Srinagar

Status	Tehsil	District	Revenue Village	Types of Land in Kanals and Marlas				
				Under House	Under Trees	Under Crops	Vacant	Total
	Central Shalteng	Srinagar	Zainakot					
Proprietary				-	-	-	-	33 K 17 M
Section 5				-	-	-	-	69 K 4 Mw
Section 4				-	-	-	-	446 K 2 M
Sarkar				-	-	-	-	3356 K 18 M
Total				**-**	**-**	**-**	**-**	**3906 K 1 M**

Statement showing the status of wetland falling in estate Rakh-Hygam Tehsil Khoie

S. No.	Name of the village	Total wetland Area				Total area demarcated		Area encroached Out of Demarcated land		Kind of encroachment with area								Structure Total			State land in Wetland area		Kachari land in Wetland are	
		As stated by Wildlife Deptt		As per Revenue records						Paddy		Structure		Orchards/ Plantation		Others							K	M
1	Rakh-Higam	K	M	K	M	K	M	K	M	K	M	K	M	K	M	K	M	House holds	others	Total				
		14332	0	14133	11	14133	01	1897	02	1773	02	91	06	32	14	0	0	56	95	151	0	0	0	0

Private Plantations fenced/Unfenced in Shallabugh Wetland Reserve

Beat	Block	Village	Detail in Kanal/Marlas						Total under Private Plantations
			Paddy	Structure	Plantation		Vegetable Garden		
					Fenced	Un Fenced	Fenced	Un Fenced	
Shallabugh/ Kreshbal/Sangam	Shallabugh	Shallabugh/ Kreshbal/ Sangam	0.00	0.00	56.11	453.03	0.00	0.00	509.14

Land Falling under Mirgund (Kawoosa Jagir) as per Revenue Records.

S.No	Name of the Village	Proprietary Land	Detail in Kanals and Marlas			Total
			Section 5	Section4	State Land	
	Checki-Kawoosa (Kawoosa Jagir	Nil	**96 K 19 M**	2793 K 3 M	4016 K 1 M	6906 K 3 M
		Nil	**96 K 19 M**	2793 K 3 M	4016 K 1 M	6906 K 3 M

The land-use patterns around these wetlands have been documented in detail.



1.6 STATUS OF LAND USE AND LAND COVER OF PROTECTED WETLANDS OF KASHMIR

Land use & Land Cover of Wetland Conservation Reserves of Kashmir Region:

Chatalam Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Cropland	0.09	16.22
Plantation	0.07	12.45
Waterlogged	0.04	71.33
Total	**0.55**	**100.00**

Freshkhori Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Cropland	0.01	4.05
Plantation	0.08	54.62
Waterlogged	0.05	41.33
Total	**0.14**	**100.00**

Haigam Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Agriculture Cropland	0.51	6.65
Agriculture Plantation	2.81	36.85
Built-up	0.02	0.22
Waterbody	4.29	56.28
Total	**7.62**	**100.00**

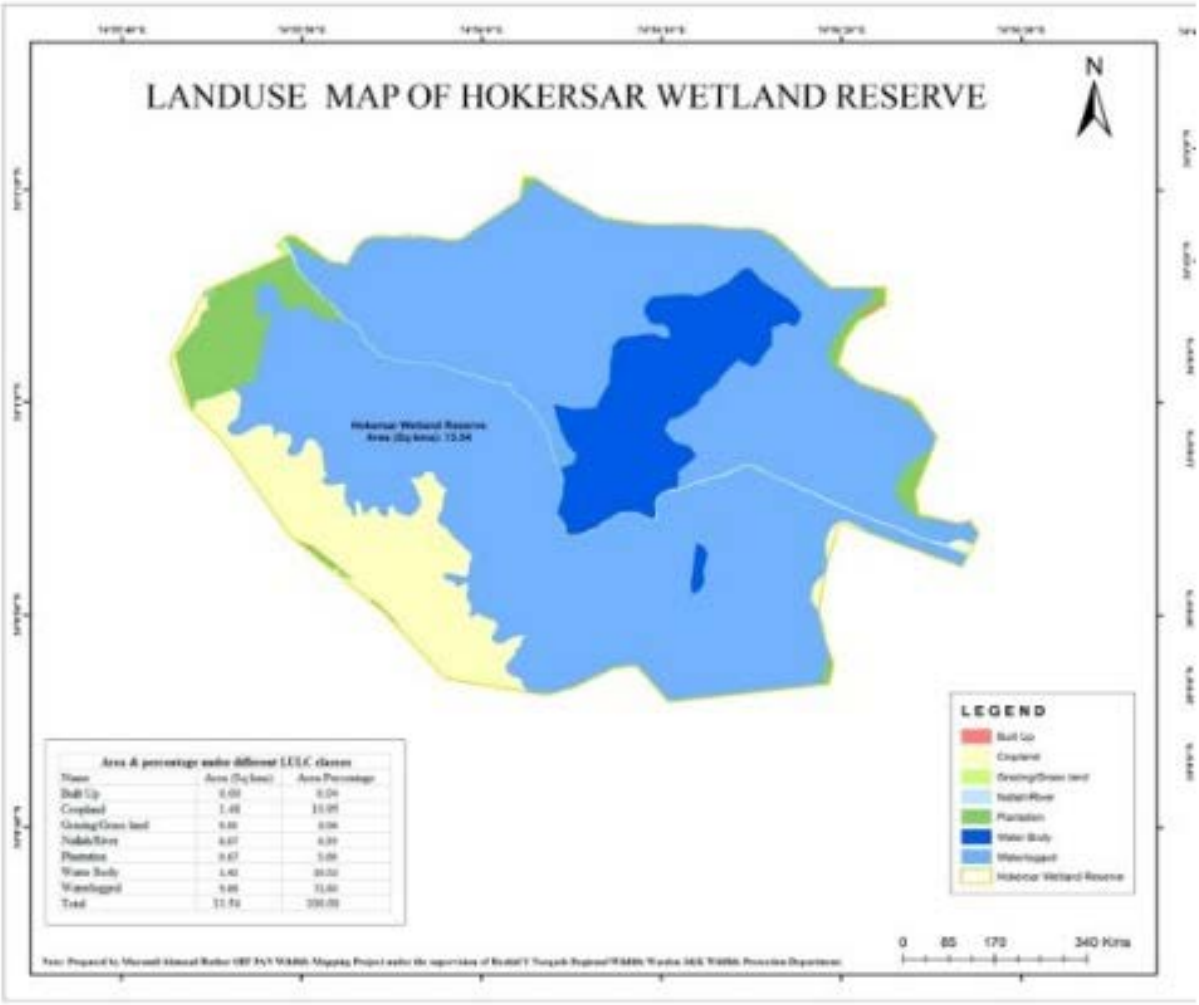
Hokersar Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Builtup	0.01	0.05
Cropland	1.48	10.95
Grazing/ Grass land	0.01	0.05
Nallah / River	0.08	0.59
Plantation	0.68	5.00
Waterbody	1.42	10.52
Waterlogged	9.86	72.84
Total	**13.54**	**100.00**

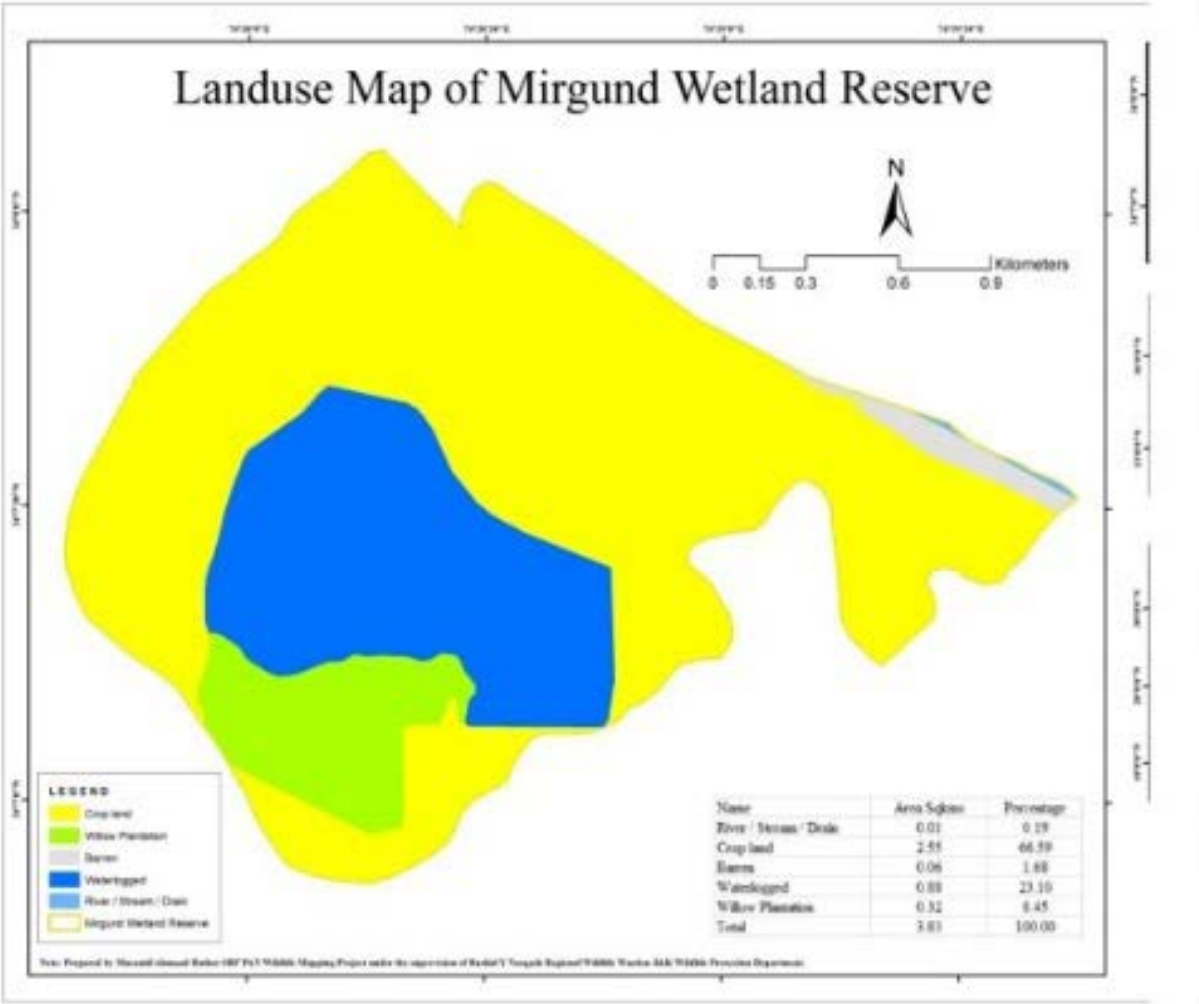
Kranchoo Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Cropland	0.01	4.31
Waterlogged	0.21	95.69
Total	**0.22**	**100.00**

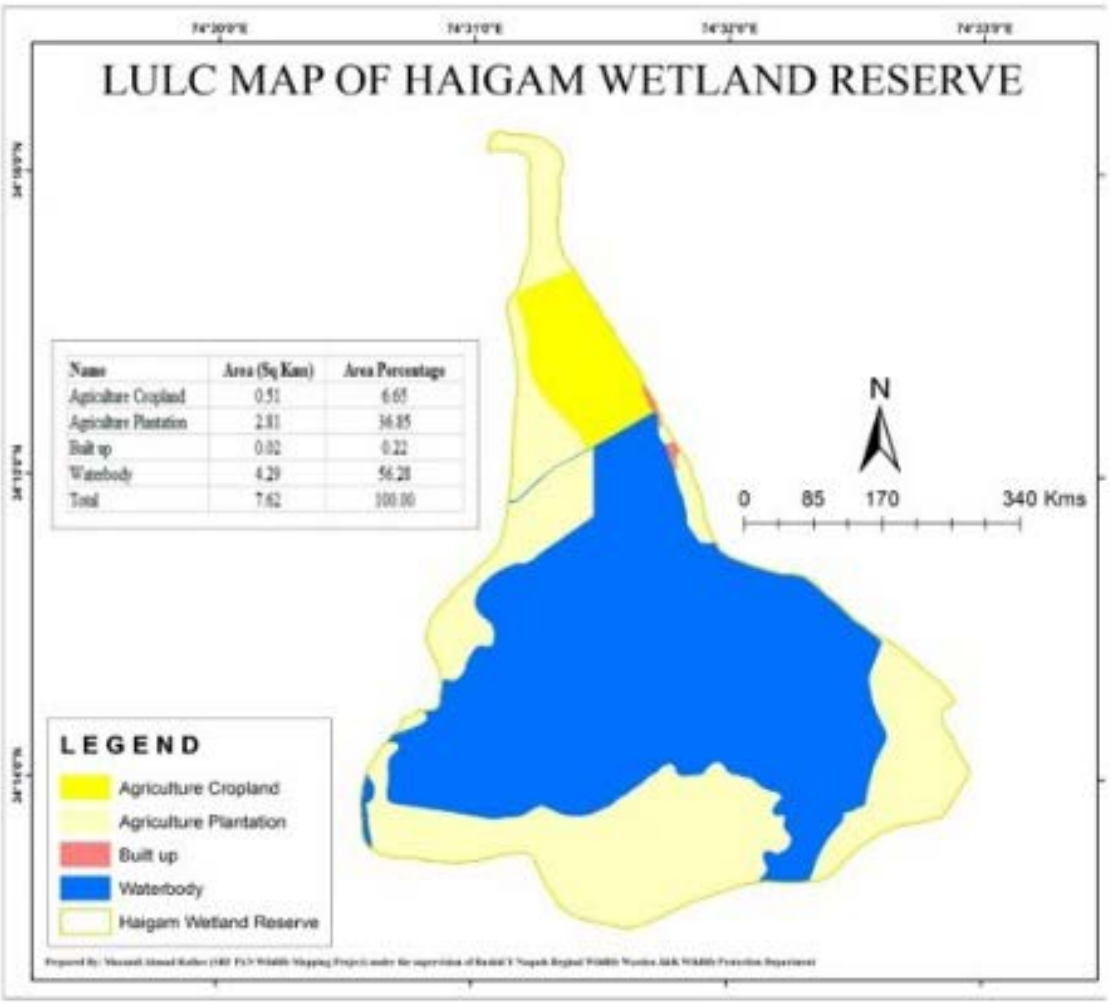
Manibugh Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Cropland	0.02	34.39
Plantation	0.03	35.51
Waterlogged	0.02	30.10
Total	**0.07**	**100.00**

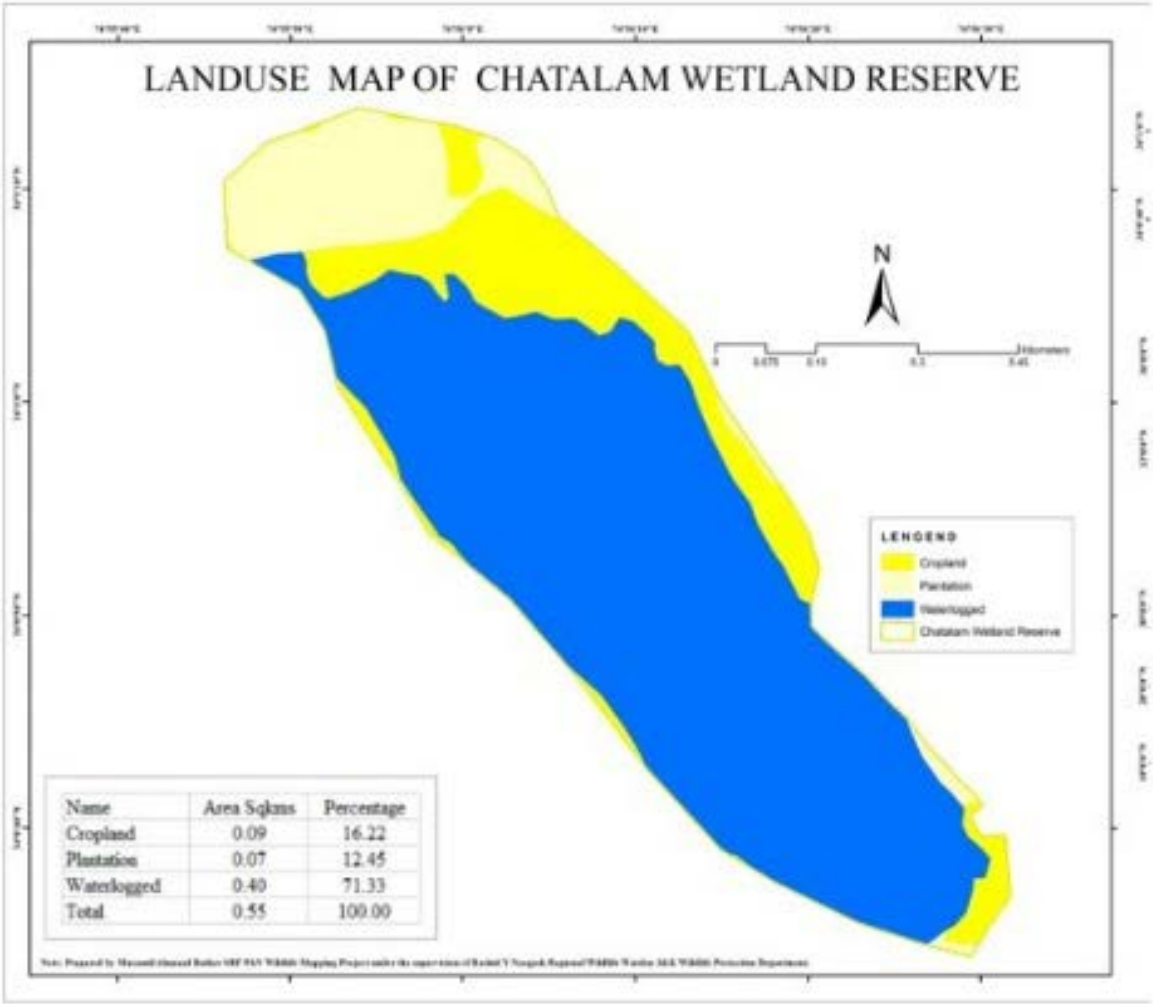
Mirgund Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Cropland	2.55	66.59
Willow Plantation	0.32	8.45
Barren	0.06	1.68
Waterlogged	0.88	23.10
River / Stream / Drain	0.01	0.19
Total	**3.83**	**100.00**

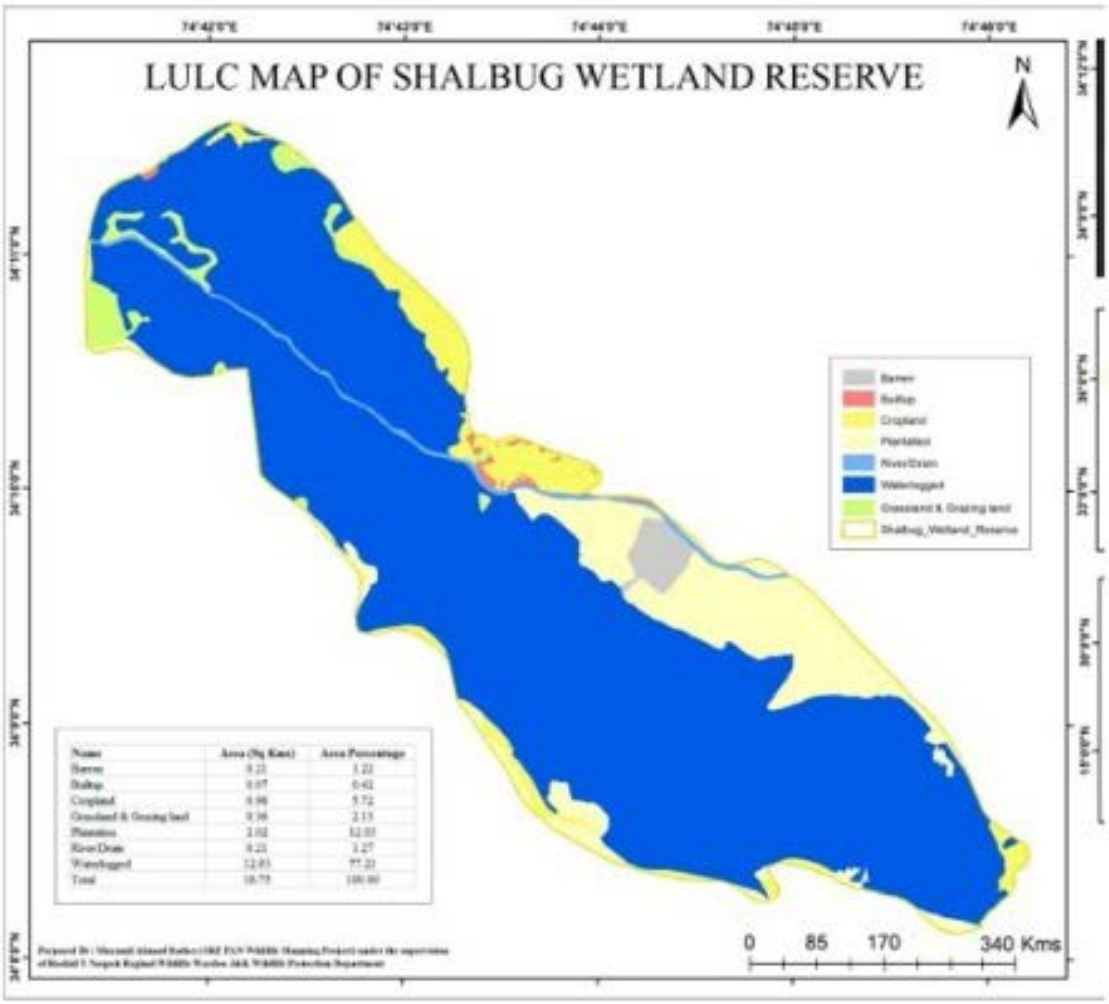
Shalbugh Wetland Reserve		
Name	**Area Sqkms**	**Percentage**
Barren	0.21	1.22
Built-up	0.07	0.42
Cropland	0.96	5.72
Grassland & Grazing land	0.36	2.13
Plantation	2.02	12.03
River / Stream / Drain	0.21	1.27
Waterlogged	12.93	77.21
Total	**16.75**	**100.00**

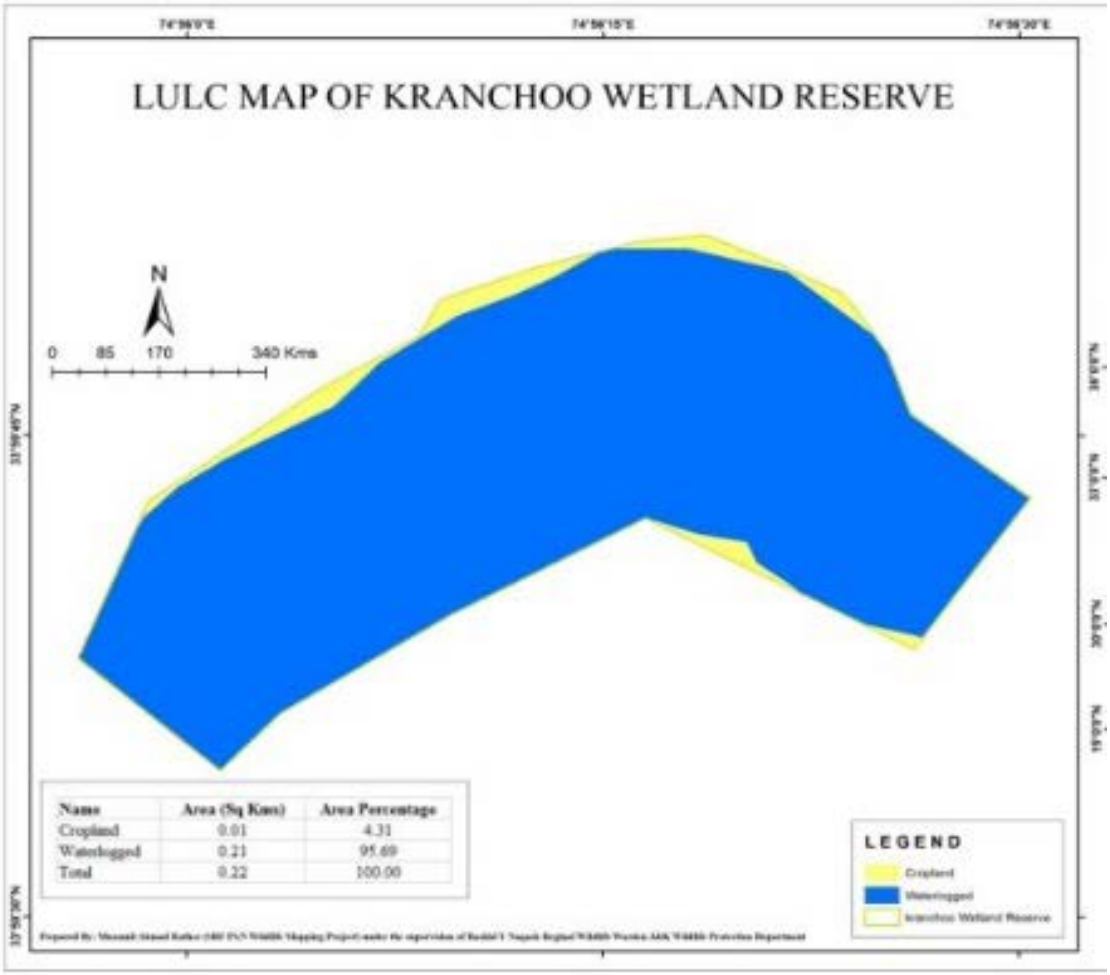

LANDUSE MAP OF HOKERSAR WETLAND RESERVE
N
LEGEND
0 85 170 340 Kms

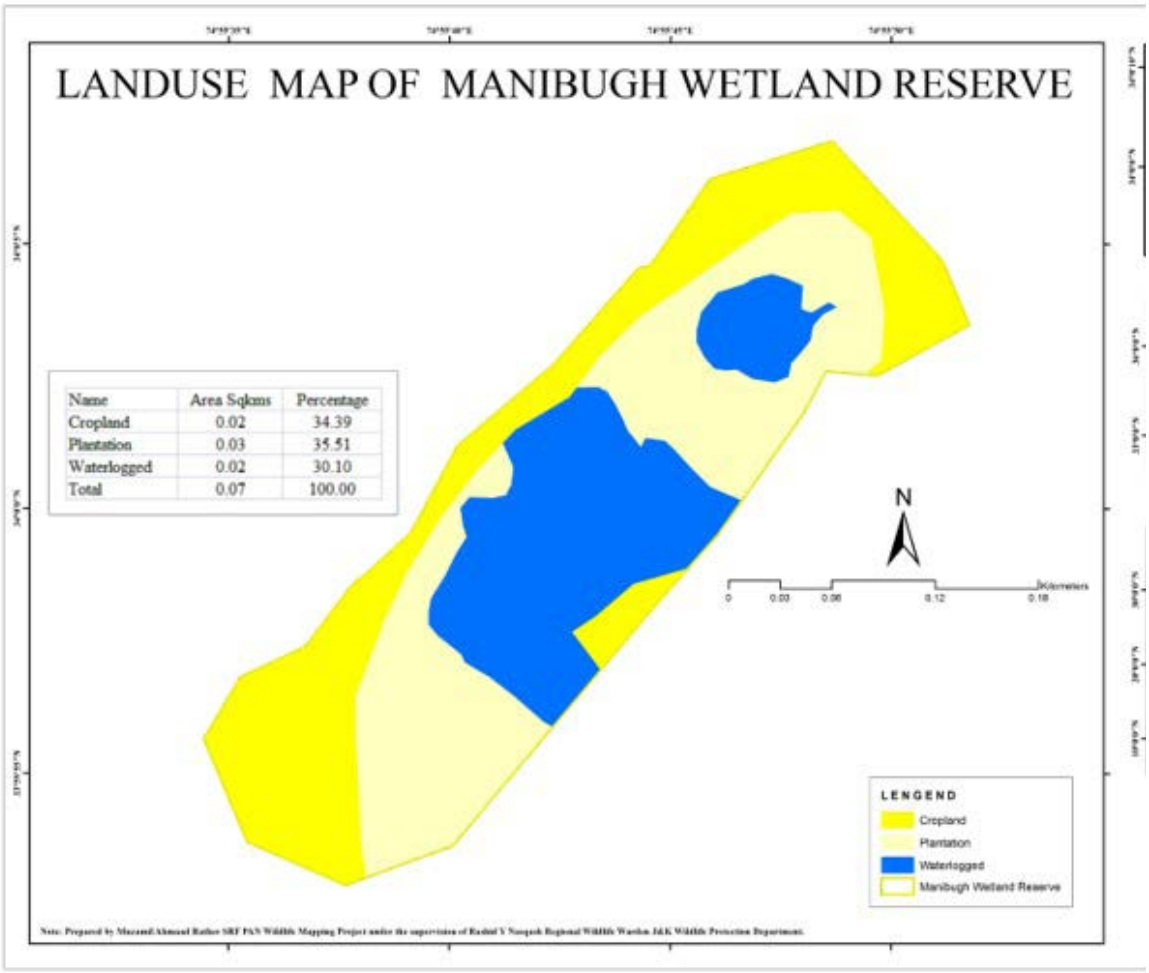

Landuse Map of Mirgund Wetland Reserve
N
0 0.15 0.3 0.6 0.9 Kilometers
LEGEND

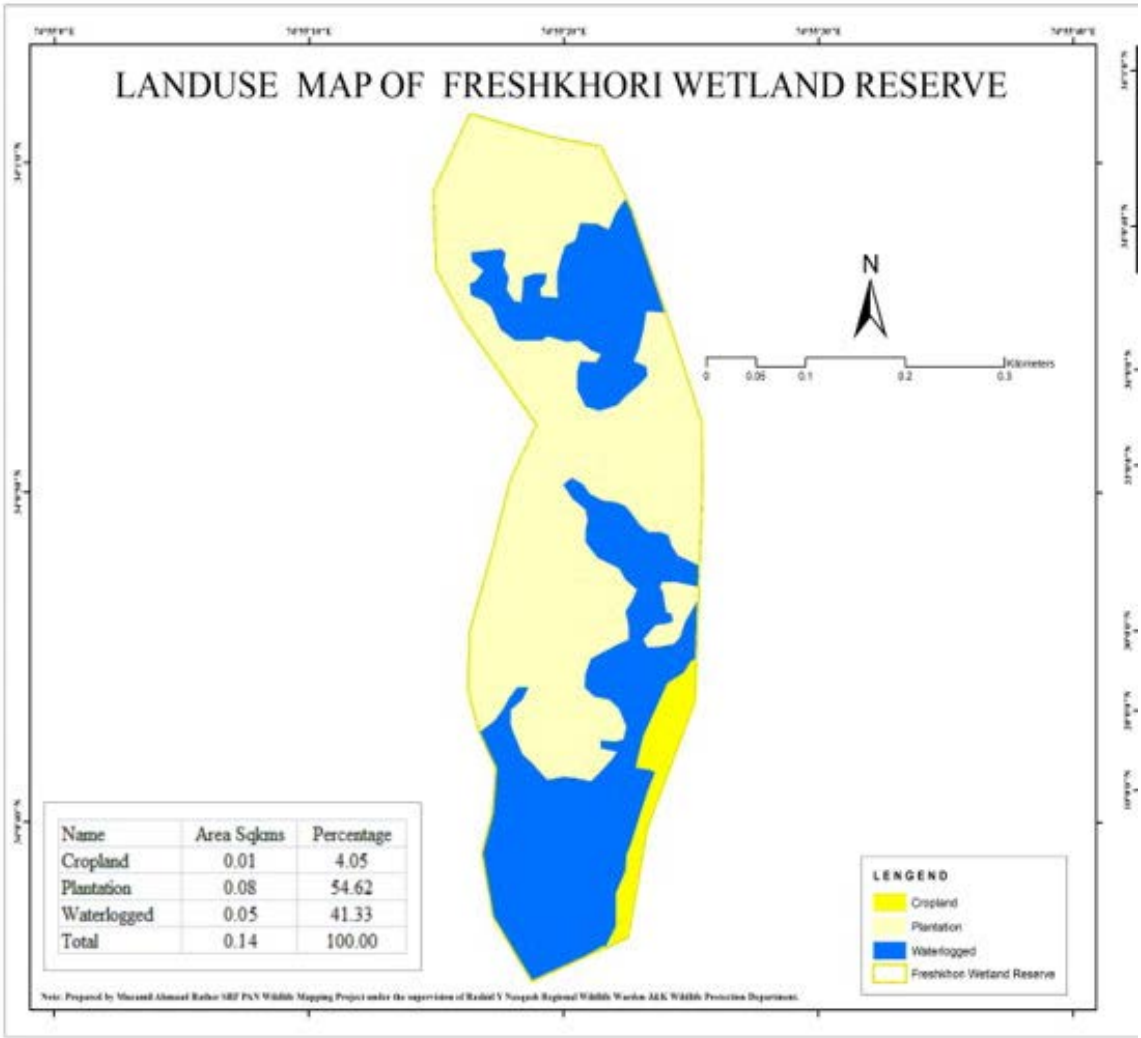

LULC MAP OF HAIGAM WETLAND RESERVE
Name | Area (Sq Kms) | Area Percentage
Agriculture Cropland | 0.51 | 6.65
Agriculture Plantation | 2.81 | 36.85
Built up | 0.02 | 0.22
Waterbody | 4.29 | 56.28
Total | 7.62 | 100.00
N
0 85 170 340 Kms
LEGEND
Agriculture Cropland
Agriculture Plantation
Built up
Waterbody
Haigam Wetland Reserve


LANDUSE MAP OF CHATALAM WETLAND RESERVE
N
LENGEND
Cropland
Plantation
Waterlogged
Chatalam Wetland Reserve
Name | Area Sqkms | Percentage
Cropland | 0.09 | 16.22
Plantation | 0.07 | 12.45
Waterlogged | 0.40 | 71.33
Total | 0.55 | 100.00


LULC MAP OF SHALBUG WETLAND RESERVE
N
0 85 170 340 Kms

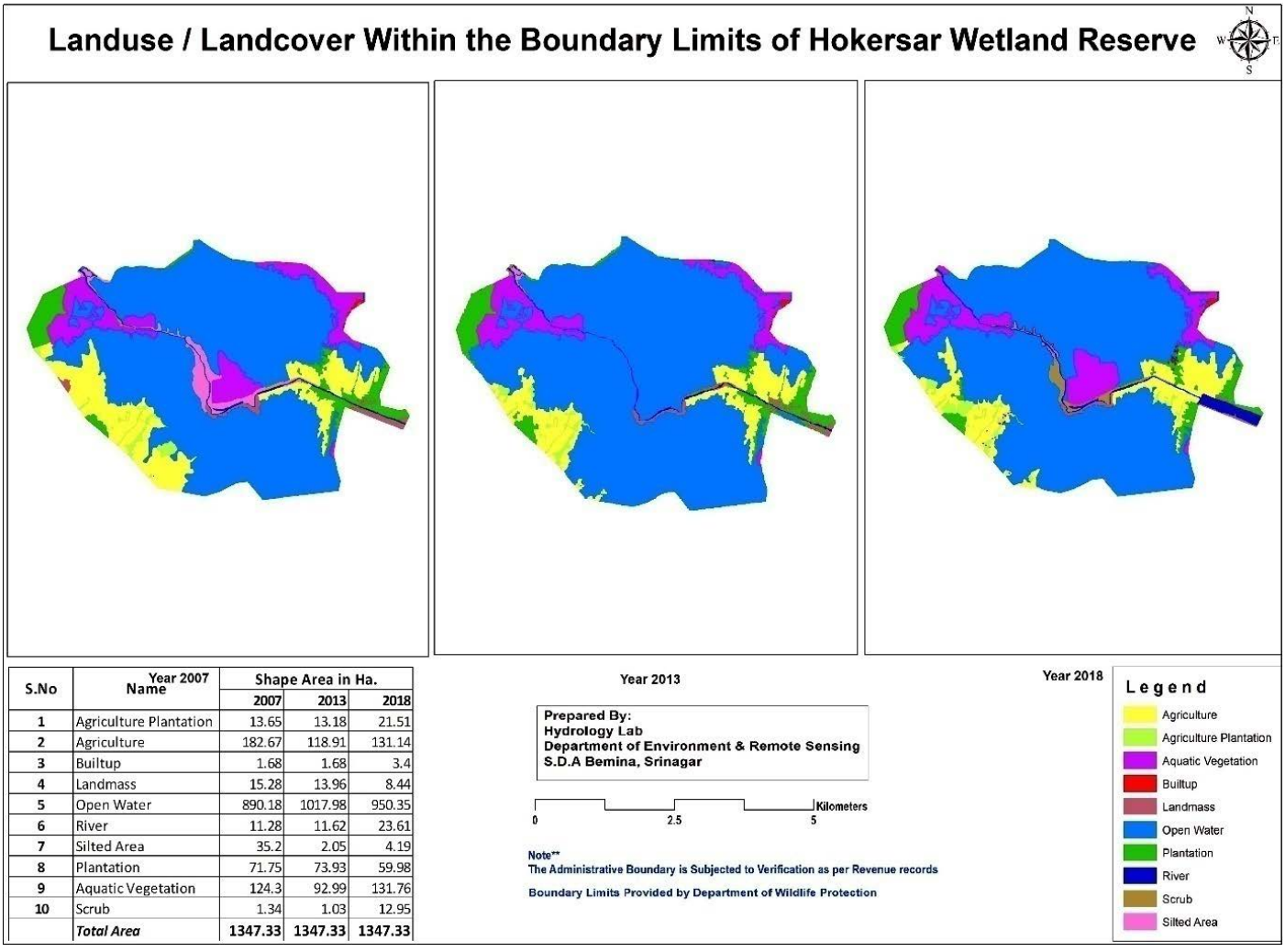

LULC MAP OF KRANCHOO WETLAND RESERVE
N
0 85 170 340 Kms
Name | Area (Sq Kms) | Area Percentage
Cropland | 0.01 | 4.31
Waterlogged | 0.21 | 95.69
Total | 0.22 | 100.00
LEGEND
Cropland
Waterlogged
Kranchoo Wetland Reserve


LANDUSE MAP OF MANIBUGH WETLAND RESERVE
Name | Area Sqkms | Percentage
Cropland | 0.02 | 34.39
Plantation | 0.03 | 35.51
Waterlogged | 0.02 | 30.10
Total | 0.07 | 100.00
N
0 0.03 0.06 0.12 0.18
Kilometers
LENGEND
Cropland
Plantation
Waterlogged
Manibugh Wetland Reserve


LANDUSE MAP OF FRESHKHORI WETLAND RESERVE
Name | Area Sqkms | Percentage
Cropland | 0.01 | 4.05
Plantation | 0.08 | 54.62
Waterlogged | 0.05 | 41.33
Total | 0.14 | 100.00
N
0 0.05 0.1 0.2 0.3
Kilometers
LENGEND
Cropland
Plantation
Waterlogged
Freshkhori Wetland Reserve

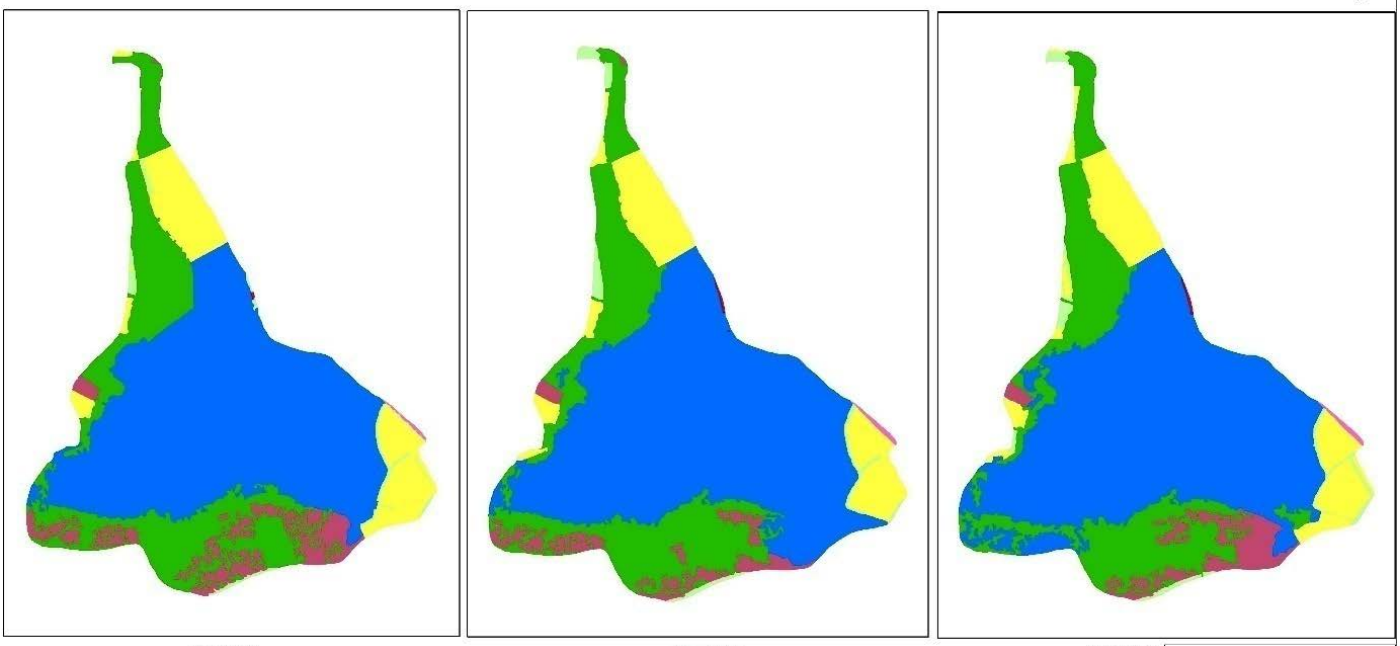
A comparative analysis of land use landcover changes over the period of time and impact on health of Hokersar Wetland is given as under:

S.No	Land use category	Area in Sq. Km		
		1964	2012	2017
1	Water Body	1.8	1.42	1.21
2	Marshy/Waterlogged	4.6	9.86	4.83
3	Cropland	4.85	1.48	4.20
4	Grazing	0.05	0.01	0.1
5	Plantation Willow	1.02	0.68	1.27
6	Nallah/Flood Channel	1.22	0.08	1.33
7	Built up	0.00	0.01	0.6
Total		**13.54**	**13.54**	**13.54**



S.No	Name (Year 2007)	Shape Area in Ha.		
		2007	2013	2018
1	Agriculture Plantation	13.65	13.18	21.51
2	Agriculture	182.67	118.91	131.14
3	Builtup	1.68	1.68	3.4
4	Landmass	15.28	13.96	8.44
5	Open Water	890.18	1017.98	950.35
6	River	11.28	11.62	23.61
7	Silted Area	35.2	2.05	4.19
8	Plantation	71.75	73.93	59.98
9	Aquatic Vegetation	124.3	92.99	131.76
10	Scrub	1.34	1.03	12.95
	Total Area	1347.33	1347.33	1347.33

Landuse /Landcover Within the Boundary Limits of Haigam Wetland Reserve



Year 2007 | Year 2013 | Year 2018

S.No	Name	Shape Area in Ha.		
		2007	2013	2018
1	Agriculture	84.34	79.61	83.18
2	Agriculture Plantation	9.12	12.71	12.82
3	Builtup	0.14	0.47	0.59
4	Landmass	52.75	34.17	39.34
5	Open Water	422.45	444.6	443.08
6	Silted Area	1.11	1.66	1.66
7	Plantation	192.4	189.09	181.64
	Total Area	**762.31**	**762.31**	**762.31**

Prepared By:
Hydrology Lab
Department of Environment & Remote Sensing
S.D.A Bemina, Srinagar

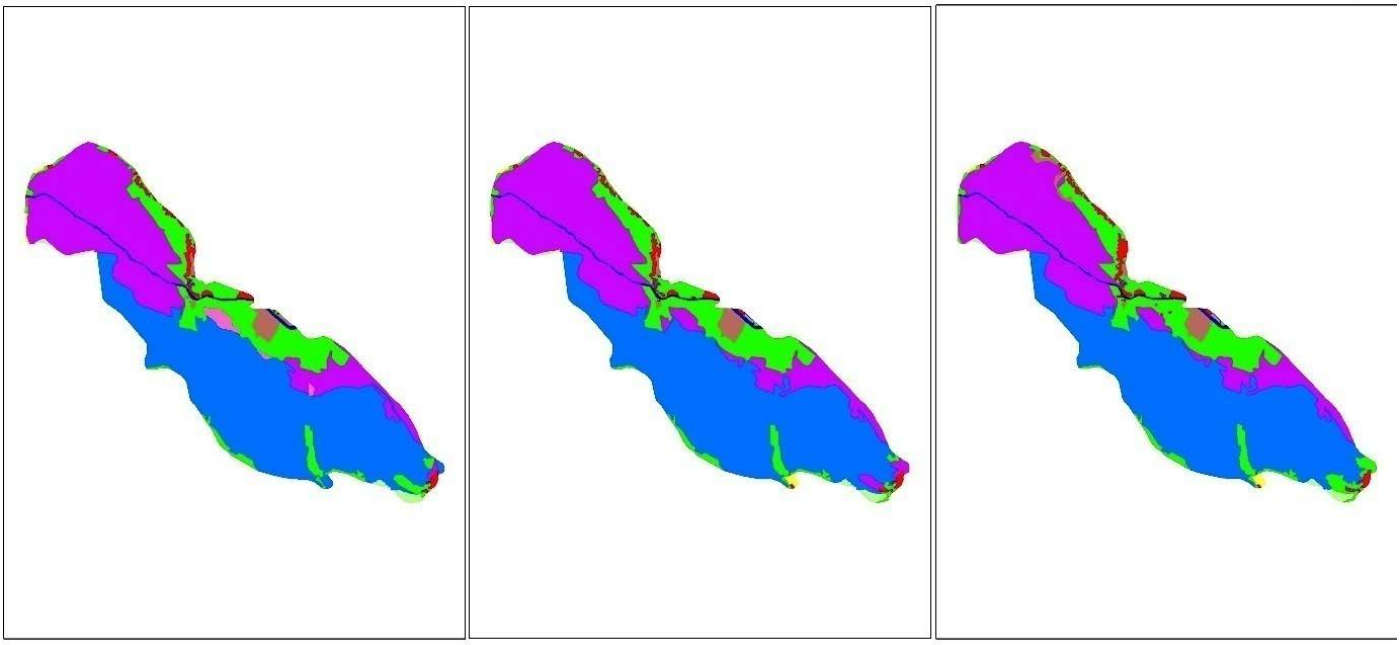
0 0.25 0.5 1 Kilometers

Note**
The Administrative Boundary is Subjected to Verification as per Revenue records

Boundary Limits Provided by Department of Wildlife Protection

Legend
- Agriculture
- Agriculture Plantation
- Builtup
- Landmass
- Open Water
- Plantation
- Silted Area

Landuse / Landcover Within the Boundary Limits of Shalabugh Wetland Reserve



Year 2007 | Year 2013 | Year 2018

S.No	Name	Shape Area in Ha.		
		2007	2013	2018
1	Agriculture	2.54	6.24	4.57
2	Agriculture Plantation	12.08	10.4	10.85
3	Builtup	24.17	25.76	32.29
4	Landmass	24.8	21.68	30.48
5	Open Water	809.6	798.05	799.54
6	River	17.2	17.2	16.89
7	Silted Area	16.2	1.31	1.11
8	Plantation	250.57	246.64	258.08
9	Aquatic Vegetation	518.55	548.43	521.9
	Total Area	**1675.71**	**1675.71**	**1675.71**

Prepared By:
Hydrology Lab
Department of Environment & Remote Sensing
S.D.A Bemina, Srinagar

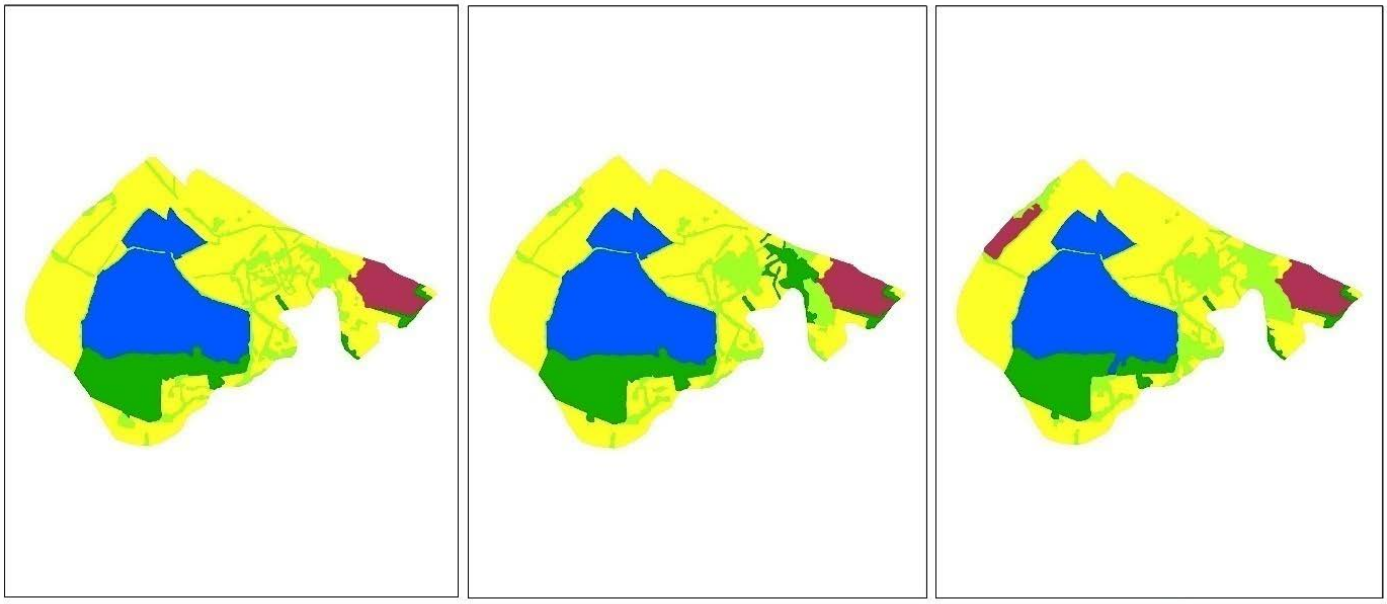
0 0.5 1 Kilometers

Note**
The Administrative Boundary is Subjected to Verification as per Revenue records

Boundary Limits Provided by Department of Wildlife Protection

Legend
- Agriculture
- Agriculture Plantation
- Aquatic Vegetation
- Builtup
- Landmass
- Open Water
- Plantation
- River
- Silted Area

Landuse / Landcover Within the Boundary Limits of Mirgund Wetland Reserve



Year 2005 | Year 2013 | Year 2018

S.No	Name	Shape Area in Ha.		
		2005	2013	2018
1	Agriculture Plantation	41.42	42.03	52.69
2	Agriculture	184.17	175.3	166.35
3	Landmass	16.16	16.12	22.63
4	Open Water	96.44	96.44	98.35
5	Plantation	44.86	53.16	43.03
	Total Area	**383.05**	**383.05**	**383.05**

Prepared By:
Hydrology Lab
Department of Environment & Remote Sensing
S.D.A Bemina, Srinagar

0 0.5 1 2 Kilometers

Note**
The Administrative Boundary is Subjected to Verification as per Revenue records

Boundary Limits Provided by Department of Wildlife Protection

Legend
- Agriculture Plantation
- Agriculture
- Landmass
- Open Water
- Plantation

1.7 Prevailing Management Practices: -

The Management activities in the said wetland conservation reserves are undertaken presently on the basis of framing of Annual Plan of Operations. Management activities undertaken in the wetlands are like eradicating the excessive reeds and floating vegetation on a controlled basis each year in all season except winter. This is done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions from wetlands, maximize open water areas and during growing stage, floating vegetation can become conspicuous. Department of Irrigation and Flood Control has initiated the process of constructing 80 mtr long automated hydraulic sluice gate at the exit point near Sozeath village as per conditions laid down in government order where under permission was accorded for dredging work in the area after clearance of Standing Committee of National Board for Wildlife and orders of the Hon'ble Supreme Court. After Completion of this gate, water level in the Hokersar will be regulated as per the requirement and will rejuvenate the whole wetland. All the Wetlands particularly Hokersar, Shallabugh, Mirgund and Hygam have been used as a temporary basin of flood waters to avoid frequent flooding of other urban and sub urban areas. The activities required to be undertaken are prioritized and included in the Annual Plan of Operations as per availability of funds/budgetary provisions. The important activities, thus undertaken are desilting of critical areas, deweeding, encroachment removal, disposal of solid waste, demarcation, fencing, habitat improvement, antipoaching operations, infrastructure for field staff, education and awareness.



CHAPTER NO 2

MANAGEMENT PLANNING FRAMEWORK

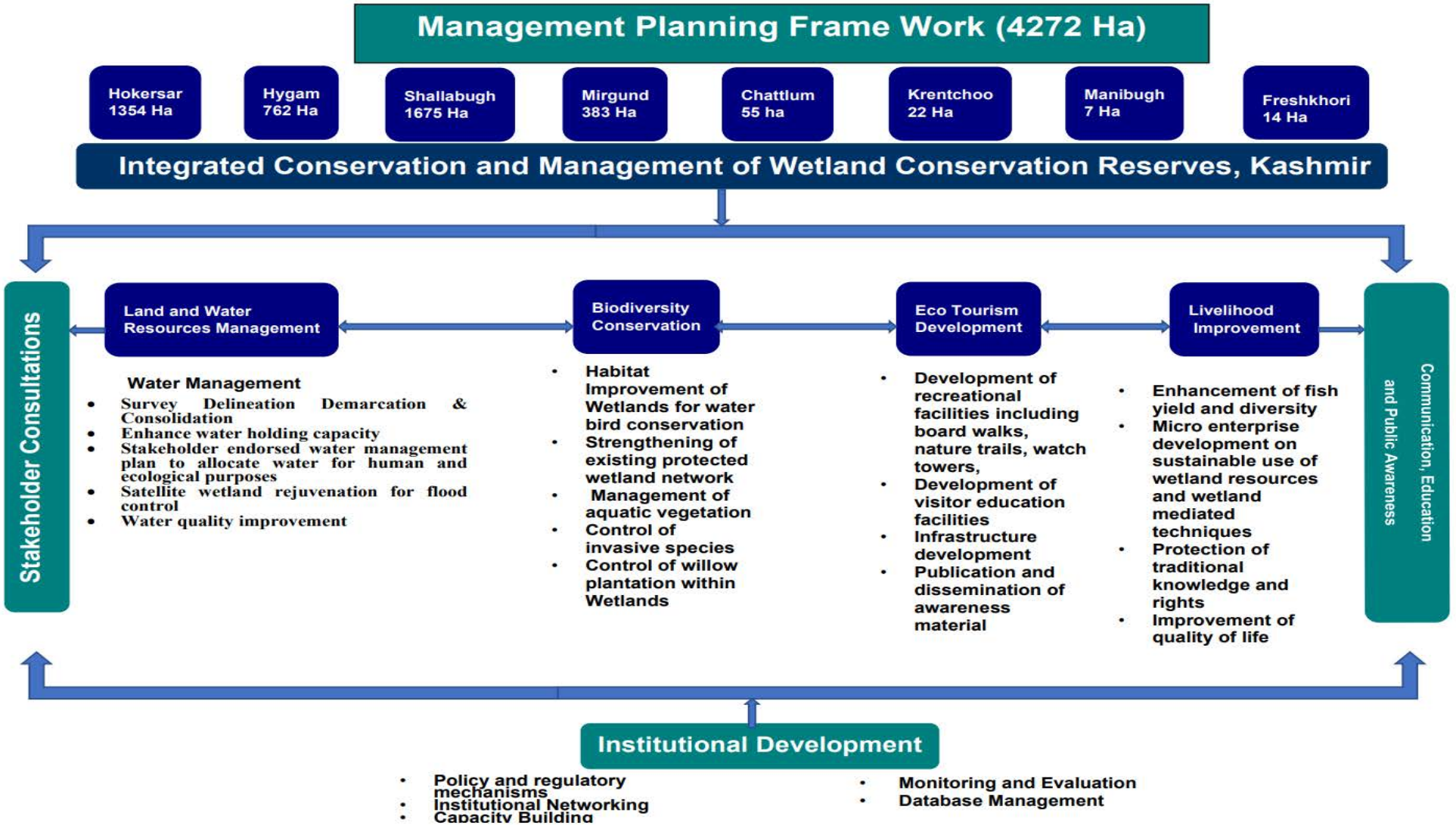


Conservation and sustainable development of all the Wetlands under the control of the Wildlife Department in Kashmir requires integrated planning and resource management at the Jhelum River basin level recognizing the interconnectedness of wetlands with their catchments. River basin level planning requires understanding of the carrying capacity of the river basin with a view to produce desired goods and services from limited resource base and achieve equitable quality of life while maintaining desired environmental quality in the region.

The planning for sustainable development calls for trades off between desired production and consumption levels. It also emphasizes on development of supportive mechanisms within the generative capacity while maintaining the environmental quality. The challenge, therefore, is to conserve wetland ecosystems along with their rich biodiversity while providing sustained economic benefits to the communities dependent upon these resources for their sustenance.

River basin approach is adopted to address the management problems of all the Wetlands under the control of Wildlife Department taking into account the external, natural and induced factors and their influence on the ecosystems. These Wetlands and resources are essentially adapted to the hydrological regimes and vulnerable to changes due to anthropogenic pressures. The emphasis for successful management of these wetlands, therefore, is on maintenance of ecosystem characteristics and sustainable utilization of its resources for the benefits of stakeholders, particularly local communities. Integrated management planning therefore aims at bringing together stakeholders at all levels and to consider their needs and aspirations while ensuring sustainability of wetland ecosystems within the Jhelum River Basin.

The management planning framework will seek a balance between ecosystem conservation for ensuring ecological integrity of all our Wetlands and ensuring livelihood security to the communities. It will also seek to ensure an effective institutional mechanism that harmonizes planning at various levels with participation of all concerned stakeholders to achieve the objectives of integrated conservation and livelihoods. In order to achieve the above, management planning has been organized along five subcomponents, viz land and water resources management, biodiversity conservation, ecotourism development, livelihood improvement and institutional development. Schematic presentation of the planning framework is presented as below.



Specific Management interventions have been defined for each of the components. Project implementation mechanisms have been defined to achieve the management objectives identified under the action plan.

2.1 MANAGEMENT ACTION PLAN:

In order to address the issues and challenges of wetland conservation reserves, as mentioned above, management action plan is proposed for undertaking various mitigatory measures in 5-year time period. The important features of the action plan are as under: -

i) Purpose and Expected Outcome:

- Rejuvenation of hydrological functions of all these 8 Wetland Conservation Reserves through significant enhancement to present water holding capacity and restoration of hydrological connectivity to the adjacent marshes wherever applicable.
- Water quality of all these 8 Wetlands to be improved to B category as per CPCB designated best use criteria through management of sewage coming from adjoining settlements and water quality regulations.
- Allocation of water for human and ecological purposes through formulation and perationalization of stakeholder endorsed water management plan.
- Enhancement of biodiversity through Wildlife and Waterbird conservation.
- Enhancement of water bird populations through control of poaching, strengthening existing Wetland Conservation Reserve network and habitat improvement.
- Optimization of economically important plant species through water level enhancement.
- Control of invasive species in all the Wetland Conservation Reserves.
- Opportunities of livelihood diversification to wetland fringe communities through development of Ecotourism.

ii) Habitat Management:

Shall be undertaken by:

- Maintaining the heterogeneity in macrophyte vegetation to encourage the diversity of water birds.
- Artificial nesting sites (floating platforms/earthen mounds) for the breeding terns.
- Levelling the existing ponds to increase the feeding zones for the migratory birds.
- Creation of bird habitats closer to the shoreline areas, free from human activities, to facilitate different sections of society to watch birds.

iii) Management of Weeds and Aquatic Macrophytes:-

Mechanical control is difficult, but possible on sites that are flooded or consistently moist. Mechanical management methods have been widely used world over in attempts to control aquatic plants. These are:

Harvesting: In mechanical harvesting, weed cutting operations combined with plant removal are suggested. The mechanical harvesters that cuts the material and loaded on boats is a good technique to get rid of from excessive weeds and peat. This practice though is a prevailing management technique in most of the wetlands by the Wildlife Department. Disposal boat carries the plant material away. The plant material is generally used to feed the domestic animals.

Hand Cutting/Pulling: The most common form of mechanical control is actually the use of hand cutters, rakes, or bare hands to remove vegetation. This is the most common method used worldwide; and the most widely used method by most lakeshore communities. These techniques are most appropriate for localized nuisance problems of both, non-indigenous and native plants. The aquatic weeds that actually play the role of nutrient sink and thus regulate the water quality of a wetland. However, the uncontrolled growth of weeds like Nymphoides, Salivnanatans, Azolla, Lemna spp, Myriophyllum spp. Sparganium erectum are causing problems to the wetland. De-weeding of such macrophytes can be carried out on the selective basis rather than general scale harvesting. As some of the macrophytes play vital role in providing shelter and nesting places to the migratory birds. Macrophyte harvesting can be done on large scale by contractors and on small scale by local villagers. However, large scale extermination of macrophytes shall be avoided as there is possibility of destroying bird-niches. The chunks of harvested macrophytes or partially decomposed macrophyte heaps, are locally known as 'Damb'. These are used by local people for fuel purpose. Removing such heaps will prove to be beneficial as it helps in increasing the water depth. This practice is suggested to be encouraged by the department, as it will keep a balance between weed growth and removal.

The maintenance of macrophytes on selective basis will help to maintain the nutrient cycles and nesting and roosting sites for birds. They effectively remove minerals from the nutrient sediment pool. A variety of benefits are credited to macrophytes of the wetland as they act as a buffer zone for the surrounding agricultural runoff before entering into the wetland, particularly for nutrient removal. Thus, the conservation potential of macrophytes is an integral part of the wetland ecosystem, and their role as bio-indicators of pollution.

iv) Desilting:-

When silt get settled at the wetland bottom, water retention gets decreased and the emergent weeds (Typha, Sparganium, Scirpus spp. etc.) establish. Such a situation demands the use of dredging facilities to remove silt and increase the water depth of wetland. This also reduces the problem of emergent weeds. So, most of the wetlands are shallow due to sedimentation and have excess plant growth. Dredging is one of the techniques by which the macrophyte vegetation along with excess silt can be removed. It will clean the ditches. The practice can however be put to auction and private partners and communities will be allowed to desilt the identified blocks up to designated depth. Dredging will create more openings and more diverse habitats and creating depth gradients, it will also create more diversity in the plant community.

v) Construction of Embankment and Silt Traps:

The feeding channels of most of our wetlands such as Hokersar, Hygam and Shallabugh are mainly fed by flood channels after snaking through large number of villages/ settlements, thus bringing loads of silt from its origin in the catchment. Most of the fringes of the wetland have already silted up. Serious threat to the wetlands has occurred towards the source of these feeding channels entering into

the wetland and has converted these portions into an upland habitat. The maximum amount of silt load is received by these wetlands during May-April. Raising of Embankments and making adequate number of silt traps with sufficient capacity to hold and retain the flood waters can be constructed around the periphery of these wetlands and at the entry points of the feeder channels. This will stop the direct discharge of silt into the wetland. The main feeding channel can be provided with an arrangement of silt-traps or needle gate before it enters into the wetland so that the excessive silt will be stopped by these silt traps. In order to flush out the silt from the wetland, moderate dredging followed by periodic maintenance may be required.

vi) Native Plant Restoration:

The biological management technique can include native plant restoration. It is an ecological approach to manage a desired plant community. The basic idea is that restoring a native plant community has been the end goal of most aquatic plant management programs. A healthy native plant community will slow invasion or reinvasion by non-native species and will provide the environmental and habitat needs of an aquatic littoral zone. Re-introduction of a number of species which have faced local extinction from wetland e.g. Eurayle ferox, Nelumbio nucifera, Acorns calmus is desirable from an economic and ecological viewpoint.

vii) Population Monitoring of Migratory Birds:

The Wetlands under the control of Wildlife Department in Kashmir serve as an important and potential bird habitat for over-wintering populations of migratory water birds and summer residents in Kashmir valley. Studies suggest that it is the habitat diversity in these wetlands during winter season, in particular the areas of floating vegetation that satisfy critical needs for wintering populations of migratory water birds. The rich organic matter in the core sediment is mostly due to the autochthonous origin like litter fall of macrophytes and decaying planktonic algae and transport of allochthonous organic matter from the catchment's basin. The high organic carbon content in the sediment supports the luxuriant macrophyte growth and bird congregation. Generally, there are positive correlations between macrophyte complexity and bird populations and between invertebrate abundance and duck populations. The major factor responsible for the occurrence of large congregation of waterfowl in some of the wetlands like Hokera, Hygam and Shallabugh is due to the diversity and density of macrophytes because most of the migratory waterfowls wintering in Hokera are herbivores. In order to minimize the disturbances caused due to anthroprogenic pressures during inward migration period, proper check has to be maintained to minimize such disturbing pressures in the wetlands especially during breeding season. Extensive exploitation of some important macrophyte species like Trapa natans, which is an important food constituent for many migratory birds, should be regulated within the wetland periphery. Phragmites australis and Typha angustata form the most suitable site for Mallard and White eyed Pochard and Coots which in last few years has shown a decline in the wetlands shall be actively promoted, particularly in the shallow waters and floating gardens. Periodic surveys and documentation of flora and fauna, especially threatened species, and their scientific management need to be undertaken.

viii) Control of Overgrazing:

Overgrazing in the fringes and inside the wetlands like Hokersar, Hygam and Shallabugh has certain ecological effects, i.e. reduction of the mulch cover of the soil, and depletion of different macrophytes which provide food material to different bird species. Thus, a strong enforcement mechanism need to be put in place to check on overgrazing of cattle within the wetland periphery. The administrative setup shall be made more effective and stringent arrangement and guards shall be put on watch on all the entry points of wetland so as to stop the infiltration of the cattle.

ix) Public Awareness:

It is necessary to create awareness regarding importance and potential of wetlands and about detrimental activities which could lead to the degradation of wetlands. The local people will be educated through various media like booklets, audio-video documentaries, lectures, slide show, campaigning, banners, newspaper ads, exhibitions, posters, postal stamps, stickers, etc. It will involve all relevant sectors of society and scientific disciplines, capacity building, involvement of academicians and researchers. The local populations around the wetlands will be made aware of importance of wetlands and regarding various resources connected to their livelihood, as they will be directly affected by any deterioration and degradation.

x) Coordination and Consultation:

Department of Wildlife Protection will facilitate and promote converge of all the welfare schemes under implementation by the Government Departments, in the fringes of these wetlands in order to improve the socio-economic condition of the local population such as:

- Introduction of self-employment schemes/self-help groups for the women of adjoining villages of these wetlands to improve the local economy.
- Formation of Nature Clubs in all schools around the lake and arranging free bird watching trips to school and college students.
- Community participation in protection of the birds will be initiated with cooperation of local N.G. O's.
- Under Swatch Bharat Scheme, Community and individual toilets will be constructed all around these wetlands in the identified villages to improve the sanitation and hygiene.
- Rural and Urban Local bodies will be taken on board to conduct solid and liquid waste collection and removal exercises on regular and sustained basis and to install and manage adequate number of Dust bins in the locality of these Wetlands.
- In order to check illegal poaching of birds and encroachment attempts, enforcement drives on sustained and regular basis shall be conducted in the vulnerable areas with active coordination and assistance from Forest Protection Force, Forest Department, Police, Revenue Authorities and local committee members.

- For conducting water quality assessment and chemical analysis of various parameters, Pollution Control committee of J&K will be roped in to put in place a mechanism to conduct water quality assessment in the wetlands of Kashmir presently under the control of wildlife Department.
- Department of Irrigation and Flood Control Kashmir is the main stake holder in management and rejuvenation of all these wetlands. Implementation and Monitoring of flood mitigation schemes carried out by this Department shall be strictly followed and consultative meets shall be held in order to draw a balance between biodiversity conservation and flood mitigation measures. Flood spill over channels feeding Hokersar and Hygam Wetlands will have to be managed and maintained strictly in accordance health requirements of these wetlands.

2.2 Integrating Rural-Urban Sanitation & Waste Management Schemes and Role of Other Government Departments for Healthy Wetlands and Surrounds.

It is believed that the Good Governance involves increased participation of the citizens, greater accountability and transparency in the operation of Government run Scheme. In line with, the convergence and promotion of Government run schemes for human welfare as well as ecological purposed will be a joint mission to be promoted by the Directorate of Urban Local Bodies Kashmir and Directorate of Rural Sanitation, J&K.

A) Urban Local Bodies Kashmir

The Directorates of Urban Local Bodies Kashmir and Rural Sanitation J&K Government have agreed in principle to initiate joint programmes in the villages falling in zone of influence of each wetland conservation Reserve in Kashmir. J&K Urban Local Bodies, will promote application of concept of civic bodies at grass root level in these areas for creating people's participation in improving and achieving the objectives of sanitation, Solid Waste management and other civic amenities/ services by way of exploration and utilization of available resources at local level.

A sustained well-run mechanism of performance and functions shall be arrived at for implementing the following operational schemes falling in the zone of influence of each wetland wherever applicable.

- Public Heath, Sanitation, Conservancy and Solid Waste Management;
- Safeguarding interests of weaker sections of the society;
- Slum improvement and up-gradation;
- Promotion of cultural, Educational and aesthetic aspects;
- Burials and burial grounds, cremation and cremation grounds;
- Cattle ponds and prevention of cruelty to animals;
- Regulation of slaughter houses and tanneries;
- Regulation of amenities including street lighting, parking lots, Bus stops and public conveniences;

B) Swachh Bharat Mission (Gramin) :

The Rural Sanitation Department under Swachh Bharat will focus on improving the levels of cleanliness in the area falling under the zone of influence of each wetland conservation Reserve through Solid and Liquid waste Management activities and making Gram Panchayats Open Defecation Free (ODF), clean and sanitized and following components under Swachh Bharat Mission (G) will be promoted for effective implementation :-

1. Individual household latrines (IHHL)

Incentive as provided under the Mission for the construction of Individual household latrines (IHHL) shall be made available for all Below Poverty Line (BPL) Households and Above Poverty Line (APL) Households restricted to SCs/ STs. Small and marginal farmers, landless labourers with homestead, physically handicapped and women headed households. The incentive amount provided under the scheme is upto Rs. 12000/- for construction of one unit of IHHL with water availability, including for storing for hand-washing and cleaning of the toilet.

2. Community Sanitary Complex (CSCs)

Community sanitary Complexes comprising an appropriate number of toilet seats, bathing cubicles, washing platforms, wash basins etc, shall be set up in a places in the all the villages falling in the zone of influence of each wetland. Such Complexes will be made at public places, Markets, Bus stands etc; where large scale congregation of people takes places. The maintenance of such Complexes is very essential for which Gram Panchayat shall own the ultimate responsibility and the Operation and Maintenance will be got assured. The maximum support per unit prescribed for a community sanitary complex is Rs. 2.00 lacs with breakup of Rs. 1.80 lacs incentive amount and Rs. 0.20 lac will be the community contribution.

3. Solid and Liquid Waste Management

The objective of SBM(G) is to bring about improvement in the cleanliness, hygiene and the general quality of life in rural areas. Solid and Liquid waste management (SLWM) is one of the key components of the programme. The total assistance under SBM(G) for SLWM projects shall be worked out on the basis of total number of households in each GP, subject to maximum of Rs. 7 lakh for a GP having upto 150 households, Rs. 12 lakh upto 300 households, Rs. 15 lakh upto 500 households and Rs. 20 lakh for GPs having more than 500 households.
The details of each of the said 8 Wetland Conservation Reserves, the issues/ challenges along with Management Action Plan are given in following chapters – wetland wise.

4. Water Quality Assessment:

Today surface water is most vulnerable to pollution due to its easy accessibility for disposal of pollutants and wastewaters. Surface water quality is governed by complex anthropogenic activities and natural processes, including weathering, erosion, hydrological features, climate change, precipitation, industrial activities, agricultural land use, sewage discharge,

and the human exploitation of water resources. During the last two-decade, widespread deterioration in water quality of Wetland Conservation reserves of Kashmir has been reported in various research documentation due to rapid development of horticulture, agriculture, and urban sprawl. The evaluation of water quality has become a critical issue in recent years, especially due to concerns that freshwater will be a scarce resource in the future. J&K Pollution Control Committee is regularly carrying out Water Quality analysis on various parameters in the Wetland Conservation Reserves. The committee has conducted physico-chemical analysis in the month of August 2021 in various wetlands the results are as under:

Physico-Chemical Characteristics of various Wetlands of Kashmir Division

	Name of the Wetland	Hokersar Budgam			Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Near out let Sozaith	Towards Central	Inlet point Doodh Ganga	
	Date of Sampling	**06-08-2021**			
1	Air Temp. *C	26.0	27.0	27.0	
2	Water Temp. *C	23.9	22.5	23.5	–
3	pH	8.02	8.02	8.04	6.5 – 8.5
4	Conductivity µm/cm	374.0	306.0	368.0	–
5	T.D.S	191.0	153.0	183.0	–
6	D.O	4.7	5.0	5.1	>5mg/l
7	C.O.D	20.70	27.70	37.60	–
8	B.O.D	2.50	2.3	3.20	< 3mg/l
9	Phosphate	0.057	0.058	0.102	–
10	Ammoniacal Nitrogen	1.000	1.310	0.819	–
11	Sulphate	16.96	15.75	18.93	–
12	Hardness	152.0	132.0	146 0	–
13	Calcium	28.85	45.69	30.46	–
14	Magnesium	19.44	4.37	17 01	–
15	Total Alkalinity	90.0	138.0	166.0	–
16	Chloride	34:0	24.0	30.0	–
17	Turbidity NTU	15.0	18.0	9.0	–

	Name of the Wetland	Hygam Baramulla			Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Towards Central	Near Ningli Nallah (Inlet)	Near Balkol (Inlet)	
	Date of Sampling	**06-08-2021**			
1	Air Temp. *C	26.5	26.5	26.5	
2	Water Temp. *C	25.0	23.0	24 6	–
3	pH	7.93	7 90	8 02	6.5 – 8.5
4	Conductivity µm/cm	318.0	236.0	401.0	–
5	T.D.S	159.0	118 0	204 0	–
6	D.O	5.1	5.3	4.9	>5mg/l
7	C.O.D	25.70	21.70	45.54	–
8	B.O.D	2.50	1.9	4.0	< 3mg/l
9	Phosphate	0.080	0.101	0.056	–
10	Ammonical Nitrogen	0.746	1.070	1.330	–
11	Sulphate	21.66	16.36	11.05	–
12	Hardness	150.0	106.0	198.0	–
13	Calcium	27.25	32.06	55.3	–
14	Magnesium	19.44	6.31	14.58	–
15	Total Alkalinity	166.0	114.0	192.0	–
16	Chloride	24.0	28.0	32 0	–
17	Turbidity NTU	10.0	7 0	14.0	–

	Name of the Wetland	Shallabugh Gandarbal		Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Near Sign Board	Nallah Amir Khan (Inlet)	
	Date of Sampling	06-08-2021		
1	Air Temp. *C	26.3	26.3	

2	Water Temp. *C	23.2	22.3	–
3	pH	7.44	7.73	6.5 – 8.5
4	Conductivity µm/cm	374.0	306 0	–
5	T.D.S	197.0	155.0	–
6	D.O	4.7	3.8	>5mg/l
7	C.O.D	29.70	63.67	–
8	B.O.D	3.5	5.5	< 3mg/l
9	Phosphate	0.168	0.079	–
10	Ammonical Nitrogen	1.610	1.080	–
11	Sulphate	37.42	32.72	–
12	Hardness	140.0	146.0	–
13	Calcium	49.69	41.68	–
14	Magnesium	3.88	10.2	–
15	Total Alkalinity	164.0	132.0	–
16	Chloride	20.0	18.0	–
17	Turbidity NTU	4.0	3.0	–

	Name of the Wetland	Mirgund Baramulla			Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Near Sothu	Location 1 (Qabli-apuran)	Arampora	
	Date of Sampling	**06-08-2021**			
1	Air Temp. *C	25.8	25 8	25.8	
2	Water Temp. *C	21.0	24.6	24.0	–
3	pH	8 31	8 07	8.20	6.5 – 8.5
4	Conductivity µm/cm	457.0	456 0	337.0	–
5	T.D.S	230.0	232.0	170.0	–
6	D.O	4.3	4.0	5.4	>5mg/l
7	C.O.D	47.52	53.46	43.50	–
8	B.O.D	4.5	6.0	3.9	< 3mg/l
9	Phosphate	0.054	0.056	0.054	–
10	Ammonical Nitrogen	1.370	1.290	1.31	–
11	Sulphate	11.36	14.69	18 020	–
12	Hardness	184.0	204.0	164.00	–
13	Calcium	61.72	56.11	54.50	–
14	Magnesium	7.29	15.55	9.72	–
15	Total Alkalinity	232.0	240.0	176	–
16	Chloride	36.0	24.0	30.0	–
17	Turbidity NTU	15.0	12.0	10.0	–

	Name of the Wetland	Chattalum Pulwama			Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Near Road Side	Towards Central	Near Inlet	
	Date of Sampling	**05-08-2021**			
1	Air Temp. *C		30 7	30.7	
2	Water Temp. *C	30.5	30.1	27.3	–
3	pH	8.89	8.21	7.27	6.5 – 8.5
4	Conductivity µm/cm	1208.0	1142.0	559.0	–
5	T.D.S	583.0	581.0	285.0	–
6	D.O	5.4	5.9	5.1	>5mg/l
7	C.O.D	61,10	42.30	23.50	–
8	B.O.D	4.60	3.90	2.0	< 3mg/l
9	Phosphate	0,089	0.081	0.096	–

10	Ammonical Nitrogen	0.725	0.455	0.261	–
11	Sulphate	10.45	13.33	11.36	–
12	Hardness	378.0	380.0	224.0	–
13	Calcium	65.73	67.33	40.08	–
14	Magnesium	52,0	51.51	30.13	–
15	Total Alkalinity	500 0	494 0	262 0	–
16	Chloride	40.0	44.0	28.0	–
17	Turbidity NTU	8.0	20.0	6.0	–

	Name of the Wetland	Freshkoori Pulwama	Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Towards Central	
	Date of Sampling	05-08-2021	
1	Air Temp. *C	29.6	
2	Water Temp. *C	29.1	–
3	pH	8.27	6.5 – 8.5
4	Conductivity µm/cm	715.0	–
5	T.D.S	346,0	–
6	D.O	2.1	>5mg/l
7	C.O.D	124.50	–
8	B.O.D	22.0	< 3mg/l
9	Phosphate	0.979	–
10	Ammonical Nitrogen	1.686	–
11	Sulphate	85.29	–
12	Hardness	238.0	–
13	Calcium	43.28	–
14	Magnesium	31.59	–
15	Total Alkalinity	264.0	–
16	Chloride	40.0	–
17	Turbidity NTU	24.0	–

	Name of the Wetland	Kranchoo Pulwama		Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Inlet	Opp MEI Institute	
	Date of Sampling	**05-08-2021**		
1	Air Temp. *C	26 4	26.1	
2	Water Temp. *C	24.3	25.0	–
3	pH	7.54	7.12	6.5 – 8.5
4	Conductivity µm/cm	490.0	524.0	–
5	T.D.S	249.0	254.0	–
6	D.O	4.0	3.5	>5mg/l
7	C.O.D	23.50	39.90	–
8	B.O.D	2.5	3.5	< 3mg/l
9	Phosphate	0.147	0.113	–
10	Ammonical Nitrogen	0.208	0.375	–
11	Sulphate	10.15	15.90	–
12	Hardness	218.0	226.0	–
13	Calcium	48.09	52.1	–
14	Magnesium	23.81	23.32	–
15	Total Alkalinity	232.0	262.O	–
16	Chloride	12.0	20.0	–
17	Turbidity NTU	8.0	6.0	–

	Name of the Wetland	Manibugh Pulwama	Primary water quality criteria for outdoor Bathing (Organized) (class B)
	Location	Near Degree College Pampore	
	Date of Sampling	**05-08-2021**	
1	Air Temp. *C	32.2	
2	Water Temp. *C	29.2	–
3	pH	8.90	6.5 – 8.5
4	Conductivity µm/cm	1039.0	–
5	T.D.S	501.0	–
6	D.O	2.3	>5mg/l
7	C.O.D	51.70	–
8	B.O.D	4.70	< 3mg/l
9	Phosphate	0.058	–
10	Ammonical Nitrogen	0.548	–
11	Sulphate	13.33	–
12	Hardness	392.0	–
13	Calcium	68.93	–
14	Magnesium	53.46	–
15	Total Alkalinity	500.0	–
16	Chloride	44.0	–
17	Turbidity NTU	14.0	–

All values are in mg/l except pH. Conductivity, Turbidity and Temperature.

2.3 Managing Wetland Biomass

On the directions of the worthy Chief Secretary J&K, a one day consultative seminar on "Useful utilization of Wetland Biomass" was organized by this Department of Wildlife Protection, Jammu & Kashmir Government in collaboration with SKUAST-Kashmir, University of Kashmir, National Institute of Technology, Srinagar, CSIR-IIIM, Jammu, National Agricultural Cooperative, LAWDA, WUCMA, on 14th August 2021 at Dachigam National Park. Resource persons from all across these Institutions with expertise in the concerned subject participated in the event. The seminar was chaired by Prof. Zaffar A. Reshi, Head Department of Botany, University of Kashmir. The seminar was organized with an aim to deliberate upon the possible science-based interventions for sustainable use of wetland Bio-resources for livelihood upliftment of the dependent fringe communities in consonance with the wetland conservation.

Prof. Zaffar Reshi, in his address informed that the subject matter is very challenging and there is a need for formulation of a science-based policy regulations for sustainable use of wetland bio-resources giving an overview of possible uses of wetland bio resources into bio-fuelling, power generation and cosmetics. He emphasized on the need for adopting science based holistic approach for integrated community-based wetland management.

Prof, Showkat Ara Head Division of Environment Sciences, SKUAST-Kashmir Shalimar, informed about scientific interventions and trials done by SKUAST-Kashmir in the utilization of aquatic and other agricultural biomass particularly Azola as a supplement to poultry feed, composting, vermicomposting. Mushroom cultivation and paper production.

Dr.Khursheed Ahmad, Head Division of Wildlife Sciences, SKUAST-Kashmir highlighted the importance of wetland conservation and sustainable use of bio-resources and highlighted the role and significance of wetlands for waterfowl and issues threatening conservation of wetlands. He described the ecological significance of wetlands of Kashmir as a stopover site for migratory waterfowl and important breeding habitats for variety of resident water birds. His work on socio-economic status and dependence of local communities on wetland resources at Shallabugh Wetland Reserve was discussed as a case study. It was emphasized and advocated to promotion ecotourism and bird tourism as a new enhanced sustainable livelihood option for the local communities in and around wetlands.

Dr. Imtiyaz Ahmad Khan, Associate Professor, Department of Zoology, University of Kashmir laid emphasis on possible use of wetland biomass as animal feed particularly for fish and livestock.

Shri Irfan Rasool, Coordinator WUCMA, highlighted the role the wetlands play in maintaining the hydrological and carbon cycle through carbon sequestration. He informed that the critical issues of pollution and solid waste disposal is as a huge challenge for wetland management.

Shri Naseer Ahmad Kakroo, Superintending Engineer I & FC shared a success story of the revival of Gilsar Lake. Shri. Syed Mohsin, Senior Research Fellow, NIT Srinagar discussed Bio-Char as one of the possible means of use of wetland biomass.

Following recommendations were provided.

Summary of Recommendations:

1. All the experts were of the opinion that the use of biomass for biofouling and biogas is not a viable option in the larger interest of the local communities, a set of traditional ways of bio-resource utilization by communities should be promoted with science-based value additions provided for better income returns to the fringe communities.
2. The current status of the wetland biomass particularly the waste biomass is not sufficient to cater to the demands of the local fringe communities in terms of the economic returns from use of Bio resources. Promotion of ecotourism and bird tourism as an alternative enhanced sustainable livelihood option for the local fringe and marginal communities reliant on the wetland bio resources should be ensured. The efforts put in by SKUAST-Kashmir in developing and promoting ecotourism and bird tourism for enhanced livelihood is a welcome step in this regard.
3. Capacity building for efficient use of wetland Biomass including Azola and other macrophytes as a supplement poultry feed, composting, vermicomposting. Mushroom cultivation and paper production should be developed.
4. Scientific efforts being put in by SKUAST-Kashmir in studying the utilization of aquatic macrophytes for animals particularly livestock to mitigate feed/fodder scarcity for livestock especially in winter and early springs in the valley can be applied in a broader frame work.
5. To explore alternate non-conventional ways of utilization of wetland biomass into production of cosmetics and accessories and medicinal use.
6. To explore and promote the utilization of aquatic macrophytes for making traditional handicraft items through local communities particularly women.
7. To look into other useful uses of bioresources like biochar is a good option to be initiated on trial basis.
8. Employment generating schemes for local people on seasonal/periodic basis in biodiversity conservation/ eco-development works in wetlands will be a useful tool for managing change in human attitudes.
9. Constitution of Wetland Management committees at local level can be helpful in regulating grazing and paddy cultivation under Wise-use concept for sustainable and regulated use during the lean summer periods when disturbance to birds and habitats can be kept to minimum.

To adopt the seminar recommendations as management prescription tool, Integrated Management Action plan 2022-27 will focus to give a start to the pilot projects for developing micro level enterprise with the help of wetland fringe communities during the plan period.

2.4 Action Plan And Budget

An overall budget of **Rs 46.70** Crores is proposed for implementation of the Integrated Management Action Plan for all the Wetland Conservation Reserves of Kashmir Region over a period of 5 years (2022-27) Water Management, which is critical to the wetland rejuvenation has been allotted **Rs 18.93 Crore** of the overall investment, followed by **Rs 13.15** Crore for Biodiversity Conservation and **Rs 7.49 Crore** have been apportioned for the Education Awareness and Eco-Tourism, besides, **Rs 0.80 Crores** for the Sustainable Resource Development and Livelihood Development and **Rs 6.33 Crore** for Institutional Development.

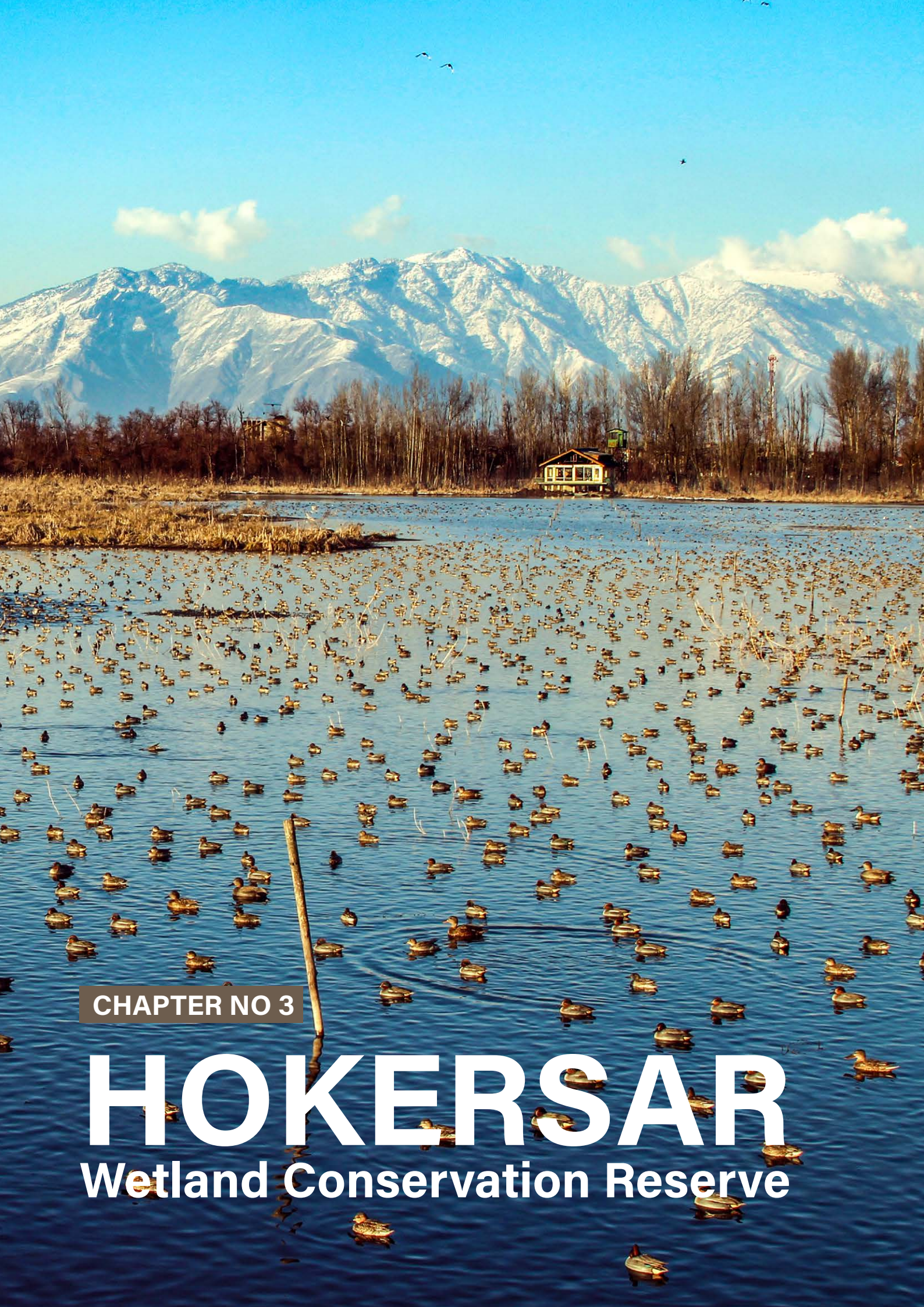
Component wise allocation is as follows:

Component		**Amt in CR**
Land and Water Management		
	Survey and Demarcation	**11.10**
	Water Management	**7.83**
Biodiversity Conservation		**13.15**
Education Awareness and Ecotourism		**7.49**
Sustainable Resource Development and Livelihood Development		**0.80**
Institutional Development		**6.33**
Total		**46.70**

Wetland wise breakup is given as under:

Component	Amount in CR	Hokersar 1354 Ha	Hygam 719 Ha	Shallabugh 1691 Ha	Mirgund 406 Ha	Chattlum 43 Ha	Freshkoori 15.25 Ha	Kranchoo 6.40 Ha	Manibugh 5.30 Ha
Land and Water Management									
Survey and Demarcation	11.10	3.79	3.035	2.66	0.302	0.62	0.56	0	0.136
Water Management	7.83	1.11	1.33	4.44	0.26	0.265	0.295	0.065	0.065
Biodiversity Conservation	13.15	4.7	2.766	3.971	0.74	0.465	0.215	0.179	0.114
Education Awareness and EcoTourism	7.49	4.18	0.71	0.755	0.368	0.61	0.08	0.432	0.352
Sustainable Resource Development and Livelihood Development	0.80	0.3	0.4	0.05	0.03	0.02	0	0	0
Institutional Development	6.33	2.05	1.213	0.925	0.33	0.788	0.21	0.539	0.275
Total	46.70	16.13	9.454	12.801	2.03	2.768	1.36	1.215	0.942





CHAPTER NO 3

HOKERSAR

Wetland Conservation Reserve



Ramsar
CONVENTION ON WETLANDS
(Ramsar, Iran, 1971)

This is to certify that

Hokera Wetland

has been designated as a

Wetland of International Importance

and has been included in the
List of Wetlands of International Importance
established by Article 2.1 of the Convention.
This is site No.:1570

Date of designation *8 November 2005*

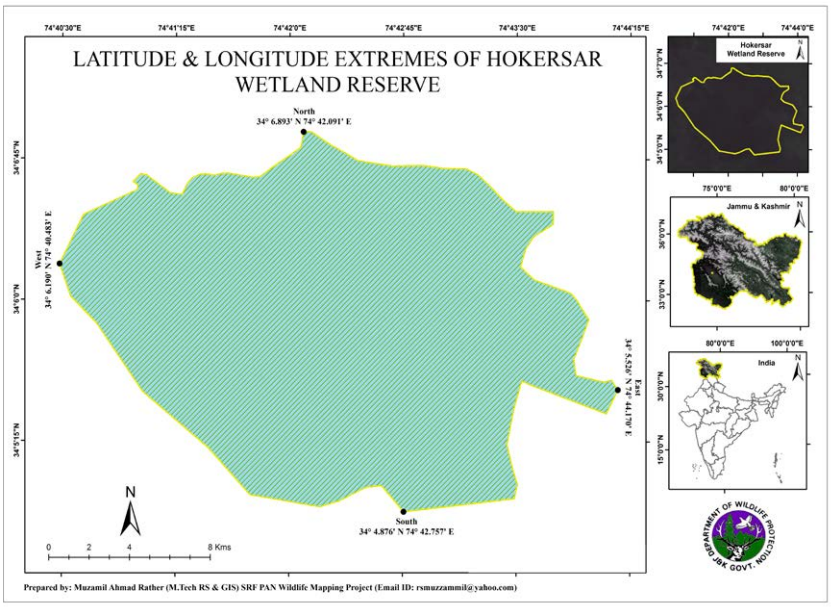
Secretary General
Convention on Wetlands

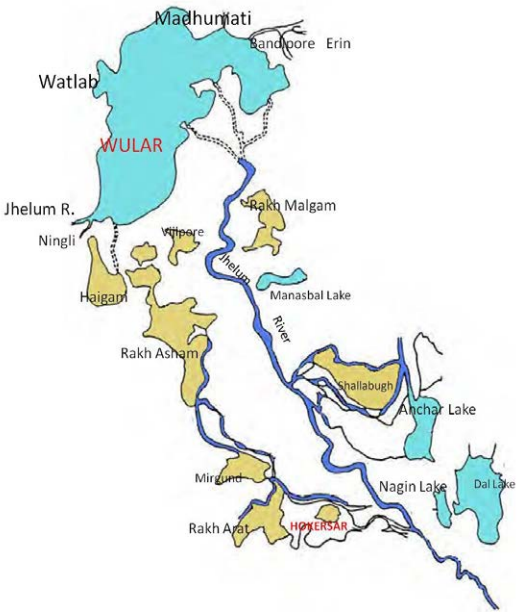
3.1 Introduction

Hokersar is a shallow post-glacial water body, flanking the river Jhelum which is running across the valley. Hokersar is a permanent eutrophic lake lies surrounded by fresh water marshes on the flood plain of Jhelum River and is at about 10 Km. west of Srinagar. The area of Hokersar Wetland Conservation Reserve falls in the districts of Budgam and Srinagar. Two perennial streams of Dood-ganga and Sukhnag feed the wetland. The Lake reaches a maximum depth of 2.50 m. in spring during snowmelt and a minimum of 0.75 m. in autumn. It is located in 34 ~ 05' N and 74 ~ 43' E at an altitude of 1580 m. The average rainfall is 550 mm, most of which falls between January and March. Average temperature ranges from 7.5 ~ C in inter to 19.8 ~ C in summer (Pandit and Qadri, 1991).

3.2 Location, Altitude and Area

It is represented on G. T. Map 43 J/12 and 43 J/16, situated at an altitude of 1,584 m. above M.S.L. The wetland is roughly oval in outline and spread over 13.54 Sq. Km. area. The wetland is drained into the River Jehlum through Doodhganga flood spill channel.





Map: Location of Hokersar Wetland Conservation along the River Jehlum Basin.

3.3 Geo- hydrology

The water table keeps on changing throughout the seasons. The feeding streams bring in load of silt, changing the physical features of the wetland including the water quality. During floods the silt deposition from catchments adversely affects the water body and threaten the very existence of this wetland, warranting thereby silt arresting measures to save this wetland.

3.4 Land use Pattern.

The wetland is weedy and extensive morass, bounded by thick willow (*Salix* spp.) groves with scattered stands of popular. A definite type of vegetation ranging from sub merged, attached and free floating; besides grass, herbs and reeds are met in the wetland. The catchment areas of the Lake include rugged mountains, forests, agriculture and horticulture lands and, land under human settlements. The floating Islands are used for many economic utilities including the cultivation of vegetables and willow plantations. The water area produces several economically important plants, like *Nelumbo nucifera* used as a vegetable and *Typha angustata* utilized for making mats. Several natural grasses produced in the lake are used as fodder as well as biofertilizers.

3.5 Vegetation:

The wetland supports a definite, type of vegetation, ranging from submerged, attached floating, free floating and emergent aquatic vegetation, grasses, herbs, reeds & sedges. Following typical marshy vegetal complexes are exhibited over there, controlled by factors like water depth, water chemistry etc.

In southern segment and marginal land of shallow water ditches the dominant plants are:

1. Typha angustata.
2. Typha laximanii.
3. Phragmites communis.
4. Elecocharis palustris.
5. Scripus spp.
6. Butomus umbellatus.
7. Frimbistylis squarosa and those which occur commonly are.
8. Lemna gibba.
9. Lemna miner,
10. Lemna trisulea.
11. Myriophyllum verticillatum.
12. Myriophyllum spicatum.
13. Sagitaria sagitifolia.

When these shallow water ditches dry up the vegetation is replaced by ephemeral species like, batrachium trichophyllum, Lemna gibba, L. monor, L.trisulea, Numphoides pelatation, etc.

In the region of open water and deeper parts, thick growth of *Trapa natans, Butomus umbelatus, Hydrilla verticilata, Sagitara sagitifolia, Alisma spp, Nymphoides peltatum, Nymphoides candida, Sparganium ramosum & Polygonum* species are commonly met in northern and northeast effective lake area.

In the north western part of the wetland number of floating gardens exist which remain invariably inundated and colonized by Hydrophytes like Myriophyllum. Specatum and Hydrill verticlata during spring when Mentha aquatica, M.longifolia, Mysotes caespilvsa,, Ranuanculus mericatus Rumex spp.are replaced in summer.

3.6 Fauna:



During summer months Gammarus species, a representative of Amphipoda is quite commonly seen. Insects commonly seen are mosquitoes, water beetles , black swimmers, dragonflies, caddisfly , water spiders & water striders.

The wetland harbours rich and diverse fish fauna comprising of Cyprinus carpis, Crossocheillus and Gambosia besides small sized labeo, schizothorax and their fries and fingerling.

The composite habitat types in the form of shallow water ditches, open and deeper water pools, floating gardens, numerous ephemeral channels land masses and marginal willow grooves offer spectrum of food and spatial niches which have a very rich and varied terrestrial as well as aquatic avian species both native & migrant as under:

1. Mammals:			
	Lutra lutra. (Wudeer)		
	Rodents. (Gager)		
2. Aves:	English Name	Scientific name	Local Name
	1. Common teal	*Anas creca*	**Keus**.
	2. Pin tail	*A. acuta*	**Sockh pachen**
	3. Mallard.	*A.platyrynchos*	**Neluj Thug.**
	4. Gadwal	*A. ctripera*	**Budun**
	5. Wigeon	*A. Penelope*	**Bal Budun**
	6. Gargany teal	*A. guerguedula*	**Narru**
	7. Greylag goose	*Anser anser*	**Anz**
	8. Shoveller	*A. clypeata*	**Honke**
	9. Common poachard	*Aythya ferina*	**Khrokh**
	10. Ruddy shelduck	*Tadorna tadorna*	**Tsakao**
	11. White eyed poachard	*Aythya nyroca*	**-do-**
	12. Coot	*Fulica atra*	**Kolur**
	13. Moorhen	*Gallinule chloropus*	**Tich**
	14. Jacana	*Hydrophasinus*	**Gund kaw**
	15. Cormorant	*Phalacrocrorax carbo*	**Moong**
	16. Little grebe		Pind
	17. Jack snipe	*Lymnocryptus minimees*	**Lokut chah**
	18. Common snipe	*Capilla gallingo*	**Chah.**
	19. Grey heron	*Ardea cionerea*	**Breg.**
	20. Common sand piper		Twer
	21. Little bittern		Gow.
	22. Stiff tails		
	23. King fishers (3 species)		Kul tont
	24. White stock	*Ciconia ciconia*	
	25.Black tern		Cresh
	26. Plover	*Charadrivs durivs*	**Twer**
	27. Goggle-eye plover	*Beerhinus oedionemus*	
	28. Sparrows		
	29. Kites	*Milvees migrans*	**Gant**

3.7 Issues and Challenges:

a) Siltation

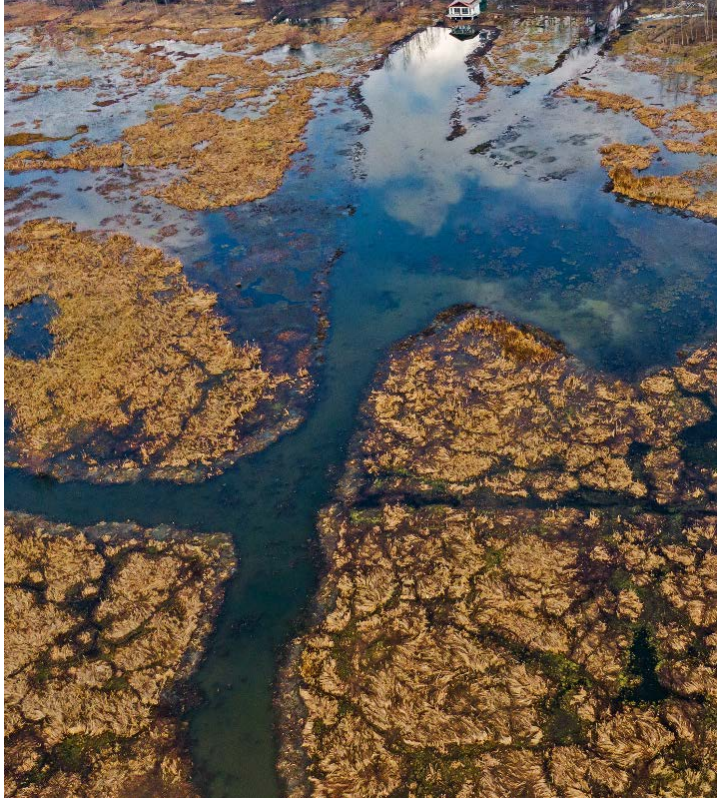
There is a great influx of load of silt and nutrients from the Doodganga Flood channel. This is reflected in the wetland by reduction of open water area and solidification of areas of reed nest mat. In some places the latter has solidified to the extent that terrestrial plant succession has begun.

b) Encroachment

Silt deposition has shallowed the lake surface accompanied by decrease in water level especially during summer months, thus edges are either exposed to encroachment.

c) Weed Infestation

Increased silt and nutrient deposition is accompanied by weed infestation. Removal of weeds is inevitable for maintaining the characteristics of wetland. Weed eradication is required for making pools and navigation channels as well.



3.8 Management Interventions:

The management interventions proposed under Management Action Plan for Hokersar envisages financial implications of **Rs.16.13 Crores** to be phased in five years. The important interventions under the plan are proposed as under:





i) Land and Water Resource Management:

a) Survey & Demarcation: -

The survey and digital delineation has been completed jointly with the Revenue Department and Demarcation Forest Division. The Process of fixing **100** Number of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way of Chain-link fencing, Barbed wire fencing and Bio fencing as per site specific conditions. The Embankments which determine the boundary of the lake shall be strengthened by way of raising and consolidation. **Rs.3.79 Crores** has been proposed under these activities for five years.

b) Water Management: -

For any wetland to thrive and get rejuvenated, adequate water level is important. To regulate and manage the desired water in Hokersar, Department of Irrigation and Flood Control Kashmir has started the process of constructing 80 M span hydraulic Sluice gate at the exit point near Sozeith village. Once this intervention is completed and operationalised this will give a boost on permanently resolving the issue to hold adequate water supply in Hokersar in all the seasons. For this no budget has been envisaged and shall be carried out by the I&FC Department out of their own resources. The work is expected to be complete within two years.

c) Enhancing Water Holding Capacity:-

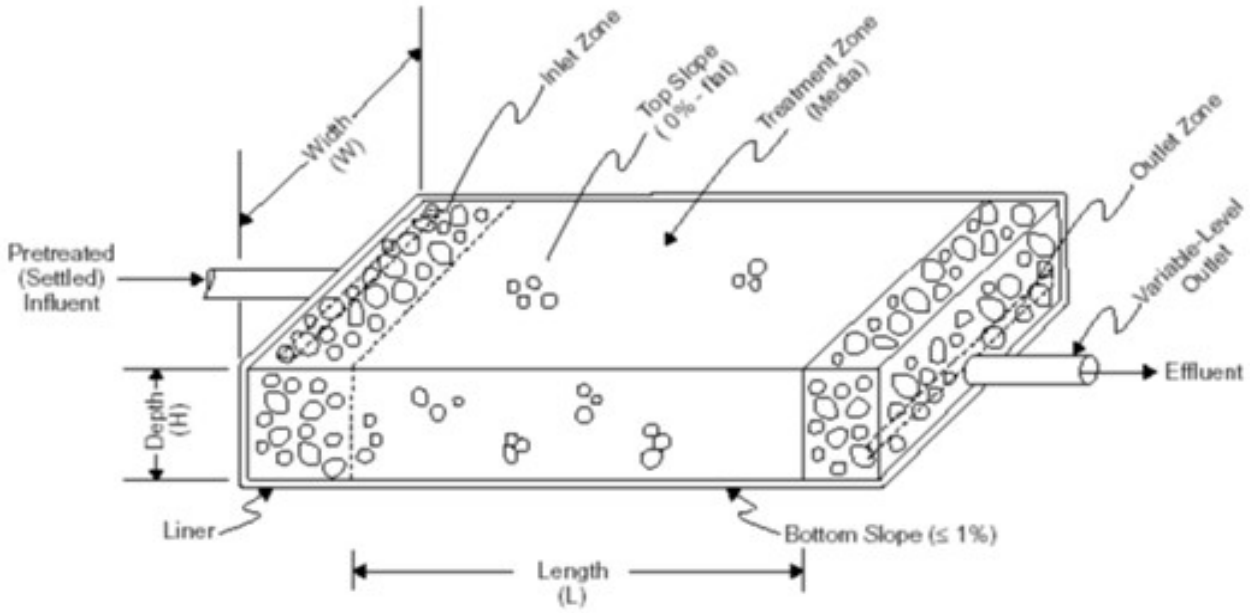
This will include removal of undesired willow plantations raised over the period inside the wetland. The plantations cover an area of about **180.87** ha as assessed using Google earth latest images. These willow and popular trees need to be removed for enhancement of water holding capacity and improve overall water regimes in these wetlands. Based on an average plantation density of **500** trees per ha, it is estimated that approximately **90,435** trees need to uprooted using manual and mechanical means. Specific areas to be covered under the activity are shown in the map. Therefore, meager budget of **Rs. 0.01 Cr.** under this activity has been envisaged as operational cost for five years.

d) Selective Dredging of silted Areas:-

In order to maintain biodiversity, improve habitat conditions and to create natural food processes for the inhabiting life forms in the wetland, necessary provision under this head has been kept for the purpose. To rehabilitate and restore habitat conditions in the wetland, removal of silt and slash through mechanical and traditional means will be initiated. The activity will include desilting operations in different Blocks covering a total area of **234 Ha** Cum of silted areas and **100000 Cum** channels and water courses and dredging in plantation cleared areas **234 Ha** chamber. The activity will be carried out by involving the auctioning process. Therefore, meager budget of **Rs. 0.068 Cr.** under this activity has been envisaged as operational cost for five years.

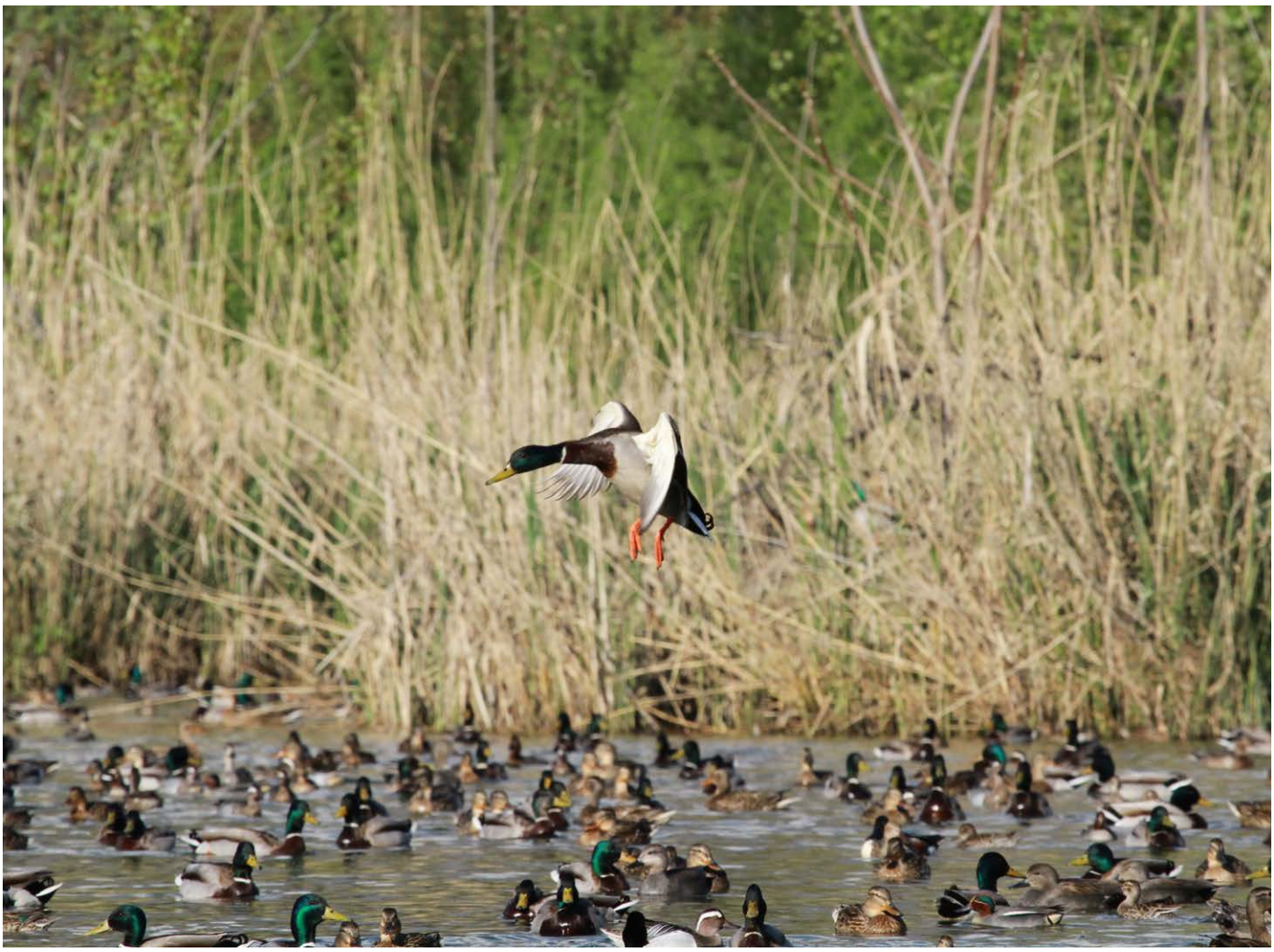
e) Water Quality Improvement: -

To monitor the health and pulse of the wetland the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.20** Crore has been envisaged under this activity for five years. In order to control diffused pollution through wetland technology construction of artificial wetlands has been envisaged in the peripheral village zones. These will act as biofilters to address the leaching of any sewage, sewerage and any kitchen based liquid waste. This activity will involve Rs.**0.70** Crores. The cross section design of constructed Wetland compartment is give as under:
Under this component, installation and Management of **100** Dust Bins in and around the wetland have been envisaged.



Further in order to arrive at proper abstraction and use of water from and within the wetland for Human and ecological use Environment Flow Studies shall be awarded to the reputed organisation on EOI basis to work for arriving at water budget in the wetland. For this activity **Rs.0.08** crores has been earmarked in the plan.

ii) Biodiversity Conservation: -



a) Waterbird Conservation including Inventorization and assessment:
Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking) and avian influenza surveillance. The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.30** Crore has been earmarked under this activity for five years.

b) Habitat Restoration and Management of Aquatic vegetation:
During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs.3.75** Crores has been proposed to be earmarked under this activity for five years.

c) Control of Poaching: -

The large congregation of migratory birds in the wetlands of Kashmir in general and that Hokersar in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs.0.35** Crores has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.



d) Research and Survey: -

Information on waterbirds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various waterbird monitoring programmes at Hokersar over the last few decades. The information on waterbirds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building: -

Capacity building is critical to the successful management of water birds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques.**Rs.0.20** Crore has been proposed for this activity during the five-year plan period.

iii) Education, Awareness and Eco-Tourism Development: -



Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Hokersar wetland and its biodiversity.

Development of recreational facilities:

At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails: -

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Hokersar. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.
Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area**. Rs.0.40 Crores** has been proposed for this activity during the plan period.

b) Guided boat rides:

Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Hokersar. Local community groups shall be trained to take up interpretation activities.**Rs.0.10 Crores** has been proposed under this component during the plan period.

c) Watch Towers:

For the benefit of day visitors as well as organized groups, school/college students, 3 watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department.**Rs.0.40 Crores** has been proposed for these activities during the plan period. Under the same component Landscaping and Gardens is also proposed to give a facelift of the Divisional Office at Hokersar.**Rs.0.18 Crores** is proposed under this activity.

d) Development of visitor education facility (NIC):

Education and interpretation services are fundamental component of a visitor's experience in a natural area. Plans for visitor awareness generation on the functions and values of Hokersar and associated wetlands and conservation needs shall be designed keeping in mind different target groups like tourists, school children, local youth, fisher communities, decision makers and policy planners. Educating tourists and the agencies promoting tourism will be a major thrust of ecotourism with precaution taken to minimize environmental impacts and sensitizing about sustainability of ecosystem. **Rs.2.00 crores** is proposed for this activity at Hokersar. Models of Birds and different habitats they live, in digital signages with bird calls and other information shall be developed as a part of education programme.

e) Publicity and Awareness: -

An amount of **Rs.0.50 Crore** is proposed for Digital signages and Models under this activity for five years also **Rs.0.60 Crores** is proposed to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documentaries, newsletters, brochures, pamphlets, posters and other publications etc are also proposed under this component.





iv) Sustainable Resource Development and Livelihood Improvement.

Department of Wildlife Protection envisages convergence and application of major Government run programmes and schemes with better understanding and strong coordination mechanism with various sectoral Officers and Departments like Fisheries, Agriculture, Industries and commerce, Handicrafts, Entrepreneurship development, Craft Development Institute, Tourism and others.
To adopt seminar recommendations of one day consultative seminar on "Useful utilization of Wetland Biomass" and start pilot projects on establishing micro-enterprises with local fringe communities using wetland biomass.**Rs.0.30 crore** has been proposed under this activity during the plan period.

v) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Hokersar on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Hokersar. These are:

a) Infrastructure and Equipment Augmentation: -

Under this activity it is proposed to construct **five number** of staff quarters on the peripheries of the Hokersar at Sozeith, Dharmuna, Soibugh, Gund Hassi Bhat and at Divisional Office complex. This will ensure proper watch and ward to protect the wetland from encroachment and from other anthropogenic pressures as also controlling illegal poaching. Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats, Wooden boats and dockyards etc.

c) Monitoring and Evaluation: -

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure 1 patrolling vehicle and 2 bikes during the plan period including some unforeseen and miscellaneous contingencies.**Rs.0.20 Crore** is proposed under this component.





CHAPTER NO 4

HYGAM

Wetland Conservation Reserve



4.1 Brief description

The Hygam Wetland Conservation Reserve or Hygam Rakh as it is locally called is the largest remaining reed bed in the Kashmir valley, being of major ornithological importance. This conservation reserve is named after Hygam village situated in the nearby area. The wetland is 40 km from Srinagar and located in district Baramulla (34^0 15′ N, 74^0 31′E) on the flood plains of river Jhelum at an altitudinal height of 1580 msl. The total area of the conservation reserve is 7.62 km^2.

It was notified as a game reserve for duck shooting as far back as 1945. The wetland is being managed by the Department of Wildlife Protection, Jammu & Kashmir and is the only extensive marsh discernible in association with artificial reservoir of lower Jhelum hydroelectric projects at Gantamullah. The wetland is surrounded all around by villages. The wetland is bounded in the north by Sopore-Sonawari road. To its south, it is surrounded by villages of Goshbugh and Sukhul. To the east of the wetland is the human habitation of Aakhanpora and to the west it is bounded by village Hanjypora.

The wetland is fed by a perennial stream of Ballakul, which enters the wetland in its south, while Ningli Nallah and other tributaries such as Hanji pora Kull and Trambgund Kull enter the wetland along its western boundary. The water table keeps on fluctuating through the seasons. The feeding streams bring in a load of silt. The average water depth ranges between 0.05 to 1.5 m in the effective area. The average annual rainfall is 900 mm.

The water from this wetland in emergencies is used for irrigation of the fields of the local villagers residing along the peripheries. It is also used by the locals for grass cutting and partially grazing their live stock. Nymphoides spp. and potomogeton are very much sought after as fodder for the domestic live-stock.

4.2 Floral diversity



The Rakh is largely covered by a dense growth of reed and other emergentspecies. Dominant species include *Typha angustata, Phragmites communis,Phalaris arundinancea, Sparganium erectum, Scirpus* species, *Carex* species and *Eleocharis palustris.* Open water areas have a floating community of water lilies *Nymphaea, Nymphoides* and *Trapa natans*, and beds of*Potamogeton crispus* and *Potamogeton nodosus.* Some 183 species of phytoplankton have been recorded, with Chlorophyceae predominating.

4.3 Faunal diversity

The wetland is a major wintering area for migratory ducks particularly Common Teal *Anas crecca,* Mallard *Anas platyrhynchos,* Northern Pintail *Anas acuta,* Gadwall *Anas strepera*, Eurasian Wigeon *Anas Penelope,*Northern Shoveller *Anas clypeata,* Common Pochard *Aythya ferina,* Garganey *Anas querquedula* and Greylag Geese *Anser anser.* The lake is also an important breeding area for a variety of waterfowl notably Little Grebe *Tachybaptus ruficollis,* Little Bittern *Ixobrychus inimiz*, Little Egret *Egrettagarzetta*, Water Rail *Rallus aquaticus,* Common Moorhen *Gallinula chloropus*and Whiskered Tern *Hydrophasianus chirurgus* and *Chlidonias hybridus.* The kingfishers *Ceryle rudis* and *Alcedo atthis* are common and the warbler*Acrocephalus stentoreus* is particularly abundant in the reed-beds. Palla's fish-eagle *Haliaeetus leucoryphus* is resident in the area.

Holmes and Parr (1988) also found that the very local Swinhoes Reed Warbler *Acrocephalus concinens*, now named the Blunt- winged Warbler breeds in Hygam Rakh in small numbers, often near isolated willow trees. They found about 10 territories, and caught fledged young ones in July- August 1983. Bates and Lowther (1952) have recorded the breeding of the Ferruginous Duck *Aythya nyroca* in the smaller wetlands of Kashmir, particularly at Hygam, but Holmes and Parr (1988) could not find any evidence of breeding. The Pallas Fish –eagle *Haliaeetus leucoryphus* has not been seen in the last 10 years (Rahmani, 2008), although earlier records reported upto five individuals.

Mammals known to occur in the area include Common Otter *Lutra lutra* and Golden Jackal *Canis aureus*; amphibians include *Rana cyanophyctis* and *Bufo viridis*.The wetland supports a rich fish fauna, with large populations of *Cyprinus carpio, Crossocheilus* species*, Puntius conchonius* and *Gambusiaaffinis*. The invertebrate fauna is also very rich; macro-invertebrates include a variety of Mollusca, Annelida and Arthropoda (mainly Arachnida, Crustacea, and Insecta), and the zooplankton includes at least 51 protozoans, 25 rotifers, and 40 crustaceans (mainly Cladocera and Rhizopoda).



4.4 Issues and Challenges:

a) Siltation

The wetland is fed by a perennial stream of Ballakul, which enters the wetland in its south, while Ningli Nallah and other tributaries such as Hanji pora Kull and Trambgund Kull enter the wetland along its western boundary. The water table keeps on fluctuating through the seasons. The feeding streams bring in a load of silt.

b) Encroachment

Silt deposition has shallowed the lake surface accompanied by decrease in water level especially during summer months, thus edges are either exposed to encroachment.

c) Weed Infestation

Increased silt and nutrient deposition is accompanied by weed infestation. Removal of weeds is inevitable for maintaining the characteristics of wetland. Weed eradication is required for making pools and navigation channels as well.

d) Solid waste

The solid waste dumping by the inhabitants of nearby habitations is also an issue to be addressed. The domestic waste generated in the habitations is thrown by the individuals in and around the wetland at times.

4.5 Management Interventions

The management interventions proposed under integrated Management Action Plan for Hygam envisages financial implications of **Rs. 12.10 Crores** to be phased in five year period. The important interventions under the plan includes following:

I) Land and Water Resource Management

a) Survey & Demarcation .....Rs 3.035 Crores

The survey and digital delineation has been completed jointly with Revenue Department and Demarcation Forest Division. The Process of fixing **100** Number of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way of Chain-link fencing, Barbed wire fencing and Bio fencing as per site specific conditions. The Embankments which determine the boundary of the lake shall be strengthened by way of raising and consolidation.

b) Water Management: -

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Hygam, following management interventions are proposed in the five-year plan.

i) Enhancing Water Holding Capacity:-

This will include removal of undesired willow plantations raised over the period inside the wetland. The plantations cover an area of about **105** ha as assessed using Google earth latest images. These willow and popular trees need to be removed for enhancement of water holding capacity and improve overall water regimes in these wetlands. Based on an average plantation density of **500** trees per ha, it is estimated that approximately **52500** trees need to uprooted using manual and mechanical means. Specific areas to be covered under the activity are shown in the google map: Therefore, meagre budget of **Rs. 0.005 Cr.** under this activity has been envisaged as operational cost for five years.

ii) Selective Dredging of silted Areas:-

In order to maintain biodiversity, improve habitat conditions and to create natural food processes for the inhabiting life forms in the wetland, necessary provision under this head has been kept for the purpose. To rehabilitate and restore habitat conditions in the wetland, removal of silt and slash through mechanical and traditional means will be initiated which in turn will give economic benefit to the locals. The activity will include desilting of in blocks covering an area **138 Ha** of silted areas, **4 No** of Gates/Settling chambers, demolition of temporary bunds and diversion of channel. The activity will be carried out by involving the auctioning process. Therefore, meagre budget of **Rs. 0.0266 Cr.** under this activity has been envisaged as operational cost for five years. Besides **Rs.0.44 crores** have been proposed under diversion of Ningli flood channel and demolition of intersectional embankments inside the wetland.

iii) Water Quality Improvement: -

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.20 Crore** has been envisaged under this activity for five years for conducting **400** such drives on regular intervals. Under this activity installation and Management of **50** Dust Bins in and around the wetland has been envisaged. Further in order to arrive at proper abstraction and use of water from and within the wetland for Human and ecological use Environment Flow Studies shall be awarded to the reputed organization on EOI basis to work for arriving at water budget in the wetland. For this activity **Rs.0.01 crores** has been earmarked in the plan.

II) Biodiversity Conservation: -

a) Waterbird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking) and avian influenza surveillance. The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.60 Crore** has been earmarked under this activity for five years.

b) Habitat Restoration and Management of Aquatic vegetation:

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 2.41** Crores covering **125** ha has been proposed to be earmarked under this activity for five years.





c) Control of Poaching: -

The large congregation of migratory birds in the wetlands of Kashmir in general and that Hygam in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.15 Crores** has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.

d) Research and Survey: -

Information on water birds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various water bird monitoring programmes at Hygam over the last few decades. The information on water birds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant water bird species. However, detailed assessment of current water bird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building

Capacity building is critical to the successful management of water birds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO.
Rs.0.10 Crore has been proposed for this activity during the five-year plan period.

III) Education, Awareness and Eco-Tourism Development:-

Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Hygam wetland and its biodiversity.



Development of recreational facilities
At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Hygam. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.
Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.

b) Guided boat rides

Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Hygam. Local community groups shall be trained to take up interpretation activities.

c) Watch Towers

For the benefit of day visitors as well as organized groups, school/college students, **3** watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department. **Rs. 0.45 Crores** has been proposed for these activities during the plan period.

d) Publicity and Awareness: -

An amount of **Rs.0.16 Crore** is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documentaries, newsletters, brochures, pamphlets, posters and other publications etc are also proposed under this component. It also includes Models and digital signages.

iv) Sustainable Resource Development and Livelihood Improvement: -

Department of Wildlife Protection envisages convergence and application of major Government run programmes and schemes with better understanding and strong coordination mechanism with various sectoral Officers and Departments like Fisheries, Agriculture, Industries and commerce, Handicrafts, Entrepreneurship development, Craft Development Institute, Tourism and others.
To adopt seminar recommendations of one day consultative seminar on "Useful utilization of Wetland Biomass" and start pilot projects on establishing micro-enterprises with



local fringe communities using wetland biomass.**Rs.0.40 crore** has been proposed under this activity during the plan period.

v) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Hygam on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Hygam. These are:

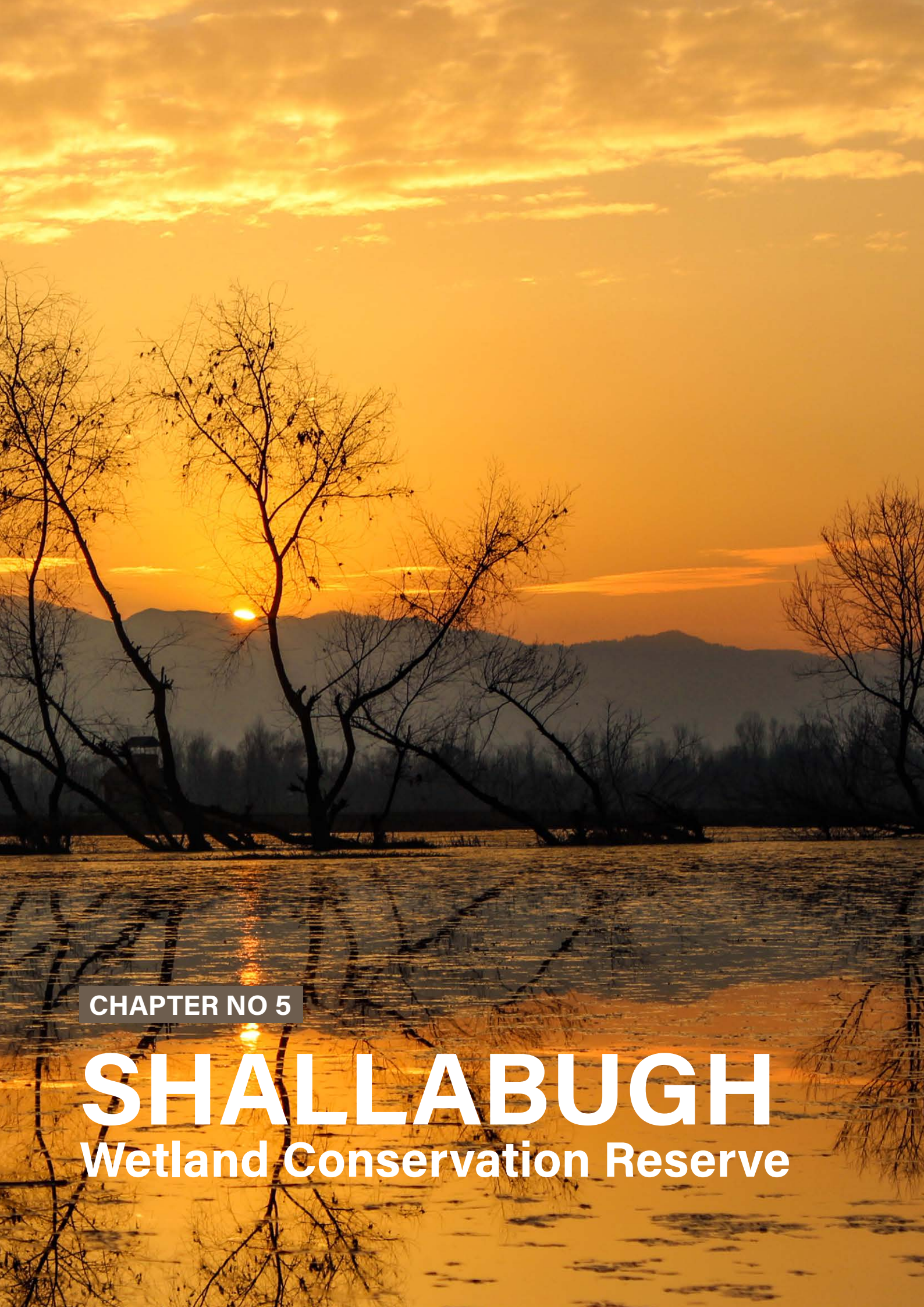
a) Infrastructure and Equipment Augmentation: -

Under this activity it is proposed to construct one number of staff quarter on the periphery of Hygam at Sakhen. This will ensure proper watch and ward to protect the wetland from encroachment and from other anthropogenic pressures as also controlling illegal poaching. Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats, Wooden boats and dockyards etc. Under this component, **Rs. 0.758 Crore** is proposed.

c) Monitoring and Evaluation: -

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure 1 bike during the plan period including some unforeseen and miscellaneous contingencies. **Rs.0.10 Crore** is proposed under this component.





CHAPTER NO 5

SHALLABUGH

Wetland Conservation Reserve



5.1 Brief description

The Shallabugh Wetland Reserve covering an area of 1625 ha is located near Srinagar City between 34°09′N, 74°43′ E and 1,565 m above sea level. The wetland is fed by the perennial Sindh nalla and several other small streams that usually dry out during the summer. The depth of the wetland ranges between 0.5–2 m. The shallow areas have extensive reed beds providing good habitat for waterfowl. The wetland is important for long distance migrants as a stopover site for feeding and resting. Many water birds occur in huge numbers in this wetland, much above the 1% population threshold determined by Wetlands International (2002). Hussain (1989) has counted 64 species in and around Shallabugh wetland, during bird ringing studies. The species *Anas crecca* (7,000: 4,000), *Anas platyrhynchos* (25,000: 750), *Anas penelope* (3,000: 2,500), *Anas querquedula* (4,000: 2,500) and *Anas strepera* (4,000: 1,500) occur much above their 1% biogeographic population. Among the globally threatened species, Pallas's Fish-Eagle *Haliaeetus leucoryphus* used to be resident.

The wetlands of Kashmir valley besides being important wetlands for both resident and migratory waterfowl are also major wintering area for variety of migratory ducks and geese and extremely important breeding area for Mallard, Blunt-winged Warbler and Ferruginous Duck and variety of other waterfowl. It has been observed that the waterfowl population which start their inward migration to the Shallabugh wetland in mid-November peaks to around more than 300,000-400,000 during the last week of February and later start declining in numbers as the temperature in the valley rises before their return migrating during early spring (late March). The population density of Waterfowl varied across varying degrees of disturbance and food availability within the wetland with the maximum number of recordings being on the area preferably in the middle of wetlands. The emergent vegetation and dense macrophytic vegetation of Shallabugh wetland provides safe nesting and breeding habitats for Mallard and other water birds like common Moorhen, Coot. The wetland harbors a variety of aquatic and semi-aquatic vegetation providing a good habitat for a variety of birds. Wetland vegetation comprising of *Potamogeton*spp. *Myriophyllumverticillatum, Nymphaea*spp, *Phragmites australis,Trapanatans, Typha* spp.

The Shallabugh Wetland along with other wetlands of the Valley providing buffering of water flows in vulnerable high mountain catchments across the Greater Himalayan regions of Kashmir, and are also crucial for sustaining biodiversity and local people's livelihoods. Presently, the livelihood of a sizeable population of around 10 villages depends on Shallabugh wetland reserve for extraction of wicker willow, popular, fishery, livestock grazing. Around 300 households' families around Shallabugh alone are earning their livelihood through wicker willow-based basket industry and the majority community has switched to the Poplar cultivation mainly in and around the wetland because of high profitability to the growers. This excessive use and extraction of resources by the communities for their livelihood generation has put tremendous pressure on the wetland and access denied to the resources at times have adversely affected the rural economy thus acceptance of wetland and biodiversity conservation ideals by local people is also greatly affected.



5.2 Issues and Challenges

Like other wetlands of the Kashmir valley, Shallabugh also suffers from over-fishing, infestation by weeds and pollution. Surrounding areas are almost entirely agricultural. The principal threats are siltation, eutrophication and encroachment of agricultural land. Run-off from adjacent agricultural land has greatly increase the rate of eutrophication.

5.3 Management Interventions

The management interventions proposed under integrated Management Action Plan for Shallabugh envisages financial implications of **Rs. 12.80 Crores** to be phased in five year period. The important interventions under the plan includes following:

I) Land and Water Resource Management

a) Survey & Demarcation ……Rs 2.66 Crores

The survey and digital delineation has been completed jointly with Revenue Department and Demarcation Forest Division. The Process of fixing **150** Number of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way of Chain-link fencing, Barbed wire fencing and Bio fencing as per site specific conditions. The Embankments which determine the boundary of the lake shall be strengthened by way of raising and consolidation.

b) Water Management: -

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Shallabugh, following management interventions are proposed in the five-year plan.

i) Enhancing Water Holding Capacity: -

This will include removal of undesired willow plantations raised over the period inside the wetland. The plantations cover an area of about **509** ha as assessed using Google earth latest images. These willow and popular trees need to be removed for enhancement of water holding capacity and improve overall water regimes in these wetlands. Based on an average plantation density of **500** trees per ha, it is estimated that approximately **255000** trees need to uprooted using manual and mechanical means. Specific areas to be covered under the activity are shown in the google map. Therefore, meagre budget of **Rs. 0.025 Cr.** under this activity has been envisaged as operational cost for five years.

ii) Selective Dredging of silted Areas: -

In order to maintain biodiversity, improve habitat conditions and to create natural food processes for the inhabiting life forms in the wetland, necessary provision under this head has been kept for the purpose. To rehabilitate and restore habitat conditions in the wetland, removal of silt and slash through mechanical and traditional means will be initiated which in turn will give economic benefit to the locals. The activity will include desilting in Blocks over an area of **468 Ha** of silted areas, 1 No of Gate and Settling

chamber. The activity will be carried out by involving the auctioning process. Therefore, meagre budget of **Rs. 0.024 Cr.** under this activity has been envisaged as operational cost for five years. Besides for construction and maintenance of settling basin **Rs. 4.00 Cr** has been proposed.

iii) Water Quality Improvement: -

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.20 Crore** has been envisaged under this activity for five years for conducting 400 such drives on regular intervals. Under this activity installation and Management of **60** Dust Bins in and around the wetland has been envisaged. Further in order to arrive at proper abstraction and use of water from and within the wetland for Human and ecological use Environment Flow Studies shall be awarded to the reputed organization on EOI basis to work for arriving at water budget in the wetland. For this activity **Rs.0.01 crores** has been earmarked in the plan.

II) Biodiversity Conservation: -

a) Waterbird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking) and avian influenza surveillance. The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.06** Crore has been earmarked under this activity for five years.





b) Habitat Restoration and Management of Aquatic vegetation:-

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 3.56** Crores covering **185 ha** has been proposed to be earmarked under this activity for five years.

c) Control of Poaching:-

The large congregation of migratory birds in the wetlands of Kashmir in general and that Shallabugh in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at

them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.15 Crores** has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.

d) Research and Survey: -

Information on waterbirds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various waterbird monitoring programmes at Shallabugh over the last few decades. The information on waterbirds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building: -

Capacity building is critical to the successful management of water birds and the habitats. This can be achieved through conducting periodic training programmes and





infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO.
Rs.0.15 Crore has been proposed for this activity during the five-year plan period.

III) Education, Awareness and Eco-Tourism Development:-

Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Shallabugh wetland and its biodiversity.

Development of recreational facilities
At present there are no facilities and these need to be de-



veloped taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Shallabugh. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.
Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.

b) Guided boat rides

Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Shallabugh. Local community groups shall be trained to take up interpretation activities.

c) Watch Towers

For the benefit of day visitors as well as organized groups, school/college students, **2** watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department. **Rs. 0.30 Crores** has been proposed for these activities during the plan period.

d) Publicity and Awareness: -

An amount of Rs. **0.305** Crore is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documentaries, newsletters, brochures, pamphlets, posters and other publications etc are also proposed under this component.

iv) Sustainable Resource Development and Livelihood Improvement:-

Department of Wildlife Protection envisages convergence and application of major Government run programmes and schemes with better understanding and strong coor-

dination mechanism with various sectoral Officers and Departments like Fisheries, Agriculture, Industries and commerce, Handicrafts, Entrepreneurship development, Craft Development Institute, Tourism and others.
To adopt seminar recommendations of one day consultative seminar on "Useful utilization of Wetland Biomass" and start pilot projects on establishing micro-enterprises with local fringe communities using wetland biomass.**Rs.0.05 crore** has been proposed under this activity during the plan period.

v) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Shallabugh on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Shallabugh. These are:

a) Infrastructure and Equipment Augmentation: -

Under this activity it is proposed to construct **one** number of staff quarter on the periphery of Shallabugh at Sangam. This will ensure proper watch and ward to protect the wetland from encroachment and from other anthropogenic pressures as also controlling illegal poaching. Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats, Wooden boats and dockyards etc. Under this component, **Rs.0.52 Crore** are proposed.

b) Monitoring and Evaluation: -

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure one patrolling vehicle and 1 bike during the plan period including some unforeseen and miscellaneous contingencies. **Rs.0.205 Crore** is proposed under this component.







CHAPTER NO 6

MIRGUND

Wetland Conservation Reserve

6.1 Brief Description:-

Mirgund Wetland is situated in the Jhelum flood basin of Kashmir Valley. It is a paradise for migratory birds. It is just 16 km away from Srinagar on Gulmarg road sandwiched between Narbal, Check-i-Kawoosa, Mazhamz, Archandrahama, Arampur, Nupur and Mirgund villages. Mirgund wetland is a shallow, freshwater wetland associated with reed-beds and riverine marshes. Lying on the flood plain of the Jhelum flood channel the wetland is fed by the local runoff, the Sukhnag and the Ferozpur Nallas. The depth of the water generally varies between 0.1m and 0.5m. Much of the wetland dries out during the summer, and the water level fluctuates considerably according to the local runoff. Willow (*Salix* sp.) has been planted on the periphery of the wetland. Earthen bunds have been constructed to maintain the water level, and also to control siltation. The open water spread has floating communities of *Nympheacandicia* and *N. stellata*. The wetland is surrounded by paddy fields, pastures and plantations. All these habitat types provide foraging grounds for birds. The wetland is being extensively used for harvesting fodder and grazing livestock. The wetland is situated in district Budgam and Baramullah (Latitude 34^0 7' and Longitude 74^0 37'E) at an altitudinal height of 1563 msl.





6.2 FAUNA:

This **IBA** is an important wintering and staging ground for thousands of migratory waterfowl. These include: the Common Teal *Anas crecca*, Northern Pintail *A. acuta*, Eurasian Wigeon *A. penelope*, Mallard *A. platyrhynchos*, Gadwall *A. strepera*, Northern Shoveller*A. clypeata* and Common Pochard *Aythya ferina*. Little Grebe *Tachybaptus ruficollis*, Little Bittern *Ixobrychusminutus*, Little Egret *Egrettagarzetta*, Water Rail *Rallus aquaticus*, Common Moorhen *Gallinula chloropus*, Pheasant-tailed Jacana *Hydrophasianuschirurgus* and Whiskered Tern *Chlidonias hybridus* are said to breed in the marshes. Three to four Sarus cranes *Grus antigone* are regularly seen here. Many birds occur in much larger numbers than their 1% population threshold determined by Wetlands International (2002).

The migratory water birds that come to this wetland include Cranes, Duck, Geese and mainly the Mallards among others water birds during winter. Cinnamon sparrows, the black and yellow grosbeak, black bulbuls are also found.

Not much is known about other fauna, except that the Golden Jackal *Canis aureus* occurs here. A variety of fishes such as *Cyprinus carpio*, *Barbus conchonius* and *Gambusia affinis* are found in the Jheel.

6.3 Vegetation:-

Among all the plant species the dominant ones include Phragmites communis, Typha angustata, Carex, Cynodondactylon, Polygonum, Nymphaea candicta, Nymphaea setllata, Potamogeton, Ceratophyllum, Sagittaria, Trapa, Poa species, many species of Salix and Populus, Equistem, Dryopteris, Satrinia, Marsiliaquardifolia etc. An important medicinal plant namely Acorus Calamus locally called the Wai-mund grows over an estimated area of 10 acres. **Wai-mund** is traditionally used in the treatment of digestive disorders, cough, cold and taken with a Kashmiri tea called the Kahwa.

6.4 Threats and Challenges:-

The principal threats to this wetland are siltation and eutrophication due to pollution.

6.5 Management Interventions:-

The management interventions proposed under integrated Management Action Plan for Mirgund envisages financial implications of **Rs. 5.01 Crores** to be phased in five year period. The important interventions under the plan includes following:

I) Land and Water Resource Management

a) Survey & Demarcation .....Rs 0.30 Crores

The survey and digital delineation has been completed jointly with Revenue Department and Demarcation Forest Division. The Process of fixing **50** Number of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way of Barbed wire fencing and Bio fencing as per site specific conditions. The Embankments which determine the boundary of the lake shall be strengthened by way of raising and consolidation.

b) Water Management:-

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Mirgund, following management interventions are proposed in the five-year plan.



i) Enhancing Water Holding Capacity: -

This will include removal of undesired willow plantations raised over the period inside the wetland. The plantations cover an area of about **57.40 ha** as assessed using Google earth latest images. These willow and popular trees need to be removed for enhancement of water holding capacity and improve overall water regimes in these wetlands. Based on an average plantation density of **500** trees per ha, it is estimated that approximately **28700** trees need to uprooted using manual and mechanical means. Specific areas to be covered under the activity are shown in the google map. Therefore, meagre budget of **Rs. 0.003 Cr.** under this activity has been envisaged as operational cost for five years.

ii) Selective Dredging of silted Areas: -

In order to maintain biodiversity, improve habitat conditions and to create natural food processes for the inhabiting life forms in the wetland, necessary provision under this head has been kept for the purpose. To rehabilitate and restore habitat conditions in the wetland, removal of silt and slash through mechanical and traditional means will be initiated which in turn will give economic benefit to the locals. The activity will include desilting in Blocks over an area of **55 Ha** of silted areas, construction of new embankment and demolition of intersectional temporary bunds. The activity will be carried out by involving the auctioning process. Therefore, meagre budget of **Rs. 0.151 Cr.** under this activity has been envisaged as operational cost for five years.

iii) Water Quality Improvement: -

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs. 0.05 Crore** has been envisaged under this activity for five years for conducting **100** such drives on regular intervals. Under this activity installation and Management of **30** Dust Bins in and around the wetland has been envisaged. Further in order to arrive at proper abstraction and use of water from and within the wetland for Human and ecological use Environment Flow Studies shall be awarded to the reputed organization on EOI basis to work for arriving at water budget in the wetland. For this activity Rs.0.01 crores has been earmarked in the plan.

II) Biodiversity Conservation: -

a) Waterbird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking) and avian influenza surveillance. The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.035** Crore has been earmarked under this activity for five years.

b) Habitat Restoration and Management of Aquatic vegetation:

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds

and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 0.58** Crores covering **30 ha** has been proposed to be earmarked under this activity for five years.

c) Control of Poaching: -

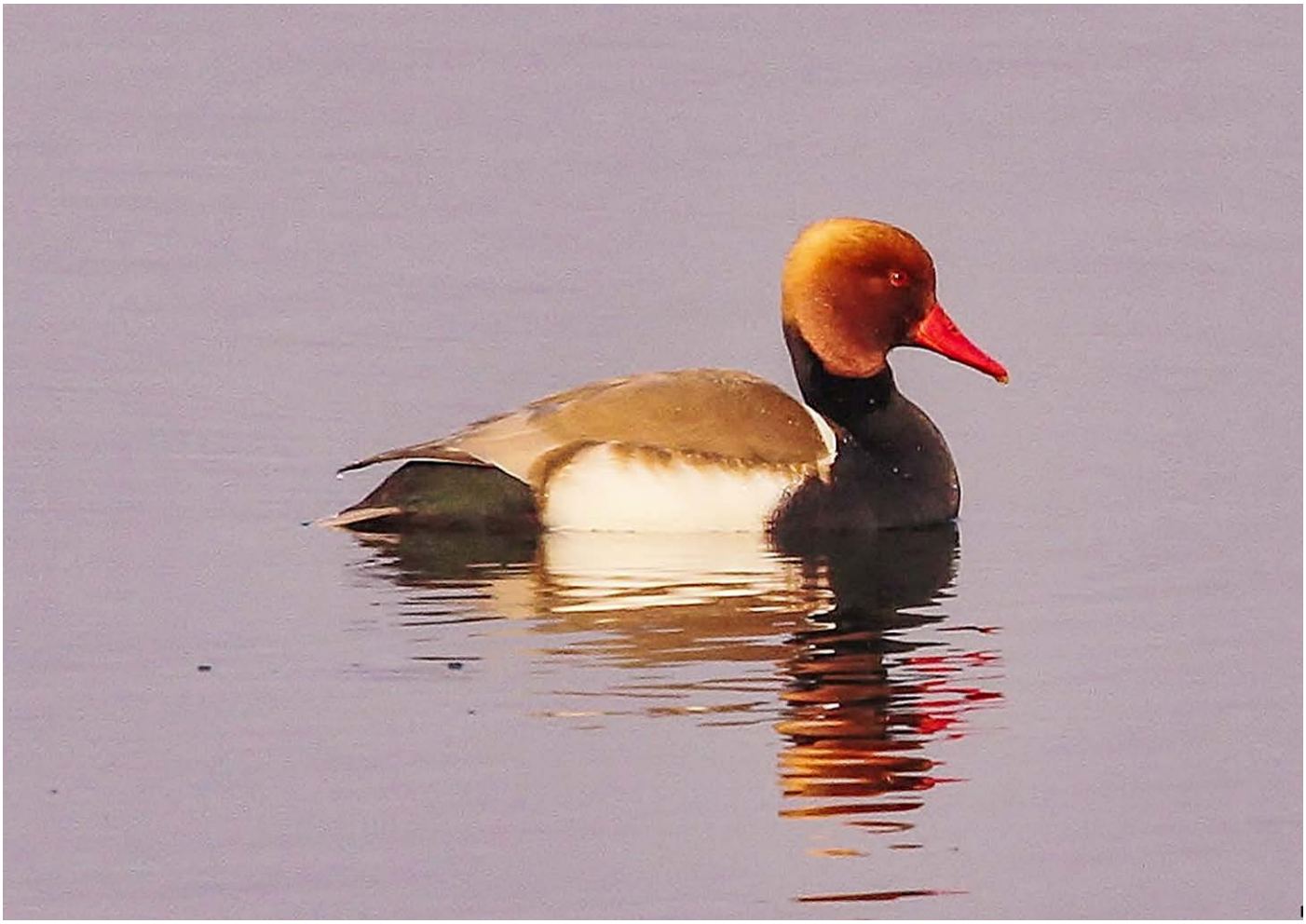
The large congregation of migratory birds in the wetlands of Kashmir in general and that Mirgund in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.065** Crores has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.

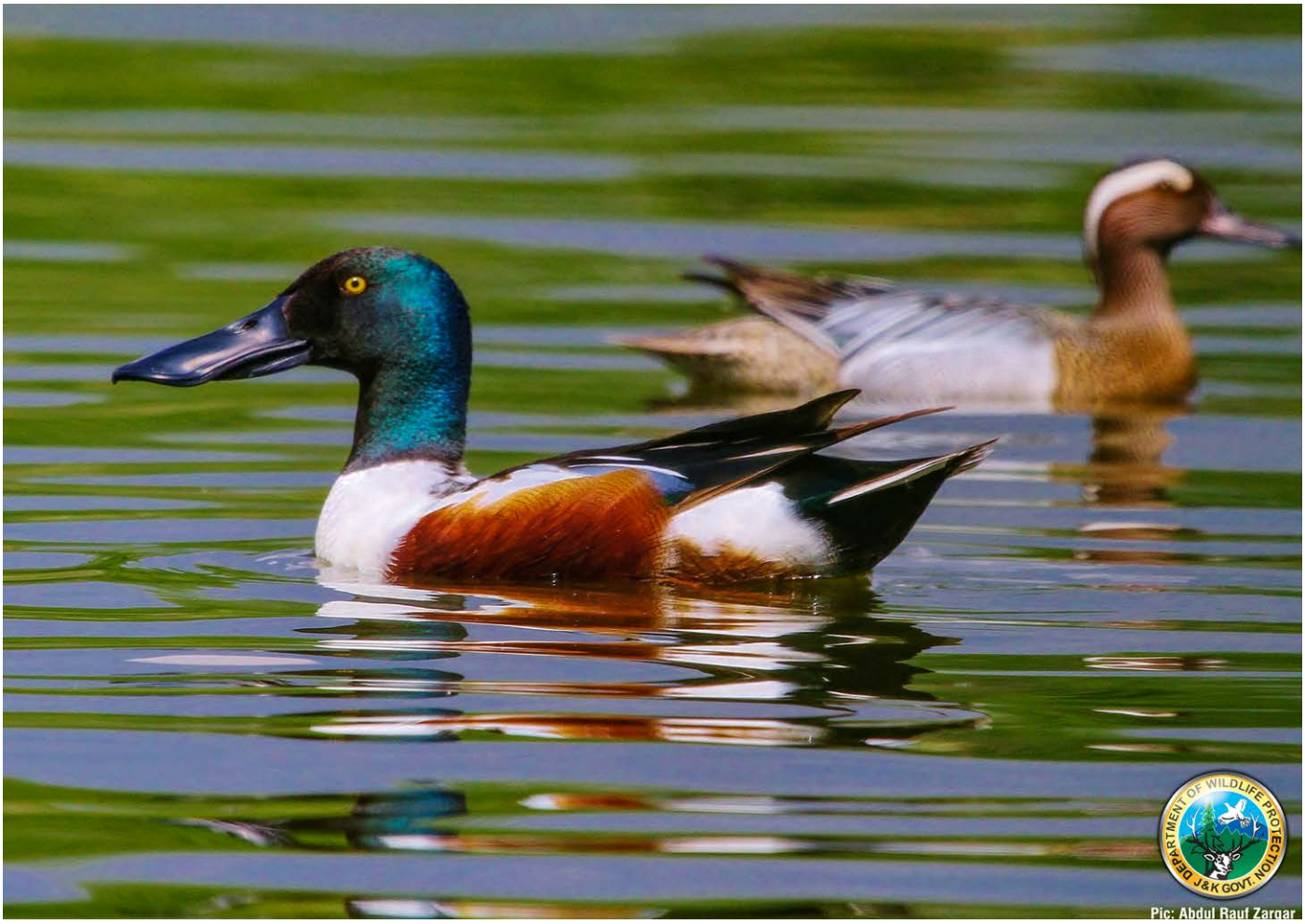
d) Research and Survey: -

Information on waterbirds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various waterbird monitoring programmes at Mirgund over the last few decades. The information on waterbirds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building:-

Capacity building is critical to the successful management of waterbirds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore,





Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO.
Rs.0.04 Crore has been proposed for this activity during the five-year plan period.

III) Education, Awareness and Eco-Tourism Development:-

Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Mirgund wetland and its biodiversity.

Development of recreational facilities

At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Mirgund. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.
Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.

b) Guided boat rides

Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Mirgund. Local community groups shall be trained to take up interpretation activities.

c) Publicity and Awareness: -

An amount of **Rs. 0.365 Crore** is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of docu-

mentaries, newsletters, brochures, pamphlets, posters and other publications etc are also proposed under this component.

iv) Sustainable Resource Development and Livelihood Improvement: -

Department of Wildlife Protection envisages convergence and application of major Government run programmes and schemes with better understanding and strong coordination mechanism with various sectoral Officers and Departments like Fisheries, Agriculture, Industries and commerce, Handicrafts, Entrepreneurship development, Craft Development Institute, Tourism and others.
To adopt seminar recommendations of one day consultative seminar on "Useful utilization of Wetland Biomass" and start pilot projects on establishing micro-enterprises with local fringe communities using wetland biomass.**Rs.0.03 crore** has been proposed under this activity during the plan period.

v) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Mirgund on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Mirgund. These are:





a) Infrastructure and Equipment Augmentation: -

Under this activity it is proposed to construct one number of staff quarter on the periphery of Mirgund. This will ensure proper watch and ward to protect the wetland from encroachment and from other anthropogenic pressures as also controlling illegal poaching. Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats and Wooden boats etc. Under this component, **Rs. 0.275 Crore** are proposed.

c) Monitoring and Evaluation: -

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure 1 bike during the plan period including some unforeseen and miscellaneous contingencies. **Rs. 0.055 Crore** is proposed under this component.





CHAPTER NO 7

CHATTLUM

Wetland Conservation Reserve



7.1 Brief Description

Pampore is a small town in the South of Kashmir, where some satellite wetlands are located and dotted with archaeological marvels, renowned for its cash crop saffron (Kesar) production, not only in Asia but throughout the globe for the best quality. It is situated on the eastern bank of the river Jhelum merely 11 km away from Srinagar city located at 34.02^0 N and 74.93^0 E with an average elevation of 1,574 meters. Chatlam wetland with an area of 1100 Kanals (55 Ha) is situated on east of Pampore and is more or less, an oval shaped. The villages that are in close vicinity to this Reserve are Lalpora (Chatlam) and Meej on Northern side and Konibal-Munpora on eastern side, with Kranchu-Chandhara wetlands on Southern side. These satellite wetlands of Pampore in the valley are extremely important for biodiversity and livelihood values.

Chatlam Wetland Conservation Reserve locally called as BODSAR with total basin area of 2.1 Km^2 lies between $34^0.01'$ N latitude and $75^0.58'$ E longitude in the south of the Srinagar City at a distance of 16 Km. Out of total 2.1 Km^2 basin area that is bounded by a vast catchment area extending from Pampore and Bagi-inayatullah in the west and Konibal to Wuyan in the east, it has 0.7 Km^2 surface area and 1.4 Km^2 marshy area. The wetland is a permanent but relatively shallow water body with fluvial origin and enjoys a Sub-Mediterranean climate. It is fed by the perennial water channel of adjoining areas originating from the eastern mountain slopes, which makes its way, to wetland in the west in Chatalum village of tehsil Pampore of district Pulwama apart from being the largely spring fed. The water table depends of the wetland is high and it remain with adequate water discharge throughout the year. The wetland reaches a maximum depth of 4.5 m in spring during snow melt and a minimum of 3.5 m in autumn. The catchment of the wetland houses 12 villages having a total population of 33,000 which use this wetland for fishing, hunting, irrigation and domestic purposes. Besides about 11,805 cattle head count dwells in the catchment area which pose grazing pressure on the wetland. The incessant increase in the agricultural activities in the catchment area is marked by various land use practices dominated by saffron and rice cultivation.



7.2 Flora & Fauna: -

Apart from local resident birds which breeds their the wetland provide ample and conducive habitat for breeding individuals of Mallards.
The vegetation ranges from submerged, attached, free floating to emergent. Shallow areas support thick stands of *Typha* and *Phragmites*. *Trapa natans*, *Nymphoides peltatum*, *Nymphoide candida* and *Nymphoides tellata* occur in the open water areas. There are many floating gardens in the lake. Plantation of *Salix alba* has been taken up along the shoreline, while rice is grown in the surrounding areas. These crop fields also provide foraging areas for birds.
Chatalum Wetland Reserve is an important wetland for both resident and migratory waterfowl. The wetland is particularly important as a wintering area for migratory ducks and geese, and as a breeding area for herons, egrets and rails.

7.3 Management Interventions

The management interventions proposed under integrated Management Action Plan for Chattlum envisages financial implications of **Rs. 2.77 Crores** to be phased in five year period. The important interventions under the plan includes following:

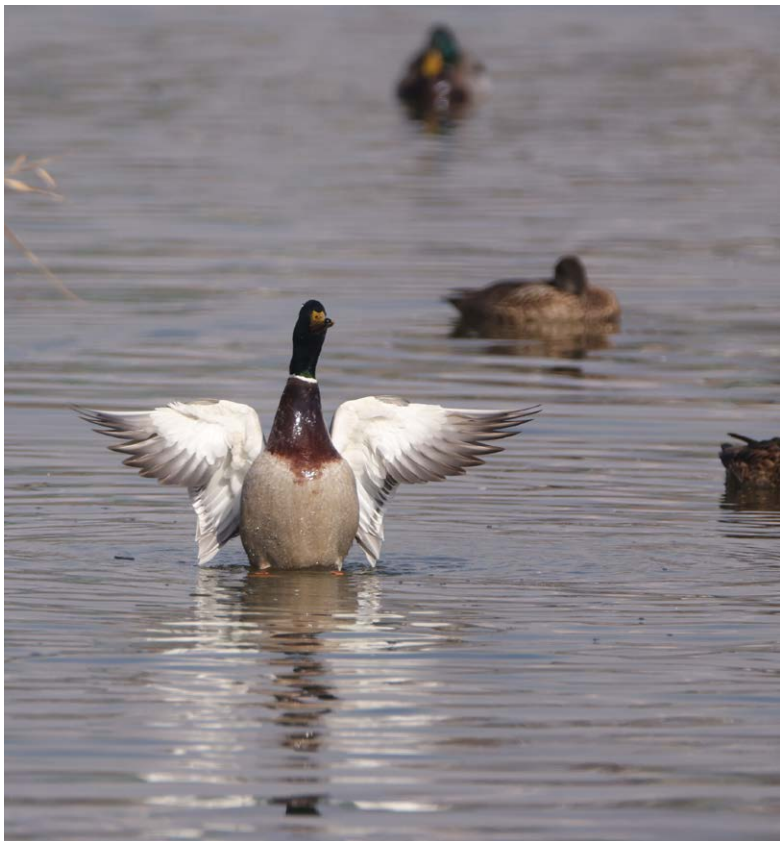
I) Land and Water Resource Management

a) Survey & Demarcation ……Rs 0.62 Crores

The survey and digital delineation has been completed jointly with Revenue Department and Demarcation Forest Division. The Process of fixing **50** Number of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way of Chain-link fencing, Barbed wire fencing and Bio fencing as per site specific conditions. The Embankments which determine the boundary of the lake shall be strengthened by way of raising and consolidation.

b) Water Management: -

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Chattlum, following management interventions are proposed in the five-year plan.



i) Water Quality Improvement:-

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.05 Crore** has been envisaged under this activity for five years for conducting **100** such drives on regular intervals. Under this activity installation and Management of **30** Dust Bins in and around the wetland has been envisaged.

In order to control diffused pollution through wetland technology construction of artificial wetlands has been envisaged in the peripheral village zones. These will act as biofilters to address the leaching of any sewage, sewerage and any kitchen based liquid waste. This activity will involve Rs.**0.20** Crores and **2 Ha** area. The cross section design of constructed Wetland compartment is give as under:



II) Biodiversity Conservation: -

a) Water bird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking). The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.025** Crore has been earmarked under this activity for five years.



b) Habitat Restoration and Management of Aquatic vegetation: -

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 0.31** Crores covering **16 ha** has been proposed to be earmarked under this activity for five years.

c) Control of Poaching:-

The large congregation of migratory birds in the wetlands of Kashmir in general and that Chattlum in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has

been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.065** Crores has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.

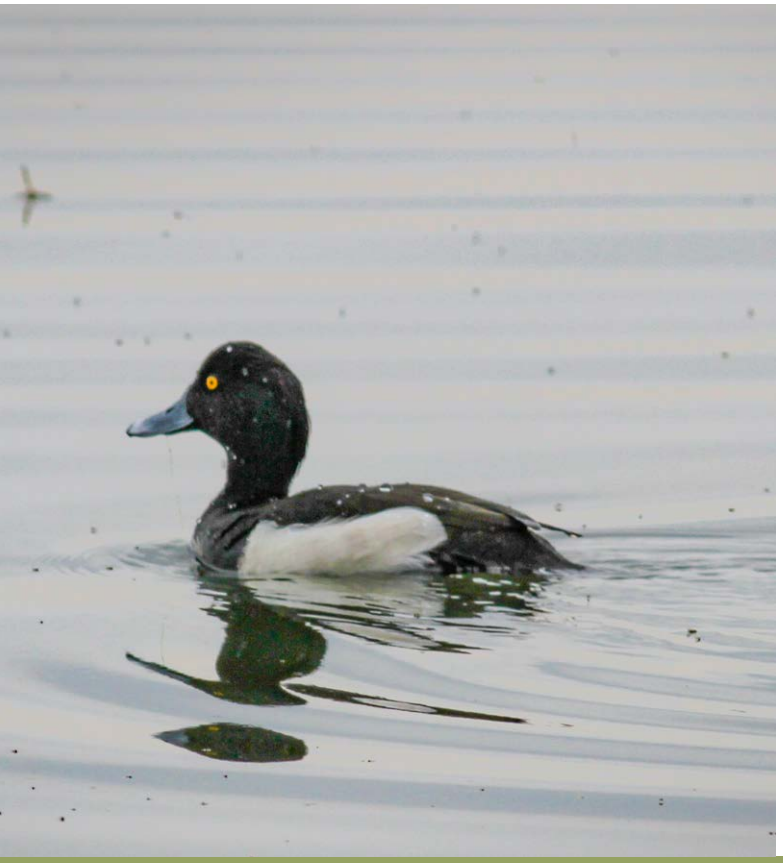
d) Research and Survey:-

Information on water birds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various water bird monitoring programmes at Chattlum over the last few decades. The information on water birds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building

Capacity building is critical to the successful management of waterbirds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of water birds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO.
Rs.0.04 Crore has been proposed for this activity during the five-year plan period.





III) Education, Awareness and Eco-Tourism Development: -

Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Chattlum wetland and its biodiversity.

Development of recreational facilities

At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:



a) Board Walk and Nature Trails:-

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Chattlum. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.
Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.

b) Guided boat rides:-

Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Chattlum. Local community groups shall be trained to take up interpretation activities.

c) Watch Towers

For the benefit of day visitors as well as organized groups, school/college students**, 3** watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department. Rs. **0.45** Crores has been proposed for these activities during the plan period.

d) Publicity and Awareness: -

An amount of **Rs. 0.045** Crore is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documentaries, newsletters, brochures, pamphlets, posters and other publications etc are also proposed under this component.

iv) Sustainable Resource Development and Livelihood Improvement: -

Department of Wildlife Protection envisages convergence and application of major Government run programmes and schemes with better understanding and strong coordination mechanism with various sectoral Officers and De-



partments like Fisheries, Agriculture, Industries and commerce, Handicrafts, Entrepreneurship development, Craft Development Institute, Tourism and others.
To adopt seminar recommendations of one day consultative seminar on "Useful utilization of Wetland Biomass" and start pilot projects on establishing micro-enterprises with local fringe communities using wetland biomass.**Rs.0.02 crore** has been proposed under this activity during the plan period.

v) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Chattlum on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Chattlum. These are:

vi) Infrastructure and Equipment Augmentation:-

Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats and Wooden boats etc. Under this component, **Rs. 0.2 Crore** are proposed.



b) Monitoring and Evaluation: -

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure 1 patrolling Motor cycle during the plan period including some unforeseen and miscellaneous contingencies. **Rs.0.055 Crore** is proposed under this component.







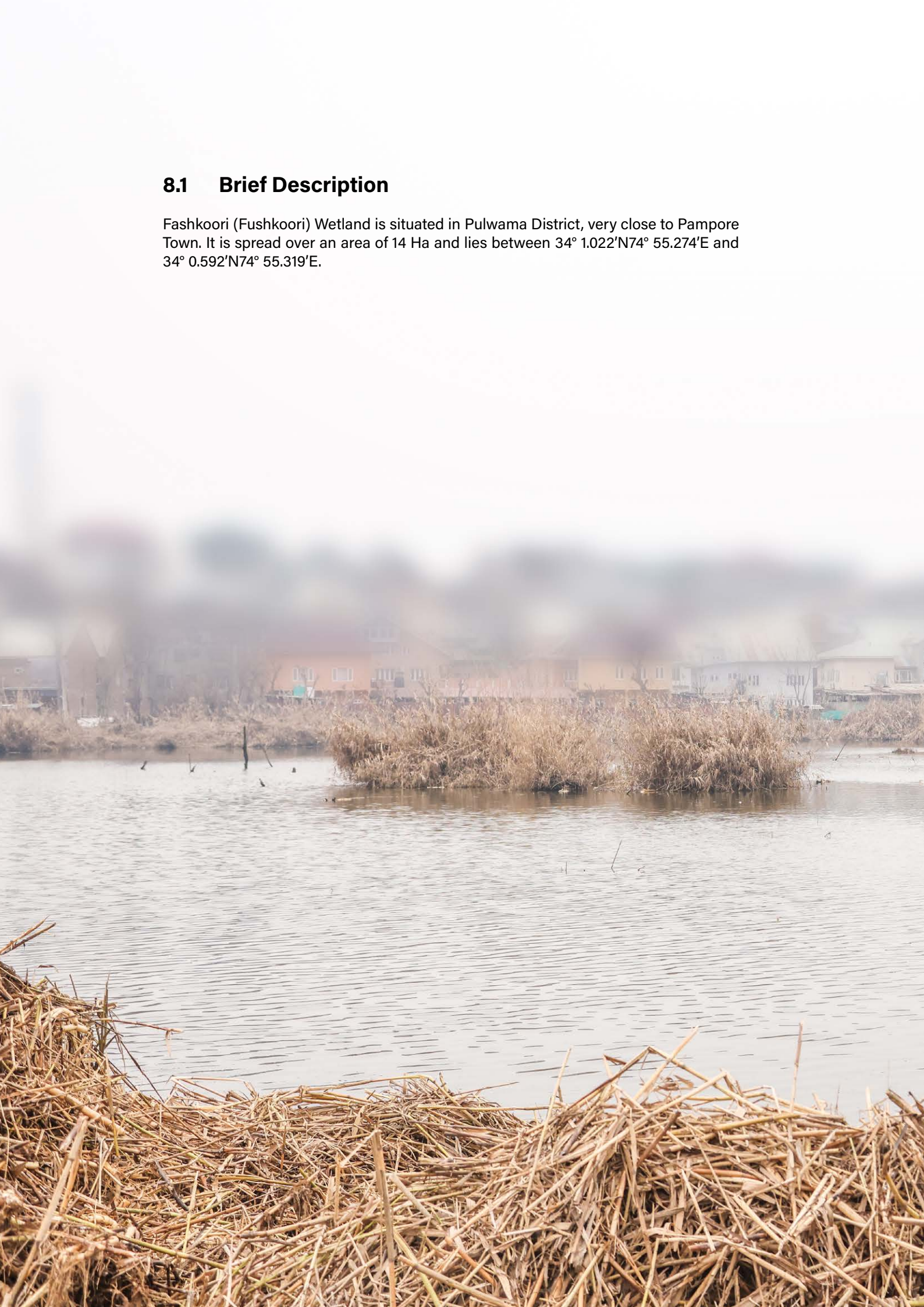
CHAPTER NO 8

FASHKOORI

Wetland Conservation Reserve

8.1 Brief Description

Fashkoori (Fushkoori) Wetland is situated in Pulwama District, very close to Pampore Town. It is spread over an area of 14 Ha and lies between 34° 1.022′N74° 55.274′E and 34° 0.592′N74° 55.319′E.





8.2 Flora & Fauna:-

This Wetland receives large congregations of Waterfowl during winters besides sizeable number of summer migrants and resident birds inhabit this wetland. The most dominant waterfowl families in Fashkoori Wetland are Anatidae followed by Ardeidae and Rallidae. The Wetland act as a satellite refuge for local migration patterns from adjoining other Pampore wetlands. Mallards have been recorded to breed in this wetland as tall patches of Typha provides a good and suitable condition for the duck to breed.

8.3 Threats and Challenges: -

There is issue of sewerage disposal from the adjoining township. Solid waste dumping in and around is also reported. Being adjoining to Pampore town, threat of encroachment also looms.

During harsh winter months when Icy period (Chillaikalan) hits the Kashmir Valley. Fashkoori Wetland usually freezes making the habitat unfavourable for birds to settle. This invites attention of the management and Department of Wildlife Protection breaks ice and create pools and arrange supplementary feed in the shape of the grains for the migratory birds.

8.4 Management Interventions

The management interventions proposed under integrated Management Action Plan for Fashkoori envisages financial implications of **Rs. 1.36 Crores** to be phased in five-year period. The important interventions under the plan includes following:

I) Land and Water Resource Management

a) Survey & Demarcation .....Rs 0.56 Crores

The survey and digital delineation has been completed jointly with Revenue Department and Demarcation Forest Division. The Process of fixing **40 Number** of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way of Chain-link fencing, Barbed wire fencing and Bio fencing as per site specific conditions. The Embankments which determine the boundary of the lake shall be strengthened by way of raising and consolidation.

b) Water Management: -

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Fashkoori, following management interventions are proposed in the five-year plan.

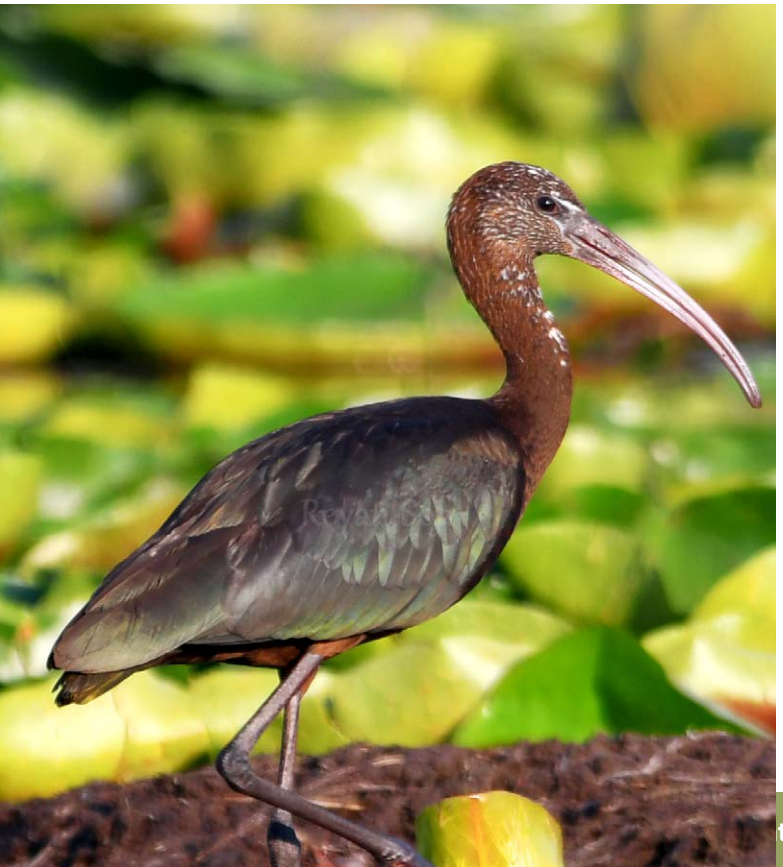
i) Water Quality Improvement: -

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based



solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.05 Crore** has been envisaged under this activity for five years for conducting **100** such drives on regular intervals. Under this activity installation and Management of **30** Dust Bins in and around the wetland has been envisaged. Further in order to arrive at proper abstraction and use of water from and within the wetland for Human and ecological use Environment Flow Studies shall be awarded to the reputed organization on EOI basis to work for arriving at water budget in the wetland. For this activity **Rs.0.01** crores has been earmarked in the plan.

In order to control diffused pollution through wetland technology construction of artificial wetlands has been envisaged in the peripheral village zones. These will act as biofilters to address the leaching of any sewage, sewerage and any kitchen based liquid waste. This activity will involve Rs.**0.23** Crores and **2.2 Ha** area. The cross-section design of constructed Wetland compartment is give as under:



II) Biodiversity Conservation: -

a) Waterbird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking) and avian influenza surveillance. The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.03** Crore has been earmarked under this activity for five years.

b) Habitat Restoration and Management of Aquatic vegetation: -

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 0.06** Crores covering **3 ha** has been proposed to be earmarked under this activity for five years.

c) Control of Poaching: -

The large congregation of migratory birds in the wetlands of Kashmir in general and that Fashkhoori in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number

of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.065** Crores has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.



d) Research and Survey: -

Information on water birds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various water bird monitoring programmes at Fashkoori over the last few decades. The information on waterbirds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building

Capacity building is critical to the successful management of waterbirds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habi-

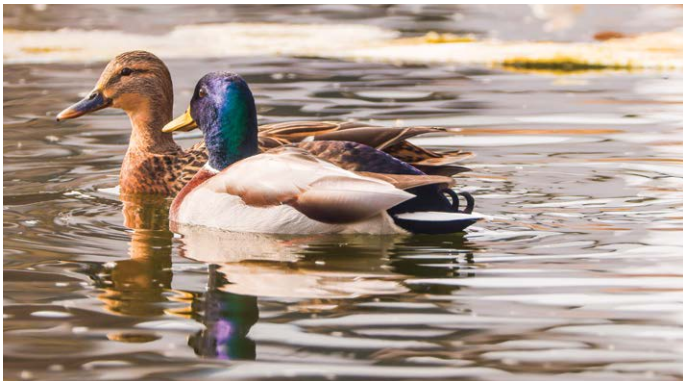




tat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO.
Rs.0.05 Crore has been proposed for this activity during the five-year plan period.

III) Education, Awareness and Eco-Tourism Development:-

Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Fashkoori wetland and its biodiversity.



Development of recreational facilities

At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails:-

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Fashkoori. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.

Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.

b) Guided boat rides: -

Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Fashkoori. Local community groups shall be trained to take up interpretation activities.

c) Watch Towers

For the benefit of day visitors as well as organized groups, school/college students, **3** watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department. **Rs. 0.45 Crores** has been proposed for these activities during the plan period.

d) Publicity and Awareness: -

An amount of **Rs. 0.066 Crore** is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documentaries, newsletters, brochures, pamphlets, posters, digital signages, models etc are also proposed under this component

iv) Institutional Development: -

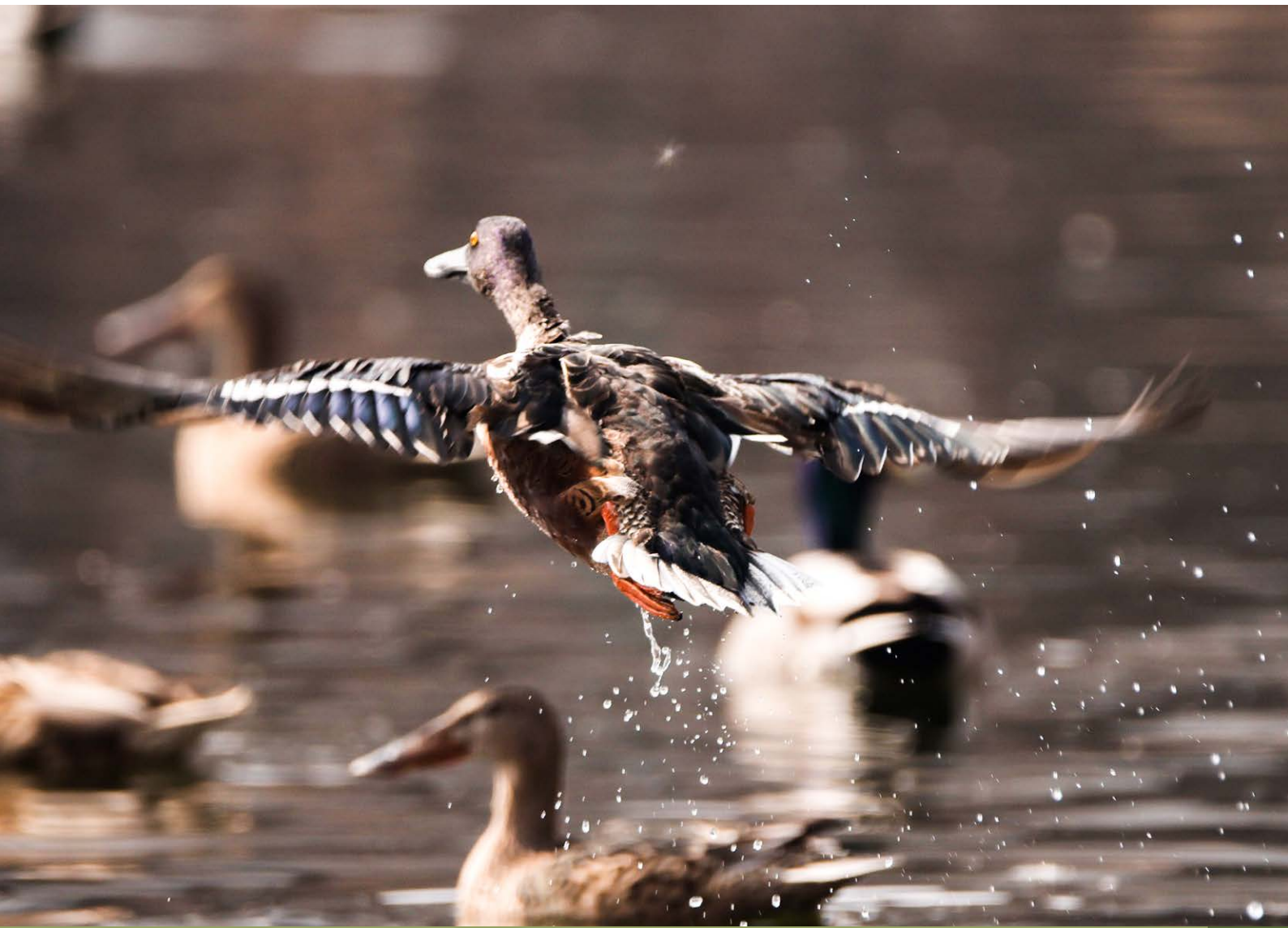
Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Fashkoori on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Fashkoori. These are:

a) Infrastructure and Equipment Augmentation: -

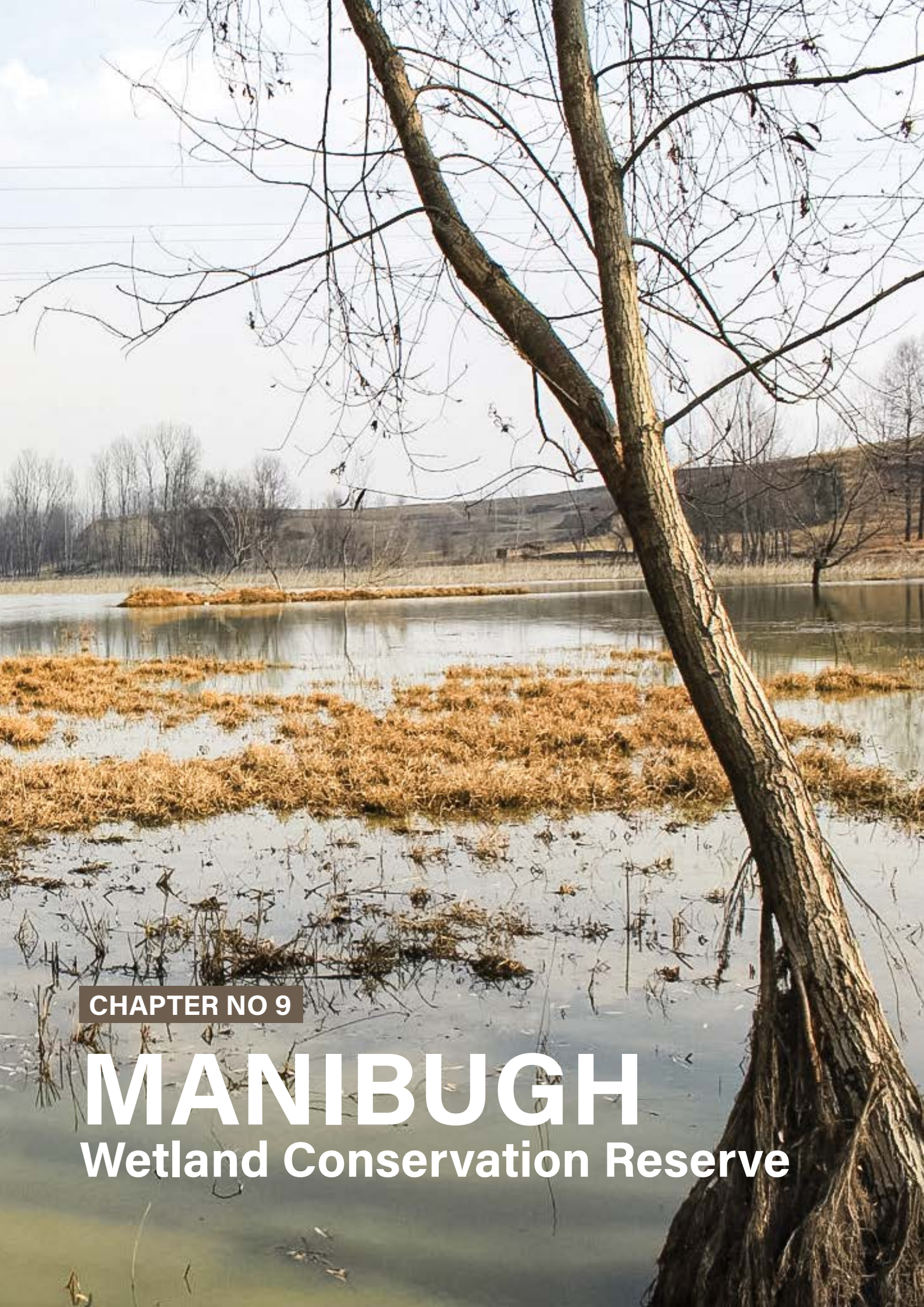
Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats and Wooden boats etc. Under this component, **Rs. 0.155 Crore** are proposed.

b) Monitoring and Evaluation: -

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure 1 bike during the plan period including some unforeseen and miscellaneous contingencies. **Rs. 0.055 Crore** is proposed under this component.







CHAPTER NO 9

MANIBUGH

Wetland Conservation Reserve



9.1 Brief Description

Manibugh wetland is situated near Pampore town in district Pulwama and lies between 34° 0.111'N 74° 55.812'E & 33° 59.897'N 74° 55.595'E at an altitude 1588 mtr. Spread over an area of 7 Ha



9.2 Fauna:-

Among fauna, birds are considered as most exposed group of vertebrates that are used as trustworthy indicators of ecological health of an ecosystem. Manibugh Wetland is the breeding ground and the meeting point of many birds. The lentic ecosystem of wetland is of great ecological and socio-economic importance as it harbors a diverse collection of waterfowl. Manibugh wetland is providing a good habitat for birds with abundant food, safe place for roosting, nesting and breeding. From the ornithologist point of view, the Pampore Wetlands including Manibugh is a heaven for migratory species of birds, including endemic and near endemic ones. This Wetland is renowned for its beauty and favourite destination for bird watching, has a rich biodiversity and macrophyte richness. Besides, this mentioned inland wetland, there are three more satellite wetlands in its vicinity together they form integrated and complex ecosystem. These satellite wetlands offer refuge to thousands of migratory birds from different parts of the world including Central Asia and China.

A total of (85) species of birds belonging to twenty five (25) families including fifteen (15) species of migratory waterfowl have so far been recorded in Manibugh . These belong to the families of Anatidae, Rallidae , Laridae, Hirundinidae , Accipitridae , Podicipedidae , Ardeidae, Sturnidae, Motacillidae, Paridae, Muscicapidae, Scolopacidae, Passeridae, Alcedinidae, Phalacro coracidae, Recurviro stridae, Upupidae , Columbidae,

9.3 Threats and Challenges: -

The principal threats to this wetland are siltation and eutrophication due to pollution lading to infestation of weeds.

9.4 Management Interventions

The management interventions proposed under integrated Management Action Plan for Manibugh envisages financial implications of **Rs. 0.94 Crores** to be phased in five-year period. The important interventions under the plan includes following:

I) Land and Water Resource Management

a) Survey & Demarcation .....Rs 0.136 Crores

The survey and digital delineation has been completed jointly with Revenue Department and Demarcation Forest Division. The Process of fixing **50** Number of specially designed cement concrete boundary demarcation pillars will be completed during the first two years of implementation. The Demarcation shall however be further consolidated by way of closing the peripheries by way Bio fencing as per site specific conditions. The embankments which determine the boundary of the wetland shall be strengthened by way of raising and consolidation.

b) Water Management: -

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Manibugh, following management interventions are proposed in the five-year plan.

i) Water Quality Improvement: -

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got con-



ducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.05 Crore** has been envisaged under this activity for five years for conducting **100** such drives on regular intervals. Under this activity installation and Management of **30** Dust Bins in and around the wetland has been envisaged. Further in order to arrive at proper abstraction and use of water from and within the wetland for Human and ecological use Environment Flow Studies shall be awarded to the reputed organization on EOI basis to work for arriving at water budget in the wetland.

II) Biodiversity Conservation: -

a) Waterbird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking). The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.03** Crore has been earmarked under this activity for five years.

b) Habitat Restoration and Management of Aquatic vegetation: -

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 0.02** Crores covering **1 ha** has been proposed to be earmarked under this activity for five years.

c) Control of Poaching: -

The large congregation of migratory birds in the wetlands of Kashmir in general and that Manibugh in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.02 Crores** has been proposed for this activity during the plan period for strength-

ening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.

d) Research and Survey:-

Information on waterbirds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various waterbird monitoring programmes at Manibugh over the last few decades. The information on waterbirds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building

Capacity building is critical to the successful management of waterbirds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods





to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO. **Rs.0.02** Crore has been proposed for this activity during the five-year plan period.

III) Education, Awareness and Eco-Tourism Development: -

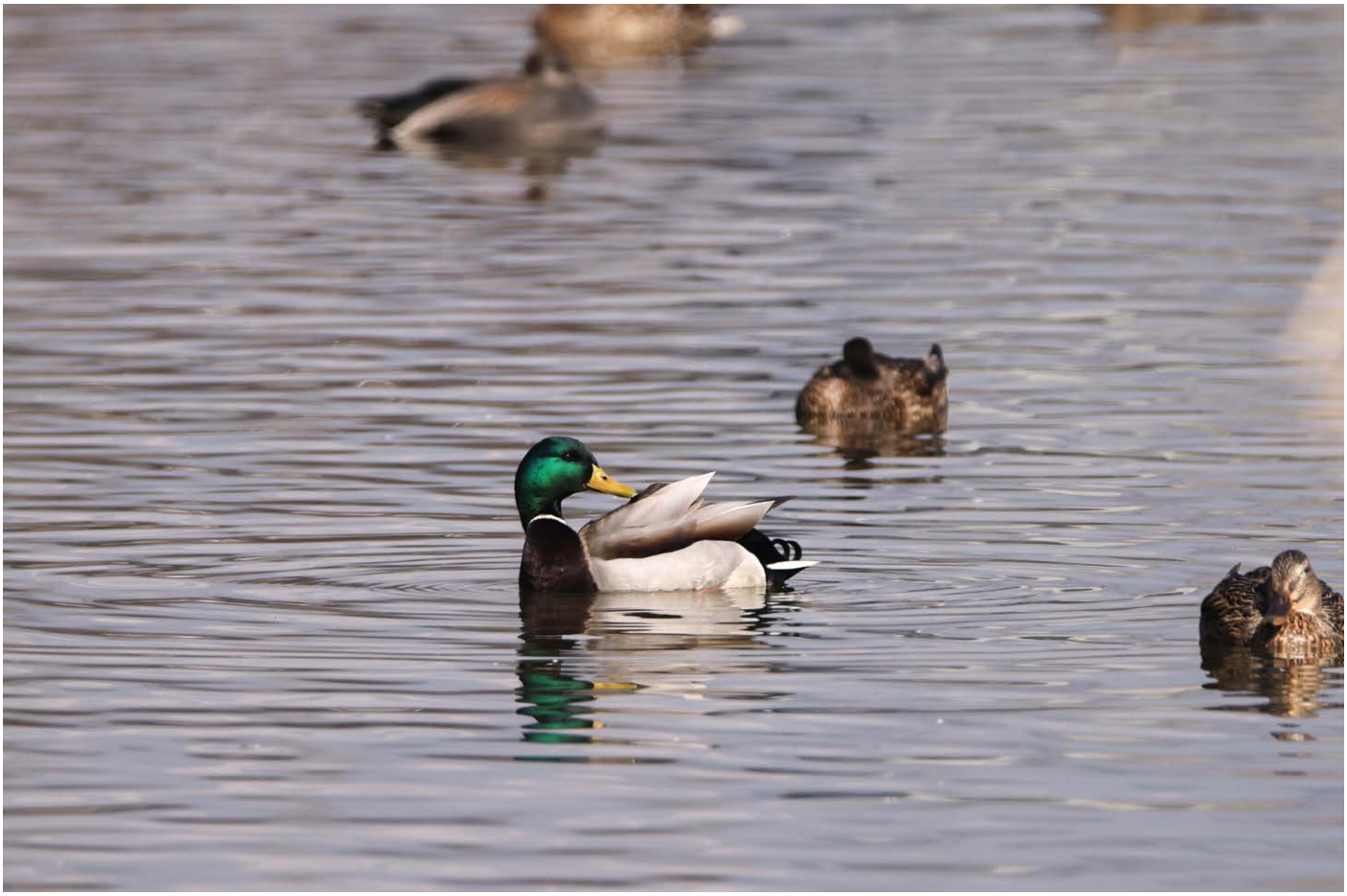
Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Manibugh wetland and its biodiversity.

Development of recreational facilities

At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails:-

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Manibugh. The walking trail



along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.
Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.



b) Watch Towers:-

For the benefit of day visitors as well as organized groups, school/college students**, 2** watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department. **Rs. 0.30 Crores** has been proposed for these activities during the plan period.

c) Publicity and Awareness: -

An amount of **Rs. 0.042 Crore** is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documentaries, newsletters, brochures, pamphlets, posters, digital signages, models etc are also proposed under this component

iv) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate



Manibugh on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Manibugh. These are:

a) Infrastructure and Equipment Augmentation: -

Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats and Wooden boats etc. Under this component, **Rs. 0.22 Crore** are proposed.

b) Monitoring and Evaluation:-

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. Under this component, financial implications of **Rs.0.055 Crore** is proposed which include unforeseen and miscellaneous contingencies and purchase of one Motor Bike as well.





CHAPTER NO 10

KRANCHOO

Wetland Conservation Reserve



10.1 Brief Description

Kreentchoo (Kranchoo) Wetland Conservation Reserve lies about 17 Kms east of Srinagar on Srinagar-Jammu National Highway. The area of wetland is 6.4 ha and it lies in Pulwama District. It is fed by its immediate watershed (Karevas) but largely it is spring fed. It has been named after Kranchoo village situated near it. The wetland has about 96% waterlogged area. There is no report of any encroachment in the wetland area under the jurisdiction of Department of Wildlife Protection. Kranchoo Wetland Conservation Reserve is an important wetland for both resident and migratory waterfowl. Hussain (1989) counted 64 species in and around the wetlands during bird ringing studies. The wetland is particularly important as a wintering area for migratory ducks and geese, and as a breeding area for herons, egrets and rails.





10.2 Flora & Fauna: -

Apart from local resident birds, the wetland provides ample and conducive habitat for breeding of Mallards. The wetland is particularly important as a wintering area for migratory ducks and geese, and as a breeding area for herons, egrets and rails.

Vegetation ranges from submerged, attached, free floating to emergent. Shallow areas support thick stands of *Typha* and *Phragmites*. *Trapa natans*, *Nymphoides peltatum*, *Nymphoide candida* and *Nymphoides tellata* occur in the open water areas. There are many floating gardens in the lake. Plantation of *Salix alba* has been taken up along the shoreline, while rice is grown in the surrounding areas. These crop fields also provide foraging areas for birds.

10.3 Threats and Challenges: -

The principal threats to this wetland is siltation and eutrophication due to pollution leading to infestation of weeds.

10.4 Management Interventions

The management interventions proposed under integrated Management Action Plan for Kranchoo envisages financial implications of **Rs. 1.21 Crores** to be phased in five year period. The important interventions under the plan includes following:

I) Land and Water Resource Management

a) Water Management:-

For any wetland to thrive and get rejuvenated adequate water level is important. To regulate and manage the desired water in Kranchoo, following management interventions are proposed in the five-year plan.

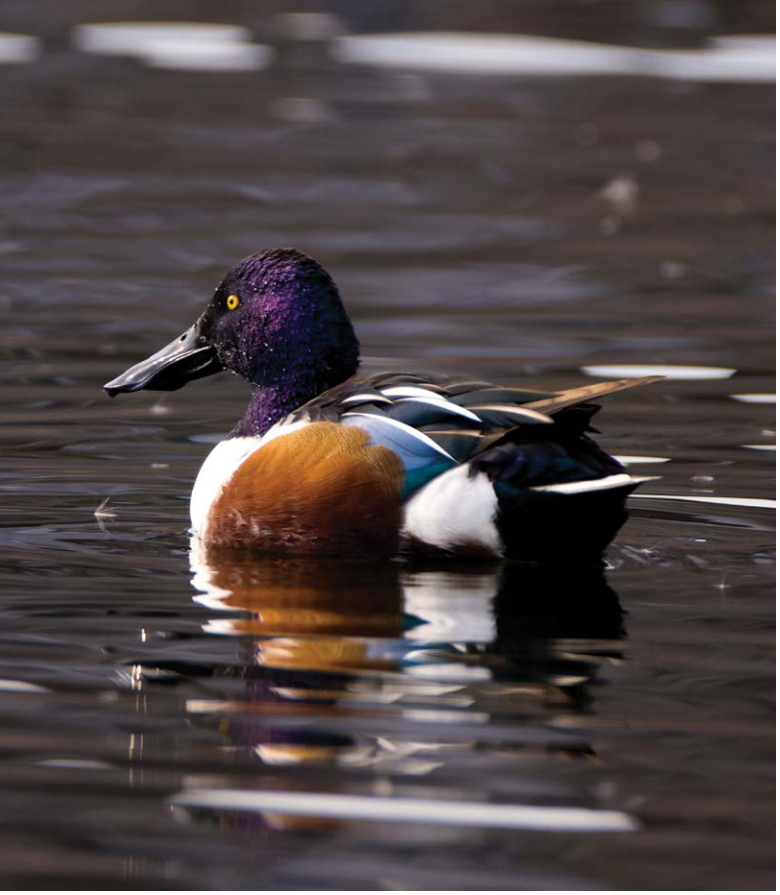
i) Water Quality Improvement: -

To monitor the health and pulse of the wetland, the physio chemical analysis of water in the wetland shall be got conducted through J&K Pollution Control Committee on regular and on sustained basis therefore, no budget has been envisaged for this activity. However, community based solid waste management will involve regular cleanliness drives in the wetland as well as in the adjoining villages to ensure clean surroundings and healthy wetland system. **Rs.0.05 Crore** has been envisaged under this activity for five years for conducting **100** such drives on regular intervals. Under this activity installation and Management of **30** Dust Bins in and around the wetland has been envisaged.

II) Biodiversity Conservation:-

a) Waterbird Conservation including Inventorization and assessment:

Various surveys and studies are proposed to be carried out for inventorization and assessment of waterbird diversity like species wise estimates of waterbird populations assessment, key biodiversity assessment, Human activities and their impacts, Migration studies (bird banding, satellite tracking) and avian influenza surveillance. The surveys and studies shall be undertaken with the help of various organizations working in the field with support and coordination by the Wildlife Department. An amount of **Rs.0.075** Crore has been earmarked under this activity for five years.



b) Habitat Restoration and Management of Aquatic vegetation: -

During the plan period, the Department of Wildlife Protection (J&K) will work on to eradicate the excessive reeds and floating vegetation on controlled basis in all seasons except winters. This will be done to prevent excessive proliferation and simultaneous enhancement of water spread area for arrival of migratory water birds. Peat extractions will maximize open water spaces. Managing floating vegetation will also be undertaken during the plan period. Managing and maintaining navigational channels, making of clear pools, Fixing of Bird Perches and providing of food supplement during the lean periods will be undertaken under this component. **Rs. 0.03** Crores covering **1.5 ha** has been proposed to be earmarked under this activity for five years.

c) Control of Poaching:-

The large congregation of migratory birds in the wetlands of Kashmir in general and that Kranchoo in particular invite illegal poaching at a very large scale especially when these migratory birds fly from one wetland to other or settle in the adjoining paddy field for feeding. The poachers are equipped with modern gears like dummy ducks, duck calls, motorised mojos, and sophisticated fire arms to invite the attention of the migratory birds and then shoot at them killing large number of these migratory birds. The enforcement in place is trying its best to get in control of this menace by seizing large number of fire arms and booking the culprits under the relevant laws, however, not much a success has been achieved in this regard. Shortage of manpower and required amenities need to be addressed during the plan period. The community support to form village level committees shall be focused at in order to achieve the best results. **Rs. 0.035 Crores** has been proposed for this activity during the plan period for strengthening protection, setting up of temporary anti-poaching camps, informers, village level committees, staff amenities and incentives.

d) Research and Survey:-

Information on waterbirds and their habitats is collected mainly by the Wildlife Department, and other research organisations. The Wildlife Department has undertaken various waterbird monitoring programmes at Kranchoo over the last few decades. The information on waterbirds though patchy, is useful to provide some information on species diversity, seasonality and abundance. The University of Kashmir, SKUAST-K and other organisations have undertaken several studies of the breeding and feeding habits of different resident and seasonal migrant waterbird species. However, detailed assessment of current waterbird species composition and abundance and their relationship to the different habitat types in the wetland will be undertaken during the plan period.

e) Capacity building

Capacity building is critical to the successful management of waterbirds and the habitats. This can be achieved through conducting periodic training programmes and infrastructure development for monitoring. Expertise and opportunities for training in waterbird assessment, monitoring, research and migration study exist within the country, with institutions such as Bombay Natural History Society (BNHS) - Mumbai, Salim Ali Centre for Ornithology and Natural History (SACON) - Coimbatore, Wetlands International - New Delhi, and Wildlife Institute of India (WII) - Dehra Dun. Periodic training programmes will be held for various target groups including field staff managers and decision makers, local NGOs and community groups. The training will be provided on methods to collect information on approaches to bird census, analysis of information developing monitoring protocols and interpretation of data for use at various levels. A cadre





of trained technical staff shall be developed for trend analysis of waterbird populations in relation to habitat features. Specific training programmes shall be developed in collaboration with BNHS for assessment of bird migration and understanding the constraints in the pathways. Surveillance of waterbirds for avian influenza and other zoonotic diseases shall employ scientific methodology and techniques as promoted by FAO. **Rs.0.03** Crore has been proposed for this activity during the five-year plan period.

III) Education, Awareness and Eco-Tourism Development:-

Development of sound ecotourism infrastructure need to be carefully established to ensure minimal impacts on the environment while at the same time maximizing opportunities for the visitors to enjoy the Kranchoo wetland and its biodiversity.

Development of recreational facilities:-

At present there are no facilities and these need to be developed taking into consideration the environmental factors and tourist carrying capacity of different areas. Following activities are therefore, proposed:

a) Board Walk and Nature Trails:-

The Boardwalks and nature trails will give the visitors a good chance to breathe in the fresh air and enjoy the peaceful environment of Kranchoo. The walking trail along the wetland has to be constructed well above the highest flood level of the wetland. Gates at the entry points will control these boardwalks and only serious nature lovers and birdwatchers will be allowed to access.

Guided tours will be arranged across the boardwalks in the wetland areas. Well-trained guides shall escort the visitors who shall be adequately briefed about the dos and don'ts while in an ecologically sensitive area.

b) Guided boat rides:-

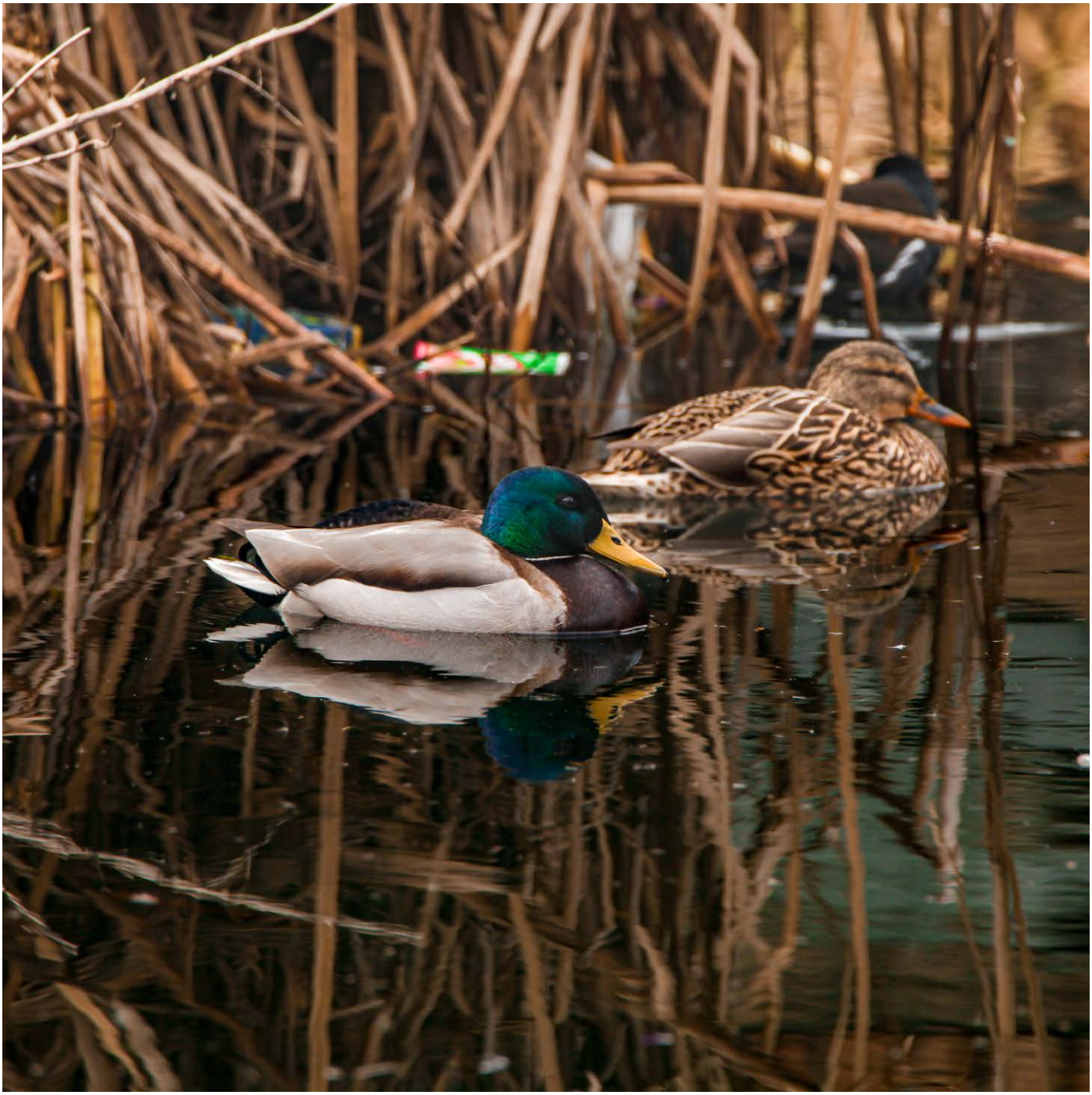
Guided boat rides shall be arranged for nature lovers to help them explore the various aspects of Kranchoo. Local community groups shall be trained to take up interpretation activities.

c) Watch Towers: -

For the benefit of day visitors as well as organized groups, school/college students**, 2** watchtowers are proposed. The locations of the watchtowers will be selected keeping in view the sensitivity as well as the accessibility to enjoy bird watching and photography besides keep watch and ward as well. Construction of these towers could be taken up during the low water season. Provision of equipment such as binoculars and spotting scopes for use of school/college groups and serious bird watchers shall be made by the Department. **Rs. 0.30 Crores** has been proposed for these activities during the plan period.

C) Publicity and Awareness: -

An amount of **Rs. 0.05 Crore** is proposed under this activity for five years to conduct and promote awareness rallies padyatras, Nature camps, organising world wetland day and other Environment related days. Making of documen-



taries, newsletters, brochures, pamphlets, posters, digital signages, models etc are also proposed under this component

iv) Institutional Development: -

Conscious about the fact that the wetlands are very important ecosystems and services rendered by them are unparalleled Government of Jammu and Kashmir has already established a separate Wetland Division under the Department of Wildlife Protection to manage and protect the notified wetlands in Kashmir region. The existing institution in place is implementing various programmes approved under various sectors to restore and rejuvenate Kranchoo on scientific lines. However, the institution in place needs to be strengthened and developed on modern lines to cope up with the complex challenges and the issues faced by the Kranchoo. These are:

a) Infrastructure and Equipment Augmentation: -

Under the activity it is also envisaged to procure important equipment and tools to facilitate management utilization for better scientific results. It will include Pontoons, spotting scopes, motorized driven boats and Wooden boats etc. Under this component, **Rs. 0.384 Crore** are proposed.

b) Monitoring and Evaluation……

Monitoring the effectiveness of management action plan implementation is essential to assess the effectiveness of implementation. A third-party monitoring and evaluation shall be got conducted by reputed agency on EOI basis. In order to improve upon the efficiency during the implementation period it is proposed to procure 1 Vehicle and one Motor bike during the plan period including some unforeseen and miscellaneous contingencies. **Rs. 0.155 Crore** is proposed under this component.



CHAPTER NO 11

Site Specific Management Intervention Maps

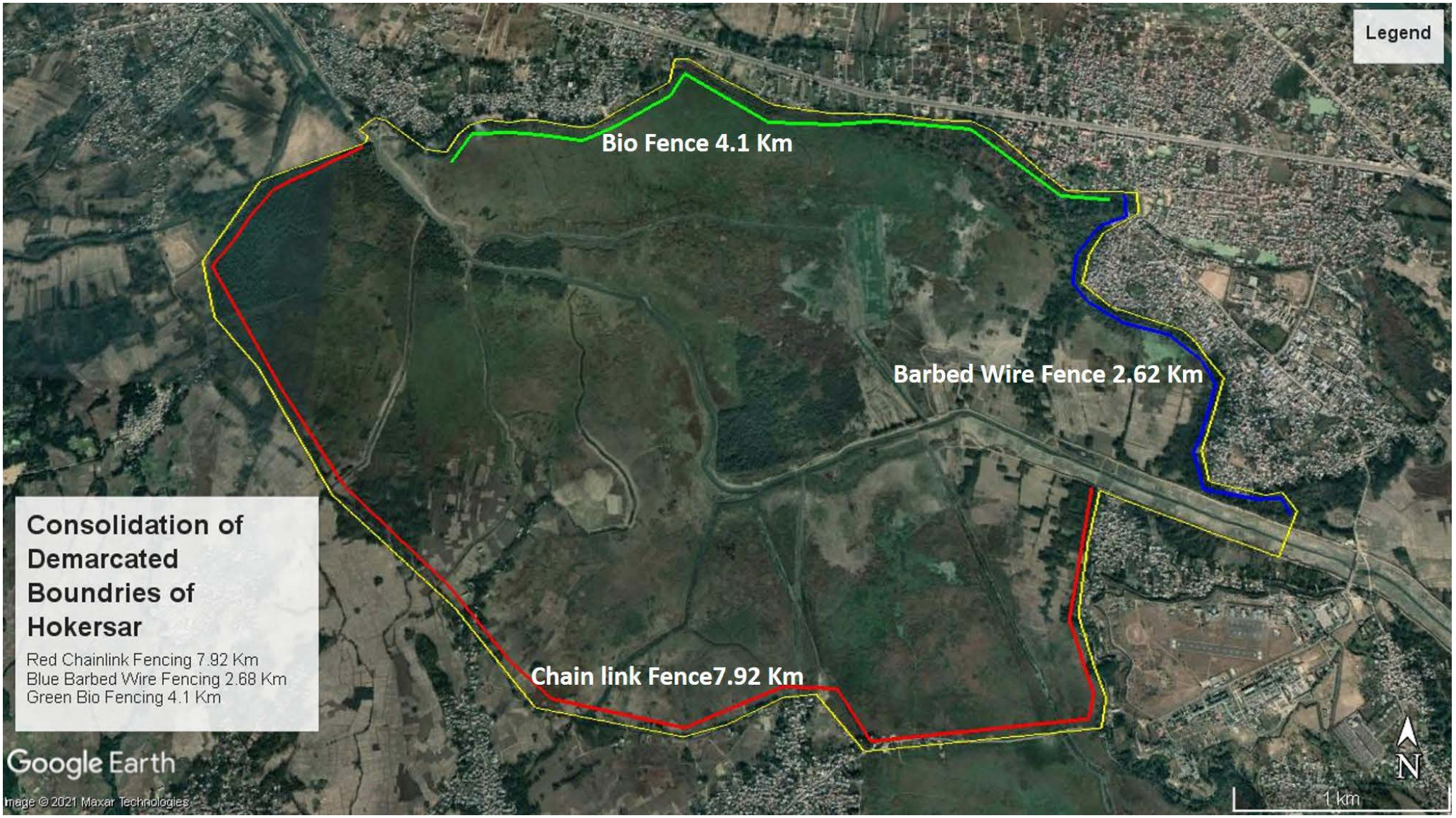

Action Plan for
Desilting Hokersar
8 Blocks 234 Ha 1 to 0.5 Mtr Depth
B1 26 ha, B2 45 Ha, B3 12 Ha,
B4 27 ha,B5 30 ha, B6 6 ha,
B7 13 ha, B8 75 ha
Legend
B-7
13 Ha
B-6
6 Ha
B-4
27 Ha
B-8
75 Ha
B-5
30 Ha
B-3
12 Ha
B-2
45 Ha
B-1
26 Ha
Google Earth
Image © 2021 Maxar Technologies
2 km
N

11.2

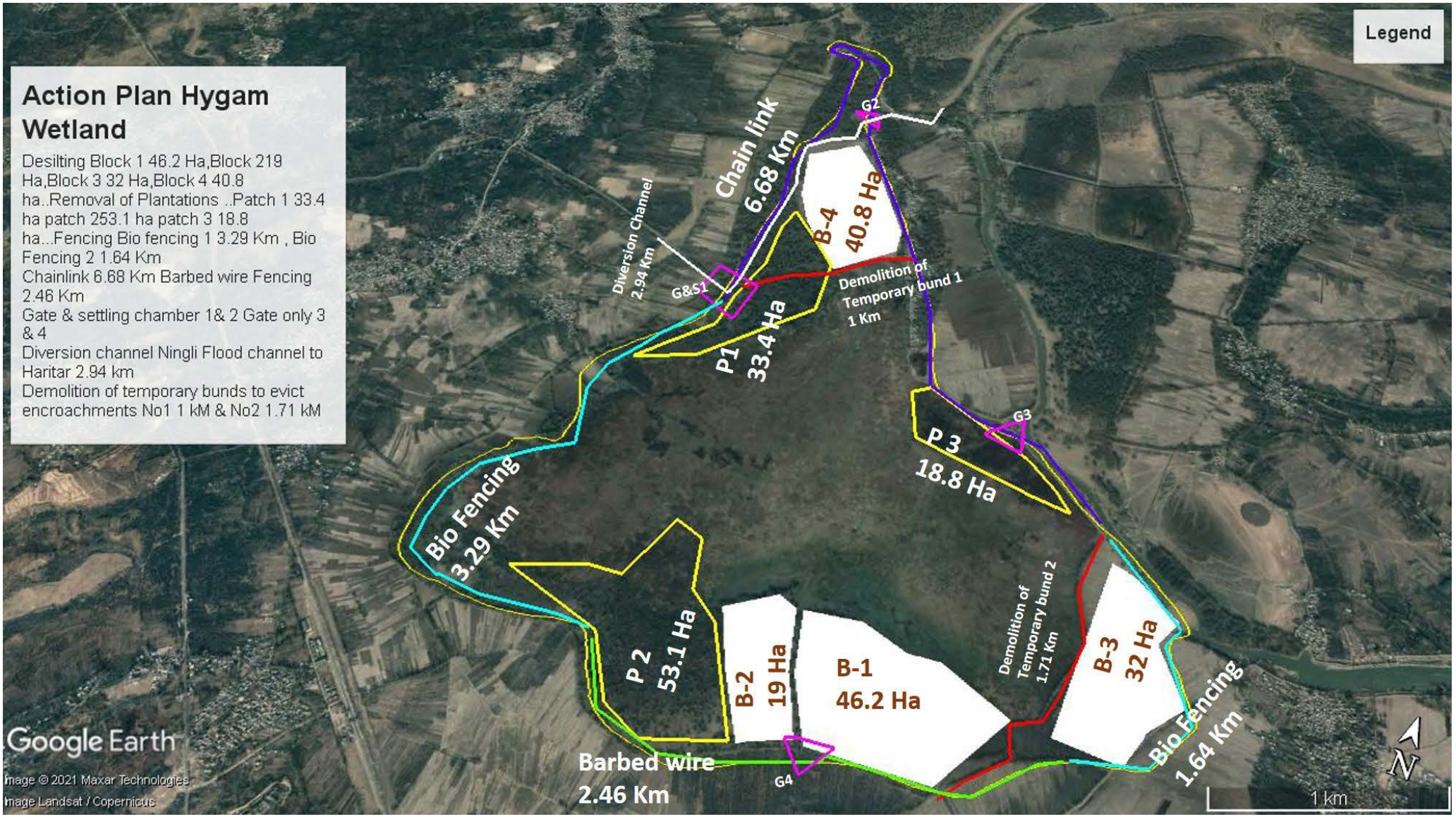

Legend
ATW7
2.63Ha
ATW 2
1Ha
ATW1
1Ha
ATW3
1.46Ha
ATW4
1.86Ha
ATW5
1.54Ha
ATW6
2.89Ha
Action Plan Construction of Artificial Wetlands Hokersar
7 ATWL 12.38 Ha
ATWL1 1 Ha, ATWL2 1 Ha, ATWL3 1.46 Ha,
ATWL4 1.86 Ha,
ATWL 5 1.54 Ha, ATWL 6 2.89 Ha
ATWL 7 2.63 Ha
Google Earth
Image © 2021 Maxar Technologies
N
1 km

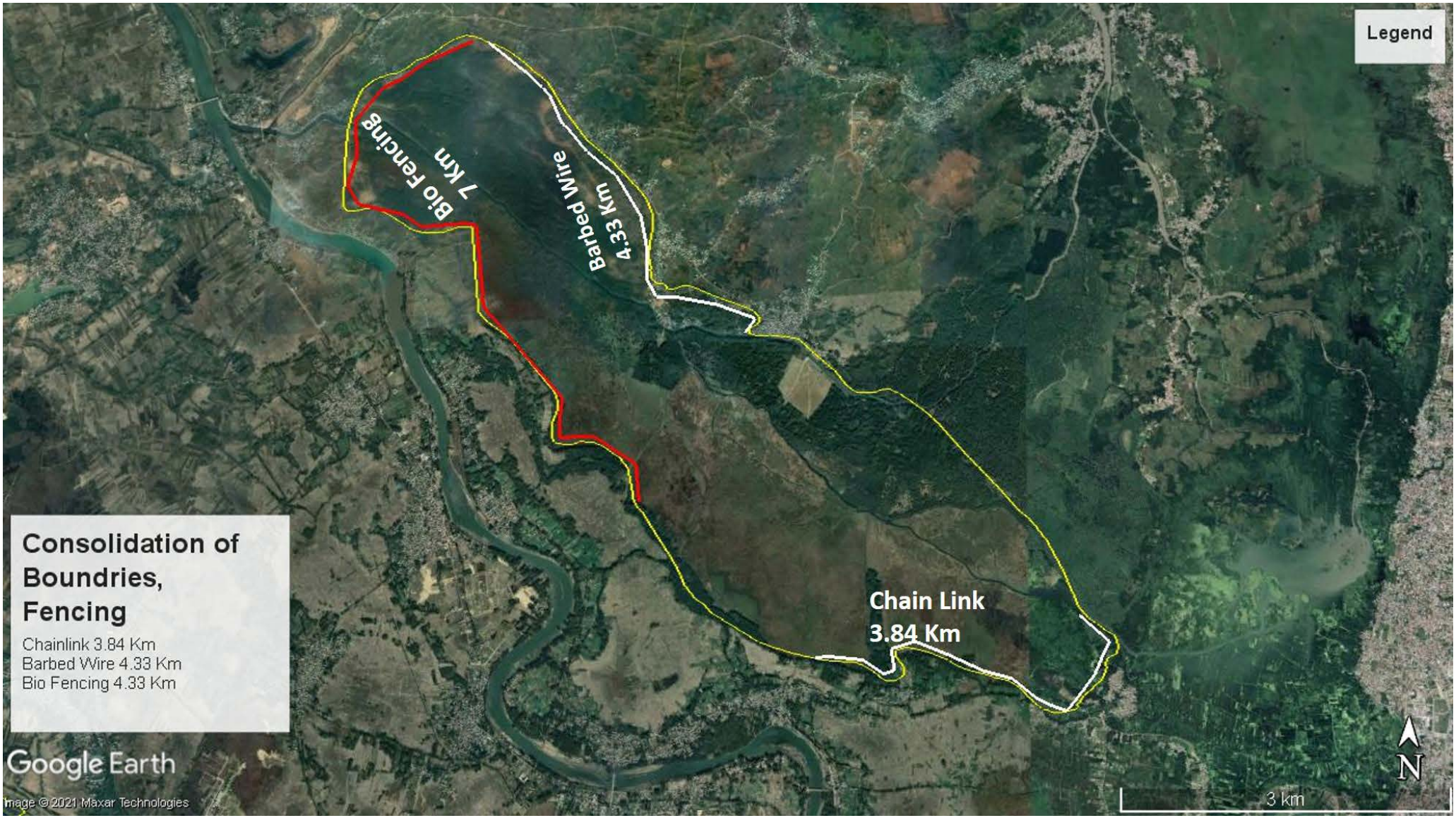

Legend
P-1
70 Ha
P-2
5.5 Ha
P-3
6 Ha
P-4
4.47 Ha
P-5
35 Ha
P-6
59.9 Ha
Action Plan for Removal of Plantation zones within Hokera Followed by Desilting
180.87 Ha
P1 70 Ha,P2 5.50 Ha, P3 6 Ha
P4 4.47 Ha, P5 35 Ha, P6 59.9 Ha
Google Earth
Image © 2021 Maxar Technologies
N
2 km

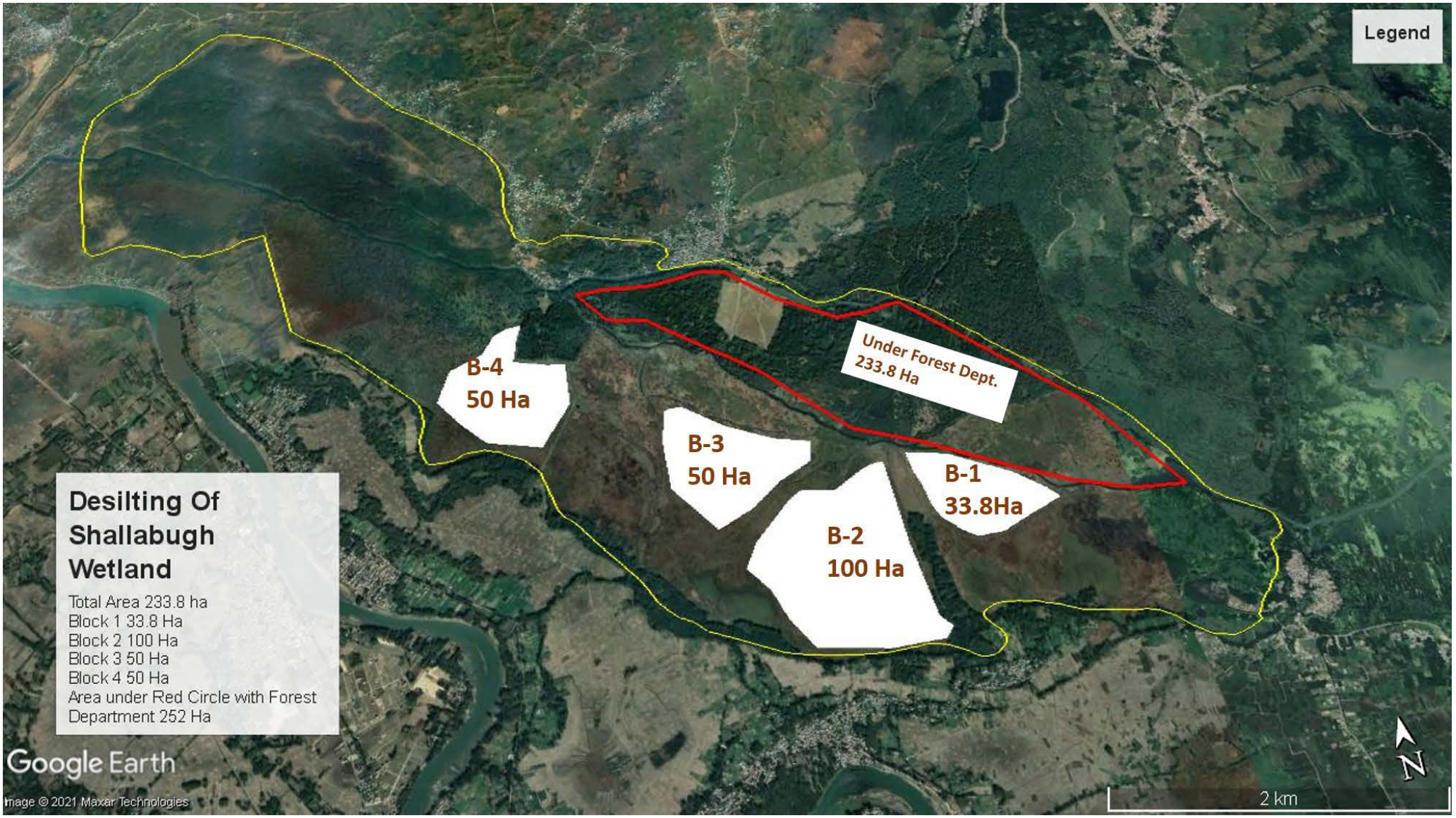
11.4

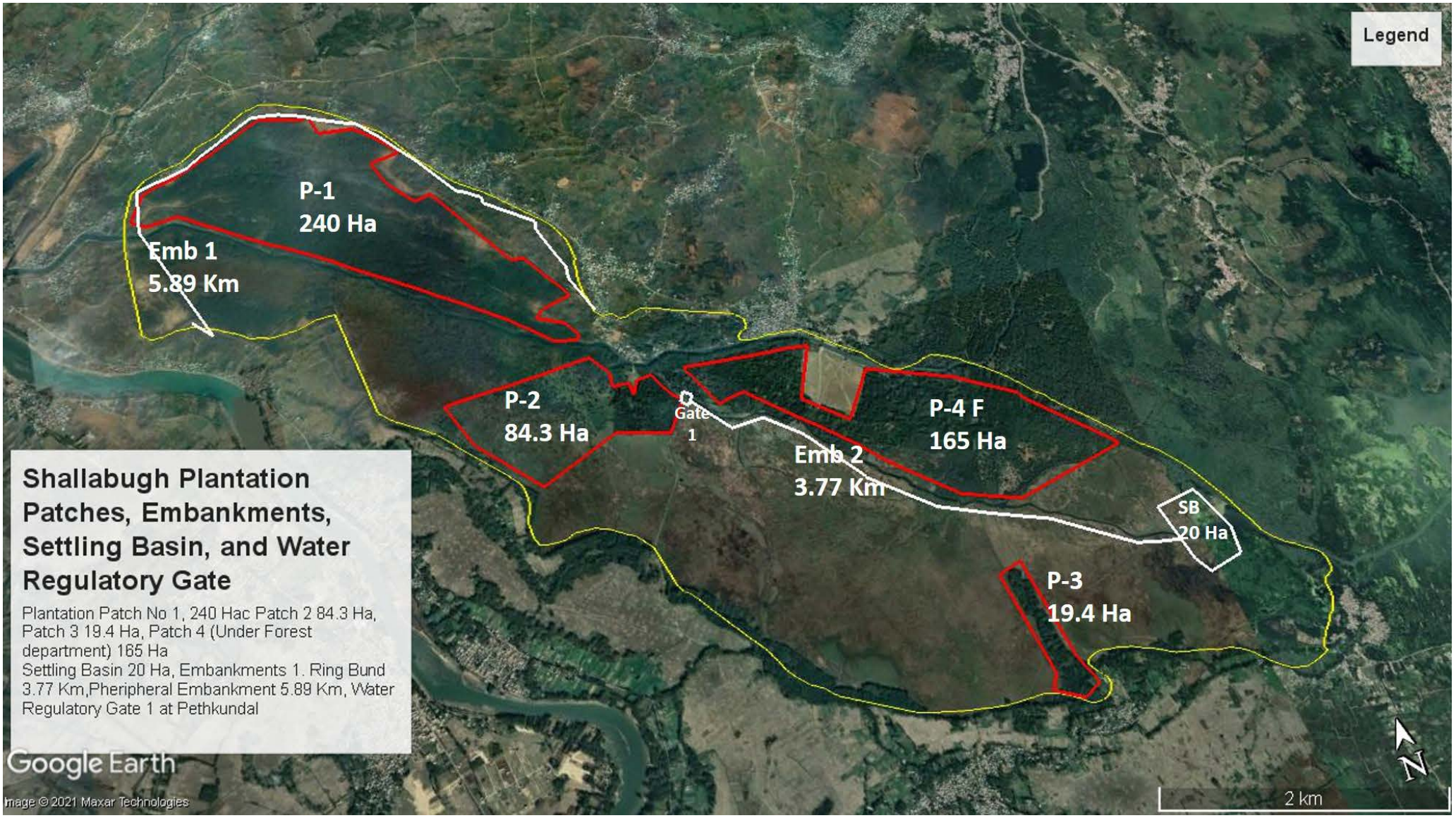

Legend
Bio Fence 4.1 Km
Barbed Wire Fence 2.62 Km
Chain link Fence7.92 Km
Consolidation of Demarcated Boundries of Hokersar
Red Chainlink Fencing 7.92 Km
Blue Barbed Wire Fencing 2.68 Km
Green Bio Fencing 4.1 Km
Google Earth
Image © 2021 Maxar Technologies
N
1 km

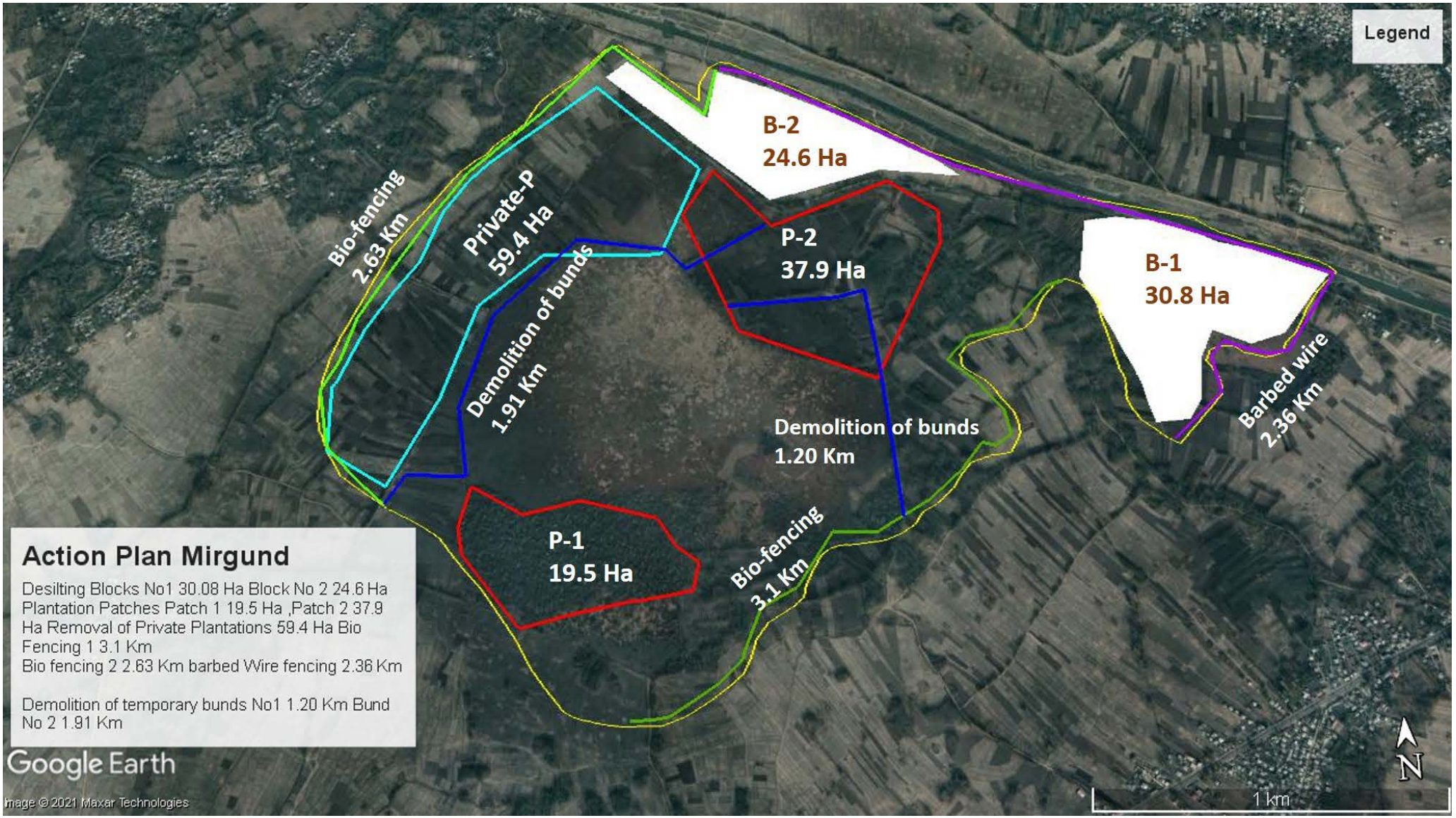

Construction of Exit Gate at Sozeith by Irrigation & Flood Control Department
Work starting soon
Legend
Google Earth
Image © 2021 Maxar Technologies
N
700 m

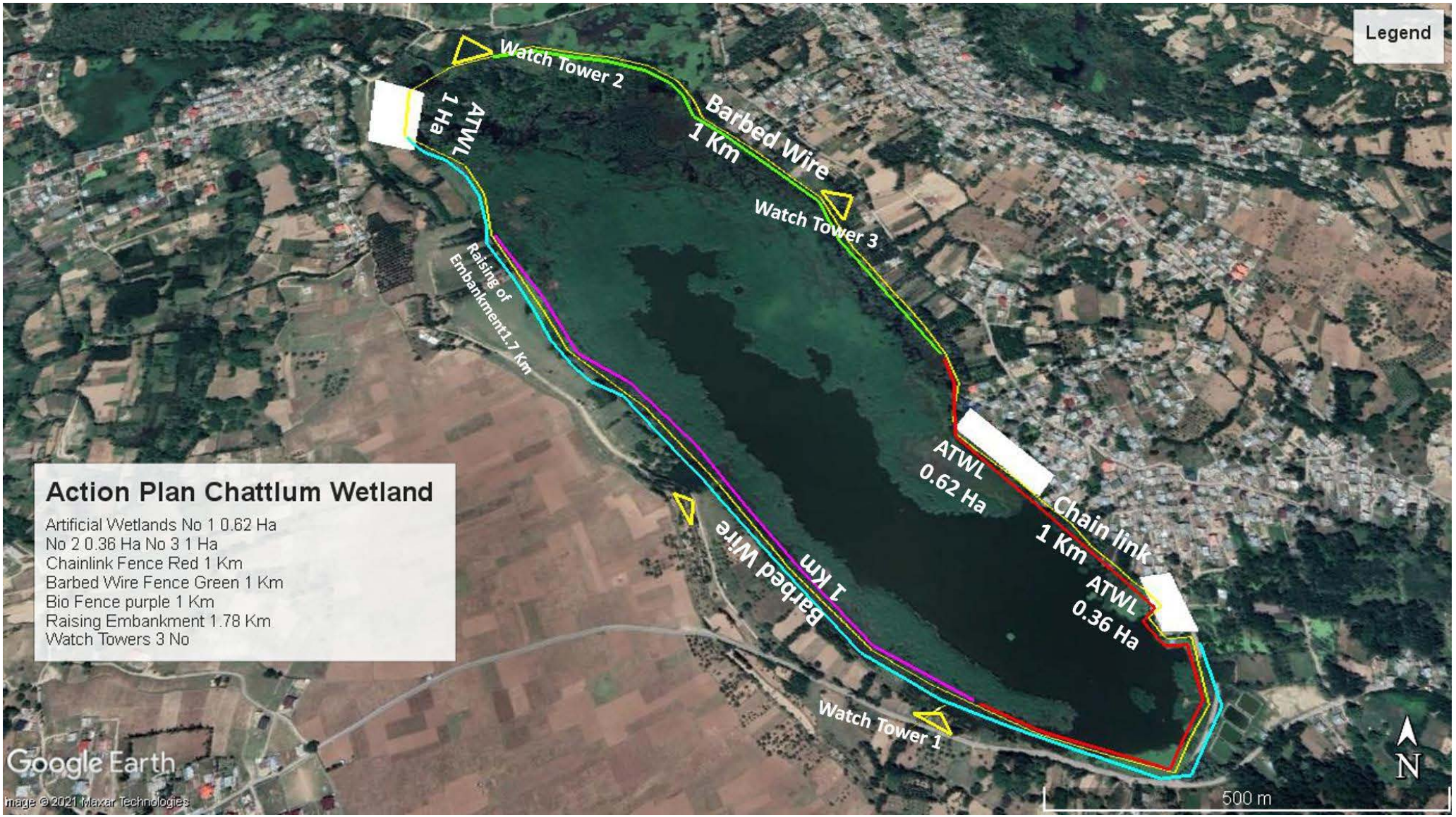

Action Plan Hygam Wetland
Desilting Block 1 46.2 Ha,Block 219 Ha,Block 3 32 Ha,Block 4 40.8 ha..Removal of Plantations ..Patch 1 33.4 ha patch 253.1 ha patch 3 18.8 ha...Fencing Bio fencing 1 3.29 Km , Bio Fencing 2 1.64 Km
Chainlink 6.68 Km Barbed wire Fencing 2.46 Km
Gate & settling chamber 1& 2 Gate only 3 & 4
Diversion channel Ningli Flood channel to Haritar 2.94 km
Demolition of temporary bunds to evict encroachments No1 1 kM & No2 1.71 kM
Legend
Chain link 6.68 Km
G2
B-4 40.8 Ha
Diversion Channel 2.94 Km
G&S1
Demolition of Temporary bund 1 1 Km
P1 33.4 Ha
P 3 18.8 Ha
G3
Bio Fencing 3.29 Km
P 2 53.1 Ha
B-2 19 Ha
B-1 46.2 Ha
Demolition of Temporary bund 2 1.71 Km
B-3 32 Ha
Bio Fencing 1.64 Km
Barbed wire 2.46 Km
G4
Google Earth
Image © 2021 Maxar Technologies
Image Landsat / Copernicus
N
1 km


Legend
Bio Fencing
7 Km
Barbed Wire
4.33 Km
Chain Link
3.84 Km
Consolidation of Boundries, Fencing
Chainlink 3.84 Km
Barbed Wire 4.33 Km
Bio Fencing 4.33 Km
Google Earth
Image © 2021 Maxar Technologies
N
3 km

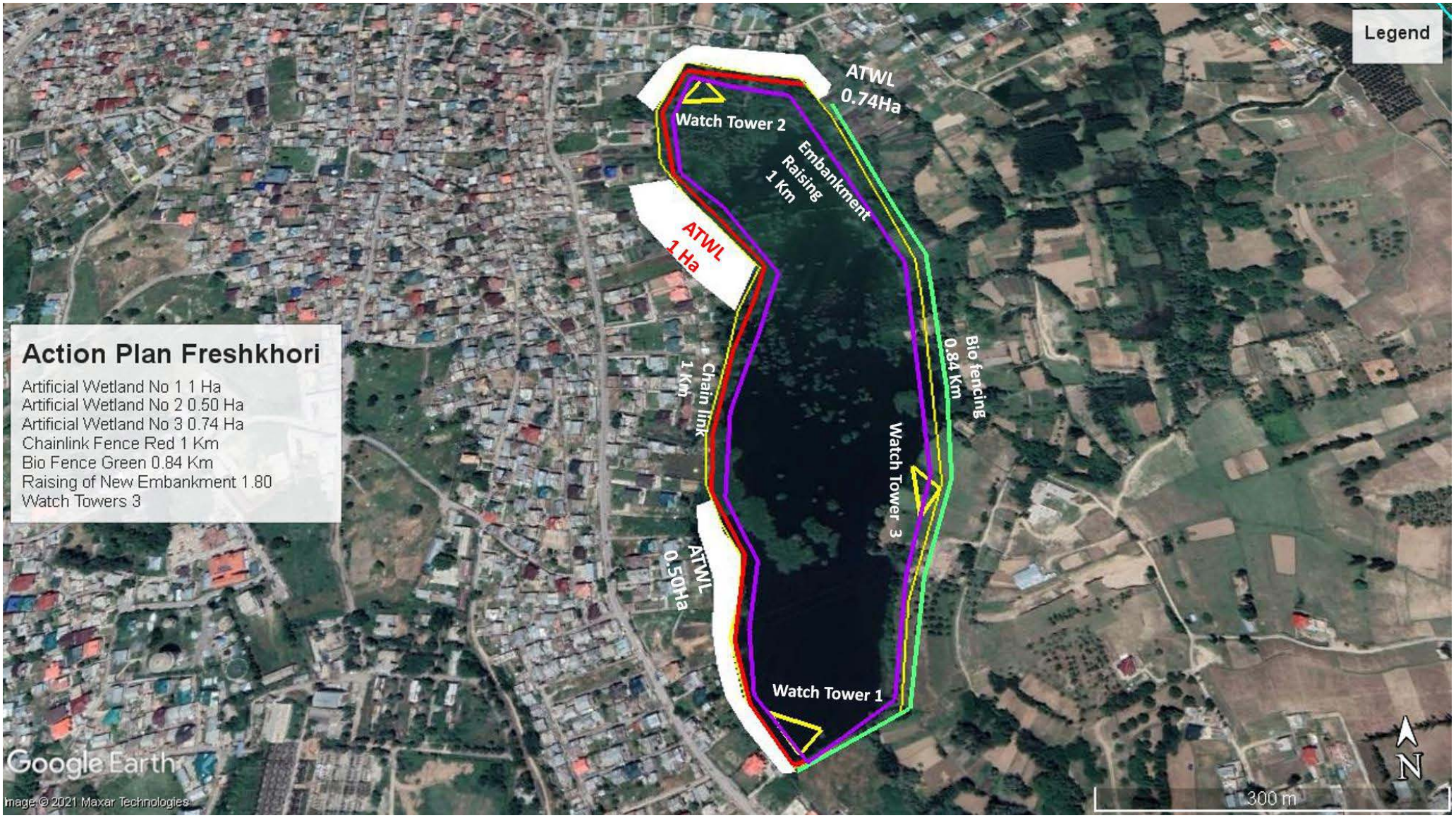

Legend
Under Forest Dept.
233.8 Ha
B-4
50 Ha
B-3
50 Ha
B-1
33.8Ha
B-2
100 Ha
Desilting Of
Shallabugh
Wetland
Total Area 233.8 ha
Block 1 33.8 Ha
Block 2 100 Ha
Block 3 50 Ha
Block 4 50 Ha
Area under Red Circle with Forest
Department 252 Ha
Google Earth
Image © 2021 Maxar Technologies
2 km
N

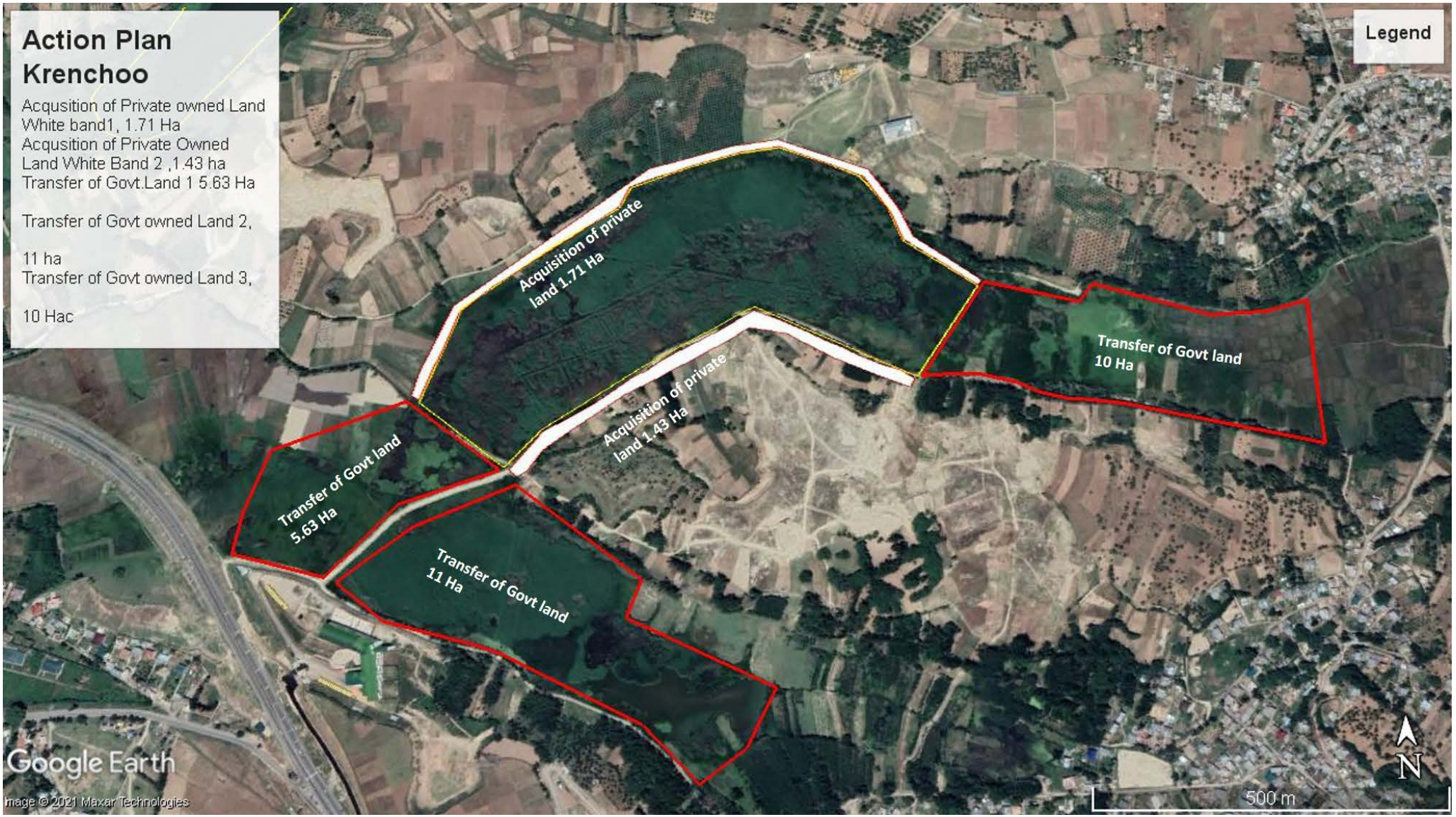

Legend
P-1
240 Ha
Emb 1
5.89 Km
P-2
84.3 Ha
Gate
1
Emb 2
3.77 Km
P-4 F
165 Ha
SB
20 Ha
P-3
19.4 Ha
Shallabugh Plantation Patches, Embankments, Settling Basin, and Water Regulatory Gate
Plantation Patch No 1, 240 Hac Patch 2 84.3 Ha, Patch 3 19.4 Ha, Patch 4 (Under Forest department) 165 Ha
Settling Basin 20 Ha, Embankments 1. Ring Bund 3.77 Km,Pheripheral Embankment 5.89 Km, Water Regulatory Gate 1 at Pethkundal
Google Earth
Image © 2021 Maxar Technologies
N
2 km


Legend
B-2
24.6 Ha
Bio-fencing
2.63 Km
Private-P
59.4 Ha
P-2
37.9 Ha
B-1
30.8 Ha
Demolition of bunds
1.91 Km
Barbed wire
2.36 Km
Demolition of bunds
1.20 Km
P-1
19.5 Ha
Bio-fencing
3.1 Km
Action Plan Mirgund
Desilting Blocks No1 30.08 Ha Block No 2 24.6 Ha
Plantation Patches Patch 1 19.5 Ha ,Patch 2 37.9 Ha Removal of Private Plantations 59.4 Ha Bio Fencing 1 3.1 Km
Bio fencing 2 2.63 Km barbed Wire fencing 2.36 Km
Demolition of temporary bunds No1 1.20 Km Bund No 2 1.91 Km
Google Earth
Image © 2021 Maxar Technologies
N
1 km

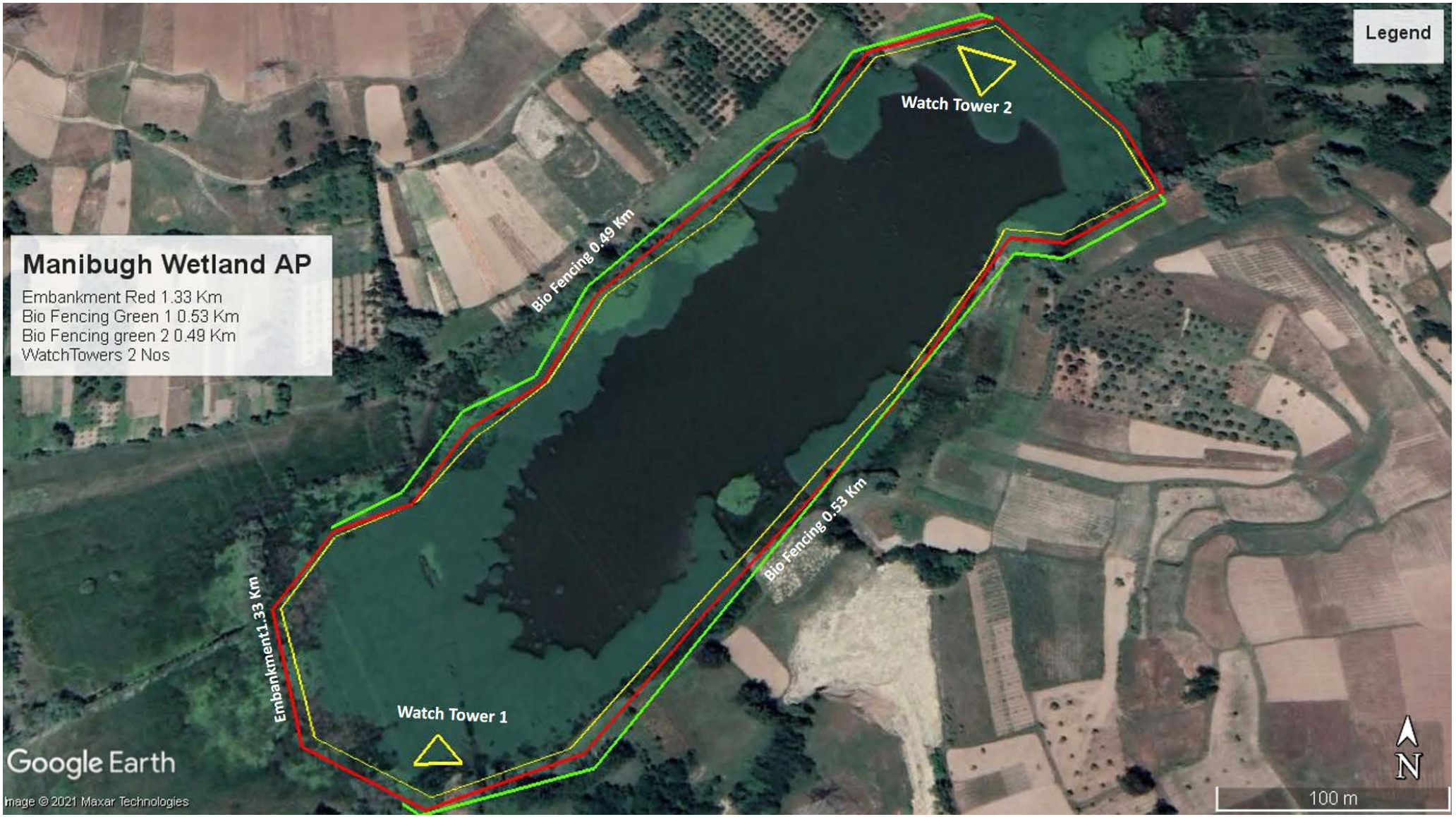

Legend
Watch Tower 2
ATWL 1 Ha
Barbed Wire 1 Km
Watch Tower 3
Raising of Embankment1.7 Km
ATWL 0.62 Ha
Chain link 1 Km
ATWL 0.36 Ha
Barbed Wire 1 Km
Watch Tower 1
Action Plan Chattlum Wetland
Artificial Wetlands No 1 0.62 Ha
No 2 0.36 Ha No 3 1 Ha
Chainlink Fence Red 1 Km
Barbed Wire Fence Green 1 Km
Bio Fence purple 1 Km
Raising Embankment 1.78 Km
Watch Towers 3 No
Google Earth
Image © 2021 Maxar Technologies
N
500 m

11.12


Legend
ATWL
0.74Ha
Watch Tower 2
Embankment
Raising
1 Km
ATWL
1 Ha
Chain link
1 Km
Bio fencing
0.84 Km
Watch Tower 3
ATWL
0.50Ha
Watch Tower 1
Action Plan Freshkhori
Artificial Wetland No 1 1 Ha
Artificial Wetland No 2 0.50 Ha
Artificial Wetland No 3 0.74 Ha
Chainlink Fence Red 1 Km
Bio Fence Green 0.84 Km
Raising of New Embankment 1.80
Watch Towers 3
Google Earth
Image © 2021 Maxar Technologies
N
300 m


Action Plan
Krenchoo
Acqusition of Private owned Land White band1, 1.71 Ha
Acqusition of Private Owned Land White Band 2 ,1.43 ha
Transfer of Govt.Land 1 5.63 Ha
Transfer of Govt owned Land 2,
11 ha
Transfer of Govt owned Land 3,
10 Hac
Legend
Acquisition of private land 1.71 Ha
Acquisition of private land 1.43 Ha
Transfer of Govt land 10 Ha
Transfer of Govt land 5.63 Ha
Transfer of Govt land 11 Ha
Google Earth
Image © 2021 Maxar Technologies
N
500 m

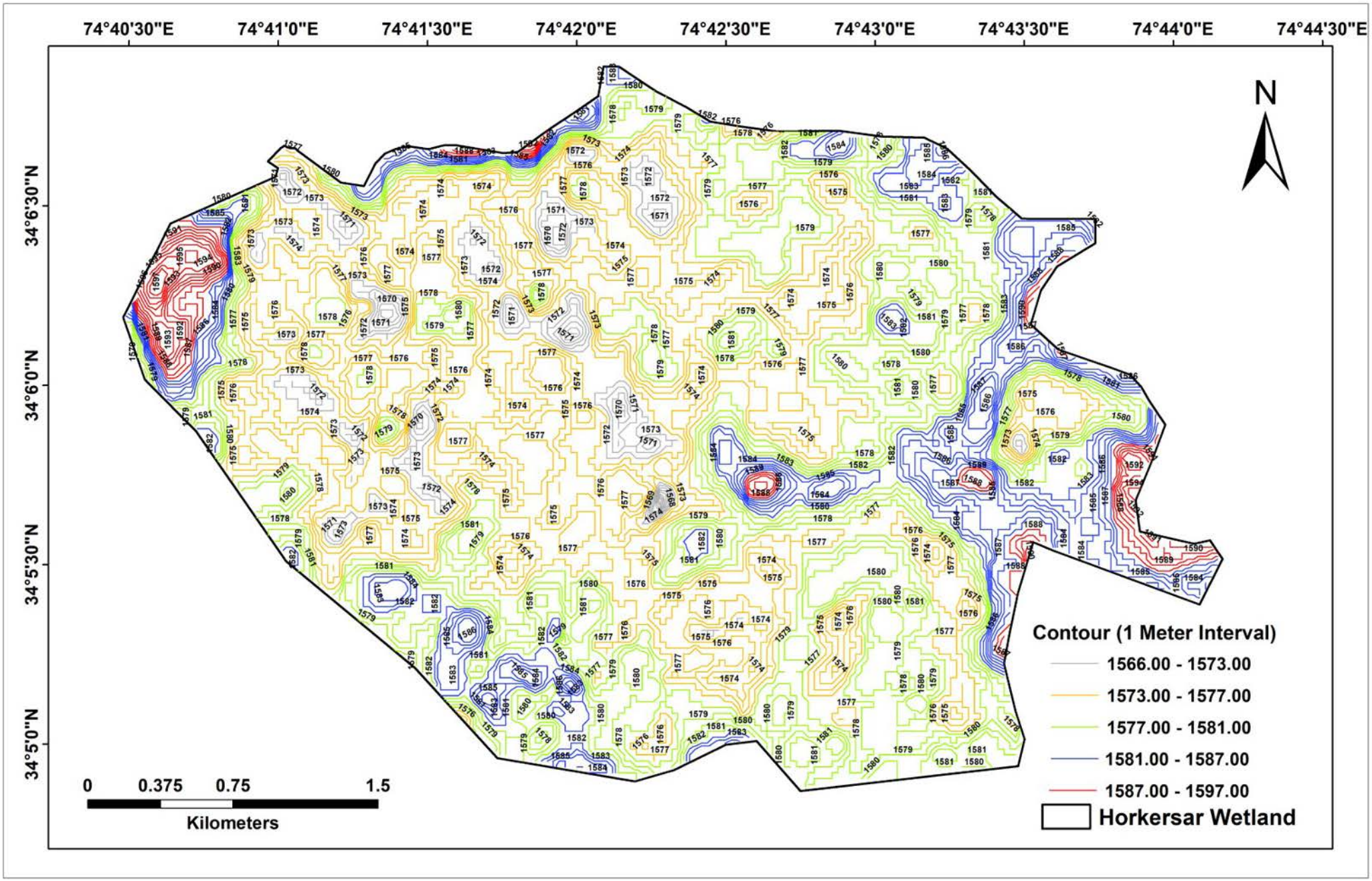
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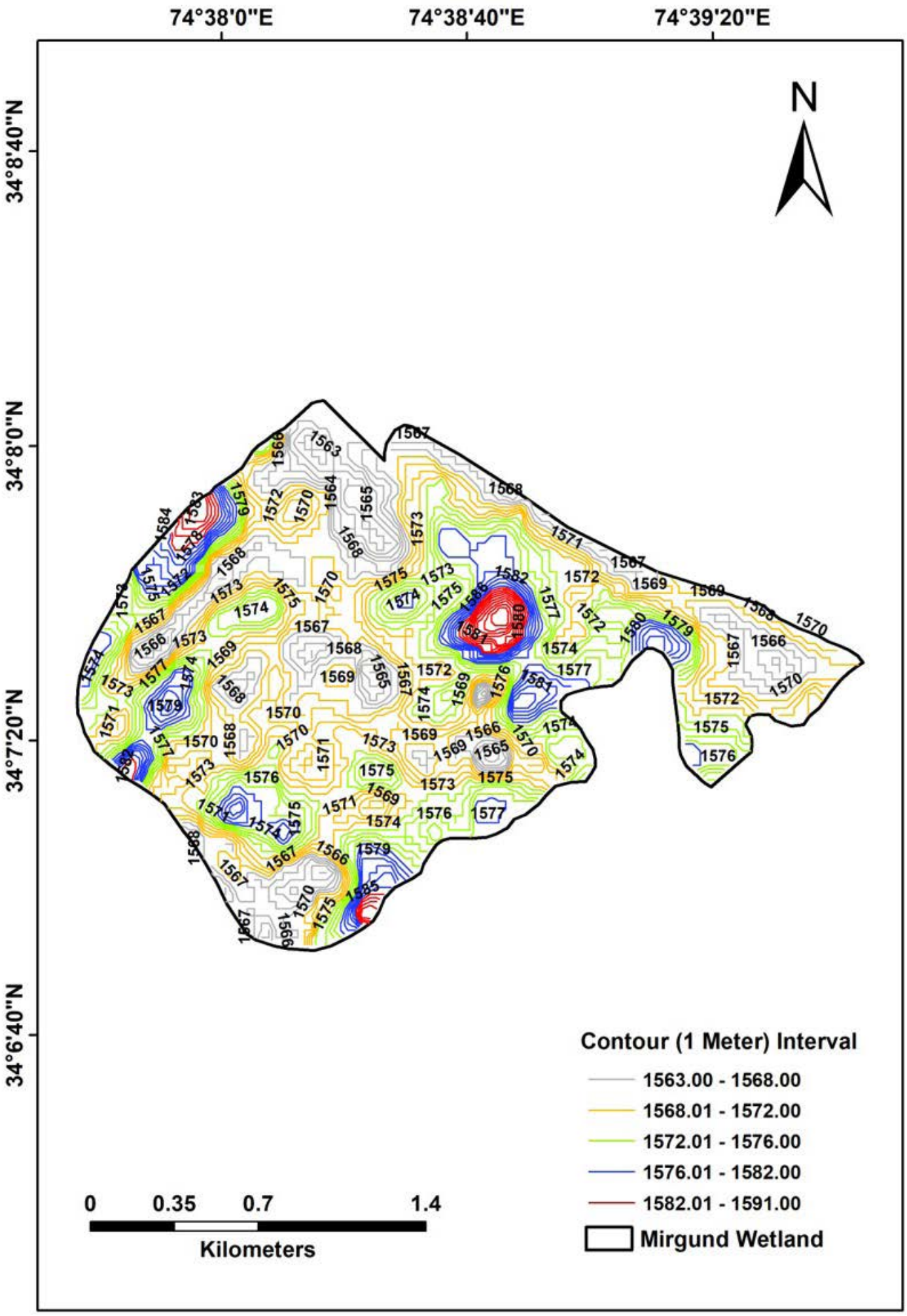

Manibugh Wetland AP
Embankment Red 1.33 Km
Bio Fencing Green 1 0.53 Km
Bio Fencing green 2 0.49 Km
WatchTowers 2 Nos
Legend
Watch Tower 2
Bio Fencing 0.49 Km
Bio Fencing 0.53 Km
Embankment1.33 Km
Watch Tower 1
Google Earth
Image © 2021 Maxar Technologies
N
100 m

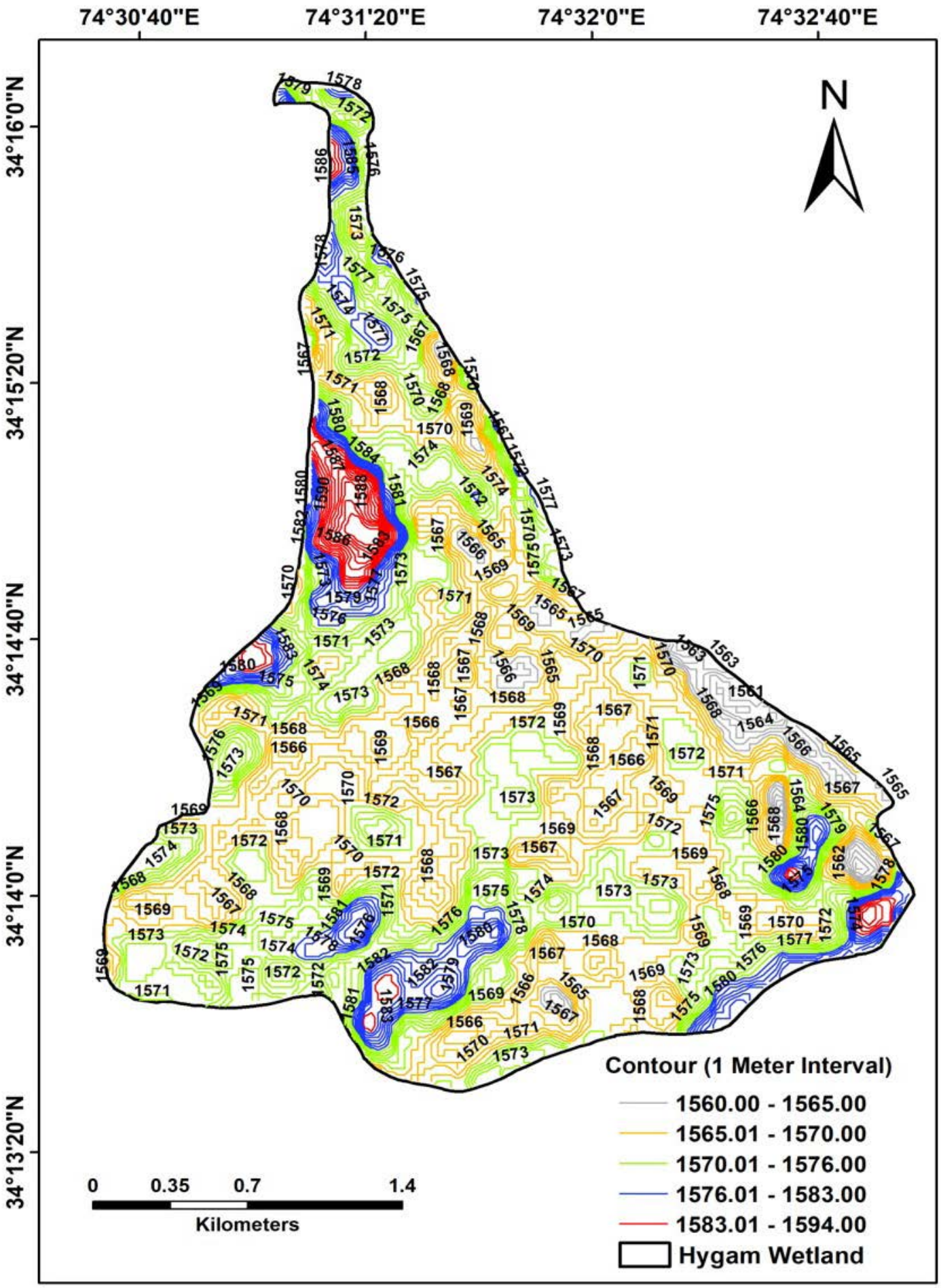


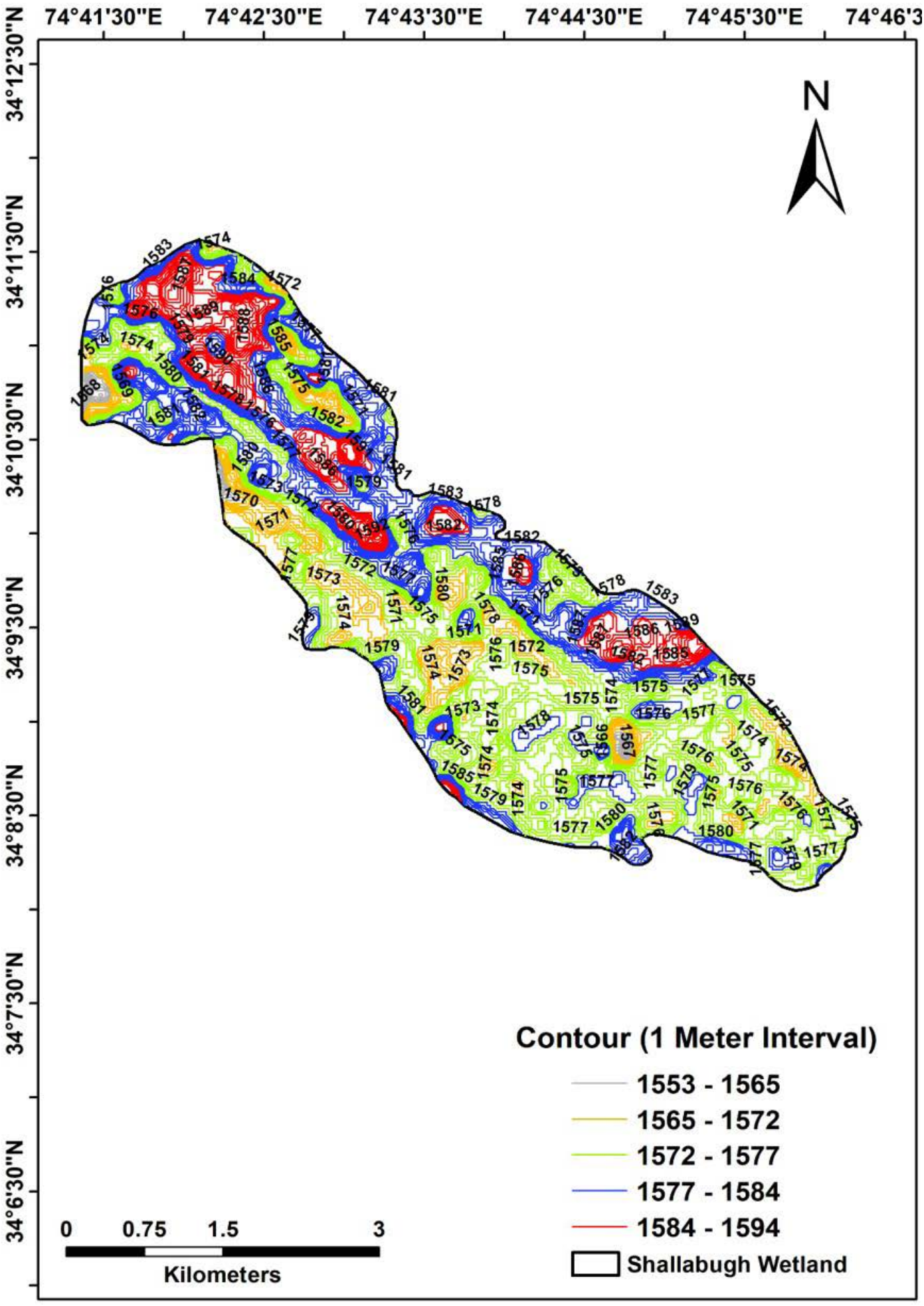
CHAPTER NO 12

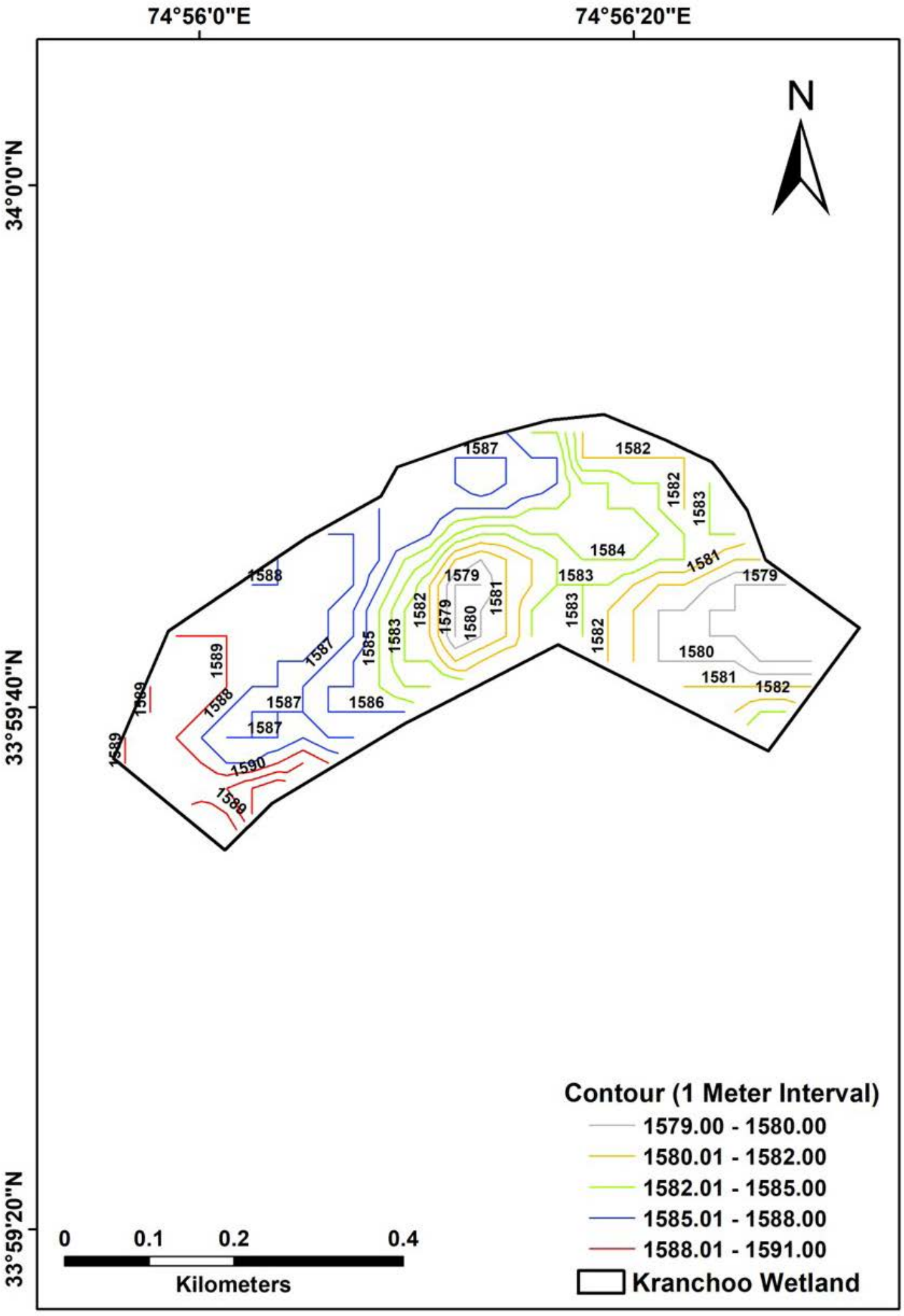
Contour Maps of Wetlands

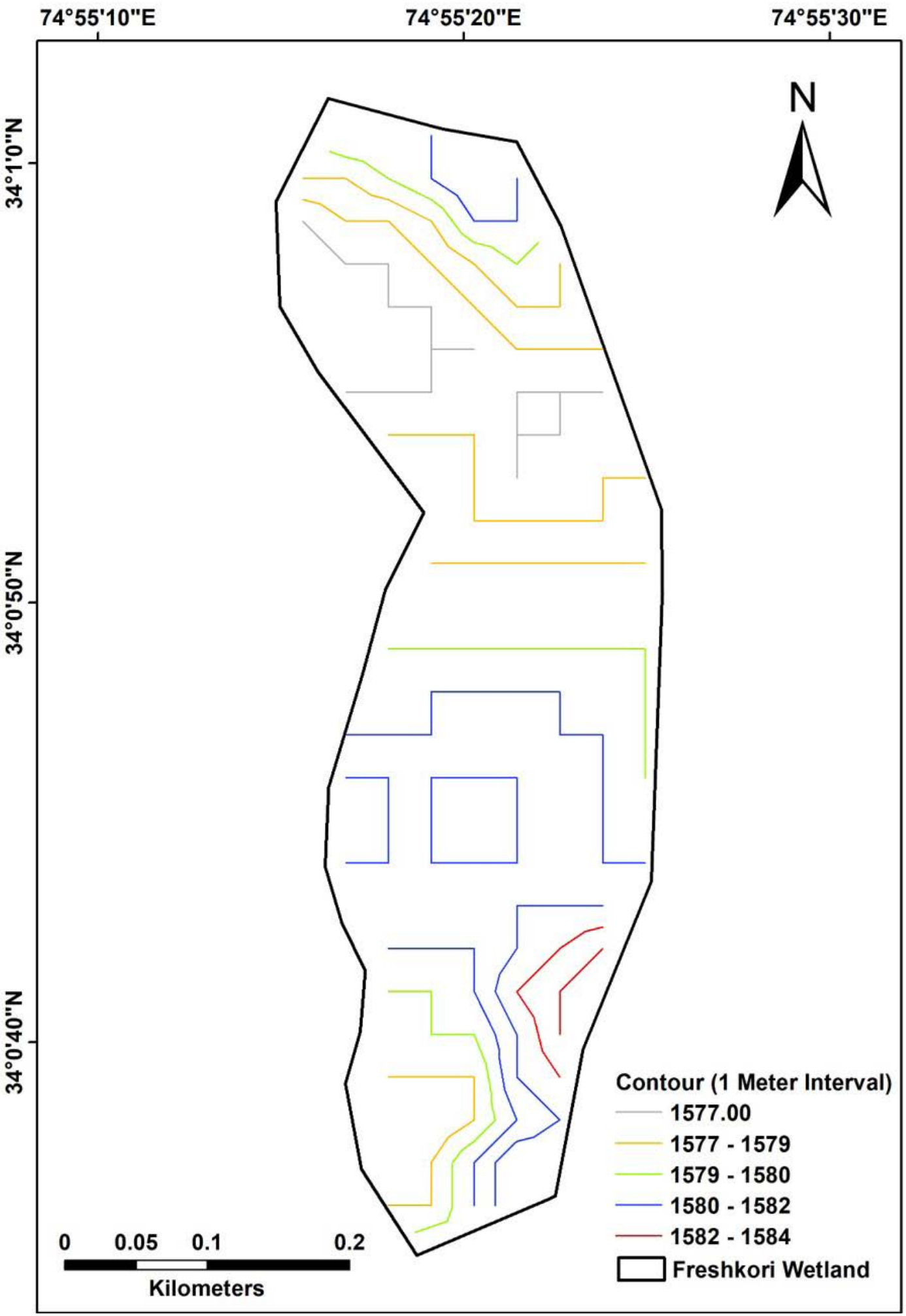

74°40'30"E
74°41'0"E
74°41'30"E
74°42'0"E
74°42'30"E
74°43'0"E
74°43'30"E
74°44'0"E
74°44'30"E
34°6'30"N
34°6'0"N
34°5'30"N
34°5'0"N
N
0
0.375
0.75
1.5
Kilometers
Contour (1 Meter Interval)
1566.00 - 1573.00
1573.00 - 1577.00
1577.00 - 1581.00
1581.00 - 1587.00
1587.00 - 1597.00
Horkersar Wetland

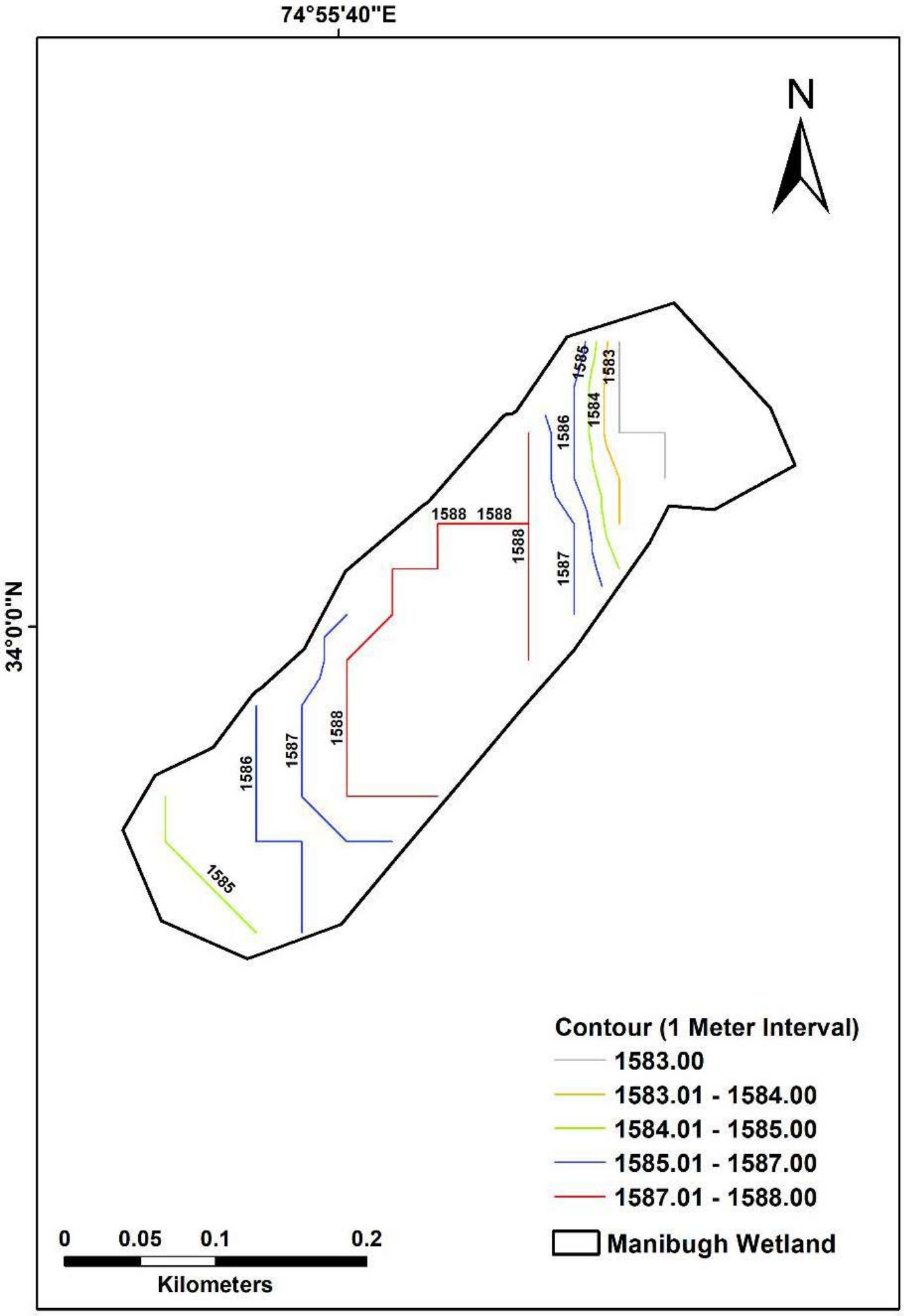

74°38'0"E
74°38'40"E
74°39'20"E
34°8'40"N
34°8'0"N
34°7'20"N
34°6'40"N
N
Contour (1 Meter) Interval
1563.00 - 1568.00
1568.01 - 1572.00
1572.01 - 1576.00
1576.01 - 1582.00
1582.01 - 1591.00
Mirgund Wetland
0
0.35
0.7
1.4
Kilometers

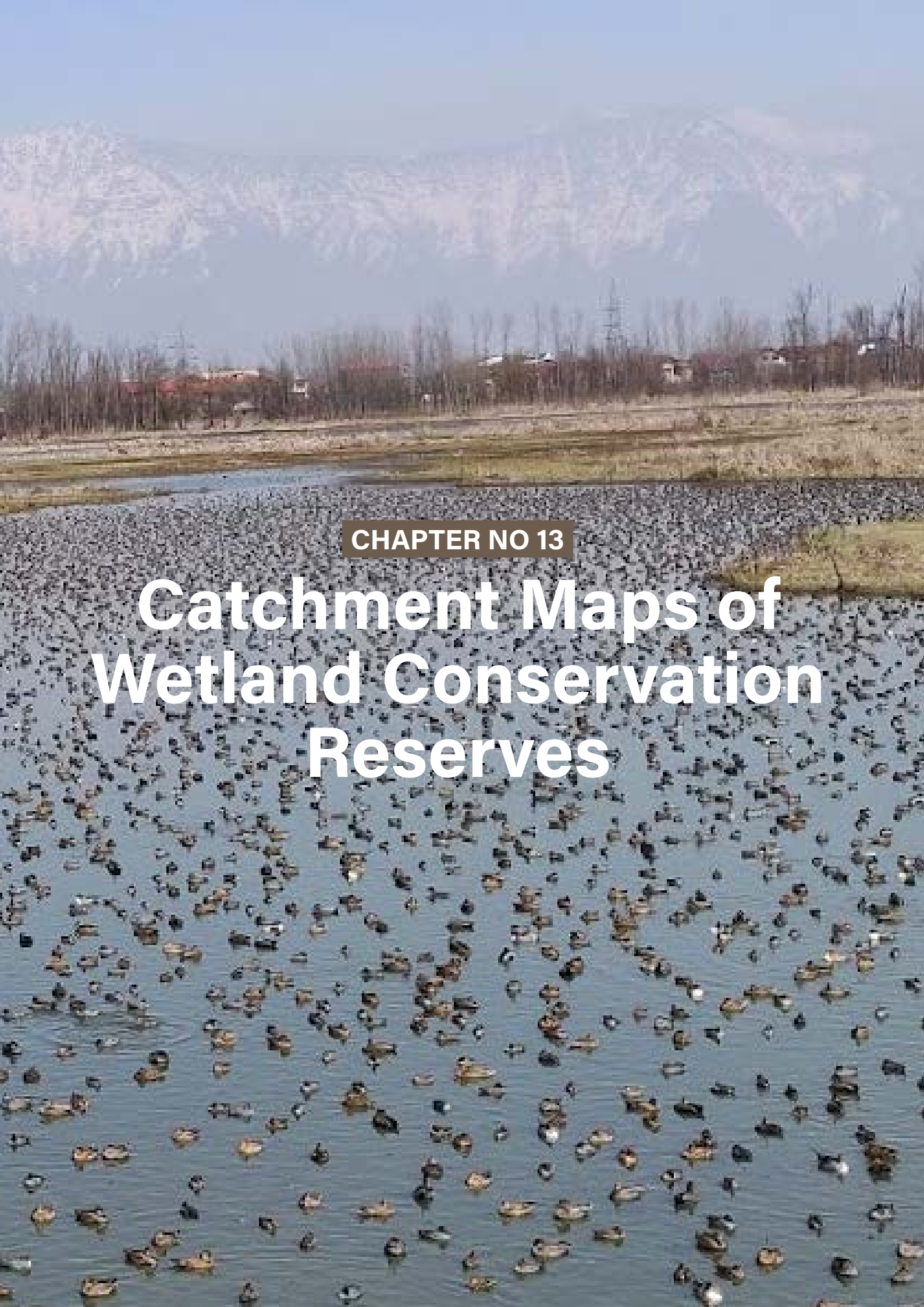

74°30'40"E
74°31'20"E
74°32'0"E
74°32'40"E
34°16'0"N
34°15'20"N
34°14'40"N
34°14'0"N
34°13'20"N
N
0
0.35
0.7
1.4
Kilometers
Contour (1 Meter Interval)
1560.00 - 1565.00
1565.01 - 1570.00
1570.01 - 1576.00
1576.01 - 1583.00
1583.01 - 1594.00
Hygam Wetland


74°41'30"E
74°42'30"E
74°43'30"E
74°44'30"E
74°45'30"E
74°46'3
34°12'30"N
34°11'30"N
34°10'30"N
34°9'30"N
34°8'30"N
34°7'30"N
34°6'30"N
N
Contour (1 Meter Interval)
1553 - 1565
1565 - 1572
1572 - 1577
1577 - 1584
1584 - 1594
Shallabugh Wetland
0
0.75
1.5
3
Kilometers


74°56'0"E
74°56'20"E
34°0'0"N
33°59'40"N
33°59'20"N
N
1587
1582
1582
1583
1584
1581
1579
1588
1579
1583
1579
1583
1582
1581
1580
1582
1585
1583
1582
1579
1580
1581
1583
1582
1580
1581
1582
1589
1587
1589
1588
1587
1586
1587
1589
1590
1588
0
0.1
0.2
0.4
Kilometers
Contour (1 Meter Interval)
1579.00 - 1580.00
1580.01 - 1582.00
1582.01 - 1585.00
1585.01 - 1588.00
1588.01 - 1591.00
Kranchoo Wetland

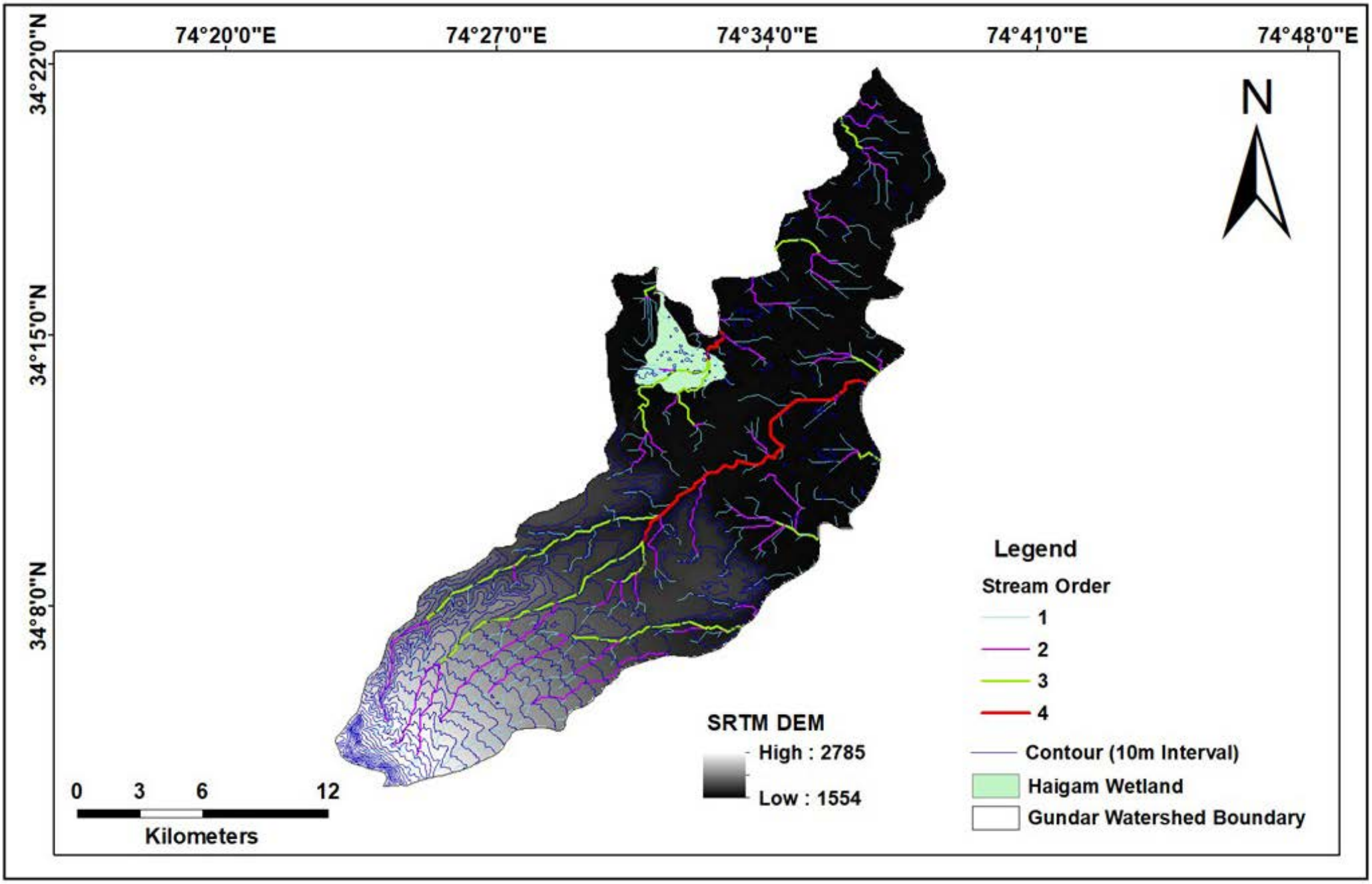

74°55'10"E
74°55'20"E
74°55'30"E
34°1'0"N
34°0'50"N
34°0'40"N
N
Contour (1 Meter Interval)
1577.00
1577 - 1579
1579 - 1580
1580 - 1582
1582 - 1584
Freshkori Wetland
0
0.05
0.1
0.2
Kilometers

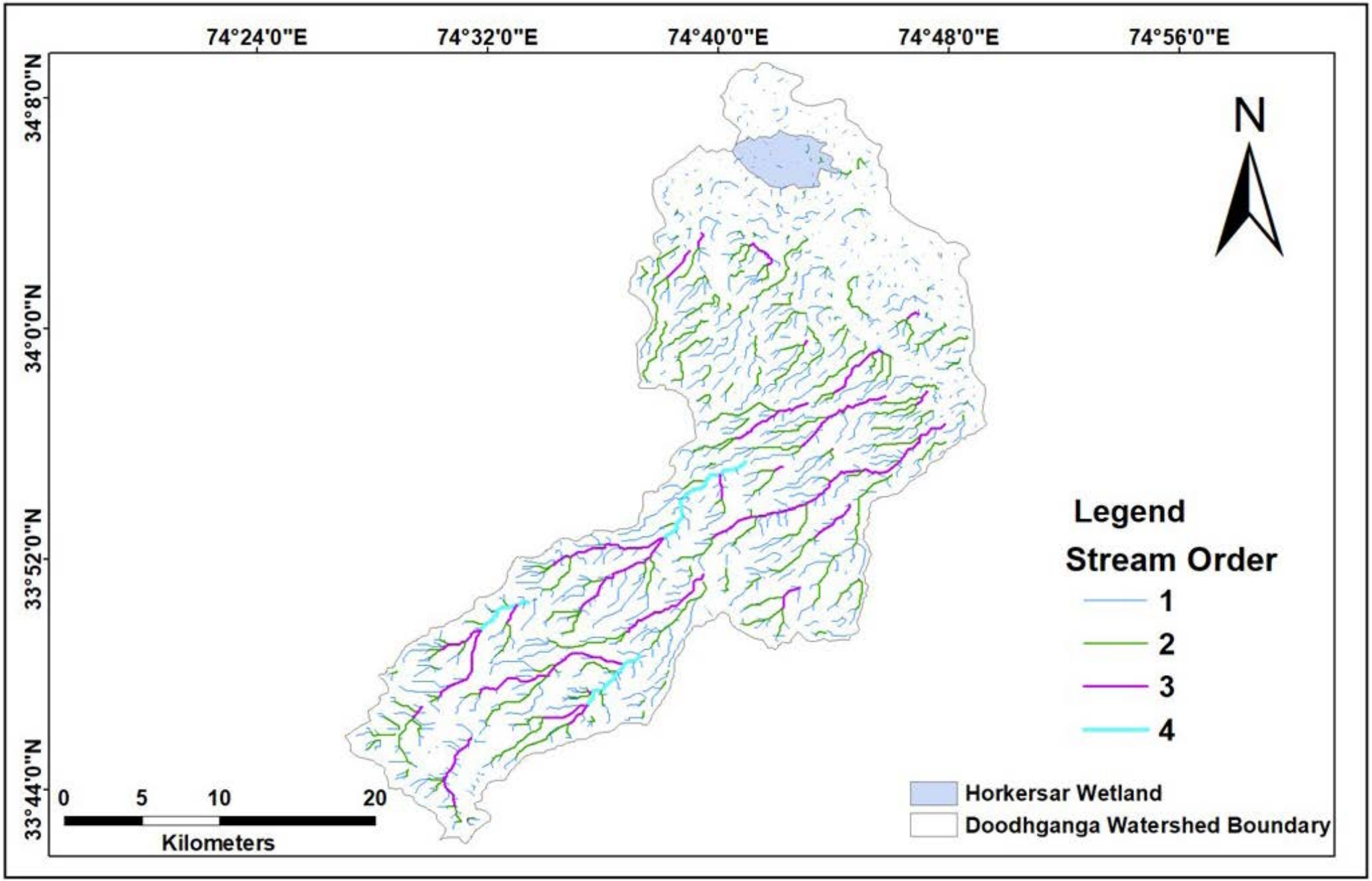

74°55'40"E
34°0'0"N
N
1588
1588
1588
1587
1586
1585
1584
1583
1586
1587
1588
1586
1585
Contour (1 Meter Interval)
1583.00
1583.01 - 1584.00
1584.01 - 1585.00
1585.01 - 1587.00
1587.01 - 1588.00
Manibugh Wetland
0
0.05
0.1
0.2
Kilometers

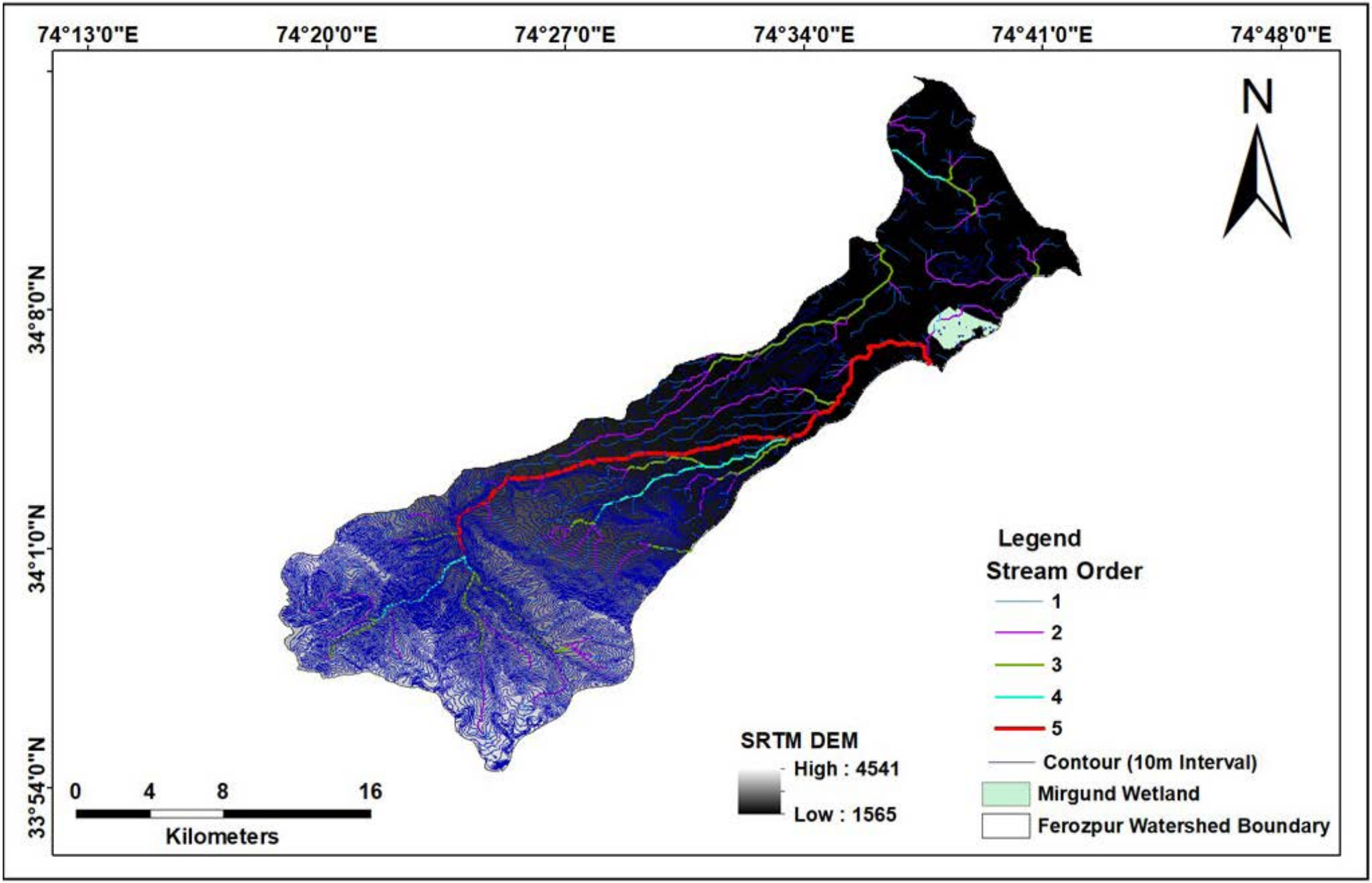


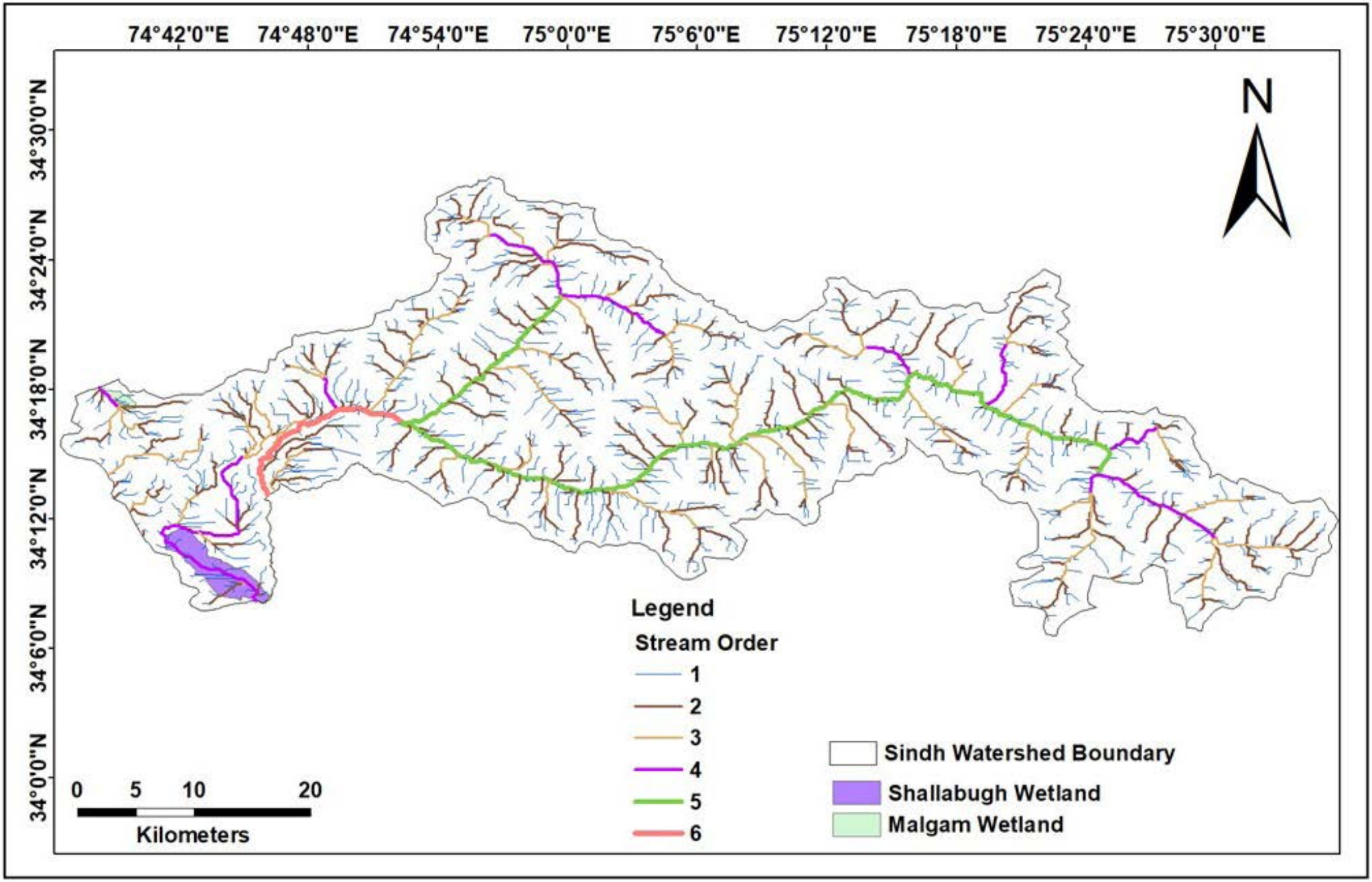
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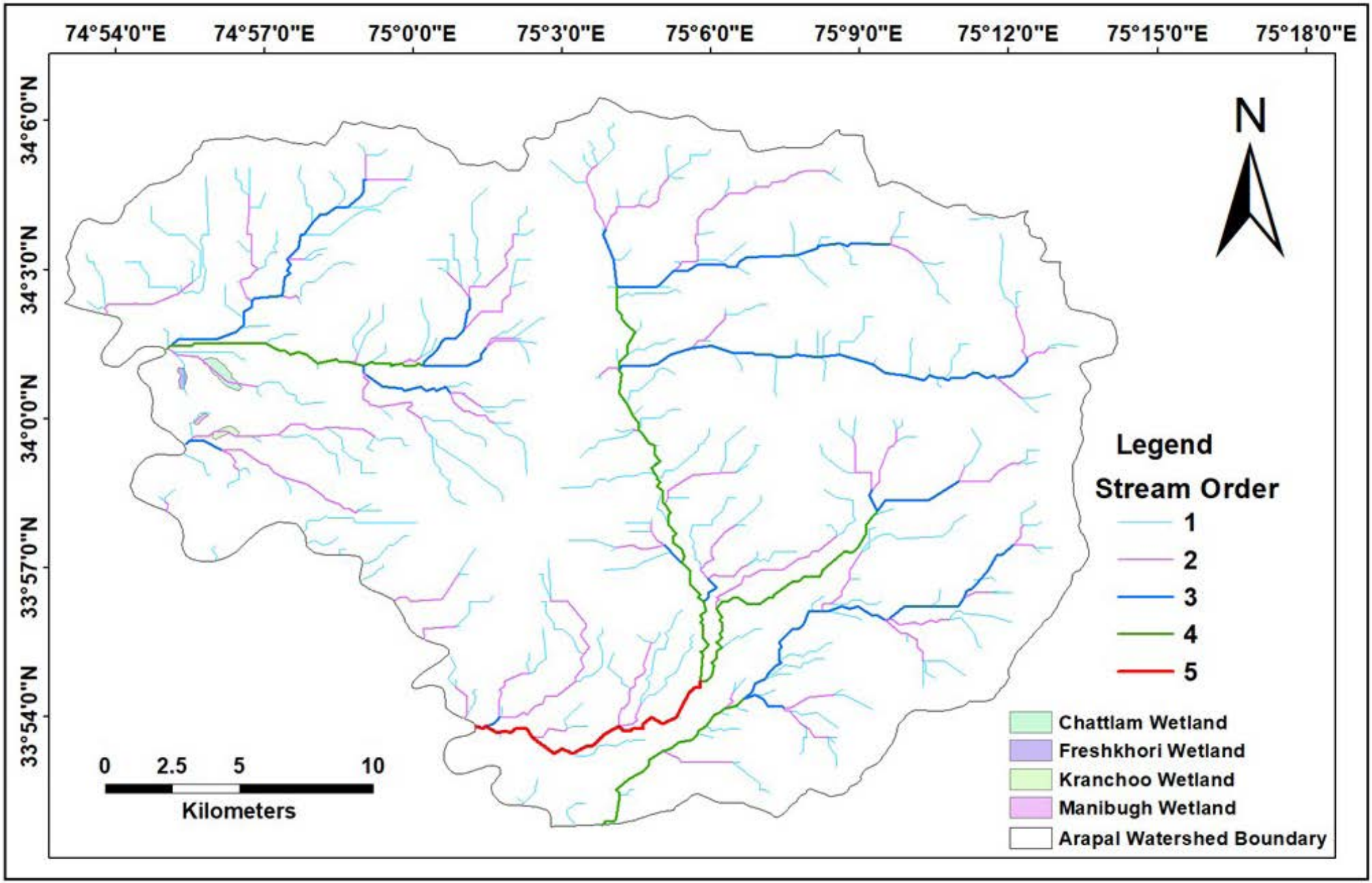
Catchment Maps of Wetland Conservation Reserves


74°20'0"E
74°27'0"E
74°34'0"E
74°41'0"E
74°48'0"E
34°22'0"N
34°15'0"N
34°8'0"N
N
Legend
Stream Order
1
2
3
4
Contour (10m Interval)
Haigam Wetland
Gundar Watershed Boundary
SRTM DEM
High : 2785
Low : 1554
0 3 6 12
Kilometers

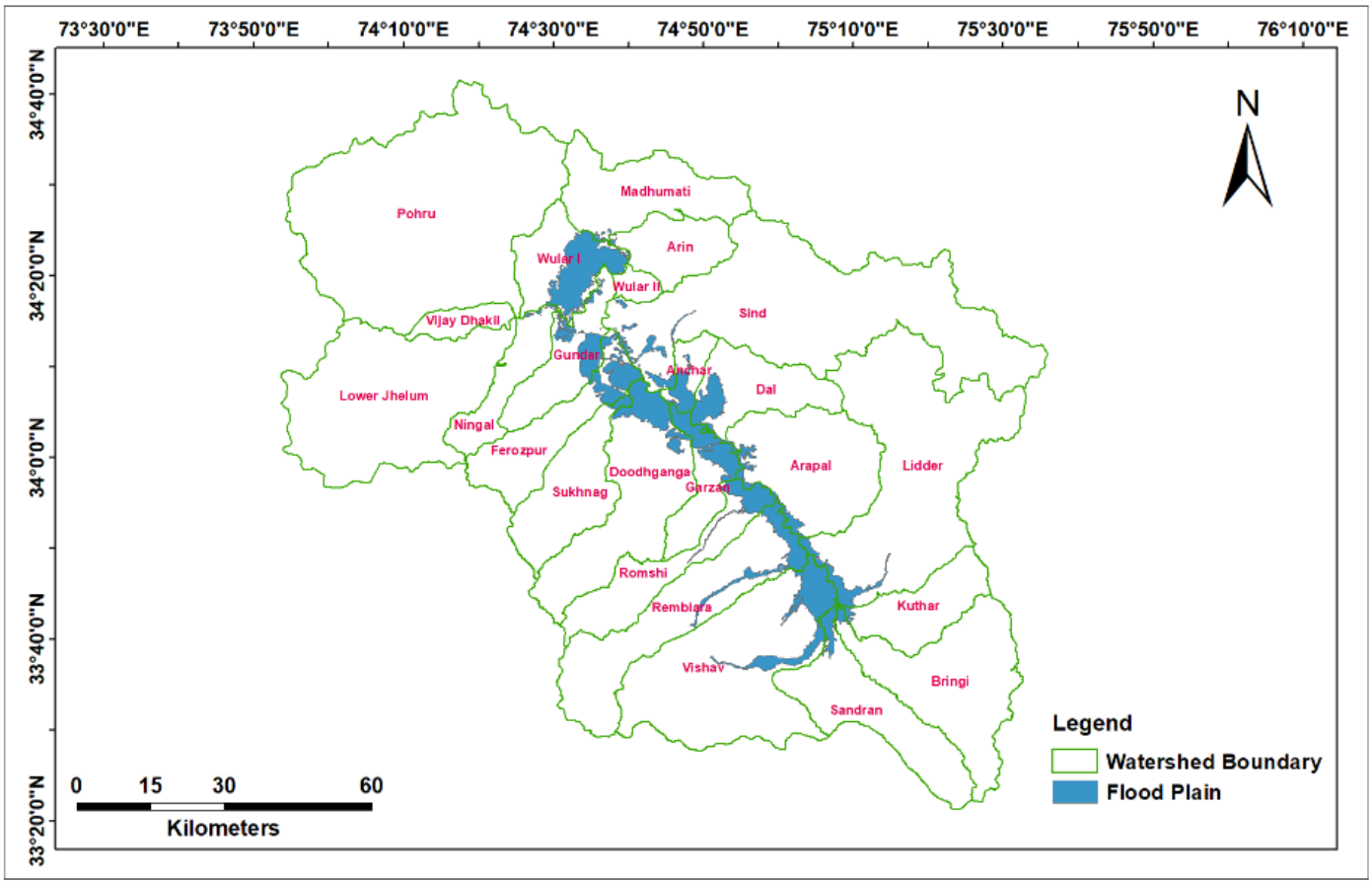

74°24'0"E
74°32'0"E
74°40'0"E
74°48'0"E
74°56'0"E
34°8'0"N
34°0'0"N
33°52'0"N
33°44'0"N
N
Legend
Stream Order
1
2
3
4
Horkersar Wetland
Doodhganga Watershed Boundary
0
5
10
20
Kilometers

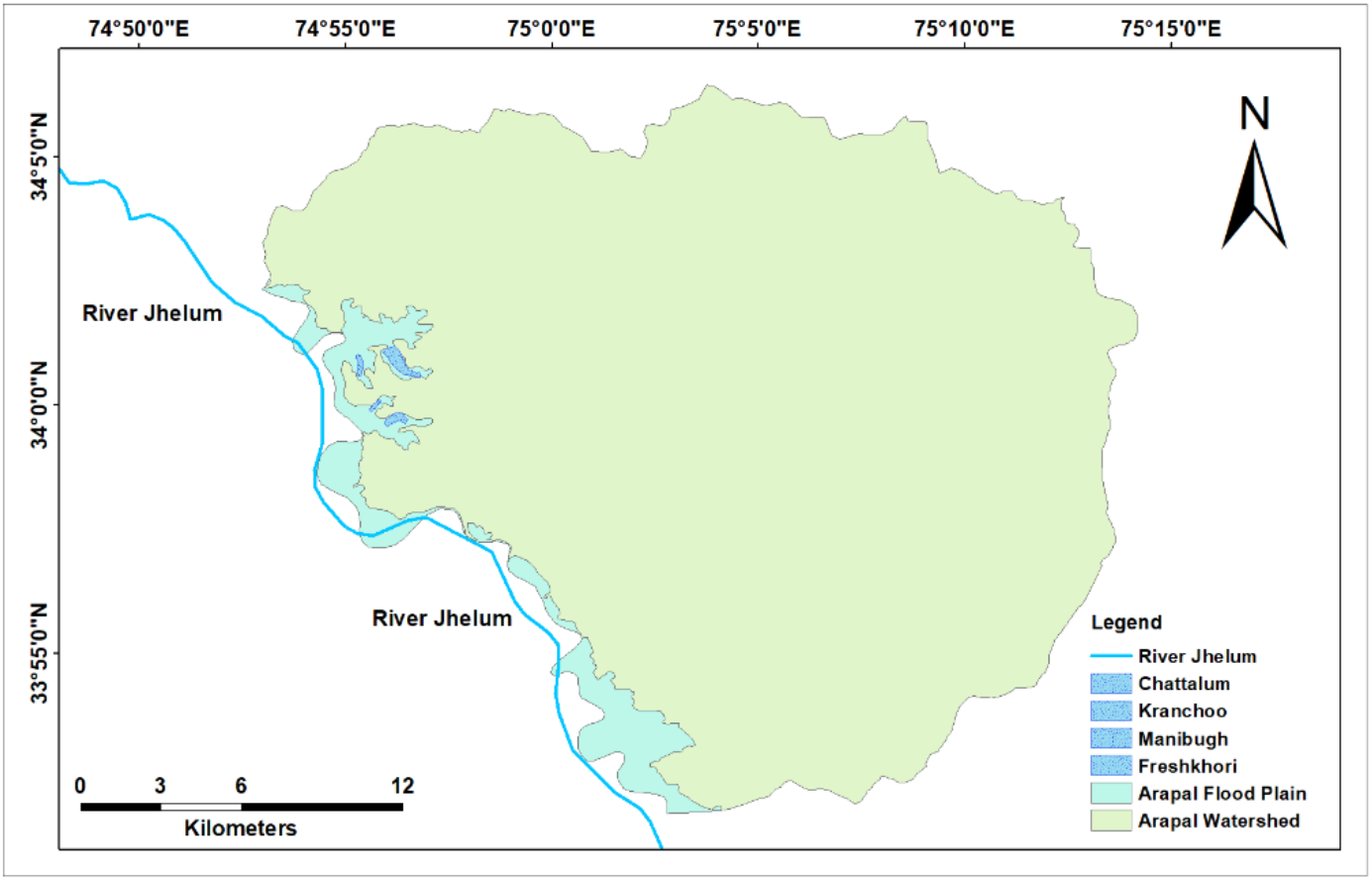

74°13'0"E
74°20'0"E
74°27'0"E
74°34'0"E
74°41'0"E
74°48'0"E
34°8'0"N
34°1'0"N
33°54'0"N
N
0
4
8
16
Kilometers
SRTM DEM
High : 4541
Low : 1565
Legend
Stream Order
1
2
3
4
5
Contour (10m Interval)
Mirgund Wetland
Ferozpur Watershed Boundary

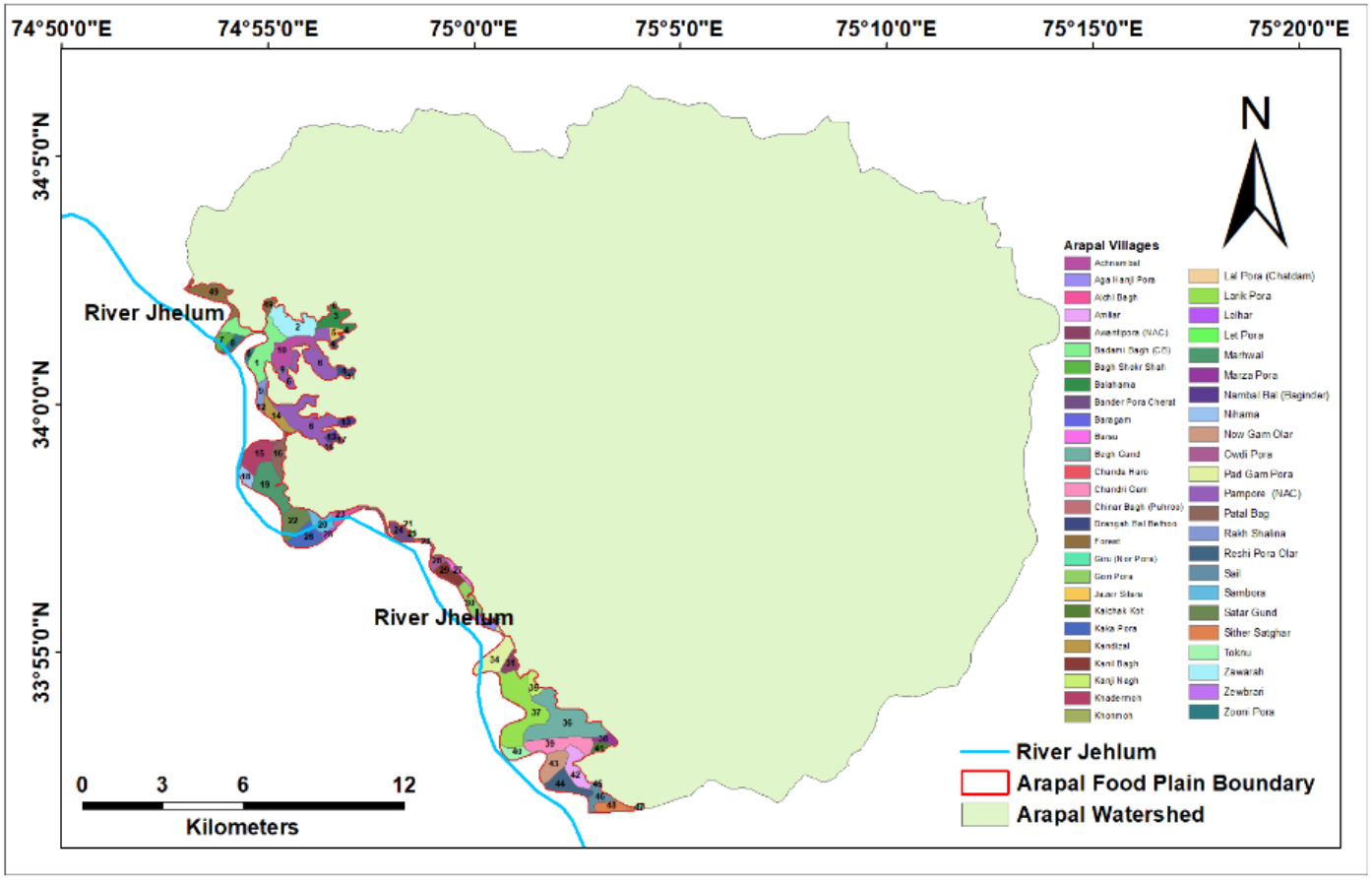

74°42'0"E
74°48'0"E
74°54'0"E
75°0'0"E
75°6'0"E
75°12'0"E
75°18'0"E
75°24'0"E
75°30'0"E
34°30'0"N
34°24'0"N
34°18'0"N
34°12'0"N
34°6'0"N
34°0'0"N
N
Legend
Stream Order
1
2
3
4
5
6
Sindh Watershed Boundary
Shallabugh Wetland
Malgam Wetland
0 5 10 20
Kilometers


74°54'0"E
74°57'0"E
75°0'0"E
75°3'0"E
75°6'0"E
75°9'0"E
75°12'0"E
75°15'0"E
75°18'0"E
34°6'0"N
34°3'0"N
34°0'0"N
33°57'0"N
33°54'0"N
N
Legend
Stream Order
1
2
3
4
5
Chattlam Wetland
Freshkhori Wetland
Kranchoo Wetland
Manibugh Wetland
Arapal Watershed Boundary
0
2.5
5
10
Kilometers

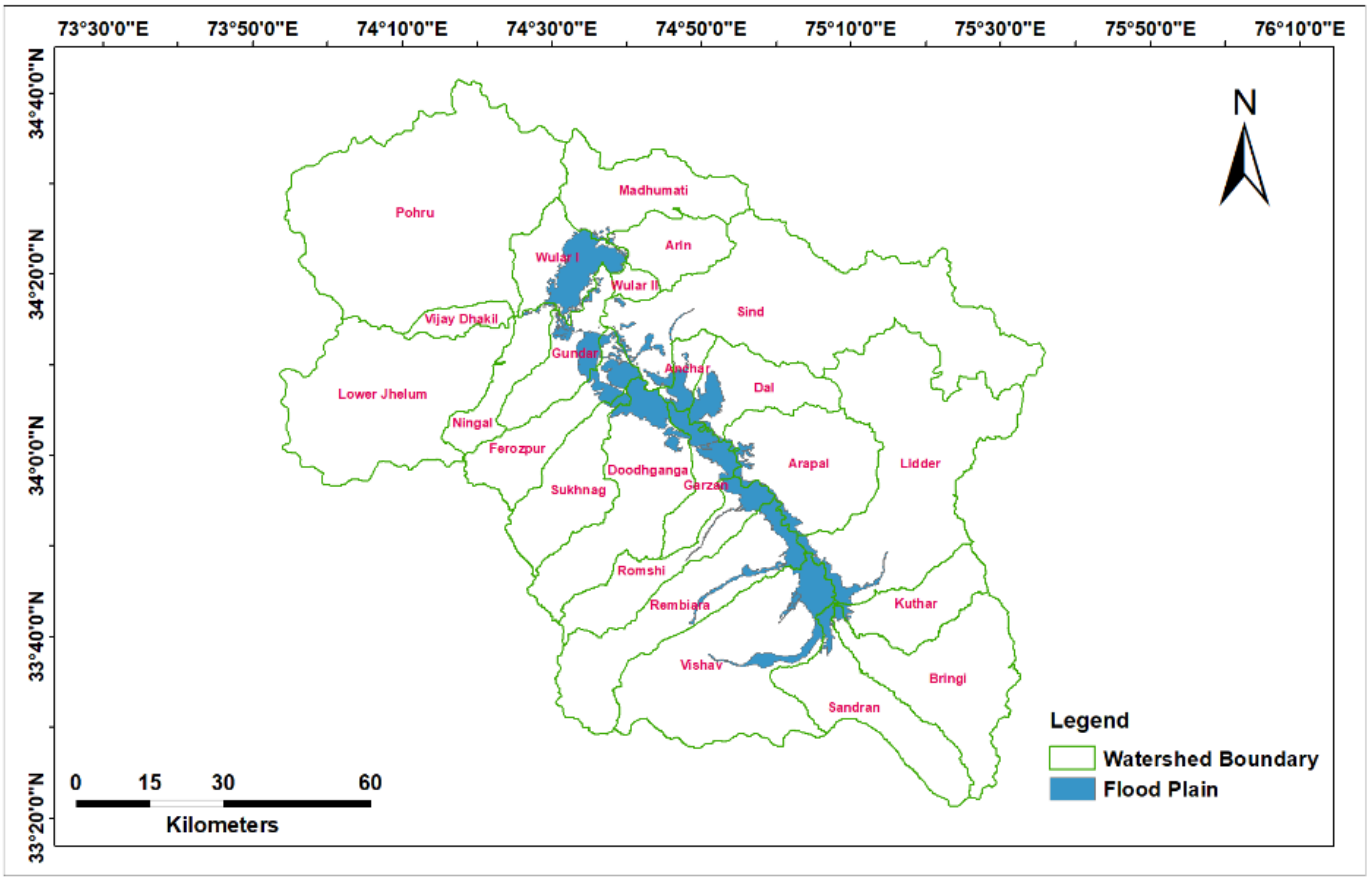
Catchment Analysis Based on Watershed Management Approach (Pampore Wetlands)

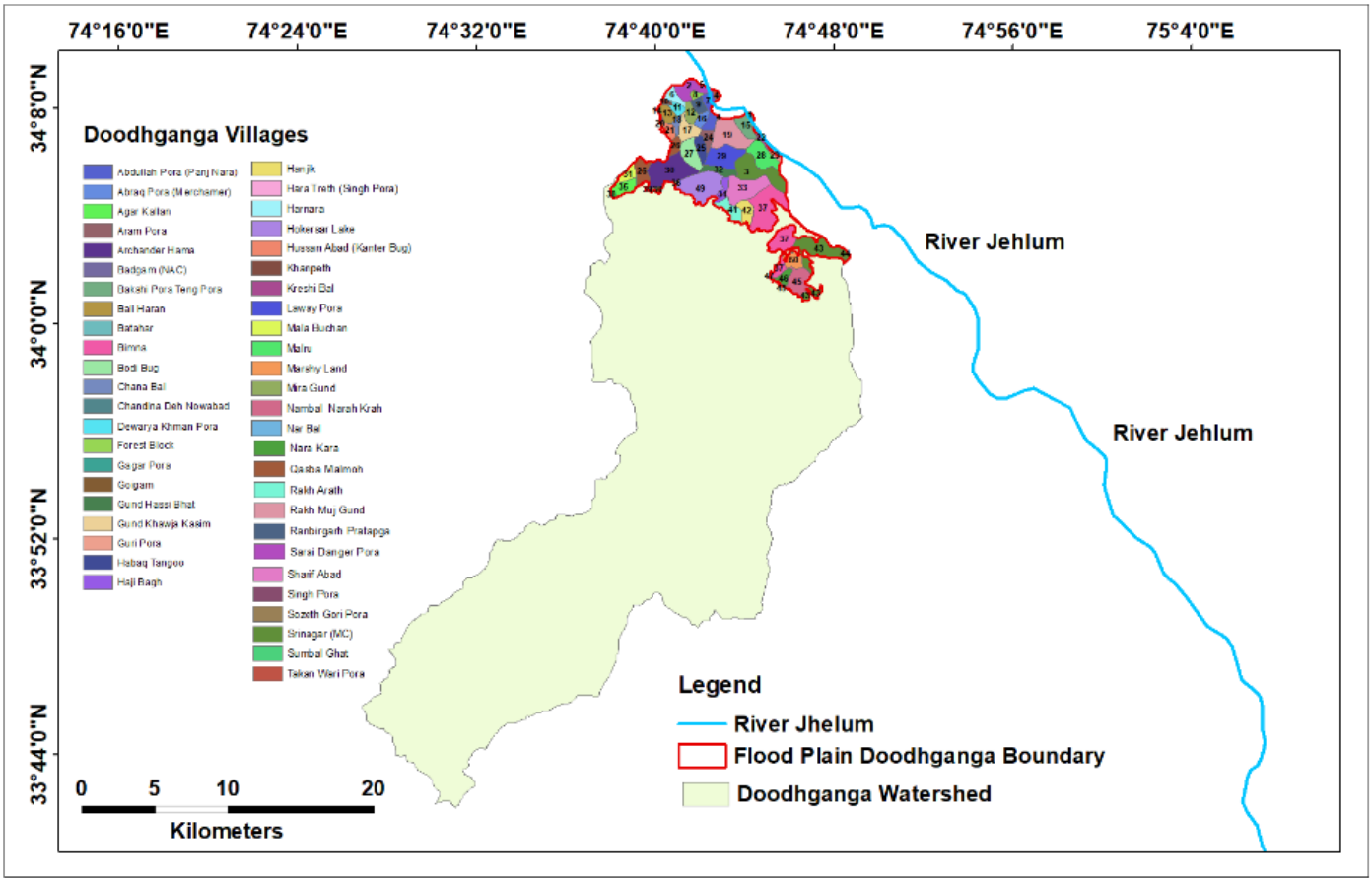


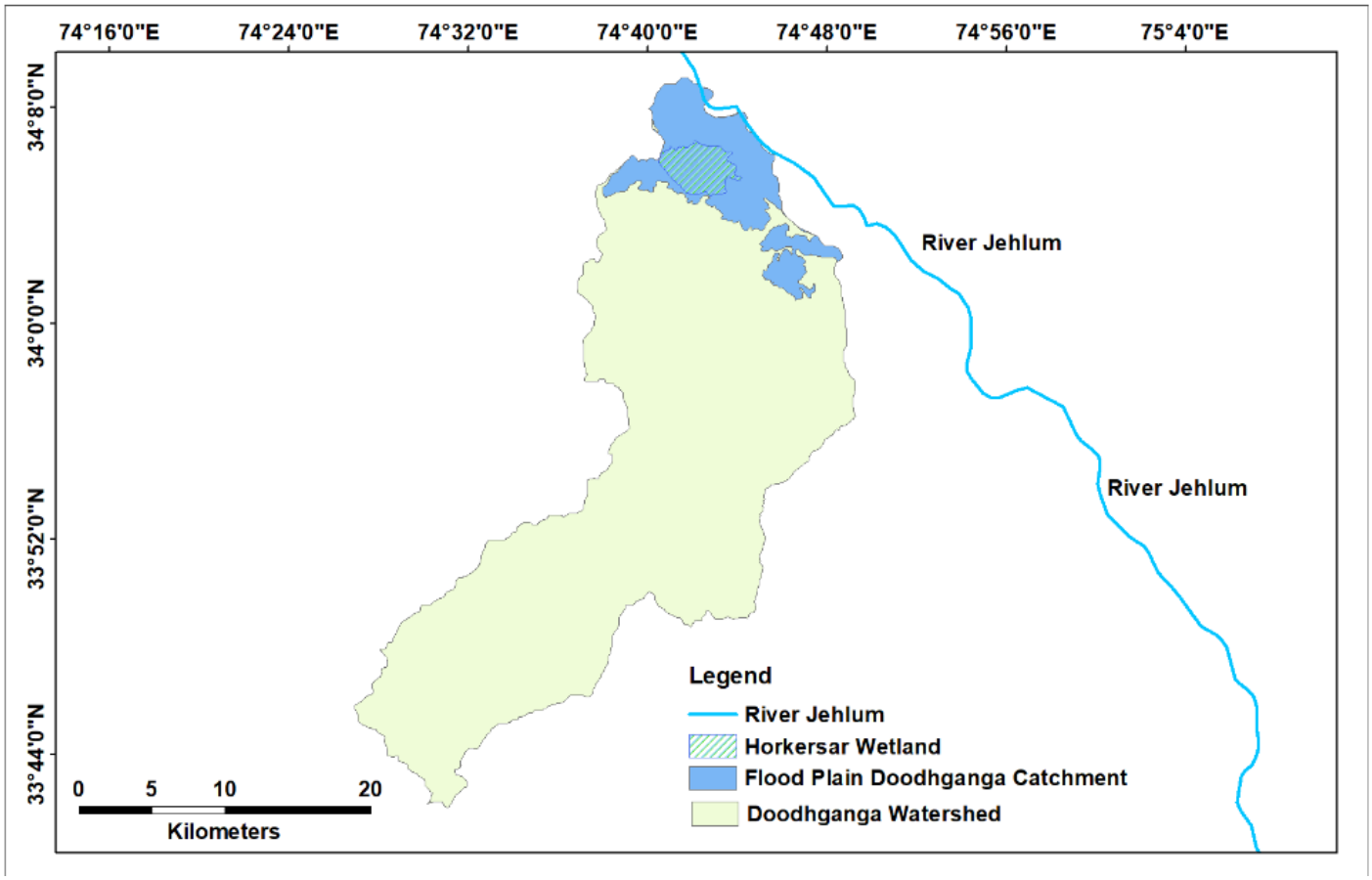




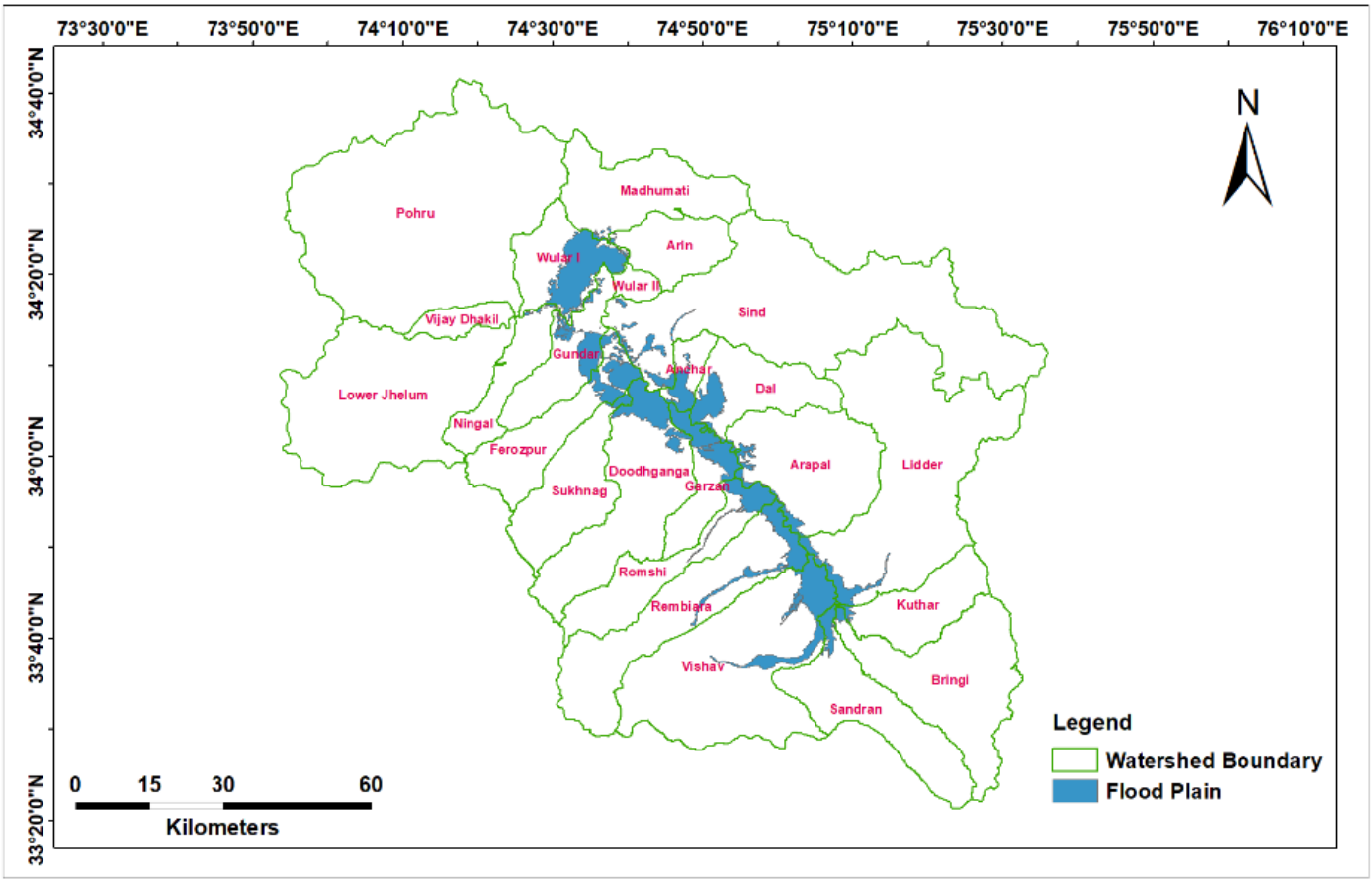
Catchment Analysis Based on Watershed Management Approach (Horkersar Wetland)

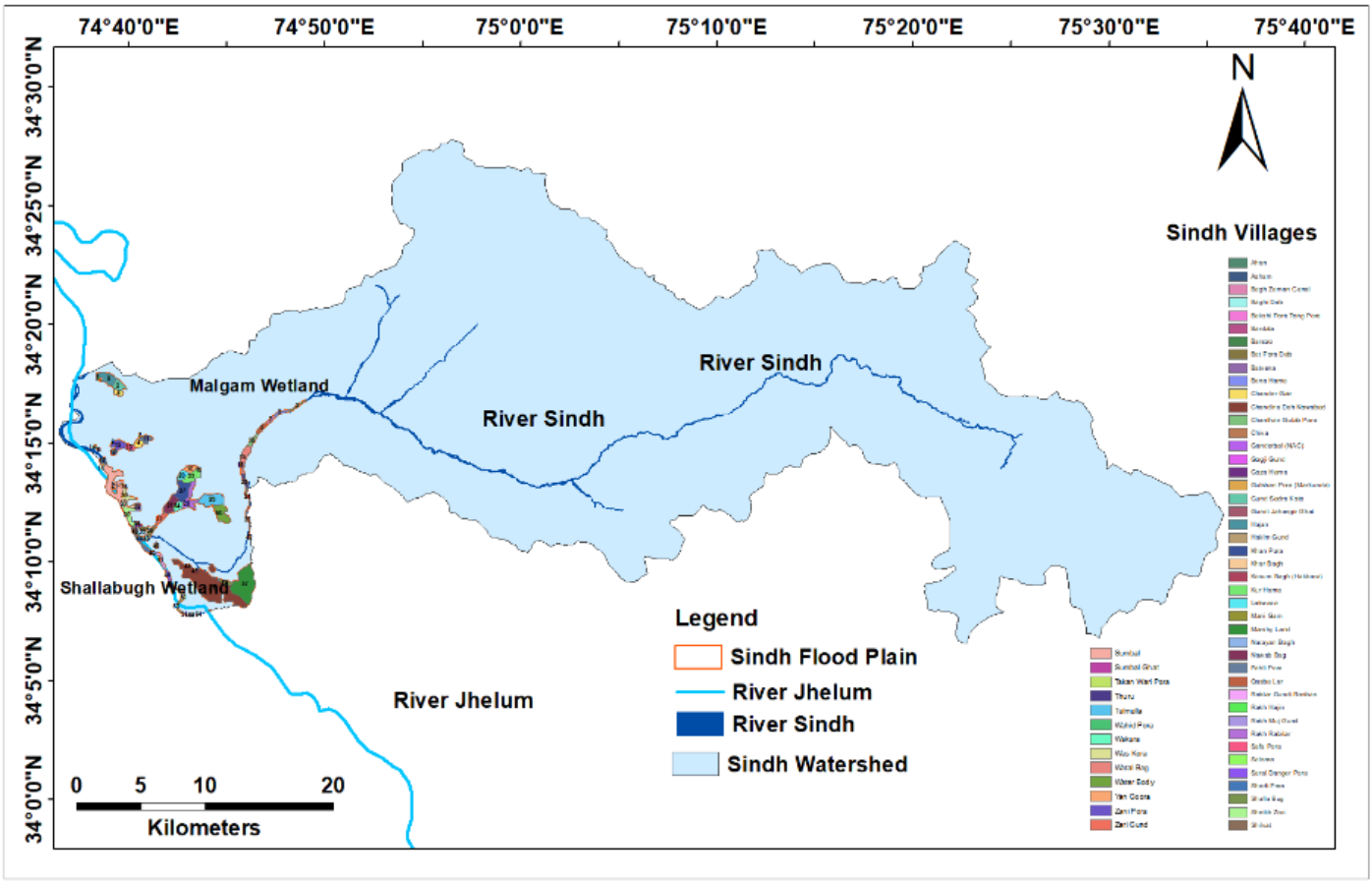


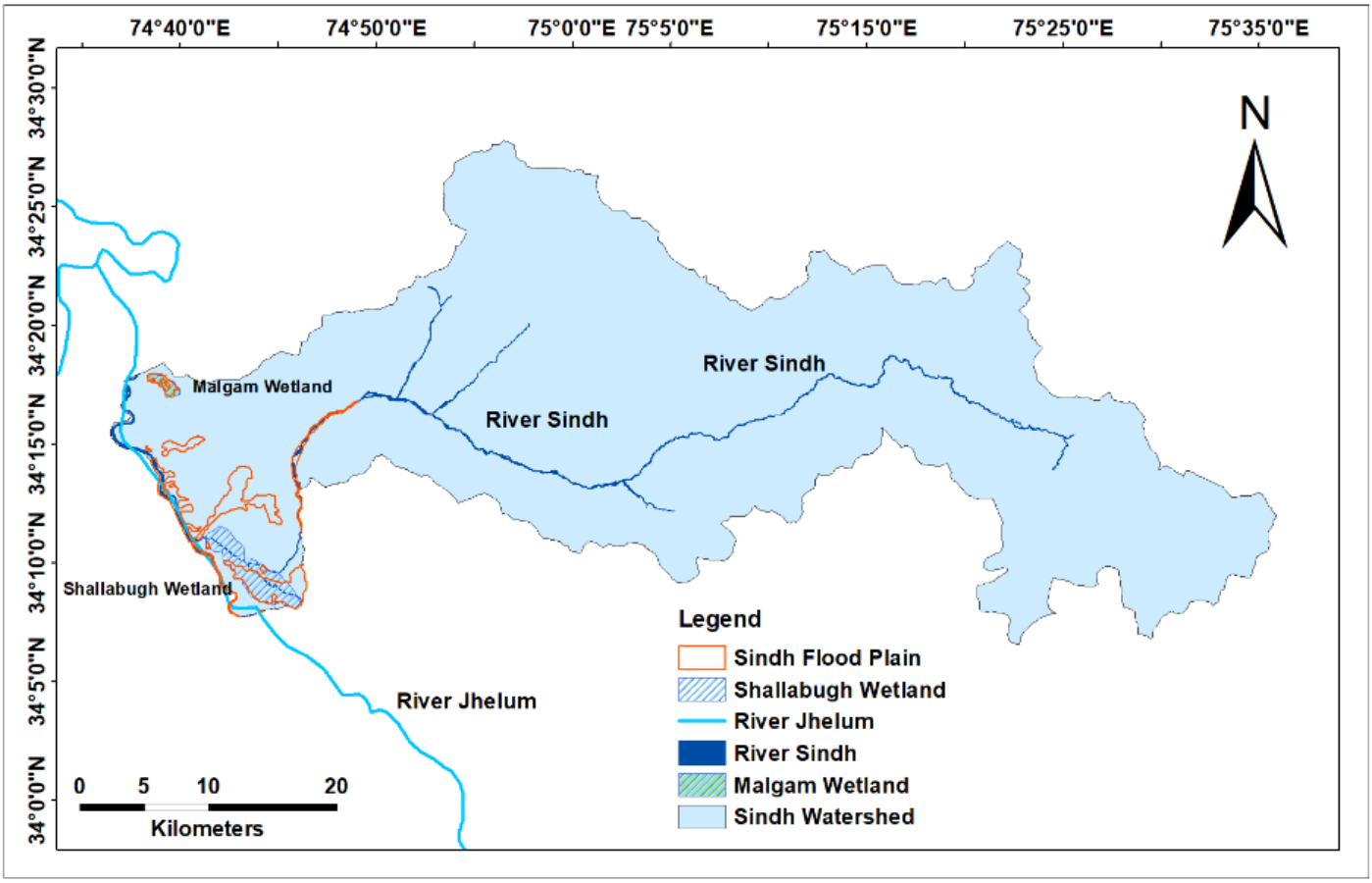

74°16'0"E
74°24'0"E
74°32'0"E
74°40'0"E
74°48'0"E
74°56'0"E
75°4'0"E
34°8'0"N
34°0'0"N
33°52'0"N
33°44'0"N
Doodhganga Villages
Abdullah Pora (Panj Nara)
Abraq Pora (Merchamer)
Agar Kallan
Aram Pora
Archander Hama
Badgam (NAC)
Bakshi Pora Teng Pora
Bal Haran
Batahar
Bimna
Bodi Bug
Chana Bal
Chandina Deh Nowabad
Dewarya Khman Pora
Forest Block
Gagar Pora
Golgam
Gund Hassi Bhat
Gund Khawja Kasim
Guri Pora
Habaq Tangoo
Haji Bagh
Hanjik
Hara Treth (Singh Pora)
Harnara
Hokersar Lake
Hussain Abad (Kanter Bug)
Khanpath
Kreshi Bal
Laway Pora
Mala Buchan
Malru
Marshy Land
Mira Gund
Nambal Narah Krah
Nar Bal
Nara Kara
Qasba Malmah
Rakh Arath
Rakh Muj Gund
Ranbirgarh Pratapga
Sarai Danger Pora
Sharif Abad
Singh Pora
Sozeth Gori Pora
Srinagar (MC)
Sumbal Ghat
Takan Weri Pora
River Jehlum
River Jehlum
Legend
River Jhelum
Flood Plain Doodhganga Boundary
Doodhganga Watershed
0
5
10
20
Kilometers

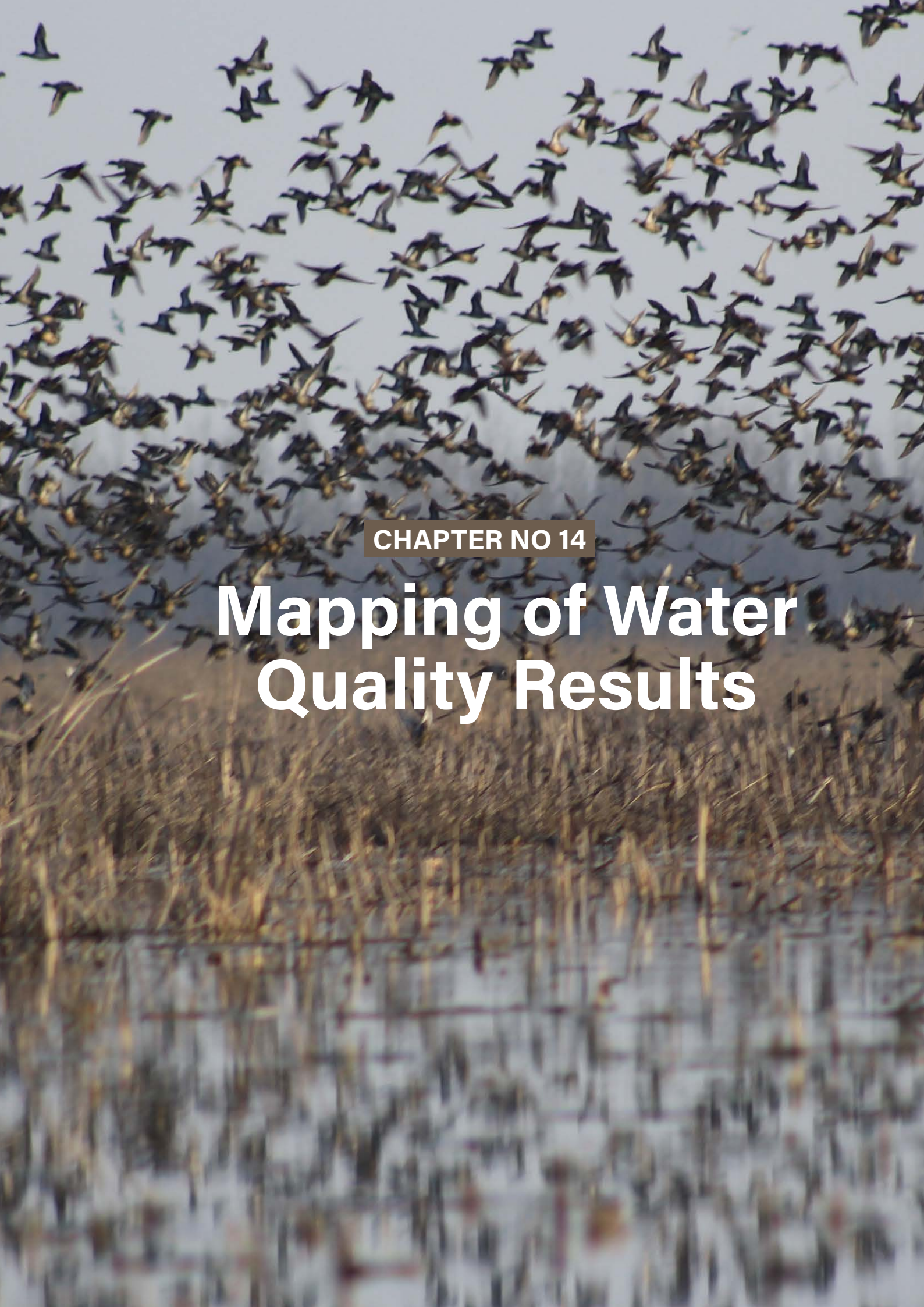

74°16'0"E
74°24'0"E
74°32'0"E
74°40'0"E
74°48'0"E
74°56'0"E
75°4'0"E
34°8'0"N
34°0'0"N
33°52'0"N
33°44'0"N
River Jehlum
River Jehlum
Legend
River Jehlum
Horkersar Wetland
Flood Plain Doodhganga Catchment
Doodhganga Watershed
0
5
10
20
Kilometers

Catchment Analysis Based on Watershed Management Approach (Shallabugh & Malgam Wetland)






74°40'0"E
74°50'0"E
75°0'0"E
75°5'0"E
75°15'0"E
75°25'0"E
75°35'0"E
34°30'0"N
34°25'0"N
34°20'0"N
34°15'0"N
34°10'0"N
34°5'0"N
34°0'0"N
N
Malgam Wetland
River Sindh
River Sindh
Shallabugh Wetland
River Jhelum
0
5
10
20
Kilometers
Legend
Sindh Flood Plain
Shallabugh Wetland
River Jhelum
River Sindh
Malgam Wetland
Sindh Watershed

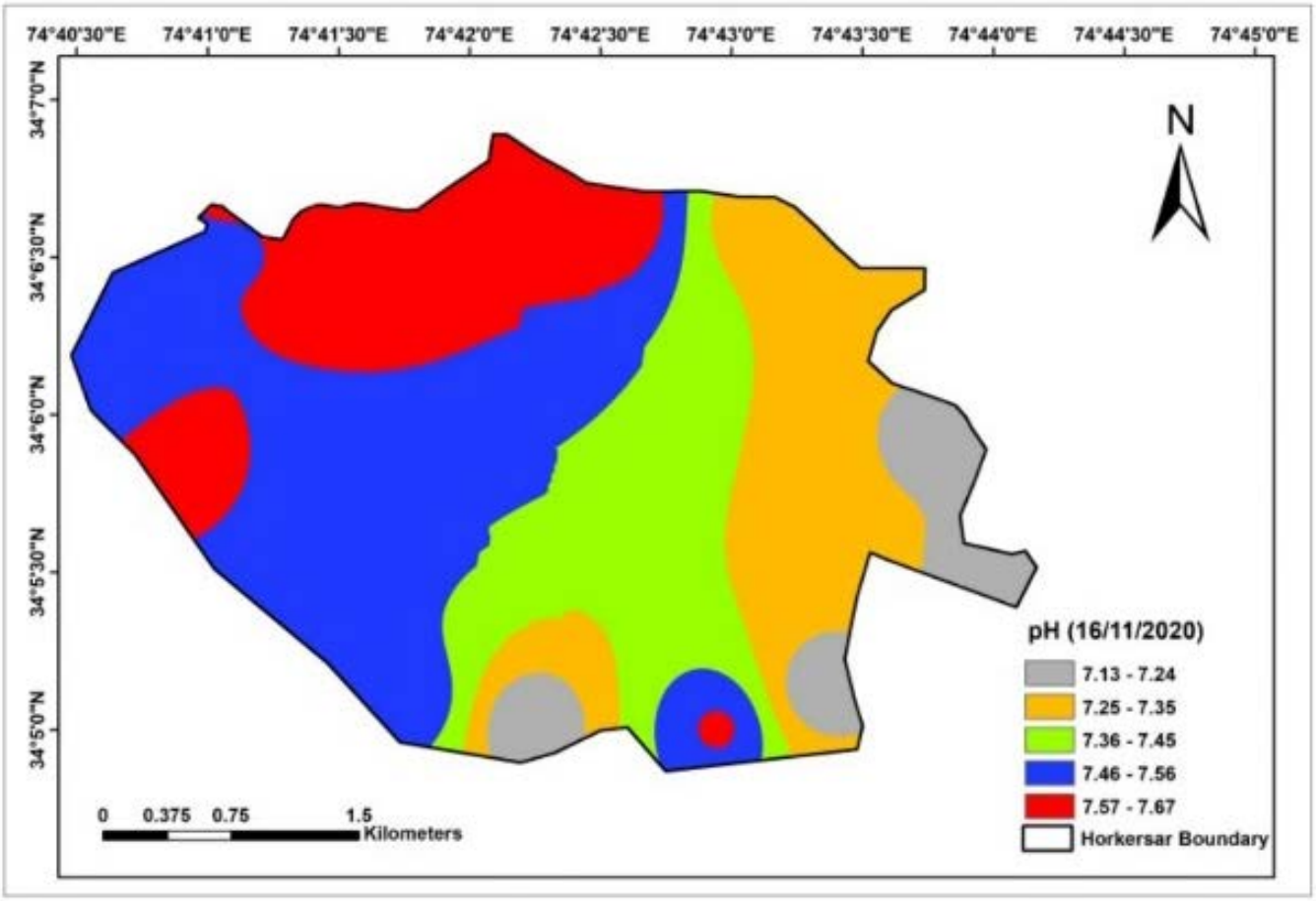


CHAPTER NO 14

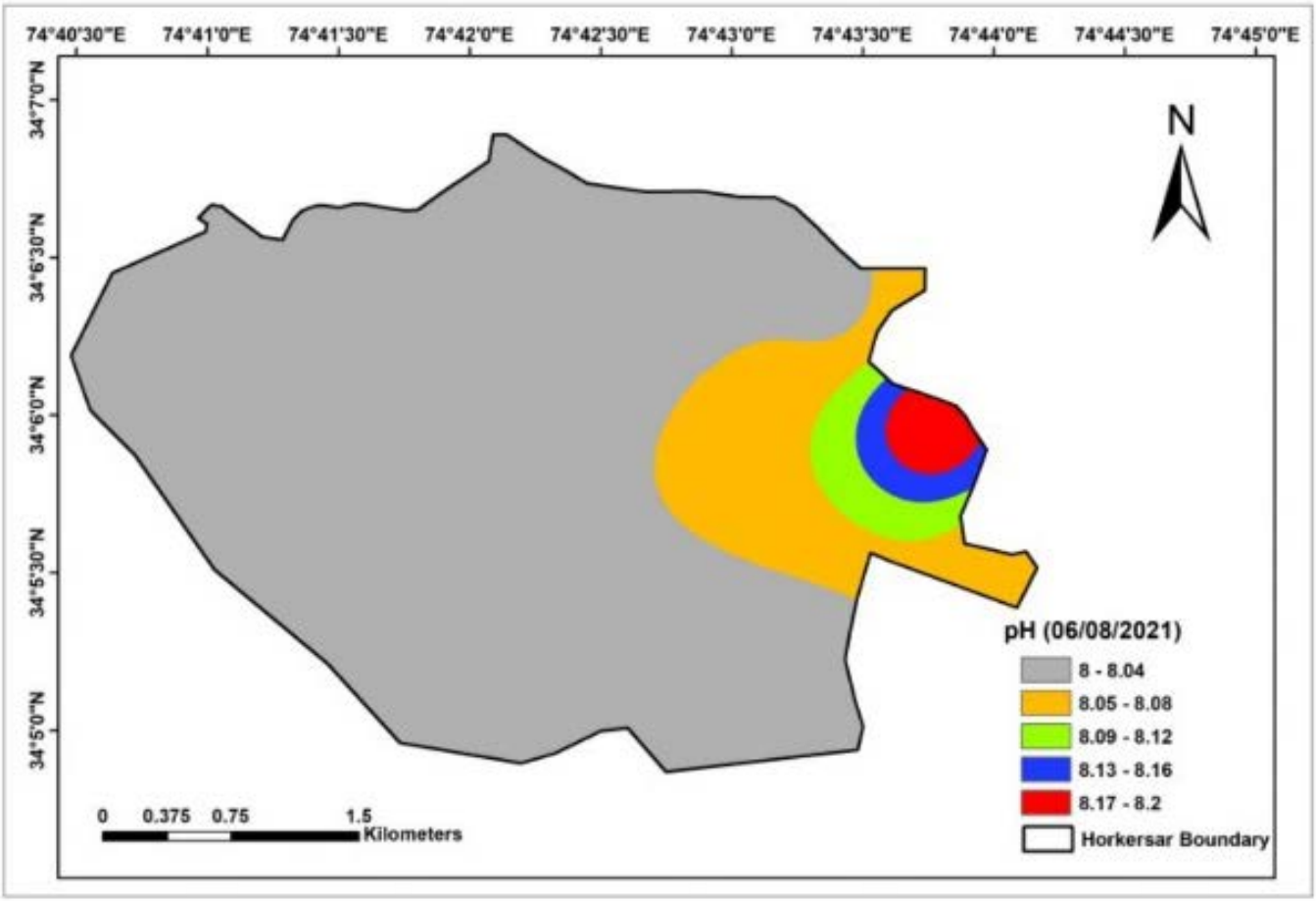
Mapping of Water Quality Results

HORKERSAR

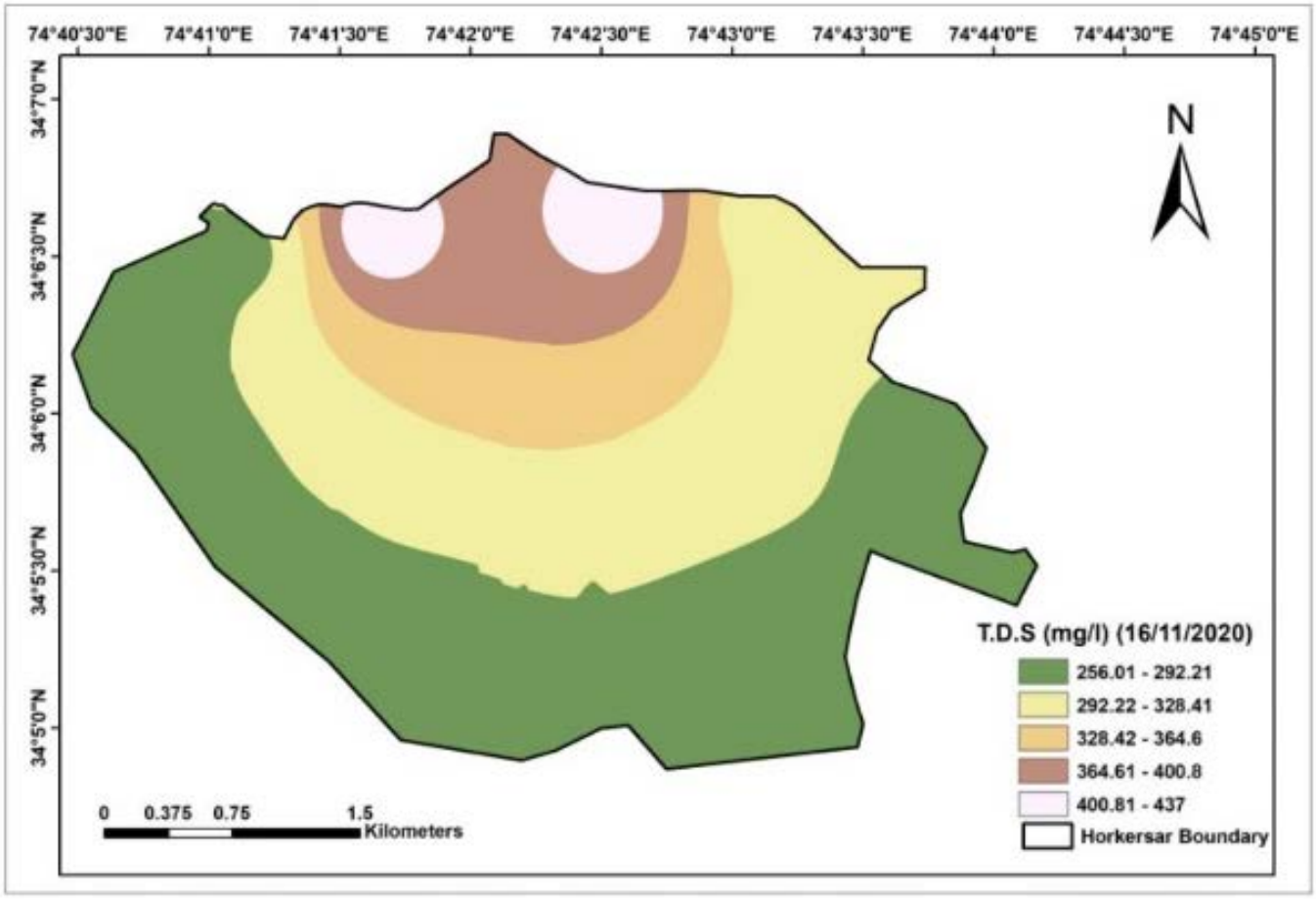
pH 2020



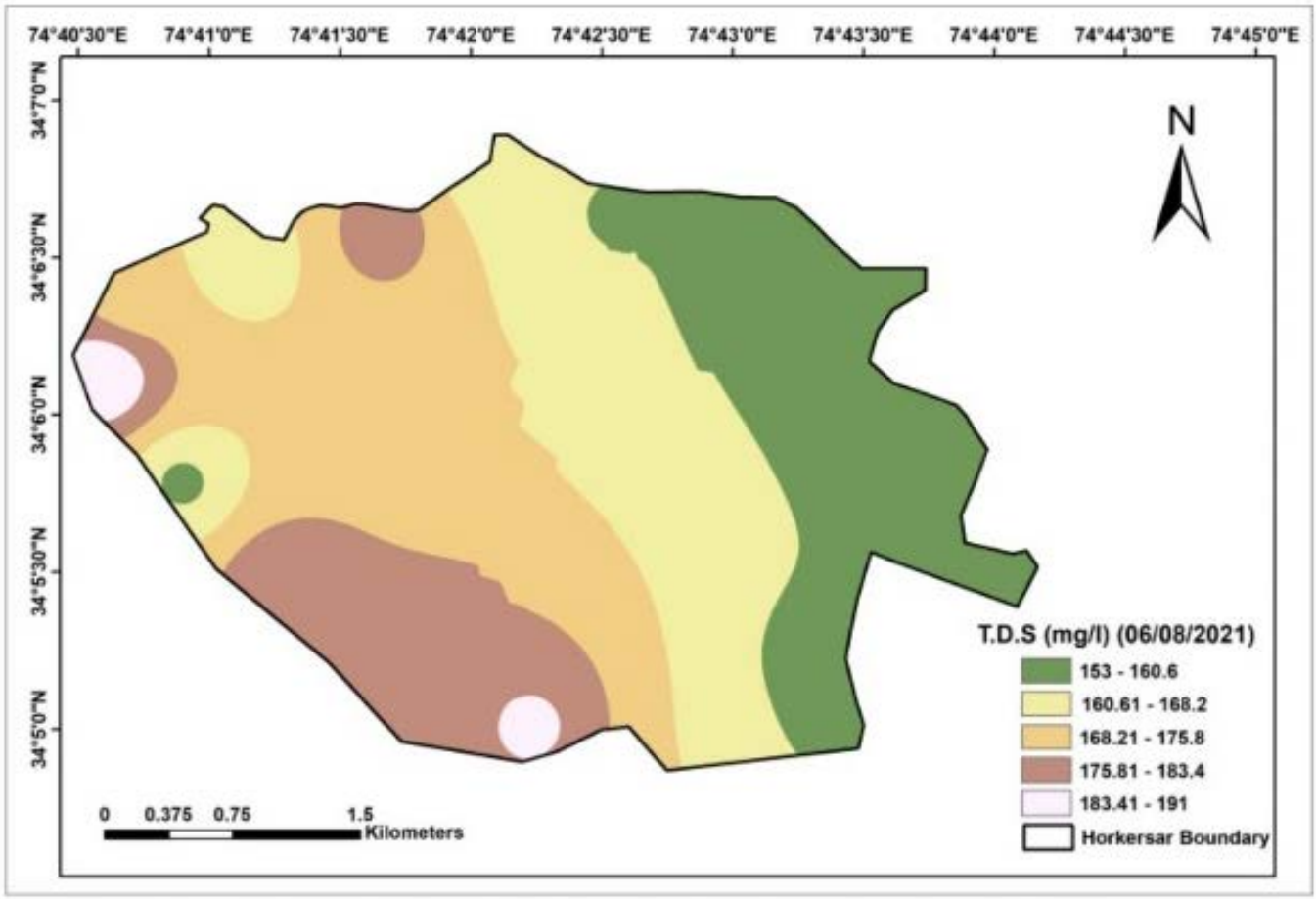
pH 2021



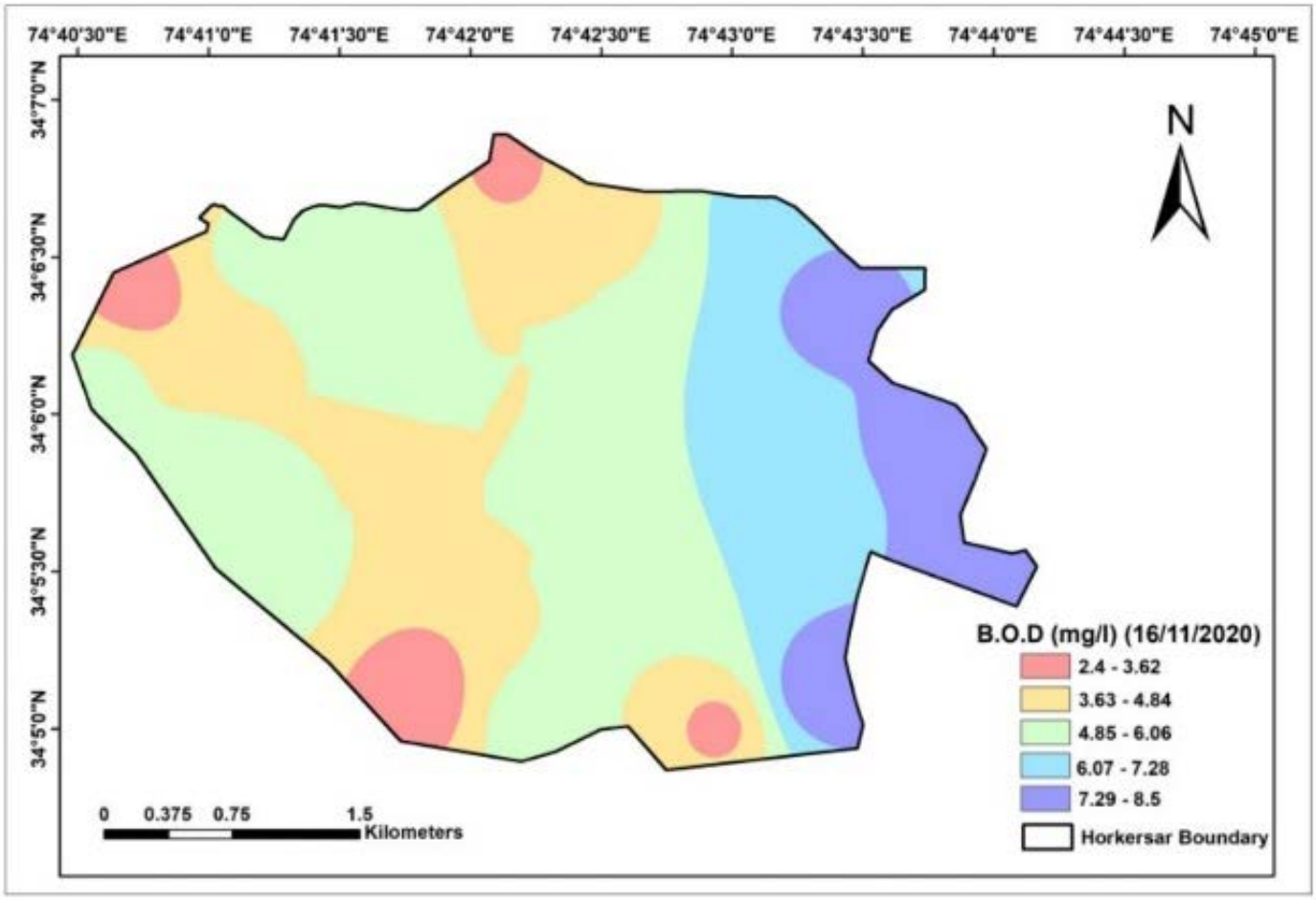
TDS 2020



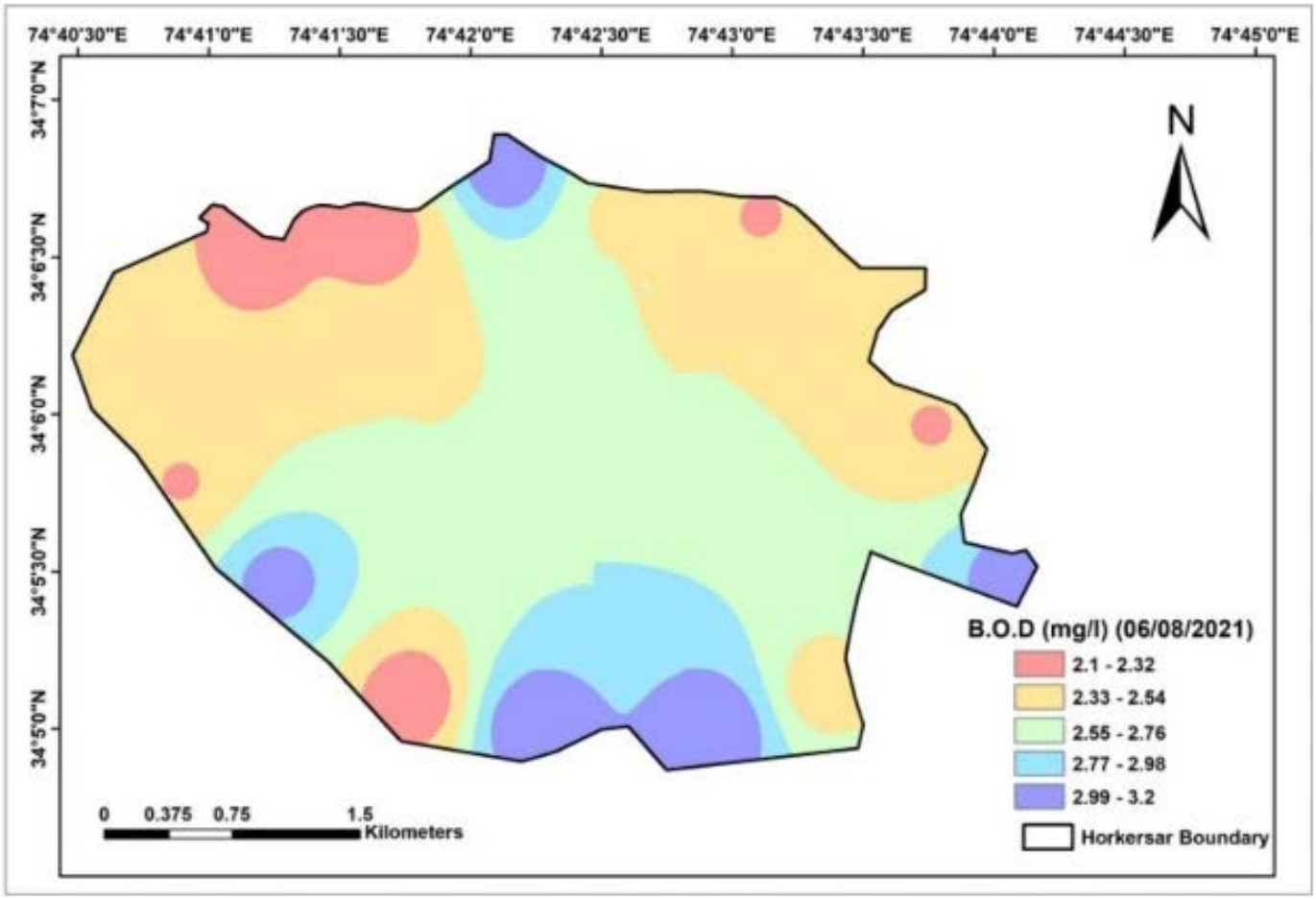
TDS 2021



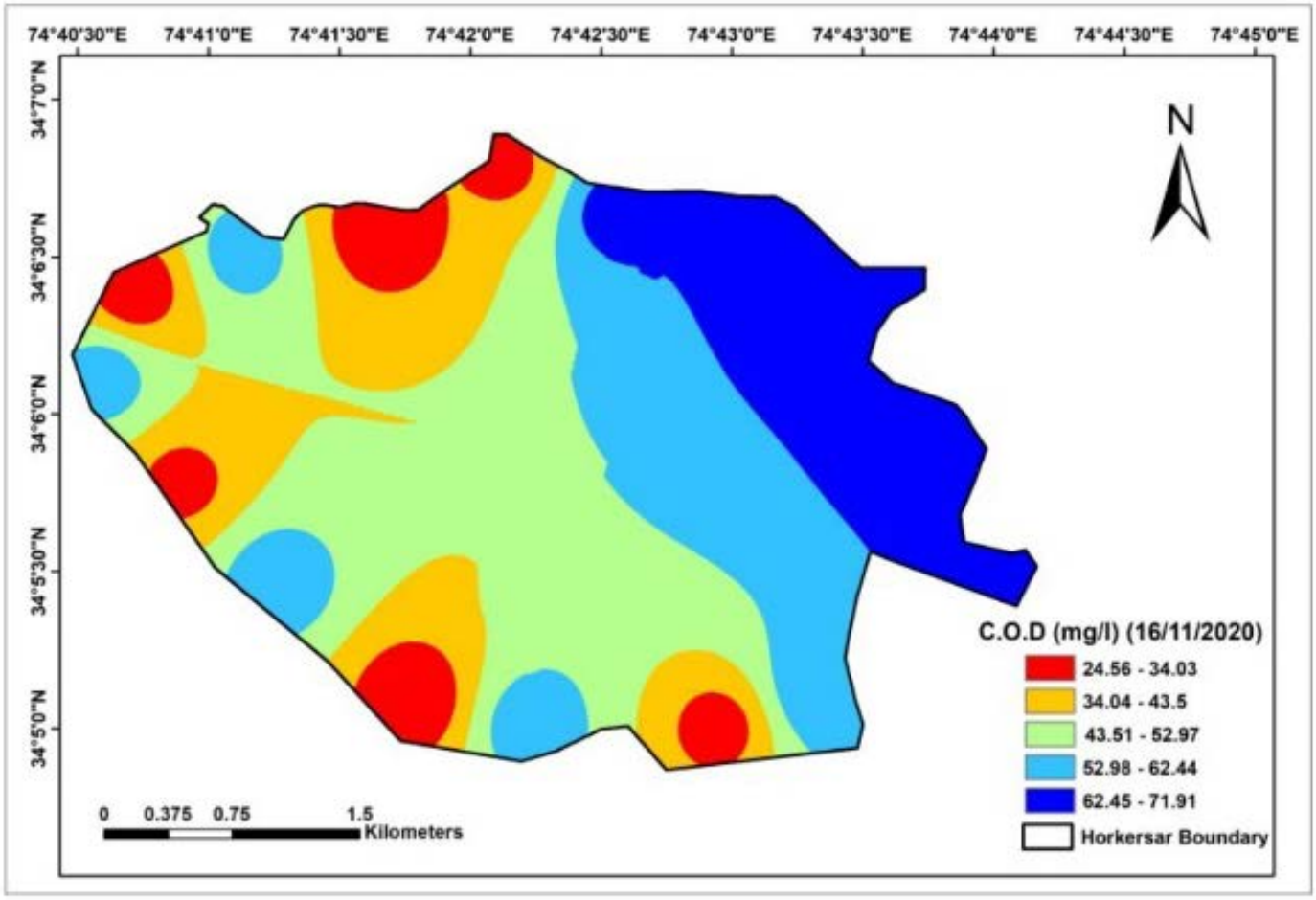
BOD 2020



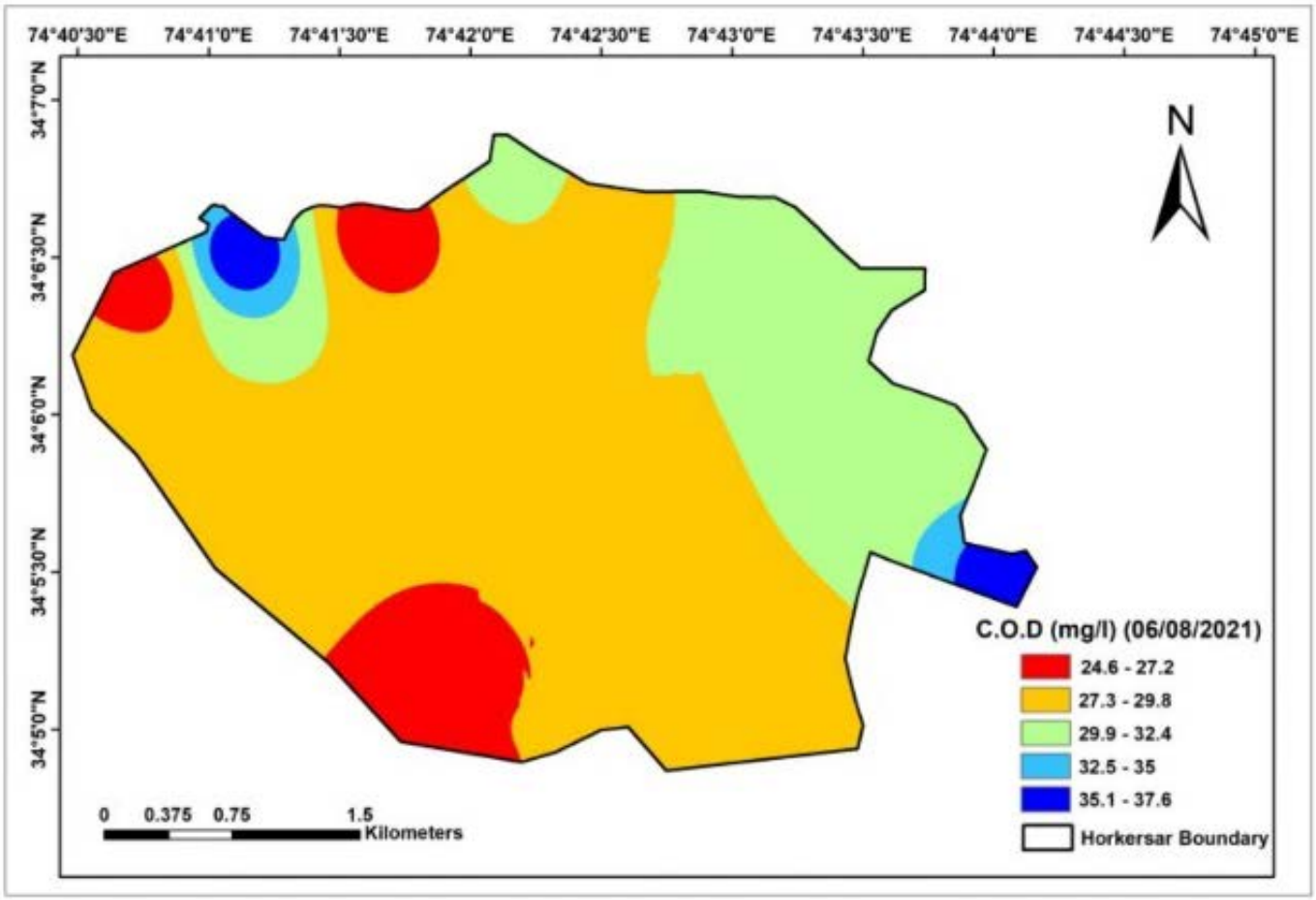
BOD 2021

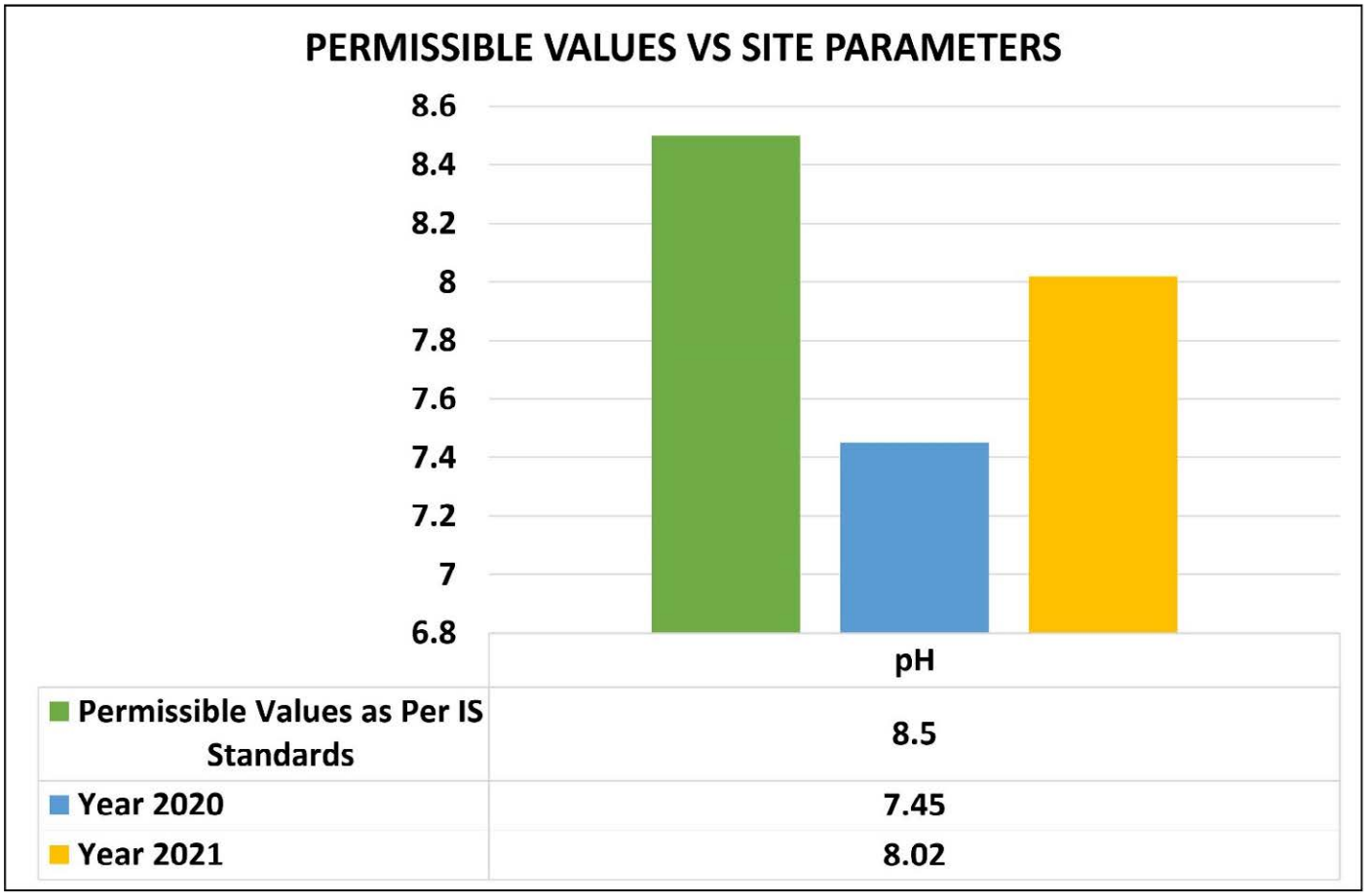


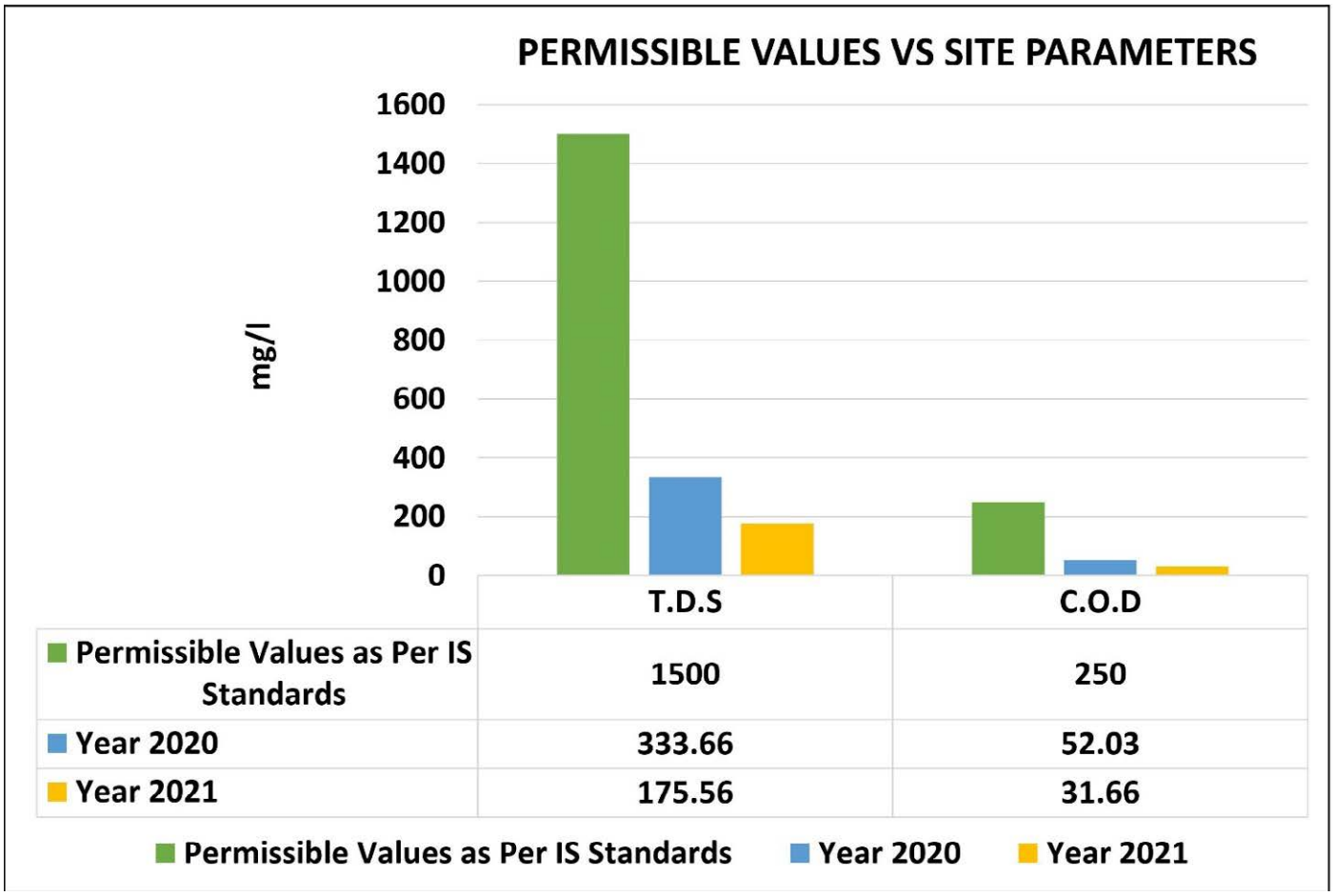
COD 2020

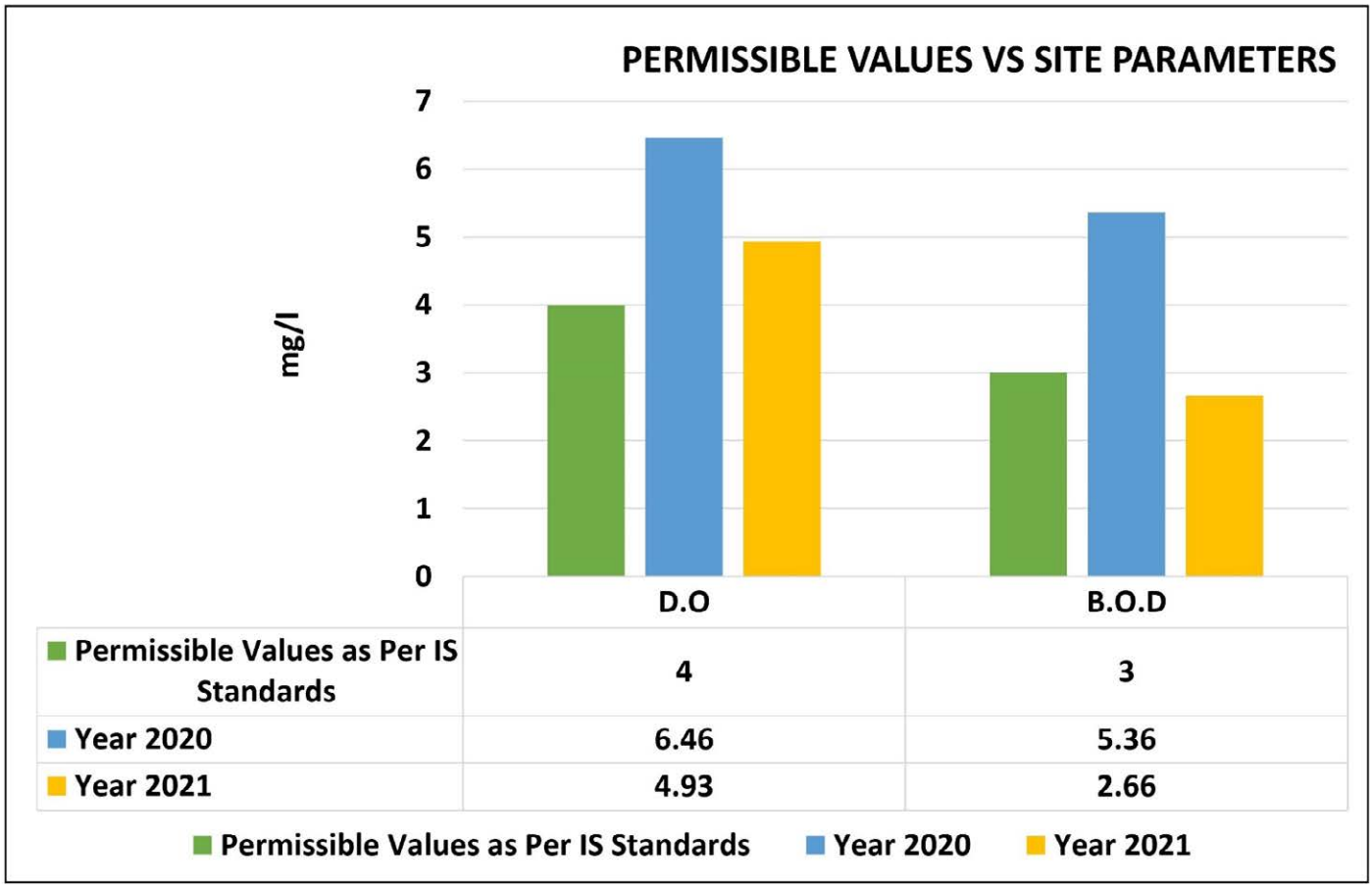


COD 2021

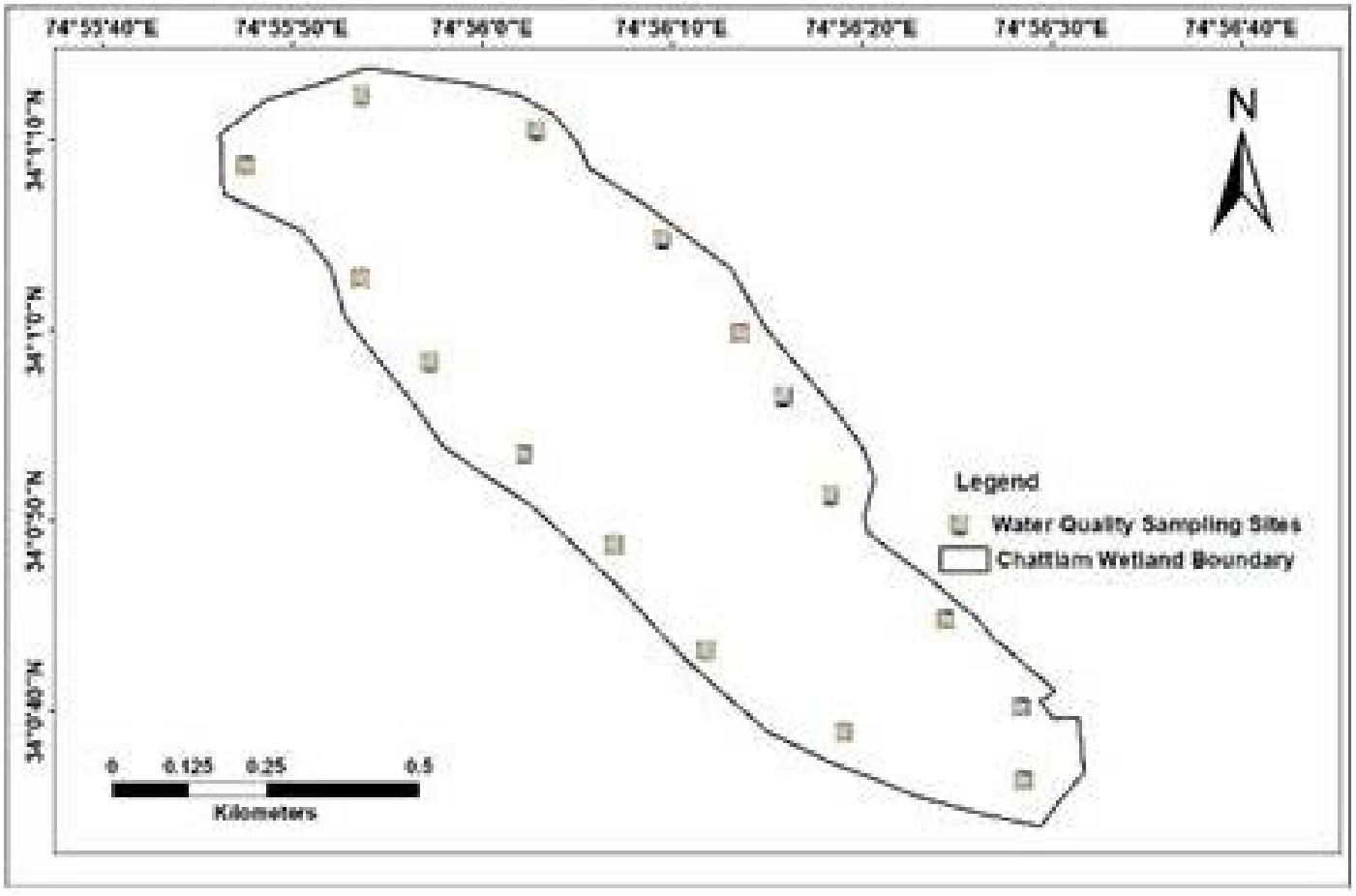


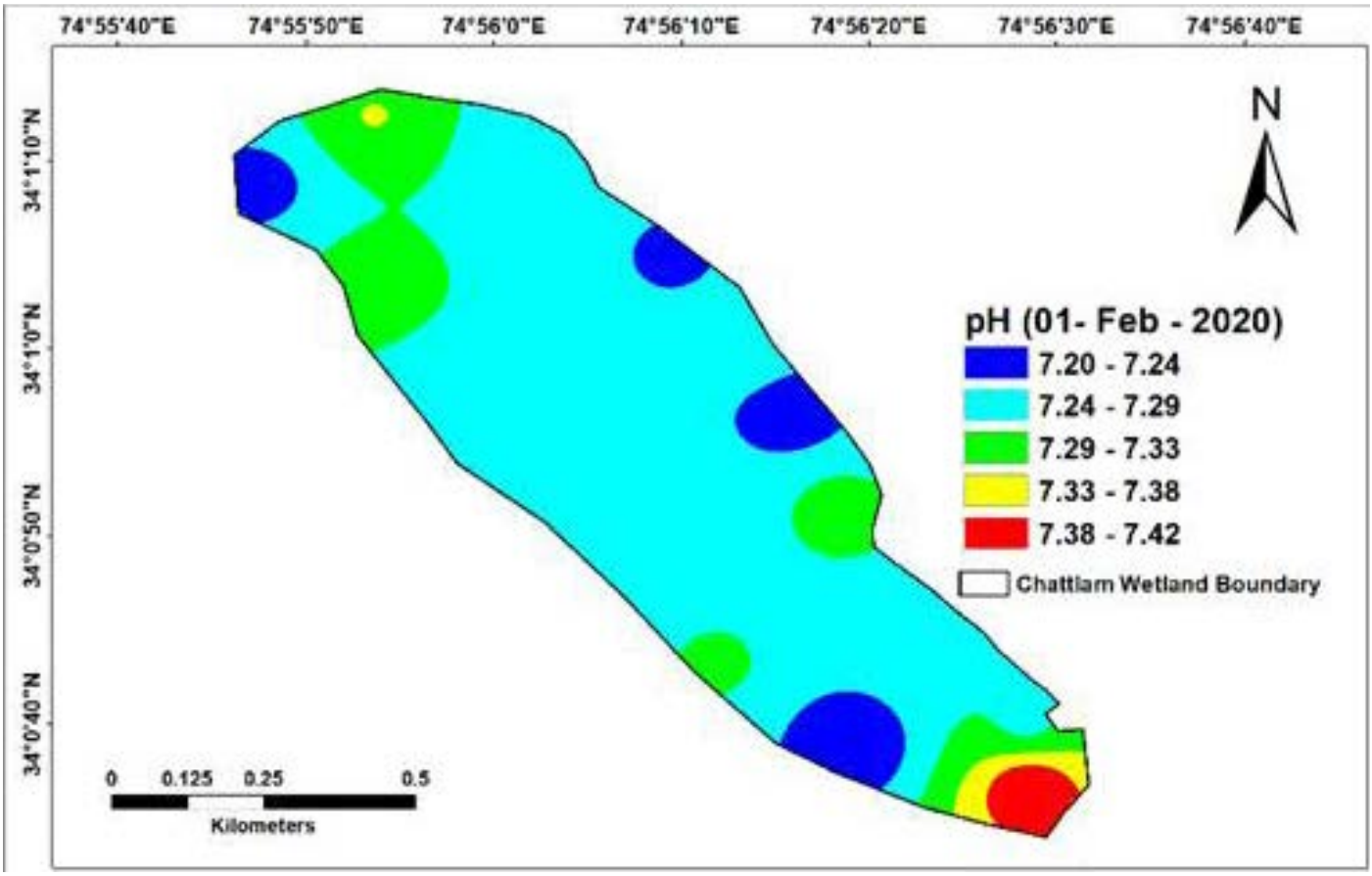

PERMISSIBLE VALUES VS SITE PARAMETERS
8.6
8.4
8.2
8
7.8
7.6
7.4
7.2
7
6.8
pH
Permissible Values as Per IS Standards
8.5
Year 2020
7.45
Year 2021
8.02

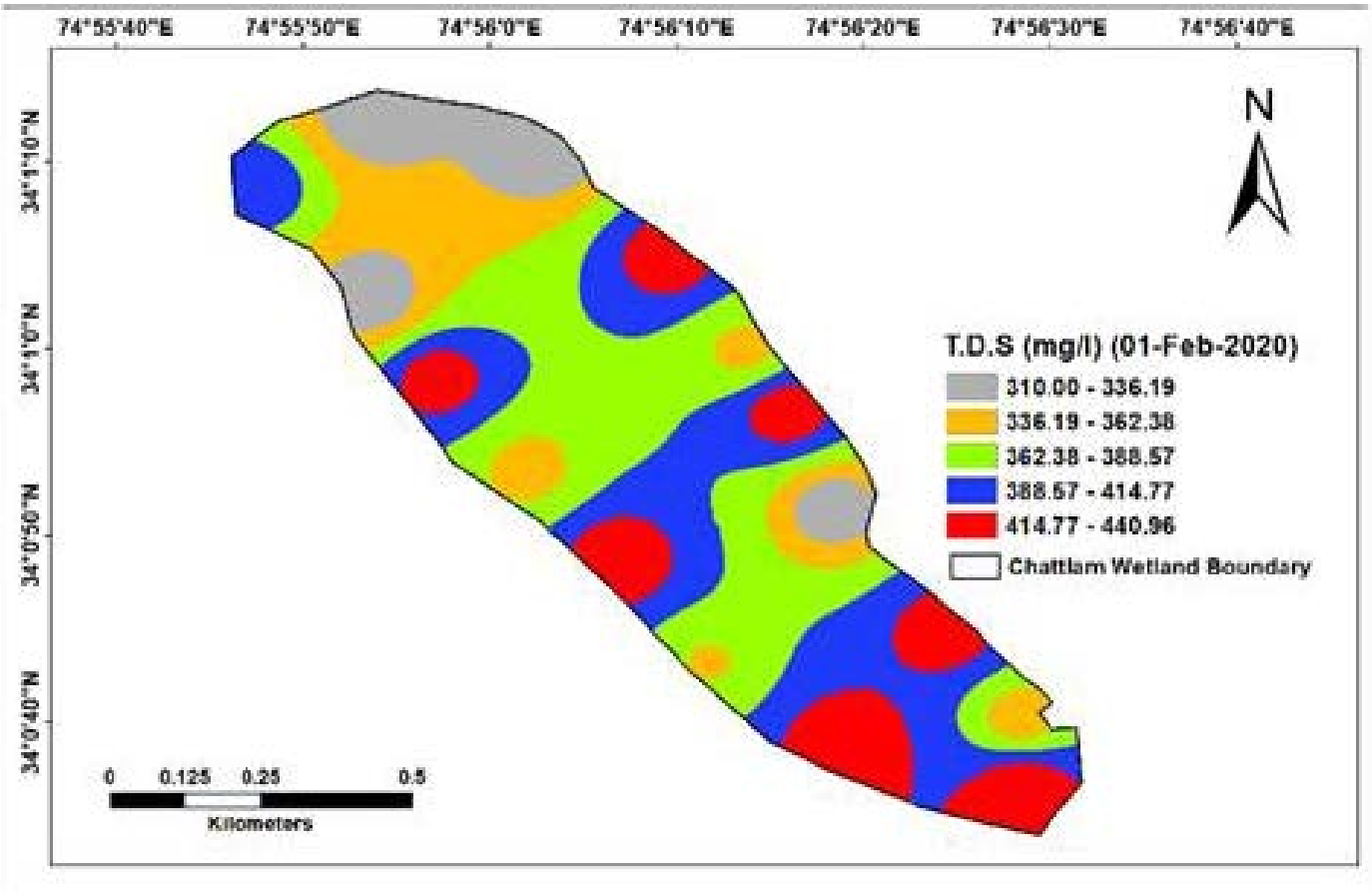

PERMISSIBLE VALUES VS SITE PARAMETERS
mg/l
1600
1400
1200
1000
800
600
400
200
0
T.D.S
C.O.D
Permissible Values as Per IS Standards
1500
250
Year 2020
333.66
52.03
Year 2021
175.56
31.66
Permissible Values as Per IS Standards
Year 2020
Year 2021

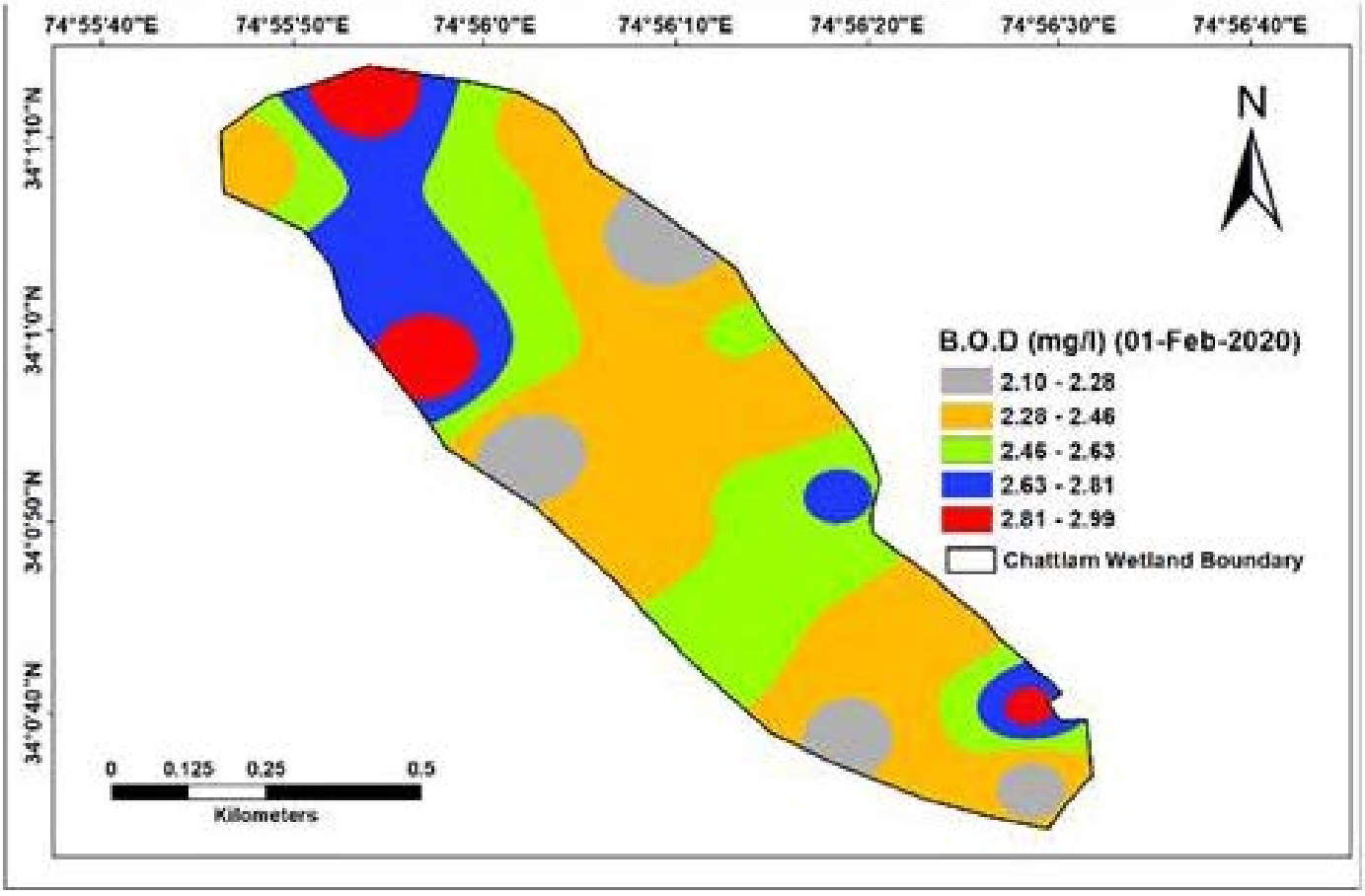

PERMISSIBLE VALUES VS SITE PARAMETERS
mg/l
7
6
5
4
3
2
1
0
D.O
B.O.D
Permissible Values as Per IS Standards
4
3
Year 2020
6.46
5.36
Year 2021
4.93
2.66
Permissible Values as Per IS Standards
Year 2020
Year 2021

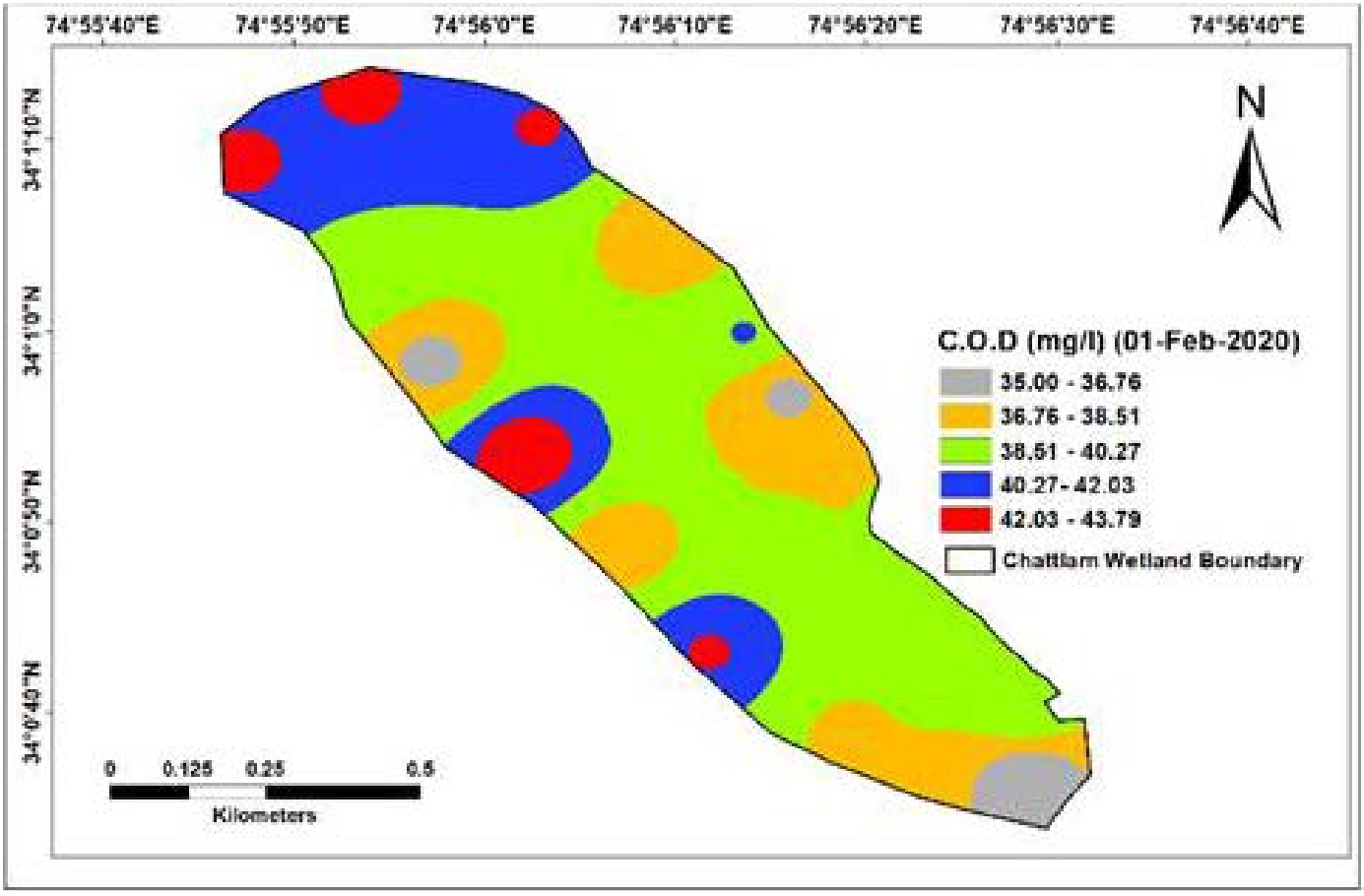
CHATTLUM


74°55'40"E
74°55'50"E
74°56'0"E
74°56'10"E
74°56'20"E
74°56'30"E
74°56'40"E
N
Legend
Water Quality Sampling Sites
Chattlam Wetland Boundary
0
0.125
0.25
0.5
Kilometers

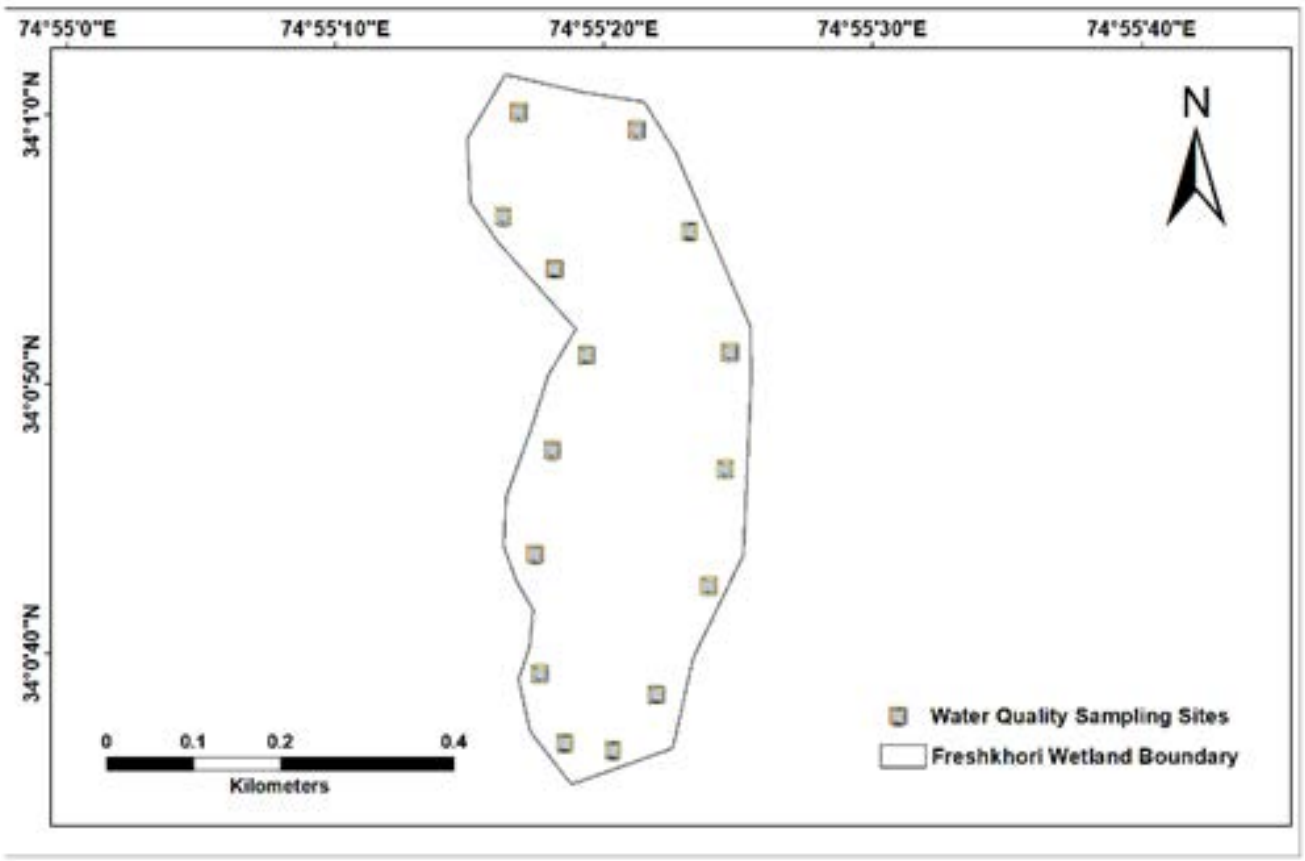

74°55'40"E
74°55'50"E
74°56'0"E
74°56'10"E
74°56'20"E
74°56'30"E
74°56'40"E
34°1'10"N
34°1'0"N
34°0'50"N
34°0'40"N
N
pH (01- Feb - 2020)
7.20 - 7.24
7.24 - 7.29
7.29 - 7.33
7.33 - 7.38
7.38 - 7.42
Chattlam Wetland Boundary
0 0.125 0.25 0.5
Kilometers

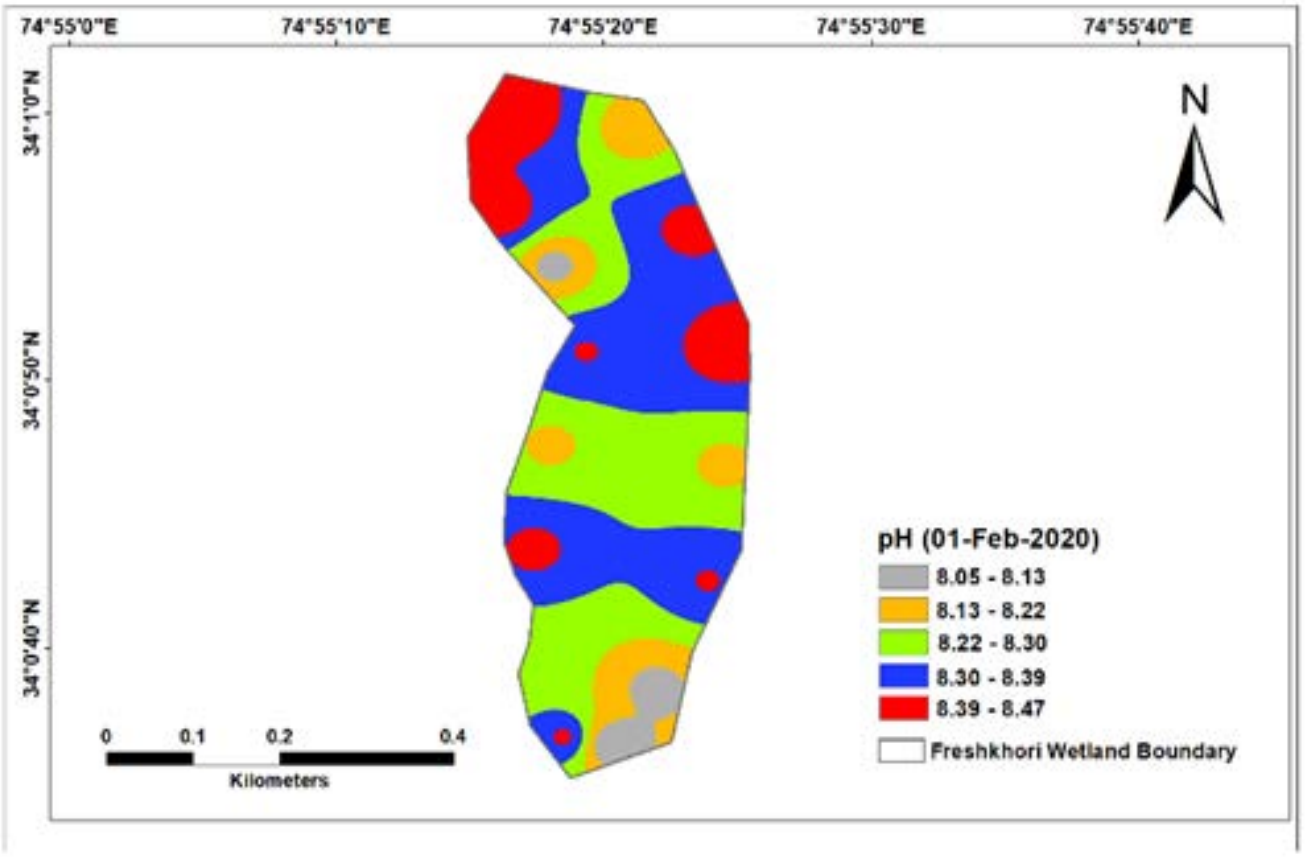

74°55'40"E
74°55'50"E
74°56'0"E
74°56'10"E
74°56'20"E
74°56'30"E
74°56'40"E
34°1'10"N
34°1'0"N
34°0'50"N
34°0'40"N
N
T.D.S (mg/l) (01-Feb-2020)
310.00 - 336.19
336.19 - 362.38
362.38 - 388.57
388.57 - 414.77
414.77 - 440.96
Chattlam Wetland Boundary
0 0.125 0.25 0.5
Kilometers

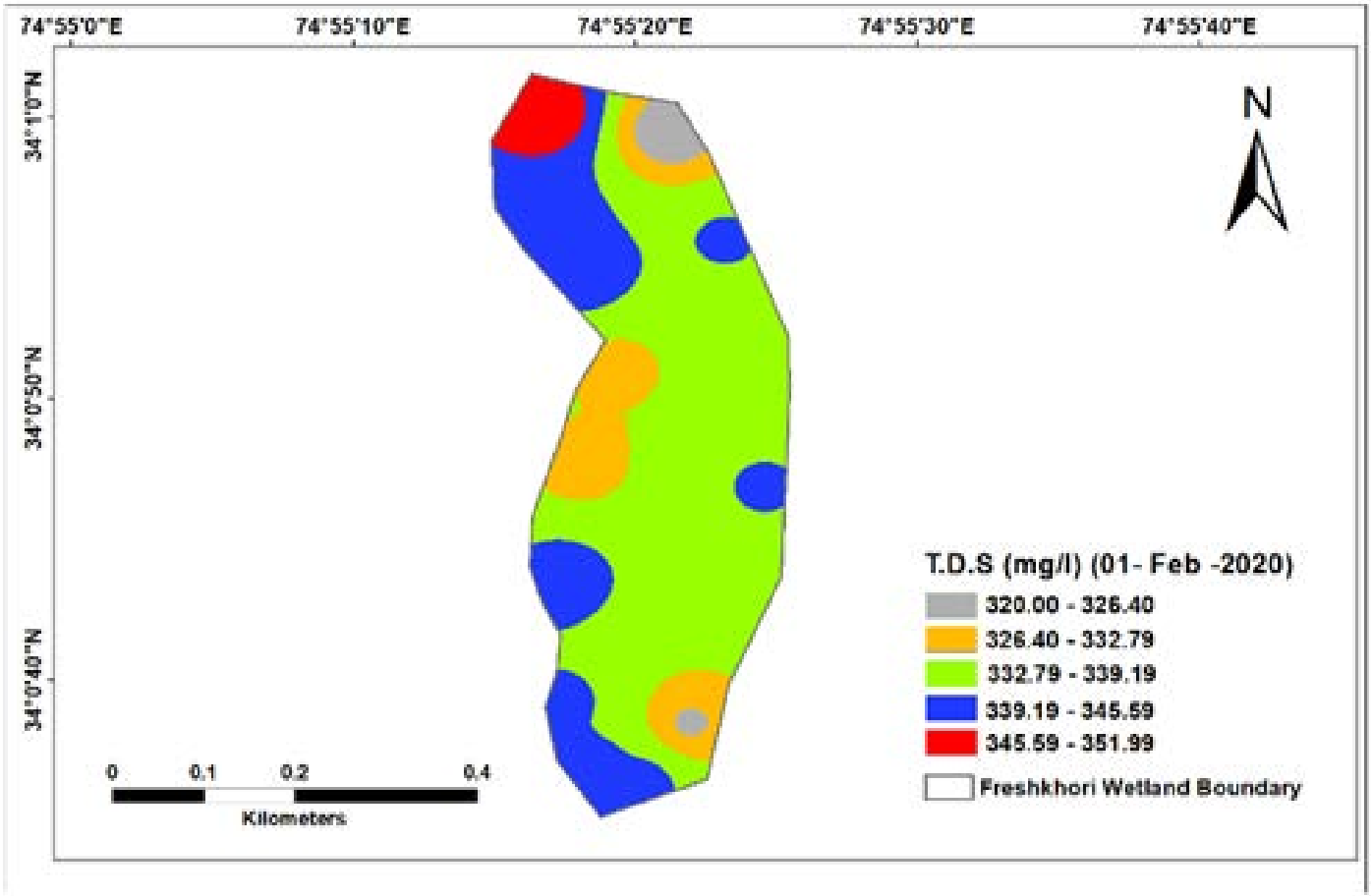

74°55'40"E
74°55'50"E
74°56'0"E
74°56'10"E
74°56'20"E
74°56'30"E
74°56'40"E
34°1'10"N
34°1'0"N
34°0'50"N
34°0'40"N
N
B.O.D (mg/l) (01-Feb-2020)
2.10 - 2.28
2.28 - 2.46
2.46 - 2.63
2.63 - 2.81
2.81 - 2.99
Chattlam Wetland Boundary
0 0.125 0.25 0.5
Kilometers

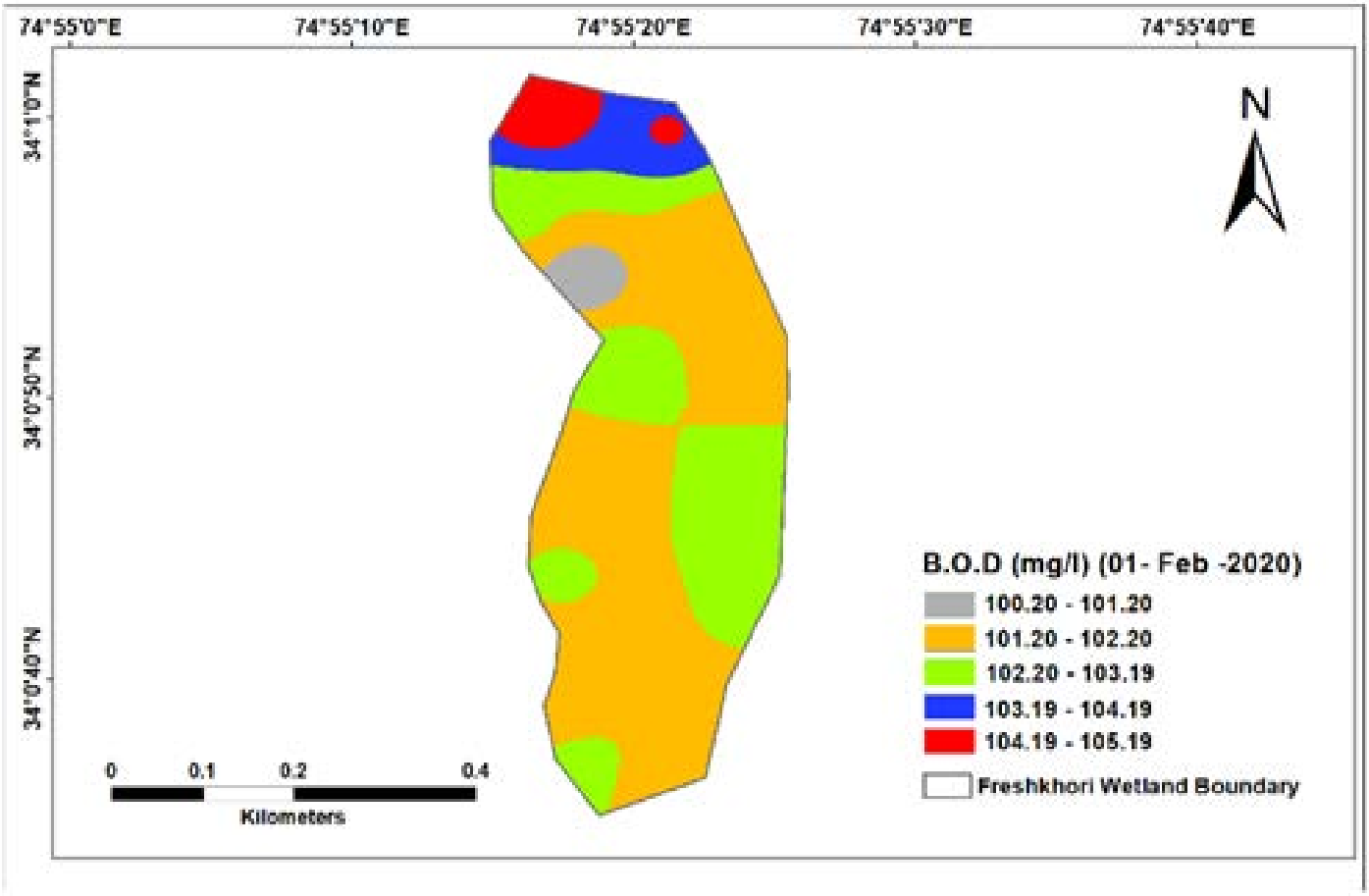

74°55'40"E
74°55'50"E
74°56'0"E
74°56'10"E
74°56'20"E
74°56'30"E
74°56'40"E
34°1'10"N
34°1'0"N
34°0'50"N
34°0'40"N
N
C.O.D (mg/l) (01-Feb-2020)
35.00 - 36.76
36.76 - 38.51
38.51 - 40.27
40.27 - 42.03
42.03 - 43.79
Chattlam Wetland Boundary
0 0.125 0.25 0.5
Kilometers

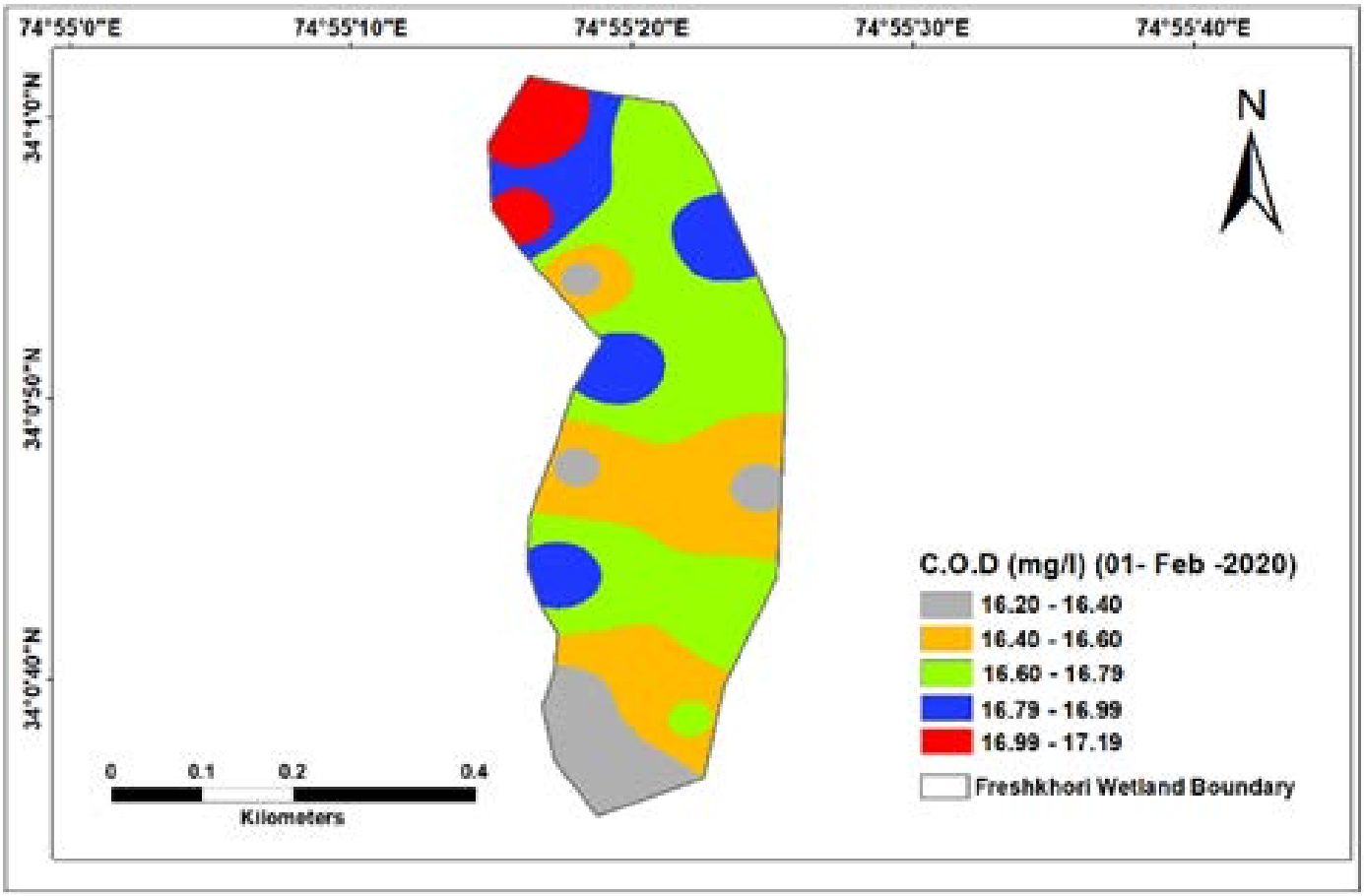
FASHKOORI


74°55'0"E
74°55'10"E
74°55'20"E
74°55'30"E
74°55'40"E
34°1'0"N
34°0'50"N
34°0'40"N
N
0
0.1
0.2
0.4
Kilometers
Water Quality Sampling Sites
Freshkhori Wetland Boundary

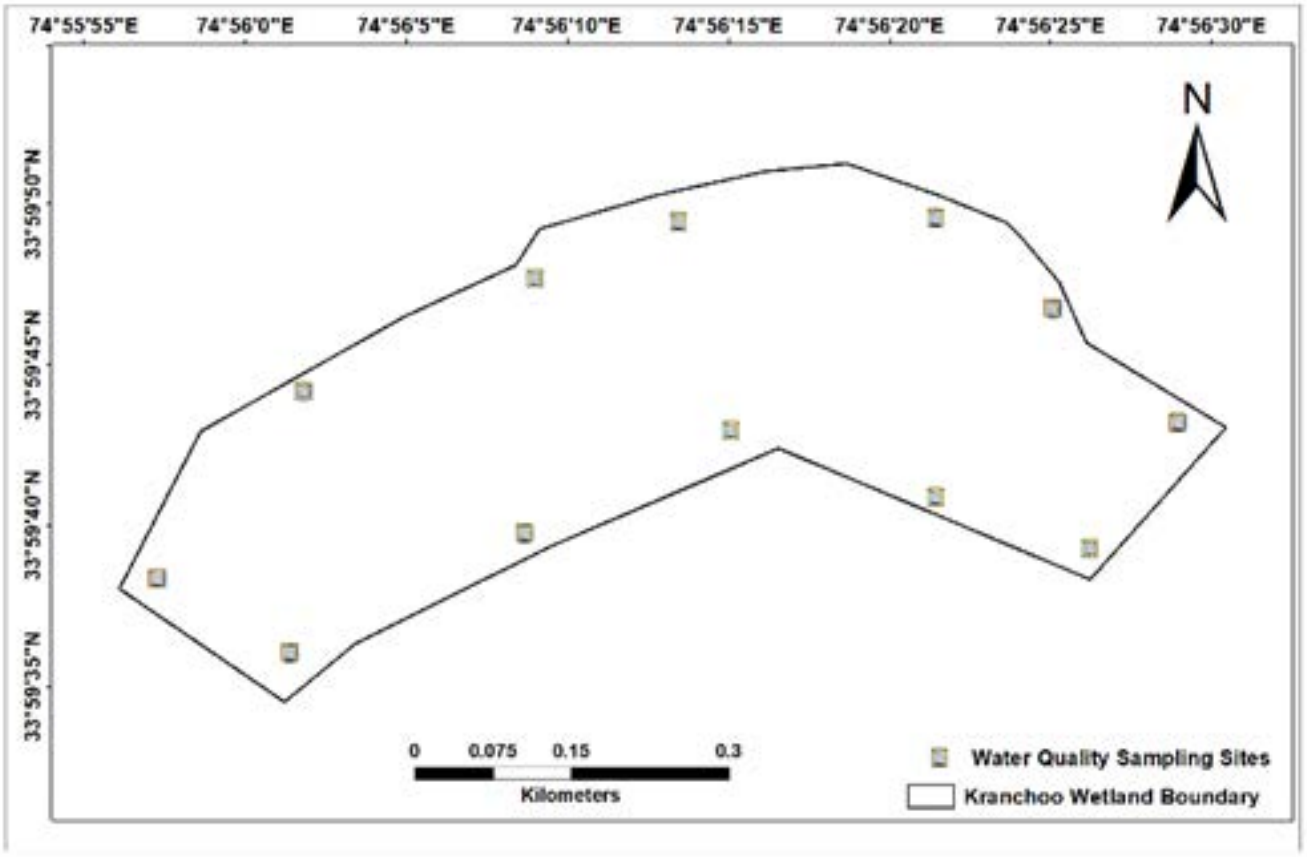

74°55'0"E
74°55'10"E
74°55'20"E
74°55'30"E
74°55'40"E
34°1'0"N
34°0'50"N
34°0'40"N
N
0
0.1
0.2
0.4
Kilometers
pH (01-Feb-2020)
8.05 - 8.13
8.13 - 8.22
8.22 - 8.30
8.30 - 8.39
8.39 - 8.47
Freshkhori Wetland Boundary

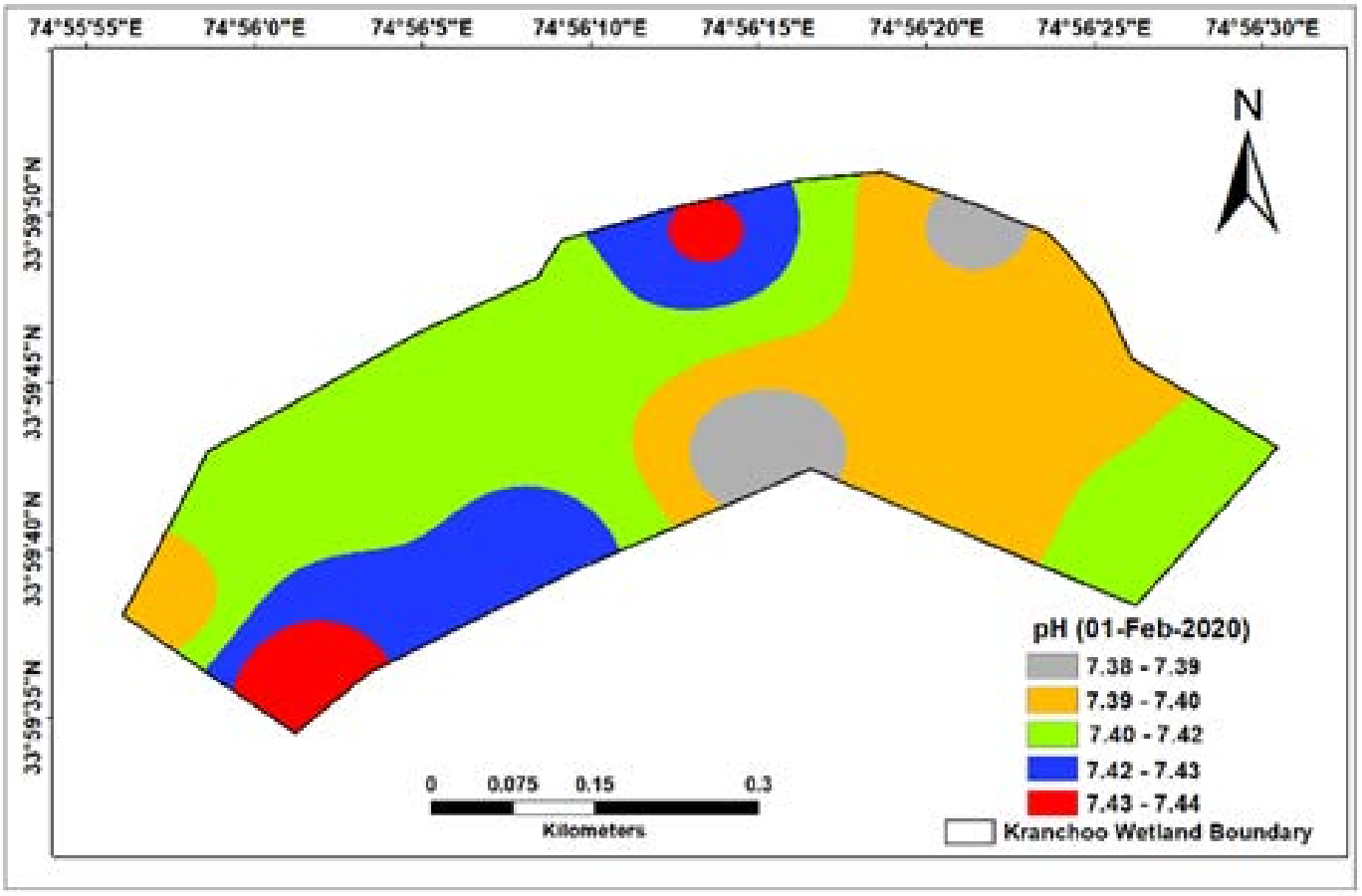

74°55'0"E
74°55'10"E
74°55'20"E
74°55'30"E
74°55'40"E
34°1'0"N
34°0'50"N
34°0'40"N
N
T.D.S (mg/l) (01- Feb -2020)
320.00 - 326.40
326.40 - 332.79
332.79 - 339.19
339.19 - 345.59
345.59 - 351.99
Freshkhori Wetland Boundary
0
0.1
0.2
0.4
Kilometers

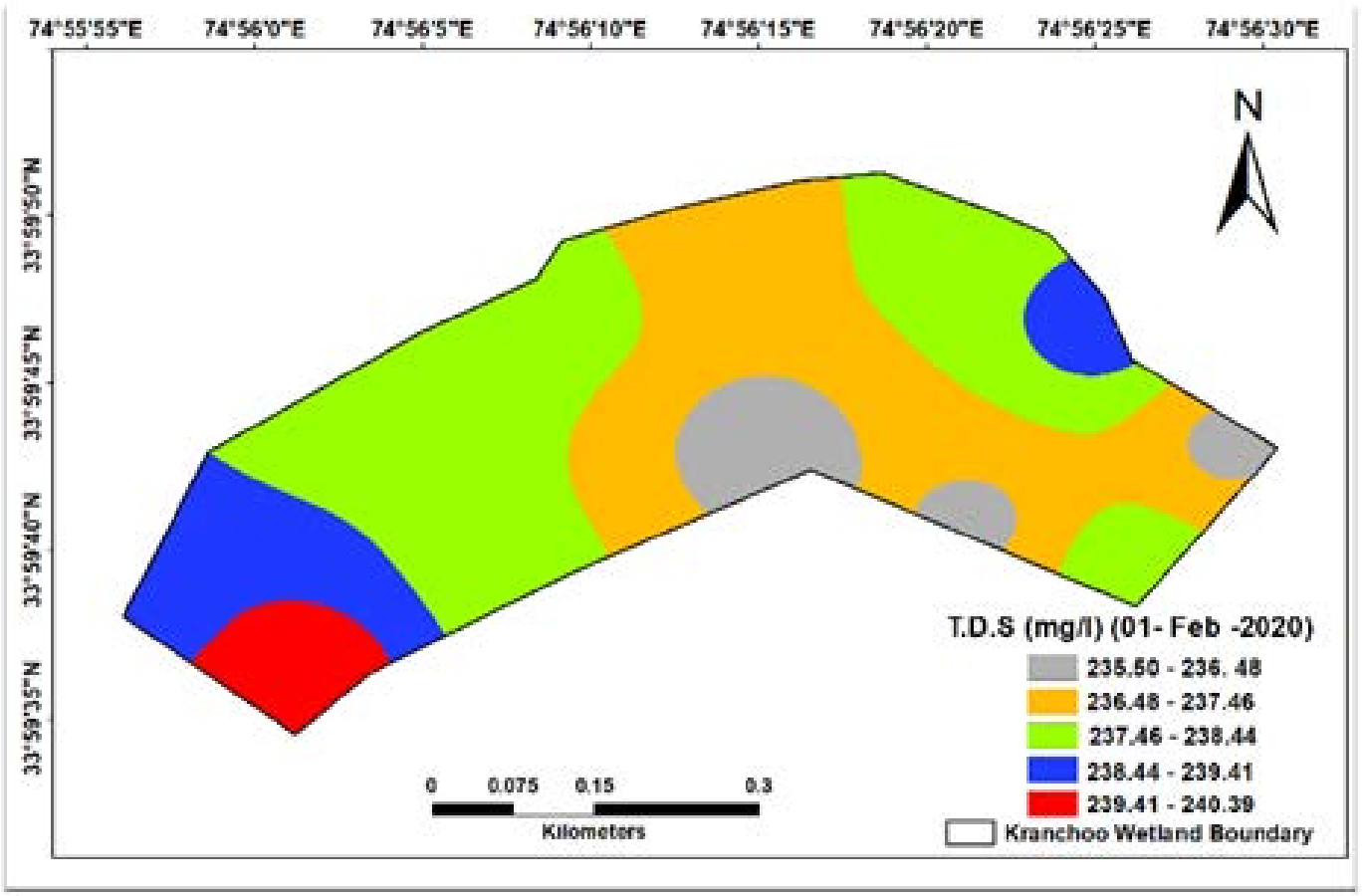

74°55'0"E
74°55'10"E
74°55'20"E
74°55'30"E
74°55'40"E
34°1'0"N
34°0'50"N
34°0'40"N
N
B.O.D (mg/l) (01- Feb -2020)
100.20 - 101.20
101.20 - 102.20
102.20 - 103.19
103.19 - 104.19
104.19 - 105.19
Freshkhori Wetland Boundary
0
0.1
0.2
0.4
Kilometers

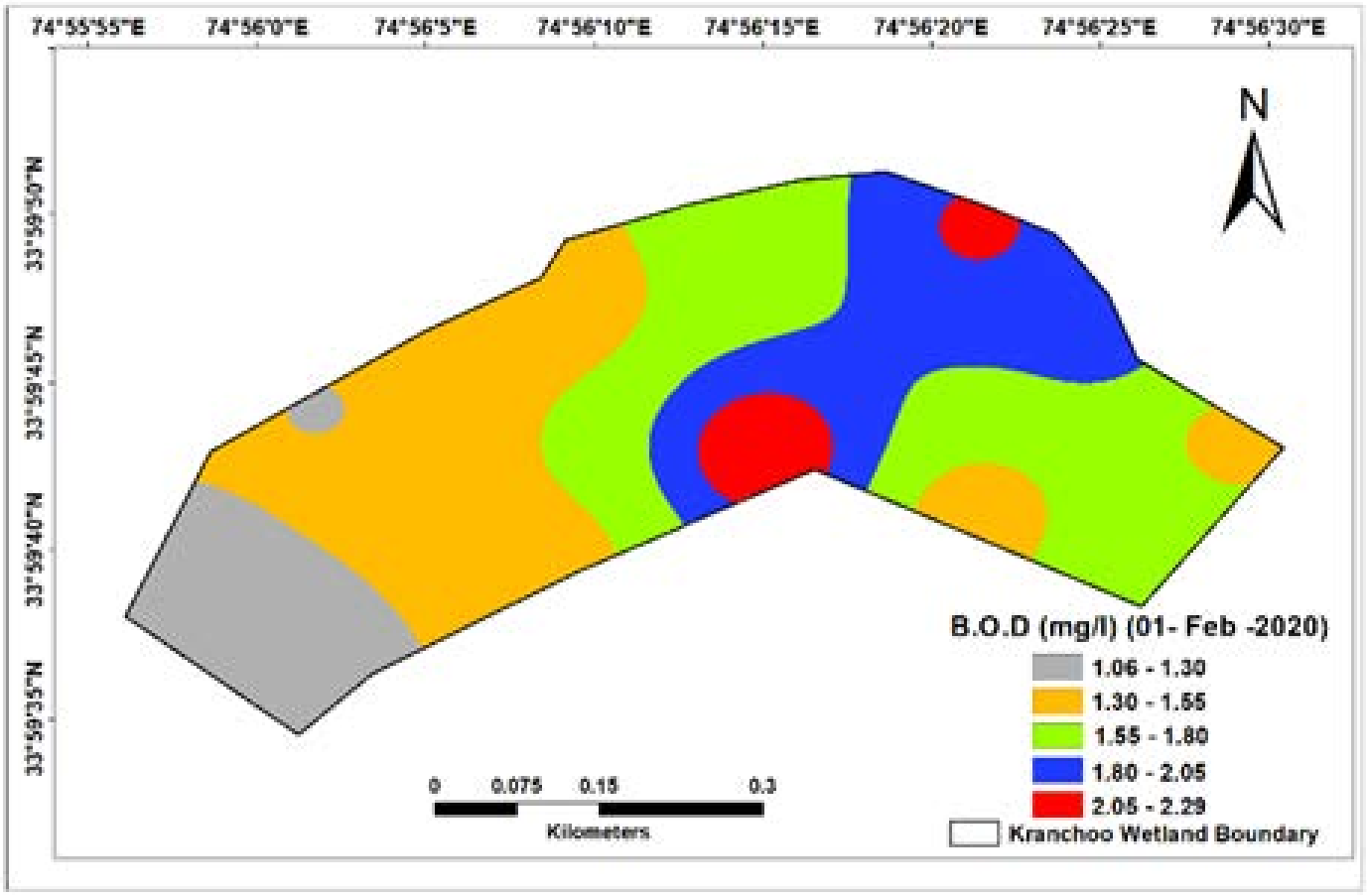

74°55'0"E
74°55'10"E
74°55'20"E
74°55'30"E
74°55'40"E
34°1'0"N
34°0'50"N
34°0'40"N
N
C.O.D (mg/l) (01- Feb -2020)
16.20 - 16.40
16.40 - 16.60
16.60 - 16.79
16.79 - 16.99
16.99 - 17.19
Freshkhori Wetland Boundary
0 0.1 0.2 0.4
Kilometers

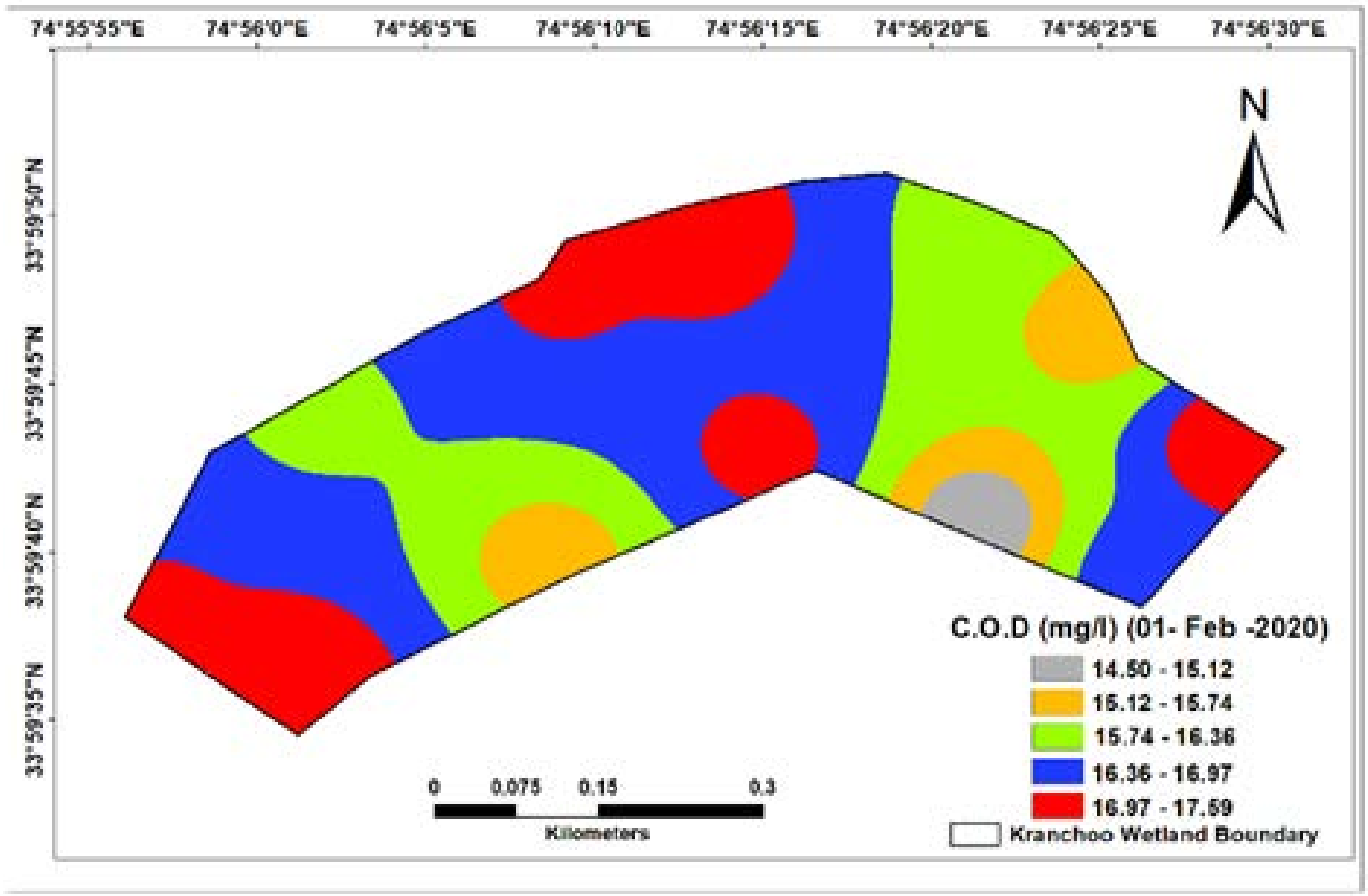
KRANCHOO


74°55'55"E
74°56'0"E
74°56'5"E
74°56'10"E
74°56'15"E
74°56'20"E
74°56'25"E
74°56'30"E
33°59'50"N
33°59'45"N
33°59'40"N
33°59'35"N
N
0 0.075 0.15 0.3
Kilometers
Water Quality Sampling Sites
Kranchoo Wetland Boundary

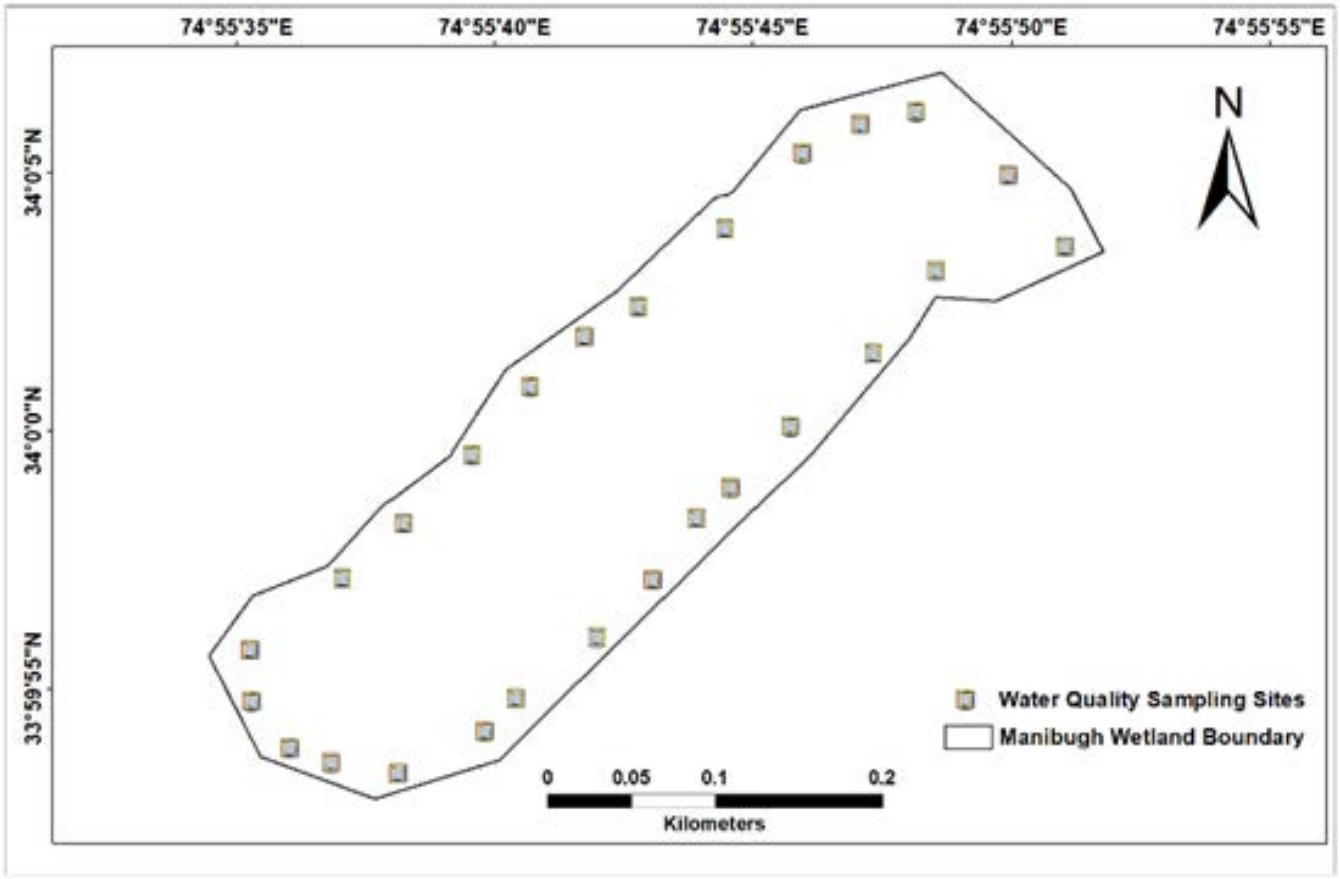

74°55'55"E
74°56'0"E
74°56'5"E
74°56'10"E
74°56'15"E
74°56'20"E
74°56'25"E
74°56'30"E
33°59'50"N
33°59'45"N
33°59'40"N
33°59'35"N
N
pH (01-Feb-2020)
7.38 - 7.39
7.39 - 7.40
7.40 - 7.42
7.42 - 7.43
7.43 - 7.44
Kranchoo Wetland Boundary
0 0.075 0.15 0.3
Kilometers

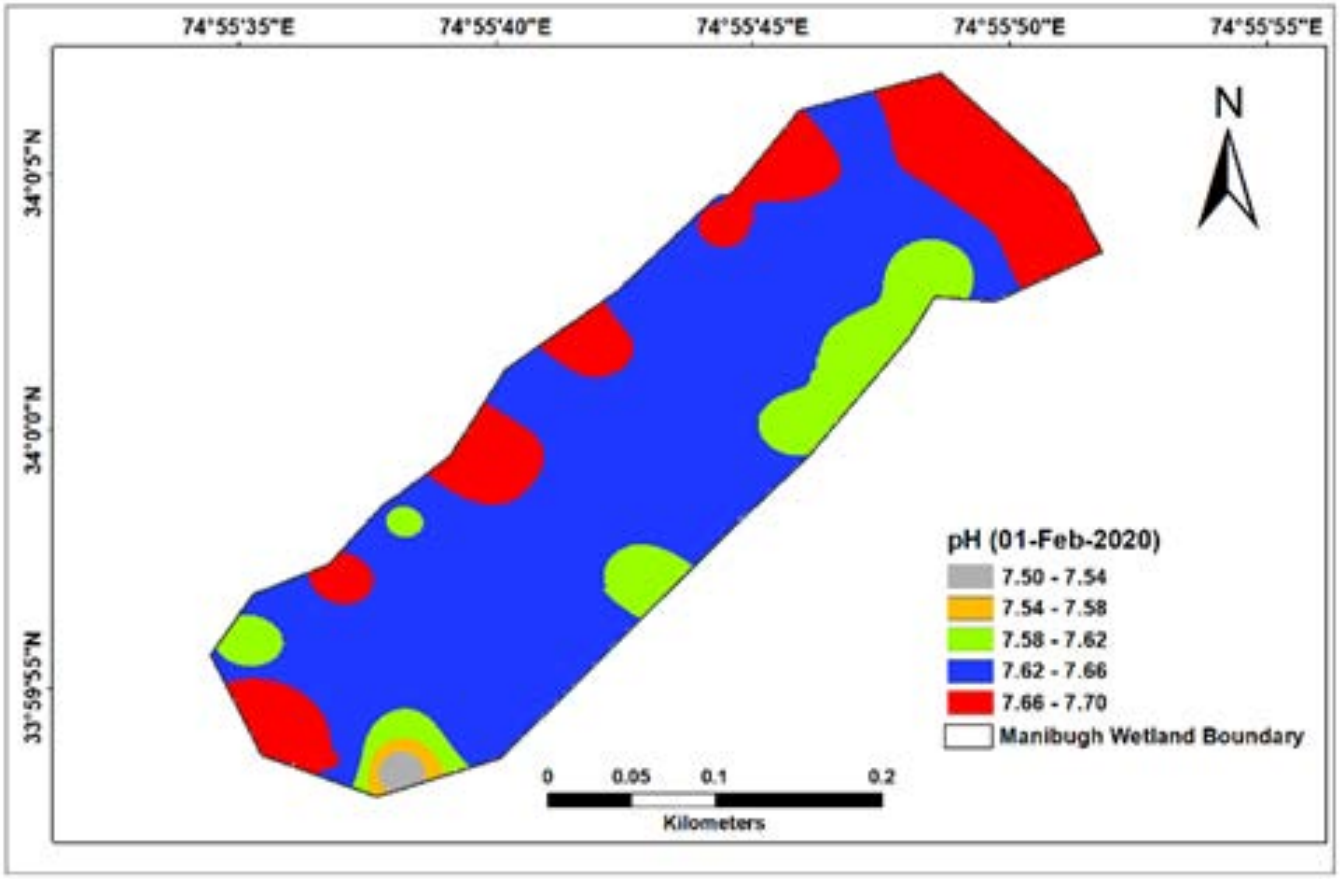

74°55'55"E
74°56'0"E
74°56'5"E
74°56'10"E
74°56'15"E
74°56'20"E
74°56'25"E
74°56'30"E
33°59'50"N
33°59'45"N
33°59'40"N
33°59'35"N
N
T.D.S (mg/l) (01- Feb -2020)
235.50 - 236. 48
236.48 - 237.46
237.46 - 238.44
238.44 - 239.41
239.41 - 240.39
Kranchoo Wetland Boundary
0 0.075 0.15 0.3
Kilometers

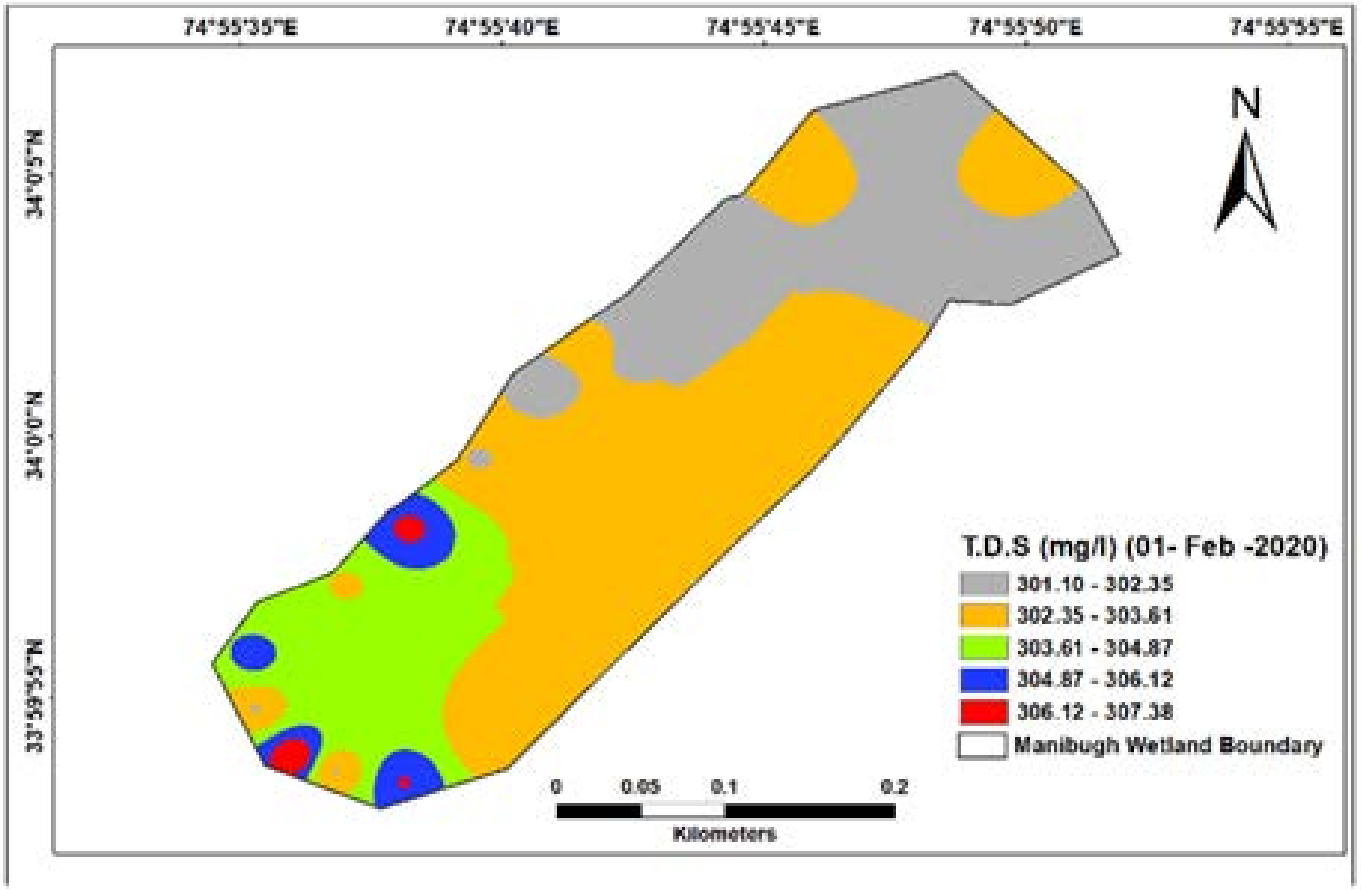

74°55'55"E
74°56'0"E
74°56'5"E
74°56'10"E
74°56'15"E
74°56'20"E
74°56'25"E
74°56'30"E
33°59'50"N
33°59'45"N
33°59'40"N
33°59'35"N
N
B.O.D (mg/l) (01- Feb -2020)
1.06 - 1.30
1.30 - 1.55
1.55 - 1.80
1.80 - 2.05
2.05 - 2.29
Kranchoo Wetland Boundary
0 0.075 0.15 0.3
Kilometers

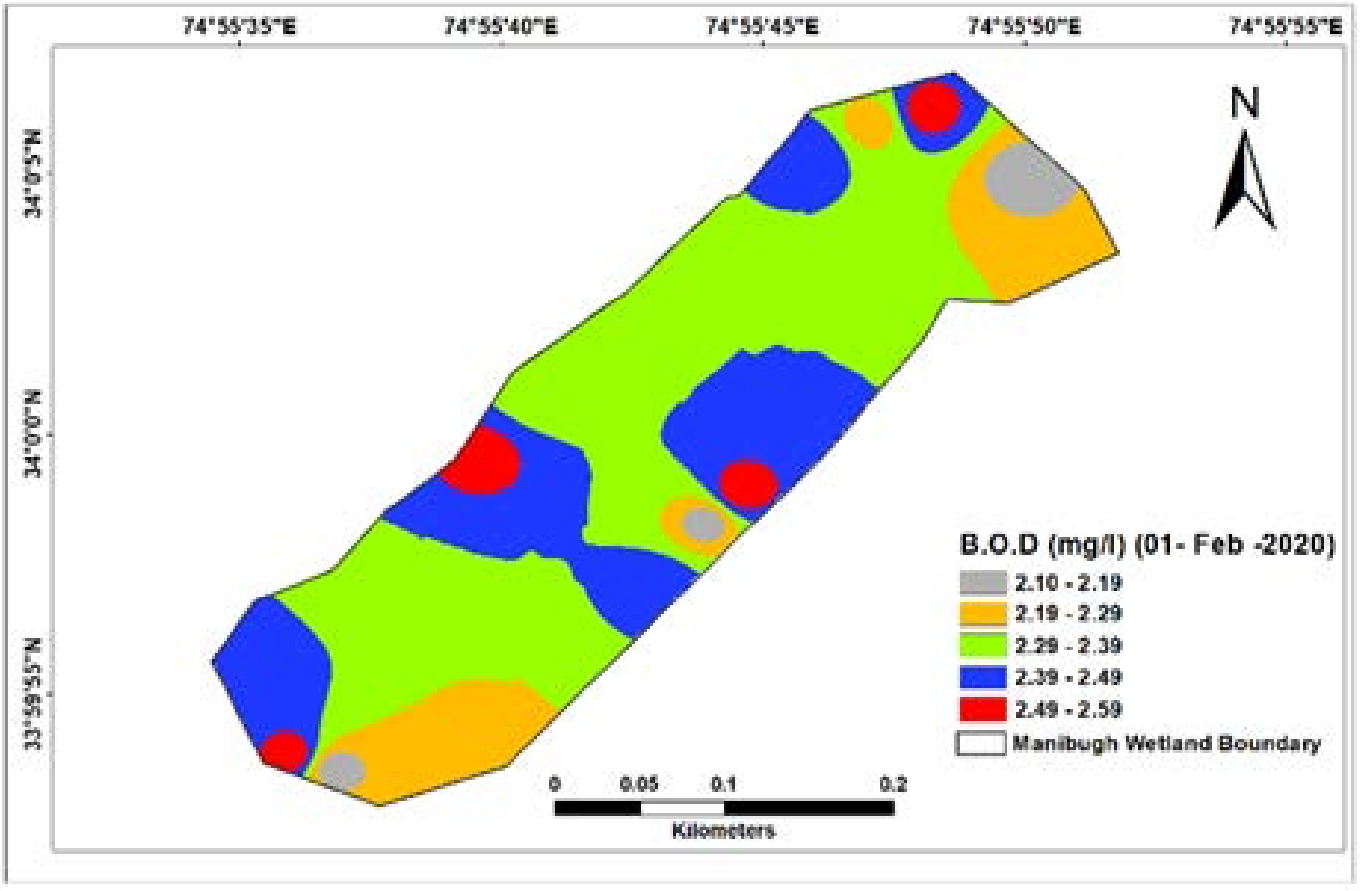

74°55'55"E
74°56'0"E
74°56'5"E
74°56'10"E
74°56'15"E
74°56'20"E
74°56'25"E
74°56'30"E
33°59'50"N
33°59'45"N
33°59'40"N
33°59'35"N
N
C.O.D (mg/l) (01- Feb -2020)
14.50 - 15.12
15.12 - 15.74
15.74 - 16.36
16.36 - 16.97
16.97 - 17.59
Kranchoo Wetland Boundary
0 0.075 0.15 0.3
Kilometers

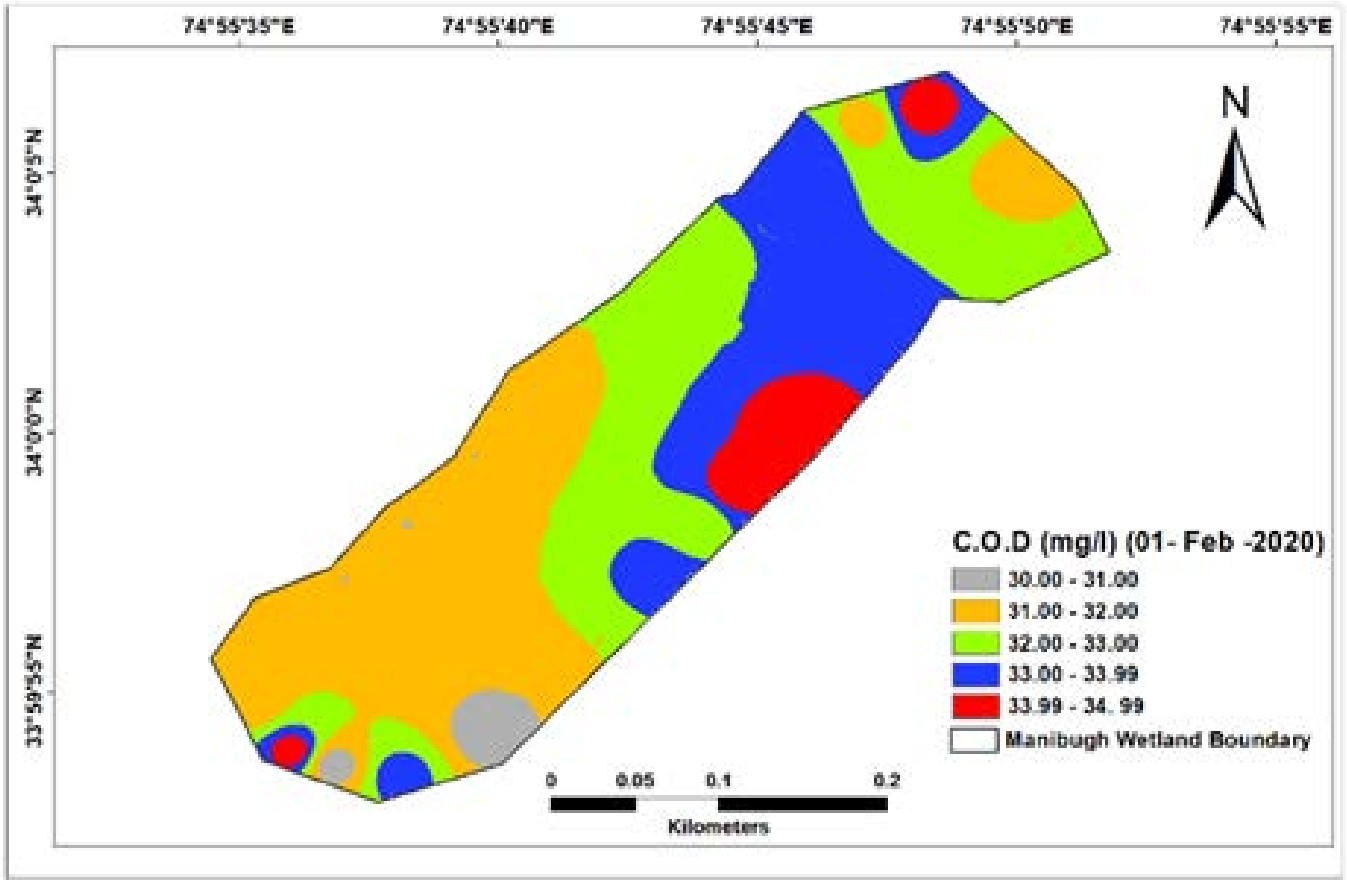
MANIBUGH


74°55'35"E
74°55'40"E
74°55'45"E
74°55'50"E
74°55'55"E
34°0'5"N
34°0'0"N
33°59'55"N
N
Water Quality Sampling Sites
Manibugh Wetland Boundary
0
0.05
0.1
0.2
Kilometers


74°55'35"E
74°55'40"E
74°55'45"E
74°55'50"E
74°55'55"E
34°0'5"N
34°0'0"N
33°59'55"N
N
pH (01-Feb-2020)
7.50 - 7.54
7.54 - 7.58
7.58 - 7.62
7.62 - 7.66
7.66 - 7.70
Manibugh Wetland Boundary
0
0.05
0.1
0.2
Kilometers


74°55'35"E
74°55'40"E
74°55'45"E
74°55'50"E
74°55'55"E
34°0'5"N
34°0'0"N
33°59'55"N
N
T.D.S (mg/l) (01- Feb -2020)
301.10 - 302.35
302.35 - 303.61
303.61 - 304.87
304.87 - 306.12
306.12 - 307.38
Manibugh Wetland Boundary
0
0.05
0.1
0.2
Kilometers


74°55'35"E
74°55'40"E
74°55'45"E
74°55'50"E
74°55'55"E
34°0'5"N
34°0'0"N
33°59'55"N
N
B.O.D (mg/l) (01- Feb -2020)
2.10 - 2.19
2.19 - 2.29
2.29 - 2.39
2.39 - 2.49
2.49 - 2.59
Manibugh Wetland Boundary
0
0.05
0.1
0.2
Kilometers


74°55'35"E
74°55'40"E
74°55'45"E
74°55'50"E
74°55'55"E
34°0'5"N
34°0'0"N
33°59'55"N
N
C.O.D (mg/l) (01- Feb -2020)
30.00 - 31.00
31.00 - 32.00
32.00 - 33.00
33.00 - 33.99
33.99 - 34. 99
Manibugh Wetland Boundary
0
0.05
0.1
0.2
Kilometers



CHAPTER NO 15

Wetland Health Cards

Hokera Wetland
Health Card Details

State Name	Wetland Name	Area (hectares)	Wetland Type	Date of Entry	Year of Data Collection
Jammu & Kashmir	**Hokera Wetland**	**1375.00**	**Natural (Inland)**	**20-01-2021**	**2019**

#	Features	Code	Indicator	Desired Value	Actual Value	Category
1	Area	A-01	% wetland converted to non-wetland use since 2000	0%	0%	A
2	Hydrology and catchment	H-01	Ratio of number of natural inlets choked and diverted to total number of natural inlets	<0.2	0-0.2	A
3	Hydrology and catchment	H-02	Ratio of number of natural outlets choked and diverted to total number of natural outlets	<0.2	0-0.2	A
4	Hydrology and catchment	Q-01	%of samples conforming to desired BOD/DO/COD levels	Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l	60-80% sample meet the criteria	B
5	Biodiversity	B-01	% wetland area covered by invasive macrophytes	<10%	<10%	A
6	Biodiversity	B-02	Annual water bird count as a proportion of average count of last 5 years	Increasing	Increasing significantly over last 5 years	A
7	Governance	G-01	Clearly demarcated wetlands map	Wetlands map prepared and approved by CWLW/Relevant Authority	Wetlands map prepared and under consideration of State Wetlands Authority	B
8	Governance	G-02	Wetland Management Plan	Management plan prepared and approved by CWLW/Relevant Authority	Management plan under preparation	D
9	Governance	G-03	Wetland Notification	Wetlands notified under Wetland Rules/WPA	Final notification under extant regulation	A

Actual Value Range and Grade

Indicator: % wetland converted to non-wetland use since 2000 (Desired Value : 0%)

(A) 0%
(B) 1-5%
(C) 6-10%
(D) 11-20%
(E) More than 20%

Indicator: Ratio of number of natural inlets choked and diverted to total number of natural inlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: Ratio of number of natural outlets choked and diverted to total number of natural outlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: %of samples conforming to desired BOD/DO/COD levels (Desired Value : Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l)

(A) 80-100% sample meet the criteria
(B) 60-80% sample meet the criteria
(C) 40-60% sample meet the criteria
(D) 20-40% sample meet the criteria
(E) Less than 20% sample meet the criteria

Indicator: % wetland area covered by invasive macrophytes (Desired Value : <10%)

(A) <10%
(B) 11-20%
(C) 21-30%
(D) 31-40%
(E) More than 40%

Indicator: Annual water bird count as a proportion of average count of last 5 years (Desired Value : Increasing)

(A) Increasing significantly over last 5 years
(B) Increasing over last 5 years
(C) Constant since last 5 years
(D) Decreasing over last 5 years
(E) Decreasing significantly over last 5 years

Indicator: Clearly demarcated wetlands map (Desired Value : Wetlands map prepared and approved by CWLW/Relevant Authority)

(A) Wetlands map prepared and approved by State
(B) Wetlands map prepared and under consideration of State Wetlands Authority
(C) Wetlands map prepared but not placed in State Wetlands Authority
(D) Wetlands map under preparation
(E) Wetlands map not prepared

Indicator: Wetland Management Plan (Desired Value : Management plan prepared and approved by CWLW/Relevant Authority)

(A) Management plan prepared and approved
(B) Management plan prepared and submitted to SWA
(C) Management plan prepared, not submitted to SWA
(D) Management plan under preparation
(E) No management plan

Indicator: Wetland Notification (Desired Value : Wetlands notified under Wetland Rules/WPA)

(A) Final notification under extant regulation
(B) Draft notification
(C) Regulation under process
(D) Regulation planned process initiated
(E) No regulation

Published by: Wetlands Division, Ministry of Environment, Forest and Climate Change Government of India

Hygam Wetland Reserve
Health Card Details

State Name	Wetland Name	Area (hectares)	Wetland Type	Date of Entry	Year of Data Collection
Jammu & Kashmir	**Hygam Wetland Reserve**	**725.00**	**Natural (Inland)**	**07-07-2021**	**2020**

#	Features	Code	Indicator	Desired Value	Actual Value	Category
1	Area	A-01	% wetland converted to non-wetland use since 2000	0%	1-5%	B
2	Hydrology and catchment	H-01	Ratio of number of natural inlets choked and diverted to total number of natural inlets	<0.2	0-0.2	A
3		H-02	Ratio of number of natural outlets choked and diverted to total number of natural outlets	<0.2	0-0.2	A
4		Q-01	%of samples conforming to desired BOD/DO/COD levels	Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l	80-100% sample meet the criteria	A
5	Biodiversity	B-01	% wetland area covered by invasive macrophytes	<10%	<10%	A
6		B-02	Annual water bird count as a proportion of average count of last 5 years	Increasing	Decreasing over last 5 years	D
7	Governance	G-01	Clearly demarcated wetlands map	Wetlands map prepared and approved by CWLW/Relevant Authority	Wetlands map prepared and under consideration of State Wetlands Authority	B
8		G-02	Wetland Management Plan	Management plan prepared and approved by CWLW/Relevant Authority	Management plan prepared, not submitted to SWA	C
9		G-03	Wetland Notification	Wetlands notified under Wetland Rules/WPA	Final notification under extant regulation	A

Actual Value Range and Grade

Indicator: % wetland converted to non-wetland use since 2000 (Desired Value : 0%)

(A) 0%
(B) 1-5%
(C) 6-10%
(D) 11-20%
(E) More than 20%

Indicator: Ratio of number of natural inlets choked and diverted to total number of natural inlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: Ratio of number of natural outlets choked and diverted to total number of natural outlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: %of samples conforming to desired BOD/DO/COD levels (Desired Value : Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l)

(A) 80-100% sample meet the criteria
(B) 60-80% sample meet the criteria
(C) 40-60% sample meet the criteria
(D) 20-40% sample meet the criteria
(E) Less than 20% sample meet the criteria

Indicator: % wetland area covered by invasive macrophytes (Desired Value : <10%)

(A) <10%
(B) 11-20%
(C) 21-30%
(D) 31-40%
(E) More than 40%

Indicator: Annual water bird count as a proportion of average count of last 5 years (Desired Value : Increasing)

(A) Increasing significantly over last 5 years
(B) Increasing over last 5 years
(C) Constant since last 5 years
(D) Decreasing over last 5 years
(E) Decreasing significantly over last 5 years

Indicator: Clearly demarcated wetlands map (Desired Value : Wetlands map prepared and approved by CWLW/Relevant Authority)

(A) Wetlands map prepared and approved by State
(B) Wetlands map prepared and under consideration of State Wetlands Authority
(C) Wetlands map prepared but not placed in State Wetlands Authority
(D) Wetlands map under preparation
(E) Wetlands map not prepared

Indicator: Wetland Management Plan (Desired Value : Management plan prepared and approved by CWLW/Relevant Authority)

(A) Management plan prepared and approved
(B) Management plan prepared and submitted to SWA
(C) Management plan prepared, not submitted to SWA
(D) Management plan under preparation
(E) No management plan

Indicator: Wetland Notification (Desired Value : Wetlands notified under Wetland Rules/WPA)

(A) Final notification under extant regulation
(B) Draft notification
(C) Regulation under process
(D) Regulation planned process initiated
(E) No regulation

Published by: Wetlands Division, Ministry of Environment, Forest and Climate Change Government of India

Shallabugh Wetland Reserve
Health Card Details

State Name	Wetland Name	Area (hectares)	Wetland Type	Date of Entry	Year of Data Collection
Jammu & Kashmir	**Shallabugh Wetland Reserve**	**1600.00**	**Natural (Inland)**	**07-07-2021**	**2020**

#	Features	Code	Indicator	Desired Value	Actual Value	Category
1	Area	A-01	% wetland converted to non-wetland use since 2000	0%	1-5%	B
2	Hydrology and catchment	H-01	Ratio of number of natural inlets choked and diverted to total number of natural inlets	<0.2	0.3-0.4	B
3	Hydrology and catchment	H-02	Ratio of number of natural outlets choked and diverted to total number of natural outlets	<0.2	0.3-0.4	B
4	Hydrology and catchment	Q-01	%of samples conforming to desired BOD/DO/COD levels	Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l	80-100% sample meet the criteria	A
5	Biodiversity	B-01	% wetland area covered by invasive macrophytes	<10%	11-20%	B
6	Biodiversity	B-02	Annual water bird count as a proportion of average count of last 5 years	Increasing	Constant since last 5 years	C
7	Governance	G-01	Clearly demarcated wetlands map	Wetlands map prepared and approved by CWLW/Relevant Authority	Wetlands map prepared and under consideration of State Wetlands Authority	B
8	Governance	G-02	Wetland Management Plan	Management plan prepared and approved by CWLW/Relevant Authority	Management plan prepared, not submitted to SWA	C
9	Governance	G-03	Wetland Notification	Wetlands notified under Wetland Rules/WPA	Final notification under extant regulation	A

Actual Value Range and Grade

Indicator: % wetland converted to non-wetland use since 2000 (Desired Value : 0%)

(A) 0%
(B) 1-5%
(C) 6-10%
(D) 11-20%
(E) More than 20%

Indicator: Ratio of number of natural inlets choked and diverted to total number of natural inlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: Ratio of number of natural outlets choked and diverted to total number of natural outlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: %of samples conforming to desired BOD/DO/COD levels (Desired Value : Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l)

(A) 80-100% sample meet the criteria
(B) 60-80% sample meet the criteria
(C) 40-60% sample meet the criteria
(D) 20-40% sample meet the criteria
(E) Less than 20% sample meet the criteria

Indicator: % wetland area covered by invasive macrophytes (Desired Value : <10%)

(A) <10%
(B) 11-20%
(C) 21-30%
(D) 31-40%
(E) More than 40%

Indicator: Annual water bird count as a proportion of average count of last 5 years (Desired Value : Increasing)

(A) Increasing significantly over last 5 years
(B) Increasing over last 5 years
(C) Constant since last 5 years
(D) Decreasing over last 5 years
(E) Decreasing significantly over last 5 years

Indicator: Clearly demarcated wetlands map (Desired Value : Wetlands map prepared and approved by CWLW/Relevant Authority)

(A) Wetlands map prepared and approved by State
(B) Wetlands map prepared and under consideration of State Wetlands Authority
(C) Wetlands map prepared but not placed in State Wetlands Authority
(D) Wetlands map under preparation
(E) Wetlands map not prepared

Indicator: Wetland Management Plan (Desired Value : Management plan prepared and approved by CWLW/Relevant Authority)

(A) Management plan prepared and approved
(B) Management plan prepared and submitted to SWA
(C) Management plan prepared, not submitted to SWA
(D) Management plan under preparation
(E) No management plan

Indicator: Wetland Notification (Desired Value : Wetlands notified under Wetland Rules/WPA)

(A) Final notification under extant regulation
(B) Draft notification
(C) Regulation under process
(D) Regulation planned process initiated
(E) No regulation

Published by: Wetlands Division, Ministry of Environment, Forest and Climate Change Government of India

Mirgund Wetland Reserve
Health Card Details

State Name	Wetland Name	Area (hectares)	Wetland Type	Date of Entry	Year of Data Collection
Jammu & Kashmir	**Mirgund Wetland Reserve**	**350.00**	**Natural (Inland)**	**07-07-2021**	**2020**

#	Features	Code	Indicator	Desired Value	Actual Value	Category
1	Area	A-01	% wetland converted to non-wetland use since 2000	0%	6-10%	C
2	Hydrology and catchment	H-01	Ratio of number of natural inlets choked and diverted to total number of natural inlets	<0.2	0.3-0.4	B
3	Hydrology and catchment	H-02	Ratio of number of natural outlets choked and diverted to total number of natural outlets	<0.2	0.3-0.4	B
4	Hydrology and catchment	Q-01	%of samples conforming to desired BOD/DO/COD levels	Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l		
5	Biodiversity	B-01	% wetland area covered by invasive macrophytes	<10%	<10%	A
6	Biodiversity	B-02	Annual water bird count as a proportion of average count of last 5 years	Increasing	Constant since last 5 years	C
7	Governance	G-01	Clearly demarcated wetlands map	Wetlands map prepared and approved by CWLW/Relevant Authority	Wetlands map prepared and under consideration of State Wetlands Authority	B
8	Governance	G-02	Wetland Management Plan	Management plan prepared and approved by CWLW/Relevant Authority	Management plan prepared, not submitted to SWA	C
9	Governance	G-03	Wetland Notification	Wetlands notified under Wetland Rules/WPA	Final notification under extant regulation	A

Actual Value Range and Grade

Indicator: % wetland converted to non-wetland use since 2000 (Desired Value : 0%)

(A) 0%
(B) 1-5%
(C) 6-10%
(D) 11-20%
(E) More than 20%

Indicator: Ratio of number of natural inlets choked and diverted to total number of natural inlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: Ratio of number of natural outlets choked and diverted to total number of natural outlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: %of samples conforming to desired BOD/DO/COD levels (Desired Value : Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l)

(A) 80-100% sample meet the criteria
(B) 60-80% sample meet the criteria
(C) 40-60% sample meet the criteria
(D) 20-40% sample meet the criteria
(E) Less than 20% sample meet the criteria

Indicator: % wetland area covered by invasive macrophytes (Desired Value : <10%)

(A) <10%
(B) 11-20%
(C) 21-30%
(D) 31-40%
(E) More than 40%

Indicator: Annual water bird count as a proportion of average count of last 5 years (Desired Value : Increasing)

(A) Increasing significantly over last 5 years
(B) Increasing over last 5 years
(C) Constant since last 5 years
(D) Decreasing over last 5 years
(E) Decreasing significantly over last 5 years

Indicator: Clearly demarcated wetlands map (Desired Value : Wetlands map prepared and approved by CWLW/Relevant Authority)

(A) Wetlands map prepared and approved by State
(B) Wetlands map prepared and under consideration of State Wetlands Authority
(C) Wetlands map prepared but not placed in State Wetlands Authority
(D) Wetlands map under preparation
(E) Wetlands map not prepared

Indicator: Wetland Management Plan (Desired Value : Management plan prepared and approved by CWLW/Relevant Authority)

(A) Management plan prepared and approved
(B) Management plan prepared and submitted to SWA
(C) Management plan prepared, not submitted to SWA
(D) Management plan under preparation
(E) No management plan

Indicator: Wetland Notification (Desired Value : Wetlands notified under Wetland Rules/WPA)

(A) Final notification under extant regulation
(B) Draft notification
(C) Regulation under process
(D) Regulation planned process initiated
(E) No regulation

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Chatlum Wetland Reserve
Health Card Details

State Name	Wetland Name	Area (hectares)	Wetland Type	Date of Entry	Year of Data Collection
Jammu & Kashmir	**Chatlum Wetland Reserve**	**30.00**	**Natural (Inland)**	**07-07-2021**	**2020**

#	Features	Code	Indicator	Desired Value	Actual Value	Category
1	Area	A-01	% wetland converted to non-wetland use since 2000	0%	1-5%	B
2	Hydrology and catchment	H-01	Ratio of number of natural inlets choked and diverted to total number of natural inlets	<0.2	0.3-0.4	B
3	Hydrology and catchment	H-02	Ratio of number of natural outlets choked and diverted to total number of natural outlets	<0.2	0.3-0.4	B
4	Hydrology and catchment	Q-01	%of samples conforming to desired BOD/DO/COD levels	Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l	80-100% sample meet the criteria	A
5	Biodiversity	B-01	% wetland area covered by invasive macrophytes	<10%	<10%	A
6	Biodiversity	B-02	Annual water bird count as a proportion of average count of last 5 years	Increasing	Increasing over last 5 years	B
7	Governance	G-01	Clearly demarcated wetlands map	Wetlands map prepared and approved by CWLW/Relevant Authority	Wetlands map prepared and under consideration of State Wetlands Authority	B
8	Governance	G-02	Wetland Management Plan	Management plan prepared and approved by CWLW/Relevant Authority	Management plan prepared, not submitted to SWA	C
9	Governance	G-03	Wetland Notification	Wetlands notified under Wetland Rules/WPA	Final notification under extant regulation	A

Actual Value Range and Grade

Indicator: % wetland converted to non-wetland use since 2000 (Desired Value : 0%)

(A) 0%
(B) 1-5%
(C) 6-10%
(D) 11-20%
(E) More than 20%

Indicator: Ratio of number of natural inlets choked and diverted to total number of natural inlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: Ratio of number of natural outlets choked and diverted to total number of natural outlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: %of samples conforming to desired BOD/DO/COD levels (Desired Value : Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l)

(A) 80-100% sample meet the criteria
(B) 60-80% sample meet the criteria
(C) 40-60% sample meet the criteria
(D) 20-40% sample meet the criteria
(E) Less than 20% sample meet the criteria

Indicator: % wetland area covered by invasive macrophytes (Desired Value : <10%)

(A) <10%
(B) 11-20%
(C) 21-30%
(D) 31-40%
(E) More than 40%

Indicator: Annual water bird count as a proportion of average count of last 5 years (Desired Value : Increasing)

(A) Increasing significantly over last 5 years
(B) Increasing over last 5 years
(C) Constant since last 5 years
(D) Decreasing over last 5 years
(E) Decreasing significantly over last 5 years

Indicator: Clearly demarcated wetlands map (Desired Value : Wetlands map prepared and approved by CWLW/Relevant Authority)

(A) Wetlands map prepared and approved by State
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(C) Wetlands map prepared but not placed in State Wetlands Authority
(D) Wetlands map under preparation
(E) Wetlands map not prepared

Indicator: Wetland Management Plan (Desired Value : Management plan prepared and approved by CWLW/Relevant Authority)

(A) Management plan prepared and approved
(B) Management plan prepared and submitted to SWA
(C) Management plan prepared, not submitted to SWA
(D) Management plan under preparation
(E) No management plan

Indicator: Wetland Notification (Desired Value : Wetlands notified under Wetland Rules/WPA)

(A) Final notification under extant regulation
(B) Draft notification
(C) Regulation under process
(D) Regulation planned process initiated
(E) No regulation

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Manibugh Wetland Reserve
Health Card Details

State Name	Wetland Name	Area (hectares)	Wetland Type	Date of Entry	Year of Data Collection
Jammu & Kashmir	**Manibugh Wetland Reserve**	**25.00**	**Natural (Inland)**	**07-07-2021**	**2020**

#	Features	Code	Indicator	Desired Value	Actual Value	Category
1	Area	A-01	% wetland converted to non-wetland use since 2000	0%	1-5%	B
2	Hydrology and catchment	H-01	Ratio of number of natural inlets choked and diverted to total number of natural inlets	<0.2	0.3-0.4	B
3	Hydrology and catchment	H-02	Ratio of number of natural outlets choked and diverted to total number of natural outlets	<0.2	0.3-0.4	B
4	Hydrology and catchment	Q-01	%of samples conforming to desired BOD/DO/COD levels	Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l		
5	Biodiversity	B-01	% wetland area covered by invasive macrophytes	<10%	11-20%	B
6	Biodiversity	B-02	Annual water bird count as a proportion of average count of last 5 years	Increasing		
7	Governance	G-01	Clearly demarcated wetlands map	Wetlands map prepared and approved by CWLW/Relevant Authority	Wetlands map prepared and under consideration of State Wetlands Authority	B
8	Governance	G-02	Wetland Management Plan	Management plan prepared and approved by CWLW/Relevant Authority	Management plan prepared, not submitted to SWA	C
9	Governance	G-03	Wetland Notification	Wetlands notified under Wetland Rules/WPA	Final notification under extant regulation	A

Actual Value Range and Grade

Indicator: % wetland converted to non-wetland use since 2000 (Desired Value : 0%)

(A) 0%
(B) 1-5%
(C) 6-10%
(D) 11-20%
(E) More than 20%

Indicator: Ratio of number of natural inlets choked and diverted to total number of natural inlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: Ratio of number of natural outlets choked and diverted to total number of natural outlets (Desired Value : <0.2)

(A) 0-0.2
(B) 0.3-0.4
(C) 0.4-0.6
(D) 0.7-0.8
(E) More than 0.8

Indicator: %of samples conforming to desired BOD/DO/COD levels (Desired Value : Biological Oxygen Demand: Between 3 – 6 mg/l or Dissolved Oxygen >= 6 mg/l or Chemical Oxygen Demand (for Urban Wetlands) <50 mg/l)

(A) 80-100% sample meet the criteria
(B) 60-80% sample meet the criteria
(C) 40-60% sample meet the criteria
(D) 20-40% sample meet the criteria
(E) Less than 20% sample meet the criteria

Indicator: % wetland area covered by invasive macrophytes (Desired Value : <10%)

(A) <10%
(B) 11-20%
(C) 21-30%
(D) 31-40%
(E) More than 40%

Indicator: Annual water bird count as a proportion of average count of last 5 years (Desired Value : Increasing)

(A) Increasing significantly over last 5 years
(B) Increasing over last 5 years
(C) Constant since last 5 years
(D) Decreasing over last 5 years
(E) Decreasing significantly over last 5 years

Indicator: Clearly demarcated wetlands map (Desired Value : Wetlands map prepared and approved by CWLW/Relevant Authority)

(A) Wetlands map prepared and approved by State
(B) Wetlands map prepared and under consideration of State Wetlands Authority
(C) Wetlands map prepared but not placed in State Wetlands Authority
(D) Wetlands map under preparation
(E) Wetlands map not prepared

Indicator: Wetland Management Plan (Desired Value : Management plan prepared and approved by CWLW/Relevant Authority)

(A) Management plan prepared and approved
(B) Management plan prepared and submitted to SWA
(C) Management plan prepared, not submitted to SWA
(D) Management plan under preparation
(E) No management plan

Indicator: Wetland Notification (Desired Value : Wetlands notified under Wetland Rules/WPA)

(A) Final notification under extant regulation
(B) Draft notification
(C) Regulation under process
(D) Regulation planned process initiated
(E) No regulation

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CHAPTER NO 16

Asian Waterbird Census 2015-2021

Asian Water Bird Census Details for the Year 2015,2016,2019,2020 and 2021 of Hokersar WLR

S.No	Common Name	Scientific Name	Local Name	2015	2016	2019	2020	2021
1	Little Grebe	*Tachybaptus ruficollis*	Pind	23	53	0	3	5
2	Great Crested Grebe	*Podiceps cristatus*	_	0	0	0	0	2
3	Great Cormorant	*Phalacrocorax carbo*	Mong	0	0	0	0	4
4	Indian Shag	*P.fuscicollis*	_	0	0	0	0	0
5	Little Cormorant	*Phalacrocorax niger*		0	3	0	0	1
6	Indian Pond-heron	*Ardeola grayii*	Broku	0	311	25	0	7
7	White Heron		_	0	0	0	0	0
8	Purple Heron			0	0	0	0	0
9	Black Crowned Night Heron			0	0	0	0	0
10	Grey Heron	*Ardea cinerea*	Brag	0	11	2	0	12
11	Great White Egret			0	0	0	0	0
12	White Egret			0	0	16	0	0
13	Cattle Egret	*Bubulcus ibis*	_	0	0	0	0	6
14	Little Egret	*Egretta garzetta*	Nil Braght	0	33	0	0	1
15	Large(Great) Egret	*Casmerodius albus*	_	0	0	0	0	0
16	Chestnut or Cinnamon Bittern	*I.cinnamomeus*	_	0	0	0	0	0
17	Black Bittern	*Ixobrychus flavicollis*	_	0	0	0	0	0
18	Black Stork	*Ciconia nigra*	_	0	0	0	0	0
19	Large(Fulvous)Whistling Duck	*Dendrocygna bicolor*	_	0	0	0	0	0
20	Lesser Whistling-duck	*Dendrocygna javanica*	_	0	0	0	0	0
21	Grey lag Goose	*Anser anser*	Anz	80	352	0	805	13
22	Bar Headed Goose	*Anser indicus*		0	0	0	0	0
23	Tundra Swan	*Cygnus columbianus*		0	0	0	0	2
24	Brahminy (Ruddy) Shelduck	*Tadorna ferruginea*	Tsakow	0	200	0	0	3
25	Common Shelduck	*Tadorna tadorna*	_	0	0	0	0	5
26	Comb Duck	*Sarkidiornis melanotos*	_	0	0	0	0	0
27	Cotton Pigmy goose	*Nettapus coromande-lianus*	_	0	0	0	0	0
28	Eurasian Wigeon	*Anas penelope*	Shirni Budan	10151	155	0	100	54
29	Blue Winged Teal	*Anas discors*	_	0	0	0	0	9100
30	Gadwall	*Anas strepera*	Dudan	101651	16142	112326	44600	26000
31	Mallard	*Anas platyrhynchos*	Nilij- Thuj	60079	40509	27122	84450	9000
32	Northern Pintail	*Anas acuta*	Sukh Pachan	65773	45566	39622	137660	589
33	Garganey	*Anas querquedula*	Nour	0	4223	0	0	4610
34	Northern Shoveler	*Anas clypeata*	Honk	70958	16298	30613	34720	3300
35	Marbled Teal	*Marmaronetta an-gustirostris*	_	0	0	0	0	0
36	Red-crested Pochard	*Netta rufina*	Toor	0	44	0	0	50
37	Common Pochard	*Aythya ferina*	Krukh	0	1010	0	4	920
38	Ferruginous Pochard	*A.nyroca*	Harwath	0	6	0	0	0
39	Tufted Pochard	*A.fuligula*	Tsarrow	5000	15	0	0	107
40	Common Merganser	*Mergus merganser*	_	0	0	0	0	8
41	Baillon's Crake	*Porzana pusilla*	_	0	0	0	0	0

42	White-breasted Waterhen	*Amaurornis phoenicurus*	_	0	0	0	0	0
43	Ruddy Breasted Crake	*Porzana fusca*		0	0	0	0	2
44	Eurasian moorhen	*Gallinula chloropus*	Tech	13	1233	0	0	190
45	Common Moorhen			50	0	78	50	0
46	Eurasian Coot	*#N/A*	Kolaur	30746	33055	36692	5000	10906
47	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Gond Kaw	0	0	0	0	0
48	Ibisbill	*Ibidorhyncha struthersii*	_	0	0	0	0	0
49	Black-winged Stilt	*Himantopus himantopus*	Lang Zeyet	0	5	0	0	0
50	Avocet	*Recurvirostra avosetta*	_	0	0	0	0	0
51	white tailed Lapwing	*V.leucurus*	_	0	0	0	0	0
52	Red wattled Lapwing	*V.indicus*	Frawell	0	5	0	0	5
53	Northern Lapwing	*Vanellus vanellus*	_	0	6	0	0	30
54	Yellow-wattled Lapwing	*Vanellus malarbaricus*	_	0	0	0	0	2
55	Little Ringed Plover	*Charadrius dubius*	_	0	0	0	0	0
56	Kentish Plover	*Charadrius alexandrinus*	_	0	0	0	0	0
57	Black-tailed Godwit	*Limosa limosa*	_	0	0	0	0	0
58	Bar-tailed Godwit	*Limosa lapponica*	_	0	0	0	0	0
59	Eurasian Curlew	*Numenius arquata*	_	0	0	0	0	0
60	Spotted Redshank	*Tringa erythropus*	_	0	0	0	0	0
61	Common Redshank	*Tringa totanus*	_	0	0	0	0	10
62	Marsh Sandpiper	*Tringa stagnatilis*	_	0	0	0	0	0
63	Common Greenshank	*Tringa nebularia*	_	0	0	0	0	1
64	Green Sandpiper	*Tringa ochropus*	_	0	0	0	0	5
65	Wood Sandpiper	*Tringa glareola*	_	0	0	0	0	1
66	Common Sandpiper	*Actitis hypoleucos*	Kouli Nalla	0	55	0	0	10
67	Eurasian Woodcock	*Scolopax rusticola*	_	0	0	0	0	0
68	Solitary Snipe	*Gallinago solitaria*	Cheh	0	4	0	0	0
69	Pinttail Snipe			0	0	0	0	10
70	Common Snipe	*Gallinago gallinago*		0	0	0	0	0
71	Temminck's Stint	*Calidris temminckii*	_	0	0	0	0	0
72	Ruff	*Philomachus pugnax*	_	0	0	0	0	0
73	Brown-headed Gull	*Larus brunnicephalus*	_	0	0	0	0	2
74	Steppe Gull/	*Laruscachinnas*		0	0	0	0	
75	Black Head Gull	*Chroicocephalus ridibundus*		0	0	0	0	2
76	Whiskered Tern	*Chlidonias hybrida*	_	0	0	0	0	1
77	Caspian Tern	*Sterna caspia*	_	0	0	0	0	0
78	River Tern	*Sterna aurantia*	_	0	0	0	0	0
79	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	_	0	0	8	0	0
80	Western Marsh-harrier	*Circus aeruginosus*	_	0	0	1	6	30
81	Euro Asian Marsh Harrier			0	0	0	0	0
82	Osprey	*Pandion haliaetus*	_	0	0	0	0	0
83	Peregrine Falcon	*Falco peregrinus*	_	0	0	0	0	0
84	small blue kingfisher	*A.atthis*	_	0	33	33	0	0
85	white throated kingfisher	*H.smyrnensis*	Kol Toonth	0	58	0	1	17

86	Creasted kingfisher	*Megacerylr lugubris*	_	0	0	0	0	0
87	Lesser Pied kingfisher	*Ceryle rudis*	Hor Kola Tonch/ Gaad Khaw	0	68	0	0	0
88	White Wagtail	*Motacilla alba*	_	0	0	0	0	10
89	Citrine Wagtail	*Motacilla citreola*	Peench Kean	0	2	0	0	5
90	Yellow Wagtail	*Motacilla flava*	_	0	0	0	0	2
91	Grey Wagtail	*Motacilla cinerea*	Khak Dobbai	0	6	0	0	10
92	White-throated Dipper	*Cinclus cinclus*	_	0	0	0	0	0
93	Grey-headed Swamphen	*Porphyrio porphyrio*	Wontech	0	521	911	12	100
94	EuroasianTeal	*Anas crecca*	Keus	157907	26899	63939	173650	74200
95	Common Kingfisher	*Alcedo atthis*	Kol Toonth	0	0	0	0	16
96	White Capped Water Redstart	*Chaimarrornis leuco-cephalus*	Wan cher	0	0	0	0	0
97	Brown Dipper	*C.palasii*	Yakur	0	12	0	0	0
98	Black Kite	*Milvus Migrans*		0	0	0	0	50
99	Barn Swallow	*Hirundo Rustica*		0	0	0	0	0
100	Addatitional Species of Waterbodies (Paddy Field Pipet, dub chick winter wren starlings, common crow			0	0	0	7	0

Asian Water Bird Census Details for the Year 2015,2016,2019,2020 and 2021 of Hygam WLR

S.No	Common Name	Scientific Name	Local Name	2015	2016	2019	2020	2021
1	Little Grebe	*Tachybaptus ruficollis*	Pind	150	52	0	0	300
2	Great Crested Grebe	*Podiceps cristatus*	_	0	0	0	0	0
3	Great Cormorant	*Phalacrocorax carbo*	Mong	0	0	0	0	300
4	Indian Shag	*P.fuscicollis*	_	0	0	0	0	0
5	Little Cormorant	*Phalacrocorax niger*		0	0	0	0	0
6	Indian Pond-heron	*Ardeola grayii*	Broku	25	243	10	1	300
7	White Heron		_	0	0	0	0	0
8	Purple Heron			0	0	0	0	0
9	Black Crowned Night Heron			0	0	0	0	0
10	Grey Heron	*Ardea cinerea*	Brag	8	0	4	0	300
11	Great White Egret			0	0	0	0	0
12	White Egret			0	0	0	0	0
13	Cattle Egret	*Bubulcus ibis*	_	0	0	0	0	0
14	Little Egret	*Egretta garzetta*	Nil Braght	0	12	0	0	0
15	Large(Great) Egret	*Casmerodius albus*	_	0	0	0	0	0
16	Chestnut or Cinnamon Bittern	*I.cinnamomeus*	_	2	0	0	0	0
17	Black Bittern	*Ixobrychus flavicollis*	_	0	0	0	0	0
18	Black Stork	*Ciconia nigra*	_	0	0	0	0	0
19	Large(Fulvous)Whistling Duck	*Dendrocygna bicolor*	_	0	0	0	0	0
20	Lesser Whistling-duck	*Dendrocygna javanica*	_	0	0	0	0	0
21	Grey lag Goose	*Anser anser*	Anz	32500	200	0	89	5500
22	Bar Headed Goose	*Anser indicus*		0	0	0	0	0

23	Tundra Swan	*Cygnus columbianus*		0	0	0	0	0
24	Brahminy (Ruddy) Shelduck	*Tadorna ferruginea*	Tsakow	0	32	0	0	0
25	Common Shelduck	*Tadorna tadorna*	_	0	0	0	0	0
26	Comb Duck	*Sarkidiornis melanotos*	_	0	0	0	0	0
27	Cotton Pigmy goose	*Nettapus coromandelianus*	_	0	0	0	0	0
28	Eurasian Wigeon	*Anas penelope*	Shirni Budan	3300	74	5050	1500	85000
29	Blue Winged Teal	*Anas discors*	_	0	0	0	0	0
30	Gadwall	*Anas strepera*	Dudan	1750	14006	56	289	110000
31	Mallard	*Anas platyrhynchos*	Nilij- Thuj	17500	33206	180000	11500	74000
32	Northern Pintail	*Anas acuta*	Sukh Pachan	83600	36599	100000	8000	72500
33	Garganey	*Anas querquedula*	Nour	0	3501	0	0	30000
34	Northern Shoveler	*Anas clypeata*	Honk	20	13022	149	45	51000
35	Marbled Teal	*Marmaronetta angustirostris*	_	0	0	0	0	0
36	Red-crested Pochard	*Netta rufina*	Toor	0	32	0	0	0
37	Common Pochard	*Aythya ferina*	Krukh	900	622	0	0	13500
38	Ferruginous Pochard	*A.nyroca*	Harwath	4	4	0	0	6500
39	Tufted Pochard	*A.fuligula*	Tsarrow	0	10	0	0	0
40	Common Merganser	*Mergus merganser*	_	0	0	0	0	0
41	Baillon's Crake	*Porzana pusilla*	_	0	0	0	0	0
42	White-breasted Waterhen	*Amaurornis phoenicurus*	_	0	0	0	0	0
43	Ruddy Breasted Crake	*Porzana fusca*		0	0	0	0	0
44	Eurasian moorhen	*Gallinula chloropus*	Tech	220	920	0	0	4900
45	Common Moorhen			20	0	0	0	0
46	Eurasian Coot	*#N/A*	Kolaur	0	20684	0	0	13300
47	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Gond Kaw	0	0	0	0	0
48	Ibisbill	*Ibidorhyncha struthersii*	_	0	0	0	0	0
49	Black-winged Stilt	*Himantopus himantopus*	Lang Zeyet	0	2	0	0	0
50	Avocet	*Recurvirostra avosetta*	_	0	0	0	0	0
51	white tailed Lapwing	*V.leucurus*	_	0	0	0	0	0
52	Red wattled Lapwing	*V.indicus*	Frawell	0	0	0	0	0
53	Northern Lapwing	*Vanellus vanellus*	_	0	6	0	0	0
54	Yellow-wattled Lapwing	*Vanellus malarbaricus*	_	0	0	0	0	0
55	Little Ringed Plover	*Charadrius dubius*	_	0	0	0	0	0
56	Kentish Plover	*Charadrius alexandrinus*	_	0	0	0	0	0
57	Black-tailed Godwit	*Limosa limosa*	_	0	0	0	0	0
58	Bar-tailed Godwit	*Limosa lapponica*	_	0	0	0	0	0
59	Eurasian Curlew	*Numenius arquata*	_	0	0	0	0	0
60	Spotted Redshank	*Tringa erythropus*	_	0	0	0	0	0
61	Common Redshank	*Tringa totanus*	_	0	0	0	0	0
62	Marsh Sandpiper	*Tringa stagnatilis*	_	0	0	0	0	0
63	Common Greenshank	*Tringa nebularia*	_	0	0	0	0	0
64	Green Sandpiper	*Tringa ochropus*	_	2	0	5	0	0
65	Wood Sandpiper	*Tringa glareola*	_	0	0	0	0	0
66	Common Sandpiper	*Actitis hypoleucos*	Kouli Nalla	1	36	0	0	0
67	Eurasian Woodcock	*Scolopax rusticola*	_	0	0	0	0	0
68	Solitary Snipe	*Gallinago solitaria*	Cheh	7	6	0	0	0
69	Pinttail Snipe			0	0	3	0	0
70	Common Snipe	*Gallinago gallinago*		0	0	0	0	0

71	Temminck's Stint	*Calidris temminckii*	_	0	0	0	0	0
72	Ruff	*Philomachus pugnax*	_	0	0	0	0	0
73	Brown-headed Gull	*Larus brunnicephalus*	_	0	0	0	0	0
74	Steppe Gull/	*Laruscachinnas*		0	0	0	0	0
75	Black Head Gull	*Chroicocephalus ridibundus*		0	0	0	0	0
76	Whiskered Tern	*Chlidonias hybrida*	_	0	0	0	0	0
77	Caspian Tern	*Sterna caspia*	_	0	0	0	0	0
78	River Tern	*Sterna aurantia*	_	0	0	0	0	0
79	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	_	0	0	0	0	0
80	Western Marsh-harrier	*Circus aeruginosus*	_	1	0	0	2	0
81	Euro Asian Marsh Harrier			0	0	0	0	0
82	Osprey	*Pandion haliaetus*	_	0	0	0	0	0
83	Peregrine Falcon	*Falco peregrinus*	_	0	0	0	0	0
84	Small blue kingfisher	*A.atthis*	_	0	12	3	0	0
85	White throated kingfisher	*H.smyrnensis*	Kol Toonth	1	25	5	2	20
86	Creasted kingfisher	*Megacerylr lugubris*	_	0	0	0	0	0
87	Lesser Pied kingfisher	*Ceryle rudis*	Hor Kola Tonch/ Gaad Khaw	0	30	0	0	0
88	White Wagtail	*Motacilla alba*	_	35	0	0	0	0
89	Citrine Wagtail	*Motacilla citreola*	Peench Kean	0	0	0	0	0
90	Yellow Wagtail	*Motacilla flava*	_	0	0	6	0	0
91	Grey Wagtail	*Motacilla cinerea*	Khak Dobbai	0	5	0	0	0
92	White-throated Dipper	*Cinclus cinclus*	_	0	0	0	0	0
93	Grey-headed Swamphen	*Porphyrio porphyrio*	Wontech	0	312	500	900	6350
94	EuroasianTeal	*Anas crecca*	Keus	2320	23533	50000	11000	99500
95	Common Kingfisher	*Alcedo atthis*	Kol Toonth	2	0	0	0	20
96	White Capped Water Redstart	*Chaimarrornis leucocephalus*	Wan cher	0	0	0	0	0
97	Brown Dipper	*C.palasii*	Yakur	0	3	0	0	0
98	Black Kite	*Milvus Migrans*		0	0	0	0	0
99	Barn Swallow	*Hirundo Rustica*		0	0	0	0	0
100	Addatitional Species of Waterbodies (Paddy Field Pipet, dub chick winter wern starlings, common crow			10	0	0	0	0

Asian Water Bird Census Details for the Year 2015,2016,2019,2020 and 2021 of Shallabugh WLR

S.No	**Common Name**	**Scientific Name**	**Local Name**	**2015**	**2016**	**2019**	**2020**	**2021**
1	Little Grebe	*Tachybaptus ruficollis*	Pind	0	70	0	17	2
2	Great Crested Grebe	*Podiceps cristatus*	_	0	0	0	0	0
3	Great Cormorant	*Phalacrocorax carbo*	Mong	0	0	0	0	0
4	Indian Shag	*P.fuscicollis*	_	0	0	0	0	0
5	Little Cormorant	*Phalacrocorax niger*		0	0	0	0	0
6	Indian Pond-heron	Ardeola grayii	Broku	0	120	0	27	1
7	White Heron		_	0	0	0	0	0
8	Purple Heron			1	0	0	6	0
9	Black Crowned Night Heron			0	0	0	0	0

10	Grey Heron	*Ardea cinerea*	Brag	0	15	0	0	0
11	Great White Egret			0	0	0	0	0
12	White Egret			0	0	0	0	0
13	Cattle Egret	*Bubulcus ibis*	_	0	0	0	0	0
14	Little Egret	*Egretta garzetta*	Nil Braght	0	15	0	17	0
15	Large(Great) Egret	*Casmerodius albus*	_	0	0	0	0	0
16	Chestnut or Cinnamon Bittern	*I.cinnamomeus*	_	0	0	0	0	0
17	Black Bittern	*Ixobrychus flavicollis*	_	0	0	0	0	0
18	Black Stork	*Ciconia nigra*	_	0	0	0	0	0
19	Large(Fulvous)Whistling Duck	*Dendrocygna bicolor*	_	0	0	0	0	0
20	Lesser Whistling-duck	*Dendrocygna javanica*	_	0	0	0	0	0
21	Grey lag Goose	*Anser anser*	Anz	33	13	0	0	0
22	Bar Headed Goose	*Anser indicus*		0	0	0	0	0
23	Tundra Swan	*Cygnus columbianus*		0	0	0	0	0
24	Brahminy (Ruddy) Shelduck	*Tadorna ferruginea*	Tsakow	0	10	0	0	0
25	Common Shelduck	*Tadorna tadorna*	_	0	0	0	0	0
26	Comb Duck	Sarkidiornis melanotos	_	0	0	0	0	0
27	Cotton Pigmy goose	*Nettapus coromandelianus*	_	0	0	0	0	0
28	Eurasian Wigeon	*Anas penelope*	Shirni Budan	4	21	0	120	0
29	Blue Winged Teal	*Anas discors*	_	2500	0	0	0	0
30	Gadwall	*Anas strepera*	Dudan	11000	9865	0	25	0
31	Mallard	*Anas platyrhynchos*	Nilij- Thuj	20000	9442	0	100	0
32	Northern Pintail	*Anas acuta*	Sukh Pachan	3500	20366	0	50	0
33	Garganey	*Anas querquedula*	Nour	0	1222	0	0	0
34	Northern Shoveler	*Anas clypeata*	Honk	900	4222	0	5	0
35	Marbled Teal	*Marmaronetta angustirostris*	_	0	0	0	0	0
36	Red-crested Pochard	*Netta rufina*	Toor	0	6	0	0	0
37	Common Pochard	*Aythya ferina*	Krukh	5	622	0	10	0
38	Ferruginous Pochard	*A.nyroca*	Harwath	10	0	0	0	0
39	Tufted Pochard	*A.fuligula*	Tsarrow	0	5	0	0	0
40	Common Merganser	*Mergus merganser*	_	0	0	0	0	0
41	Baillon's Crake	*Porzana pusilla*	_	0	0	0	0	2
42	White-breasted Waterhen	*Amaurornis phoenicurus*	_	0	0	0	0	0
43	Ruddy Breasted Crake	*Porzana fusca*		0	0	0	0	0
44	Eurasian moorhen	*Gallinula chloropus*	Tech	0	203	0	0	53
45	Common Moorhen			0	0	45	60	0
46	Eurasian Coot	*#N/A*	Kolaur	9	5602	50	50	0
47	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Gond Kaw	0	0	0	0	0
48	Ibisbill	*Ibidorhyncha struthersii*	_	0	0	0	0	0
49	Black-winged Stilt	*Himantopus himantopus*	Lang Zeyet	0	0	0	0	0
50	Avocet	*Recurvirostra avosetta*	_	0	0	0	0	0
51	white tailed Lapwing	*V.leucurus*	_	0	0	0	0	0
52	Red wattled Lapwing	*V.indicus*	Frawell	0	0	0	0	0
53	Northern Lapwing	*Vanellus vanellus*	_	0	0	0	0	0
54	Yellow-wattled Lapwing	*Vanellus malarbaricus*	_	0	0	0	0	0
55	Little Ringed Plover	*Charadrius dubius*	_	0	0	0	0	0
56	Kentish Plover	*Charadrius alexandrinus*	_	0	0	0	0	0
57	Black-tailed Godwit	*Limosa limosa*	_	0	0	0	0	0
58	Bar-tailed Godwit	*Limosa lapponica*	_	0	0	0	0	0
59	Eurasian Curlew	*Numenius arquata*	_	0	0	0	0	0
60	Spotted Redshank	*Tringa erythropus*	_	0	0	0	0	0
61	Common Redshank	*Tringa totanus*	_	0	0	0	0	0

62	Marsh Sandpiper	*Tringa stagnatilis*	_	0	0	0	0	0
63	Common Greenshank	*Tringa nebularia*	_	0	0	0	0	0
64	Green Sandpiper	Tringa ochropus	_	15	0	0	0	0
65	Wood Sandpiper	*Tringa glareola*	_	0	0	0	0	0
66	Common Sandpiper	*Actitis hypoleucos*	Kouli Nalla	12	11	0	0	3
67	Eurasian Woodcock	*Scolopax rusticola*	_	0	0	0	0	0
68	Solitary Snipe	*Gallinago solitaria*	Cheh	0	0	0	0	0
69	Pinttail Snipe			0	0	0	0	0
70	Common Snipe	*Gallinago gallinago*		0	0	0	0	0
71	Temminck's Stint	*Calidris temminckii*	_	0	0	0	0	0
72	Ruff	*Philomachus pugnax*	_	0	0	0	0	0
73	Brown-headed Gull	*Larus brunnicephalus*	_	0	0	0	0	0
74	Steppe Gull/	*Laruscachinnas*		0	0	0	0	0
75	Black Head Gull	*Chroicocephalus ridibundus*		0	0	0	0	0
76	Whiskered Tern	*Chlidonias hybrida*	_	0	0	0	0	0
77	Caspian Tern	*Sterna caspia*	_	0	0	0	0	0
78	River Tern	*Sterna aurantia*	_	0	0	0	0	0
79	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	_	0	0	0	0	0
80	Western Marsh-harrier	*Circus aeruginosus*	_	3	0	0	5	0
81	Euro Asian Marsh Harrier			0	0	0	0	0
82	Osprey	*Pandion haliaetus*	_	0	0	0	0	0
83	Peregrine Falcon	*Falco peregrinus*	_	0	0	0	0	0
84	small blue kingfisher	A.atthis	_	6	0	30	10	0
85	white throated kingfisher	*H.smyrnensis*	Kol Toonth	0	2	0	10	3
86	Creasted kingfisher	*Megacerylr lugubris*	_	0	0	0	0	0
87	lesser Pied kingfisher	*Ceryle rudis*	Hor Kola Tonch/ Gaad Khaw	0	11	0	7	3
88	White Wagtail	*Motacilla alba*	_	22	0	0	0	0
89	Citrine Wagtail	*Motacilla citreola*	Peench Kean	0	0	0	0	6
90	Yellow Wagtail	*Motacilla flava*	_	0	0	0	35	8
91	Grey Wagtail	*Motacilla cinerea*	Khak Dobbai	0	2	0	0	0
92	White-throated Dipper	*Cinclus cinclus*	_	15	0	0	0	0
93	Grey-headed Swamphen	*Porphyrio porphyrio*	Wontech	0	106	0	35	0
94	EuroasianTeal	*Anas crecca*	Keus	5000	18905	0	100	259
95	Common Kingfisher	*Alcedo atthis*	Kol Toonth	0	0	0	0	1
96	White Capped Water Redstart	*Chaimarrornis leucocephalus*	Wan cher	2	0	0	0	0
97	Brown Dipper	*C.palasii*	Yakur	0	4	0	0	0
98	Black Kite	*Milvus Migrans*		35	0	0	0	34
99	Barn Swallow	*Hirundo Rustica*		0	0	0	0	0
100	Addatitional Species of Waterbodies (Paddy Field Pipet, dub chick winter wern starlings, common crow			0	0	0	0	0
		Total		43072	70860	125	689	375

Asian Water Bird Census Details for the Year 2015,2016,2019,2020 and 2021 of Pampore WLR's

S.No	Common Name	Scientific Name	Local Name	2015	2016	2019	2020	2021
1	Little Grebe	*Tachybaptus ruficollis*	Pind	67	115	613	104	104
2	Great Crested Grebe	*Podiceps cristatus*	_	2	0	27	0	7
3	Great Cormorant	*Phalacrocorax carbo*	Mong	2	0	0	107	315
4	Indian Shag	*P.fuscicollis*	_	0	0	0	0	0
5	Little Cormorant	*Phalacrocorax niger*		0	0	0	11	12
6	Indian Pond-heron	*Ardeola grayii*	Broku	212	176	70	22	159

7	White Heron		_	0	0	0	0	0
8	Purple Heron			0	0	0	0	0
9	Black Crowned Night Heron			0	0	0	94	0
10	Grey Heron	*Ardea cinerea*	Brag	0	3	58	86	45
11	Great White Egret			0	0	8	0	0
12	White Egret			0	0	0	0	0
13	Cattle Egret	*Bubulcus ibis*	_	56	0	0	0	0
14	Little Egret	*Egretta garzetta*	Nil Braght	0	0	0	9	0
15	Large(Great) Egret	*Casmerodius albus*	_	0	0	0	0	0
16	Chestnut or Cinnamon Bittern	*I.cinnamomeus*	_	0	0	0	0	0
17	Black Bittern	*Ixobrychus flavicollis*	_	0	0	0	0	30
18	Black Stork	*Ciconia nigra*	_	0	0	0	0	0
19	large(Fulvous)Whistling Duck	*Dendrocygna bicolor*	_	0	0	0	0	0
20	Lesser Whistling-duck	*Dendrocygna javanica*	_	0	0	0	0	0
21	Grey lag Goose	*Anser anser*	Anz	0	25	14	47	35
22	Bar Headed Goose	*Anser indicus*		0	0	0	0	0
23	Tundra Swan	*Cygnus columbianus*		0	0	0	0	0
24	Brahminy (Ruddy) Shelduck	*Tadorna ferruginea*	Tsakow	0	0	10	29	0
25	Common Shelduck	*Tadorna tadorna*	_	0	0	0	0	1
26	Comb Duck	*Sarkidiornis melanotos*	_	0	0	0	0	0
27	Cotton Pigmy goose	*Nettapus coromandelianus*	_	0	0	0	0	0
28	Eurasian Wigeon	*Anas penelope*	Shirni Budan	353	0	1723	4614	225
29	Blue Winged Teal	*Anas discors*	_	760	0	0	0	0
30	Gadwall	*Anas strepera*	Dudan	5583	15834	3482	4411	32809
31	Mallard	*Anas platyrhynchos*	Nilij- Thuj	6351	24023	7708	12195	52404
32	Northern Pintail	*Anas acuta*	Sukh Pachan	289	10669	2352	2973	16922
33	Garganey	*Anas querquedula*	Nour	0	2299	33	0	0
34	Northern Shoveler	*Anas clypeata*	Honk	3500	4812	4572	35519	14312
35	Marbled Teal	*Marmaronetta angustirostris*	_	4082	0	0	0	18
36	Red-crested Pochard	*Netta rufina*	Toor	13	20	0	0	2838
37	Common Pochard	*Aythya ferina*	Krukh	904	175	1301	1172	3255
38	Ferruginous Pochard	*A.nyroca*	Harwath	7	0	0	0	0
39	Tufted Pochard	*A.fuligula*	Tsarrow	25	0	143	243	0
40	Common Merganser	*Mergus merganser*	_	0	0	0	0	3
41	Baillon's Crake	*Porzana pusilla*	_	0	0	0	0	0
42	White-breasted Waterhen	*Amaurornis phoenicurus*	_	0	0	0	0	0
43	Ruddy Breasted Crake	*Porzana fusca*		0	0	0	0	350
44	Eurasian moorhen	*Gallinula chloropus*	Tech	0	159	0	0	2356
45	Common Moorhen			364	0	689	839	0
46	Eurasian Coot	*#N/A*	Kolaur	3850	15155	1094	1341	3658
47	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Gond Kaw	0	0	0	0	0
48	Ibisbill	*Ibidorhyncha struthersii*	_	0	0	0	0	0
49	Black-winged Stilt	*Himantopus himantopus*	Lang Zeyet	0	0	0	0	0
50	Avocet	*Recurvirostra avosetta*	_	0	0	0	0	0
51	white tailed Lapwing	*V.leucurus*	_	0	0	0	0	0
52	Red wattled Lapwing	*V.indicus*	Frawell	0	0	0	0	127
53	Northern Lapwing	*Vanellus vanellus*	_	0	0	0	21	0
54	Yellow-wattled Lapwing	*Vanellus malarbaricus*	_	0	0	0	0	0
55	Little Ringed Plover	*Charadrius dubius*	_	0	0	0	0	0
56	Kentish Plover	*Charadrius alexandrinus*	_	0	0	0	0	0
57	Black-tailed Godwit	*Limosa limosa*	_	0	0	0	0	0

58	Bar-tailed Godwit	*Limosa lapponica*	_	0	0	0	0	0
59	Eurasian Curlew	*Numenius arquata*	_	0	0	0	0	0
60	Spotted Redshank	*Tringa erythropus*	_	0	0	0	0	0
61	Common Redshank	*Tringa totanus*	_	0	0	0	0	0
62	Marsh Sandpiper	*Tringa stagnatilis*	_	0	0	0	0	0
63	Common Greenshank	*Tringa nebularia*	_	0	0	0	0	0
64	Green Sandpiper	*Tringa ochropus*	_	0	0	0	19	17
65	Wood Sandpiper	*Tringa glareola*	_	0	0	0	0	0
66	Common Sandpiper	*Actitis hypoleucos*	Kouli Nalla	0	8	0	3	91
67	Eurasian Woodcock	*Scolopax rusticola*	_	0	0	0	0	0
68	Solitary Snipe	*Gallinago solitaria*	Cheh	0	0	0	0	0
69	Pinttail Snipe			0	0	0	0	0
70	Common Snipe	*Gallinago gallinago*		0	0	0	0	0
71	Temminck's Stint	*Calidris temminckii*	_	0	0	0	0	0
72	Ruff	*Philomachus pugnax*	_	0	0	0	0	0
73	Brown-headed Gull	*Larus brunnicephalus*	_	0	0	0	0	0
74	Steppe Gull/	*Laruscachinnas*		0	0	0	0	0
75	Black Head Gull	*Chroicocephalus ridibundus*		0	0	0	0	0
76	Whiskered Tern	*Chlidonias hybrida*	_	0	0	0	0	8
77	Caspian Tern	*Sterna caspia*	_	0	0	0	0	0
78	River Tern	*Sterna aurantia*	_	0	0	0	0	0
79	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	_	0	0	0	0	0
80	Western Marsh-harrier	*Circus aeruginosus*	_	0	0	0	38	0
81	Euro Asian Marsh Harrier			0	0	0	0	0
82	Osprey	*Pandion haliaetus*	_	0	0	0	0	0
83	Peregrine Falcon	*Falco peregrinus*	_	0	0	0	0	0
84	small blue kingfisher	*A.atthis*	_	4	2	0	7	3
85	white throated kingfisher	*H.smyrnensis*	Kol Toonth	11	33	79	33	60
86	Creasted kingfisher	*Megacerylr lugubris*	_	0	0	0	0	0
87	lesser Pied kingfisher	*Ceryle rudis*	Hor Kola Tonch/ Gaad Khaw	0	26	0	0	5
88	White Wagtail	*Motacilla alba*	_	0	0	0	2	3
89	Citrine Wagtail	*Motacilla citreola*	Peench Kean	0	0	0	1	30
90	Yellow Wagtail	*Motacilla flava*	_	15	69	102	104	222
91	Grey Wagtail	*Motacilla cinerea*	Khak Dobbai	0	0	23	0	23
92	White-throated Dipper	*Cinclus cinclus*	_	0	0	0	0	0
93	Grey-headed Swamphen	*Porphyrio porphyrio*	Wontech	0	210	3591	1145	1538
94	EuroasianTeal	*Anas crecca*	Keus	7667	10785	3873	6578	10196
95	Common Kingfisher	*Alcedo atthis*	Kol Toonth	0	0	0	0	50
96	White Capped Water Redstart	*Chaimarrornis leucocephalus*	Wan cher	0	1	0	0	0
97	Brown Dipper	*C.palasii*	Yakur	0	7	0	0	0
98	Black Kite	*Milvus Migrans*		0	0	0	5	606
99	Barn Swallow	*Hirundo Rustica*		0	0	0	0	49
100	Addatitional Species of Waterbodies (Paddy Field Pipet, dub chick winter wern starlings, common crow			2	0	0	13	0
		Total		**34104**	**84537**	**31486**	**71682**	**142669**

Asian Water Bird Census Details for the Year 2015,2016,2019,2020 and 2021 of Mirgund WLR

S.No	Common Name	Scientific Name	Local Name	2015	2016	2019	2020	2021
1	Little Grebe	*Tachybaptus ruficollis*	Pind	0	20	0	30	0
2	Great Crested Grebe	*Podiceps cristatus*	_	0	0	0	0	0
3	Great Cormorant	*Phalacrocorax carbo*	Mong	0	0	0	0	0
4	Indian Shag	*P.fuscicollis*	_	0	0	0	0	0
5	Little Cormorant	*Phalacrocorax niger*		0	0	0	0	0
6	Indian Pond-heron	*Ardeola grayii*	Broku	30	102	0	50	0
7	White Heron		_	0	0	0	0	0
8	Purple Heron			0	0	0	50	0
9	Black Crowned Night Heron			0	0	0	0	0
10	Grey Heron	*Ardea cinerea*	Brag	25	16	0	0	0
11	Great White Egret			0	0	0	0	0
12	White Egret			0	0	0	0	0
13	Cattle Egret	*Bubulcus ibis*	_	0	0	0	0	30
14	Little Egret	*Egretta garzetta*	Nil Braght	0	10	0	100	0
15	Large(Great) Egret	*Casmerodius albus*	_	0	0	0	0	0
16	Chestnut or Cinnamon Bittern	*I.cinnamomeus*	_	0	0	0	0	0
17	Black Bittern	*Ixobrychus flavicollis*	_	0	0	0	0	20
18	Black Stork	*Ciconia nigra*	_	0	0	0	0	0
19	large(Fulvous)Whistling Duck	*Dendrocygna bicolor*	_	0	0	0	0	0
20	Lesser Whistling-duck	*Dendrocygna javanica*	_	0	0	0	0	0
21	Grey lag Goose	*Anser anser*	Anz	0	30	0	0	100
22	Bar Headed Goose	*Anser indicus*		0	0	0	0	0
23	Tundra Swan	*Cygnus columbianus*		0	0	0	0	0
24	Brahminy (Ruddy) Shelduck	*Tadorna ferruginea*	Tsakow	0	0	0	0	0
25	Common Shelduck	*Tadorna tadorna*	_	0	0	0	0	0
26	Comb Duck	*Sarkidiornis melanotos*	_	0	0	0	0	0
27	Cotton Pigmy goose	*Nettapus coromandelianus*	_	0	0	0	0	0
28	Eurasian Wigeon	*Anas penelope*	Shirni Budan	50	0	0	200	7000
29	Blue Winged Teal	*Anas discors*	_	0	0	0	0	0
30	Gadwall	*Anas strepera*	Dudan	20	12055	0	100	4000
31	Mallard	*Anas platyrhynchos*	Nilij- Thuj	35	12066	0	50	60000
32	Northern Pintail	*Anas acuta*	Sukh Pachan	10	9822	0	100	70000
33	Garganey	*Anas querquedula*	Nour	0	1255	0	0	5
34	Northern Shoveler	*Anas clypeata*	Honk	20	10225	0	40	11000
35	Marbled Teal	*Marmaronetta angustirostris*	_	0	0	0	0	0
36	Red-crested Pochard	*Netta rufina*	Toor	0	15	0	0	0
37	Common Pochard	*Aythya ferina*	Krukh	0	55	0	0	1500
38	Ferruginous Pochard	*A.nyroca*	Harwath	0	0	0	0	0
39	Tufted Pochard	*A.fuligula*	Tsarrow	0	0	0	0	0
40	Common Merganser	*Mergus merganser*	_	0	0	0	0	0
41	Baillon's Crake	*Porzana pusilla*	_	0	0	0	0	0
42	White-breasted Waterhen	*Amaurornis phoenicurus*	_	0	0	0	0	0
43	Ruddy Breasted Crake	*Porzana fusca*		0	0	0	0	0
44	Eurasian moorhen	*Gallinula chloropus*	Tech	0	511	0	0	0
45	Common Moorhen			0	0	0	110	0
46	Eurasian Coot	*#N/A*	Kolaur	10	9862	0	0	0
47	Pheasant-tailed Jacana	*Hydrophasianus chirurgus*	Gond Kaw	0	0	0	0	0
48	Ibisbill	*Ibidorhyncha struthersii*	_	0	0	0	0	0
49	Black-winged Stilt	*Himantopus himantopus*	Lang Zeyet	0	0	0	0	0

50	Avocet	*Recurvirostra avosetta*	_	0	0	0	0	0
51	white tailed Lapwing	*V.leucurus*	_	0	0	0	0	0
52	Red wattled Lapwing	*V.indicus*	Frawell	0	0	0	0	0
53	Northern Lapwing	*Vanellus vanellus*	_	0	0	0	0	0
54	Yellow-wattled Lapwing	*Vanellus malarbaricus*	_	0	0	0	0	0
55	Little Ringed Plover	*Charadrius dubius*	_	0	0	0	0	0
56	Black-tailed Godwit	*Limosa limosa*	_	0	0	0	0	0
57	Kentish Plover	*Charadrius alexandrinus*	_	0	0	0	0	0
58	Bar-tailed Godwit	*Limosa lapponica*	_	0	0	0	0	0
59	Eurasian Curlew	*Numenius arquata*	_	0	0	0	0	0
60	Spotted Redshank	*Tringa erythropus*	_	0	0	0	0	0
61	Common Redshank	*Tringa totanus*	_	0	0	0	0	0
62	Marsh Sandpiper	*Tringa stagnatilis*	_	0	0	0	0	0
63	Common Greenshank	*Tringa nebularia*	_	0	0	0	0	0
64	Green Sandpiper	*Tringa ochropus*	_	0	0	0	0	0
65	Wood Sandpiper	*Tringa glareola*	_	0	0	0	0	7
66	Common Sandpiper	*Actitis hypoleucos*	Kouli Nalla	0	0	6	0	3
67	Eurasian Woodcock	*Scolopax rusticola*	_	0	0	0	0	0
68	Solitary Snipe	*Gallinago solitaria*	Cheh	100	0	0	0	2
69	Pinttail Snipe			0	0	0	0	0
70	Common Snipe	*Gallinago gallinago*		0	0	0	0	3
71	Temminck's Stint	*Calidris temminckii*	_	0	0	0	0	0
72	Ruff	*Philomachus pugnax*	_	0	0	0	0	0
73	Brown-headed Gull	*Larus brunnicephalus*	_	0	0	0	0	0
74	Steppe Gull/	*Laruscachinnas*		0	0	0	0	0
75	Black Head Gull	*Chroicocephalus ridibundus*		0	0	0	0	0
76	Whiskered Tern	*Chlidonias hybrida*	_	0	0	0	0	0
77	Caspian Tern	*Sterna caspia*	_	0	0	0	0	0
78	River Tern	*Sterna aurantia*	_	0	0	0	0	0
79	Pallas's Fish-eagle	*Haliaeetus leucoryphus*	_	0	0	0	0	0
80	Western Marsh-harrier	*Circus aeruginosus*	_	0	0	0	0	5
81	Euro Asian Marsh Harrier			0	0	0	0	0
82	Osprey	*Pandion haliaetus*	_	0	0	0	0	0
83	Peregrine Falcon	*Falco peregrinus*	_	0	0	0	0	0
84	Small blue kingfisher	*A.atthis*	_	0	13	0	100	0
85	White throated kingfisher	*H.smyrnensis*	Kol Toonth	0	14	0	60	0
86	Creasted kingfisher	*Megacerylr lugubris*	_	0	0	0	0	0
87	Lesser Pied kingfisher	*Ceryle rudis*	Hor Kola Tonch/ Gaad Khaw	0	18	0	0	0
88	White Wagtail	*Motacilla alba*	_	0	0	0	6	
89	Citrine Wagtail	*Motacilla citreola*	Peench Kean	0	0	0	0	2
90	Yellow Wagtail	*Motacilla flava*	_	0	0	0	210	0
91	Grey Wagtail	*Motacilla cinerea*	Khak Dobbai	0	3	0	0	0
92	White-throated Dipper	*Cinclus cinclus*	_	0	0	0	0	0
93	Grey-headed Swamphen	*Porphyrio porphyrio*	Wontech	0	201	0	0	0
94	EuroasianTeal	*Anas crecca*	Keus	200	22108	0	600	50000
95	Common Kingfisher	*Alcedo atthis*	Kol Toonth	0	0	0	0	0
96	White Capped Water Redstart	*Chaimarrornis leucocephalus*	Wan cher	0	0	0	0	0
97	Brown Dipper	*C.palasii*	Yakur	0	4	0	0	0
98	Black Kite	*Milvus Migrans*		0	0	0	0	10
99	Barn Swallow	*Hirundo Rustica*		0	0	0	0	0
100	Addatitional Species of Waterbodies (Paddy Field Pipet, dub chick winter wern starlings, common crow			0	0	0	0	0
		Total		**500**	**78405**	**6**	**1806**	**203687**



CHAPTER NO 17

BUDGET

Action Plan and Budget

An overall budget of Rs 46.70 Crores is proposed for implementation of the Integrated Action Plan for all the Wetland Conservation Reserves of Kashmir Region over a period of 5 years (2021-26) Water Management, which is critical to the wetland rejuvenation has been allotted Rs 7.83 Crore of the overall investment, followed by Rs 13.15 Crore for Biodiversity Conservation and Rs 7.49 Crore have been apportioned for the Education Awareness and Eco-Tourism, besides, Rs 0.80 Crores for the Sustainable Resource Development and Livelihood Development and Rs 6.33 Crore for Institutional Development.

Component wise allocation is as follows:

Component		**Amt in CR**
Land and Water Management		
	Survey and Demarcation	**11.10**
	Water Management	**7.83**
	Biodiversity Conservation	**13.15**
	Education Awareness and EcoTourism	**7.49**
	Sustainable Resource Development and Livelihood Development	**0.80**
	Institutional Development	**6.33**
Total		**46.70**

Wetland wise breakup is given as under:

Component	**Amount in CR**	**Hokersar 1354 Ha**	**Hygam 719 Ha**	**Shallabugh 1691 Ha**	**Mirgund 406 Ha**	**Chattlum 43 Ha**	**Freshkoori 15.25 Ha**	**Kranchoo 6.40 Ha**	**Manibugh 5.30 Ha**
Land and Water Management									
Survey and Demarcation	11.10	3.79	3.035	2.66	0.302	0.62	0.56	0	0.136
Water Management	7.83	1.11	1.33	4.44	0.26	0.265	0.295	0.065	0.065
Biodiversity Conservation	13.15	4.7	2.766	3.971	0.74	0.465	0.215	0.179	0.114
Education Awareness and EcoTourism	7.49	4.18	0.71	0.755	0.368	0.61	0.08	0.432	0.352
Sustainable Resource Development and Livelihood Development	0.80	0.3	0.4	0.05	0.03	0.02	0	0	0
Institutional Development	6.33	**2.05**	**1.213**	**0.925**	**0.33**	**0.788**	**0.21**	**0.539**	**0.275**
Total	**46.70**	**16.13**	**9.454**	**12.801**	**2.03**	**2.768**	**1.36**	**1.215**	**0.942**

Year wise and Wetland wise breakup (2022-2027)

Component	**Hokera 1354 Ha**	**Hygam 719 Ha**	**Shallabugh 1691 Ha**	**Mirgund 406 Ha**	**Chattlum 43 Ha**	**Fashkoori 15.25**	**Krentchoo 6.40**	**Manibugh 5.30**	**Amount in Lakh**
1st Year	92.22	173.17	123.55	38.60	47.99	38.00	14.37	13.35	541.25
2nd Year	270.83	231.36	399.24	50.56	91.03	31.59	33.37	9.10	1117.08
3rd Year	351.05	211.57	403.39	49.17	86.64	38.34	23.79	23.60	1187.55
4th Year	440.20	150.25	182.93	33.87	32.57	13.21	5.75	7.70	866.48
5th Year	459.22	179.74	171.86	30.98	19.27	11.67	43.25	40.57	956.56
Total in Lakh	**1613.00**	**946.00**	**1280.00**	**203.00**	**277.00**	**135.00**	**121.00**	**94.00**	**4669.00**
Total in Crores	**16.13**	**9.46**	**12.80**	**2.03**	**2.77**	**1.35**	**1.21**	**0.94**	**46.70**

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

Wildlife Warden, Wetlands Division, Kashmir, Srinagar.																		AMT IN LAKH					IN CR
	Component and Activities						Hokersar		Hygam		Shallabugh		Mirgund		Chattlum		Fushkoori		Kranchoo		Manibugh		TOTAL DIVISION	
1	Land and Water Resource Management				RATE	UNIT	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation																							
		i	Boundary demarcation		RS 7000	NOS	100	0.07	100	0.07	150	0.105	50	0.04	50	0.04	40	0.03	0	0.00	50	0.04	540	0.38
		ii	Fencing Chain Link		40 LAKH	KM	7.92	3.168	6.68	2.67	3.84	1.54	0	0.00	1	0.40	1	0.40	0	0.00	0	0.00	20	8.18
		iii	Barbed wire fencing		7 LAKH	KM	2.68	0.187	2.46	0.172	4.33	0.3	2.36	0.17	1	0.07	0	0.00	0	0.00	0	0.00	13	0.89
		iv	Bio fencing		Rs.12.82	No of plants	286700	0.367	95000	0.12	140000	0.18	3000	0.01	3000	0.01	15000	0.02	0	0.00	2500	0.00	545200	0.70
			Embankment along peripheries		Rs 280	CUM	0	0	0	0	19320	0.54	3500	0.10	4000	0.11	4000	0.11	0	0.00	3500	0.10	34320	0.96
				Total Survey and Demarcation				3.79		3.035		2.66		0.302		0.62		0.56		0		0.136	0	11.10
1.2	Water Management																							
A)	Enhancing water holding capacity																							
	a)	Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)			Auction Based	Ha	180.87	0.01	86.5	0.005	508.7	0.025	57.4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	833	0.04
	b)	Selective dredging of silted areas			Auction Based	Ha	234	0.012	138	0.007	467.6	0.024	55	0.00	0	0.00	0	0.00	0	0.00	0	0.00	895	0.05
		i	Willow / Poplar plantation cleared areas		Auction Based	Ha	180.87	0.006	86.5	0.004	508.7	0.025	57.4	0.00	0	0.00	0	0.00	0	0.00	0	0.00	833	0.04
		ii	Channels Water ways		Auction Based	CUM	100000	0.05	50000	0.05	200000	0.04	3000	0.03	0	0.00	0	0.00	0	0.00	0	0.00	353000	0.17
		iii	Regulatory Gates		APE	No	0	0	4	0.2	1	0.1	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	5	0.30
		iv	Construction and Maintainance of Settling Basins		20 Lakh	Hac	0	0	2	0.4	20	4	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	22	4.40
		v	Diversion of Flood Channel		10 Lakh	KM	0	0	2.94	0.3	0	0	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	3	0.30
		vi	Demolition of Temp Cross Sectional Embankments to evict encroachments		5 Lakh	KM	0	0	2.71	0.14	0	0	2.91	0.15	0	0.00	0	0.00	0	0.00	0	0.00	6	0.29
B)	Water Quality Improvement									0		0		0		0		0		0		0	0	0.00
	a)		Community based solid waste management system							0		0		0		0		0		0		0	0	0.00
				Wetland	Rs.5000	Drive	200	0.1	200	0.1	200	0.1	50	0.03	50	0.03	50	0.03	50	0.03	50	0.03	850	0.43
				Villages	Rs.5000	Drive	200	0.1	200	0.1	200	0.1	50	0.03	50	0.03	50	0.03	50	0.03	50	0.03	850	0.43
			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)		10 Lakh	HAC / No	7	0.7	0	0	0	0	0	0.00	1.98	0.20	2.24	0.23	0	0.00	0	0.00	11	1.13
			Dust Bins		Rs.5000	NOS	100	0.05	50	0.025	60	0.03	30	0.02	30	0.02	30	0.02	30	0.02	30	0.02	360	0.18
	a)	Environment Flow Assesment Studies			LS	LS	LS	0.08	LS	0.01	LS	0.01	LS	0.01	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.11
				Total Water Management				1.11		2.408		4.44		0.26		0.27		0.295		0.065		0.065	0	8.91
				Total Land & Water Management				4.9		4.371		7.11		0.56		0.89		0.855		0.065		0.201	0	18.95

2	**Biodiversity Conservation**																							
2.1	**Wetland Conservation Studies**																							
	a)	Inventorization and assesment Studies																						
		i	Species wise estimates of waterbird populations		LS	LS	LS	0.05	LS	0.01	LS	0.01	LS	0.01	LS	0.01	LS	0.01	LS	0.00	LS	0.02	LS	0.11
		ii	Water regimes assesment		LS	LS	LS	0.05	LS	0.01	LS	0.01	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.07
		iii	Key biodiversity assesment		LS	LS	LS	0.05	LS	0.01	LS	0.01	LS	0.01	LS	0.01	LS	0.01	LS	0.02	LS	0.00	LS	0.11
		iv	Human activities and their impacts		LS	LS	LS	0.05	LS	0.01	LS	0.01	LS	0.00	LS	0.01	LS	0.00	LS	0.02	LS	0.00	LS	0.10
		v	Migration studies (bird banding and satelite and VHF tracking)		LS	LS	LS	0.05	LS	0.01	LS	0.01	LS	0.02	LS	0.01	LS	0.01	LS	0.03	LS	0.02	LS	0.15
		vi	Avian influenza survellience		LS	LS	LS	0.05	LS	0.01	LS	0.01	LS	0.00	LS	0.00	LS	0.01	LS	0.01	LS	0.00	LS	0.09
				Total Studies a)				**0.3**		**0.06**		**0.06**		**0.035**		**0.03**		**0.028**		**0.075**		**0.03**	0	**0.61**
	b)	**Strengthening existing Wetland network**																						
			Habitat Restoration and Management of Aquatic Vegetation		1.925 Lakh	HAC	195	3.75	125	2.4	185	3.561	30	0.58	16	0.31	3	0.06	1.5	0.03	1	0.02	557	10.71
				Total b)				**3.75**		2.4		3.561		0.58		0.31		0.057		0.029		0.02	0	**10.71**
	c)	Control of poaching																					0	0.00
		Establishment / Strengthening of Protection Camps Informers and staff amemities			LS	LS	LS	0.25	LS	0.1	LS	0.1	LS	0.05	LS	0.05	LS	0.05	LS	0.03	LS	0.02	LS	0.65
			Formation of bird protection committees		LS	LS	LS	0.1	LS	0.05	LS	0.05	LS	0.02	LS	0.02	LS	0.02	LS	0.01	LS	0.00	LS	0.26
				Total c)				0.35		**0.15**		**0.15**		**0.065**		**0.07**		**0.065**		**0.035**		**0.02**	0	**0.90**
	d)	Research and Survey			LS	LS	LS	**0.1**	**LS**	**0.05**	**LS**	**0.05**	LS	**0.03**	**LS**	**0.03**	**LS**	**0.02**	**LS**	**0.01**	**LS**	**0.03**	LS	**0.30**
	e)	Capacity building																					0	0.00
		i	Training		LS	LS	LS	0.1	LS	0.05	LS	0.05	LS	0.01	LS	0.02	LS	0.00	LS	0.00	LS	0.00	LS	0.23
		ii	Workshops Seminars Visits and Tours		NOS	NOS	LS	0.1	LS	0.05	LS	0.1	LS	0.03	LS	0.03	LS	0.05	LS	0.03	LS	0.02	LS	0.41
				Total e)				0.2		**0.1**		**0.15**		**0.04**		**0.04**		**0.05**		**0.03**		**0.02**	0	**0.63**
				Total Biodiversity Conservation				4.7		2.766		3.971		0.74		0.47		0.215		0.179		0.114	0	**13.15**
3	**Education Awareness and Ecotourism Development**																							
3.1	**Development of recreational facalities**																							
	Infrastructure and Equipment Augumentation		Board Walk and Nature Trails		LS	LS	LS	0.40	LS	0.05	LS	0.1	LS	0.00	LS	0.09	LS	0.00	LS	0.07	LS	0.00	LS	0.71
	ii	Guided boat rides			LS	LS	LS	0.10	LS	0.05	LS	0.05	LS	0.00	LS	0.03	LS	0.00	LS	0.00	LS	0.00	LS	0.23
	iii	Watch Towers			Rs.15Lakh	No	3	0.40	3	0.45	2	0.3	2	0.30	3	0.45	3	0.00	2	0.30	2	0.30	20	2.50
	iv	Landscape Gardens			LS	LS	LS	0.18	LS	0	LS	0	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.18
				Total 3.1				**1.08**		**0.55**		**0.45**		**0.3**		**0.57**		**0**		**0.37**		**0.3**	0	**3.62**
3.2	**Development of visitor education facilities**																							
	a)	Interpretation Centre			APE	No	LS	2	LS	0	LS	0	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	2.00
	b)	Models & Digital signages			LS	LS	LS	0.5	LS	0.04	LS	0.03	LS	0.02	LS	0.00	LS	0.02	LS	0.02	LS	0.01	LS	0.63
				Total 3.2				2.5		0.04		0.03		0.015		0		0.015		0.015		0.01	0	**2.63**

3.3	**Publicity and Awareness**					LS	LS	LS	0.1			LS	0	LS	0.00	LS	0.00	LS	0.00	LS	0.01	LS	0.00	LS	0.11
	Rallies and Padyatras					LS	LS	LS	0.1	LS	0.025	LS	0.05	LS	0.01	LS	0.03	LS	0.01	LS	0.00	LS	0.01	LS	0.22
	Nature Camps					LS	LS	LS	0.1	LS	0.025	LS	0.025	LS	0.00	LS	0.01	LS	0.01	LS	0.00	LS	0.00	LS	0.18
	World Wetland Day / Bird festivals / Environment related days					LS	LS	LS	0.1	LS	0.04	LS	0.1	LS	0.03	LS	0.00	LS	0.04	LS	0.03	LS	0.04	LS	0.36
	Films / documantaries					LS	LS	LS	0.1	LS	0.02	LS	0.05	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.17
	Newsletter and publications					LS	LS	LS	0.1	LS	0.01	LS	0.05	LS	0.02	LS	0.01	LS	0.01	LS	0.01	LS	0.00	LS	0.21
					Total 3.3				0.6		0.12		0.275		0.053		0.05		0.065		0.047		0.042	0	**1.25**
			Total Education Awareness and EcoTourism						4.18		0.71		0.755		0.368		0.61		0.08		0.432		0.352	0	**7.49**
4	**Sustainable resource Development and Livelihood Improvement**																								
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise				LS	LS	LS	0.3	LS	0.4	LS	0.05	LS	0.03	LS	0.02	LS	0.00	LS	0.00	LS	0.00	LS	0.80
			Total sustainable Resource Development & Livelihood						0.3		0.4		0.05		0.03		0.02		0		0		0	0	**0.80**
5	**Infrastructure and Equipment Augumentation**																								
5.1		Infrastructure Development				20 LAKH	NOS	5	1	2	0.4	1	0.2	1	0.20	1	0.20	0	0.00	1	0.20	1	0.20	12	2.40
					Total 5.1				1		0.4		0.2		0.2		0.2		0		0.2		0.2	0	**2.40**
5.2		Equipment augumentation																						0	0.00
		i	Pontoons			15 LAKH	NOS	2	0.3	2	0.3	2	0.3	0	0.00	1	0.15	1	0.15	1	0.15	0	0.00	9	1.35
		ii	Spotting Scope			RS 8000	NOS	15	0.012	10	0.008	25	0.02	0	0.00	10	0.01	6	0.01	5	0.00	0	0.00	71	0.06
		iv	Motorized Driven Boats			10 LAKH	NOS	2	0.2	2	0.2	0	0	0	0.00	1	0.10	0	0.00	0	0.00	0	0.00	5	0.50
		v	Wooden Manual Driven Boats			0.5 Lakh	NOS	10	0.05	10	0.05	0	0	15	0.08	15	0.08	4	0.00	6	0.03	4	0.02	64	0.30
		vi	Fabricate Dockyards / other Machines			20 LAKH	NOS	1	0.2	1	0.2	1	0.2	0	0.00	1	0.20	0	0.00	0	0.00	0	0.00	4	0.80
					Total 5.2				0.762		0.758		0.52		0.075		0.53		0.155		0.184		0.02	0	**3.01**
5.3	**Monitoring and Evaluation**																							0	0.00
			Vehicles / Motor Bikes			LS	LS	LS	0.2	LS	0.005	2	0.105	LS	0.01	LS	0.01	LS	0.01	LS	0.11	LS	0.01	LS	0.44
			Contingencies & Unforeseen			LS	LS	LS	0.09	LS	0.05	LS	0.1	LS	0.05	LS	0.05	LS	0.05	LS	0.05	LS	0.05	LS	0.49
					Total 5.2				0.29		0.055		0.205		0.055		0.06		0.055		0.155		0.055	0	**0.93**
					Total Infrastructure & Equipment				2.05		1.213		0.925		0.33		0.79		0.21		0.539		0.275	0	**6.33**
					Grand Total				**16.13**		**9.46**		**12.81**		**2.03**		**2.77**		**1.36**		**1.22**		**0.94**		**46.71**

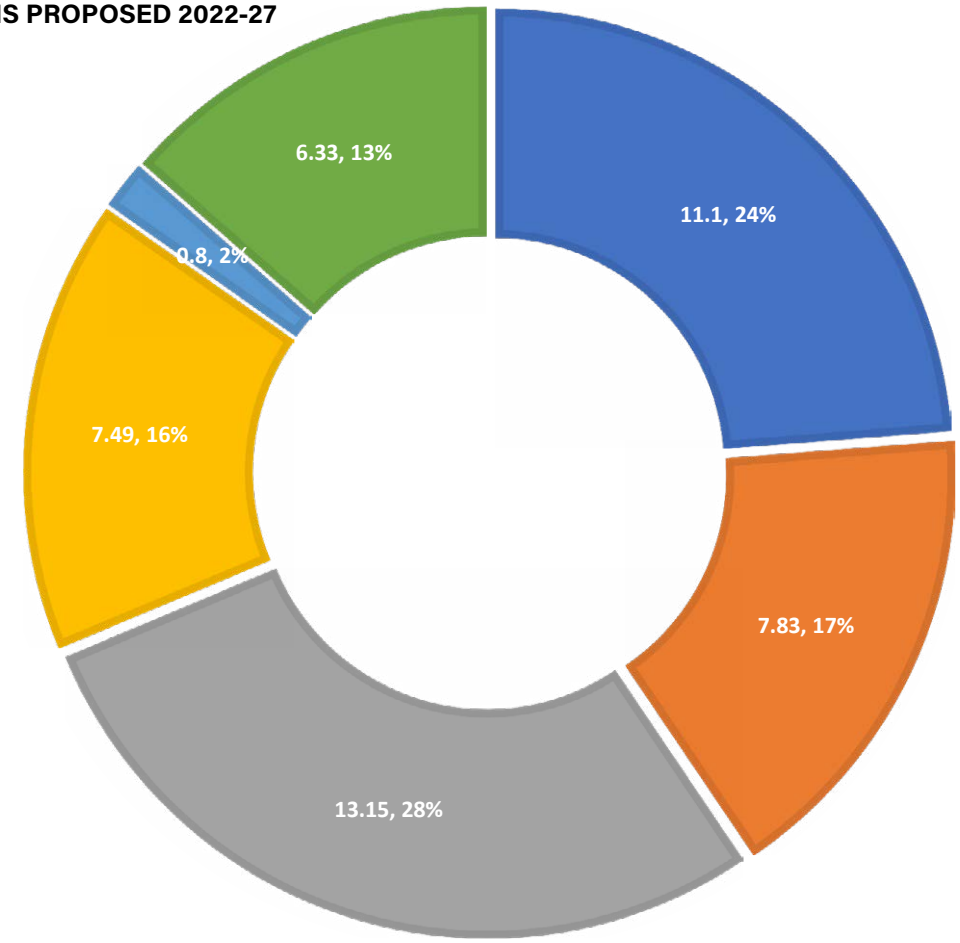
COMPONENT WISE ALLOCATIONS PROPOSED 2022-27

Component			Amt in CR
Land and Water Management			
	i) Survey and Demarcation		11.10
	ii) Water Management		7.83
	Total		18.93
Biodiversity Conservation			13.15
Education Awareness and Ecotourism			7.49
Sustainable Resource Development and Livelihood Development			0.80
Institutional Development			6.33
		Total	46.70

Year wise and Wetland wise breakup (2022-2027)

Component	Hokera 1354 Ha	Hygam 719 Ha	Shallabugh 1691 Ha	Mirgund 406 Ha	Chattlum 43 Ha	Fashkoori 15.25	Krentchoo 6.40	Manibugh 5.30	Amount in Lakh
1st Year	92.22	173.17	123.55	38.60	47.99	38.00	14.37	13.35	**541.25**
2nd Year	270.83	231.36	399.24	50.56	91.03	31.59	33.37	9.10	**1117.08**
3rd Year	351.05	211.57	403.39	49.17	86.64	38.34	23.79	23.60	**1187.55**
4th Year	440.20	150.25	182.93	33.87	32.57	13.21	5.75	7.70	**866.48**
5th Year	459.22	179.74	171.86	30.98	19.27	11.67	43.25	40.57	**956.56**
Total in Lakh	**1613.00**	**946.00**	**1280.00**	**203.00**	**277.00**	**135.00**	**121.00**	**94.00**	**4669.00**
Total in Crores	**16.13**	**9.46**	**12.80**	**2.03**	**2.77**	**1.35**	**1.21**	**0.94**	**46.70**

COMPONENT WISE ALLOCATIONS PROPOSED 2022-27



Wetland wise breakup (2022-2027)

SNo	Component (Amount in Crores)	Amount	Hokersar 1354 Ha	Hygam 719 Ha	Shallabugh 1691 Ha	Mirgund 406 Ha	Chattlum 43 Ha	Freshkoori 15.25 Ha	Kranchoo 6.40 Ha	Manibugh 5.30 Ha
1	Land and Water Management									
1.1	Survey and Demarcation	11.10	3.79	3.035	2.66	0.302	0.62	0.56	0	0.136
1.2	Water Management	7.83	1.11	1.33	4.44	0.26	0.265	0.295	0.065	0.065
2	Biodiversity Conservation	13.15	4.7	2.766	3.971	0.74	0.465	0.215	0.179	0.114
3	Education Awareness and EcoTourism	7.49	4.18	0.71	0.755	0.368	0.61	0.08	0.432	0.352
4	Sustainable Resource Development and Livelihood Development	0.80	0.3	0.4	0.05	0.03	0.02	0	0	0
5	Institutional Development	6.33	2.05	1.213	0.925	0.33	0.788	0.21	0.539	0.275
	Total	46.70	16.13	9.454	12.801	2.03	2.768	1.36	1.215	0.942

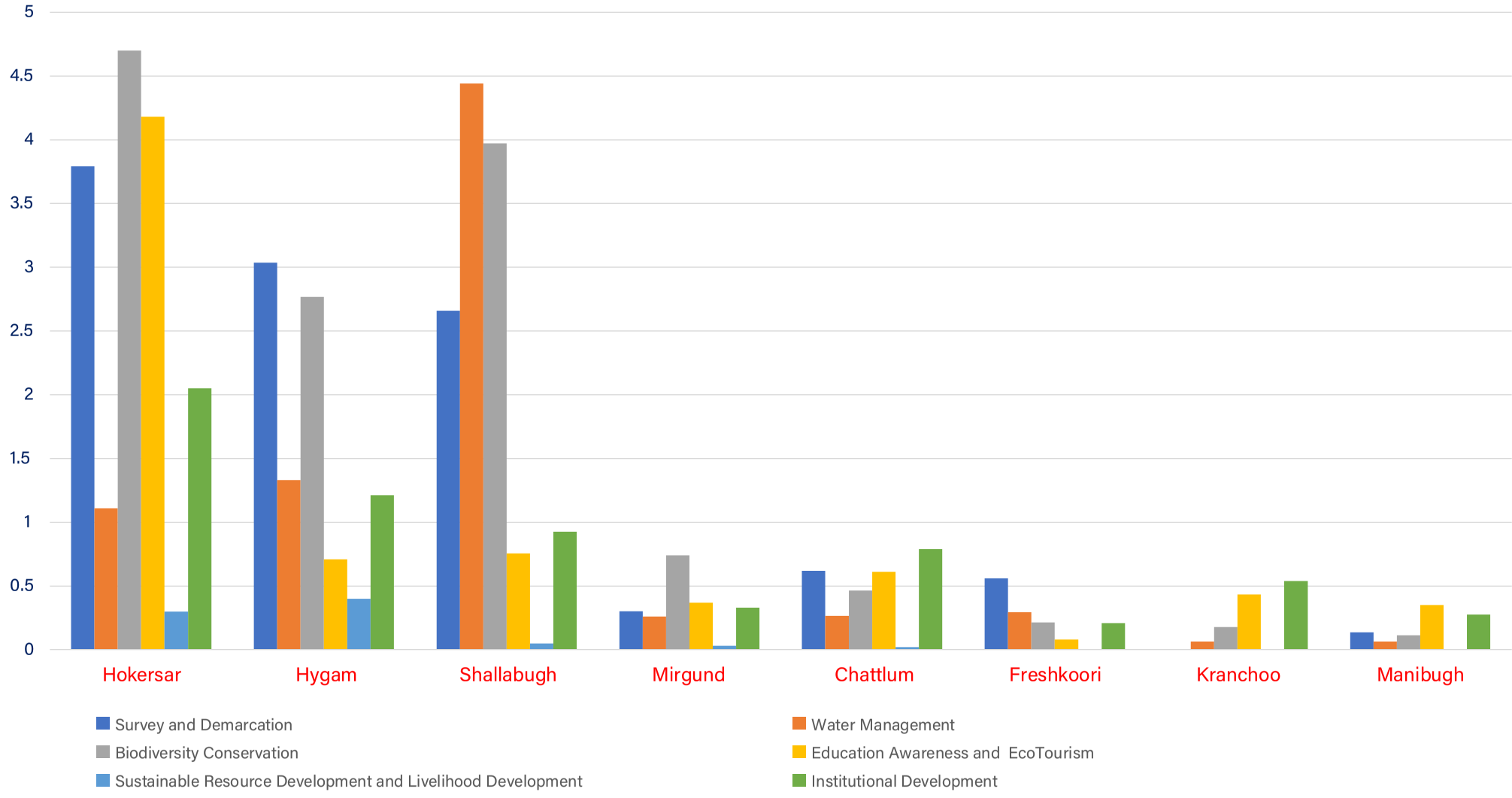
Wetland and Component-Wise Distribution of Funds *

Integrated Management Action Plan 2022-27
Abstract Physical and Financial Details

S.No	Component	Item	Physical	Amount in Crore
1.1	**Survey & Demarcation**	Boundary Demarcation	540 B.Ps	0.38
1.2	----do----	Fencing Chain-link	20 Km	8.18
1.3	----do----	Barbed wire Fencing	13 km	0.89
1.4	----do----	Bio Fencing	545200 plants	0.70
1.5	----do----	Embankment along peripheries	34320 Cum	0.96

S.No	Component	Item	Physical	Amount in Crore	Remarks
1.2 a	**Water Management (Enhancing water holding capacity)**	Removal of willow other plantations (from and within Wetlands)	833 ha 416500 plants	0.04 (Miscellaneous)	Expected sale Proceeds to be deposited as Revenue in the Govt. exchequer
b	----do---	Selective dredging of silted areas	895 ha	0.05 (Miscellaneous)	Expected sale Proceeds to be deposited as Revenue in the Govt. exchequer
c	----do---	Dredging of willow/other plantation cleared areas	833 ha	0.04 (Miscellaneous)	-----do----
d	----do---	Opening of channels and Waterways	353000 Cum	0.17	----do----
e		Water Regulatory Gates	5 No	0.30	
f	**Water Management** (Enhancing water holding capacity)	Construction and Maintenance of settling basins	22 Ha	4.40	
g	----do---	Diversion of Flood Channel	3 Km	0.30	
h	----do---	Demolition of temporary cross sectional embankments to evict encroachments	6 Km	0.29	
1.3 a	Water Management **(Water quality Improvement)**	Community based solid waste Management System	850 Drives in Wetlands 850 Drives in Villages	0.86	Community based Cleanliness Drives
b	----do---	Dust Bins	360	0.18	
c	Water Management (Water quality Improvement)	Control of diffused pollution through wetland technology (Artificial Wetlands)	11 Ha (13 No's)	1.13	To act as biofilters

* Wetland and Component-Wise Distribution of Funds



2 2.1	**Biodiversity Conservation**	Wetland/Biodiversity Conservation Studies	6 Studies	0.61	
2.2	----do---	Habitat Restoration and Management of Aquatic Vegetation	557 Ha	10.71	
2.3	----do---	Control of Poaching	LS	0.91	Establishing/ Strengthening camps & Formation of Bird protection committees
2.4	----do---	Research/Surveys & Capacity Building	LS	0.93	Trainings ,Work shops, Seminars, Visits & Tours

S.No	Component	Item	Physical	Amount in Crore	Remarks
3 3.1	**Education Awareness and Eco-Tourism**	Development of Recreational Facilities	20 No Watch Towers	3.62	Board Walks, Nature Trails, Guided Boat rides, Watch Towers
3.2	----do-----	Development of Visitors Educational facility Centre (Models & Digital Signages)	1 No	2.63	Nature Interpretation Centre at Hokersar
3.3	----do-----	Publicity & Awareness	LS	1.25	Rallies, Padyatras, Nature Camps, Wetland and other days, Documentary and news letter and publications.

Integrated Management Action Plan 2022-27
Abstract Physical and Financial Details

S. No	Component	Item	Physical	Amount in Crore	Remarks
4	**Sustainable Resource Development and Livelihood**	Economic utilization of wetland biomass & Establishment of biomass based micro enterprises for fringe communities.	LS	0.80	To Give a start to pilot projects in each wetland
5 5.1	----do-----	Infrastructure Development	12 No	2.40	Staff Quarters & Antipoaching Reporting Centers
5.2	----do-----	Equipment augmentation	LS	3.01	Pantoons, Spotting scopes, Motorized & wooden boats Etc.
5.3	----do-----	Monitoring & Evaluation	LS	0.93	Vehicles, Bikes, Third party evaluation

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

HOKERSAR WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL (HOKRA)	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		50	3.50	50	3.50	0	0.00	0	0.00	0	0.00	100	0.07
	ii Fencing Chain Link	40 LAKH	KM		0	0.00	1.92	76.80	2	80.00	2	80.00	2	80.00	7.92	3.168
	iii Barbed wire fencing	7 LAKH	KM		0	0.00	0	0.00	0.68	4.76	1	7.00	1	7.00	2.68	0.187
	iv Bio fencing	Rs.12.82	No of plants		11700	1.50	25000	3.20	50000	6.40	100000	12.82	100000	12.82	286700	0.367
	Embankment along peripheries	Rs 280	CUM		0	0.00	0	0.00		0.00	0	0.00	0	0.00	0	0
	Total Survey and Demarcation					5.00		83.50		91.16		99.82		99.82		3.79
1.2	Water Management															
A)	Enhancing water holding capacity															
	a) Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		10.87	0.05	30	0.15	40	0.20	50	0.25	50	0.25	180.87	0.01
	b) Selective dredging of silted areas	Auction Based	Ha		25	0.12	30	0.15	32	0.16	72	0.36	75	0.38	234	0.012
	i Willow / Poplar plantation cleared areas	Auction Based	Ha		20	0.10	25	0.12	25	0.12	25	0.12	25	0.12	120	0.006
	ii Channels Water ways	Auction Based	CUM		20000	1.00	20000	1.00	20000	1.00	20000	1.00	20000	1.00	100000	0.05
	iii Regulatory Gates	APE	No		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0

		vi	Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
B)	Water Quality Improvement						0		0		0		0		0		
	a)		Community based solid waste management system				0		0		0		0		0		
			Wetland	Rs.5000	Drive	40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	0.1
			Villages	Rs.5000	Drive	40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	0.1
			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)	10 Lakh	HAC / No	1	10.00	1	10.00	1	10.00	2	20.00	2	20.00	7	0.7
			Dust Bins	Rs.5000	NOS	20	1.00	20	1.00	20	1.00	20	1.00	20	1.00	100	0.05
	a)	Environment Flow Assesment Studies		LS	LS	LS	0.00	LS	0.00	LS	2.00	LS	4.00	LS	2.00	LS	0.08
			Total Water Management				**16.27**		**16.42**		**18.48**		**30.73**		**28.75**		**1.11**
			Total Land & Water Management				**21.27**		**99.92**		**109.64**		**130.55**		**128.57**		**4.9**
2	**Biodiversity Conservation**																
2.1	**Wetland Conservation Studies**																
	a)	Inventorization and assesment Studies															
		i	Species wise estimates of waterbird populations	LS	LS	LS	0.00	LS	1.00	LS	1.00	LS	2.00	LS	1.00	LS	0.05
		ii	Water regimes assesment	LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	0.00	LS	2.00	LS	0.05
		iii	Key biodiversity assesment	LS	LS	LS	1.00	LS	1.00	LS	2.00	LS	0.00	LS	1.00	LS	0.05
		iv	Human activities and their impacts	LS	LS	0	0.00	LS	1.00	LS	1.00	LS	1.00	LS	2.00	LS	0.05
		v	Migration studies (bird banding and satelite and VHF tracking)	LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
		vi	Avian influenza survellience	LS	LS	0	0.00	LS	1.00	LS	2.00	LS	1.00	LS	1.00	LS	0.05
			Total Studies a)				**3.00**		**6.00**		**8.00**		**5.00**		**8.00**		**0.3**
	b)		**Strengthening existing Wetland network**														
			Habitat Restoration and Management of Aquatic Vegetation	1.925 Lakh	HAC	15	28.87	30	57.75	50	96.25	50	96.25	50	96.25	195	3.75
			Total b)				**28.87**		**57.75**		**96.25**		**96.25**		**96.25**		**3.75**
	c)	Control of poaching															
			Establishment / Strengthening of Protection Camps	LS	LS	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	5.00	LS	0.25

			Formation of bird protection committees			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
					Total c)				**7.00**		**7.00**		**7.00**		**7.00**		**7.00**		0.35
	d)	Research and Survey				LS	LS	LS	**2.00**	**LS**	**2.00**	**LS**	**2.00**	**LS**	**2.00**	**LS**	**2.00**	LS	**0.1**
	e)	Capacity building																	
		i	Training			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
					Total e)				**4.00**		**4.00**		**4.00**		**4.00**		**4.00**		0.2
					Total Biodiversity Conservation				**44.87**		**76.75**		**117.25**		**114.25**		**117.25**		**4.7**
3	**Education Awareness and Ecotourism Development**																		
3.1	**Development of recreational facalities**																		
	In f	Board Walk and Nature Trails				LS	LS	LS	8.00	LS	8.00	LS	8.00	LS	8.00	LS	8.00	LS	0.4
	ii	Guided boat rides				LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
	iii	Watch Towers				Rs.15Lakh	No	0	0.00	1	10.00	0	0.00	1	15.00	1	15.00	3	0.4
	iv	Landscape Gardens				LS	LS	LS	2.00	LS	0.00	LS	0.00	LS	8.00	LS	8.00	LS	0.18
					Total 3.1				**12.00**		**20.00**		**10.00**		**33.00**		**33.00**		**1.08**
3.2	**Development of visitor education facilities**																		
	a)	Interpretation Centre				APE	No	LS	0.00	LS	50.00	LS	50.00		50.00	LS	50.00	LS	2
	b)	Models & Digital signages				LS	LS	LS	0.00	LS	0.00	LS	10.00	LS	20.00	LS	20.00	LS	0.5
					Total 3.2				**0.00**		**50.00**		**60.00**		**70.00**		**70.00**		**2.5**
3.3	**Publicity and Awareness**					LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Rallies and Padyatras			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Nature Camps			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			World Wetland Day / Bird festivals / Environment re			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Films / documantaries			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Newsletter and publications			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
					Total 3.3				**12.00**		**12.00**		**12.00**		**12.00**		**12.00**		**0.6**
			Total Education Awareness and EcoTourism						**24.00**		**82.00**		**82.00**		**115.00**		**115.00**		**4.18**
4	**Sustainable resource Development and Livelihood Improvement**																		
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise				LS	LS	LS	0	LS	0	LS	10.00	LS	10.00	LS	10.00	LS	0.3
			Total sustainable Resource Development & Livelihood						**0.00**	LS	**0.00**		**10.00**		**10.00**		**10.00**		**0.3**

5	**Infrastructure and Equipment Augumentation**																
5.1		Infrastructure Development			20 LAKH	NOS	0	0.00	0	0.00	1	20.00	2	40.00	2	40.00	5	1
				Total 5.1				**0.00**		**0.00**		**20.00**		**40.00**		**40.00**		**1**
5.2		Equipment augumentation																
		i	Pontoons		15 LAKH	NOS	0	0.00	0	0.00	0	0.00	1	15.00	1	15.00	2	0.3
		ii	Spotting Scope		RS 8000	NOS	1	0.08	2	0.16	2	0.16	5	0.40	5	0.40	15	0.012
		iv	Motorized Driven Boats		10 LAKH	NOS		0.00		0.00		0.00	1	10.00	1	10.00	2	0.2
		v	Wooden Manual Driven Boats		0.5 Lakh	NOS	2	1.00	2	1.00	2	1.00	2	1.00	2	1.00	10	0.05
		vi	Fabricate Dockyards / other Machines		20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	1	0.2
				Total 5.2				**1.08**		**1.16**		**1.16**		**26.40**		**46.40**		**0.762**
5.3	**Monitoring and Evaluation**																	
			Vehicles / Motor Bikes		LS	LS	LS	0.00	1	10.00	1	10.00	No	0.00	LS	0.00	LS	0.2
			Contingencies & Unforeseen		LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	4.00	LS	2.00	LS	0.09
				Total 5.2				**1.00**		**11.00**		**11.00**		**4.00**		**2.00**		**0.29**
				Total Infrastructure & Equipment				**2.08**		**12.16**		**32.16**		**70.40**		**88.40**		**2.05**
				Grand Total				**92.22**		**270.83**		**351.05**		**440.20**		**459.22**		**16.13**

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

HYGAM WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL HYGAM	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		50	3.50	50	3.50	0	0.00	0	0.00	0	0.00	100	0.07
	ii Fencing Chain Link	40 LAKH	KM		1	40.00	1.68	67.20	1	40.00	1	40.00	2	80.00	6.68	2.67
	iii Barbed wire fencing	7 LAKH	KM		0	0.00	1	7.00	1	7.00	0.46	3.22	0	0.00	2.46	0.172
	iv Bio fencing	Rs.12.82	No of plants		20000	2.56	10000	1.28	10000	1.28	5000	0.64	50000	6.41	95000	0.12
	Embankment along peripheries	Rs.280	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	Total Survey and Demarcation					46.06		78.98		48.28		43.86		86.41		3.035
1.2	Water Management															
A)	Enhancing water holding capacity															
a)	Removal of Wilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		25	0.12	28.1	0.14	15	0.07	10	0.05	8.4	0.05	86.50	0.005
b)	Selective dredging of silted areas	Auction Based	Ha		19	0.10	20.8	0.10	20	0.10	32	0.16	46.2	0.23	138.00	0.007
	i Willow / Poplar plantation cleared areas	Auction Based	Ha		25	0.12	28.1	0.14	15	0.07	5	0.03	8.4	0.05	81.50	0.004
	ii Channels Water ways	Auction Based	CUM		10000	1.00	10000	1.00	10000	1.00	10000	1.00	10000	1.00	50000	0.05
	iii Regulatory Gates	APE	No		1	5.00	1	5.00	1	5.00	1	5.00	0	0.00	4	0.2
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		1	20.00	1	20.00	0	0.00	0	0.00	0	0.00	2	0.4
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	1	10.00	1	10.00	1	10.00	0	0.00	3	0.3
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM		1	5.00	1	5.00	0.71	3.55	0	0.00	0	0.00	3	0.14

B)	Water Quality Improvement						0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	a)		Community based solid waste management system				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
				Wetland	Rs.5000	Drive	40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	0.1
				Villages	Rs.5000	Drive	40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	0.1

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)		10 Lakh	HAC / No	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
			Dust Bins		Rs.5000	NOS	10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025
	a)	Environment Flow Assesment Studies			LS	LS	0	0.00	LS	1.00	0	0.00	0	0.00	0	0.00	LS	0.01
				Total Water Management				**35.84**		**46.88**		**24.29**		**20.74**		**5.83**		**2.408**
				Total Land & Water Management				**81.90**		**125.86**		**72.57**		**64.60**		**92.24**		**4.371**
2	**Biodiversity Conservation**																	
2.1	**Wetland Conservation Studies**																	
	a)	Inventorization and assesment Studies																
		i	Species wise estimates of waterbird populations		LS	LS	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.01
		ii	Water regimes assesment		LS	LS	LS	0.00	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.01
		iii	Key biodiversity assesment		LS	LS	LS	0.00	LS	0.00	LS	0.50	LS	0.50	LS	0.00	LS	0.01
		iv	Human activities and their impacts		LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.50	LS	0.50	LS	0.01
		v	Migration studies (bird banding and satelite and VHF tracking)		LS	LS	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.01
		vi	Avian influenza surveillience		LS	LS	0	0.00	LS	0.00	LS	0.50	LS	0.50	LS	0.00	LS	0.01
				Total Studies a)				**1.00**		**1.50**		**1.50**		**1.50**		**0.50**		**0.06**
	b)		**Strengthening existing Wetland network**															
			Habitat Restoration and Management of Aquatic Vegetation		1.925 Lakh	HAC	15	28.87	20	38.50	20	38.50	30	57.75	40	77.00	125	2.4
				Total b)				**28.87**		**38.50**		**38.50**		**57.75**		**77.00**		**2.4**
	c)	Control of poaching																
			Establishment / Strengthening of Protection Camps		LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Formation of bird protection committees		LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
				Total c)				**3.00**		**3.00**		**3.00**		**3.00**		**3.00**		0.15

	d)	Research and Survey	LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS		0.05
	e)	Capacity building															
		i Training	LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS		0.05
		ii Workshops Seminars Visits and Tours	NOS	NOS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS		0.05
		Total e)				2.00		2.00		2.00		2.00		2.00			0.1
		Total Biodiversity Conservation				35.87		46.00		46.00		65.25		83.50			2.766
3	**Education Awareness and Ecotourism Development**																
3.1	**Development of recreational facalities**																
	Inf	Board Walk and Nature Trails	LS	LS	LS	2.00	LS	2.00	LS	1.00	LS	0.00	LS	0.00	LS		0.05
	ii	Guided boat rides	LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS		0.05
	iii	Watch Towers	Rs.15Lakh	No	1	15.00	1	15.00	1	15.00	0	0.00	0	0.00	3		0.45
	iv	Landscape Gardens	LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS		0
		Total 3.1				18.00		18.00		17.00		1.00		1.00			0.55
3.2	**Development of visitor education facilities**																
	a)	Interpretation Centre	APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS		0
	b)	Models & Digital signages	LS	LS	LS	2.00	LS	1.00	LS	1.00	LS	0.00	LS	0.00	LS		0.04
		Total 3.2				2.00		1.00		1.00		0.00		0.00			0.04
3.3	**Publicity and Awareness**																
		Rallies and Padyatras	LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS		0.025
		Nature Camps	LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS		0.025
		World Wetland Day / Bird festivals / Environment re	LS	LS	LS	0.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS		0.04
		Films / documantaries	LS	LS	LS	0.00	LS	0.00	LS	2.00	LS	0.00	LS	0.00	LS		0.02
		Newsletter and publications	LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	1.00	LS	0.00	LS		0.01
		Total 3.3				1.00		2.00		4.00		3.00		2.00			0.12
		Total Education Awareness and EcoTourism				21.00		21.00		22.00		4.00		3.00			0.71
4	**Sustainable resource Development and Livelihood Improvement**																
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise	LS	LS	LS	0	2	20	2	20.00	LS	0.00	LS	0.00	LS		0.4
		Total sustainable Resource Development & Livelihood				0.00	LS	20.00		20.00		0.00		0.00			0.4
5	**Infrastructure and Equipment Augumentation**																

5.1		Infrastructure Development				20 LAKH	NOS	1	20.00	0	0.00	1	20.00	0	0.00	0	0.00	2	0.4
					Total 5.1				**20.00**		**0.00**		**20.00**		**0.00**		**0.00**		**0.4**
5.2		Equipment augumentation																	
		i	Pontoons			15 LAKH	NOS	0	0.00	1	15.00	0	0.00	1	15.00	0	0.00	2	0.3
		ii	Spotting Scope			RS 8000	NOS	5	0.40	0	0.00	0	0.00	5	0.40	0	0.00	10	0.008
		iv	Motorized Driven Boats			10 LAKH	NOS	1	10.00	0	0.00	1	10.00	0	0.00	0	0.00	2	0.2
		v	Wooden Manual Driven Boats			0.5 Lakh	NOS	5	2.50	5	2.50	0	0.00	0	0.00	0	0.00	10	0.05
		vi	Fabricate Dockyards / other Machines			20 LAKH	NOS	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	0.2
					Total 5.2				**12.90**		**17.50**		**30.00**		**15.40**		**0.00**		**0.758**
5.3	**Monitoring and Evaluation**																		
			Vehicles / Motor Bikes			LS	LS	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.005
			Contingencies & Unforeseen			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
					Total 5.2				**1.50**		**1.00**		**1.00**		**1.00**		**1.00**		**0.055**
					Total Infrastructure & Equipment				**34.40**		**18.50**		**51.00**		**16.40**		**1.00**		**1.21**
					Grand Total				**173.17**		**231.36**		**211.57**		**150.25**		**179.74**		**9.46**

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

SHALLABUGH WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL SHALLABUG	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		75	5.25	75	5.25	0	0.00	0	0.00	0	0.00	150	0.105
	ii Fencing Chain Link	40 LAKH	KM		0	0.00	1	40.00	1	40.00	1	40.00	0.84	33.60	3.84	1.54
	iii Barbed wire fencing	7 LAKH	KM		1	7.00	1.33	9.31	1	7.00	1	7.00	0	0.00	4.33	0.3
	iv Bio fencing	Rs.12.82	No of plants		20000	2.56	30000	3.84	30000	3.84	30000	3.84	30000	3.84	140000	0.18
	Embankment along peripheries	Rs.280	Cum		3000	8.40	3000	8.40	4000	11.20	4000	11.20	5320	14.90	19320	0.54
	Total Survey and Demarcation					23.21		66.80		62.04		62.04		52.34		2.66
1.2	Water Management															
A)	Enhancing water holding capacity															
a)	Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		19.4	0.10	84.3	0.42	150	0.75	105	0.52	150	0.75	509	0.025
b)	Selective dredging of silted areas	Auction Based	Ha		33.8	0.17	50	0.25	50	0.25	100	0.50	233.8	1.17	468	0.024
	i Willow / Poplar plantation cleared areas	Auction Based	Ha		19.4	0.10	84.3	0.42	150	0.75	105	0.52	150	0.75	509	0.025
	ii Channels Water ways	Auction Based	CUM		0	0.00	50000	1.00	50000	1.00	50000	1.00	50000	1.00	200000	0.04
	iii Regulatory Gates	APE	No		1	10.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.1
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		0	0.00	10	200.00	10	200.00	0	0.00	0	0.00	20	4
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
B)	Water Quality Improvement				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
a)	Community based solid waste management system				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	Wetland	Rs.5000	Drive		40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	0.1
	Villages	Rs.5000	Drive		40	2.00	40	2.00	40	2.00	40	2.00	40	2.00	200	0.1

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)			10 Lakh	HAC / No	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
			Dust Bins			Rs.5000	NOS	20	1.00	20	1.00	20	1.00	0	0.00	0	0.00	60	0.03
	a)	Environment Flow Assesment Studies				LS	LS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	LS	0.01
					Total Water Management				**15.37**		**207.09**		**207.75**		**6.54**		**7.67**		**4.44**
					Total Land & Water Management				**38.58**		**273.89**		**269.79**		**68.58**		**60.01**		**7.11**
2	**Biodiversity Conservation**																		
2.1	**Wetland Conservation Studies**																		
	a)	Inventorization and assesment Studies																	
		i	Species wise estimates of waterbird populations			LS	LS	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.01
		ii	Water regimes assesment			LS	LS	LS	0.00	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.01
		iii	Key biodiversity assesment			LS	LS	LS	0.00	LS	0.00	LS	0.50	LS	0.50	LS	0.00	LS	0.01
		iv	Human activities and their impacts			LS	LS	0	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.01
		v	Migration studies (bird banding and satelite and VHF tracking)			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.50	LS	0.50	LS	0.01
		vi	Avian influenza survellience			LS	LS	0	0.20	LS	0.20	LS	0.20	LS	0.20	LS	0.20	LS	0.01
					Total Studies a)				**1.20**		**1.70**		**1.20**		**1.20**		**0.70**		**0.06**
	b)		**Strengthening existing Wetland network**																
			Habitat Restoration and Management of Aquatic Vegetation			1.925 Lakh	HAC	15	28.87	30	57.75	40	77.00	50	96.25	50	96.25	185	3.561
					Total b)				**28.87**		**57.75**		**77.00**		**96.25**		**96.25**		**3.561**
	c)	Control of poaching																	
			Establishment / Strengthening of Protection Camps			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Formation of bird protection committees			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
					Total c)				**3.00**		**3.00**		**3.00**		**3.00**		**3.00**		**0.15**
	d)	Research and Survey				LS	LS	LS	**1.00**	**LS**	**1.00**	**LS**	**1.00**	**LS**	**1.00**	**LS**	**1.00**	LS	**0.05**
	e)	Capacity building																	
		i	Training			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1

			Total e)					3.00		3.00		3.00		3.00		3.00		0.15
					Total Biodiversity Conservation			37.07		66.45		85.20		104.45		103.95		3.971
3	Education Awareness and Ecotourism Development																	
3.1	Development of recreational facalities																	
	Inf	Board Walk and Nature Trails				LS	LS	LS	3.00	LS	3.00	LS	2.00	LS	2.00	LS	0.00	LS	0.1
	ii	Guided boat rides				LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
	iii	Watch Towers				Rs.15Lakh	No	1	15.00	0	0.00	1	15.00	0	0.00	0	0.00	2	0.3
	iv	Landscape Gardens				LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
					Total 3.1				19.00		4.00		18.00		3.00		1.00		0.45
3.2	Development of visitor education facilities																	
	a)	Interpretation Centre				APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS	0
	b)	Models & Digital signages				LS	LS	LS	2.00	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.03
					Total 3.2				2.00		0.50		0.50		0.00		0.00		0.03
3.3	Publicity and Awareness					LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Rallies and Padyatras			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
			Nature Camps			LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
			World Wetland Day / Bird festivals / Environment re			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
			Films / documantaries			LS	LS	LS	0.00	LS	0.00	LS	5.00	LS	0.00	LS	0.00	LS	0.05
			Newsletter and publications			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
					Total 3.3				4.50		4.50		9.50		4.50		4.50		0.275
			Total Education Awareness and EcoTourism						25.50		9.00		28.00		7.50		5.50		0.755
4	Sustainable resource Development and Livelihood Improvement																	
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise				LS	LS	LS	0	LS	2.5	LS	2.50	LS	0.00	LS	0.00	LS	0.05
			Total sustainable Resource Development & Livelihood						0.00		2.50		2.50		0.00		0.00		0.05
5	Infrastructure and Equipment Augumentation																	
5.1		Infrastructure Development				20 LAKH	NOS	1	20.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.2
					Total 5.1				20.00		0.00		0.00		0.00		0.00		0.2
5.2		Equipment augumentation																	
		i	Pontoons			15 LAKH	NOS	0	0.00	1	15.00	1	15.00	0	0.00	0	0.00	2	0.3

		ii	Spotting Scope			RS 8000	NOS	5	0.40	5	0.40	5	0.40	5	0.40	5	0.40	25	0.02
		iv	Motorized Driven Boats			10 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		v	Wooden Manual Driven Boats			0.5 Lakh	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		vi	Fabricate Dockyards / other Machines			20 LAKH	NOS	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	0.2
					Total 5.2				**0.40**		**35.40**		**15.40**		**0.40**		**0.40**		**0.52**
5.3	**Monitoring and Evaluation**																		
			Vehicles / Motor Bikes			10 Lakh/0.	No	LS	0.00	1	10.00	1	0.50	LS	0.00	LS	0.00	2	0.105
			Contingencies & Unforeseen			LS	LS	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	2.00	LS	0.1
					Total 5.2				**2.00**		**12.00**		**2.50**		**2.00**		**2.00**		**0.205**
					Total Infrastructure & Equipment				**22.40**		**47.40**		**17.90**		**2.40**		**2.40**		**0.93**
					Grand Total				**123.55**		**399.24**		**403.39**		**182.93**		**171.86**		**12.80**

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

MIRGUND WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL MIRGUND	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		25	1.75	25	1.75	0	0.00	0	0.00	0	0.00	50	0.035
	ii Fencing Chain Link	40 LAKH	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
	iii Barbed wire fencing	7 LAKH	KM		1	7.00	1	7.00	0.36	2.52	0	0.00	0	0.00	2.36	0.165
	iv Bio fencing	Rs.12.82	No of plants		500	0.07	500	0.07	1000	0.13	500	0.07	500	0.07	3000	0.005
	Embankment along peripheries	Rs.280	CUM		1000	2.80	1000	2.80	500	1.40	500	1.40	500	1.40	3500	0.1
	Total Survey and Demarcation					11.62		11.62		4.05		1.47		1.47		0.302
1.2	Water Management															
A)	Enhancing water holding capacity															
a)	Removal of Wilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		19.5	0.10	15	0.08	10	0.05	12.9	0.06	0	0.00	57.40	0.003
b)	Selective dredging of silted areas	Auction Based	Ha		12	0.06	12.24	0.07	10	0.05	10	0.05	10.8	0.06	55	0.003
	i Willow / Poplar plantation cleared areas	Auction Based	Ha		19.5	0.10	15	0.07	10	0.05	12.9	0.07	0	0.00	57	0.003
	ii Channels Water ways	Auction Based	CUM		1000	1.00	1000	1.00	0	0.00	1000	1.00	0	0.00	3000	0.03
	iii Regulatory Gates	APE	No		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM		1	5.00	1	5.00	0.91	4.55	0	0.00	0	0.00	2.9	0.145
B)	Water Quality Improvement				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
a)	Community based solid waste management system				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	Wetland	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025
	Villages	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)			10 Lakh	HAC / No	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
			Dust Bins			Rs.5000	NOS	10	0.50	0	0.00	10	0.50	0	0.00	10	0.50	30	0.015	
	a)	Environment Flow Assesment Studies				LS	LS	LS	0.00	LS	0.00	LS	0.50	LS	0.50	LS	0.00	LS	0.01	
					Total Water Management				**7.76**		**7.22**		**6.70**		**2.68**		**1.56**		**0.26**	
					Total Land & Water Management				**19.38**		**18.84**		**10.75**		**4.15**		**3.03**		**0.56**	
2	**Biodiversity Conservation**																			
2.1	**Wetland Conservation Studies**																			
	a)	Inventorization and assesment Studies																		
		i	Species wise estimates of waterbird populations			LS	LS	LS	0.50	LS	0.00	LS	0.00	LS	0.50	LS	0.00	LS	0.01	
		ii	Water regimes assesment			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
		iii	Key biodiversity assesment			LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.50	LS	0.01	
		iv	Human activities and their impacts			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
		v	Migration studies (bird banding and satelite and VHF tracking)			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015	
		vi	Avian influenza survellience			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
					Total Studies a)				**1.00**		**0.50**		**0.50**		**0.50**		**1.00**		**0.035**	
	b)		**Strengthening existing Wetland network**																	
			Habitat Restoration and Management of Aquatic Vegetation			1.925 Lakh	HAC	5	9.62	5	9.62	5	9.62	5	9.62	10	19.25	30	0.58	
					Total b)				**9.62**		**9.62**		**9.62**		**9.62**		**19.25**		**0.58**	
	c)	Control of poaching																		
			Establishment / Strengthening of Protection Camps			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05	
			Formation of bird protection committees			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015	
					Total c)				**1.50**		**1.00**		**1.50**		**1.00**		**1.50**		0.065	
	d)	Research and Survey				LS	LS	LS	**0.50**	**LS**	**0.50**	**LS**	**0.50**	**LS**	**0.50**	**LS**	**0.50**	LS	**0.025**	
	e)	Capacity building																		
		i	Training			LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.01	
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	1.00	LS	0.00	LS	1.00	LS	0.00	LS	1.00	LS	0.03	
					Total e)				**1.00**		**0.50**		**1.00**		**0.50**		**1.00**		0.04	
					Total Biodiversity Conservation				**13.62**		**12.12**		**13.12**		**12.12**		**23.25**		**0.74**	
3	**Education Awareness and Ecotourism Development**																			
3.1	**Development of recreational facalities**																			
	Inf	Board Walk and Nature Trails				LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
	ii	Guided boat rides				LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
	iii	Watch Towers				Rs.15Lakh	No	0	0.00	1	15.00	0	0.00	1	15.00	0	0.00	2	0.3	

	iv	Landscape Gardens		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Total 3.1				0.00		15.00		0.00		15.00		0.00		0.3
3.2	Development of visitor education facilities																
	a)	Interpretation Centre		APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS	0
	b)	Models & Digital signages		LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015
			Total 3.2				0.50		0.00		0.50		0.00		0.50		0.015
3.3	Publicity and Awareness			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		Rallies and Padyatras		LS	LS	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.10	LS	0.005
		Nature Camps		LS	LS	LS	0.00	LS	0.00	LS	0.20	LS	0.00	LS	0.10	LS	0.003
		World Wetland Day / Bird festivals / Environment re		LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
		Films / documantaries		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		Newsletter and publications		LS	LS	LS	1.00	LS	0.00	LS	0.00	LS	1.00	LS	0.00	LS	0.02
			Total 3.3				1.60		0.60		0.80		1.60		0.70		0.053
		Total Education Awareness and EcoTourism					2.10		15.60		1.30		16.60		1.20		0.368
4	Sustainable resource Development and Livelihood Improvement																
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise		LS	LS	LS	0	LS	0	LS	3.00	LS	0.00	LS	0.00	LS	0.03
		Total sustainable Resource Development & Livelihood					0.00	LS	0.00		3.00		0.00		0.00		0.03
5	Infrastructure and Equipment Augumentation																
5.1		Infrastructure Development		20 LAKH	NOS	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	0.2
			Total 5.1				0.00		0.00		20.00		0.00		0.00		0.2
5.2		Equipment augumentation															
		i	Pontoons	15 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		ii	Spotting Scope	RS 8000	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		iv	Motorized Driven Boats	10 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		v	Wooden Manual Driven Boats	0.5 Lakh	NOS	5	2.50	5	2.50	0	0.00	0	0.00	5	2.50	15	0.075
		vi	Fabricate Dockyards / other Machines	20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
			Total 5.2				2.50		2.50		0.00		0.00		2.50		0.075
5.3	Monitoring and Evaluation																
		Vehicles / Motor Bikes		LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.005
		Contingencies & Unforeseen		LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
			Total 5.2				1.00		1.50		1.00		1.00		1.00		0.055
			Total Infrastructure & Equipment				3.50		4.00		21.00		1.00		3.50		0.33
			Grand Total				38.60		50.56		49.17		33.87		30.98		2.03

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

CHATTLUM WETLAND CONSERVTION RESERVE

	Component and Activities			Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL CHATTLUM	
1	Land and Water Resource Management	RATE	UNIT	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation														
	i Boundary demarcation	RS 7000	NOS	25	1.75	25	1.75	0	0.00	0	0.00	0	0.00	50	0.035
	ii Fencing Chain Link	40 LAKH	KM	0	0.00	0.5	20.00	0.5	20.00	0	0.00	0	0.00	1	0.4
	iii Barbed wire fencing	7 LAKH	KM	0.5	3.50	0.5	3.50	0	0.00	0	0.00	0	0.00	1	0.07
	iv Bio fencing	Rs.12.82	No of plants	500	0.07	500	0.07	1000	0.13	500	0.07	500	0.07	3000	0.005
	Embankment along peripheries	Rs.280	CUM	1000	2.80	1000	2.80	1000	2.80	1000	2.80	0	0.00	4000	0.11
	Total Survey and Demarcation				8.12		28.12		22.93		2.87		0.07		0.62
1.2	Water Management														
A)	Enhancing water holding capacity														
a)	Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
b)	Selective dredging of silted areas	Auction Based	CUM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	i Willow / Poplar plantation cleared areas	Auction Based	CUM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	ii Channels Water ways	Auction Based	CUM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iii Regulatory Gates	APE	No	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	v Diversion of Flood Channel	10 Lakh	KM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
B)	Water Quality Improvement			0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
a)	Community based solid waste management system			0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	Wetland	Rs.5000	Drive	10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025
	Villages	Rs.5000	Drive	10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)			10 Lakh	HAC / No	0.62	6.20	0.36	3.60	1	10.00	0	0.00	0	0.00	2	0.2
			Dust Bins			Rs.5000	NOS	10	0.50	10	0.50	0	0.00	0	0.00	10	0.50	30	0.015
	a)		Environment Flow Assesment Studies			LS	LS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	LS	0
					Total Water Management				**7.70**		**5.10**		**11.00**		**1.00**		**1.50**		**0.263**
					Total Land & Water Management				**15.82**		**33.22**		**33.93**		**3.87**		**1.57**		**0.884**
2	**Biodiversity Conservation**																		
2.1	**Wetland Conservation Studies**																		
	a)		Inventorization and assesment Studies																
		i	Species wise estimates of waterbird populations			LS	LS	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.005
		ii	Water regimes assesment			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		iii	Key biodiversity assesment			LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.005
		iv	Human activities and their impacts			LS	LS	0	0.00	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.005
		v	Migration studies (bird banding and satelite and VHF tracking)			LS	LS	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.50	LS	0.01
		vi	Avian influenza survellience			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
					Total Studies a)				**1.00**		**0.50**		**0.50**		**0.00**		**0.50**		**0.025**
	b)		**Strengthening existing Wetland network**																
			Habitat Restoration and Management of Aquatic Vegetation			1.925 Lakh	HAC	3	5.77	2.5	4.81	2.5	4.81	4	7.70	4	7.70	16	0.31
					Total b)				**5.77**		**4.81**		**4.81**		**7.70**		**7.70**		**0.31**
	c)		Control of poaching																
			Establishment / Strengthening of Protection Camps			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
			Formation of bird protection committees			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015
					Total c)				**1.50**		**1.00**		**1.50**		**1.00**		**1.50**		0.065
	d)		Research and Survey			LS	LS	LS	**0.50**	**LS**	**0.50**	**LS**	**0.50**	**LS**	**0.50**	**LS**	**0.50**	LS	**0.025**
	e)		Capacity building																
		i	Training			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
					Total e)				**1.00**		**0.50**		**1.00**		**0.50**		**1.00**		0.04
					Total Biodiversity Conservation				**9.77**		**7.31**		**8.31**		**9.70**		**11.20**		**0.46**
3	**Education Awareness and Ecotourism Development**																		
3.1	**Development of recreational facalities**																		
	Inf		Board Walk and Nature Trails			LS	LS	LS	2.00	LS	2.00	LS	3.00	LS	1.00	LS	1.00	LS	0.09
	ii		Guided boat rides			LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
	iii		Watch Towers			Rs.15Lakh	No	0	0.00	1	15.00	1	15.00	1	15.00	0	0.00	3	0.45

	iv	Landscape Gardens					LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
						Total 3.1				2.50		17.50		18.50		16.50		1.50		0.57
3.2	Development of visitor education facilities																			
	a)	Interpretation Centre					APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS	0
	b)	Models & Digital signages					LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0
						Total 3.2				0.50		0.00		0.50		0.00		0.00		0.01
3.3	Publicity and Awareness						LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Rallies and Padyatras				LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
			Nature Camps				LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.01
			World Wetland Day / Bird festivals / Environment re				LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Films / documantaries				LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Newsletter and publications				LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.01
						Total 3.3				0.50		1.50		0.50		1.50		0.50		0.045
			Total Education Awareness and EcoTourism							3.50		19.00		19.50		18.00		2.00		0.62
4	Sustainable resource Development and Livelihood Improvement																			
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise					LS	LS	LS	0	LS	0	LS	1.00	LS	0.00	LS	1.00	LS	0.02
			Total sustainable Resource Development & Livelihood							0.00	LS	0.00		1.00		0.00		1.00		0.02
5	Infrastructure and Equipment Augumentation																			
5.1		Infrastructure Development					20 LAKH	NOS	0	0.00	1	20.00	0	0.00	0	0.00	0	0.00	1	0.2
						Total 5.1				0.00		20.00		0.00		0.00		0.00		0.2
5.2		Equipment augumentation																		
		i	Pontoons				15 LAKH	NOS	1	15.00	0	0.00	0	0.00	0	0.00	0	0.00	1	0.15
		ii	Spotting Scope				RS 8000	NOS	5	0.40	0	0.00	5	0.40	0	0.00	0	0.00	10	0.008
		iv	Motorized Driven Boats				10 LAKH	NOS	0	0.00	1	10.00	0	0.00	0	0.00	0	0.00	1	0.1
		v	Wooden Manual Driven Boats				0.5 Lakh	NOS	5	2.50	0	0.00	5	2.50	0	0.00	5	2.50	15	0.075
		vi	Fabricate Dockyards / other Machines				20 LAKH	NOS	0	0.00	0	0.00	1	20.00	0	0.00	0	0.00	1	0.2
						Total 5.2				17.90		10.00		22.90		0.00		2.50		0.53
5.3	Monitoring and Evaluation																			
			Vehicles / Motor Bikes				LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.005
			Contingencies & Unforeseen				LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
						Total 5.2				1.00		1.50		1.00		1.00		1.00		0.055
						Total Infrastructure & Equipment				18.90		31.50		23.90		1.00		3.50		0.79
						Grand Total				47.99		91.03		86.64		32.57		19.27		2.77

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

FASHKOORI WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL FUSHKOORI	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		20	1.40	20	1.40	0	0.00	0	0.00	0	0.00	40	0.028
	ii Fencing Chain Link	40 LAKH	KM		0.5	20.00	0	0.00	0.5	20.00	0	0.00	0	0.00	1	0.4
	iii Barbed wire fencing	7 LAKH	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
	iv Bio fencing	Rs.12.82	No of plants		5000	0.64	5000	0.64	5000	0.64	0	0.00	0	0.00	15000	0.02
	Embankment along peripheries	Rs.280	CUM		1000	2.80	1000	2.80	1000	2.80	1000	2.80	0	0.00	4000	0.112
	Total Survey and Demarcation					24.84		4.84		23.44		2.80		0.00		0.56
1.2	Water Management															
A)	Enhancing water holding capacity															
a)	Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
b)	Selective dredging of silted areas	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	i Willow / Poplar plantation cleared areas	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	ii Channels Water ways	Auction Based	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iii Regulatory Gates	APE	No		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
B)	Water Quality Improvement				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	a) Community based solid waste management system				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	Wetland	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025
	Villages	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)			10 Lakh	HAC / No	0.5	5.00	0.5	5.00	0.5	5.00	0.5	5.00	0.24	2.50	2.2	0.23
			Dust Bins			Rs.5000	NOS	10	0.50	0	0.00	10	0.50	0	0.00	10	0.50	30	0.015
	a)		Environment Flow Assesment Studies			LS	LS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	LS	0
					Total Water Management				**6.50**		**6.00**		**6.50**		**6.00**		**4.00**		**0.29**
					Total Land & Water Management				**31.34**		**10.84**		**29.94**		**8.80**		**4.00**		**0.85**
2	**Biodiversity Conservation**																		
2.1	**Wetland Conservation Studies**																		
	a)		Inventorization and assesment Studies																
		i	Species wise estimates of waterbird populations			LS	LS	LS	0.25	LS	0.00	LS	0.25	LS	0.00	LS	0.00	LS	0.005
		ii	Water regimes assesment			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		iii	Key biodiversity assesment			LS	LS	LS	0.20	LS	0.00	LS	0.20	LS	0.20	LS	0.00	LS	0.006
		iv	Human activities and their impacts			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		v	Migration studies (bird banding and satelite and VHF tracking)			LS	LS	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.012
		vi	Avian influenza survellience			LS	LS	0	0.00	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.005
					Total Studies a)				**0.70**		**0.25**		**1.20**		**0.45**		**0.25**		**0.03**
	b)		**Strengthening existing Wetland network**																
			Habitat Restoration and Management of Aquatic Vegetation			1.925 Lakh	HAC	0.5	0.96	0.5	0.96	0.5	0.96	0.5	0.96	1	1.92	3	0.057
					Total b)				**0.96**		**0.96**		**0.96**		**0.96**		**1.92**		**0.057**
	c)		Control of poaching																
			Establishment / Strengthening of Protection Camps			LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
			Formation of bird protection committees			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015
					Total c)				**1.50**		**1.00**		**1.50**		**1.00**		**1.50**		0.065
	d)		Research and Survey			LS	LS	LS	**0.50**	**LS**	**0.00**	**LS**	**0.50**	**LS**	**0.00**	**LS**	**0.50**	LS	**0.015**
	e)		Capacity building																
		i	Training			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
					Total e)				**0.00**		**1.00**		**1.00**		**1.00**		**1.00**		0.05
					Total Biodiversity Conservation				**3.66**		**3.21**		**5.16**		**3.41**		**5.17**		**0.22**
3	**Education Awareness and Ecotourism Development**																		
3.1	**Development of recreational facalities**																		
	Inf		Board Walk and Nature Trails			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
	ii		Guided boat rides			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
	iii		Watch Towers			Rs.15Lakh	No	1	0.00	0	0.00	1	0.00	0	0.00	1	0.00	3	0

	iv	Landscape Gardens		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Total 3.1				0.00		0.00		0.00		0.00		0.00		0
3.2	Development of visitor education facilities																
	a)	Interpretation Centre		APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS	0
	b)	Models & Digital signages		LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015
			Total 3.2				0.50		0.00		0.50		0.00		0.50		0.015
3.3	Publicity and Awareness			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		Rallies and Padyatras		LS	LS	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.012
		Nature Camps		LS	LS	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.012
		World Wetland Day / Bird festivals / Environment re		LS	LS	LS	1.00	LS	0.50	LS	0.50	LS	1.00	LS	0.50	LS	0.035
		Films / documantaries		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		Newsletter and publications		LS	LS	LS	0.00	LS	0.30	LS	0.00	LS	0.30	LS	0.00	LS	0.006
			Total 3.3				1.50		1.30		1.00				1.00		0.066
		Total Education Awareness and EcoTourism					2.00		1.30		1.50		0.00		1.50		0.08
4	Sustainable resource Development and Livelihood Improvement																
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise		LS	LS	LS	0	LS	0	LS	0.00	LS	0.00	LS	0.00	LS	0
		Total sustainable Resource Development & Livelihood					0.00	LS	0.00		0.00		0.00		0.00		0
5	Infrastructure and Equipment Augumentation																
5.1		Infrastructure Development		20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
			Total 5.1				0.00		0.00		0.00		0.00		0.00		0
5.2		Equipment augumentation															
		i	Pontoons	15 LAKH	NOS	0	0.00	1	15.00	0	0.00	0	0.00	0	0.00	1	0.15
		ii	Spotting Scope	RS 8000	NOS	0	0.00	3	0.24	3	0.24	0	0.00	0	0.00	6	0.005
		iv	Motorized Driven Boats	10 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		v	Wooden Manual Driven Boats	0.5 Lakh	NOS	0	0.00	2	0.00	0	0.00	2	0.00	0	0.00	4	0
		vi	Fabricate Dockyards / other Machines	20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
			Total 5.2				0.00		15.24		0.24		0.00		0.00		0.155
5.3	Monitoring and Evaluation																
		Vehicles / Motor Bikes		LS	LS	LS	0.00	LS	0.00	1	0.50	LS	0.00	LS	0.00	LS	0.005
		Contingencies & Unforeseen		LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
			Total 5.2				1.00		1.00		1.50		1.00		1.00		0.055
			Total Infrastructure & Equipment				1.00		16.24		1.74		1.00		1.00		0.21
			Grand Total				38.00		31.59		38.34		13.21		11.67		1.36

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

MANIBUGH WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL MANIBUGH	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		25	1.75	25	1.75	0	0.00	0	0.00	0	0.00	50	0.035
	ii Fencing Chain Link	40 LAKH	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
	iii Barbed wire fencing	7 LAKH	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
	iv Bio fencing	Rs.12.82	No of plants		500	0.07	500	0.07	500	0.07	500	0.07	500	0.07	2500	0.0035
	Embankment along peripheries	Rs.280	CUM		1000	2.80	1000	2.80	1000	2.80	500	1.40	0	0.00	3500	0.1
	Total Survey and Demarcation					4.62		4.62		2.87		1.47		0.07		0.136
1.2	Water Management															
A)	Enhancing water holding capacity															
a)	Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
b)	Selective dredging of silted areas	Auction Based	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	i Willow / Poplar plantation cleared areas	Auction Based	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	ii Channels Water ways	Auction Based	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iii Regulatory Gates	APE	No		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
B)	Water Quality Improvement				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
a)	Community based solid waste management system				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	Wetland	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025
	Villages	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)			10 Lakh	HAC / No	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0	0
			Dust Bins			Rs.5000	NOS	10	0.50	0	0.00	10	0.50	0	0.00	10	0.50	30	0.015	
	a)		Environment Flow Assesment Studies			LS	LS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	LS	0	
					Total Water Management				**1.50**		**1.00**		**1.50**		**1.00**		**1.50**		**0.065**	
					Total Land & Water Management				**6.12**		**5.62**		**4.37**		**2.47**		**1.57**		**0.201**	
2	**Biodiversity Conservation**																			
2.1	**Wetland Conservation Studies**																			
	a)		Inventorization and assesment Studies																	
		i	Species wise estimates of waterbird populations			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015	
		ii	Water regimes assesment			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
		iii	Key biodiversity assesment			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
		iv	Human activities and their impacts			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
		v	Migration studies (bird banding and satelite and VHF tracking)			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015	
		vi	Avian influenza survellience			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
					Total Studies a)				**1.00**		**0.00**		**1.00**		**0.00**		**1.00**		**0.03**	
	b)		**Strengthening existing Wetland network**																	
			Habitat Restoration and Management of Aquatic Vegetation			1.925 Lakl	HAC	0.25	0.48	0.25	0.48	0.25	0.48	0.25	0.48	0	0.00	1	0.02	
					Total b)				**0.48**		**0.48**		**0.48**		**0.48**		**0.00**		**0.02**	
	c)		Control of poaching																	
			Establishment / Strengthening of Protection Camps			LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.25	LS	0.25	LS	0.02	
			Formation of bird protection committees			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
					Total c)				**0.50**		**0.50**		**0.50**		**0.25**		**0.25**		0.02	
	d)		Research and Survey			LS	LS	LS	**0.50**	**LS**	**0.50**	**LS**	**0.50**	**LS**	**0.50**	**LS**	**0.50**	LS	**0.025**	
	e)		Capacity building																	
		i	Training			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	1.00	LS	0.00	LS	0.00	LS	1.00	LS	0.00	LS	0.02	
					Total e)				**1.00**		**0.00**		**0.00**		**1.00**		**0.00**		0.02	
					Total Biodiversity Conservation				**3.48**		**1.48**		**2.48**		**2.23**		**1.75**		**0.114**	
3	**Education Awareness and Ecotourism Development**																			
3.1	**Development of recreational facalities**																			
	Inf		Board Walk and Nature Trails			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
	ii		Guided boat rides			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0	
	iii		Watch Towers			Rs.15Lakh	No	0	0.00	0	0.00	1	15.00	0	0.00	1	15.00	2	0.3	

	iv	Landscape Gardens			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
				Total 3.1				0.00		0.00		15.00		0.00		15.00		0.3
3.2	Development of visitor education facilities																	
	a)	Interpretation Centre			APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS	0
	b)	Models & Digital signages			LS	LS	LS	0.50	LS	0.50	LS	0.00	LS	0.00	LS	0.00	LS	0.01
				Total 3.2				0.50		0.50		0.00		0.00		0.00		0.01
3.3	Publicity and Awareness				LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Rallies and Padyatras		LS	LS	LS	0.25	LS	0.00	LS	0.25	LS	0.00	LS	0.25	LS	0.007
			Nature Camps		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			World Wetland Day / Bird festivals / Environment re		LS	LS	LS	1.00	LS	0.50	LS	0.50	LS	0.50	LS	1.00	LS	0.035
			Films / documantaries		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
			Newsletter and publications		LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
				Total 3.3				1.25		0.50		0.75		0.50		1.25		0.042
			Total Education Awareness and EcoTourism					1.75		1.00		15.75		0.50		16.25		0.352
4	Sustainable resource Development and Livelihood Improvement																	
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise			LS	LS	LS	0	LS	0	LS	0.00	LS	0.00	LS	0.00	LS	0
			Total sustainable Resource Development & Livelihood					0.00	LS	0.00		0.00		0.00		0.00		0
5	Infrastructure and Equipment Augumentation																	
5.1		Infrastructure Development			20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	1	0.2
				Total 5.1				0.00		0.00		0.00		0.00		20.00		0.2
5.2		Equipment augumentation																
		i	Pontoons		15 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		ii	Spotting Scope		RS 8000	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		iv	Motorized Driven Boats		10 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		v	Wooden Manual Driven Boats		0.5 Lakh	NOS	2	1.00	0	0.00	0	0.00	2	1.00	0	0.00	4	0.02
		vi	Fabricate Dockyards / other Machines		20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
				Total 5.2				1.00		0.00		0.00		1.00		0.00		0.02
5.3	Monitoring and Evaluation																	
			Vehicles / Motor Bikes		LS	LS	LS	0.00	LS	0.00	LS	0.00	1	0.50	LS	0.00	LS	0.005
			Contingencies & Unforeseen		LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
				Total 5.2				1.00		1.00		1.00		1.50		1.00		0.055
				Total Infrastructure & Equipment				2.00		1.00		1.00		2.50		21.00		0.28
				Grand Total				13.35		9.10		23.60		7.70		40.57		0.94

Integrated Action Plan - Year wise Physical and Financial Phasing 2022-27

KRANCHOO WETLAND CONSERVTION RESERVE

	Component and Activities				Year 1		Year 2		Year 3		Year 4		Year 5		TOTAL KRANCHOO	
1	Land and Water Resource Management	RATE	UNIT		Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	Phy	Fin	PHY	FIN
1.1	Survey and Demarcation															
	i Boundary demarcation	RS 7000	NOS		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	ii Fencing Chain Link	40 LAKH	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
	iii Barbed wire fencing	7 LAKH	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
	iv Bio fencing	Rs.12.82	No of plants		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	Embankment along peripheries	Rs.280	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	Total Survey and Demarcation					0.00		0.00		0.00		0.00		0.00		0
1.2	Water Management															
A)	Enhancing water holding capacity															
a)	Removal ofWilow / Poplar Plantations (Miscellenous Charges Only)	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0.00	0
b)	Selective dredging of silted areas	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	i Willow / Poplar plantation cleared areas	Auction Based	Ha		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	ii Channels Water ways	Auction Based	CUM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iii Regulatory Gates	APE	No		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	iv Construction and Maintainance of Settling Basins	20 Lakh	Hac		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	v Diversion of Flood Channel	10 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
	vi Demolition of Temp Cross Sectional Embankments to evict encroachments	5 Lakh	KM		0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
B)	Water Quality Improvement				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
a)	Community based solid waste management system				0	0.00	0	0.00	0	0.00	0	0.00	0	0.00		0
	Wetland	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025
	Villages	Rs.5000	Drive		10	0.50	10	0.50	10	0.50	10	0.50	10	0.50	50	0.025

			Control of diffused Pollution through Wetland Technology (Artificial Wetlnds)			10 Lakh	HAC / No	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
			Dust Bins			Rs.5000	NOS	10	0.50	0	0.00	10	0.50	0	0.00	10	0.50	30	0.015
	a)		Environment Flow Assesment Studies			LS	LS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	LS	0
					Total Water Management				**1.50**		**1.00**		**1.50**		**1.00**		**1.50**		**0.065**
					Total Land & Water Management				**1.50**		**1.00**		**1.50**		**1.00**		**1.50**		**0.065**
2	**Biodiversity Conservation**																		
2.1	**Wetland Conservation Studies**																		
	a)		Inventorization and assesment Studies																
		i	Species wise estimates of waterbird populations			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		ii	Water regimes assesment			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		iii	Key biodiversity assesment			LS	LS	LS	1.00	LS	0.00	LS	1.00	LS	0.00	LS	0.00	LS	0.02
		iv	Human activities and their impacts			LS	LS	0	0.00	LS	1.00	LS	0.00	LS	0.00	LS	1.00	LS	0.02
		v	Migration studies (bird banding and satelite and VHF tracking)			LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
		vi	Avian influenza survellience			LS	LS	0	0.00	LS	0.00	LS	0.00	LS	1.00	LS	0.00	LS	0.01
					Total Studies a)				**1.50**		**1.50**		**1.50**		**1.50**		**1.50**		**0.075**
	b)		**Strengthening existing Wetland network**																
			Habitat Restoration and Management of Aquatic Vegetation			1.925 Lak	HAC	0.5	0.96	0.5	0.96	0.5	0.96	0	0.00	0	0.00	1.5	0.029
					Total b)				**0.96**		**0.96**		**0.96**		**0.00**		**0.00**		**0.029**
	c)		Control of poaching																
			Establishment / Strengthening of Protection Camps			LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
			Formation of bird protection committees			LS	LS	LS	0.50	LS	0.00	LS	0.00	LS	0.50	LS	0.00	LS	0.01
					Total c)				**1.00**		**0.50**		**0.50**		**1.00**		**0.50**		0.035
	d)		Research and Survey			LS	LS	LS	**0.50**	**LS**	**0.00**	**LS**	**0.00**	**LS**	**0.50**	**LS**	**0.00**	LS	**0.01**
	e)		Capacity building																
		i	Training			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		ii	Workshops Seminars Visits and Tours			NOS	NOS	LS	1.00	LS	0.00	LS	1.00	LS	0.00	LS	1.00	LS	0.03
					Total e)				**0.00**		**0.00**		**1.00**		**0.00**		**1.00**		0.03
					Total Biodiversity Conservation				**3.96**		**2.96**		**3.96**		**3.00**		**3.00**		**0.178**
3	**Education Awareness and Ecotourism Development**																		
3.1	**Development of recreational facalities**																		
	Inf		Board Walk and Nature Trails			LS	LS	LS	5.00	LS	2.00	LS	0.00	LS	0.00	LS	0.00	LS	0.07
	ii		Guided boat rides			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
	iii		Watch Towers			Rs.15Lakh	No	0	0.00	1	15.00	0	0.00	0	0.00	1	15.00	2	0.3

	iv	Landscape Gardens			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
				Total 3.1				5.00		17.00		0.00		0.00		15.00		0.37
3.2	Development of visitor education facilities																	
	a)	Interpretation Centre			APE	No	LS	0.00	LS	0.00	LS	0.00		0.00	LS	0.00	LS	0
	b)	Models & Digital signages			LS	LS	LS	0.50	LS	0.00	LS	0.50	LS	0.00	LS	0.50	LS	0.015
				Total 3.2				0.50		0.00		0.50		0.00		0.50		0.015
3.3	Publicity and Awareness				LS	LS	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.25	LS	0.012
		Rallies and Padyatras			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		Nature Camps			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		World Wetland Day / Bird festivals / Environment re			LS	LS	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.50	LS	0.025
		Films / documantaries			LS	LS	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0.00	LS	0
		Newsletter and publications			LS	LS	LS	0.00	LS	0.50	LS	0.00	LS	0.00	LS	0.50	LS	0.01
				Total 3.3				0.75		1.25		0.75		0.75		1.25		0.05
		Total Education Awareness and EcoTourism						6.25		18.25		1.25		0.75		16.75		0.43
4	Sustainable resource Development and Livelihood Improvement																	
	a)	Economic utilization of Wetland Biomass / Establishment of biomass based micro enterprise			LS	LS	LS	0	LS	0	LS	0.00	LS	0.00	LS	0.00	LS	0
		Total sustainable Resource Development & Livelihood						0.00		0.00		0.00		0.00		0.00		0
5	Infrastructure and Equipment Augumentation																	
5.1		Infrastructure Development			20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	1	20.00	1	0.2
				Total 5.1				0.00		0.00		0.00		0.00		20.00		0.2
5.2		Equipment augumentation																
		i	Pontoons		15 LAKH	NOS	0	0.00	0	0.00	1	15.00	0	0.00	0	0.00	1	0.15
		ii	Spotting Scope		RS 8000	NOS	2	0.16	2	0.16	1	0.08	0	0.00	0	0.00	5	0.004
		iv	Motorized Driven Boats		10 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
		v	Wooden Manual Driven Boats		0.5 Lakh	NOS	2	1.00	0	0.00	2	1.00	0	0.00	2	1.00	6	0.03
		vi	Fabricate Dockyards / other Machines		20 LAKH	NOS	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0
				Total 5.2				1.16		0.16		16.08		0.00		1.00		0.184
5.3	Monitoring and Evaluation																	
			Vehicles / Motor Bikes		LS	LS	1	0.50	1	10.00	LS	0.00	LS	0.00	LS	0.00	LS	0.105
			Contingencies & Unforeseen		LS	LS	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	1.00	LS	0.05
				Total 5.2				1.50		11.00		1.00		1.00		1.00		0.155
				Total Infrastructure & Equipment				2.66		11.16		17.08		1.00		22.00		0.54
				Grand Total				14.37		33.37		23.79		5.75		43.25		1.21



CHAPTER NO 18

ORDER OF THE HON'BLE NGT

Department of Wildlife Protection, Jammu & Kashmir

Boulevard Road Near Lalit Grand Palace Srinagar 190001 Tel/Fax No: 0194-2501069 (From May to October).
Manda - Hills (Near Ashoka Hotel) Jammu - 180005, Tele/Fax: 0191-2572570 (From November to April).
Email: jkwildlife78@gmail.com

The Regional Wildlife Warden
Kashmir Region, Srinagar.

No.WLP/Res/2021-22/ 317-18
Dated. 30 .11.2021

Sub: Integrated Management Plan of eight (8) Wetland Conservation Reserves in Kashmir.

Department of Wildlife Protection has prepared Integrated Management Plan of eight (8) Wetland Conservation Reserves in Kashmir Region. You have played key role in preparation of said plan. The Plan has been completed in compliance to directions of Hon'ble National Green Tribunal vide its order dated 22-07-2021 in OA No: 351/2091. The compliance report accordingly submitted before Hon'ble NGT was considered and the application was disposed by the Hon'ble NGT on 25-11-2021, when the hearing was attended by worthy Chief Secretary, J&K. The Hon'ble NGT after taking cognizance of Integrated Management Plan disposed off the case with directions for monitoring its implementation. The copy of order of Hon'ble NGT passed on 25-11-2021 is enclosed for implementation in letter and spirit. The implementation of Integrated Management Plan of eight (8) Wetland Conservation Reserves of Kashmir be accordingly taken up.

(Suresh Kumar Gupta) IFS
PCCF/Chief Wildlife Warden
J&K Government

Encl: AA (31 pages)

Copy to the Wildlife Warden, Wetlands Kashmir for information and necessary action.

Item No. 01 (Court No. 1)

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 351/2019

(With reports dated 30.10.2021 and 15.11.2021)

Raja Muzaffar Bhat Applicant

Versus

State of Jammu and Kashmir & Ors. Respondent(s)

Date of hearing: 25.11.2021

CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER

Applicant:	Mr. Saurabh Sharma, Advocate
Respondent:	Mr. A.K. Mehta, Chief Secretary, UT of J&K Ms. Manju Pandey, Joint Secretary, MoEF&CC with Mr. Balendu Shekhar, Advocate Mr. Pradeep Mishra, Advocate for UPPCB

ORDER

1. The issue for consideration initially considered in this application was prevention of unscientific dumping of waste and encroachment of Hokersar Wetland, Wular Lake and Kreentchoo-Chandhara Wetland in the Union Territory of Jammu & Kashmir. By later orders, scope of consideration was extended to protection of all wetlands in the country in the light of observations of the Hon'ble Supreme Court that 2,01,503 wetlands that have been mapped by the Union of India should continue to remain protected on the same principles as were formulated in Rule 4 of the Wetlands (Conservation and Management) Rules, 2010. It was further

observed that conservation of wetlands is of immense ecological importance. The Hon'ble Supreme Court did not appreciate that the Central Government was attempting to abdicate its responsibility under the Environment (Protection) Act, 1986 in favour of the State Governments.

2. Order of the Hon'ble Supreme Court dated 3.4.2017 in *M.K. Balakrishnan & Ors. v. Union of India & Ors.*[1] *as follows:*

> ***"**17. Be that as it may, for the reasons given below, we are compelled to direct that **the Wetlands (Conservation and Management) Rules, 2016 should be notified on or before 30-6-2017.** We are compelled to issue this direction since the matter has been pending with the Union of India for the last almost a year and there has to be some finality to the publication of the Rules. The comments/suggestions have been given by all stakeholders such as the State Governments including its organisations, individuals and civil society organisations. That being the position, there is obviously a great deal of interest in the Rules being formulated and notified. Under these circumstances, there is no justification why the Union of India should not have taken prompt action and constituted the Committee much earlier for the purposes of finalising the Rules. Finally, **the conservation of wetlands is of immense ecological importance.***
>
> ***18.** The learned counsel for the Union of India says that all efforts will be made to ensure compliance with this direction and to ensure that the Rules are notified on or before 30-6-2017. We are sure that both the Committee as well as the Union of India will take into consideration the comments and suggestions offered by the State Governments and its organisations, individuals and civil society organisations before taking a final decision.*
>
> ***19.** With regard to the Central Wetlands Regulatory Authority, we are told that its term is expiring on 14-2-2017. We have been informed by the learned counsel for the Union of India that the Central Wetlands Regulatory Authority will be notified on 13-2-2017. The Union of India is bound by the statement made by the learned counsel for the Union of India, which statement has been made on instructions received by him from an officer of the Ministry of Environment, Forest and Climate Change.*
>
> ***20.** In our order dated 31-1-2017 [Set out in paras 11 to 13, above.], we had required the Union of India to tell us the steps taken to preserve the 26 wetlands covered by Ramsar Convention, 1971. **The affidavit that has now been filed by the Union of India merely gives the disbursal of amount made by the Union of India from***

[1] (2017) 7 SCC 805

time to time. What specific steps have been taken including how the funds made available have been utilised and what is the impact of those steps have not been adverted to. We must have specific details. We direct the Union of India to file an affidavit within four weeks positively giving required specific details.

21. *The learned counsel for the petitioners has drawn our attention to an additional affidavit filed by the Union of India on or about 9-9-2014. The additional affidavit contains an information brochure "National Wetland Inventory & Assessment".* ***This brochure indicates on p. 11 thereof that 2,01,503 wetlands have been mapped at 1:50,000 scale. All these wetlands have an area of more than 2.25 ha. As a first step, the "brief documents" with regard to these 2,01,503 wetlands should be obtained by the Union of India from the respective State Governments in terms of Rule 6 of the Wetlands (Conservation and Management) Rules, 2010. We are told that obtaining these "brief documents" may take some time. We are inclined to grant adequate time for this purpose. The Union of India should follow this up with the State Governments and inform us of the time-frame on the next date of hearing.***

22. *The apprehension expressed by the learned counsel for the petitioners is that with the passage of time there is a possibility that some of the wetlands may disappear. On a reading of the information brochure, this apprehension is not unfounded.*

23. *Accordingly, we direct the application of* ***the principles of Rule 4 of the Wetlands (Conservation and Management) Rules, 2010 to these 2,01,503 wetlands that have been mapped by the Union of India. The Union of India will identify and inventorise all these 2,01,503 wetlands with the assistance of the State Governments and will also communicate our order to the State Governments which will also bind the State Governments to the effect that these identified 2,01,503 wetlands are subject to the principles of Rule 4 of the Wetlands (Conservation and Management) Rules, 2010****, that is to say:*

*"**4. (1)(i)** reclamation of wetlands;*

(ii) *setting up of new industries and expansion of existing industries;*

(iii) *manufacture or handling or storage or disposal of hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 notified vide S.O. No. 966(E), dated 27-11-1989 or the Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms /Genetically Engineered Organisms or Cells notified vide GSR No. 1037(E), dated 5-12-1989 or the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008 notified vide S.O. No. 2265(E), dated 24-9-2008;*

(iv) *solid waste dumping:*

Provided that the existing practices, if any, existed before the commencement of these Rules shall be phased out within a period not exceeding six months from the date of commencement of these Rules;

(v) *discharge of untreated wastes and effluents from industries, cities or towns and other human settlements:*
Provided that the practices, if any, existed before the commencement of these Rules shall be phased out within a period not exceeding one year from the date of commencement of these Rules;

(vi) *any construction of a permanent nature except for boat jetties within fifty metres from the mean high flood level observed in the past ten years calculated from the date of commencement of these Rules;*

(vii) *any other activity likely to have an adverse impact on the ecosystem of the wetland to be specified in writing by the Authority constituted in accordance with these Rules."*

24. *The learned counsel for the Union of India has shown us a chart of proposals/brief documents that have already been received by the Union of India under Rule 6 of the Wetlands (Conservation and Management) Rules, 2010. The total number of wetlands covered in this document are 1683. Many of these proposals/brief documents received by the Union of India contain deficiencies which have already been identified in the document handed over to us.* ***The Central Wetland Regulatory Authority will take up the rectification of deficiencies with the State Governments with promptitude and ensure that all these deficiencies are removed and complete proposals/brief documents are furnished within the next about one month so that the Central Wetlands Regulatory Authority is in a position to take a final decision with regard to these 1683 wetlands and their notification, if required, on or before 31-3-2017."***

3. Further, vide order dated 04.10.2017, the Hon'ble Supreme Court in *M.K. Balakrishnan, supra* observed*:*

"We have heard learned counsel for the petitioner and the learned Additional Solicitor General.

We have been informed that the Wetland Rules have since been notified and they are now called the Wetlands (Conservation and Management) Rules, 2017. These Rules have come into force on the date of publication in the official gazette, that is, 26th September, 2017.

Learned counsel for the parties say that they have very serious objections to some of these Rules. ***It is submitted that it appears that the Central Government has abdicated its responsibility***

under the Environment (Protection) Act, 1986 and instead of delegating its powers, it has abdicated its power in favour of the State Governments. We have also been informed that the Central Wetlands Regulatory Authority has since been disbanded and the State Wetlands Authority and the National Wetlands Committee have been constituted under Rules 5 and 6 of the new Rules.

With regard to the expenditure on Ramsar Convention sites, we have been informed by learned Additional Solicitor General that the audited accounts have so far been received from the States of West Bengal, Madhya Pradesh and Odisha. Audited accounts have not been received from any other State with regard to the Ramsar Convention sites.

We have also been informed that apart from Ramsar Convention sites, ***further funds have been given to the States and the Union Territories for conservation of wetlands. No audited accounts have been received in regard to these funds disbursed as well as their expenditure by the State Governments and the Union Territories.***

With regard to the brief documents required to be furnished under the old Rules, it appears that only ten States and one Union Territory have responded. It appears that there is now no necessity of brief documents under the new Rules. We make it clear that this does not mean that the earlier brief documents already submitted can be discarded completely. The contents of these brief documents will still be followed as far as the implementation of the Wetlands (Conservation and Management) Rules, 2017 is concerned.

Finally, with regard to the satellite images, ***we are told that the Space Application Centre would require between 12 to 18 months to make an inventory of 1,75,740 wetlands as they exist today. We make no comment on this but request learned Additional Solicitor General to re-check with the Space Application Centre since the wetlands are diminishing in our country at a very fast rate. It is very likely that many more will disappear by the time the task is completed by the Space Application Centre.***

We make it clear and reiterate that in terms of our order dated 8th February, 2017, ***2,01,503 wetlands that have been mapped by the Union of India should continue to remain protected on the same principles as were formulated in Rule 4 of the Wetlands (Conservation and Management) Rules, 2010.***

Learned counsel for the parties may file their objections to the new Rules within a period of two weeks. We direct that only one set of objections should be filed and both learned counsel should sit together and arrive at some consensus on the objections.

We further direct the State Governments that have not complied with earlier orders or directions given by the Central Government should do so within a period of four weeks from today failing which we will be constrained to require the

presence of the Chief Secretaries of the State Governments in addition to imposition of heavy costs keeping in mind the necessity of conserving whatever water bodies are left in the country.

List the matter for further directions and for hearing on the objections to the new Rules on 9th November, 2017.

We would require the presence of a senior officer of the Ministry of Environment, Forests and Climate Change, Government of India to be present in Court on the next date of hearing so that any questions that may be raised can be answered immediately. Needless to say, the senior officer who should be present in Court should be well-versed with the subject. The files on the basis of which the new Rules have been framed may also be kept ready for perusal when the matter is taken up*."*

4. Thus, the Hon'ble Supreme Court, apart from directing the High Courts where Ramsar Convention sites are located to monitor the management of such sites, also directed application of Rule 4 of the Wetland (Conservation and Management) Rules, 2010 to 2,01,503 wetlands already mapped by the Central Government. It was further directed that the Central Government will identify and inventorise the said wetlands with the assistance of the State Governments and communicate the order of the Hon'ble Supreme Court to the State Governments who will be bound by the said order. Rule 4 in question provides for protection of wetlands against any incompatible activity, including encroachment and dumping of waste which is to be ensured by the State Wetland Authorities.

5. In this matter, a factual and action taken report was sought from a joint Committee of Jammu & Kashmir Pollution Control Board ('State PCB'), Department of Wildlife Protection and Deputy Commissioners of Budgam, Srinagar and Bandipora. The matter was considered by this Tribunal on 16.12.2019 in the light of the report dated 09.12.2019 filed by the joint Committee of authorities of J&K in respect of certain wetlands in J&K. The report mentioned the steps taken to prevent dumping of solid

waste and to remove the encroachments, apart from other steps for conservation of the wetlands. It was stated that the demarcation of the boundary of the wetlands had been done and map of the demarcated line prepared. The Tribunal also considered the Minutes of the Meeting held on 30.11.2019 wherein further decisions were taken for remedial action, to prevent menace to the environment. The Tribunal directed further steps in the matter and sought an action taken report. The Tribunal thereafter considered the matter on 27.08.2020 in the light of further the report of the joint Committee of officers of J&K dated 18.08.2020 which mentioned the measures taken in respect of Hokersar Wetland Conservation Reserve, Wullar Lake and Kreentchoo-Chandhara Wetland. The applicant gave certain suggestions as noted in the last order. The Tribunal directed the joint Committee to take further action.

6. Apart from the above, the Tribunal also directed the National Wetland Committee to compile information about the status of compliance in respect of all significant wetlands in the country in the light of directions of the Hon'ble Supreme Court in *M.K. Balakrishnan, supra*. The operative part of the order is reproduced below:

> *"7. Conservation of wetlands in general and Ramsar sites in particular is a significant aspect of protection of environment. To give effect to the Sustainable Development and Precautionary Principles, which have been held to be part of right to life and are to be statutorily enforced by this Tribunal under Section 20 of the National Green Tribunal Act, 2010, effective action plan and its execution is imperative.*
>
> *8. One of the serious challenges is solid and liquid waste management, apart from encroachments. There are binding directions of the Hon'ble Supreme Court in Almitra H. Patel Vs. Union of India & Ors[2]. and Paryavaran Suraksha vs. Union of India[3] on the subject of scientific management of solid waste and sewage/effluents in accordance with the statutory provisions of the Water (Prevention and Control of Pollution) Act, 1974, ('Water Act') Air (Prevention and Control of Pollution) Act, 1981, ('Air Act) and waste management rules*

[2] *(2000) 2 SCC 679*
[3] (2017) 5 SCC 326

framed under the Environment (Protection) Act, 1986 ('EP Act'). There is large scale non-compliance of the said statutory provisions which has led this Tribunal to consider the issue of river pollution in OA No. 673/2018, News item published in "The Hindu" authored by Shri Jacob Koshy Titled "More river stretches are now critically polluted: CPCB" in view of acknowledged data of 351 polluted river stretches in the country. Apart from the said issue, large scale failure has been found in the matter of solid waste management as repeatedly recorded in O.A. No. 606/2018. The Chief Secretaries of all the States/UTs were required to remain present in person before this Tribunal for interaction and further planning. In O.A. No. 325/2015, Lt. Col. Sarvadaman Singh Oberoi v. UOI & Ors., the Tribunal has considered the issue of restoration of water bodies. In Original Application No. 593/2017, Paryavaran Suraksha Samiti & Anr. v. UOI & Ors., the issue of untreated sewage or effluent being discharged in water bodies have been taken up for consideration. There are several other matters dealing with such issues, including coastal pollution, pollution of industrial clusters etc.

9. There is discussion in the media about inadequacy of monitoring of action for restoration of lakes, wetlands and ponds which is certainly necessary for strengthening the rule of law and protection of public health and environment[4]. Several directions have been issued by the Hon'ble Supreme Court in M.K. Balakrishnan and Ors. v. UOI & Ors.[5]

10. Wetland (Conservation and Management) Rules, 2017 contain elaborate provisions for protection of Wetlands and National and State Wetland Authorities have been set up. However, the fact remain that the wetlands are facing serious challenge of conservation as shown by the present case and other cases which are the Tribunal dealing with from time to time. Secretary, MoEF&CC heads the National Wetlands Committee with 18 other Members for integrated management of wetlands, monitoring implementation of the Rules and other allied functions. The Committee is statutorily required to meet once in six months. The State Wetlands Authorities are headed by Environment Ministers of the States with Chief Secretaries as Vice Chairperson and 16 other members. Likewise, the Union Territories Wetland Authorities are headed by the Chief Secretaries. They are required to statutorily plan and oversee necessary action for management of the Wetlands. Inspite of high level authorities in place, there are widespread grievances of failure to manage some of the important wetlands, as in the present case and another matter dealt with today relating to Sambhar Lake in Jaipur.

11. Accordingly, the report received from the Joint Committee, showing the extent of challenges faced by the Wetlands in question, may also be forwarded to the Secretary, MoEF&CC and the CPCB as

[4] https://gradeup.co/lakes-in-india-i-4b99dc80-f6ce-11e7-9d78-07a242af4480

http://www.saconenvis.nic.in/publication/Lake%20Protection%20and%20Management%20of%20Urban%20Lakes%20in%20India.pdf

http://www.worldlakes.org/uploads/Management_of_lakes_in_India_10Mar04.pdf

[5] (2017) 7 SCC 805

a feedback for further planning and action on the pattern of the problems depicted in the report.

12. We also direct that the National Wetlands Committee may compile data of status of compliance of environmental norms in respect of all significant wetlands in the country to ensure remedial action. The State PCBs/PCCs and State/UT Wetland Authorities in India may give the status of management of wetlands in their respective States to the Secretary, MoEF&CC within three months. On that basis a joint Committee of the Secretary and Chairman CPCB may give a consolidated report to this Tribunal before the next date by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF."

7. The matter was last considered on 22.07.2021 in light of report of the J&K PCB dated 19.01.2021 and report filed by the Scientist -D, MoEF&CC dated 11.06.2021. The Tribunal found that the reports were incomplete. The report of J&K failed to mention the status of remedial action and the report of MoEF&CC failed to give the entire relevant data. The Tribunal accordingly directed the State of J&K to prepare an action plan with budgetary support and to identify the accountable persons. It was further directed that the action plan may be overseen by the Chief Secretary, J&K who may remain present in person by Video Conferencing with the compliance status. It was further directed that National Wetland Authority (NWA) may compile all relevant data about status of compliance for 2,01,503 wetlands. Considering the report filed by the MoEF&CC for action plans for wetlands pan India, it was observed that National Wetland Authority had failed to provide all relevant information inspite of categorical orders of the Hon'ble Supreme Court dated 08.02.2017, requiring the Central Government to inventorize 2,01,503 wetlands to which the principle of Rule 4 of the Wetlands Rules 2010 was made applicable. Accordingly, the Tribunal directed the NWC to ensure that action plans are prepared and executed under the control of District Magistrates and District Level Committees and also monitored by the State Wetland Authorities which may at National level be monitored by the Joint

Secretary, MoEF&CC. The Joint Secretary MoEF&CC was also directed to remain present in person by video conferencing.

8. The operative part of the order is reproduced below:-

> *"8. From the above, it is seen that while in the last column of 'major challenges', the challenges are mentioned,* ***the status of remedial action has not been given. Thus, the report is incomplete and does not serve the required purpose. Let an action plan in respect of each of the wetland be prepared within one month for action in a time bound manner, with budgetary support and identified accountable persons. The plan may include among others remedial action against weed infestation, sewage discharges, solid waste disposal, encroachments etc. This may be overseen by the Chief Secretary, J&K in view of significance of the matter and continued violation of orders of the Hon'ble Supreme Court, noted earlier. The Chief Secretary, J&K to remain present in person on the next date, by video conferencing,*** *with compliance status as on 31.10.2021.*
>
> *9. We now take up the report of the MoEF&CC with regard to status of compliance of the environmental norms in respect of significant wetlands, based on the information furnished by the State PCBs, PCCs/Wetland Authorities of States/UTs.*
>
> *10. The report mentions that the Wetland Division is implementing National Plan for Conservation of Aquatic ecosystems (NPCA) for Conservation and Management of Wetlands in the country on cost sharing basis between Central Government and respective State Governments with the object of National Plan for Conservation of Aquatic Ecosystems (NPCA). The Plan NPCA aims at holistic conservation and restoration of wetlands and lakes for achieving the desired water quality enhancement, besides improvement in biodiversity and ecosystems and to promote mainstreaming of wetlands in developmental programming with States by supporting formulation and implementation of integrated management plans, capacity development and research. Till date MoEF&CC has funded 92 nos. of wetlands in 24 States under NPCA scheme. 100 days programme for rejuvenating and restoring wetlands was initiated wherein over 130 wetlands were targeted using the 4 – pronged approach of preparing Brief Documents, filling Ecosystem Health Cards, instituting Wetland Mitras and formulating Integrated Management Plans. Health Cards have been prepared for 115 nos. of wetlands covering an area of 24,55,321.91 ha. States were advised to prepare Integrated Management Plans (IMP) for these wetlands based on the health and specific threats facing the wetlands which ensures rejuvenation in an outcome-oriented manner. Phase II of this initiative is now underway. It is envisioned to include about 1000 wetlands and help identify synergies between different stakeholders. Over 500 health cards have been prepared with the help of knowledge partners and sent to states for validation. two wetlands, namely Sukhna (Chandigarh) and Raamgarh Taal (UP) have been notified under the Rules. Draft notifications for many other wetlands are at*

various stages of notification by the State Governments. Currently, India has 42 nos. of wetlands designated as Ramsar Sites (Wetlands of International Importance) covering 1,081,438 hectares area and spread across 19 states and UTs. MoEF&CC has provided financial assistance to States under various Centrally Sponsored Schemes (CSS), namely National Action Plan for Conservation of Aquatic ecosystems (NPCA), Integrated Development of Wildlife Habitat (IDWH) and Conservation and Management of Mangroves and Coral reefs (CMMC). Out of 42nos. of Ramsar sites, 35 nos. of sites were supported through financial assistance under various Centrally Sponsored Scheme by MoEF&CC for conservation and management. 16 nos. of Ramsar sites are being monitored by Central Pollution Control Board (CPCB) for water quality. According to the National Wetland Inventory and Assessment (NWIA) carried out through Space Applications Centre (SAC), Ahmedabad based on 2006-07 satellite data, ***a total 201503 nos. of wetlands have been mapped at 1: 50,000 scale which are >2.25 ha and cover an area of approx. 14.7 Million ha. Significant wetlands include the 42 nos. of Ramsar wetlands and other wetlands.*** *The Ministry had earlier prepared a health card system, which provides the health status of the wetland based on a rapid study of health of each wetland ecosystem. Using health and threat score, 130 wetlands were rapidly assessed in a special drive of 100-day Programme. The nodal officers for 33 nos. of these wetlands which fell under Low Health and High Threat category, were guided for preparing and reviewing the management plans of these wetlands to mitigate the threats.*

11. We have considered the report filed by the MoEF. 'Summary of data received' given in the report is hardly of any value as against most of the States, remarks are 'not responded'. Under the heading 'Examples of some best practices implemented for the rejuvenation of wetlands', reference has been made to certain steps taken only two places - Anusupa and Chillika Lakes, Odisha.

12. ***We are disappointed at inadequacy of the report filed almost 10 months after the last order and four years after the order of the Hon'ble Supreme Court. It is surprising to note that even after such long period, the National Wetland Authority is not able to get relevant information from the concerned States, inspite of categorical orders of the Hon'ble Supreme Court dated 08.02.2017, requiring the Central Government to inventorize 2,01,503 wetlands to which the principle of Rule 4 of the Wetlands Rules 2010 was made applicable. If even the relevant information with regard to compliance of the binding direction of the Hon'ble Supreme Court could not be compiled by the National Wetland Authority, one wonders what meaningful action will be taken by the said Authority. It is a matter of serious great regret and failure.***

13. The applicant has filed response to the report of the joint Committee dated 11.06.2021. Suggestion on the subject of performa for deciding which wetlands are significant wetland must include component like:

> *"8. …(i) whether the concerned wetland is having any significance from livelihood sourcing point of view and if that*

has been affected for any reason, (ii) whether there exist any communities who possess traditional knowledge with respect to the wise use of wetlands, so that the same knowledge can be utilised for replication in similar type of wetlands elsewhere which are under threat and (iii) what enforcement action has been taken for each identified threat and how much of the threat has been addressed."

It is further pointed out that only 363 wetlands have been identified as 'significant wetlands' out of 2,01,503 wetlands which are more than 2.25 ha.

14. ***Accordingly, we direct that the National Wetland Committee may expeditiously compile all relevant data about status of compliance of environmental norms in terms of directions of Hon'ble Supreme Court which covers 2,01,503 wetlands. Out of the said data, data in respect of 'significant wetlands' may be placed before the Tribunal. Under Rule 6(3)(c) of the Wetland Rules 2017, the National Wetland Committee has to monitor compliance of Rules by the State Wetland Authorities. The Committee needs to get action plans formulated and executed under control of DMs and District level Committees. The States may accordingly prepare annual reports and MoEF&CC may bring out National Annual Status Report as required under the said Rules. This exercise may be overseen by Joint Secretary, MoEF&CC to be nominated by the Secretary, MoEF&CC. Nomination may be done within one week from today. The suggestion that identification of significant wetlands could not be based merely on the size but all factors, including the suggestion of the applicant, mentioned above. Report about status as on 31.10.2021 may be filed before the next date by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. The said Joint Secretary may remain present in person by video conferencing on the next date."***

9. In pursuance of above, reports have been filed by the State of J&K as well as by MoEF&CC. Shri. A.K. Mehta, Chief Secretary, J&K and Ms. Manju Pandey, Joint Secretary, MoEF&CC are present in person by Video Conferencing. We have considered the report dated 30.10.2021 filed by State of J&K and report dated 15.11.2021 by the MoEF&CC. We have heard the Chief Secretary, J&K as well as Joint Secretary, MoEF&CC and perused the report.

10. The report filed by UT of J&K mentions the action plan with regard to each of the wetland in their jurisdiction which includes remedying the issues of siltation, weed infestation, pollution, habitat modification, degradation of water quality, solid waste and encroachment. It is stated that Integrated Management Action Plan (IMAP) for Hokersar, Hygam, Shallabugh, Mirgund, Chattlum, Manibugh, Fashkoori and Krenctchoo with a budgetary outlay of Rs. 46.70 crores has been prepared by the Department of Wildlife Protection, J&K. Wetland-wise Action Plan covering major issues are reproduced below:-

> ***"1. Silting and Floods:***
>
> *Hygam, Hokersar, Mirgund and Shallabugh wetlands are getting silted up by recurring flooding. As a result of heavy deposits of silt, many important species of plants and animals are under threat to lose their habitats, however, a few new species are appearing and spreading fast. The destruction caused by flood waters and sediment deposition will be detrimental to many species of water-birds inhabiting these wetlands if corrective measures are not taken in hand. Adequate flood control measures are therefore, essential to ensure the survival of these productive ecosystems.*
>
> *That, in order to address this issues IMAP envisages to increase the water holding capacity of all these Wetland Conservation Reserves under the control of Wildlife Protection Department in Kashmir by at least 50% during the plan period by way of:*
>
> - *Removal of 416500 willow trees and other plantations from and within wetlands raised on 833 Ha of land followed by desilting of these plantation zones.*
> - *Selective dredging of 895 Ha of Silted areas.*
> - *Opening and deepening of existing natural water channels and courses by desilting of 353300 Cum of Silt.*
> - *Construction of 5 No of water regulatory gates to manage high loads of sediments during floods and to regulate optimum water level in each wetland during the rest of the periods.*
> - *Construction & Maintenance of settling Basins over an area of 22 Ha.*

2. Encroachment:

Wetland wise detail is as under:

Hygam Wetland:

- *On 28.10.2021 eviction drive was conducted by the Department of wildlife Protection J&K jointly in collaboration with Baramullah District Administration, Police and Forest Protection Force demolished intersectional embankments raised to facilitate illegal paddy cultivation on 42.5 Ha of land of this wetland. These drives however shall continue to be held till complete eviction of the wetland area.*
- *Eviction notices under relevant laws are also being served upon each encroacher to opt for voluntarily eviction within the stipulated time frame work failing which eviction proceedings shall be initiated and action under rules shall be taken for complete eviction.*
- *Along with District administration, Police, Forest Protection Force and local community groups working towards a joint strategy for complete eviction, removal and demolition of **56** house holders and **96** otherwise action under rules shall be initiated.*
- *Demarcated boundaries will be permanently consolidated by way of fixing of **100 No** of Boundary pillars at digitally delineated points, encroachment vulnerable areas will be closed by way of Chain link fencing **6.68** Km, Barbed Wire Fencing **2.28** Km and Bio fencing by way of planting of **95000** willow and other plants along the peripheries.*
- *Demolition of **3 Km** of temporary cross-sectional embankments inside the wetland to evict seasonal illegal paddy cultivators.*
- *"**Wise use**" of wetlands however, as defined under the Ramsar Convention that "the maintenance of ecological character of wetlands shall be achieved through the implementation of ecosystem approaches, within the context of sustainable development" shall strictly be ensured.*
  *That, Copies of the statements showing the ownership of lands in the wetlands as authenticated by Revenue Department are enclosed as **: Annexures- 10 to 15***

Hokersar Wetland:

- *Demarcation of part of Hokersar falling in District Budgam indicates that out of 23233 K 3 M **(1161.665** Ha) of land 1338 K 14 M (67 Ha) of land is proprietary in nature with residential status on 135 K 5 M, under crop 1010 K and vacant 195 K 9 M. Besides 1724 K and 5 M is registered under Section 5 of Revenue Act with Crop on 655 K 7 M and vacant 1068 K 18 M.*

- *Demarcation of part of Hokersar falling in District Srinagar indicates that out of 3906 K 1 M **(195.3 Ha)** of land 33 K 17 M of land is proprietary in nature besides 69 K 4 M is registered under section 5 of the Revenue Act.*

- *Demarcated boundaries will be permanently consolidated by way of fixing of **100 No** of Boundary pillars at digitally delineated points, encroachment vulnerable areas will be closed by way of Chain link fencing 7.92 Km, Barbed Wire Fencing **2.68** Km and Bio fencing by way of planting of **286700** willow and other plants along the peripheries.*

- *Demolition of temporary cross-sectional embankments inside the wetland to evict seasonal paddy cultivators.*

- *The rightful owners of the land in the wetland will be given access to wise use of wetland resources only without exercising any change in the land-use of the wetland.*

Mirgund Wetland:

- *Demarcation of part of Mirgund falling in Check Kawosa Jagir District Budgam indicates that out of 6906 K 3 M (345.6 Ha) of land no land is proprietary in nature. However,96 K 19 M (5.7Ha) is registered under Section 5 of Revenue Act.*

- *Demarcated boundaries will be permanently consolidated by way of fixing of **50 No** of Boundary pillars at digitally delineated points, encroachment vulnerable areas will be closed by way of Barbed Wire Fencing **2.36** Km and Bio fencing by way of planting of 3000 willow and other plants along the peripheries.*

- *Demolition of **2.9 Km** temporary cross-sectional embankments inside the wetland to evict seasonal illegal paddy cultivators.*

- *The rightful owners under section 5 in the wetland will be given access to wise use of wetland resources only without exercising any change in the land-use of the wetland.*

Chattlum Wetland:

- *Demarcation of Chatlum Wetland indicates that out of 852 K 17 M **(42.7 Ha)** of land, 79 K 04 M **(3.96 Ha)** is encroached in the form of plantation and seasonal agricultural use.*

- *Demarcated boundaries will be permanently consolidated by way of fixing of **50 No** of Boundary pillars at digitally delineated points, encroachment vulnerable areas will be closed by way of chain link fencing **1 Km** Barbed Wire Fencing **1 Km,** Bio fencing by way of planting of **3000** willow and other plants along the peripheries. Besides construction of embankment involving **4000 Cum** along the peripheries.*

- *Eviction notices under relevant laws are being served upon each encroacher to opt for voluntarily eviction within the stipulated time frame work failing which eviction proceedings shall be initiated and action under rules shall be taken for complete eviction of the encroachment.*

Fashkoori Wetland:

- *Demarcation of Fashkoori Wetland indicates that out of 341K 14 M* ***(17.06 Ha)*** *of land, 96 K 17 M* ***(4.85 Ha)*** *is encroached in the form of plantation and seasonal agricultural use.*
- *Demarcated boundaries will be permanently consolidated by way of fixing of* ***40 No*** *of Boundary pillars at digitally delineated points, encroachment vulnerable areas will be closed by way of chain link fencing* ***1 Km,*** *Bio fencing by way of planting of* ***15000*** *willow and other plants along the peripheries. Besides construction of embankment involving* ***4000 Cum*** *along the peripheries.*
- *Eviction notices under relevant laws are being served upon each encroacher to opt for voluntarily eviction within the stipulated time frame work failing which eviction proceedings shall be initiated and action under rules shall be taken for complete eviction of the encroachment.*
- *Regarding Shallabugh, Manibugh and Krentchoo there are no recorded encroachments.*

Sewage Discharges and Solid Waste Disposal.

- *That working towards integrating Rural-Urban Sanitation & Waste Management Schemes and role of the concerned Government Departments has been envisaged in the action plan for healthy Wetlands and their surrounds. In this regard following measures are envisaged:*
- *The Directorates of Urban Local Bodies and Rural Sanitation J&K Government have agreed to work on joint strategy to collect and scientifically dispose the solid waste collection and management system in all the villages falling in zone of influence of each wetland conservation Reserve in Kashmir.*
- *J&K Urban Local Bodies, will promote application of concept of civic bodies at grass root level in these areas for creating people's participation in improving andachieving the objectives of sanitation, Solid Waste management and other civic amenities/ services by way of exploration and utilization of available resources at local level.*
- *A sustained well-run mechanism of performance and functions shall be arrived at for implementing the operational schemes like Public Health, Sanitation and Solid Waste Management falling in the zone of influence of each wetland wherever applicable.*
- *The Rural Sanitation Department under Swachh Bharat (Gramin) will focus on improving the levels of cleanliness in the*

area falling under the zone of influence of each Wetland Conservation Reserve through Solid and Liquid waste management activities and making Gram Panchayats Open Defecation Free (ODF), clean and sanitized components like Individual House Hold Latrines and Community sanitary complexes shall be promoted in each village under the zone of influence of all the eight wetlands.

- *The local municipalities have agreed to collect and dispose scientifically the collected solid waste on regular and sustained basis.*

Wetland wise detail is as under:

Hokersar Wetland:

- *Through community based solid waste management system 400 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology 7 Artificial Wetlands shall be constructed near the source points to act as biofilters and address the issues of sewage discharge and leaching of nutrients into the wetland.*
- ***100** number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Hygam Wetland:

- *Through community based solid waste management system 400 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology no major threat of leaching of nutrients into the wetland is recorded.*
- *50 number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban/rural sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Shallabugh Wetland

- *Through community based solid waste management system 400 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*

- *Under the component, control of diffused pollution through wetland technology no major threat of leaching of nutrients into the wetland is recorded.*
- *60 number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Mirgund Wetland

- *Through community based solid waste management system 100 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology no major threat of leaching of nutrients into the wetland is recorded.*
- ***30** number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Chattlum Wetland

- *Through community based solid waste management system 100 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology 3 Artificial Wetlands shall be constructed near the source points to act as biofilters and address the issues of sewage discharge and leaching of nutrients into the wetland.*
- ***30** number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Fashkoori Wetland

- *Through community based solid waste management system 100 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology 3 Artificial Wetlands shall be constructed near the source points to act as biofilters and address the issues of sewage discharge and leaching of nutrients into the wetland.*

- ***30** number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation Oty for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Manibugh Wetland

- *Through community based solid waste management system 100 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology no major threat of leaching of nutrients into the wetland is recorded.*
- ***30** number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem.*

Krentchoo Wetland

- *Through community based solid waste management system 100 cleanliness drives shall be conducted during the plan period in the Wetland and in the fringe villages.*
- *Under the component, control of diffused pollution through wetland technology no major threat of leaching of nutrients into the wetland is recorded.*
- *30 number of specially designed Dust bins shall be installed at identified places in the villages as well as in the Wetland and connected to the urban sanitation for scientific disposal.*
- *Water quality monitoring shall be carried out on regular intervals to assess the trend of important parameters and keep check on Health of Wetland Ecosystem."*

11. The report of MoEF&CC mentions following broad details about status of 2.01 lakh wetlands:

"

S. No	***Type of wetlands***	***Number***	***Area***
	Wetlands >2.25 ha	***2,01,503***	***14705015 ha***
1	*Wetlands protected under the Forest Act i.e., falling*	*27,905*	*2758580 ha*

	inside the Recorded Forest Area		
2	*Wetlands protected under the **Coastal Regulation Zone notification***	*13,033*	*4140116 ha*
3	***Tanks/Ponds** -separate programs being run by other Ministries of GOI for their conservation and rejuvenation*	*1,22,370*	*1310443 ha*
4	*Manmade wetlands protected by the Departments under which they were created*	*20,442*	*263389 ha*
	Total wetlands with protection	*1,83,750 (91%)*	*8472528 ha*
	Balance	*17,753*	*6232487 ha*

”

12. Steps taken are outlined as follows:-

“REGULATORY INITIATIVES

*8. The **Guidelines for implementing the Wetlands (Conservation and Management) Rules, 2017** (Annex-IV) were published in January 2020 to support the State Governments/UT Administrations in the implementation of the Rules by providing guidance on various aspects like identifying wetlands for notification under the Rules, delineating wetlands, wetland complexes and zones of influence, preparation of Brief Document, developing a list of activities to be regulated and permitted, constitution and operational matters of the Wetlands Authorities among other issues.*

9. The Guidelines clarify the concepts to be taken into account while filling the brief documents, the format to be used and the step by step process. A format for draft notification of wetlands under the Rules and how to fill it is also a part of the Guidelines followed by a draft format for reporting status of notified wetlands. Issues like overlapping regulations and notifications in a wetland site and applicability of Rules are also explained. Since April 2020-21, only the plans submitted in accordance with the IMP format prescribed in these Guidelines are being considered for financial support under the scheme.

CAPACITY DEVELOPMENT

10. *Continuous workshops have been organised by the Ministry for all the SWAs region wise to guide them on all aspects of wetland management including implementation of the wetland Rules, 2017. 11. To sensitise officers on the importance of wetlands and the technicalities of wetland conservation, it was decided to catch them young and a wetland module has now been introduced for the probationers in the* ***Indira Gandhi National Forest Academy (IGNFA).***

WEB PORTAL

12. *As required under the 2017 Rules****, a dedicated web portal for wetlands to host the digital inventory from the State and UT Wetland Authorities, has been prepared and was made public on 2nd October, 2021.*** *The portal indianwetlands.in is a publicly available information and knowledge platform to facilitate knowledge sharing, information dissemination, host capacity building material, and provide a single-point access data repository. It is a system for processing information and making it available to the stakeholders in an efficient and accessible manner. One of the primary features of the portal is the Management Information System (MIS) login for each and every state/UT wherein information pertaining to the wetlands in their administration needs to be uploaded. This information would be linked with the public front of the portal and will be available for the public with varying access rights. Login credentials to the MIS have been provided to the States and UTs which have provided their web portal nodal point information.*

13. *This technology driven platform has been created for Force multiplier impact. The platform would help in regular sharing of good work being done in different geographies and providing visibility to relevant stakeholders involved in wetland restoration. This way the local initiative in one wetland shall be visible to others for replication.*

RAMSAR SITES – cover more than 10.83 lakh ha area

14. *The* ***number of Ramsar sites in India have increased to 46 covering an area of 10,83,322 ha****. India has the largest number of Ramsar sites in South Asia. Further, about 10 more sites covering an area of about 6.87 lakh ha would soon be declared as Ramsar sites increasing this area covered to 17,71,134 ha. Therefore, about 12 % of the area of wetlands is notified under the Ramsar Convention.*

FOCUSSED FOUR PRONGED APPROACH

15. *One of the transformative ideas taken up by the MoEF&CC as part of the PM's 100 days program was to start work on the restoration and rejuvenation of at least 100 major wetlands across the country wherein over 130 wetlands were targeted using the 4 – pronged approach of preparing Brief Documents, preparing Ecosystem Health Cards, involving all stakeholders by instituting Wetland Mitras and formulating Integrated Management Plans.*

16. *For the first time,* ***Health Cards*** *(Annex – V) have been prepared for wetlands and targeted IMPs were prepared based on the health and specific threats facing the wetlands. The health cards were prepared based on the 500 more health cards have been prepared since then. The basic criteria checked for preparing the health cards is percentage of* ***Area*** *of wetland converted, the Hydrological regimes ie the Ratio of natural inflows choked and diverted to total number of natural* ***Inlets****, Ratio of natural outflows choked and diverted to total number of natural Outlets, percentage of* ***Water Quality*** *samples conforming to desired Biological Oxygen Demand / Dissolved Oxygen levels, Percentage wetland area covered by* ***Invasive Macrophytes****, Annual January* ***Water Bird Count*** *as a proportion to maximum count observed count in last 10 years and the status of Governance.*

KNOWLEDGE PARTNERS AND WETLAND RESEARCH INSTITUTE

17. *Knowledge Partners have been identified to help the Ministry as well as the State Wetland Authorities in the preparation of Brief Documents and Health Cards. Each State has been allotted a knowledge partner to guide it in preparing the details for the notifications.*

18. *Wetlands International South Asia(WISA), Worldwide Fund for Nature(WWF), Chilika Development Authority(CDA), Gujarat Ecological Education and Research Foundation (GEER Foundation), Centre for Water Resources Development and Management, Cochin(CWRDM), Environmental planning and Coordination Organisation, Bhopal (EPCO), Salim Ali Centre for Ornithology and Natural History, Coimbatore (SACON), Wildlife Institute of India, Dehradun(WII), Indian Institute of Technology, Roorkee are some of the organisations working as knowledge partners for the Ministry.*

19. *To help the Ministry in taking up research programs related to wetlands and help the State Wetland Authorities in the*

technical matters relating to wetlands, the ***National Centre on Sustainable Coastal Management (NCSCM),*** *Chennai has been asked to work as the wetland Research arm of the Ministry.*

INCLUSIVE APPROACH TOWARDS ACHIEVING HIGHER OUTREACH WITH LIMITED BUDGET

20. *While the Ministry has the National Program on Conservation of Aquatic Ecosystems,* ***the funds available under the same are just to the tune of about Rs. 50 crs which is not enough for the conservation of wetlands.*** *It is for this reason that the* ***Ministry has taken up an inclusive approach*** *wherein it has taken the support of various stakeholders like the knowledge partners, the members of the public in the form of wetland mitras, various corporates etc.*

21. *Special focus is given on building convergence of wetlands management with the ongoing sectoral developmental programmes. Comprehensive mapping of all schemes which include funds available from Jal Shakti Mantralaya, Namami Gange, MGNREGA, Smart Cities Programme etc which can contribute to conservation of a particular site is encouraged.*

AMRIT MAHOTSAVA IN 75 NOS OF SIGNIFICANT WETLANDS

22. *The Ministry recently celebrated the Iconic week as part of the Bharat ka Amrut Mahotsava celebrations where activities were held in 75 prominent wetlands across the country.*

i. ***Threats and Values signages*** *(Annex - VI) were got installed at 75 significant wetlands across the country. Boards were installed for local awareness and remedial action. The exercise has been undertaken to create awareness and flag wetland-wise threats and values to the local community and thereby create interest in the locals for the need for restoration of wetlands. The list of wetlands where the signages were to be installed, along with the actual design and content of the values and threats to each of these wetlands as well as the funding for it was all organised by the Ministry.*

ii. ***More than 10,000 nos of wetland mitras registered (Annex- VII)*** *during the week. The State and UTs were encouraged to register wetland mitras during the week and beyond. A logo for the wetland mitras was designed by the Ministry and during the iconic week, the registered mitras were oriented about their roles and responsibilities. In many wetlands, mitras also did*

shramdaan to help clean up the wetlands and surrounding areas. The exercise has been done to have an inclusive approach where-in all the stakeholders take part in the process of conservation of wetlands.

iii. ***Wetland Ambassadors identified*** *- Wetland Ambassador is an iconic species, habitat, or cultural heritage that demonstrates the uniqueness of the particular wetland. In consultation with the wetland mitras network, a 'Wetland Ambassador' was identified, maintaining which would be one of the core objectives of the wetland management. A series of twitter posts on the wetland ambassador selection was also carried out the official handle of the Ministry, giving the people a chance to vote for the suitable ambassador.*

iv. ***Wetland pledge*** *in English and Hindi (Annex - VIII) was drafted centrally and shared with all the states and UTs. About* ***10,000 people/wetland mitras took this pledge at various wetlands of the country during the week*** *and some states and UTs also translated the pledge into regional languages. This was done to instil a psychological & moral commitment for restoration of wetlands in people.*

The Hon'ble Minister of Environment & Forest Shri Bhupendar Yadav led the pledge at Wular. *In addition, more than 12,500 nos. of people (a mix of locals, educators, students, administrators, foresters, NGOs etc.) participated in more than 250 nos. of physical and/or virtual activities.*

INTERNATIONAL RECOGNITION

23. *The efforts taken by the GOI in wetland conservation has been recognised by the Ramsar Sectt and India was invited in the recent COP 26 held in Glasgow to talk about its wetland conservation program to a global audience.*

STATUS OF NOTIFICATION OF WETLANDS AND OTHER STEPS

24. *The details of the compliance of rules by the States is at Annex III. A gist of the important works carried out by the States/UTs is as under –*

WETLANDS NOTIFIED

- *IN REVENUE RECORDS*

Uttar Pradesh has added 1,33,484 wetlands in their Revenue Records which gives protection to these wetlands from being used for any other purpose.

- *IN IRRIGATION RECORDS*

All wetlands of Gujarat are notified under the Bombay Irrigation (Gujarat Amendment) Act

- *UNDER WETLAND RULES 2017*

Eight wetlands have currently been notified under the Wetland Rules, 2017. These are 6nos from Goa, 1 nos from UP and 1 nos from Chandigarh. Draft notification for 5 nos of more wetlands has been put in the public domain in Goa. UP has also identified 23,890 wetlands for notification under the Wetland (Conservation and Management) Rules 2017 and has already prepared brief documents for 118 nos of wetlands.

PREPARATION OF BRIEF DOCUMENTS

a. *Seventeen states have either prepared or initiated the process of brief document preparation for a total of about 834 wetlands.*
b. *Delhi has mapped 1011 nos of waterbodies and has already prepared brief documents for 370 nos of wetlands. After the same are vetted by the technical committee of the State wetland authority, the notification process would start by the end of the year.*
c. *Tamil Nadu Wetland Mission announced by CM in assembly and budget session, focusing on identification, mapping, notification and restoration. The State has prepared brief documents for 141 wetlands and has identified wetlands for notification.*
d. *Bihar and Uttar Pradesh are prioritising wetlands in the Ganga floodplains under the National Mission on Clean Ganga (NMCG) and are employing the brief document format as prescribed by NPCA for their conservation. 279 nos. of wetlands in the Ganga Basin in UP (10 kms on both sides of the River Ganges) are being conserved using the four pronged method employed by the Ministry*

OTHER INITIATIVES

i. *Maharashtra has prepared a Mobile app to record the information with respect to the Brief Document of Wetlands. The respective District Collectors have filled information of Brief Document in the Mobile app after site visit / ground truthing.*

ii. *Efforts are on the reconcile the wetland inventory to identify those wetlands which may not already be covered under any other laws.*"

13. The applicant has filed his response to both the reports. In the response to the report of J&K, the suggestions of the applicant are as follows:-

"

a. *Activities like Information Education and Communication activities (IEC) by way of Seminars, Workshops and Theatre shows be held around Wetland areas. Colleges and Schools be involved in this programme. The sanitation staff of ULBs be also trained. Panchayat Members , Village Biodiversity Committees and Women Self Help Groups (SHGs) and NGOs be also involved in this campaign*

b. *Community leaders, Religious leaders and Preachers be trained / sensitized/made aware as well so that they too speak about importance of wetlands and their conservation. A training module for awareness on this issue be prepared for them specifically which will have a great impact in villages and towns located near Wetlands of Kashmir.*

c. *Let Regional Wildlife Warden Kashmir Wildlife Department, Mission Director SBM Grameen (Rural Sanitation Deptt) J&K plus Director ULB (Urban Local Bodies), Kashmir be directed to hold monthly meetings on Waste Management in Wetland areas. The monthly report be submitted before Hon'ble Tribunal.*

d. *Let the Joint Committee submit any orders, notifications and MoU's signed between Wildlife Dept, Director ULB Kashmir and Directorate of Rural Sanitation, J&K (mission director Swatch Bharat Mission, Gramin)*

e. *Chairpersons of District Development Councils (DDCs) Budgam, Bandipora & Pulwama and Principal Secretary Rural Development J&K Govt be taken on board while executing Solid and Liquid Waste Management Programmes in Wetland villages/areas.*

f. *Directions be issued for measures for monitoring and assessment to determine whether the condition of wetlands is improving, neutral or declining and report to this effect be submitted to this Hon'ble Tribunal*

g. *Responsibility be fixed of officers who have permitted the dumping of Solid waste in and around the Wetlands of Kashmir with action taken report to this effect be submitted to this Hon'ble Tribunal."*

14. The response of the applicant to the report of MoEF&CC is as follows:-

"Submissions

3. ***On the issue of Capacity Development:*** *Para 10 of the Report states that Continuous workshops have been organised by the Ministry for all the SWAs region wise to guide them on all aspects of wetland management including implementation of the wetland Rules, 2017. It is stated that no such details regarding workshop dates, participants' details and minutes are there in this Report.*

4. ***On the issue of Web Portal:*** *Para 12 of the Report mentions that a web portal titled Indian wetlands. in was made public on 2nd October. It is stated that while accessing on '18th November, 2021 the portal was not functioning.*

5. ***On the issue of Ramsar Sites****: Para 14 of the Report talks about the number of Ramsar sites in India and the total area covered by them. It is stated that declaring any wetland a Ramsar site does not ensure protection of wetlands in terms of its land use conversion. Time series mapping of East Kolkata wetlands, Deepor Beel are important examples of land use conversion in spite of them being declared as Ramsar sites. And hence, simple boasting of numbers may not be enough from a protection point of view. Annexure A-20 filed by the applicant with his Response dated 20.07.2021 to Joint Committee's Report dated 11.06.2021 (from pages 614 to 623) may kindly be perused in this regard.*

6. ***On the issue of Focused Four Pronged Approach****: It is stated that para 1 5 and 16 of the Report have reiterated the same response, as stated in their previous report. However, it did not elaborate anything regarding the successful rejuvenation rates of the 130 wetlands for which health cards were prepared in the first phase. Since, it is a recurring approach of MoEF&CC, it will be good to have an understanding of the success rate with respect to this action*

7 ***On the issue of Threats and Value Signages got installed at 75 significant wetlands in the country****: It is stated that as per para 22. i. of the Report there is no rhyme or reason of having Amrit Mahotsava in only 75 'Significant Wetlands' for installation of Threats and Value Signages. ln the previous report of MoEF&CC dated 1 1.06.2021 , submitted to Hon'ble*

NGT, 363 wetlands were identified as 'Significant wetlands'. The MoEF&CC ought to have dealt with the issue of Threats and Value Signages in all 363 Significant Wetlands. Compliance in only 75 wetlands, is not even one percent (it is only 0.04o/o of total) of the total mapped wetlands in India

Secondly, the NGT in its order dated22.07.2021 directed to place data in respect of 'Significant Wetlands' before the Tribunal. This has not been presented as part of the current report of MoEFCC dated 15.11.2021.

8. ***On the issue of more than 10,000 numbers of Wetland Mitras registered and refers to Annexure Vll with respect to this:*** *Para 22. ii of the Report states that Annexure VII contains the list of 10,000 Wetland Mitras. It is stated that Annexure VII is a sample of Wetland Mitras Enrollment Form and not a list of 10,000 Wetland Mitras as has been claimed in the Report.*

9. ***On the issue of Status of Notification of Wetlands and Other Steps****: lt is stated that according to para 24 of the Report 'under the Wetlands Rules 2017', UP has identified 23,890 wetlands for notification and has prepared brief documents for 118 numbers of wetlands. Whereas, under the head 'Preparation of Brief Documents', it says, 279 number of wetlands in the Ganga basin in UP are being conserved using four pronged method. A clarification may be sought in this regard*

The figure of wetlands mentioned under this head is also creating a clear contradiction with Para 3 of the report According to the Table given under Para 3, ***India has only '17,753 wetlands****, out of 2,01,503 wetlands (>2.25 Ha area), which need to be notified under the Wetlands Rules. And rest of the wetlands are protected under some other Acts like the Indian Forest Act 1927, Wild Life (Protection) Act 1972, Forest (Conservation) Act 1980, the State Forest Acts and Coastal Regulation Zone Notification, 20'1 1 etc. Whereas para 24 wise, UP alone has 23,890 wetlands for notifying under the Wetland Rules. Given this, Para 3 and Para24 are clear contradictions to each other. A clarification may be sought with respect to this as well.*

10. *It is stated that the MoEF&CC while submitting the present Report has failed to consider issues taken up by the Applicant in the earlier Response dated20.07.2021."*

15. We have noted the stand of learned Chief Secretary, J&K that the execution of action plans will be overseen on regular basis by Secretary,

Environment & Forest, J&K as well as by the Chief Secretary, J&K personally atleast once in a month for further continuous action. As regards the suggestions of the applicant, the same may be duly considered by the Chief Secretary, J&K, to the extent not already considered.

16. The Joint Secretary, MoEF&CC stated that water being State subject, primary responsibility of handling the matter is of the States. Similar approach was disapproved by the Hon'ble Supreme Court in observations already quoted earlier. Needless to say that Wetland Rules, 2017 have been framed under the Environment (Protection) Act, 1986 under which there are statutory powers with the Central Wetland Authority to oversee the protection of wetland. It is not subject of 'water' alone. 'Environment protection' is covered by Central laws on account of International obligations under Entry 1 List 13 of Schedule 7 to the Constitution. Attitude of avoiding responsibility cannot thus be appreciated. CWA in the MoEF&CC needs to monitor compliance of the Wetland Rules throughout the country by periodical interaction atleast once in a month.

17. The suggestion of the applicant is that significant wetlands need not be limited to 363 and more wetlands on examinations be added to the list from time to time for better protection by preparing appropriate action plans under the programme for protection of the significant wetlands. Further, apart from figure of 2.01 lakh wetlands already mapped, to which the Wetland Rules, 2017 are applicable even if no separate Notification in terms of 2017 Rules in view of directions of the Hon'ble Supreme Court in *M.K. Balakrishnan, supra*, it may be possible to identify more such wetlands. Infact, the report of the MoEF&CC itself mentions that some States have already identified larger number of wetlands than earlier

mapped. In UP itself, 133484 wetlands are entered in the Revenue Records which are being protected by the State. On the same pattern, all the States/UTs need to map all available wetlands in their jurisdiction and file report with the National Wetland Authority so that National Wetland Authority can prepare an exhaustive inventory of wetlands in the country and extend protection to all such wetlands. These suggestions need to be considered by the MoEF&CC.

18. District Environment Plan of each District in terms of order of this Tribunal dated 05.07.2021 in OA 360/2018, *Shree Nath Sharma vs. Union of India & Ors.* should also cover the wetlands in the District. If necessary, the said plans be revised accordingly by the District Magistrates concerned by providing that the core activity for conservation and protection of wetlands may primarily focus on not discharging of sewage, disposal of solid waste and other wastes, preventing siltation, demarcation of wetlands/flood protection zone and removal of encroachments. There should be regular monitoring of water quality under water quality management programme at strategic locations (around 10 locations) to ensure that it is compliant with TC/FC norms. Water quality of the wetlands with respect to BOD needs to be less than 3 mg/l, feacal coliform should meet norms and contamination due to toxic constituents either directly or through runoff from the catchment should be prevented. Biodiversity of the wetlands needs to be maintained. Monitoring of steps for compliance of Rules in relation to such Wetlands ought to be at District level by the District Magistrate, at State level by State Wetland Authority and at National level by National Wetland Authority. We are confident that such initiatives in monitoring will go a long way in protecting the Wetlands which have significant environmental functions.

The application is disposed of.

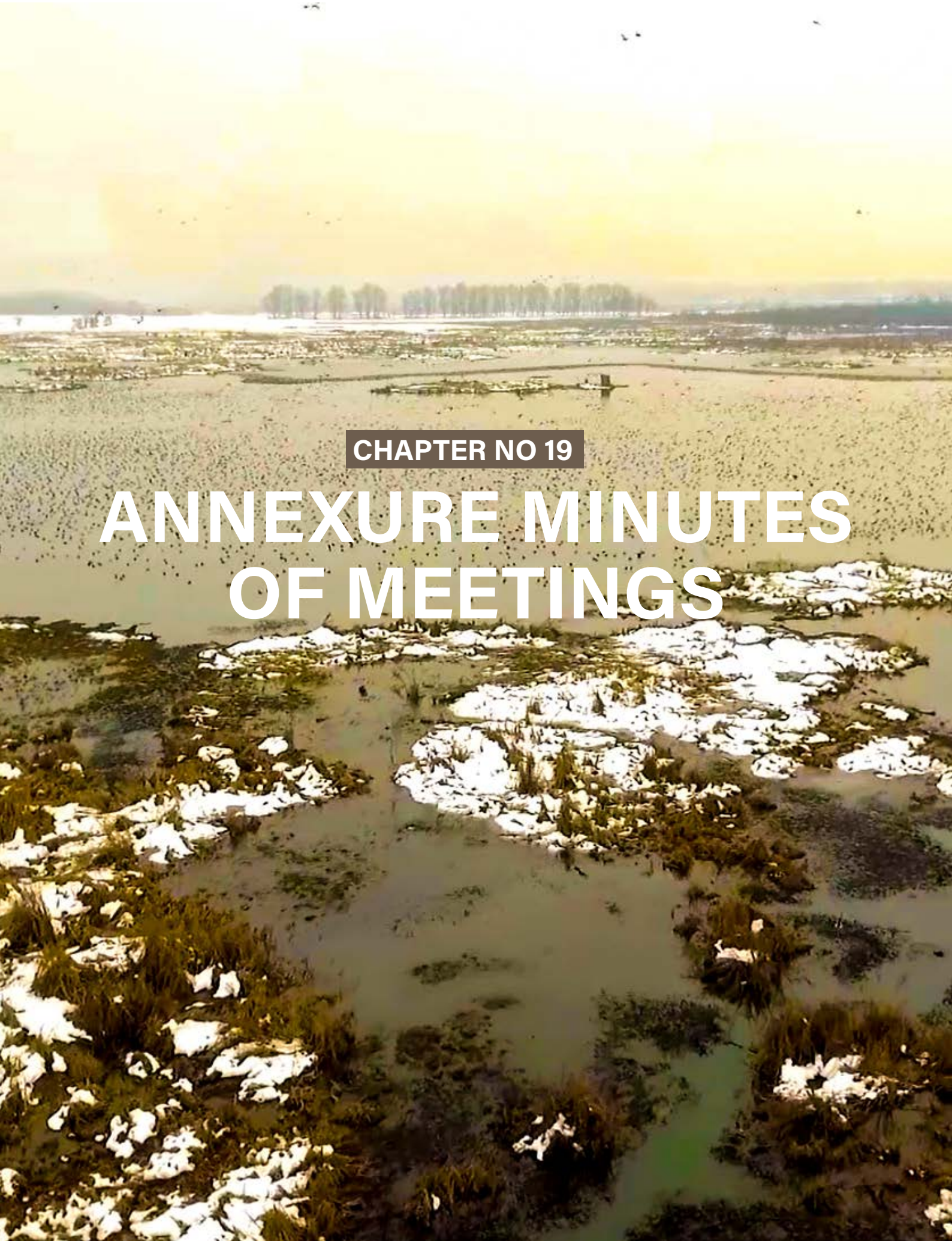
A copy of this order be forwarded to MoEF&CC, National Wetland Authority, all States Wetland Authorities, all States PCBs/PCCs, Chief Secretaries and District Magistrates by e-mail for compliance.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Dr. Nagin Nanda, EM

November 25, 2021
Original Application No. 351/2019
SN



CHAPTER NO 19

ANNEXURE MINUTES OF MEETINGS

Government of Jammu and Kashmir
Forests, Ecology and Environment Department,
Civil Secretariat, Srinagar
****

Subject: Minutes of the review meeting held under the chairmanship of Commissioner/Secretary to the Govt. Forest, Ecology and Environment Department on 13-07-2021.

A meeting, under the chairmanship of Commissioner/Secretary to the Government, Forest, Ecology and Environment Department, was held on 13th of July, 2021, at 2.30 PM through Video Conferencing Mode. The following officers and/or their representatives attended the meeting:

1) Principal Chief Conservator of Forests (HoFF), J&K
2) Director, Ecology, Environment and Remote Sensing, J&K.
3) Director, Social Forestry, J&K
4) Chief Wildlife Warden, J&K
5) Director, Soil and Water Conservation, J&K
6) Director, Forest Research Institute, J&K
7) Managing Director, Forest Development Corporation, J&K
8) Director, Forest Protection Force, J&K
9) Member Secretary, Pollution Control Committee, J&K.
10) Director (Finance), Forest, Ecology and Environment Dept., J&K.

At the outset, the Chair welcomed the officers and the discussion on the agenda items followed. Following decisions were taken in the meeting:-

1. **Administrative inspections:** All the HoDs were requested to furnish reports *w.r.t.* administrative inspections held by them in their respective subordinate offices, on fortnightly basis, as per the following format: -

Name of the Department	Name of the office in which the administrative inspection was held	Date of inspection	Remarks (if any)

2. **S.O. 324:** Attention of all the HoDs was invited to the instructions contained in S.O. 324 dated 22.10.2020, issued by the Finance Department, regarding review of performance of Government Employees. HoDs shall carry a screening of all the employees as per the S.O. 324. They were requested to expedite furnishing of the list of identified employees to be placed before the review committee for consideration of Competent Authority within 10 (ten) days.
3. **Ranking Index Format:** The discussion was also held regarding the initiative of Planning, Development & Monitoring Department to undertake the exercise of ranking the Departments on the basis of certain indices. The HoDs were requested to furnish the information required for filling in the Ranking index format, by 30th of each month.
4. **Audit Paras:** While appreciating the progress shown by the Departments in the follow-up of the matter with regard to clearance of Audit paras, OB items and adjustment of Red DC accounts, threadbare discussion was held on this agenda item. HoDs were requested to lay equal emphasis on the necessity of replying to and clearing Audit Paras and OB items; they shall keep a constant contact with

14/07/21

the office of Principal Accountant General. The HoDs were requested to take all steps to have the OB items and audit paras cleared expeditiously. It was re-emph asized upon all the HoDs to have the vital matter vigorously tracked, and to get the audit paras of their respective Departments replied to, and have them settled, at the earliest. HoDs were also requested to get the data with regard to Audit Paras/OB items reconciled with AG's office for a correct figure. It was also advised to ensure clearance of the audit paras/OB items, with both sections, "Audit" as well as "Accounts" of the AG's Office.

5. **Cleanliness in Offices and displaying of boards:** Commissioner/Secretary to the Government, Forest, Ecology and Environment Department, also reiterated these instructions already issued to the subordinate offices for observing cleanliness in office(s)/premise(s) and to ensure that the boards depicting the names of Officers working in each office are displayed at appropriate place.
6. **DPCs:** The attention was also invited to the standing instructions for holding the DPC meetings as per the devised calendar to ensure regular career progression of the employees.
7. **Wetlands Management:** The issue of Wetlands' Management also came up for discussion and the Chair requested PCCF/Chief Wildlife Warden to ensure that the process of bio-fencing of Wetlands commences with full energy. Chief Wildlife Warden was also requested to share the status of the Comprehensive Management Plan for Wetlands to the Administrative Department.
8. **Involvement of VPPCs:** Commissioner/Secretary to the Govt., Forest, Ecology and Environment Department, also impressed upon the Director, Social Forestry Department, to get all the VPPCs engaged purposefully and they be made vibrant. Involvement of VPPCs in the Forest Development works be adequately publicized.

The meeting ended with vote of thanks to and from the Chair.

(Suhail-ul-Islam) KAS
Deputy Secretary to the Government
Forest, Ecology and Environment Department

No. FST-ADM/4/2021-04 Dated:16 -07-2021

Copy to the:

1) Principal Chief Conservator of Forests (HoFF), J&K.
2) Director, Ecology, Environment and Remote Sensing, J&K.
3) Director, Social Forestry, J&K
4) Chief Wildlife Warden, J&K
5) Director, Soil and Water Conservation, J&K
6) Director, Forest Research Institute, J&K
7) Managing Director, Forest Development Corporation, J&K
8) Director, Forest Protection Force, J&K
9) Member Secretary, Pollution Control Committee, J&K.
10) Director (Finance), Forest, Ecology and Environment Department, J&K
11) Director (Planning), Forest, Ecology and Environment Department, J&K
12) Pvt. Secretary to Commissioner/Secretary to the Government, Forest Ecology and Environment Department.
13) PA to Secretary in the Department of Forest, Ecology and Environment.
14) Stock file.

Office of the Chief Wild life Warden J&K Jammu
No: CWLW/Estt/2021/958-69 Dated: 17-07-2021
01-02 Copy of above forwarded to Regional Wild life warden Jammu and Regional Wild life warden Kashmir for information and necessary action on above subject please
03-12 All Wild life Warden's of J&K for information & necessary action

Amar Gupta
Wildlife Warden (Trg. Wing)
Department of Wildlife Protection
Govt. of Jammu & Kashmir

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Government of Jammu & Kashmir
Forest, Ecology & Environment Department
Civil Secretariat, Jammu/Srinagar

MINUTES OF MEETING

A Meeting was held under the Chairmanship of Commissioner/Secretary to Government, Forest, Ecology & Environment Department on 29.07.2021 at 12.30 PM in Meeting Hall at 1st Floor Civil Secretariat, Jammu to discuss the issues regarding order passed by the Principal Bench of the Hon'ble National Green Tribunal, on 22.07.2021 in O.A No. 351/2019 titled Raja Muzaffar Bhat V/s State of Jammu and Kashmir & others. The officers stationed outside attended through Video Conferencing

The Following participants/Officers attended the meeting:-

1. Chief Wildlife Warden, Jammu and Kashmir
2. Member Secretary, J&K Pollution Control Board, Jammu
3. Divisional Commissioner, Kashmir
4. Chief Executive Director, WUCMA, Srinagar
5. Director Urban Local Bodies, Kashmir
6. Director Rural Sanitation, J&K
7. Deputy Commissioners, Srinagar/Budgam/Baramulla/Ganderbal & Pulwama
8. Vice Chairman, Lakes & Waterways Development Authority Srinagar
9. Additional Secretary (Legal), Rural Development Department & P.A

At the outset, the Commissioner/Secretary to Government, Forest, Ecology and Environment Department highlighted the importance of Wetlands and called for joint action by various Departments for their protection and conservation. Further, mentioned about the necessity of sustainability of wetlands which are part of our heritage. He further invited the attention of participants towards the issues raised in the order passed by the Hon'ble National Green Tribunal in O.A No. 351/2019 on 22.07.2021

After holding threadbare discussions in the matter the following decisions have been taken:-

1. Divisional Commissioner, Kashmir shall hold a meeting of Joint Committee 'constituted vide GAD order No.878 of 2019 dated 25-07-2019' in the next week to review the progress with respect to the mitigatory measures to the challenges being faced by the wetlands with particular reference to the wetlands mentioned in the said NGT order.

2. Regional Wildlife Warden, Kashmir shall prepare the action plan with respect to the wetlands under the jurisdiction of a

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Department of Wildlife Protection in time bound manner for submission of timely compliance to the Hon'ble NGT

3. CED, WUCMA and VC, LAWDA shall similarly ensure the completion of action plan with respect to Wullar and Dal Lakes respectively

4. The action plans shall include among others remedial action against weed infestation, sewerage discharges, solid waste dumping, siltation and encroachments.

5. The action plan should have provision for budget to address the challenges and authority responsible for implementation of the action plan shall also be designated

6. Director, Urban Local Bodies, Kashmir & Director, Rural Sanitation shall devise mechanism for preventing dumping of solid waste in the wetlands of their respective areas. They will take on board staff of Department of Wildlife Protection in this endeavor with regard to wildlife protected wetlands. A system for removal of any stray dumping of solid waste along the wetlands shall be put in place by Director Urban Local Bodies Kashmir and Director Rural Sanitation

7. The action plan shall also incorporate time bound removal of encroachments of wetlands and demarcation of their boundaries with Geo-tagging.

8. Director, Urban Local Bodies, Kashmir shall get the issue of disposal of sewerage into Freshkoori wetland examined on priority for remedial measures

9. All the concerned Deputy Commissioners shall provide necessary support in this regard.

The Meeting ended with vote of thanks to the Chair.

(Kabir Ahmad Malik)
Deputy Secretary (Legal)

NO. FST/Lit/145/2019 Dated: 02.08.2021

Copy to the:-

1. Chief Wildlife Warden, Jammu and Kashmir
2. Member Secretary, J&K Pollution Control Board, Jammu
3. Divisional Commissioner Kashmir.
4. Chief Executive Director, WUCMA, Srinagar
5. Director Urban Local Bodies, Kashmir

6 Director Rural Sanitation, J&K
7 Deputy Commissioners, Srinagar/Budgam/Baramulla/Anantnag & Pulwama
8 Vice Chairman, Lakes & Waterways Development Authority, Srinagar
9 Additional Secretary (Legal), Rural Development Department, J&K
10 Private Secretary to Commissioner/ Secretary to the Government, Department of Forest, Ecology and Environment for information of Commissioner/ Secretary

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Government of Jammu and Kashmir
Forest, Ecology and Environment Department, Civil Secretariat, Srinagar

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Subject: Minutes of the meeting regarding the issue Wetland Management held under the chairmanship of Commissioner/Secretary to the Government, Forest, Ecology and Environment Department on 14.07.2021.

A meeting was held under the chairmanship of Commissioner/Secretary to the Government, Forest, Ecology and Environment Department in his office chambers on 14th July, 2021 at 12.30 PM to discuss the Wetland Management in UT of Jammu and Kashmir, notified in Forest and Wildlife areas (Protected areas). The following officers attended the meeting:

1) Principal Chief Conservator of Forests (HoFF) J&K
2) Chief Wildlife Warden, J&K
3) Secretary in the Forest, Ecology and Environment Department
4) Regional Wildlife Warden Kashmir

At the outset, the chair welcomed the officers, while inviting their attention towards the issue regarding Wetlands Management. Principal Chief Conservator of Forests (HoFF) was requested to share their latest status in the matter. The chair also discussed the matter with Chief Wildlife Warden J&K also.

After detailed discussions following decision were arrived at:

1. To ensure ecological restoration of all wetlands falling in Forest and Wildlife areas
2. To formulate comprehensive Management Action Plans of each wetland, incorporating Bio fencing, wherever applicable.
3. PCCF (HOFF) shall submit a status Report regarding Action Plan, and future course of action to manage and restore wetlands in Forest areas.
4. The summary of wetlands falling in forest areas informed by PCCF (HoFF):

Region	Lakes/Wetlands	Ponds	Total	Total area
Jammu	162	89	251	21000 hec
Kashmir	398	0	398	
Total	560	89	649	21000 hec

(2)

5 Similarly APCCF (Wildlife /CWLW) informed that besides High altitude lakes falling in the protected areas, 14 wetlands/wildlife conservation Reserves are notified these are all river basin wetlands. Detail is summarised as under;

Region	No	Area in hec
Jammu	5	9650
Kashmir	9	4477
Total	14	14127

6 Chief Wildlife Warden J&K informed that in Kashmir Region formulation of integrated and comprehensive Management Action Plan, for all wetlands is under process. The task for formulating the Plan has been entrusted to NIT (Srinagar) and is likely to be completed in the month of September, 2021.

7 Chief Wildlife Warden also informed that Management Plan of Gharana wetland, in Jammu is at an advance stage of completion developed with the help of WWF-India and is expected to be completed by end of September, 2021. Further, Management Plan for Surinsar Mansar lake. is being prepared by Wildlife Institute of India, Dehradun and is likely to be completed by end of Oct. 2021.

8. The Commissioner/Secretary requested that PCCF/CWLW shall provide status of each wetlands on devised proforma, which shall include:

- Name of District
- Area of the wetland
- State of health of wetland.
- Current status of the management of plan
- Any intervention required for rejuvenation/restoration of the wetland.
- Bio fencing plan
- Tourism plan.
- Besides any other specific information, as may be felt desirable by PCCF/CWLW, shall be incorporated.

9. Commissioner/Secretary stated that both Wildlife/Forest Department should submit a synopsis capturing salient features, facts and management interventions required for these wetlands

10. Commissioner/Secretary Forests insisted that Bio-fencing by way of Planting feasible species along the fringes/boundaries of wetlands, should begin during Van Maha Utsav period.

11. Commissioner/Secretary Forests stated that, values, role, and characteristics of the wetlands should be properly highlighted, so that common

(3)

masses, are educated, in regard to the importance of these wetlands. Primary focus will be to highlight tourism potential of these sites.

Principal Chief Conservator of Forests (HoFF) J&K informed that in the Jammu region there is abundant Lantana medicinal flowering plant, which can be used as herbal medicine for treatment of various ailments. Hence a detailed report be sent from the PCCF, in this regard.

The meeting ended with votes of thanks to chair.

16/7

(Ghulam Dastgeer Alam)
Under Secretary to the Government
Forest, Ecology and Environment Department

No.FST-Land/08/2021-02 Dated 16. 07.2021

Copy to the;

1) Principal Chief Conservator of Forests (HoFF) J&K
2) Chief Wildlife Warden J&K
3) Secretary in the Forest, Ecology and Environment Department
4) Regional Wildlife Warden J&K Jammu/Kashmir
5) Pvt. Secretary to Commr/Secretary to the Government, Forest, Ecology and Environment Department

Office of the chief wied life Warden J&K Jammu.
NO: WLP/ESTT/2021/970-81. Dated:- 17-07-2021.

01-02 Copy of above and its encloses forwarded to Regional wied life Warden Jammu and Regional wied life Warden Kashmir for information please

03-12. All Wied life Wardens of J&K for information and necessary action please.

Wildlife Warden (Headquarters)
Department of Wildlife Protection
Jammu & Kashmir

Record Note of the meeting chaired by Chief Secretary on 03.08.2021 at 04:00 PM, in due deference of order dated 22.07.2021 of Hon'ble National Green Tribunal passed in OA No. 361/2019 titled 'Raja Muzaffer Bhat Vs State of Jammu & Kashmir & Ors.' at Meeting Hall 3rd Floor, Civil Secretariat, Srinagar.

Present:

1. Chief Secretary :in Chair
2. Commissioner/Secretary, Forest, Ecology & Environment Department.
3. Chairman, Jammu & Kashmir Pollution Control Committee. (through VC)
4. Chief Wild Life warden, Jammu & Kashmir. (through VC)
5. Member Secretary, Jammu & Kashmir Pollution Control Committee. (through VC)
6. Chief Executive Director, Wular Conservation & Management authority (WUCMA)
7. Vice Chairman, Lakes and Water Development Agency (LAWDA)
8. Deputy Commissioner's of Budgam, Bandipora, Baramulla, Srinagar & Pulwama. (through VC)

At the outset, order dated 22.07.2021 of Hon'ble National Green Tribunal (NGT) passed in OA No.361/2019 titled 'Raja Muzaffer Bhat Vs State of Jammu & Kashmir Ors.' was discussed. During discussions, Chief Secretary was informed that out of total 649 wetlands in UT of Jammu & Kashmir 398 wetlands fall in Kashmir province and 251 in Jammu.

2. The progress regarding directions on prevention of unscientific dumping of waste and encroachment, demarcation of wetlands in the Union Territory of Jammu & Kashmir was discussed by line departments. Regional Wild Life Warden, Kashmir made a power point presentation silent feature, challenges and remedial measures proposed for eight wetlands vis-a-vis **Hokersar, Hygam, Shallbug, Mirgund, Krencho,Chattalam, Freshkhoori, Manibug** Wetland Conservation Reserves. The discussion was held on implementation of the following points:

i. The implementation of **Wetlands (Conservation and Management) Rules, 2010** in the said wetlands.

ii. Preparation and Submission of detailed action plan, covering all remedial action against weed infestation, sewage discharges, solid waste disposal, encroachments etc. in respect of each of the wetland with budgetary support and identified accountable persons.

iii. Preparation of Demarcation maps and latest status of demarcation of these wetlands.

iv. Mitigation of weed infestation and encroachment issues of said wetlands.

v. Prevention of dumping of waste and implementation of solid waste management rules in and around the catchment areas of said Wetlands.

vi. Promotion of eco-tourism activities in wetlands.

vii. Submission of the compliance report in the instant matter.

3. After detailed deliberations, the following decisions were taken:

S.No.	Agenda	Discussion/Decisions Taken thereof	Action by
1.	Implementation of **Wetlands (Conservation and Management) Rules, 2010** in the wetlands of Kashmir.	Forest Department being Nodal Department shall ensure, strict and timely implementation of Wetland Rules, 2010, in all wetland of UT of Jammu & Kashmir in letter & spirit as regulatory framework for conservation and management	**Forest Department H&UDD & Divisional Commissioner, Kashmir.**
2	Preparation and Submission of detailed Action plan, covering all remedial action against weed infestation, sewage discharges, dumping of solid waste and its disposal, encroachments etc. on wetlands of Kashmir.	The Nodal Department in consultation with line department(s) shall prepare Detailed Action plan based on "wise use" scientific approach, considering ecological character and ecosystem services, with budgetary plan for wetlands of Kashmir, in consultation with stakeholders. The plan shall include present status of each wetlands and expected outcomes after the implementation of the action plan with the proposed interventions. The action plan shall be uploaded on the departmental website for a period of one week to invite suggestions from all stakeholders. The copy of same shall be	**Forest Department, & H&UDD**

		submitted to this office, within fifteen days by or before **18.08.2021.**	
3.	Dumping of waste and implementation of solid waste management rules in and around the catchment areas of said Wetlands.	The line department(s) shall ensure no waste is dumped in and around the water bodies. There should be no plastic waste in the wetlands. Bio-remedial measures shall be taken, at the earliest to address the problems of sewerage entering the wetlands.	**H&UDD, & Deputy Commissioners**
4.	Preparation of Demarcation maps and latest status of demarcation of these wetlands.	The Forest department shall prepare digital maps of each wetland. The department shall also ensure demarcation of each wetland and Cent percent of progress is achieved in a time bound manner. Also, Bio-fencing of all the wetlands shall be ensured.	**Forest Department**
5.	Eradication of the weed infestation issues of said wetlands	The line department(s) shall ensure all scientific and modern practices are in place for mitigation of problem of infestation of weeds. In view of this, the proposal for utilising resource shall be framed by Regional Wild Life Warden, Kashmir, to work out the modalities for better utilisation of biomass in terms of energy and production of manures from weeds within weeks time.	**Forest Department, H&UDD, Divisional Commissioner, Kashmir.**
6.	Eviction of Encroachment and action thereof of said wetlands	Divisional Commissioner, Kashmir shall hold a meeting in week's time and shall take necessary action as per the direction(s) of Hon'ble NGT & mandate of Government. There should be zero tolerance for the chronic and habitual offenders/ encroachers. Immediate and prompt action shall be initiated for eviction	**Forest Department, H&UDD, & Divisional Commissioner, Kashmir.**

		of encroachments in and around catchment of wetlands in question. The line department(s) in consultation with respective regional and district administration(s) shall take strict action against encroachers; the latest action taken report along with evidences may be submitted to this office at the earliest.	
7.	Action for de-siliting of wetlands	The removal of silt from wetlands requiring action, to be taken up through auction mode. In order to maintain required amount of water and enhance water holding capacity in the Hokersar wetland, Sluice gate shall be installed within one month.	**Forest Department, & Jal Sakhti Department**
8.	Development of approach roads and beautification of the entry points.	The line department(s) shall take up immediate action for improvement of approach roads and beautification of the entry points for all potential wetlands.	**Forest Department, & H&UDD**
9.	Other directions for all wetlands of Kashmir.	For all wetlands line departments shall go for water quality analysis vis-à-vis BOD, COD, pH etc may take up at the earliest besides line department shall immediately start working for the fallowing activities :- i. Bio-fencing ii. Side buds where required. iii. Catchment area treatment. iv. Biodiversity index study. v. Key species study vi. Bioremediation vii. Eco-tourism. viii. Winter festivals ix. Construction of Watch towers. x. Boating activities.	**Forest Department.**

		xi. USP xii. Installation of hoadings, Banners etc. xiii. Eco-trails xiv. Single use plastic compaigns xv. Marketing and Publicity for awareness of the general public etc.	
10.	Submission of the compliance status report in the instant matter.	The matter is again listed for hearing on **17.11.2021**, the line department(s) shall ensure timely action in the matter and submit the compliances regarding the matter as on **31.10.2021** to the Forest Department (Nodal Department) for onward submission of same to Hon'ble NGT within fixed timeframe.	**Forest Department & Divisional Commissioner, Kashmir**

4. The meeting ended with a vote of thanks to the Chair.

Special Secretary with Chief Secretary

No: PS/ CS/ Minutes/2021/140-C

Dated: 03.08.2021

Copy to the:

1. Principal Secretary, Housing & Urban Development Department.
2. Commissioner/Secretary, Forest, Ecology & Environment Department.
3. Divisional Commissioner, Kashmir.
4. Chairman, Jammu & Kashmir Pollution Control Committee.
5. Chief Wild Life warden, Jammu & Kashmir.
6. Member Secretary, Jammu & Kashmir Pollution Control Committee.
7. Chief Executive Director, Wular Conservation & Management authority (WUCMA)
8. Vice Chairman, Lakes and Water Development Agency (LAWDA)
9. Deputy Commissioner's of Budgam, Bandipora, Baramulla, Srinagar & Pulwama.
10. Private Secretary with the Chief Secretary, Jammu & Kashmir.

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No:- WLP/104-08 Dated 06-08-2021 forwarded to the :- Copy for information & necessary action to the :-

1. Regional Wildlife Warden, Jammu/Kashmir
2. Wildlife Warden, Wetlands/Kathua/Jammu

Chief Wildlife Warden,
UT of J &K

Government of Jammu & Kashmir

Divisional Commissioner Kashmir

email: dcomukpdg@gmail.com Tele: 0194 2458 18 Fax: 0194 2481111 2475775

Subject:- Issues regarding the Wetlands of Kashmir Valley.

Divisional Commissioner, Kashmir took a meeting with regard to subject matter on **07.08.2021 at 4.00 PM** in meeting hall of this office.

Following Officers participated in the meeting:-

1. Deputy Commissioner, Bandipora, Ganderbal (Through VC).
2. Vice Chairman, LAWDA.
3. Regional Wild Life Warden, Kashmir.
4. ADC, Srinagar.
5. ADC, Baramulla, Budgam, Anantnag, Pulwama (Through VC).
6. Superintending Engineering, I&FC, Srinagar.
7. Chief Sanitation Officer, SMC.
8. Rep. Director, Rakhs & Farms.
9. Rep. Pollution Control Board.

Regional Director, Pollution Control Board did not attend the meeting which have been viewed seriously and directed that he should personally attend next meeting.

At the outset, Divisional Commissioner, Kashmir while welcomed the participants showed displeasure on the absence of CEO Wuller Conservation and Management Authority who was reportedly busy in another meeting but did not seek exemption in advance. Thereafter, Regional Wild Life Warden, Kashmir apprised the chair that the case titled Raja Muzafar Bhat was filed before the Hon'ble National Green Tribunal against the unscientific dumping of Municipal waste in to the Hokersar Wetland, Wullar Lake and Krenchoo Chandhara wetland. The Hon'ble NGT passed order in the matter dated 09.04.2019 & 26.04.2019 wherein it was sought constitution of joint committee of Pollution Control Board, Wild Life Protection Deptt. and Deputy Commissioners of Budgam, Srinagar and Bandipora & furnishing of factual and ATR. Moreover, it was directed that committee may also look in to the issue of encroachment of water bodies also.

Further, it has been apprised that two orders have been issued by Government for constitution of joint committee to examine the application and submit the factual report before the Hon'ble NGT, viz, one committee comprising of DC Budgam, Regional Director PCB & Regional Wildlife Warden Kashmir and

second order wherein Deputy Commissioner Srinagar & Budgam have been added as members besides, Divisional Commissioner Kashmir its Chairman. Joint Committee headed by Divisional Commissioner, Kashmir submitted factual report /ATR before the National Green Tribunal in respect of three wet land viz, Wullar, Krenchoo and Hokarsar.

Furthermore, the Hon'ble Principal Bench National Green Tribunal New Dehli passed an order on 22.07.2021 where the National Wetland Committee was asked to expeditiously compile all relevant data about status of compliance of environmental norms in terms of directions of Hon'ble Supreme Court which covers 2,01, 503 wetlands. Out of the said data, data in respect of significant wetlands has been also asked to be placed before the Tribunal besides, other directions.

Thereafter the chair was apprised that recently the worthy Chief Secretary has also convened a meeting of stake holding departments regarding the matter and the chair directed ATR of the directions passed by Chief Secretary shall be submitted within 15 days positively.

After threadbare deliberations and discussion following decisions /directions were given

SNo.	Issue	Directions	Action by
1.	Bio-mass issue	It was apprised that a seminar is organizing by Wild Life Department on 14.08.2021 in which the reputed institution will deliberate scientifically& traditionally on the issue of bio mass, besides, the matter has been taken up with CSIR, Kashmir University, SKUAST, NIT Srinagar. The chair directed that action oriented suggestion/recommendations shall be given by the participants.	Regional Wild Life Warden (RWLW) Kmr.
2.	Silting	The chair directed that a meeting shall be conducted by I&FC, Wildlife Department, Geology & Mining and other stake holding departments and possibility shall be explored for submitting action plan on long term, medium term and short term measures.	RWLW/ I&FC/ G&M, Revenue Deptt. concerned
3.	Encroachment details	The chair directed the encroachment and other details of the wet lands shall be submitted by Wildlife and Revenue Department to this office	All DCs/ACRs, CE, I&FC, /

		within two days positively by deputing the officials for deliberations. Moreover, I&FC was directed to share the details of the study conducted by Poona with regard to silting etc with Wild Life Department for its submission before the Hon'ble NGT.	RWLW Kmr.
4.	Wullar Lake	It was apprised that there was approximately 90 kanals of land under encroachment situated at outer parameters of the Wullar Lake out of which encroachment at 10 kanals have been removed. In total , 640 K of land is under encroachment including the government authorized/accommodated Sher Colony. It was directed that matter of Kamas be taken with Rakhs and Farms so that action regarding the cultivation shall be taken as per the NGT directions within 15 days. Further, a survey shall be conducted in about the Sher Colony where the details of decadents and other than decedents shall be explored within 15 days and excess cutting shall be completed within 15 days positively as well, the machinery for accessing cutting shall be provided by Wild Life Department.	CED DC Bla/ Bandipora
5.	Haigam Rakh	It was apprised that only 76 kanals of land of Haigam Rakh is under structures, 15 kanals under plantation and 461 kanals under seasonal paddy cultivation. The chair directed that ADC Sopore and Wild Life department along with Tehsildar Khoi shall conduct demarcation process within 4-5 days and shall submit the information with break up. Besides, access cutting to the wetland shall be done and Wildlife Deptt. shall provide the machinery.	RWLW Kmr,/ ADC Soporer/Bla /Tehsildar Khoi
6.	Hokersar	The chair was apprised that 2273 kanals of land has been provided to Kamas for paddy cultivation by Rakhs & Farms besides plantation on 248 kanals existed on Srinagar side. The chair directed that in order to ascertain the actual data about the	DC Srinagar/ Budgam

		encroachment of out parameter of the water body concerned Tehsildar and Patwari shall attend this office on Monday along with all the records and information. ADC Srinagar shall ensure to provide actual figures / numbers about outer parameters. I&FC Department has also float tenders for silting the chair directed that tendering shall be completed by or before 20.08.2021	
7.	Shallabugh	It was informed that 90% of the wetland is demarcated and only 10 percent is without demarcation which is under plantation, besides, there is no structure on the wetland. The chair directed that the demarcation with regard to wetland of Manasbal, Anchar (Ganderbal side) and Shallabugh shall be completed by or before 20.08.2021.	DC Ganderbal
8.	Pampore Wetlands viz, Krenchoo, Hashpori, Manibugh & Chatlam	It has informed that there is no encroachment issue on the wetlands, however, there is sewerage and drainage issue. Moreover, a joint visit has been conducted and task force has been framed by ULB, dust bins has been distributed to nearby household , but it has been informed that they (ULB) don't have any expertise for installation of STP/ETP. The chair directed that the data with regard to all the types of land in respect wetlands of pampore shall be completed, beides, the assessment of the out parameters and handover portion. Further, concerned NT, Patwari and Wildlife functionaries will attend this office alongwith the records on Monday viz, 19.0.2021.	DC Pulwama/ CWLW Kmr.
9.	Narkara	The chair directed that Narkara Wetland shall be taken up by Wild Life Department for its conservation and protection.	RWLW Kmr
10.	Anchar	The chair directed that Anchar Wetland shall be taken up by Wild Life Department for its conservation and protection.	RWLW Kmr
11.	Dal Lake	VC LAWDA informed that the ATR/Action Plan of the directions of Honble NGT will be ready by or before Monday. (19.08.2021).	VC LAWDA
12.	NOC for	Further the chair directed that no major	All

taking up any Dev. Work	development work shall be taken up for execution within the parameters of wetlands unless the NOC is issued by concerned Authority.	**concerned, DC Bla/Ang/ Sgr /Pul/ Gbl/ Bndp/ Bud, RWLW etc.**

Before culminating the meeting the chair HLC (LAWDA) subcommittee meeting shall be conducted at an earliest and shall be submitted to this office. Besides, the data with regard to structures on the outer parameters of all wetlands including the Dal Lake shall be shared in soft as well as hard with this office.

The next meeting on the subject shall be held on 21.08.2021 at 4.00 PM.

Ashiq Hussain Malik
Deputy Director (E&S)

No. Divcom/Dev/117/2021-I Dated: 17.08.2021

Copy for information and necessary action to the:

1. Deputy Commissioner, Baramulla/Anantnag/Srinagar/Bandipora/Pulwama/ Ganderbal/ Budgam.
2. Commissioner, SMC.
3. Regional Wildlife Warden, Kashmir.
4. Vice Chairman LAWDA/SDA.
5. Director, Rakhs & Farms , Kashmir.
6. Chief Engineer, I&FC Deptt. Kashmir.
7. Regional Director, Pollution Control Board, Kashmir.
8. DIO, Srinagar for information and n/a.

Government of Jammu and Kashmir
Department of Wildlife Protection
OFFICE OF THE REGIONAL WILDLIFE WARDEN KASHMIR REGION

No: RWLW/K/Tech/2021-22/906 Dated: 18 -08-2021

1/- Copy of above forwarded to Wildlife Warden, Wetlands Kashmir Division, for information and necessary action. She is advised to submit the point-wise Action Taken Report/necessary follow up action before 20th of August,2021 as Worthy Divisional Commissioner is holding a review meeting on 21st August,2021

Regional Wildlife Warden,
Kashmir Region

GOVERNMENT OF JAMMU & KASHMIR
UNION TERRITORY OF JAMMU AND KASHMIR
OFFICE OF THE DIVISIONAL COMMISISONER KASHMIR

Subject: - OA No. 351/2019 titled Raja Muzaffar Bhat V/s state of J&K and others

Minutes of the meeting held on 13/08/2020 at 4.00Pm in the meeting hall of Divisional Commissioner Kashmir.

In order to review the decision taken in the previous meetings of the committee constituted vide Govt. Order No. 648 GAD of 2019 dated. 04.06.2019 read with GO Order No. 878-GAD of 2019 dated. 25.07.2019 in compliance to the order dated.09.04.2019 passed by the Hon`ble NGT in the captioned subject matter , the chairman of the committee i.e. Divisional Commissioner Kashmir has conducted 3rd meeting on the above said schedule date time and venue, wherein the following officers have participates;

1. DC Bandipora/ Budgam/ Addl. Dy. Commissioner Pulwama **(Through VC).**
2. Additional Deputy Commissioner, Srinagar.
3. Director Rakhs & Farms Kashmir
4. Regional Director, State Pollution Control Board, Kashmir
5. Regional Wildlife Warden, Kashmir.
6. Joint Commissioner SMC.
7. Representative of Chief Executive Director Wular Conservation and Management Authority (C.C.F) Kashmir.
8. Representative of Chief Engineer I&FC Srinagar
9. Representative of VC LAWDA.
10. Representative of Director Environments, Ecology & Remote Sensing Srinagar.

At the outset, the chair has asked to the wildlife warden Kashmir to apprise the participants about the back ground of the issues, which are main subject of the petition. it was apprised that there are two main issues are involved in the above referred petition before Hon`ble NGT viz Encroachment and Dumping of Solid waste Management in respect of Walur Lake, Hokersar

and Chandhara Kranchoo. In light of the decision taken in the previou meeting, the Hon`ble NGT is required to be apprised by a fresh progress report.

Accordingly, the Worthy Divisional Commissioner, Kashmir, after threadbare discussion issued instructions mentioned against each below mentioned issues:-

S.No	Issues	Discussion	Instruction	Action by
1.	**Wular Lake**: i. Mapping out of the area of the water bodies.	It is inform that the water bodies has been mapped	No action required	
	II. Dumping of Solid Waste Management.	The dumping of solid waste is presently done at Bandipora bund side land provided by District Administration which is consisting of 35 Kanals and 1650 Ft is away from periphery of Wular Lake. TheDistrict Administration has further identified 20 Kanals Land at Mader Kunan Bandipora for disposal of such waste. However it is reported that near boundary pillar No. 1159 the dumping is continue at old site despite shifting.	The District Administration Bandipora, Municipal Committee Bandipora and Ex. Director WUCMA shall ensure that no Solid Waste is dump at old site where the dumping was taken place	DC Bandipora. MC Bandipora Chief Executive Director WUCMA
	III. Removal of encroachments	On demarcation it has been found that 0.3 Sq. Kmt (560 Kanals Apx) has been encroached. Out of which 80 Kanals has been retrieved from the encroachers.	The DC Bandipora shall constitute a committee comprising of Addl. DC / Tehsildar and Rep. of WUCMA. The committee shall ensure the removal of encroachment by taking action under law against the defaulters, such process the completed by ending September, 2020.	DC Bandipora
2.	**Hokarsar** i. Mapping out of the area of the water bodies.	It is inform that the water bodies has been mapped	No action required	
	ii. Dumping of Solid Waste Management	It is informed that no solid waste has been dumped from Budgam site. However, from	The DC and MC Budgam shall ensure that no dumping of solid waste	DC & MC Budgam.

		Saibugh and Dharmulla side some dumping has been notice.	management shall be done in future.	
	iii. Removal of encroachments	Demarcation has been done and 83 pillars are to be installed out of which 35 has been installed and balance are been completed. Some encroachment closed to the perimeter of the Hokersar in Zainkote, Hajibagh, Soibugh, Dharmulla and Narbal village have been found. Accordingly evection notices has been issued against the encroacher.	The Regional Wildlife Warden Kashmir has been directed to get retrieved the encroach land by end of September 2020	Regional Wildlife Warden Kashmir
3.	**Kranchoo Chandhara** i. Mapping out of the area of the water bodies.	It is informed that the water bodies have been mapped.	No action required	
	ii. Dumping of Solid Waste Management	No regular dumping of Municipal solid waste is taking place. However stray incidents of dumping of garbage at some sports by some locals has been reported.	The Regional Wildlife Warden Kashmir has been directed to ensure the removal of such dumping of garbage within a week time.	Regional Wildlife Warden Kashmir
	iii. Removal of encroachments	The kranchoo Chandhara wet land spread over 60 Ha area of state land, out of which 6.40 Ha has been handed over to the Wildlife Department. The rest of 53.60 Ha was to be handed over to the Wildlife Dept.	The concerned dealing hands of the Divisional Commissioner Kashmir office shall trace out the file pertaining to transfer of land from Revenue Dept. to Wildlife Dept. in order to take up the matter with the Govt. for finalization of the proposal.	Land Acquisition Section of Divisional Commissioner office Kashmir.
4.	Review of decision taken in the meeting held on. 26.06.2020, regarding compliance of NGT order dated. 10.05.2019 read	The response of all Deputy Commissioners of Kashmir division to the decision taken in the meeting held on. 26.06.2020 is still awaited. However the Regional Wildlife Warden has	All the concerned has been directed to furnish the Action Taken Report to this office within a week positively. Besides the copy of action plan formulated by the	All Deputy Commissioner`s of Kashmir Division and Director Environments, Ecology & Remote Sensing Srinagar.

	with 25.02.2020 and 01.06.2020 passed in OA No. 325/2015 titled Lt. Col. Sarvadaman Singh Oberoi V/s UOI and Other	submitted the information as per devised format.	Director Environments, Ecology & Remote Sensing Srinagar be also furnished to this office.	

The meeting ended with the vote of thanks to and from the chair.

(Pandurang K. Pole)IAS
Divisional Commissioner
Kashmir/S

No. DivCom/RA-NGT/2020/62

Dated.20/08/2020

Copy for information and necessary action please:-

1. Deputy Commissioner/ Srinagar/ Pulwama/ Shopian/ Kupwara/ Bandipora /Baramulla/ Budgam/ Kulgam/Ganderbal/ Anantnag.
2. Chief Executive Director Walur, Conservation and Management Authority.(CCF Kashmir)
3. Commissioner SMC.
4. Director Urban Local Bodies Kashmir,
5. Vice Chairman LAWDA.
6. Chief Engineer I&FC Srinagar.
7. Regional Director, State Pollution Control Board Kashmir
8. Director Rakhs and Farms Kashmir.
9. Director Industries and Commerce Kashmir.
10. Director Environments, Ecology and Remote Sensing Kashmir
11. Regional Wildlife Warden Kashmir.
12. In-charge Land Acquisition Section of Divisional Commissioner office Kashmir.



CHAPTER NO 20

NOTIFICATIONS AND OTHER LAND RECORDS

N

S HIGHNESS' GOVERNMENT, JAMMU & KASHMIR.

CHIEF SECRETARIAT.

(General Department.)

Amendment to Notifications under the Game Preservation Act 1998.

(1) Memorandum No. F/427/43 dated 25-6-45

from the Development Minister

(2)

ORDER No. 710 -C OF 1945.

Dated 17 -7- 1945.

The notifications forming an annexures to this order are sanctioned and it is directed that it be published in the Government Gazette.

By order in Council.

PRIME MINISTER

Confirmed.

MAHARAJA.

PSC attested

HIS HIGHNESS' GOVERNMENT, JAMMU AND KASHMIR.

NOTIFICATION

In exercise of the powers conferred by sub-section (3) of section 4 of the Jammu and Kashmir Game Preservation Act, 1998, the Government are pleased to exempt the following Game Sanctuary and Game Reserves from the provisions of section 6 of the said Act to this extent that grazing therein may be permitted by the Chief Conservator of Forests.

GAME SANCTUARY.

Chunnat basin in Kazi valley as delineated in the map hereto annexed.

GAME RESERVES.

Jammu Province

Jasrota Forest I and II including Bagni Blocks an area near Kathua in the Kathua Forest Division.

1. Dalnar Rakh.
2. Nath Rakh.
3. [illegible]
4. [illegible]
5. Kanser (Tunnal Rakh).
6. Karan Rakh.
7. Khori Rakh.
8. Agra Chak Rakh.
9. Radyal Rakh.
10. Vakwal Rakh.
11. Ramnagar Rakh.

Kashmir Province.

1. Chashmashahi Rakh.
2. Dara Rakh in Lidder Valley.
3. Khirram Pakh (Big Game area outside the State Rakh as delineated in map A hereto annexed).
4. Lower Dachhigam Rakh, (as delineated in the map B hereto annexed).
5. Ijjas Big Game area (as delineated in map C hereto annexed)
6. Thajiwas Nullah (as delineated in map D hereto annexed).
7. Laipasian Rakh.

NOTIFICATION 2

N

In exercise of the powers conferred by Section 5 of the Jammu and Kashmir Game Preservation Act,1990, and in supersession of Notification NO: 2 appended to the said Act, the Government are pleased to declare the following areas as Game Sanctuaries, Game Reserves and Reserved Areas respectively, namely:-

I. GAME SANCTUARIES, At

Kashmir Province.

I, Rajparian and Bewal Basins in Norbug Valley.

II, Shankaracharya hill,

III, Chumnai basin in Arou valley.

Jammu Province.

I, Soonjani and Sapphire mines Nullah in Kishtwar.

II, Pond near Sri Gouri Sankar in Kishtwar.

III, Places snored to all communities.

Ladakh

I. Khushpul and Yinu basins in Baltistan.

II, Askor Nullah in Rondu, Baltistan.

II.GAME RESERVES

CLASS A

Kashmir Province

I. Achhabal Rakh,

II. Chhatargul Nullah in Sindh Valley,

III. Vangat Nullah in Sindh Valley,

IV, Kondi and Khrae Nullah in the Uri Tehsil the lower boundary of which is the new road to Haji Pir.

V. Aitoro shooting area as specified in Schedule A.

VI. Karingg and Kafirkhan area including Salkhala, the Koji and Shamsbury Rakha.

Jammu Province

I. Shashera Forest- An area near Rajori in the Mirpur Forest Division.

II, Jhallengar Forest- An area near Reasi in the Reasi Forest Division,

III. Jasrota Forest I and II including Bagri Block- An area near Kathua in the Kathua Forest Division.

Ladakh

I. Ovis Ammon Blocks (specified in Schedule A)

II. Sharou Blocks (specified in Schedule A)

CLASS B

Kashmir Province.

i. Chashmashahi Rakh.

ii. Orra Rakh in Liddar Valley.

iii. Khirram Rakh (Big Game area outside the State Rakh as delineated in the map A hereto annexed).

iv. Lower Wohibgam Rakh (as delineated in the map B hereto annexed). deleted & omitted

v. Ajjan (Big Game area as delineated in map C hereto annexed).

vi. Ibrahim Mullah as delineated in map D hereto annexed.

Jammu Province.

i. Dalsar Rakh.

ii. Nath Rakh.

iii. Gutarh Rakh.

iv. Manasar (Sagoon Rakh).

v. Mansar (Tunnel Rakh).

vi. Koran Rakh.

vii. Kheri Rakh.

viii. Agra Chak Rakh.

ix. Badyal Rakh.

x. Nakwal Rakh.

xi. Ramnagar Rakh.

Note:- Shooting or killing of pigs within five miles of the Game Reserves Class B is prohibited.

CLASS C

Kashmir Province.

i. Hygam Jhil.

ii. Mirgund Jhil.

iii. The Pampur, Karanchu, Haniboog and Chandara Jhils.

III. RESERVED AREAS

Kashmir Province.

i. Dara Chikor Area.

ii. Nishat Chikor Area.

iii. Bren Chikor Area.

iv. Zewan area delineated in map E.

v. Khirram Chikor Area, outside the State Rakh as delineated in map. F.

vi. Ajjan Chikor Area.

iii. Koyan Chikor Area situated between Khrew and Khunmoo Nakha as delineated in map C.

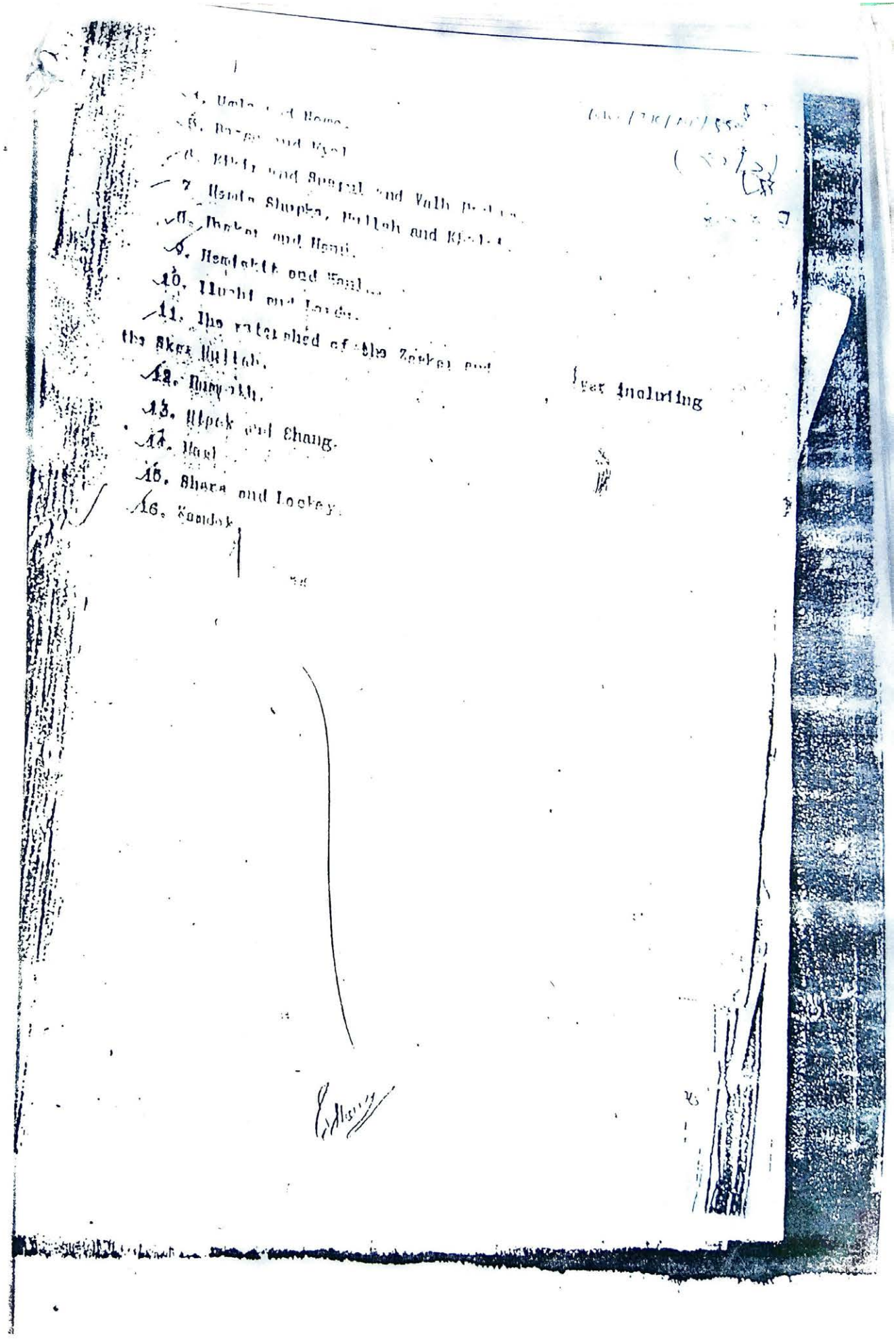
Note:- Only two shoots will be permitted in Ajjas Chikor Area at the discretion of the Camp Warden after His Highness the Maharaja Bahadur leaves for Jammu. No permits will be issued for Nuyan Chikor area after snowfall.

SCHEDULE A

1. The tributaries of the Indus from Dumbochik to Koyul.
2. The watershed of the Koyul river as far as its junction with the Indus, below this all tributaries, of the Indus as far as big band of the river at Dungti.
3. Hanle river basin as far as south of Hanle Monastery.
4. Hanle river basin south of (3).
5. The tributaries of the Indus between the Hanle river and Puga river.
6. The country lying between 3 and 4 on the east 5 on the north and 6 on the west.
7. The basin of the Salt Lakes and tributaries of the Indus between (and including) the Puga river as far as the water of the Tiri Foo.
8. The basin of the Tsomoriri Lakes and the Phirsi Nullah.
9. The Tiri Foo and the country lying to the north bounded by Indus on the north and east, the Leh Kulu road on the west and the watershed of Tsoker Camp plain on the south.
10. The watershed of the Zora and Rakhchan South.
11. The watershed of the Marka river.
12. The Karnah Nullah.
13. The triangular area lying between Choosbal on the north, the Frontier on the east, the watershed of the Choosbal river and Chamtnag Foo on the west and the Indus on the south from Chamtnag to Dungti.
14. The catchment area of Tanse river.
15. The Changchenmo area.

SCHEDULE B

1. The Igu and Chimre Nullah.
2. Nag and Sabu.
3. Phyang and Tara.



1. Uma
5. Ba
6. Khi
7. Hanla Shupka, Pallah and K
8. Dhakar and Hanl
9. Hemlakk and Sail
10. Hushi and Lar
11. The catchshed of the Zaskar and the Skya Pallah.
12. Dumkh.
13. Hipak and Chang.
14. Nagi
15. Shara and Lookey.
16. Kaudak

for including

Annexure III

ADDENDUM TO SECTION 59 OF NOTIFICATION 4 OF THE GAME ACT.

***

In exercise of the powers conferred by section 26 of the Jammu and Kashmir Game Preservation Act 1990, the Government are pleased to direct that the following further amendment shall be made in the Rules contained in Notification 4 issued under the said Act, namely:-

In rule 59 of the said Rules the full point at the end shall be deleted and the following proviso shall be added thereto, namely:-

" Provided that Hygam, Hirgund, Pampur, Karanghi, Haniboog and Chandara Game Reserves shall be treated as reserved areas for the purposes of allotment of shooting therein and issue of permits therefor."

In exercise of the powers conferred by sub section (3) of section 1 of the Jammu and Kashmir Lakes Preservation Act, 1990, the Government are pleased to direct that the following amendment shall be made in Notification NO: 1 issued under the said Act namely:-

For the Schedule appended to the said Notification the, following schedule shall be substituted namely:-

SCHEDULE -

List of Wetlands.

Kashmir Province.

1. Upper Dachigam including Gratber as demarcated.
2. Khummo and grass-farm between Sangri and Chak Khummo.
3. Khrew including Dadu area (as demarcated).
4. Iral-cum-Khiram (as demarcated).
5. Khul basin in Anantnipura Tehsil.
6. Anchar lake from Hokarsar to Sangam.
7. Hokar Sar Jhil.

Jammu Province.

1. Babu.
2. Jangharoo.
3. Thanon.
4. Kotli.
5. Tandah.
6. Nadali.
7. Larsi.
8. Sansoo.
9. Mahranal.
10. Kothian Dhar along with Sia and Thandapani areas (as demarcated).

Areas, waters, water fields and floating fields which comprise Gagribal, Dal lake, Nagin lake, Anchar lake, Mansbal lake, Hokarsar lake and Haigam Rakh.

Revenue Department [1]*Notification SRO-156 dated 15th April, 1971.*—In pursuance of the provisions of the Explanation to section 133-B of the Jammu and Kashmir Land Revenue Act, Samvat 1996, as amended by the Jammu and Kashmir Land Revenue (Amendment Ordinance, 1971, the Government hereby specify in the Annexures 1, 2, 3, 4, 5 and 6 the areas, waters, water fields and floating fields which the Gagribal and Dal Lake, Nagin Lake, Anchar Lake, Mansbal Lake, Hokarsar Lake and Haigam Rakh shall respecttively comprise.

TABLE

Name of Lake.	*Khasra Nos. Buchwara.*
Gagribal and Dal Lake.	From survey No. 1 to 66, 99 min, 149 min, 150 min, 151 min, 152 min, 355 min, 356 min, 357 min, 359 min, 377 min, 378 min. 379 min, 385 min, 386 min, 387 min, 457 min, 459 min, 458 min, 460 min, 461 min, 462 min, 482 min, 484 min including Bata Numbers. Khasra Nos. Nowpora. From No. 286 to 524, 549, 743/1 including Bata Numbers, and 242, 244 to 254/1 including Bata Numbers. Khasra Nos. Karpora. From Survey No. 1 to 2078 including Bata Numbers, whole village both parties (Badhar-Karpora).

1. SRO-156 of 1971 published in Govt. Gazette dated 15th April, 1971.

Name of Lake.	*Khasra Nos. Buchwara.*
	Khasra Nos. Nandpora (A). From Survey Nos. 761 to 3269, 3372 7202 including Bata Numbers.

ANNEXURE 2

Nagin Lake.	Khasra Nos. Nandpora (B). From Survey Nos. 232 to 258, 258/1, 2 to 263, 266, 267, 268 to 270, 275 to 5 579 to 592, 600 to 635, 637, 653 to 6 686/1 including Bata Numbers.

ANNEXURE 3

Anchar.	Khasra Nos. 4268 to 4292, 938, 937, 936 920 1287 1293, 1015, 1032, 1284, 1285, 1282, 128 4314 to 4363, 2197, 171, 807, 807/1, 8 4054, 803, 789, 1221 to 1248, 4394, 43 4372, 1255 to 1547, 1564 to 1594, 1597 1879, 1918 to 2196, 2198, 2199, 2208 2733, 2740 to 2784, 2788 to 2831, 2882 3319, 3330 to 3360, 3367 to 3390 to 366 3629 to 4096, 4382 to 4433.

ANNEXURE 4

Mansbal.	68, 185, 186, 210 min, 216 min.

ANNEXURE 5

Hokarsar.	1164, 1165, 1166, 1167, 1168, 1169, 117 1171, 1172, 1173, 1174, 1175, 1176, 74 1236/745.

ame of Lake.	*Khasra Nos. Buchwara.*
igam Rakh.	853/1, 858, 859/1, 860, 863, 1406/1, 2706/1, 2749, 2750, 2758/2, 2769.

ANNEXURE 6

Delegation of powers of Government u/s 15 to Revenue Minister.

General Department-Annexure to Cabinet Order No. 61-C of 1951 dated 10th November, 1951.—In exercise of e powers conferred by section 138-A of the Land Revenue t, 1996, the Government are pleased to delegate its wers under sub-sections (1), (3) and (4) of section 15 of e said Act as amended by the Jammu and Kashmir Land evenue (Amendment) Act, 2008, to the Revenue Minister.

Numbers, whole village ... (Badhar-Karpora).

1. SRO-156 of 1971 published in Govt. Gazette dated 15th April, 1971.

OFFICE OF THE TEHSILDAR NARBAL

The Wildlife Warden Wetlands,
Srinagar.

Subject:- Statement showing land falling under Mirgund (Kawoosa Jagir) as per Revenue Records.
Ref:- Your office letter No:- WLW (WL) /Estt/2021-22/704-705, Dated:- 23-08-2021

Sir / Madam

Regarding the subject and reference captioned above. In this context the requisite information as per the format is as under:-

S.No	Name of village	Proprietary Land		Section 5		Section 4		State Land		Grand Total	
		Kanal	Marla	Kanal	Marla	Kanal	Marla	Kanal	Marla	Kanal	Marla
1	*Checki-Kawoosa (Kawoosa Jagir)*	Nil	Nil	96	19	2793	3	4016	1	6906	3

Hence submitted for favour of information and further necessary action.

No:- 255 /OQ/TN/21-22
Date:- 26 -08-2021

Yours Faithfully

TEHSILDAR
NARBAL
(OQ)

OFFICE OF THE TEHSILDAR KHOIE

Statement showing the status of wet land falling in estate Rakh-Higam Tehsil Khoie

Name of The village	Total wet land Area				Total area demarcated .		Area encroached out of demarcated land		Kind of encroahment with area								Structures Total			State land in wet land area		Kachari la wet land
	As stated by life Deptt.		As per revenue records						Paddy		Structure		Orchards/Plant ation		Others							
	K	M	K	M	K	M	K	M	K	M	K	M	K	M	K	M	Hous e Holds	Oth ers	Tot	K	M	K
Rakhi Hiaga m	14332	0	14133	11	14133	01	1897	02	1773	02	91	06	32	14	0	0	56	95	151	0	0	0

NOTE:- Demarcation has been completed by concerned team and this office is always ready to assist the Wild Life Department for removal of encroachment whenever they approach this office for the said purpose.

Hence demarcation report submitted for further favor of information and necessary action please.

Patwari Halqa

Range Officer Wildlife

Zildar Canals I&FC Sopore

Tehsildar Khoie

Statement Showing The Details Of Wetland / Hokersar Of Tehsil Budgam

S.No	District	Tehsil	Name of Village	Name of Wetland / Water Body	Proprietory Land							Section - 5							Section - 4							Sarkar							Grand Total
					Residential		Under Crop		Vacent		Total	Residential		Under Crop		Vacent		Total	Residential		Under Crop		Vacent		Total	Residential		Under Crop		Vacent		Total	
					K	M	K	M	K	M		K	M	K	M	K	M		K	M	K	M	K	M		K	M	K	M	K	M		
1	Budgam	Budgam	Dharmunah	Hokarsar / Soibugh	52	5	782	5	....	....	834 - 10	....	....	655	7	....	....	655 - 7	....	....	....	....	603	....	603	....	....	....	....	1268	7	1268 - 7	3361 - 4
2	Do	Do	Soibugh	Do	81	....	227	15	195	9	504 - 4	....	....	....	....	1068	18	1068 - 18	....	....	....	....	365	11	365 - 11	....	....	....	....	843	6	843 - 6	2781 - 10
3	Do	Do	Rakhi Aarath	Do	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	17090	....	17090	17090
			Total		135	5	1010	0	195	9	1338 - 14			655	7	1068	18	1724 - 5					968	11	968 - 11					19201	13	19201-13	23233 - 3

Note : Submitted in original to the Deputy Commissioner, Budgam for information and necessary action

Patwari Halqa

GQ M. Halqa/Circle.

Mark Tehsildar Soibugh.

Tehsildar Budgam. 06/02/2021.

STATEMENT SHOWING THE DETAIL REGARDING QUANTUM OF LAND UNDER HOKERSAR

NAME OF TEHSIL	CENTRAL SHALTENG										
NAME OF DISTRICT	SRINAGAR										
NAME OF REVENUE VILLAGE	ZAINAKOTE										
TYPE OF LAND	QUANTUM OF LAND										
	UNDER HOUSES		UNDER TREES		UNDER CROP		VACANT		TOTAL		REMARKS
	K	M	K	M	K	M	K	M	K	M	
PROPRIRTORY LAND	-	-	-	-	-	-	-	-	33	17	-
LAND UNDER SEC 5	-	-	-	-	-	-	-	-	69	4	-
LAND UNDER SEC 4 KAH CHARARAI	-	-	-	-	-	-	-	-	446	2	-
SARKAAR	-	-	-	-	-	-	-	-	3356	18	-
GRAND TOTAL	-	-	-	-	-	-	-	-	3906	1	-

Note: Submitted to Original to the Tehsildar for further action.

Patwari Halqa.....
Department of Revenue
Jammu & Kashmir

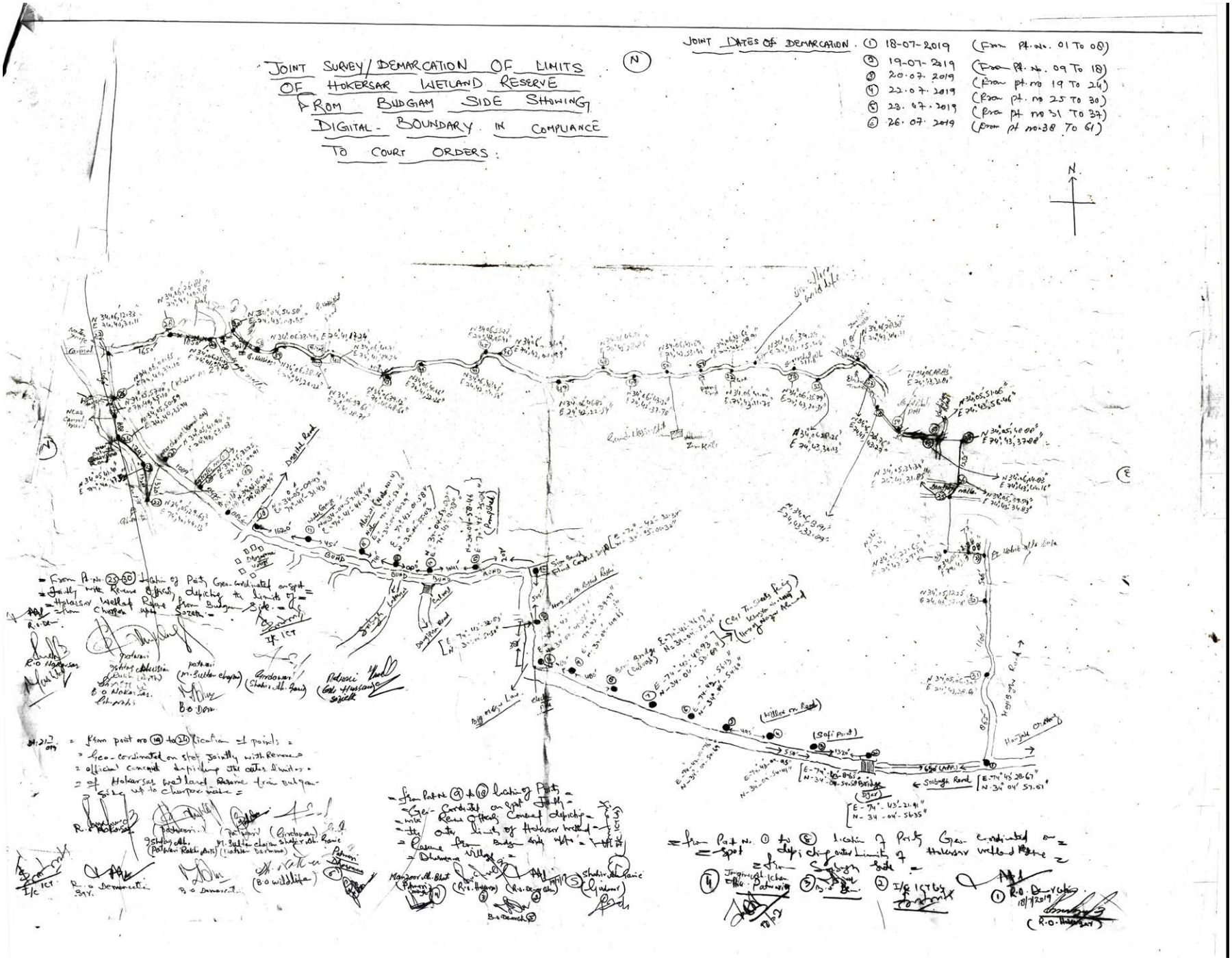
NAIB TEHSILDAR
Batamaloo, Sgr.

Register of Forests-Form No. I Forest Department Jammu and Kashmir State.

LAKE RANGE GAME DIVISION.

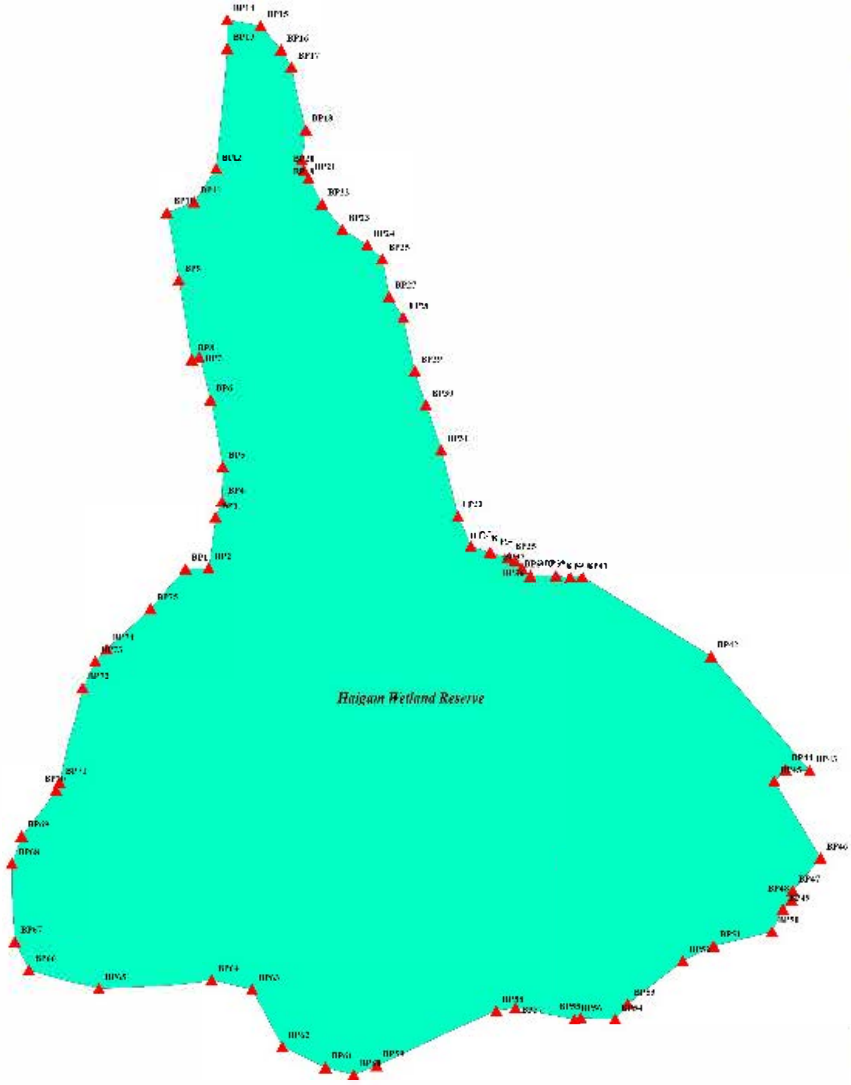
S. No.	Date of entry	Year of Demarcation	FOREST NAME	FOREST Locality	FOREST Tehsil	Compt. constituting the Forest	AREA IN Acres Ac-Kl-Mr	AREA IN Hectares	No. of Boundary pillars	LENGTH OF BOUNDARIES Miles M. Krm	LENGTH OF BOUNDARIES Kilometres	DESCRIPTION OF BOUNDARY	NAME OF INTERIOR CHAKS	AREA OF EACH CHAK Acres Ac Kl Mr	AREA OF EACH CHAK Hectares	No. of Boundary Pillars of Chaks	LENGTH OF BOUNDARY LINE OF CHAKS Miles M. Krm.	LENGTH OF BOUNDARY LINE OF CHAKS Kilometres	REFERENCE TO FILE	REMARKS.
22	28-4-61	1961	HAIGAM RAKH	Haigam	Sopur		1846-2-0	747.150	97	9-169	14-7545	NORTH:— Willow Areas of Plantation Division SOUTH:— Cultivated Lands of Loli Pora, Indergam, Gosh Bug, Cohal and Teng Pora.							Case No. 10/10 Ningli Range	Passed on 28-4-1961
23	0-0-1936	1936	MIR GUND "A"	Mir-gund	Budgam		246-5-3	99.8126	40	4-416	7-1030	NORTH:— Village Chak-i-Arampora SOUTH:— Kawosa Jageer and Kawosa Khalisa WEST:— Parni Sodar Shah EAST:— Mir Gund, Matchmar								

S.No.	Date of entry	Year of Demarcation	FOREST NAME	FOREST Locality	FOREST Tehsil	Compt constituting the Forests	AREA Acres Ac. K. Mr	AREA Hectares	No. of Boundary Pillars	LENGTH OF BOUNDARIES Miles M. Krm	LENGTH OF BOUNDARIES Kilometers	DESCRIPTION OF BOUNDARY	NAME OF INTERIOR CHAKS	AREA OF EACH CHAK Acres Ac K Mr	AREA OF EACH CHAK Hectares	No. of Boundary Pillars of Chaks	LENGTH OF BOUNDARY LINE OF CHAKS Miles M: Krm	LENGTH OF BOUNDARY LINE OF CHAKS Kilometres	REFERENCE TO FILE	Remarks
24	0-0-36	1936	HOKRA SAR LAKE	Hokar sar	Budgam	..	..	..	62	9-262	14.9037	NORTH:—Camping ground and Lawy pora SOUTH:—Village Soybug EAST :—Haji Bagh and Khoshi pora WEST :—Nara Bal and Gota pora	1. Caming ground 2. Chak			 18	0-298 2-231	0 4768 3.5883	Case No 7 Desa 1964-65	

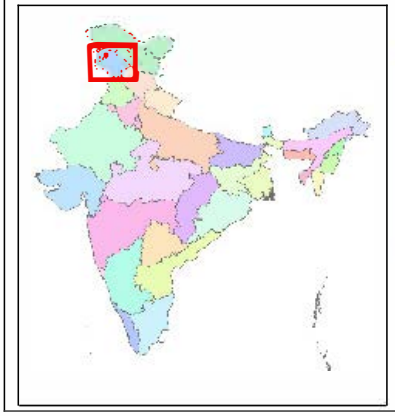

JOINT SURVEY/DEMARCATION OF LIMITS OF HOKERSAR WETLAND RESERVE FROM BUDGAM SIDE SHOWING DIGITAL-BOUNDARY IN COMPLIANCE TO COURT ORDERS:
JOINT DATES OF DEMARCATION.
① 18-07-2019 (From Pt. no. 01 To 08)
② 19-07-2019 (From Pt. no. 09 To 18)
③ 20.07.2019 (From pt. no 19 To 24)
④ 22.07.2019 (From pt. no 25 To 30)
⑤ 23.07.2019 (From pt no 31 To 37)
⑥ 26.07.2019 (From pt no.38 To 61)
N
Dodhat Road
Zewan
Sofi Point
Hokersar Chowk
Srinagar
Budgam

Digital Demarcated Map of Haigam Wetland Reserve Wetland Division Kashmir

1:15,000



Location	Latitude	Longitude
BP1		
BP2		
BP3		
BP4		
BP5		
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0 0.2 0.4 0.8 1.2 1.6 Kilometers

Legend

BP_No

Haigam_Demarcation

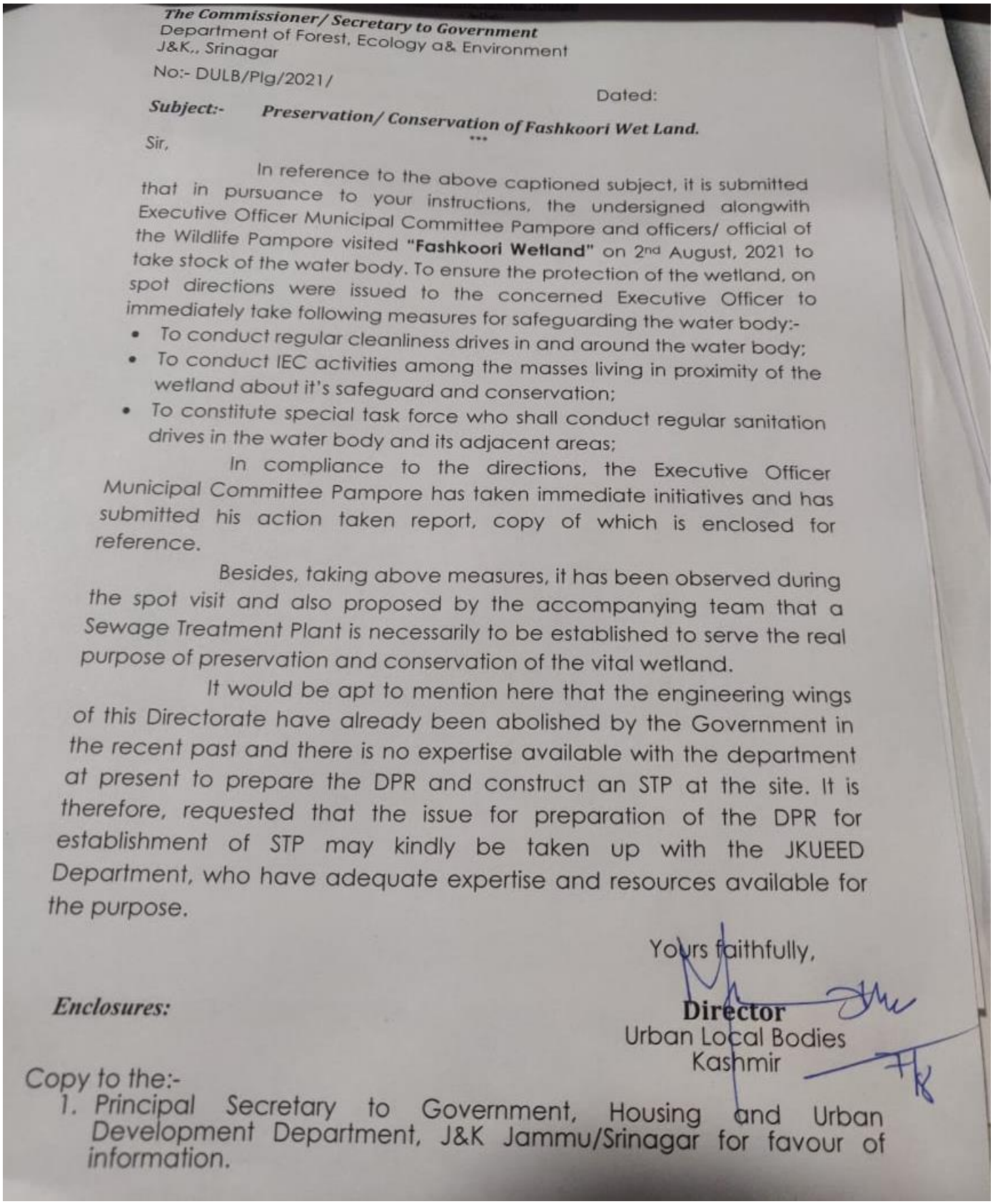
Prepared by Shahid Ahmad ICT





CHAPTER NO 21

OTHER ANNEXURES



The Commissioner/ Secretary to Government
Department of Forest, Ecology a& Environment
J&K,, Srinagar

No:- DULB/Plg/2021/

Dated:

Subject:- ***Preservation/ Conservation of Fashkoori Wet Land.***

Sir,

In reference to the above captioned subject, it is submitted that in pursuance to your instructions, the undersigned alongwith Executive Officer Municipal Committee Pampore and officers/ official of the Wildlife Pampore visited **"Fashkoori Wetland"** on 2nd August, 2021 to take stock of the water body. To ensure the protection of the wetland, on spot directions were issued to the concerned Executive Officer to immediately take following measures for safeguarding the water body:-

- To conduct regular cleanliness drives in and around the water body;
- To conduct IEC activities among the masses living in proximity of the wetland about it's safeguard and conservation;
- To constitute special task force who shall conduct regular sanitation drives in the water body and its adjacent areas;

In compliance to the directions, the Executive Officer Municipal Committee Pampore has taken immediate initiatives and has submitted his action taken report, copy of which is enclosed for reference.

Besides, taking above measures, it has been observed during the spot visit and also proposed by the accompanying team that a Sewage Treatment Plant is necessarily to be established to serve the real purpose of preservation and conservation of the vital wetland.

It would be apt to mention here that the engineering wings of this Directorate have already been abolished by the Government in the recent past and there is no expertise available with the department at present to prepare the DPR and construct an STP at the site. It is therefore, requested that the issue for preparation of the DPR for establishment of STP may kindly be taken up with the JKUEED Department, who have adequate expertise and resources available for the purpose.

Yours faithfully,

Enclosures:

Director
Urban Local Bodies
Kashmir

Copy to the:-

1. Principal Secretary to Government, Housing and Urban Development Department, J&K Jammu/Srinagar for favour of information.

Union Territory of Jammu & Kashmir
Office of the Municipal Committee Pampore
****

Subject: Constitution of Task Force for preservation / conservation of water bodies especially Fashkoori Namblabal.

In compliance of the directions passed by the Hon'ble NGT from time to time and in view of onspot direction of worthy Director Urban Local Bodies Kashmir during her visit to Fashkoor Wet Land alongwith Wild Life Warden Wet Land Division Hokersar, on 2/08/2021, a task force of following officials headed by Shri Bedar Ahmad Bedar – Sanitary Inspector of this institution is framed. The Task Force shall made frequent awareness among the people living in catchment area of Fashkoori water body regarding proper disposal of Solid Waste / Sewerage in consonance with the Solid waste Management Bye-Laws, 2019. The Task force shall impose Fine / Penalty on violation of the Bye-laws. Moreover the task force shall coordinate with the Wildlife Department while making any drive. Besides Shri Bedar Ahmad Bedar _ Sanitary Inspector shall utilize available men and machinery under his control on fortnight basis to clean the precious water body. ATR on regular basis must reach the undersigned on weekly basis.

Name of Official	Designation
Shri Arshid Ahmad Zahid	Food Inspector
Shri Mohammad Akbar Mir	Khilafwarzi Inspector
Shri Farooq Ahmad Ganie	Sanitary Supervisor
Shri Gulzar Ahmad Bhat	-do-
Shri Mohammad Shafi Bhat	Tax Collector
Sweepers as per requirement	

NO: MCP/2020-21/ 1173-77
Dated: 03/08/2021

Executive Officer,
Municipal Committee,
Pampore.

Copy to the:

1. Deputy Commissioner Pulwama for favour of information.
2. Director Urban Local Bodies Kashmir for favour of information.
3. Wild Life Warden Wet Land Division Hokersar Srinagar.
4. President Municipal Committee Pampore for information.
5. Range Officer Wild Life Protection Range Pampore wet lands.
6. All above Official / Staff for information and immediate compliance.

www.ulbk.org
email: directorulbk@gmail.com

☎ : 0194-2490757
: 0194-2490714

Government of Jammu & Kashmir
Directorate of Urban Local Bodies Kashmir
Habitat Centre, Bemina, Srinagar

The Chief Executive Officers/ Executive Officers
Municipal Council Pulwama, Baramulla,
Bandipora, Ganderbal, Sopore, Budgam

No:- DULB/Plg/2021/ 14493-14534 Dated: 29/07/2021

Subject:- Meeting of the Forest, Ecology & Environment Department regarding the conservation and management of Wetlands.

Sir,

A meeting on the subject matter was held on 29th July, 2021 which was chaired by the Commissioner/ Secretary to Government, Forest, Ecology & Environment Department to discuss the issue regarding the directions passed by the Hon'ble National Green Tribunal Principal Bench, New Delhi in O.A. No. 351/2019 on 22.07.2021.

The directions of the Hon'ble Tribunal inter-alia provides for remedial measures to be taken for waste management, encroachments, sewages discharge and other effluents within an around the Wetlands. It has been desired that those Municipal Councils/ Committees, in whose jurisdiction, any of the wetlands falls shall liaise with the concerned authorities of the Wild Life Department and a protocol shall be formulated for proper cleaning/ waste collection and lifting of waste from the areas within and adjacent to the respective wetlands.

It is therefore enjoined upon all concerned Chief Executive Officers/ Executive Officer to comply the instructions in letter and spirit and the available machinery and equipment be put to the use in cleaning of the areas as per feasibility and dustbins may also be provided to the nearer habitations to ensure that there is no open littering of waste in these areas.

Weekly action taken report be submitted to this Directorate on every Saturday for onward submission to the concerned quarters.

Yours faithfully,

Enclosure: As above

Director
Urban Local Bodies, Kashmir
29/7

Copy to the:-
1. Principal Secretary to Government, Housing and Urban Development Department, J&K, for favour of information.
2. Commissioner/ Secretary to Government, Forest, Ecology & Environment Department, J&K, for favour of information.

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WWW.ulbk.org
Email: directorulbk@gmail.com / ddpnsdulbk@gmail.com
0194-2490757.
Fax No: 0194-2490714

Government Of Jammu And Kashmir
Directorate of Urban Local Bodies Kashmir

The Regional Wildlife Warden
Kashmir Region.

No :- DULB/Plg/ 711/15848-51 Dated:-12 /08/2021

Subject:- Order of the Hon'ble National Green Tribunal dated :-22-07-2021 in O.A No 351/2019.

Sir,

kindly refer your letter No: - RWLW/K/Estt/2021-22 /947-50 dated:-06/08/2021 regarding above quoted subject. In this connection , the compliance report with regard to the preservation/ conservation of Fashkoori wetland has already been submitted to the Commissioner Secretary to Govt. Department of Forest Ecology and Environment J&K Srinagar vide this office letter No DULB/Plg/20-21/15366-67 dated :-07/08/2021, (Copy Enclosed).

With regard to the meeting held under the Chairmanship of Commissioner Secretary to Govt. Department of Forest Ecology and Environment held on 29/07/2021 for conservation and management of wetlands, the concerned chief Executive officers/Executive officers have been directed to comply the instructions in letter and spirit and the available machinery and equipment be put to the use in cleaning of the areas as per feasibility and dustbins may also be provided to the nearer habitations to ensure that the no open littering of waste in these areas.

Moreover, Special Task Force have been constituted in the respective ULBs, who shall conduct regular sanitation drives in the water body and its adjacent areas.

Yours faithfully

Encls: (____ Lvs)

Director,
Urban Local Bodies,
Kashmir

Copy to the :-

1. The Chief Wildlife Warden, J&K Govt. Jammu / Srinagar for favour of information.
2. The Divisional Commissioner Kashmir for favour of kind information.
3. Wildlife Warden Wetlands Srinagar for favour of information.

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J&K Pollution Control committee
Office of The Regional Director – Kashmir

Analysis Report

Physico Chemical Characteristics of various Wetlands of Kashmir Division

		Hokarsar Budgam			Mirgund Baramulla			Manibugh Pulwama			Primary water quality criteria for outdoor Bathing(Organised) (class B)
	LOCATION	Inlet	Centre	Outlet	Inlet	Centre	Outlet	Inlet	Centre	Outlet	
	Date of Sampling:-	08-02-2022			08-02-2022			15-02-2022			
1	Air Temp. °C	15.0	15.8	15.3	11.3	11.8	11.9	13.5	13.5	13.0	
2	Water Temp. °C	–	–	–	–	–	–	7.6	7.6	7.0	–
3	pH	7.55	7.31	7.43	7.47	7.68	7.85	8.00	8.06	7.60	6.5 - 8.5
4	Conductivity µs/cm	543.0	682.0	536.0	378.0	266.0	316.0	854.0	856.0	1045.0	–
5	T.D.S	289.0	360.0	282.0	200.0	141.0	171.0	458.0	455.0	609.0	–
6	D.O	7.2	6.4	7.6	8.0	8.1	8.5	6.6	8.3	5.6	>5mg/l
7	C.O.D	37.40	57.90	20.60	27.50	31.10	40.30	41.00	47.90	32.50	–
8	B.O.D	3.00	4.8	2.00	3.00	2.60	3.80	3.70	4.0	2.5	< 3mg/l
9	Phosphate	0.077	0.101	0.107	0.058	0.039	0.042	0.028	0.034	0.057	–
10	Ammonical Nitrogen	0.919	0.424	0.679	0.204	0.265	0.286	0.464	0.475	0.657	–
11	Sulphate	13.51	30.94	15.02	18.77	12.61	19.67	3.484	3.787	3.03	–
12	Hardness	260.0	286.0	234.0	192.0	128.0	186.0	292.0	312.0	416.0	–
13	Total Alkalinity	260.0	246.0	218.0	154.0	114.0	132.0	572.0	552.0	704.0	–
14	Chloride	34.0	30.0	36.0	40.0	20.0	30.0	30.0	30.0	40.0	–
15	Turbidity NTU	5.0	4.0	4.0	3.0	2.0	2.0	7.0	8.0	7.0	–

→All Values are in mg/l except pH, conductivity,Turbidity & Temperature.
Samples collected and submitted for analysis by WildLife wetland division
Analysis results are confined to the Samples Submitted for Analysis

Analyzed by

I/C Water Lab

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J&K Pollution Control Committee

Office of The Regional Director – Kashmir

Analysis Report

Physico Chemical Characteristics of various Wetlands of Kashmir Division

		Freshkroori Pulwama			Chatlam Pampore			Kranchoo pampore			Primary water quality criteria for outdoor Bathing(Organised) (class B)
	LOCATION	Inlet	Centre	Outlet	Inlet	Centre	Outlet	Inlet	Outlet		
	Date of Sampling:-	15-02-2022			15-02-2022			15-02-2022			
S.no											
1	Air Temp. °C	9.5	10.0	11.0	11.0	11.0	10.0	12.5	12.0		–
2	Water Temp. °C	4.0	4.0	5.0	5.5	5.5	5.0	7.5	7.5		–
3	pH	8.70	8.50	8.60	8.21	8.31	8.15	7.63	7.70		6.5 - 8.5
4	Conductivity µs/cm	787.0	831.0	827.0	1019.0	1011.0	462.6	563.0	607.0		–
5	T.D.S	421.0	446.0	441.0	546.0	543.0	248.0	302.0	324.0		–
6	D.O	7.2	7.0	7.5	8.4	8.3	8.5	5.6	4.8		>5mg/l
7	C.O.D	126.50	105.90	123.10	76.90	42.70	11.90	13.70	22.20		–
8	B.O.D	8.8	7.8	7.5	6.80	4.0	1.5	2.7	2.0		< 3mg/l
9	Phosphate	0.742	0.563	0.75	0.0310	0.045	0.051	0.622	0.057		–
10	Ammonical Nitrogen	1.148	0.579	0.79	0.788	0.307	0.370	0.334	0.354		–
11	Sulphate	51.20	50.75	51.21	23.48	19.69	26.36	11.51	8.18		–
12	Hardness	344.0	304.0	276.00	360.0	376.0	276.0	284.0	260.0		–
13	Total Alkalinity	384.0	356.0	368	524.0	568.0	280.0	336.0	428.0		–
14	Chloride	80.0	98.0	84.0	86.0	66.0	32.0	24.0	34.0		–
15	Turbidity NTU	14.0	9.0	11.0	8.0	4.0	2.0	6.0	6.0		–

→All Values are in mg/l except pH, conductivity,Turbidity & Temperature.

Samples collected and submitted for analysis by WildLife wetland division

Analysis results are confined to the Samples Submitted for Analysis

Analyzed by

I/C Water Lab

J&K Pollution Control Committee

Office of The Regional Director – Kashmir

Analysis Report

Physico Chemical Characteristics of various Wetlands of Kashmir Division

		Shallbugh Ganderbal			Hygam Baramulla					
LOCATION		Inlet	Centre	Outlet	Inlet	Centre	Outlet			Primary water quality criteria for outdoor Bathing(Organised) (class B)
Date of Sampling:-		17-02-2022			25-02-2022					
S.no										
1	Air Temp. °C	14.6	15.4	15.6	4.6	5.2	4.7			–
2	Water Temp. °C	–	–	–	–	–	–			
3	pH	7.55	8.90	7.88	7.42	7.51	7.66			–
4	Conductivity µs/cm	522.0	433.0	501.0	391.0	306.0	293.0			6.5 - 8.5
5	T.D.S	271.0	223.0	259.0	204.0	161.0	154.0			–
6	D.O	4.4	7.6	6.1	5.8	7.1	9.0			–
7	C.O.D	36.20	23.60	97.60	28.90	14.50	21.70			>5mg/l
8	B.O.D	4.10	4.00	**9.20**	3.0	1.5	2.0			–
9	Phosphate	0.431	0.093	0.276	0.094	0.030	0.061			< 3mg/l
10	Ammonical Nitrogen	2.349	0.49	1.529	0.610	0.234	0.23			–
11	Sulphate	70.14	67.41	70.90	34.67	15.91	13.660			–
12	Hardness	260.0	258.0	242.0	192	202	200.00			–
13	Total Alkalinity	232.0	162.0	234.0	184.0	170.0	164			–
14	Chloride	34.0	36.0	40.0	22.0	24.0	24.0			–
15	Turbidity NTU	3.0	2.0	14.0	5.0	4.0	4.0			–

→All Values are in mg/l except pH, conductivity,Turbidity & Temperature.

Samples collected and submitted for analysis by WildLife wetland division

Analysis results are confined to the Samples Submitted for Analysis

Analyzed by

I/C Water Lab

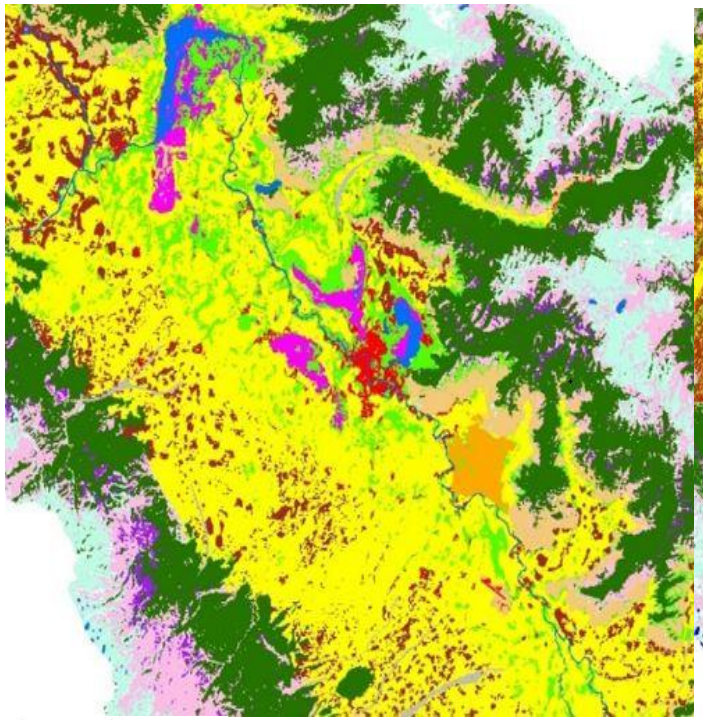
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CHAPTER NO 22

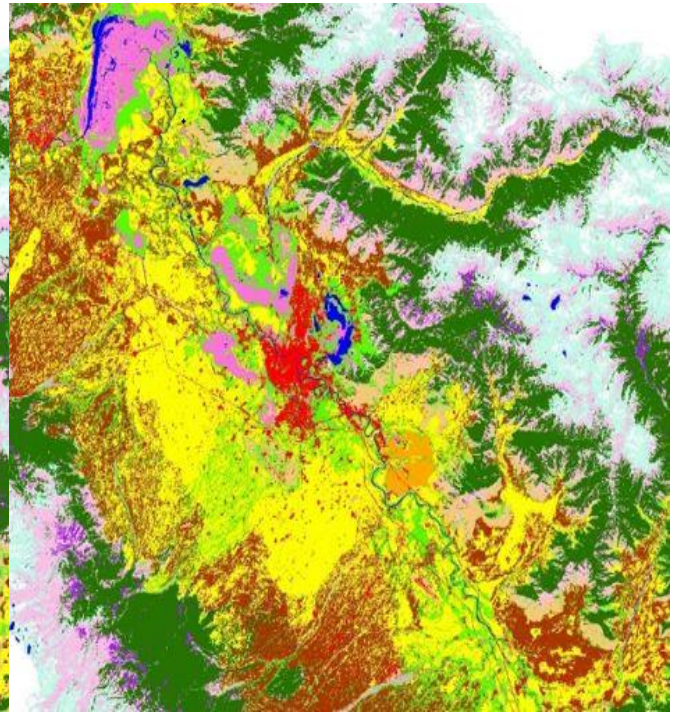
LAND USE LAND COVER CHANGES AT LANDSCAPE LEVEL AND OTHER MAPS

LULC 1980



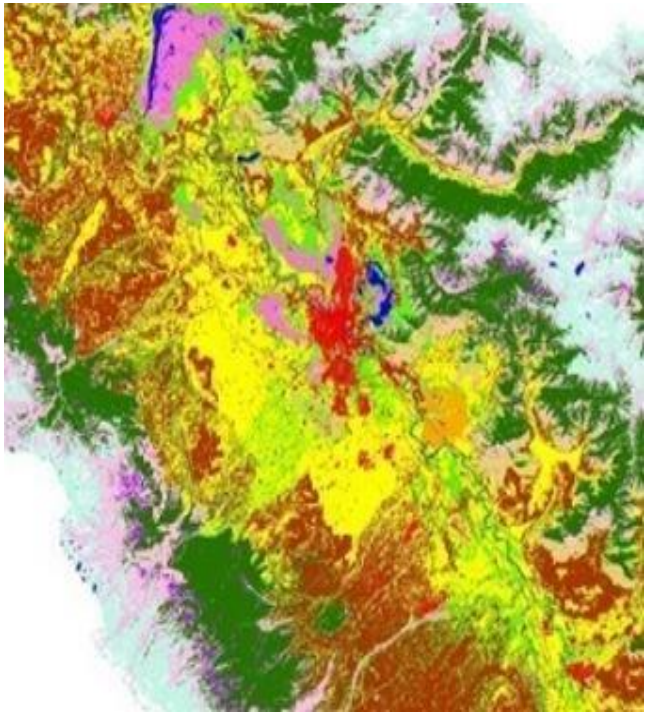


LULC 2013

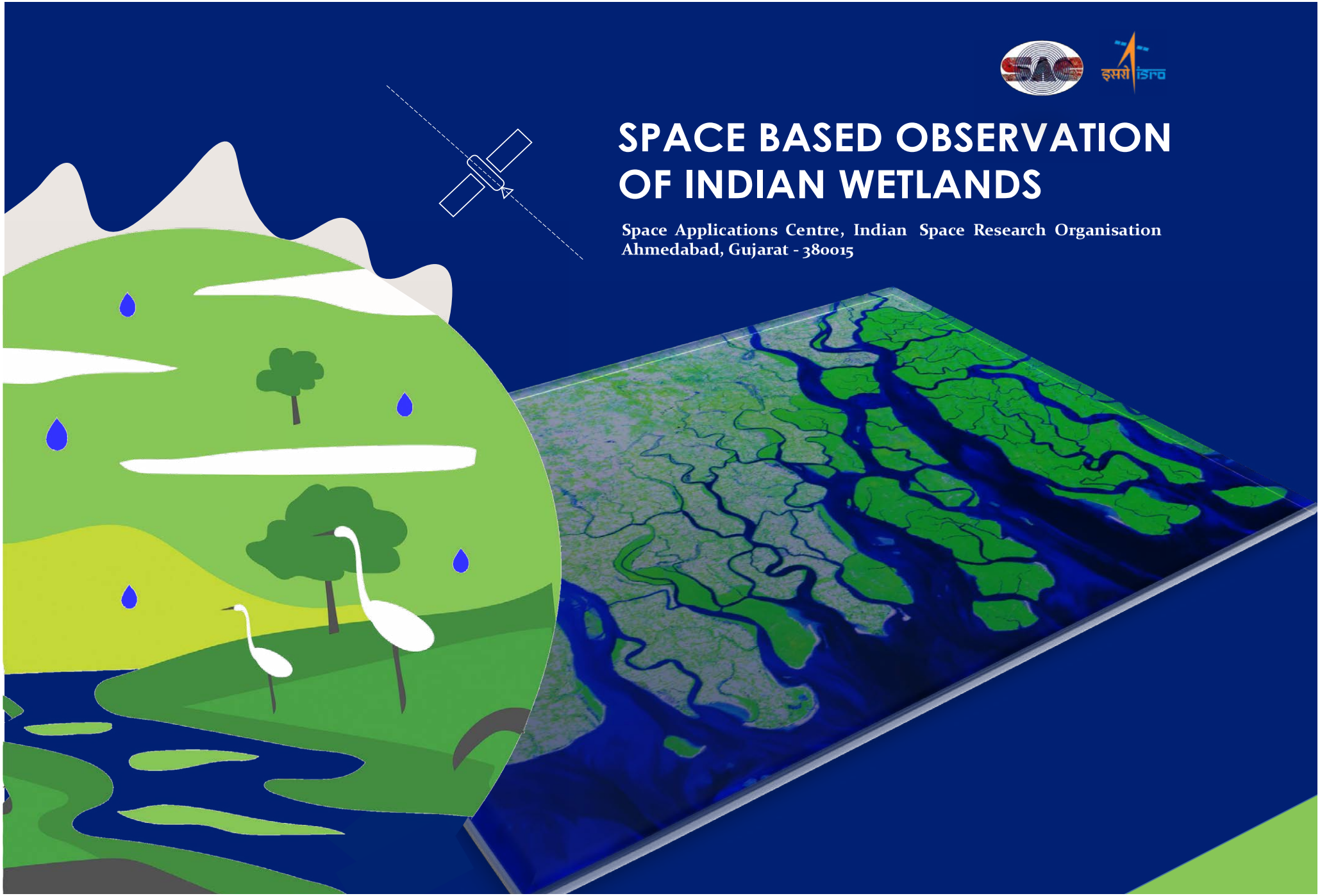




LULC 2020






SPACE BASED OBSERVATION
OF INDIAN WETLANDS
Space Applications Centre, Indian Space Research Organisation
Ahmedabad, Gujarat - 380015

JAMMU & KASHMIR (UT)

Jammu & Kashmir is a newly created Union Territory in India consisting of two divisions: Jammu Division & Kashmir Division, both of which are administered by the Central Government of India. It is located to the north of Himachal Pradesh & Punjab and to the west of Ladakh. Jammu is known as the City of Temples & offers plentiful sightseeing opportunities with its gardens, palaces, forts & religious attractions, the most famous of which is Mata Vaishno Devi in Katra. Kashmir Valley is famous for its meadows, lakes, high altitude passes, hill stations, Mughal Gardens, Dal Lake, Shikara Ride & ancient religious sites.

The vast majority of the union territory is mountainous, and the physiography is divided into five zones that are closely associated with the structural components of the western Himalayas. From west to east those zones consist of the plains, the foothills, the Pir Panjal Range, the Vale of Kashmir, and the Great Himalayas zone. The climate varies from alpine on the eastern edge to subtropical in the southwest. In the alpine area average annual precipitation is about 3 inches (75 mm), but in the subtropical zone (around Jammu) rainfall amounts to about 45 inches (1,150 mm) per year. The entire region is prone to violent seismic activity, and light to moderate tremors are common.

The climate of Jammu Region is different from Kashmir Valley, even though they receive three seasons: summer, monsoon & winter. The temperature in Kashmir Valley ranges between -2°C to 10°C. In Jammu, the temperature in winter ranges between 4°C to 12°C, and is known as the “Winter Capital of Jammu & Kashmir”, since it offers an escape from the freezing temperatures of Kashmir Valley.

The narrow zone of plains landscape in the Jammu region is characterized by interlocking sandy alluvial fans that have been deposited by streams discharging from the foothills and by a much-dissected pediment (eroded bedrock surface) covered by loams and loess (wind-deposited silt) of Pleistocene age (about 11,700 to 2,600,000 years old). Precipitation is low, amounting to about 15 to 20 inches (380 to 500 mm) per year, and it occurs mainly in the form of heavy but infrequent rain showers during the summer monsoon (June to September). The countryside has been almost entirely denuded of trees, and thorn scrub and coarse grass are the dominant forms of vegetation.

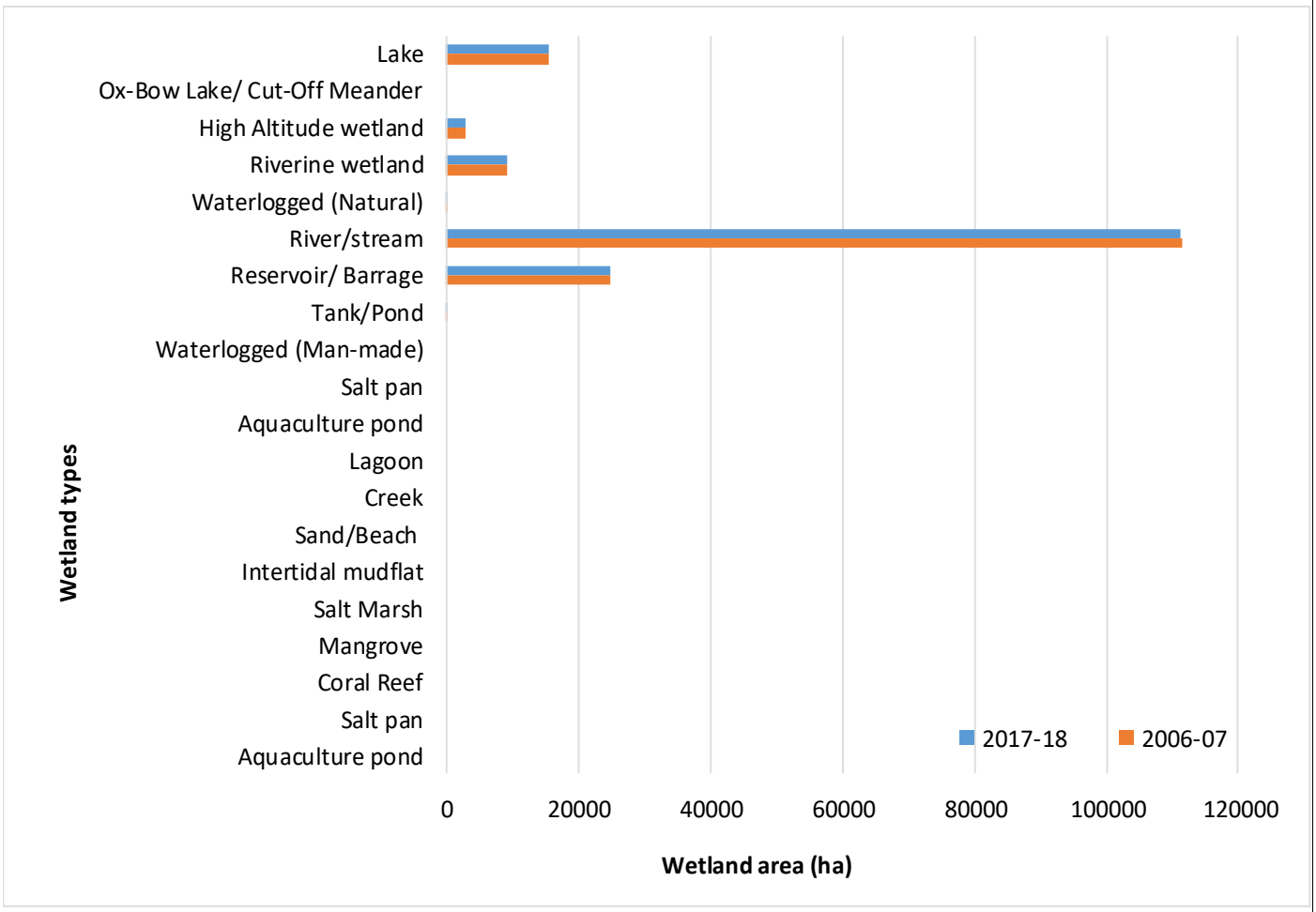
Among the wild mammals found in the union territory are the rare hangul (or Kashmir stag) found in Dachigam National Park, the endangered markhor (a large goat) inhabiting mainly protected areas of the Pir Panjal Range, and black and brown bears. There are many species of game birds, including vast numbers of migratory ducks.

Category-wise wetland distribution in Jammu and Kashmir

Area in ha

Sr. No.	Wetland Type	2017-18		2006-07		Change
		Wetland Area	Percentage of wetland area	Wetland Area	Percentage of wetland area	Wetland Area
1	Inland-Natural	139188	84.8	139329	84.8	-141
2	Inland-Man-made	24922	15.2	24901	15.2	21
3	Coastal-Natural	-	-	-	-	-
4	Coastal-Man-made	-	-	-	-	-
	Total	**164110**	**100**	**164230**	**100**	**-120**

Note: wetlands database of 2006-07 was updated by incorporating interpretational changes

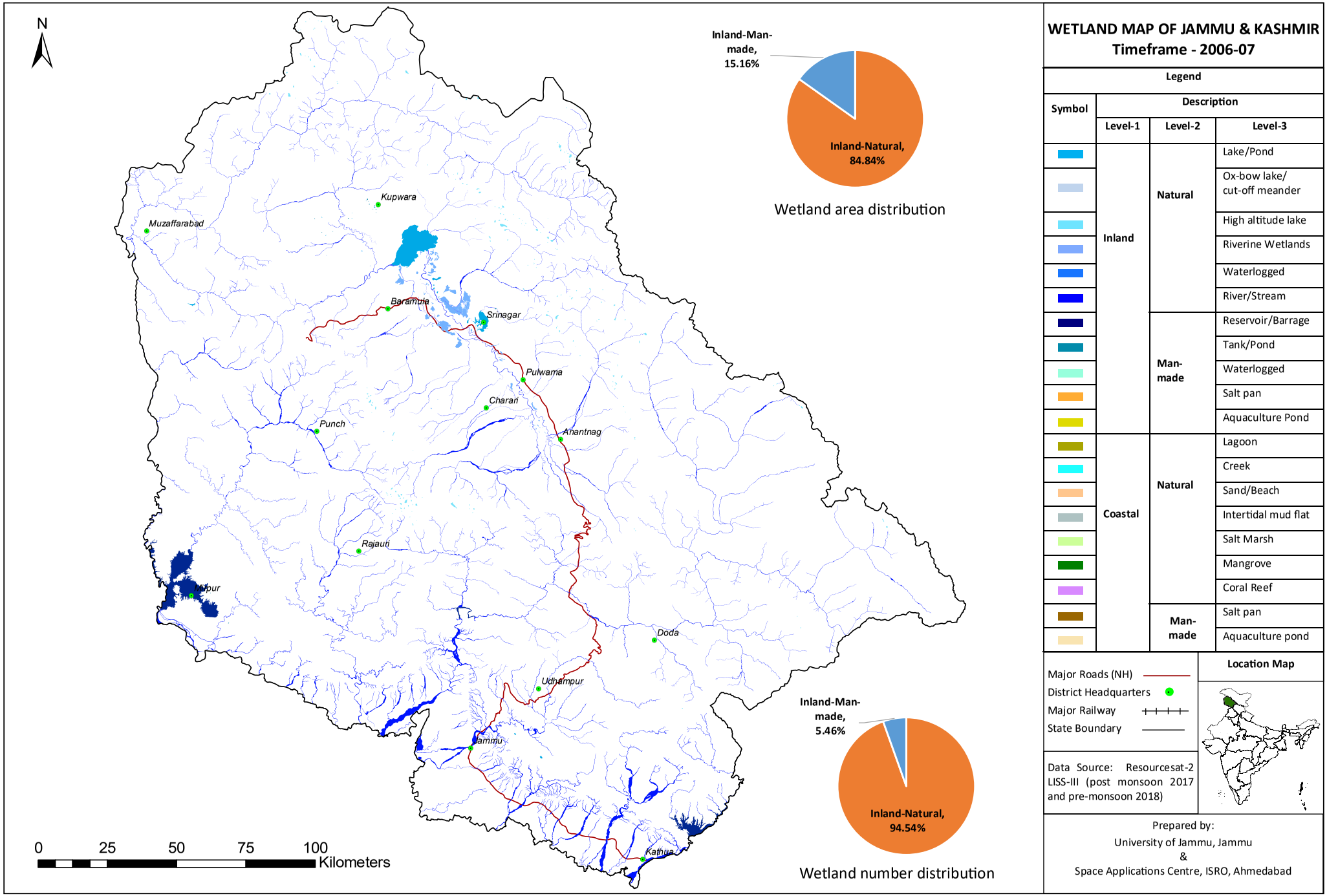


Wetland type-wise area distribution during 2017-18 and 2006-07

Decadal wetland inventory and change analysis of Jammu & Kashmir

Sr. No.	Wetland Type				2017-18			2006-07			Decadal Change	Disappeared		New	
	Wetland code	Level -I	Level -II	Level -III	Number	Area (ha)	Area (% of wetlands)	Number	Area (ha)	Area (% of wetlands)	Area (ha)	Number	Area (ha)	Number	Area (ha)
1	1101	Inland	Natural	Lake/Pond	20	15550	9.5	20	15570	9.5	-20	-	-	-	-
2	1102			Ox-bow lake/ cut-off meander	-	-	-	-	-	-	-	-	-	-	-
3	1103			High altitude lake	189	3007	1.8	189	3008	1.8	-1	-	-	-	-
4	1104			Riverine Wetlands	75	9344	5.7	75	9341	5.7	3	-	-	-	-
5	1105			Waterlogged	2	12	0.0	2	12	0.0	-	-	-	-	-
6	1106			River/Stream	96	111275	67.8	95	111398	67.8	-123	-	-	-	-
7	1201		Man-made	Reservoir/Barrage	5	24835	15.1	4	24811	15.1	24	-	-	-	-
8	1202			Tank/Pond	17	87	0.1	18	90	0.1	-3	1	3	-	-
9	1203			Waterlogged	-	-	-	-	-	-	-	-	-	-	-
10	1204			Salt pan	-	-	-	-	-	-	-	-	-	-	-
11	1205			Aquaculture Pond	-	-	-	-	-	-	-	-	-	-	-
12	2101	Coastal	Natural	Lagoon	-	-	-	-	-	-	-	-	-	-	-
13	2102			Creek	-	-	-	-	-	-	-	-	-	-	-
14	2103			Sand/Beach	-	-	-	-	-	-	-	-	-	-	-
15	2104			Intertidal mud flat	-	-	-	-	-	-	-	-	-	-	-
16	2105			Salt Marsh	-	-	-	-	-	-	-	-	-	-	-
17	2106			Mangrove	-	-	-	-	-	-	-	-	-	-	-
18	2107			Coral Reef	-	-	-	-	-	-	-	-	-	-	-
19	2201		Man-made	Salt pan	-	-	-	-	-	-	-	-	-	-	-
20	2202			Aquaculture pond	-	-	-	-	-	-	-	-	-	-	-
				Total	**404**	**164110**	**100**	**403**	**164230**	**100**	**-120**	**1**	**3**	**-**	**-**

Note: wetlands database of 2006-07 was updated by incorporating interpretational changes



Wetland area distribution

Wetland number distribution

WETLAND MAP OF JAMMU & KASHMIR
Timeframe - 2006-07

Legend

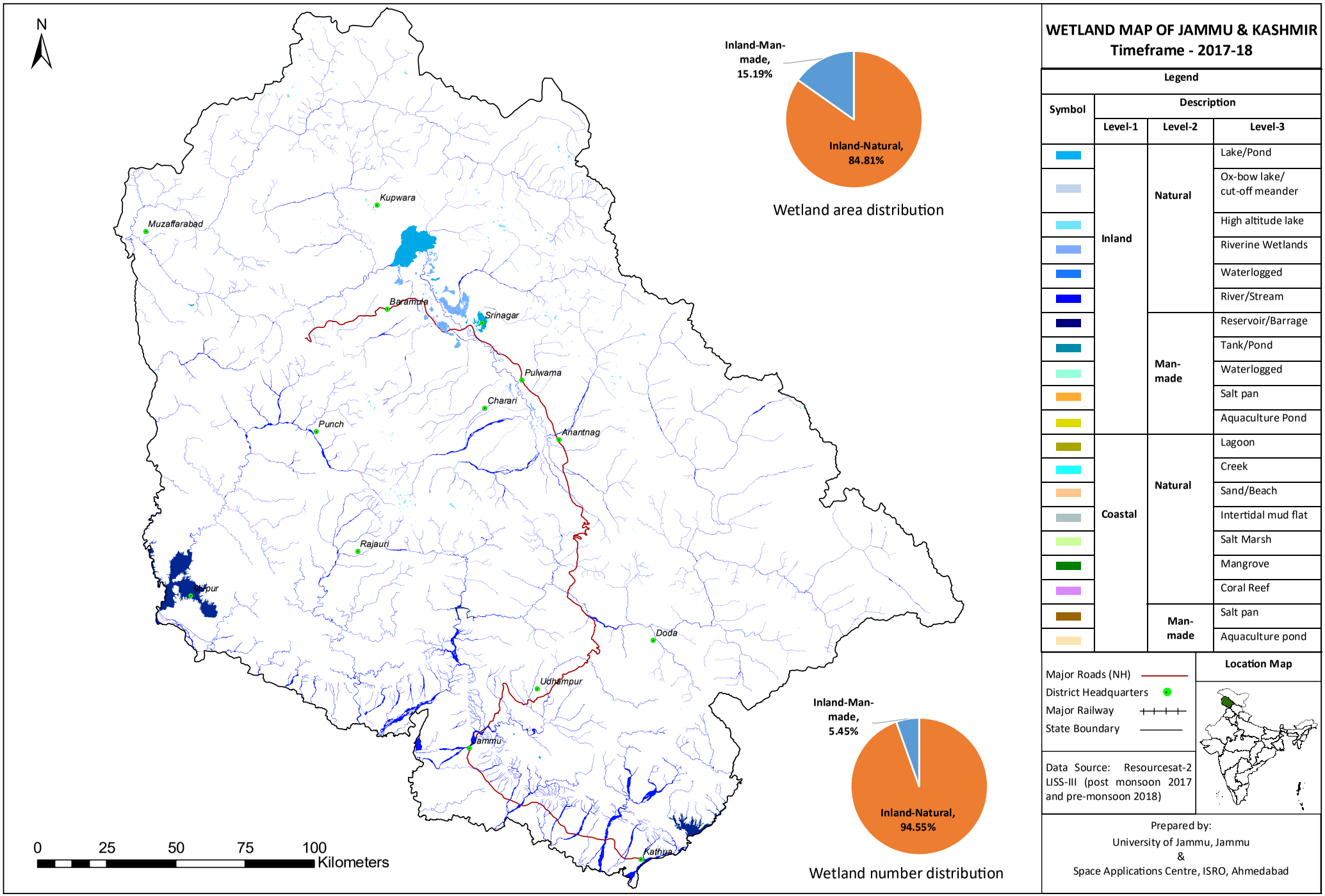
Symbol	Description		
	Level-1	Level-2	Level-3
	Inland	Natural	Lake/Pond
			Ox-bow lake/ cut-off meander
			High altitude lake
			Riverine Wetlands
			Waterlogged
			River/Stream
		Man-made	Reservoir/Barrage
			Tank/Pond
			Waterlogged
			Salt pan
			Aquaculture Pond
	Coastal	Natural	Lagoon
			Creek
			Sand/Beach
			Intertidal mud flat
			Salt Marsh
			Mangrove
			Coral Reef
		Man-made	Salt pan
			Aquaculture pond

Major Roads (NH)
District Headquarters
Major Railway
State Boundary

Location Map

Data Source: Resourcesat-2 LISS-III (post monsoon 2017 and pre-monsoon 2018)

Prepared by:
University of Jammu, Jammu
&
Space Applications Centre, ISRO, Ahmedabad



Wetland area distribution

Wetland number distribution

WETLAND MAP OF JAMMU & KASHMIR
Timeframe - 2017-18

Legend

Symbol	Description		
	Level-1	Level-2	Level-3
	Inland	Natural	Lake/Pond
			Ox-bow lake/ cut-off meander
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			Riverine Wetlands
			Waterlogged
			River/Stream
		Man-made	Reservoir/Barrage
			Tank/Pond
			Waterlogged
			Salt pan
			Aquaculture Pond
	Coastal	Natural	Lagoon
			Creek
			Sand/Beach
			Intertidal mud flat
			Salt Marsh
			Mangrove
			Coral Reef
		Man-made	Salt pan
			Aquaculture pond

Major Roads (NH)
District Headquarters
Major Railway
State Boundary

Location Map

Data Source: Resourcesat-2 LISS-III (post monsoon 2017 and pre-monsoon 2018)

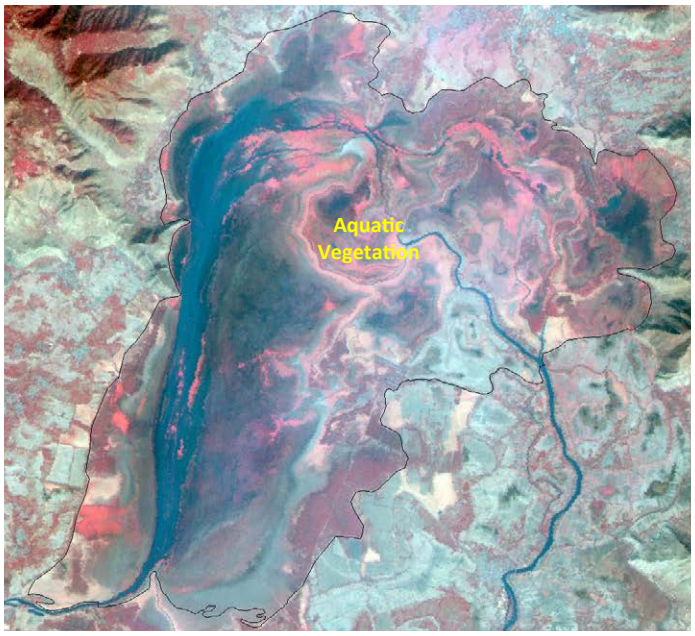
Prepared by:
University of Jammu, Jammu
&
Space Applications Centre, ISRO, Ahmedabad

Highlights

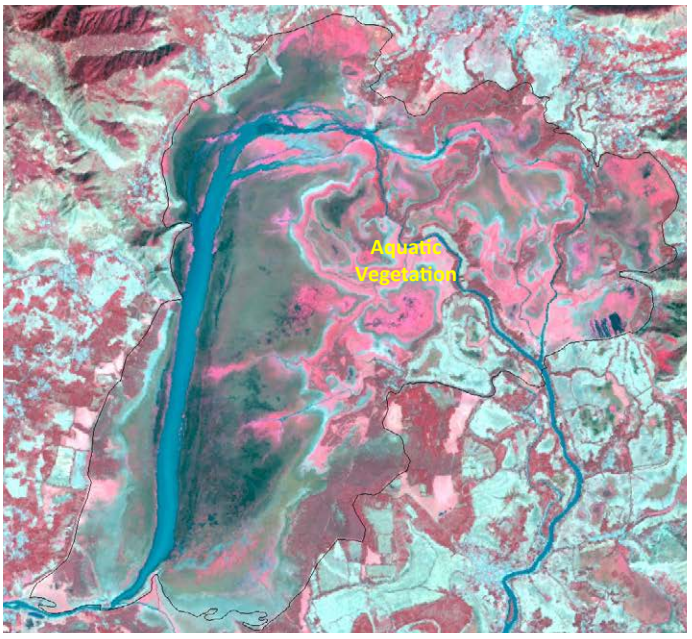
- Wetlands cover ~3 % of total geographical area of state.
- Dominant wetland classes are reservoir/barrages, tank/ponds and lakes covering jointly ~92% of total wetland area in the state during 2017-18. .
- Decadal changes (2017-18 Vs 2006-07) show no significant change in the wetlands area as well as in numbers.
- There are three Ramsar sites viz. Hokera Wetland , Surinsar-Mansar Lake and Wular Lake

RAMSAR SITE – WULAR LAKE

2006-2007 (Post-Monsoon)



2017-2018 (Post-Monsoon)



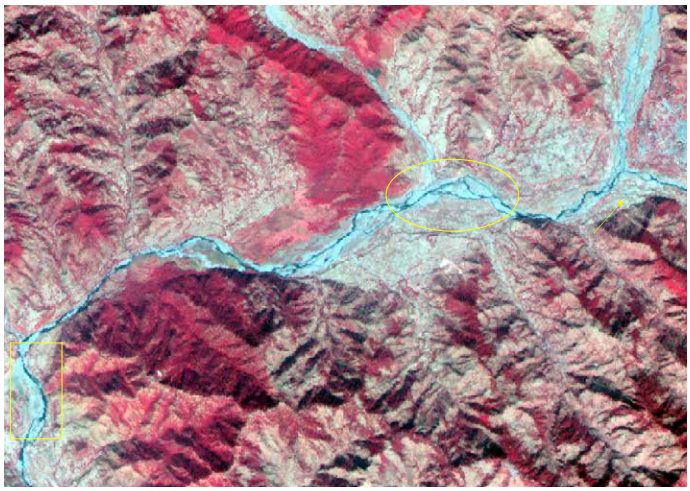
Decadal change in Wular Lake (RAMSAR SITE)



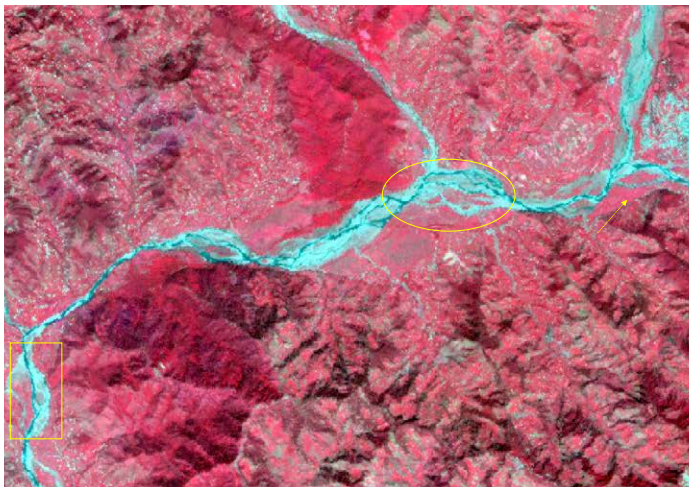
Recent (2019-20) field photographs

Decadal changes (2006-07 to 2017-18) in wetlands (satellite images)

2006-2007 (Post-Monsoon)



2017-2018 (Post-Monsoon)

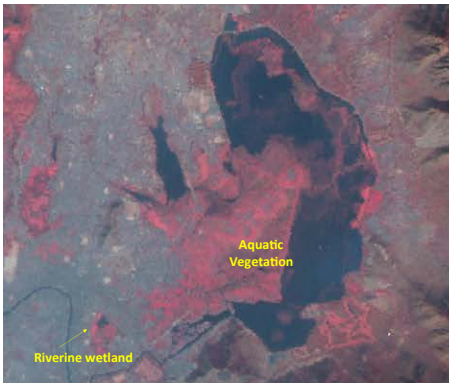


Decadal change in River

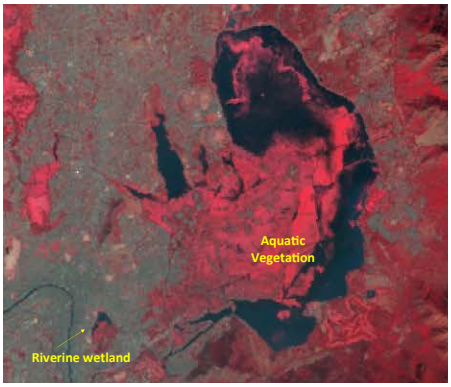


Mansbal Lake, Ganderbal

2006-2007 (Post-Monsoon)



2017-2018 (Post-Monsoon)

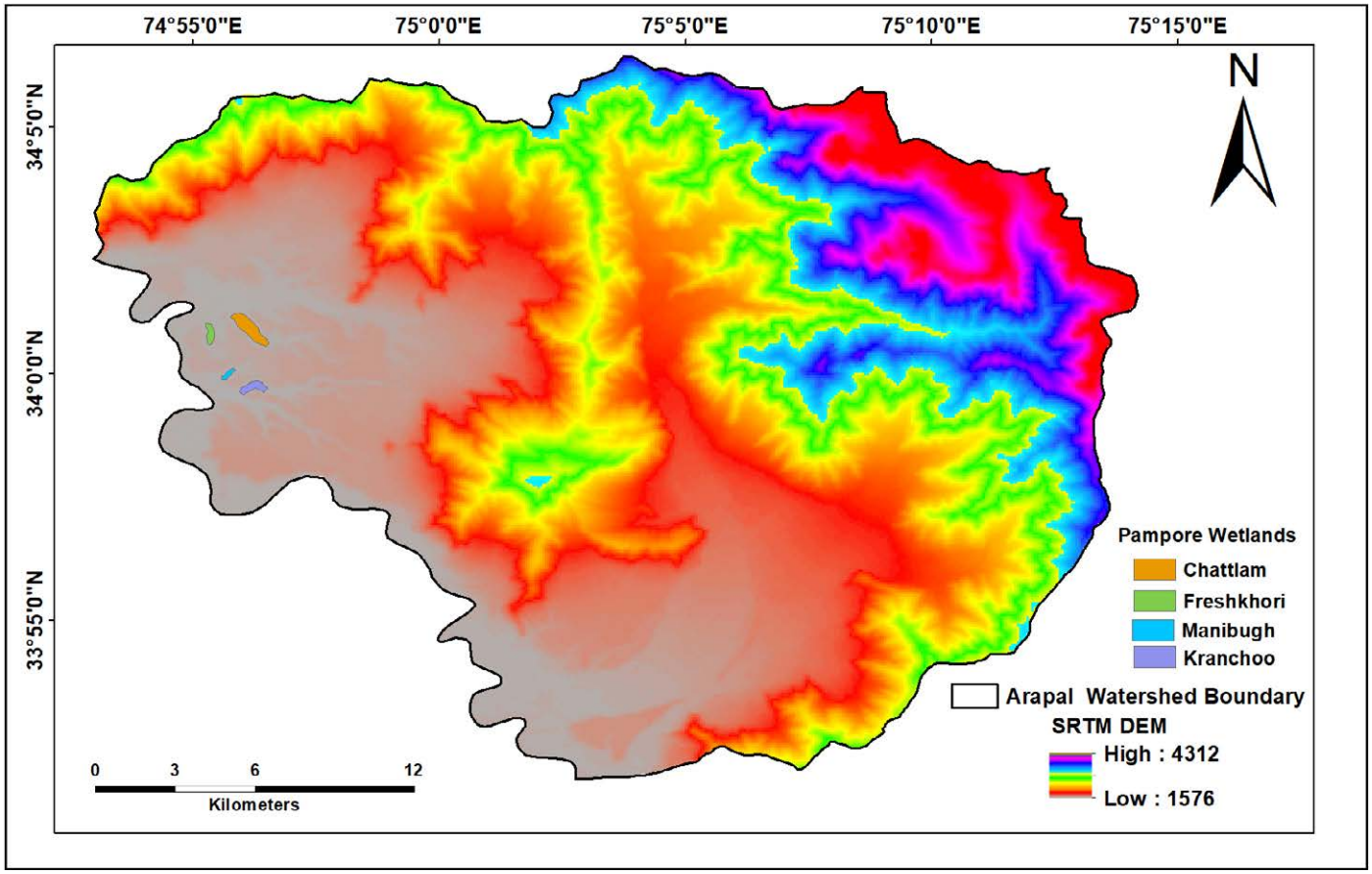


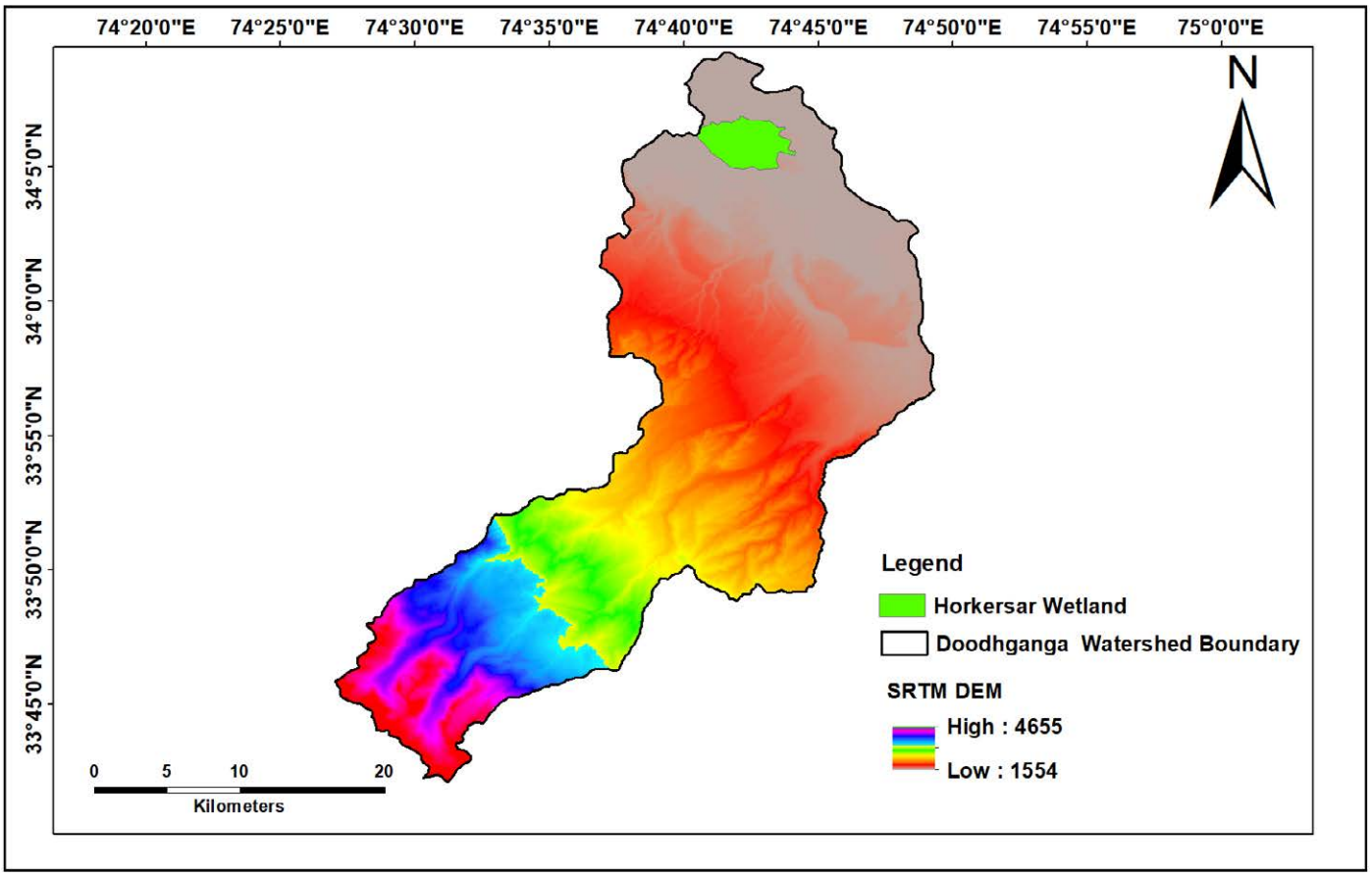
Decadal change in Dal Lake and Riverine wetlands

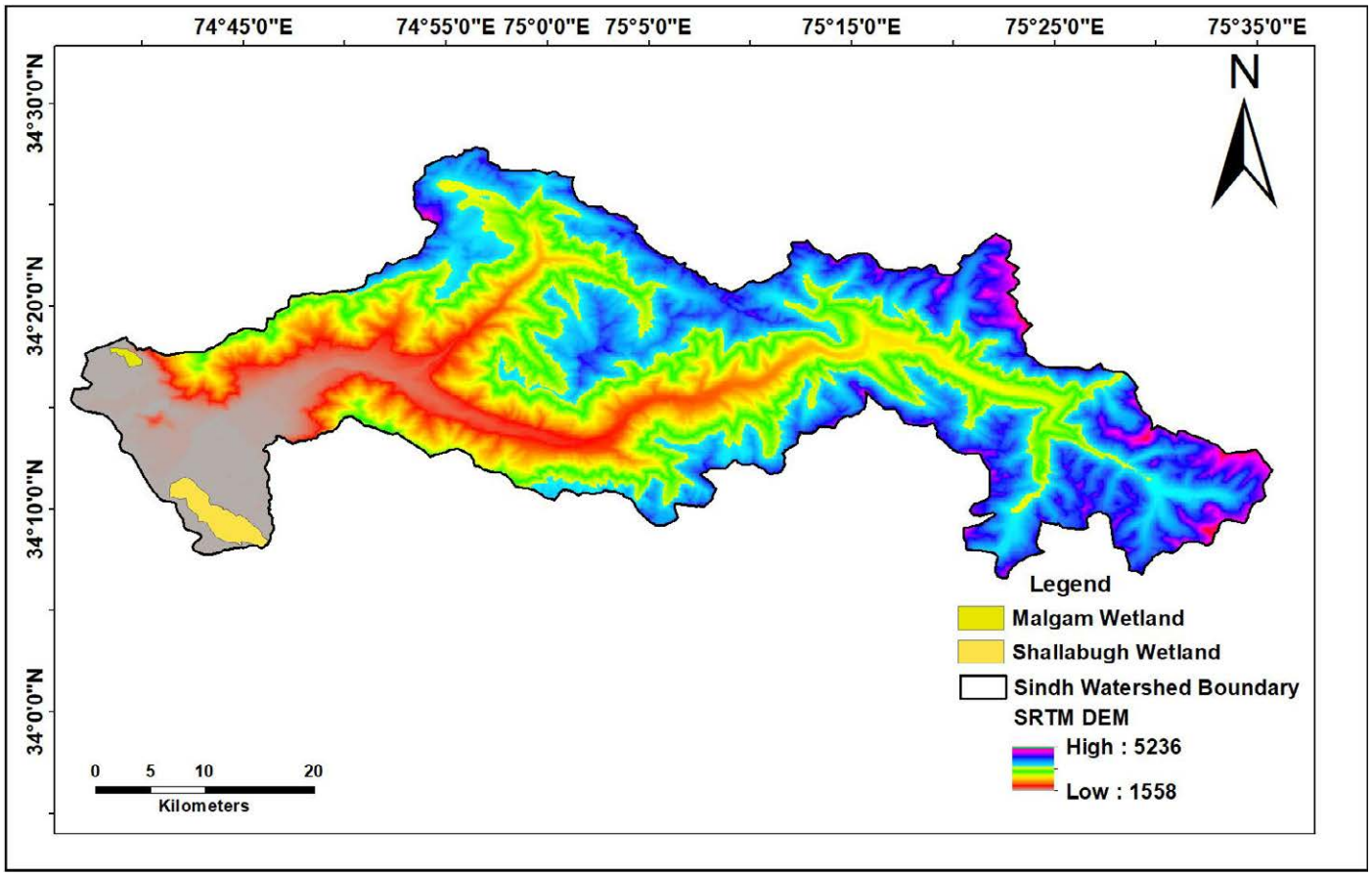


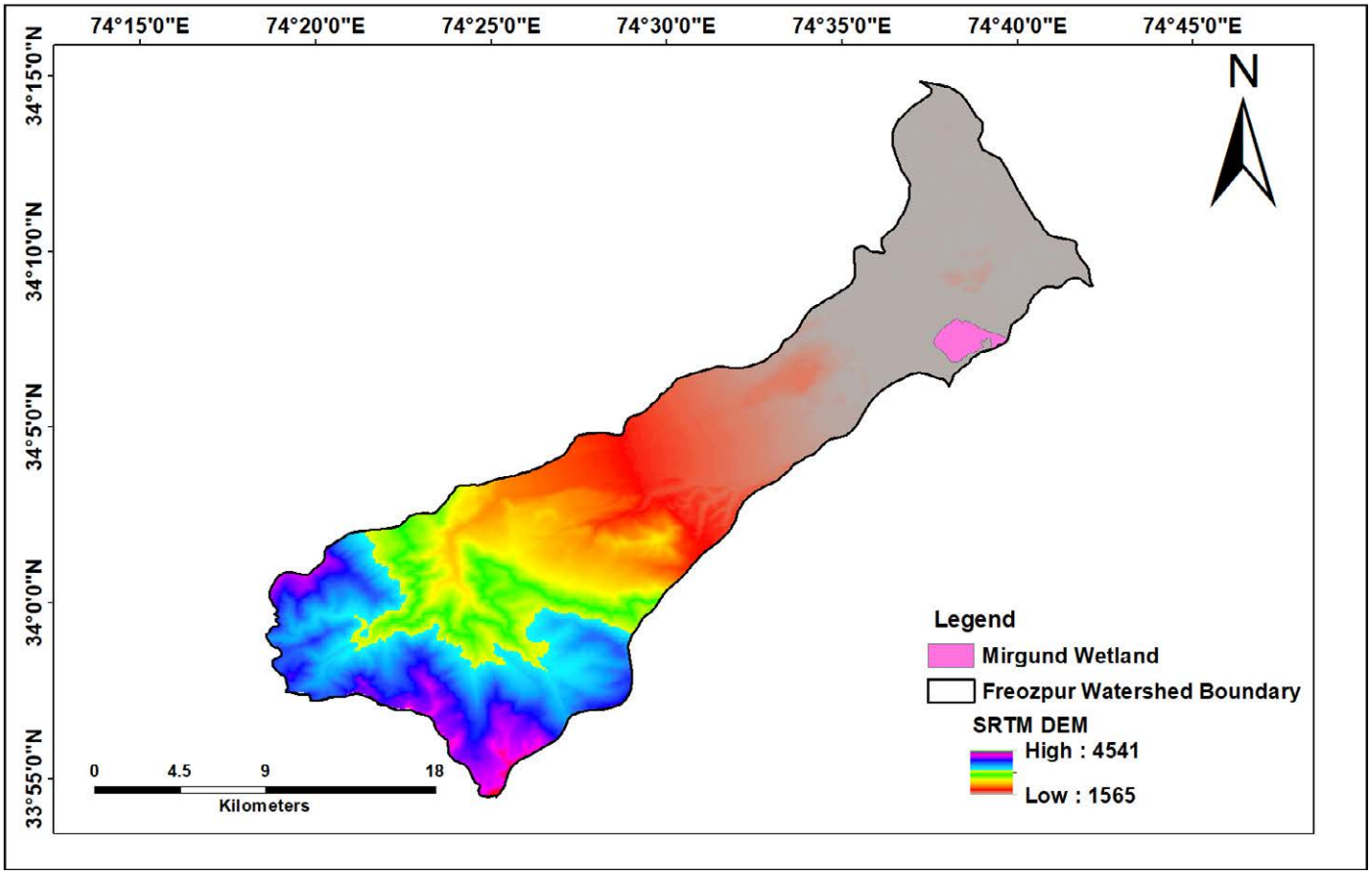
Dal Lake, Srinagar

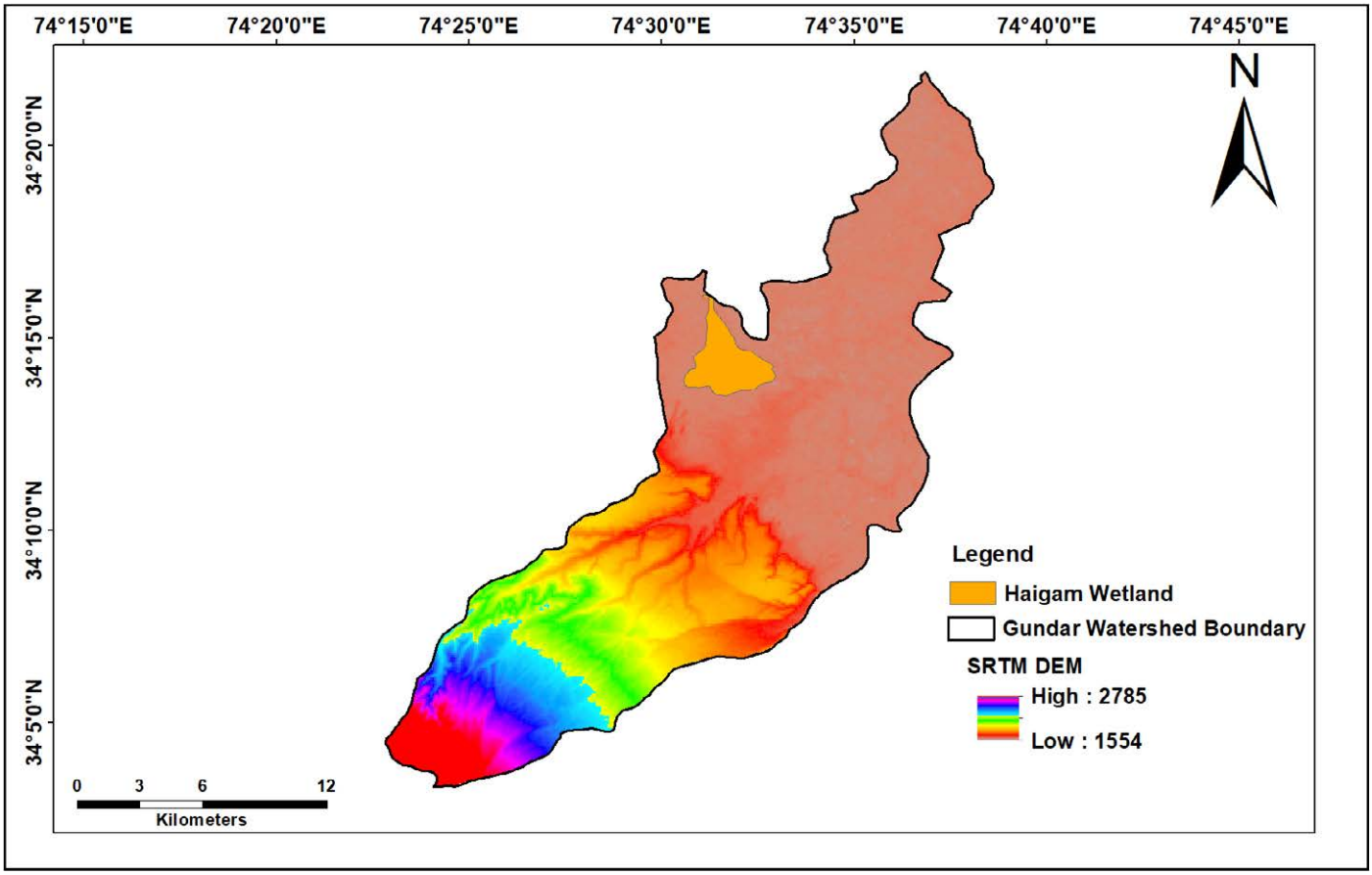
TOPOGRAPHIC RESULTS

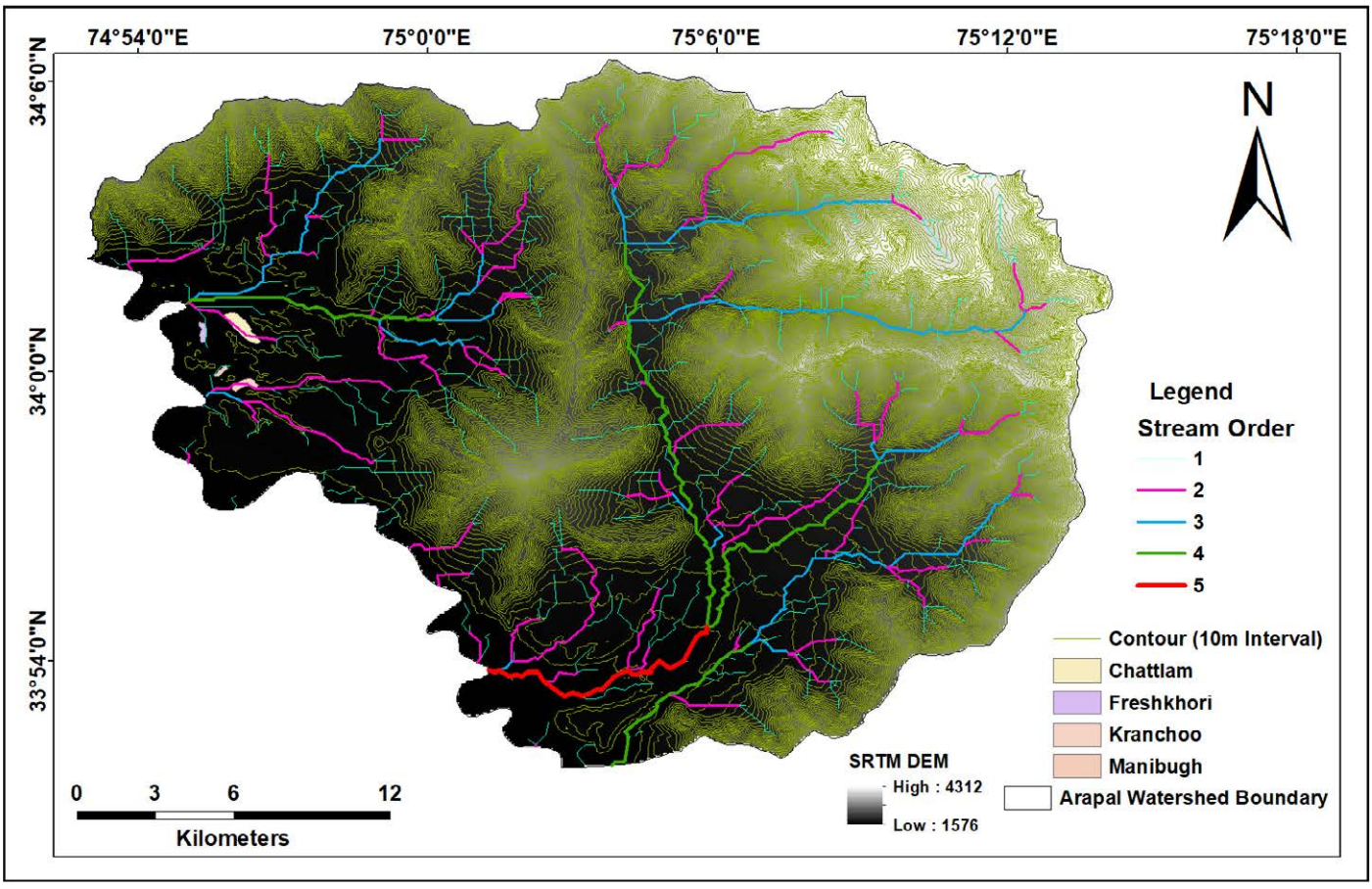


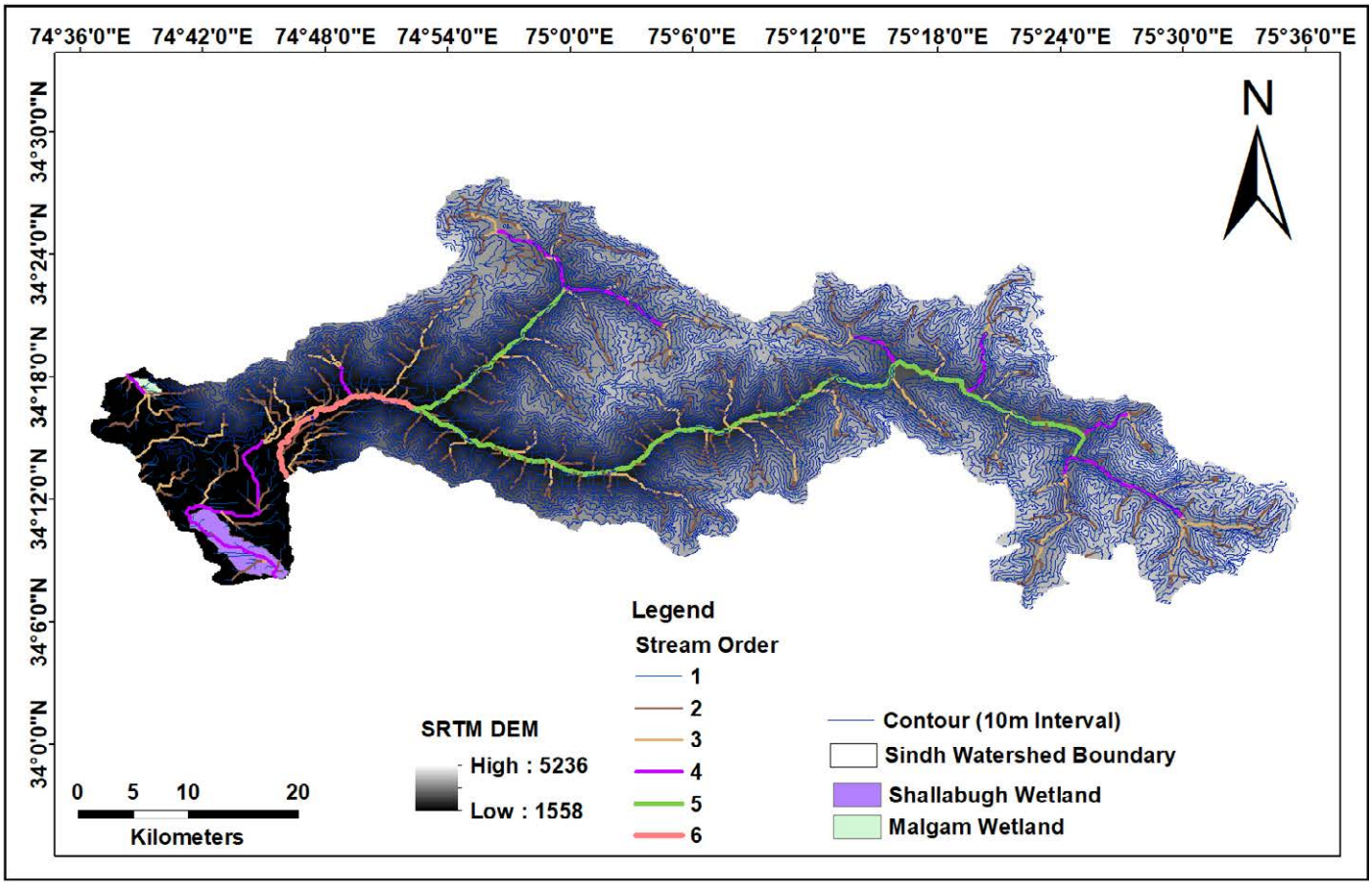


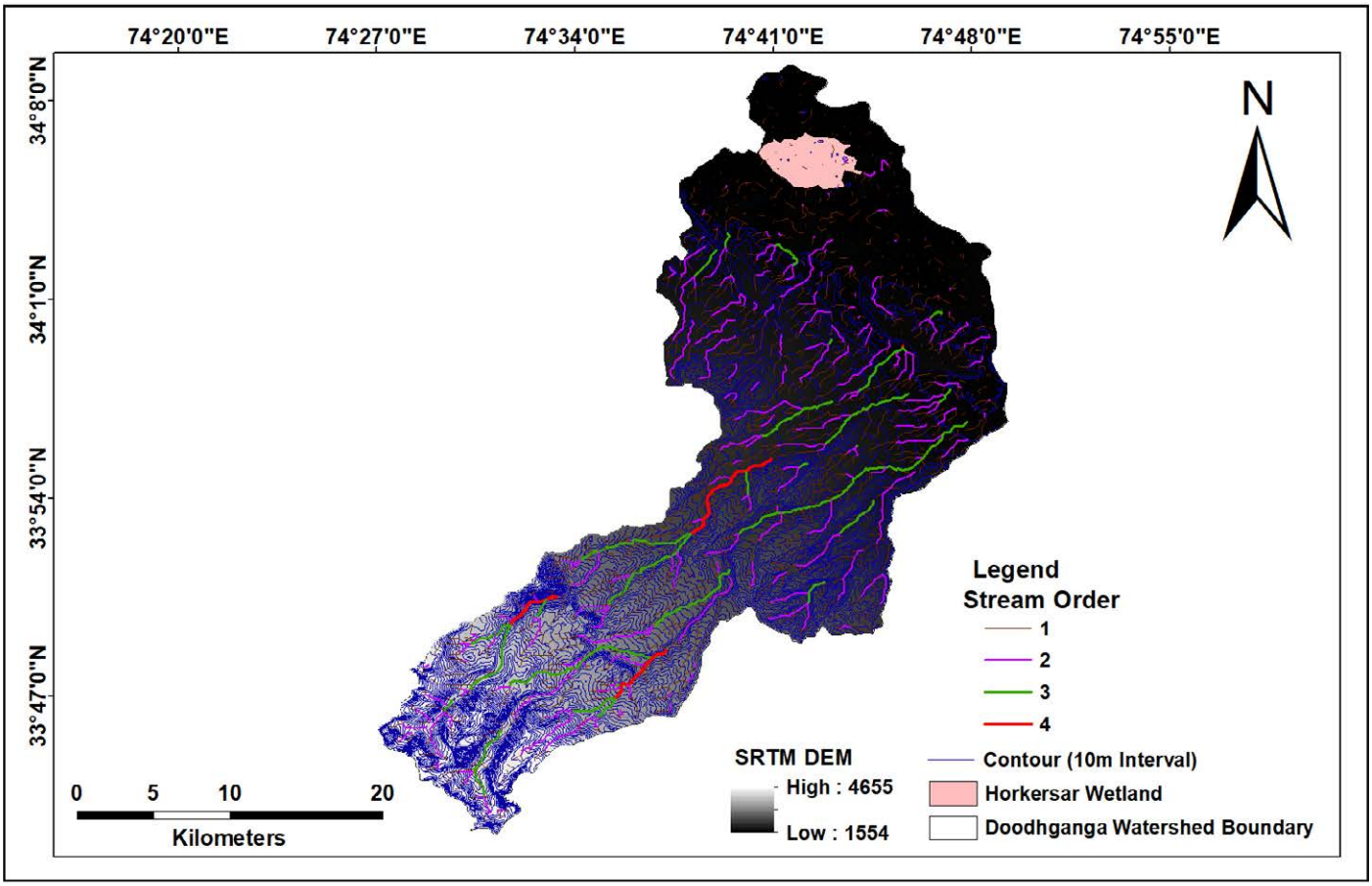

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75°0'0"E
75°5'0"E
75°15'0"E
75°25'0"E
75°35'0"E
34°30'0"N
34°20'0"N
34°10'0"N
34°0'0"N
N
Legend
Malgam Wetland
Shallabugh Wetland
Sindh Watershed Boundary
SRTM DEM
High : 5236
Low : 1558
0 5 10 20
Kilometers

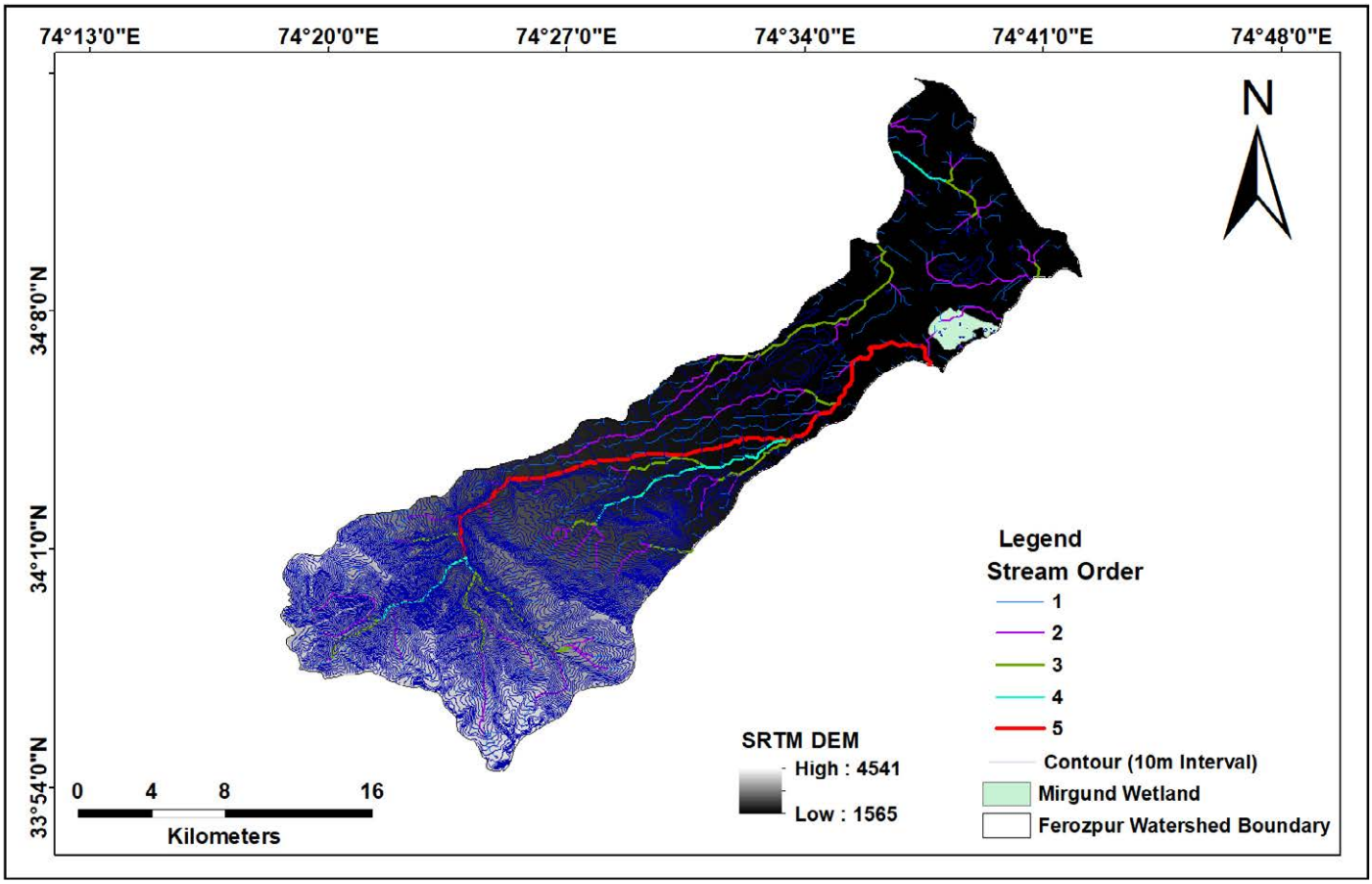

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74°25'0"E
74°30'0"E
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74°40'0"E
74°45'0"E
34°15'0"N
34°10'0"N
34°5'0"N
34°0'0"N
33°55'0"N
N
Legend
Mirgund Wetland
Freozpur Watershed Boundary
SRTM DEM
High : 4541
Low : 1565
0 4.5 9 18
Kilometers

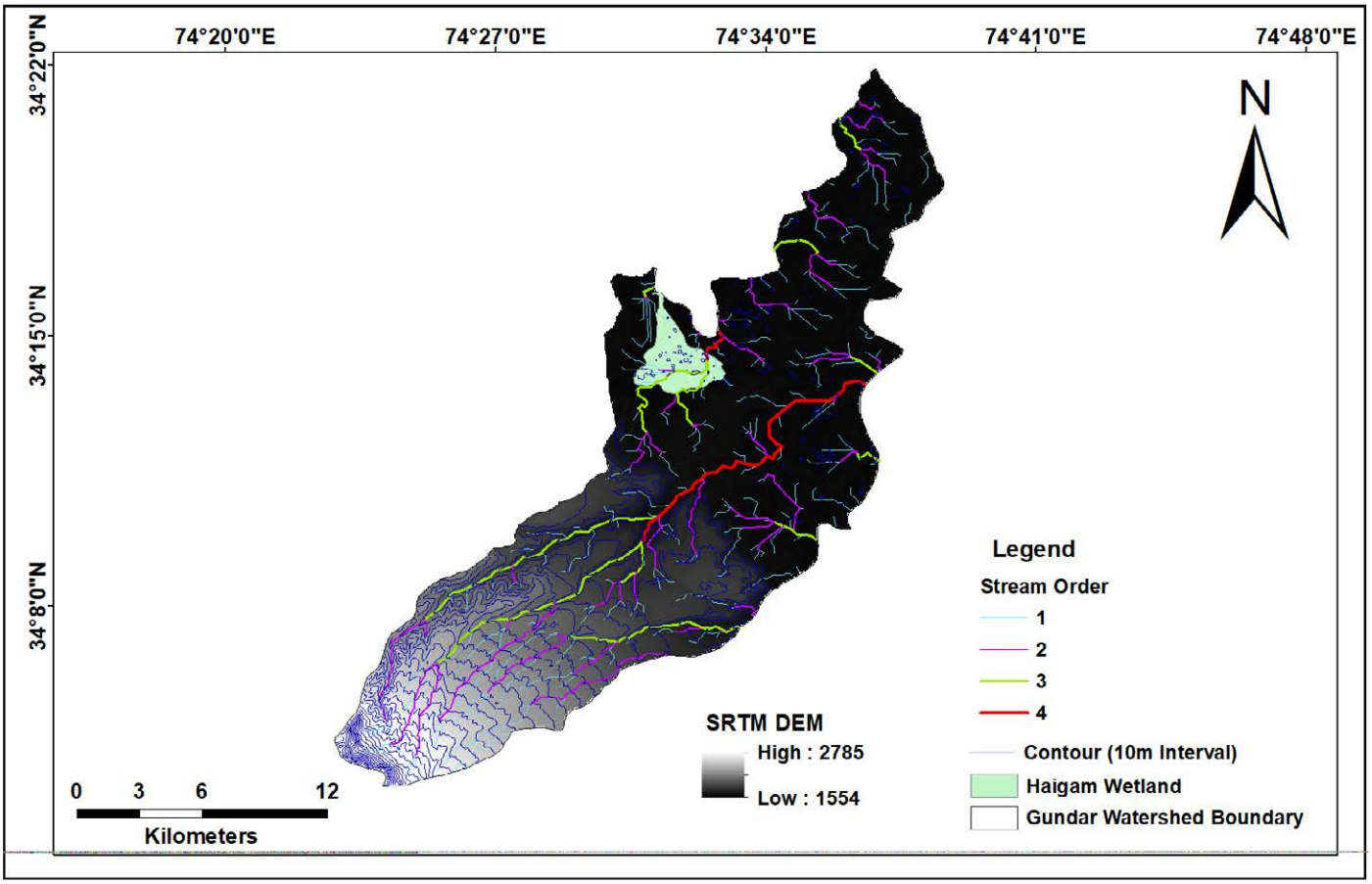

74°15'0"E
74°20'0"E
74°25'0"E
74°30'0"E
74°35'0"E
74°40'0"E
74°45'0"E
34°20'0"N
34°15'0"N
34°10'0"N
34°5'0"N
N
Legend
Haigam Wetland
Gundar Watershed Boundary
SRTM DEM
High : 2785
Low : 1554
0 3 6 12
Kilometers


74°54'0"E
75°0'0"E
75°6'0"E
75°12'0"E
75°18'0"E
34°6'0"N
34°0'0"N
33°54'0"N
N
Legend
Stream Order
1
2
3
4
5
Contour (10m Interval)
Chattlam
Freshkhori
Kranchoo
Manibugh
Arapal Watershed Boundary
SRTM DEM
High : 4312
Low : 1576
0 3 6 12
Kilometers

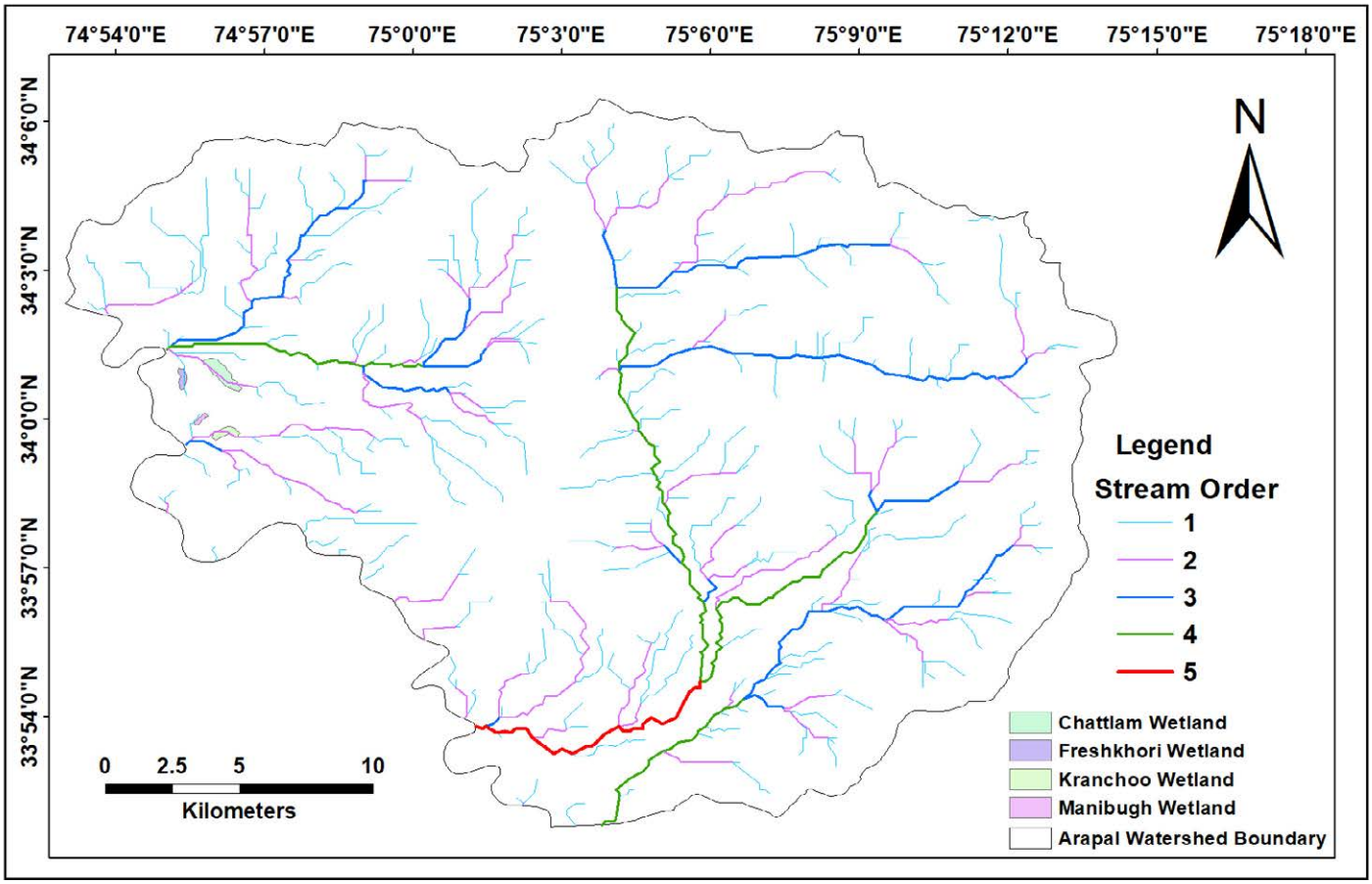

74°36'0"E
74°42'0"E
74°48'0"E
74°54'0"E
75°0'0"E
75°6'0"E
75°12'0"E
75°18'0"E
75°24'0"E
75°30'0"E
75°36'0"E
34°30'0"N
34°24'0"N
34°18'0"N
34°12'0"N
34°6'0"N
34°0'0"N
N
Legend
Stream Order
1
2
3
4
5
6
SRTM DEM
High : 5236
Low : 1558
Contour (10m Interval)
Sindh Watershed Boundary
Shallabugh Wetland
Malgam Wetland
0 5 10 20
Kilometers

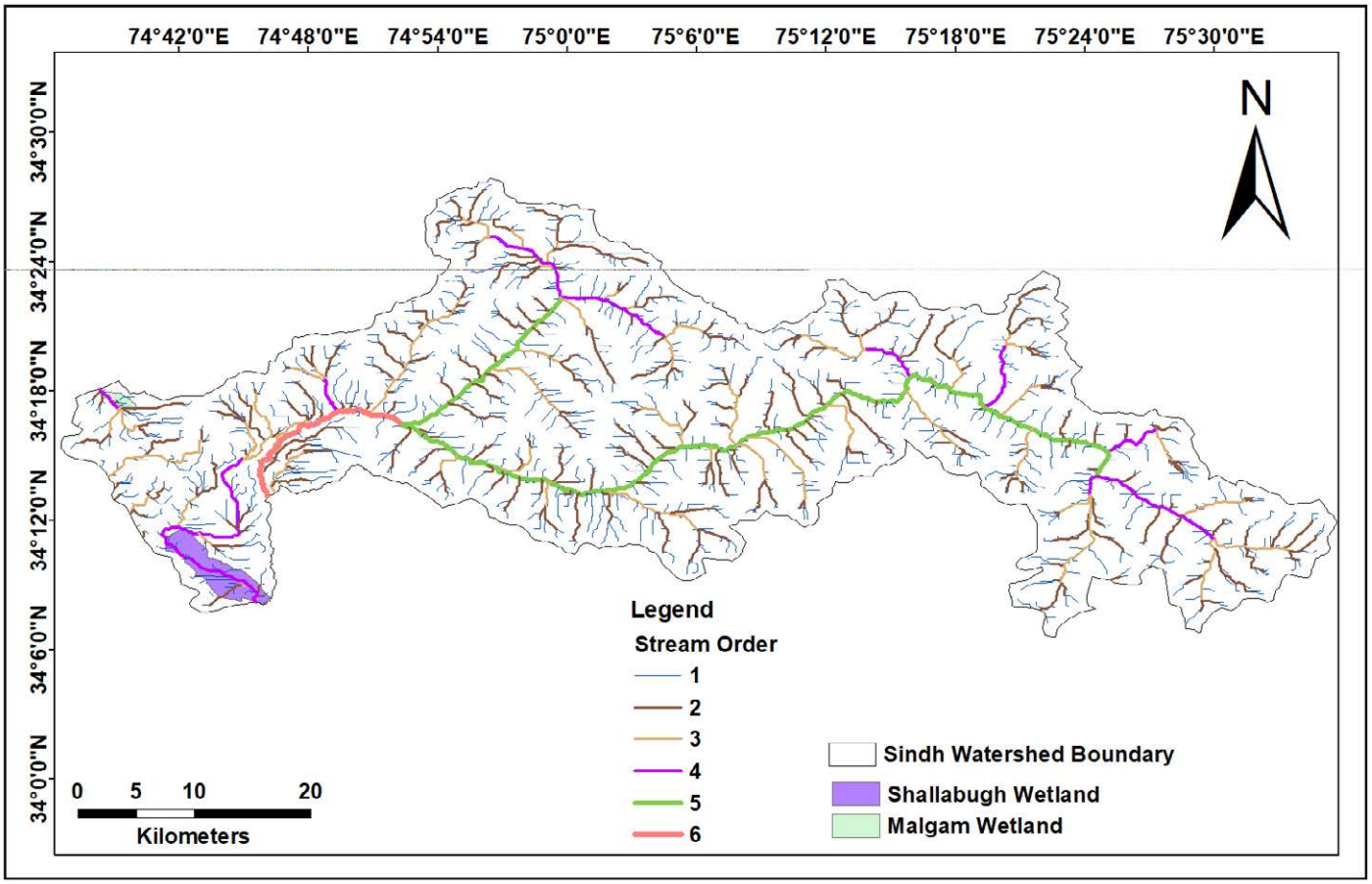

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74°27'0"E
74°34'0"E
74°41'0"E
74°48'0"E
74°55'0"E
34°8'0"N
34°1'0"N
33°54'0"N
33°47'0"N
N
Legend
Stream Order
1
2
3
4
SRTM DEM
High : 4655
Low : 1554
Contour (10m Interval)
Horkersar Wetland
Doodhganga Watershed Boundary
0 5 10 20
Kilometers

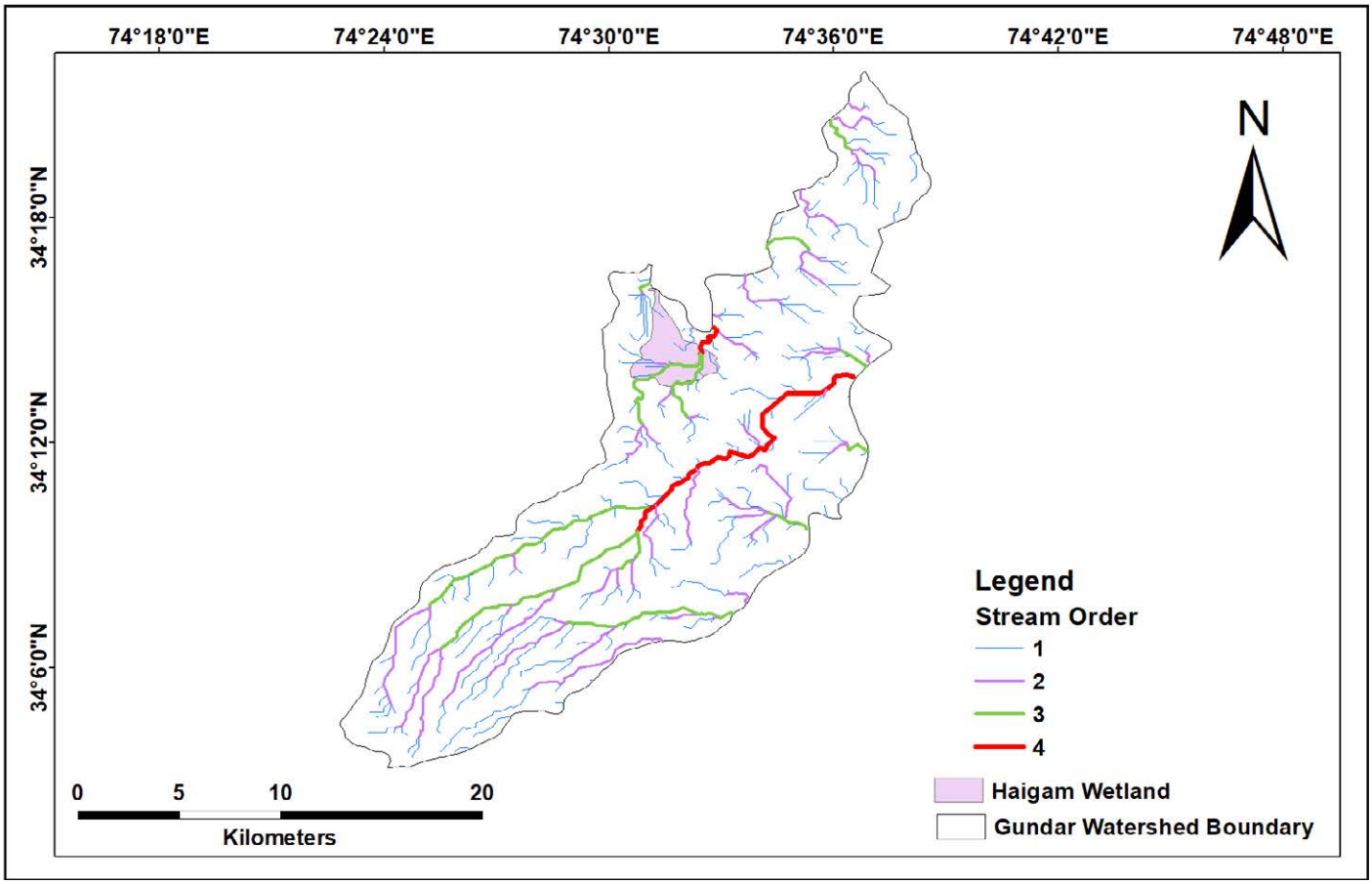

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74°20'0"E
74°27'0"E
74°34'0"E
74°41'0"E
74°48'0"E
34°8'0"N
34°1'0"N
33°54'0"N
N
Legend
Stream Order
1
2
3
4
5
Contour (10m Interval)
Mirgund Wetland
Ferozpur Watershed Boundary
SRTM DEM
High : 4541
Low : 1565
0 4 8 16
Kilometers

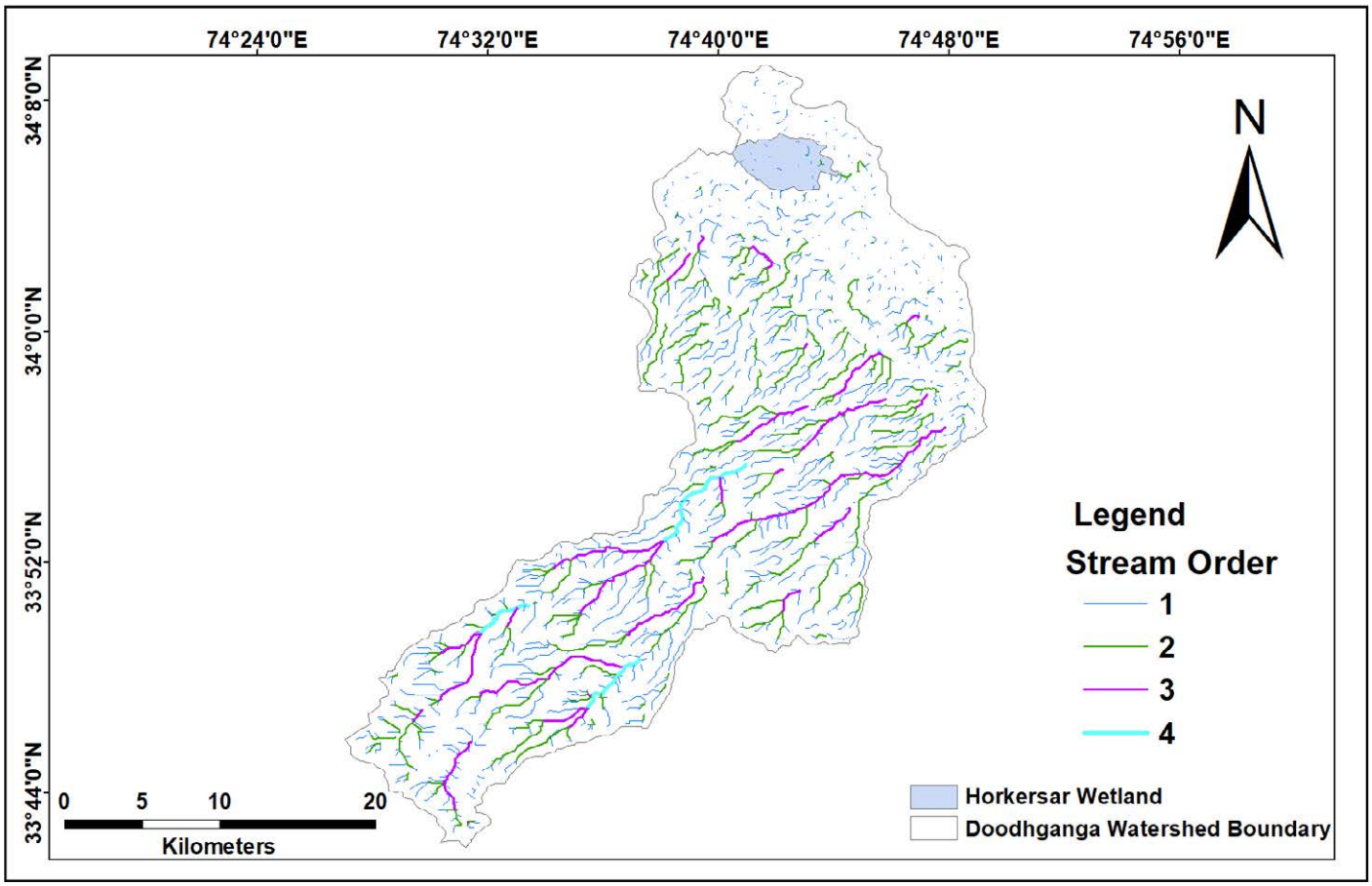

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74°27'0"E
74°34'0"E
74°41'0"E
74°48'0"E
34°22'0"N
34°15'0"N
34°8'0"N
N
Legend
Stream Order
1
2
3
4
Contour (10m Interval)
Haigam Wetland
Gundar Watershed Boundary
SRTM DEM
High : 2785
Low : 1554
0 3 6 12
Kilometers

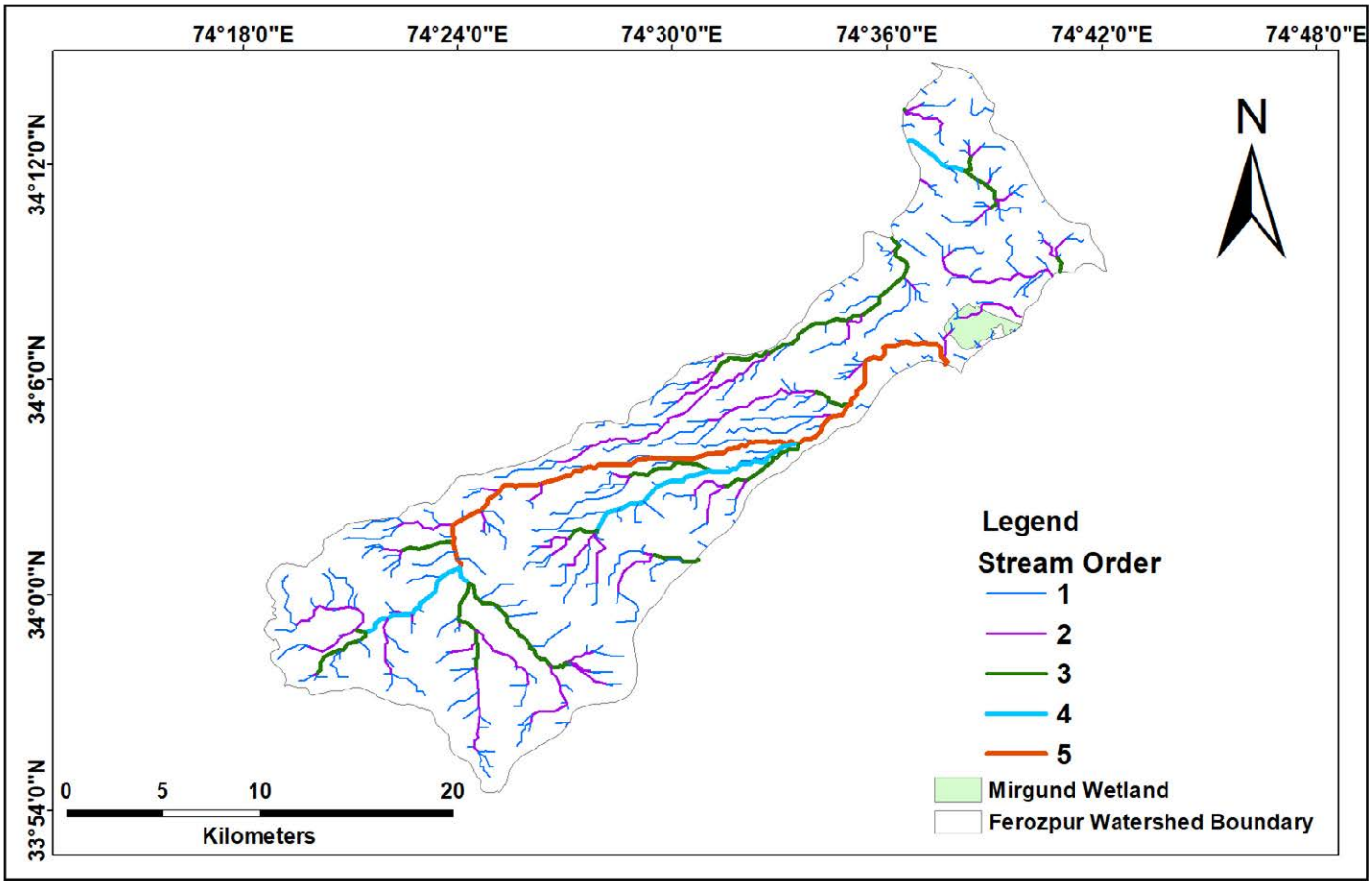
HYDROLOGY RESULTS



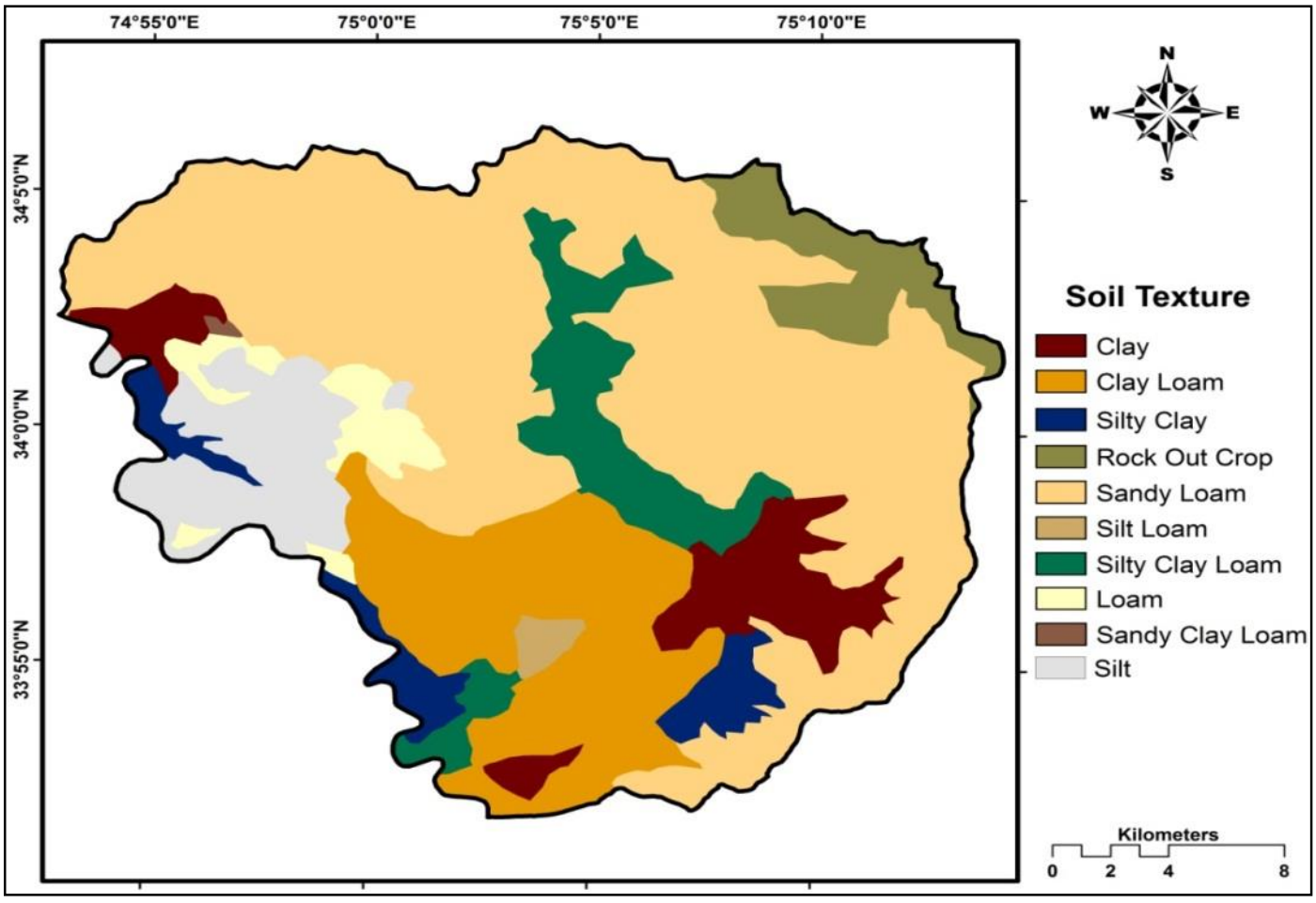


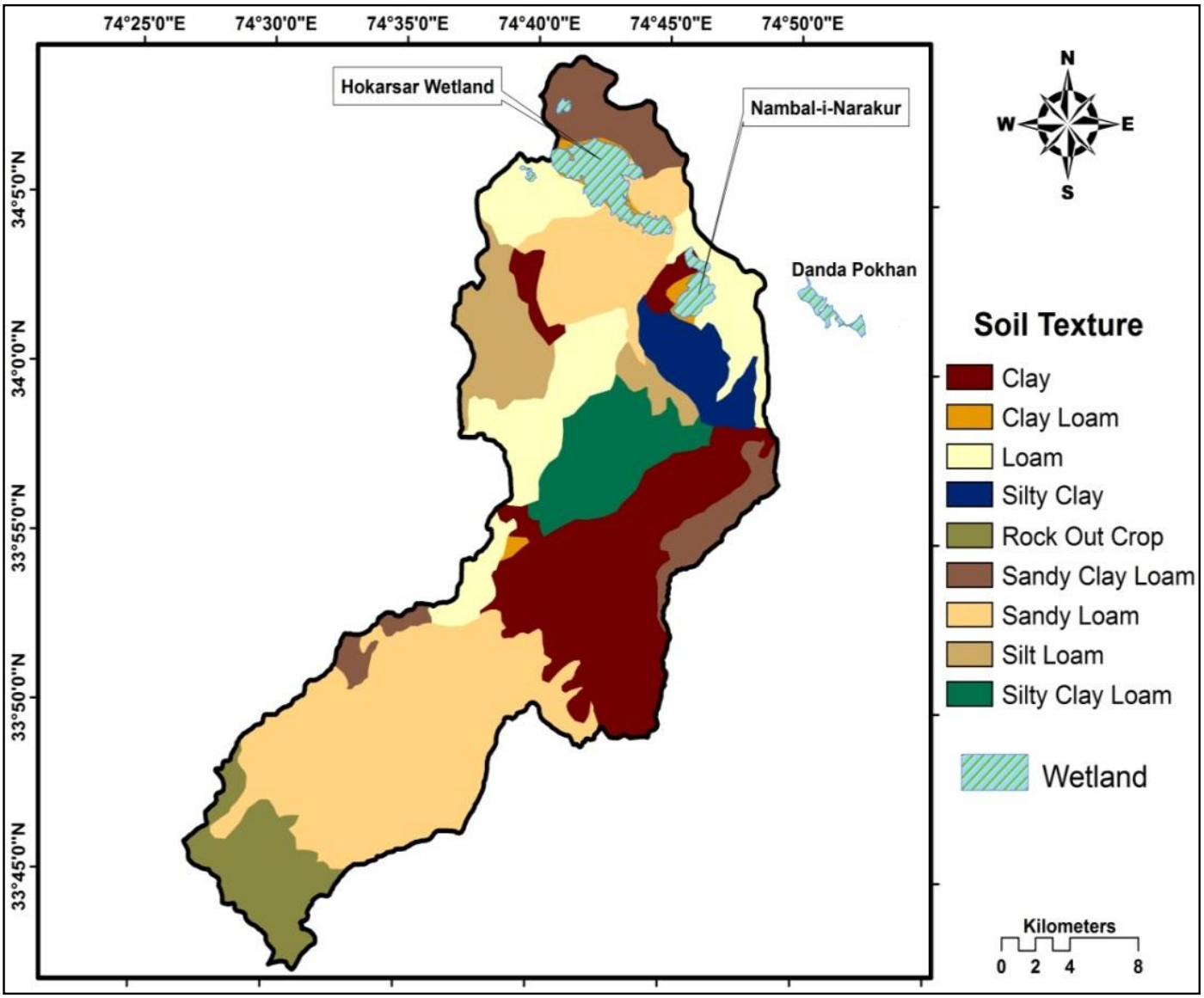

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74°24'0"E
74°30'0"E
74°36'0"E
74°42'0"E
74°48'0"E
34°18'0"N
34°12'0"N
34°6'0"N
N
Legend
Stream Order
1
2
3
4
Haigam Wetland
Gundar Watershed Boundary
0
5
10
20
Kilometers

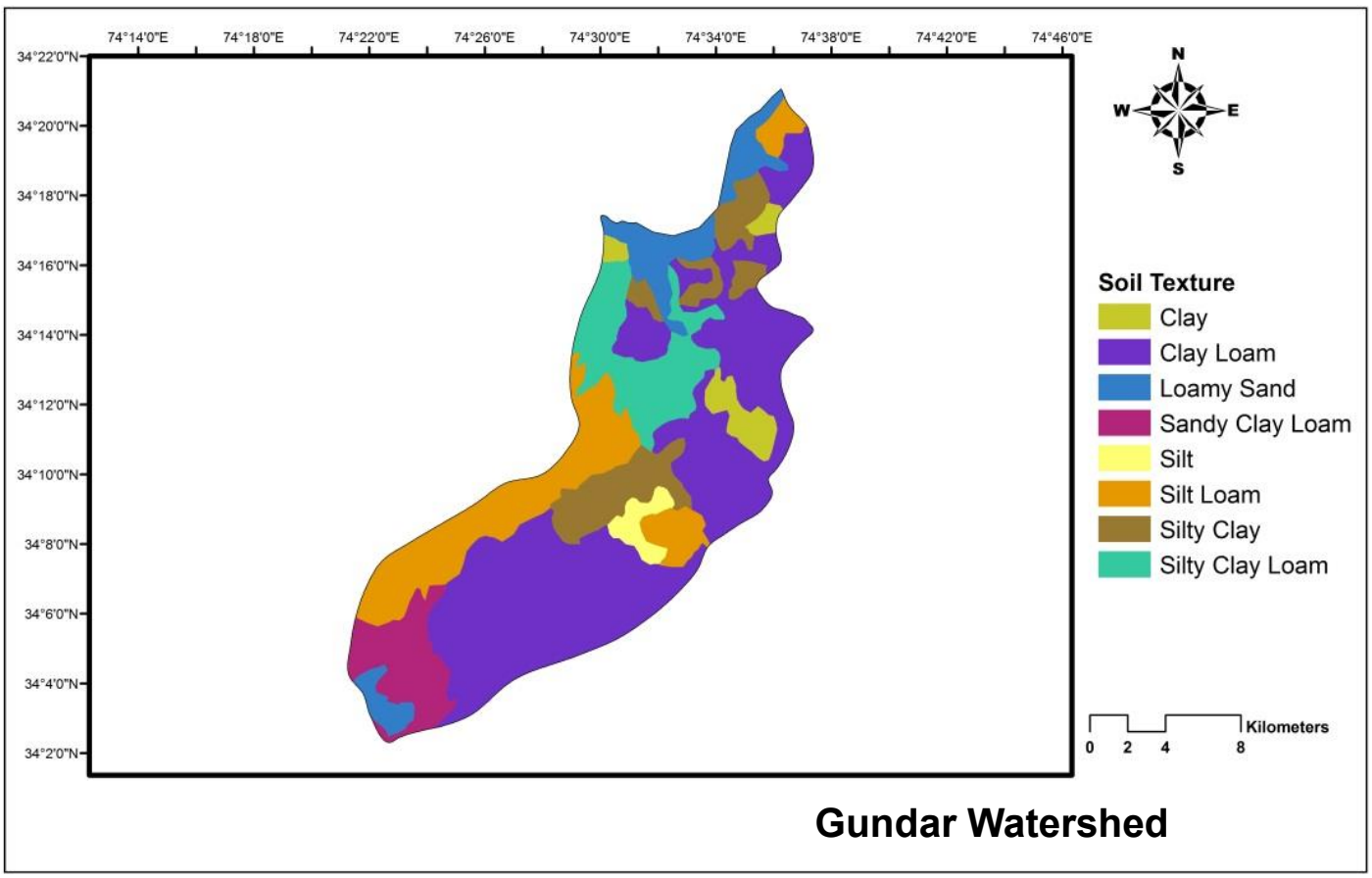

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74°32'0"E
74°40'0"E
74°48'0"E
74°56'0"E
34°8'0"N
34°0'0"N
33°52'0"N
33°44'0"N
N
Legend
Stream Order
1
2
3
4
Horkersar Wetland
Doodhganga Watershed Boundary
0
5
10
20
Kilometers


74°18'0"E
74°24'0"E
74°30'0"E
74°36'0"E
74°42'0"E
74°48'0"E
34°12'0"N
34°6'0"N
34°0'0"N
33°54'0"N
N
Legend
Stream Order
1
2
3
4
5
Mirgund Wetland
Ferozpur Watershed Boundary
0
5
10
20
Kilometers

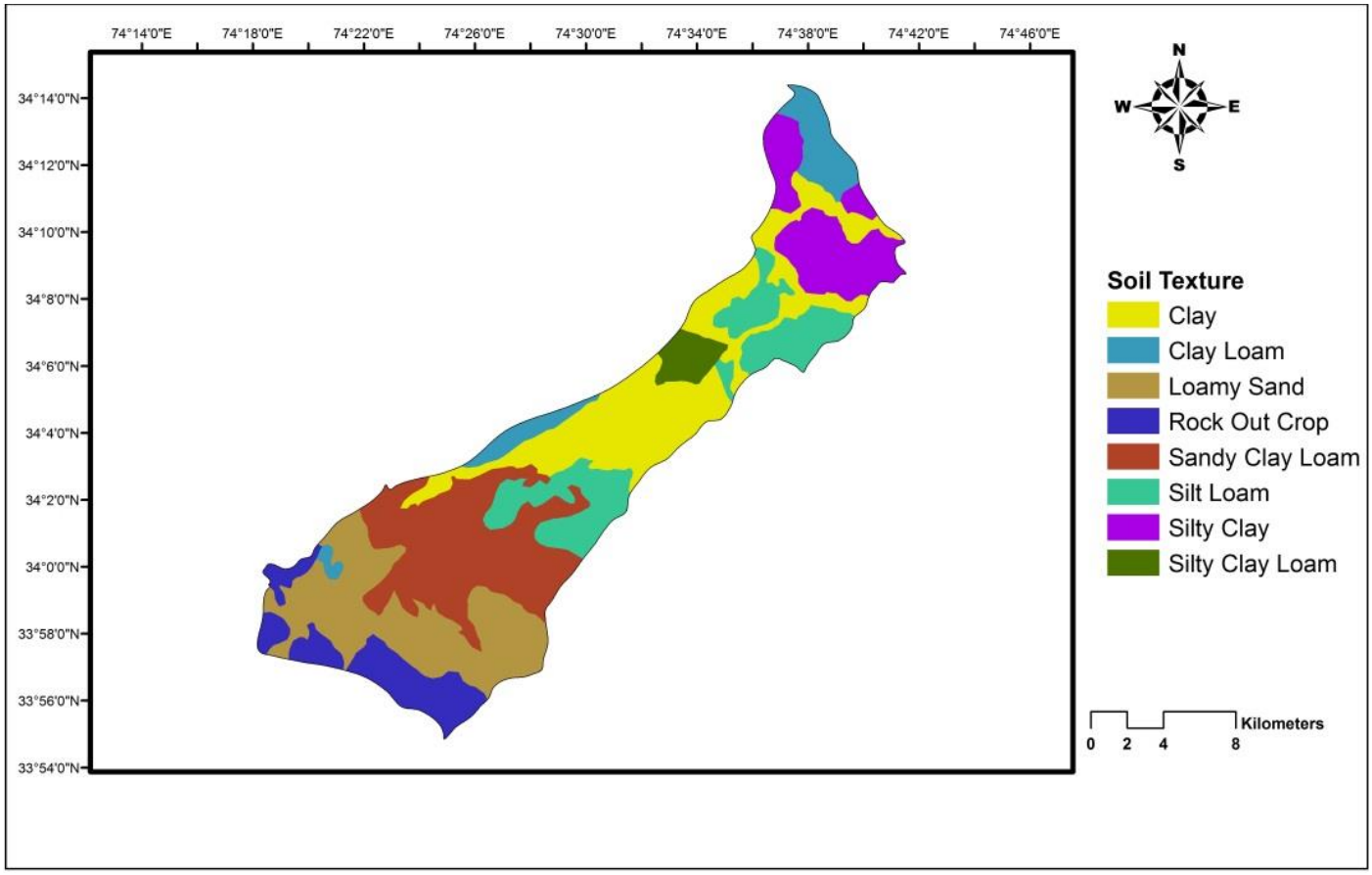
DSM RESULTS

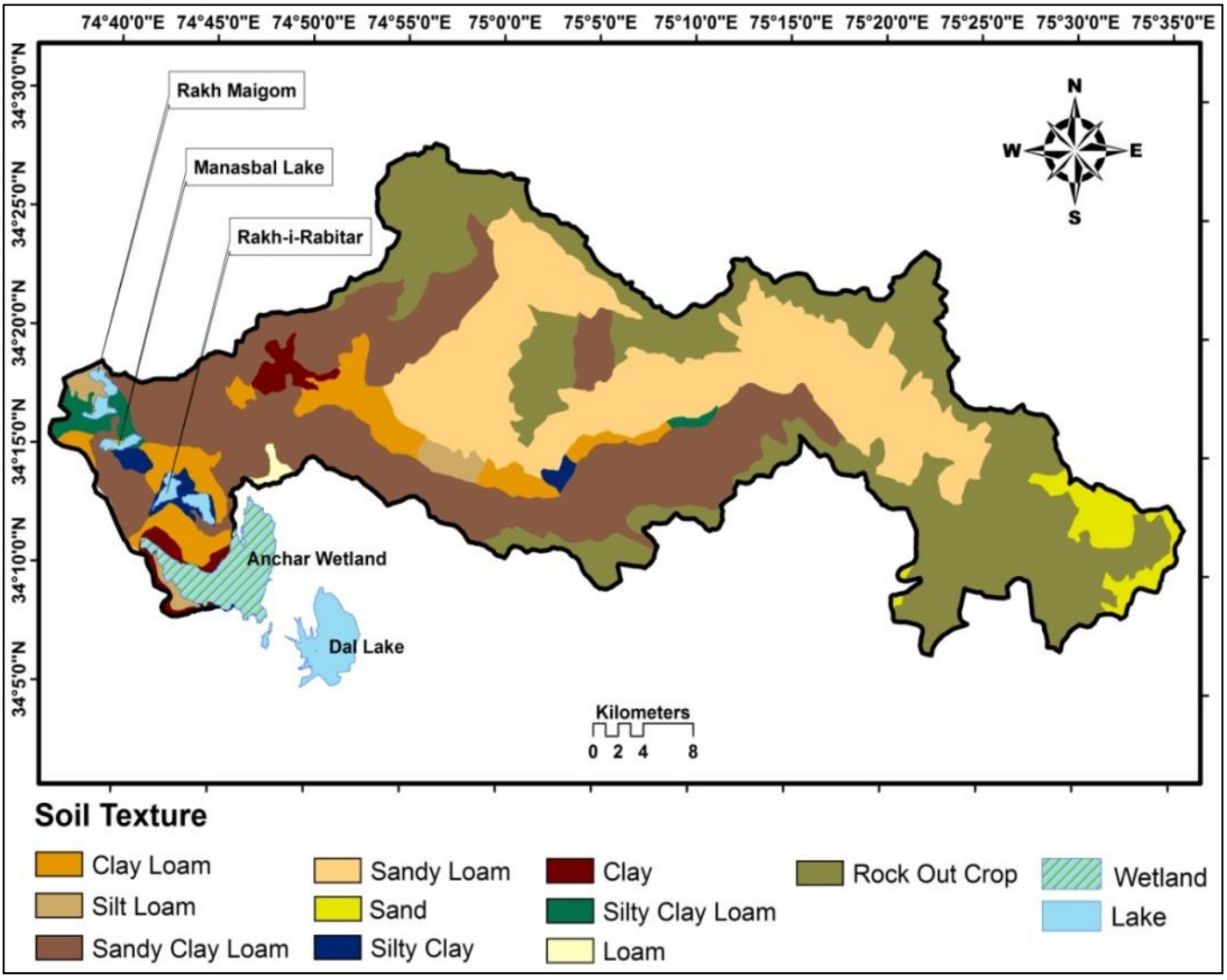

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75°0'0"E
75°5'0"E
75°10'0"E
34°5'0"N
34°0'0"N
33°55'0"N
N
W
E
S
Soil Texture
Clay
Clay Loam
Silty Clay
Rock Out Crop
Sandy Loam
Silt Loam
Silty Clay Loam
Loam
Sandy Clay Loam
Silt
Kilometers
0
2
4
8

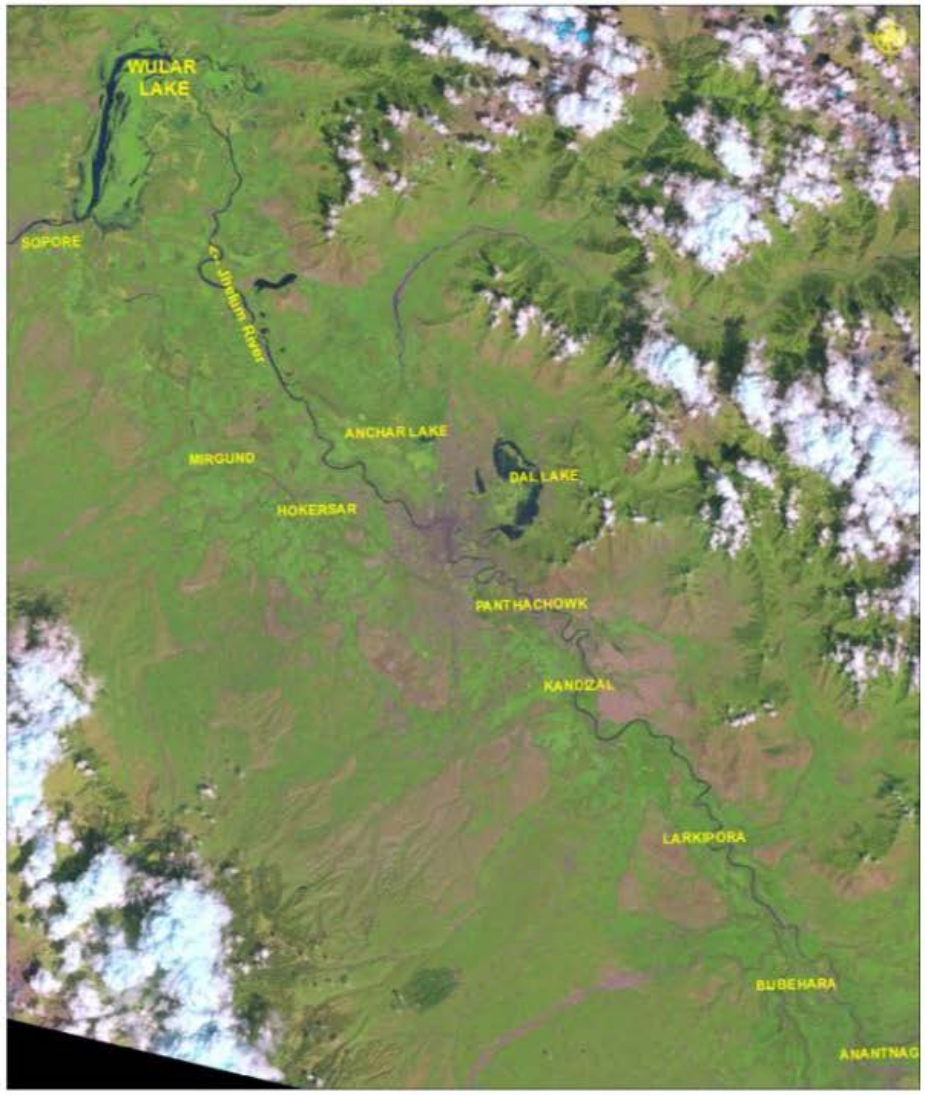




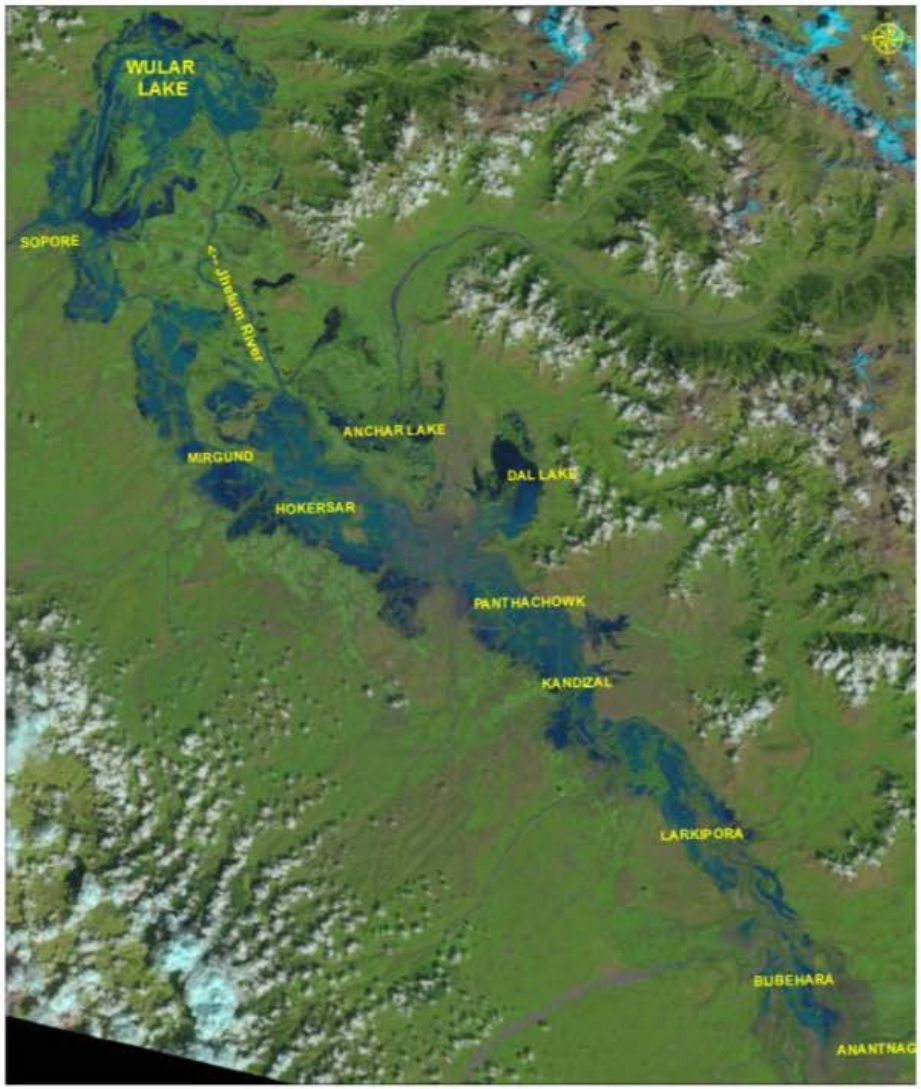
Gundar Watershed


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74°26'0"E
74°30'0"E
74°34'0"E
74°38'0"E
74°42'0"E
74°46'0"E
34°14'0"N
34°12'0"N
34°10'0"N
34°8'0"N
34°6'0"N
34°4'0"N
34°2'0"N
34°0'0"N
33°58'0"N
33°56'0"N
33°54'0"N
N
W
E
S
Soil Texture
Clay
Clay Loam
Loamy Sand
Rock Out Crop
Sandy Clay Loam
Silt Loam
Silty Clay
Silty Clay Loam
Kilometers
0 2 4 8


74°40'0"E
74°45'0"E
74°50'0"E
74°55'0"E
75°0'0"E
75°5'0"E
75°10'0"E
75°15'0"E
75°20'0"E
75°25'0"E
75°30'0"E
75°35'0"E
34°30'0"N
34°25'0"N
34°20'0"N
34°15'0"N
34°10'0"N
34°5'0"N
Rakh Maigom
Manasbal Lake
Rakh-i-Rabitar
Anchar Wetland
Dal Lake
N
W
E
S
Kilometers
0 2 4 8
Soil Texture
Clay Loam
Silt Loam
Sandy Clay Loam
Sandy Loam
Sand
Silty Clay
Clay
Silty Clay Loam
Loam
Rock Out Crop
Wetland
Lake



PRE-FLOOD
LANDSAT-8 Satellite Image showing
Floods as on 25 August, 2014



POST-FLOOD
LANDSAT-8 Satellite Image showing
Floods as on 10 September, 2014



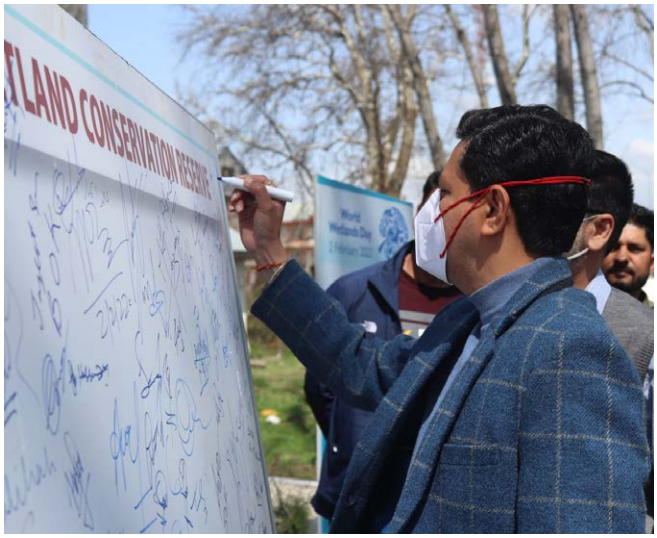
CHAPTER NO 23

A PLEDGE TO SAVE WETLANDS IN PICTURES





Dr. Arun Kumar Mehta (IAS) Worthy Chief Secretary J&K



Shri Sanjeev Verma (IAS) Commissioner/ Secretary, Forests, J&K



Dr. Mohit Gera (IFS) PCCF/HoFF



Shri P K Pole (IAS)
Divisional Commissioner Kashmir



Shri Rashid Naqash,
Regional Wildlife Warden Kashmir











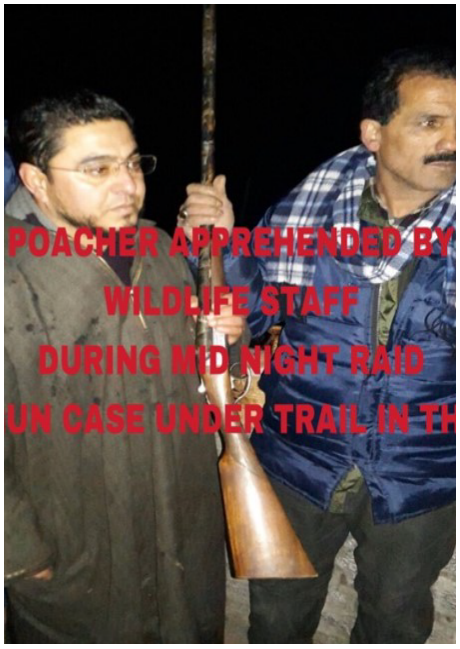






A pledge by community members and students to save the wetlands.




















Present enforcement and other management interventions






Plugging of breaches and restoration of marginal bunds in Hokersar Wetland






Plugging of breaches and restoration of marginal bunds

















One day Seminar on 'Useful Utilization of Wetland Biomass' held on 14-08-2021 at Dachigam National Park


DEPARTMENT OF WILDLIFE PROTECTION
J&K GOVT.