Wetland Rejuvenation and Protection – Haiderpur Wetland Model

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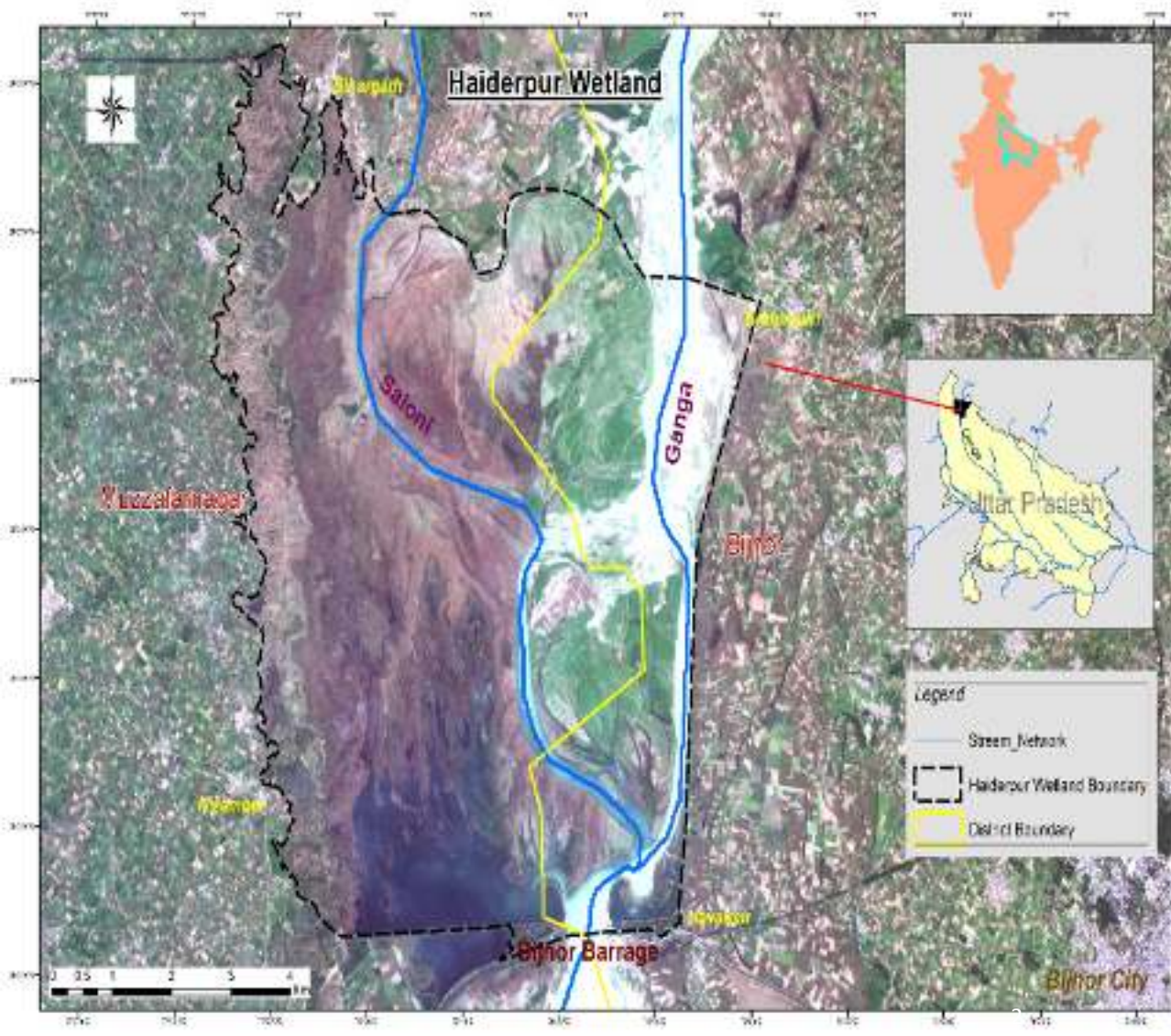
DM MuzaffarNagar

Haiderpur Wetland

- Area: 6900 hectares
- Fed by Rivers Solani (35%) and Ganga (65%)
- *300 species of birds,* 28867 (2020)
- Bar-headed goose (2.8% of biogeographic population) and Greylag Goose (3%)
- Gharial, Indian narrow-headed softshell turtle, mahseer, Steppe eagle, Sarus crane, Indian skimmer, Swamp deer, mugger and Smooth-coated otter
- Proposed Ramsar Site
- Identification and recognition as a wetland – 2nd oct 2019 by District Administration



Threats to the wetlands identified

1. Water security issues – water quality and quantity
2. Water availability throughout the year
3. Pollution
4. Encroachments, land use changes, decreasing forest cover
5. Livelihood issues
6. Sedimentation

Approach in MuzaffarNagar

1. Involving Community leaders, wildlife experts, wildlife enthusiasts, Policy makers, NGOs, Institutions.
2. Organizing side events.
3. Bridging the knowledge Gap – awareness and understanding about Wetlands, birds and biodiversity as a whole
4. Economic evaluation of wetlands and their integration with local livelihood.

NCMG work in Muzzaffarnagar

1. Under the National Clean Ganga Mission, an Integrated approach to Conservation and Management of Ganges River Basin was adopted.
2. Training of stakeholders regarding River basins, wetlands.
3. Ecosystem and Biodiversity conservation needs, Threat analysis and works to be undertaken –listing and resource planning was done.
4. Community involvement involved livelihood issues, leadership and ownership development.
5. Sensitizing general public towards wetlands and their bio diversity and the need for conservation efforts.

Strategies Adopted

Protection

1.Identification of Wetlands
2. Geo- Spatial Mapping
3. Preparation of Action Plan

Conservation

1. Preservation of Bio-Diversity
2. Water Management Practices
3. Awareness and Community ownership
4. Special efforts

Management

1.Sustainability of efforts
2.Disaster Management
3. Future Road Map

Execution - The Approach:-

- Scientific study of wetland
  - WII ,WWF ,TSA
  - Field survey
  - Bird census
- Technical intervention
  - Removal of water hycinth by labor & machine
  - Release of Turtles and Gharials
- Controlling illegal activities
  - Cases booked under WLPA 1972
- Mass awareness
  - Bird festival
  - Sensitize other departments
- Community Involvement
  - SHGs & EDCs Formation
  - Water Schools

1. Protection of wetlands in District Muzzaffarnagar

1. Identification of Wetlands – 632 Wetlands Identified in Distt.
2. Geo- Spatial Mapping –Dhara App Initiative by E-district Muzaffarnagar
3. Preparation of Action Plan –Submitted to State Govt. & worked Started

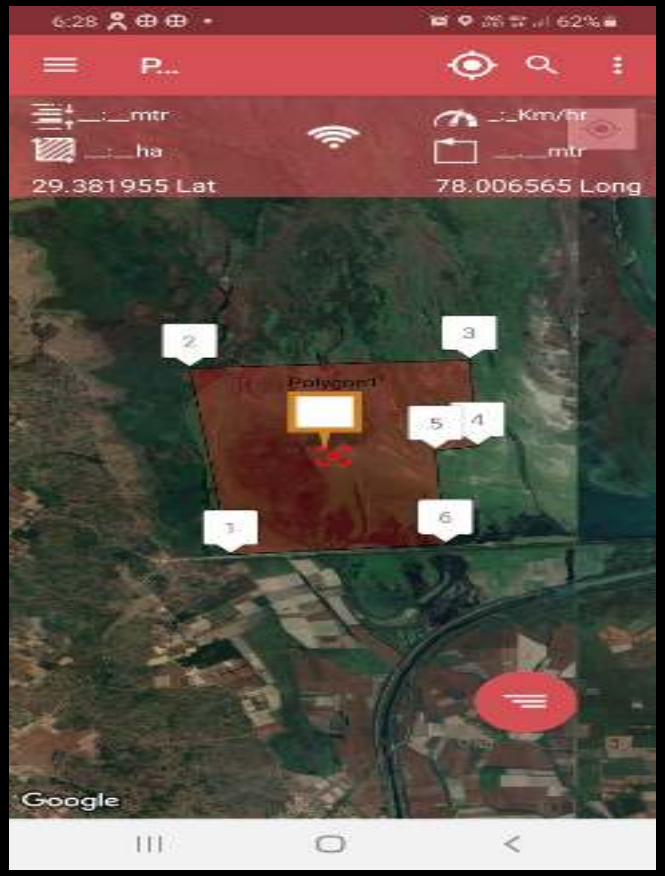
1. ASSESSING WETLAND CONDITION, IDENTIFYING MANAGEMENT ACTIONS

Identified as wetland in muzaffarnagar on following parameters----- for eg. Haiderpur wetland	**Total 632 Wetlands in districts**
Water source , quality	Backwaters of Bijnor Barrage, River Gangas, Freshwater
Soil type	Alluvial Soil
Climate	Tropical
Topography	Plain
Forest area	6900 Ha, comes under Haiderpur Wetland Sanctuary
Vegetation	Riparian, Grassland
Number of villages and population	9 villages with around 15000 population

Birds	Animals
300 species	20 varieties

Fishes	Plant varieties
30 varieties	6

Other wetlands are also mapped by Dhara App
Follow up action – Removal of Enchroment & Restoration



Vill haiderpur wetland 242/136.186

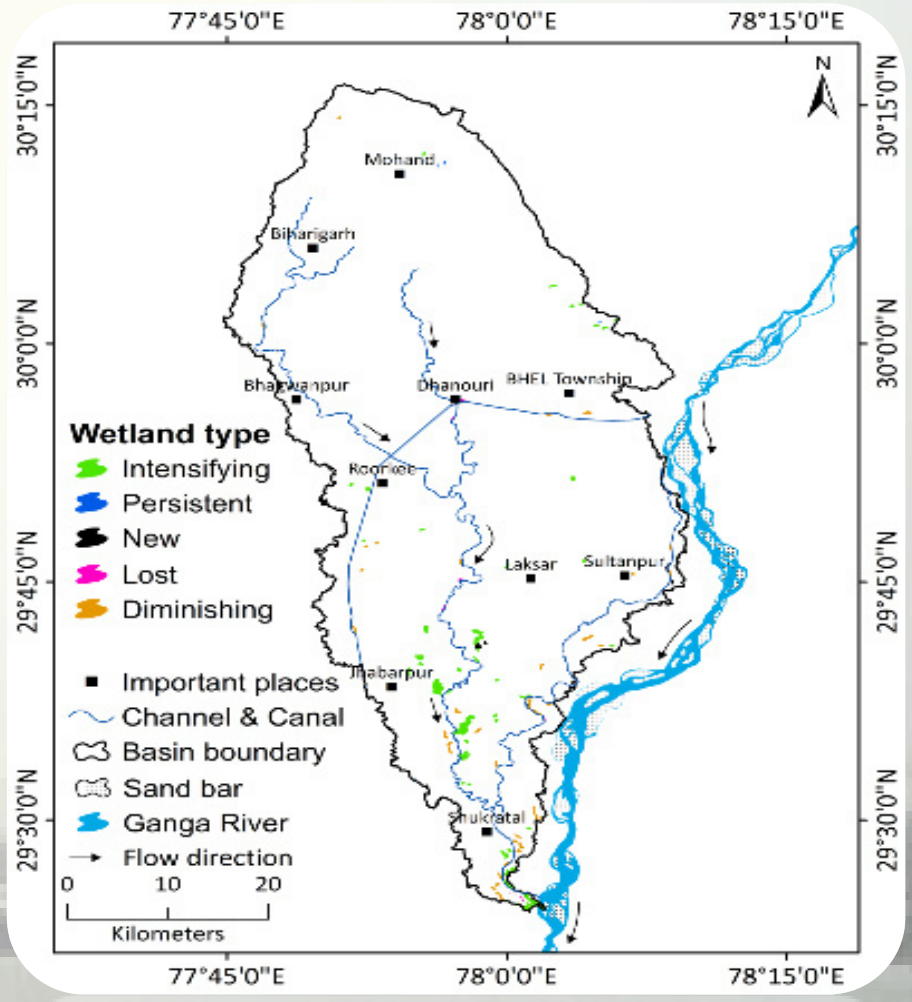
Vill jaitpur gorsiwal Gata no.1,2, total 280.674

Geo spatial assessment of Haiderpur wetland

- **Location : At Bijnor Barrage in Muzaffarnagar distt. on bank of river Ganga.**

  Distance : 40 km away from muzaffarnagar
  10km away from Bijnor
- **Area : 6900 Ha.**
- **Source of water : Backwater of Bijnor Barrage on river Ganga.**
- **Uniqueness : Habitat of Swamp Deers, otters, Crocodiles, Python, Sarus crane & Migratory Birds.**
- **Status : Hastinapur Wildlife Sanctuary**

River-Wetland assessments



- Temporal variation in Wetlands in Solani basin including Haiderpur was mapped assess seasonal and maximum inundation and wetness in wetland which serves as habitats for both flora and fauna.
- Proposed: Bathymetry and assessment of changes in wetland-river geomorphology with WWF-India

Preparation/work on Action Plan

- Problem of each wetlands identified
  - Silting, Encroachment, eutrophication, Water Hyeinth, Pollution (BOD/COD Levels), Water quantity variation, Solid waste, Fertilizers.

- Restoration Plans have been made by different Departments for restoration and protection of each wetland.
- Action Plans already submitted to state Govt. in all 632 wetlands.
- more than 50% restored to wetland state by de-silting, de-weeding, bio- remediation, filtration (Local Funds)

Problems identified before starting work

- Eutrophication
  - Water Hycinth
  - Pistia Stratiodes
- Illegal activities
  - Fishing
  - Grazing

Action Plain – Restoration of Wetlands

- Total Wetlands identified – 632

- Survey of each wetland conducted
- separate action plans has been prepared comprising majorly of the following components

i) Water Quality of Water Body
ii) Physical conditions of water body
iii) Status of Sewage Management in the Catchment area
iv) Status of Industrial Effluent Management in the Catchment area
i) Waste Management in the Catchment area of water body

- **Action plan restoration work:**

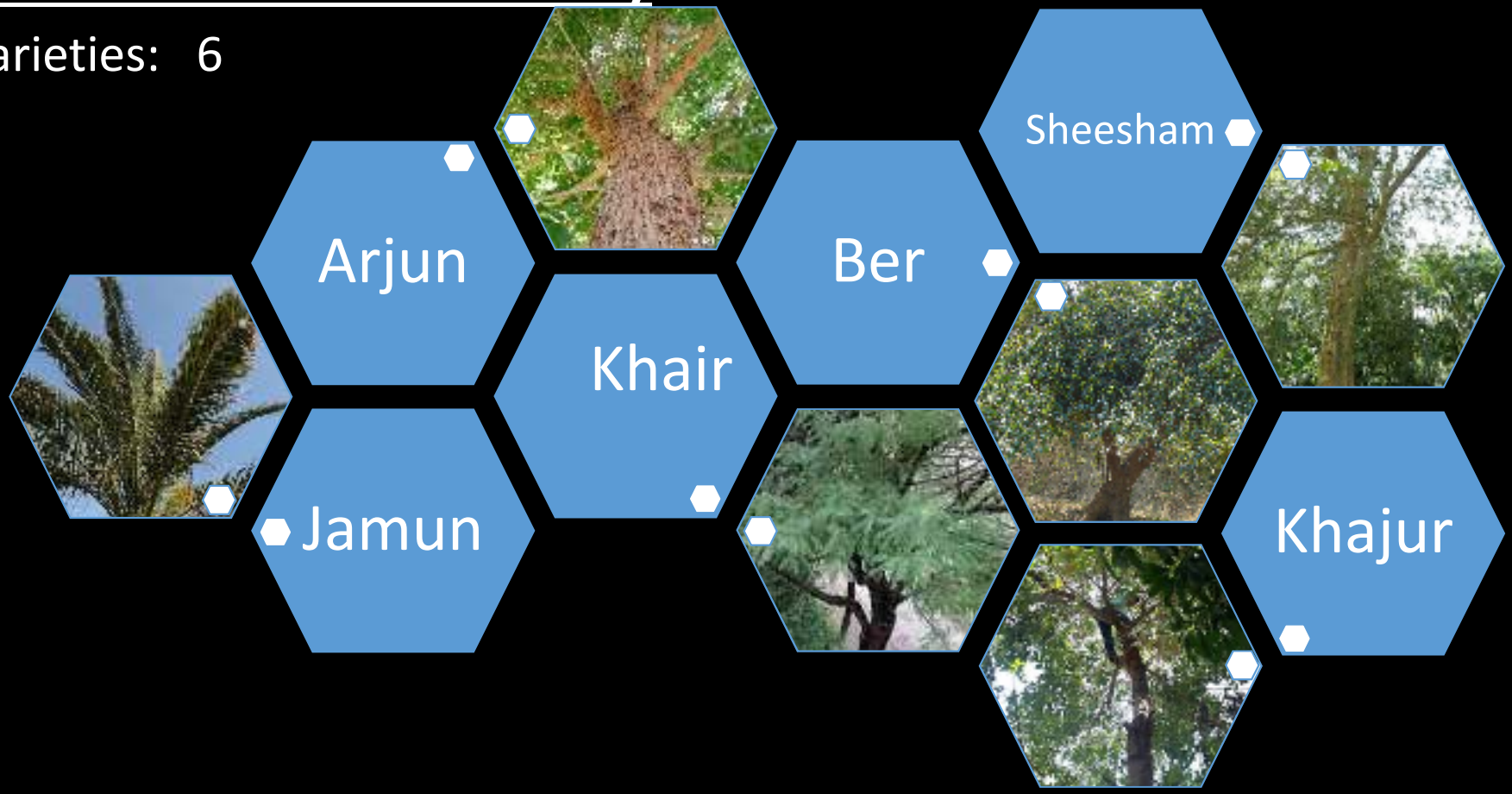
1. De-Weeding
2. De-Watering
3. De-Silting
4. Construction of Ramp
5. Construction of Intercepting Chambers
6. Plantation and Construction of Tree Guard
7. PCC on Ramp for Pathway

2. Conservation of wetlands

1. Preservation of Bio-Diversity
2. Water Management Practices
3. Awareness and Community ownership
4. Special efforts

Haiderpur Wetland Bio- Diversity

Plant varieties: 6



Haiderpur Wetland Bio-

Grass Varieties: 6

Khas
(vetveria)

Kans

Doob

Munj

Typha

Narkul

Animal varieties: 20

Indian Python

Crocodile

Gharial

Swamp deer

Fishing cat

Fox

Turtles

Jackal

About Haiderpur

Fishes varieties: 30

Wallago attu

Sole

Snow Trout

Fishes ROHU

Mahaseer

Spotted barb

Haiderpur wetland Bio- Diversity

Birds varieties: 300 (Population 20000+)

- Sarus crane
- Indian skimmer
- Red crested pochard
- Coots
- Greylag goose
- Bar headed goose
- Painted stork
- Pintail
- Eagle
- Cormorants
- Surkhab
- Gadwal
- Gulls
- Etc

Haiderpur Wetland – Unique Species

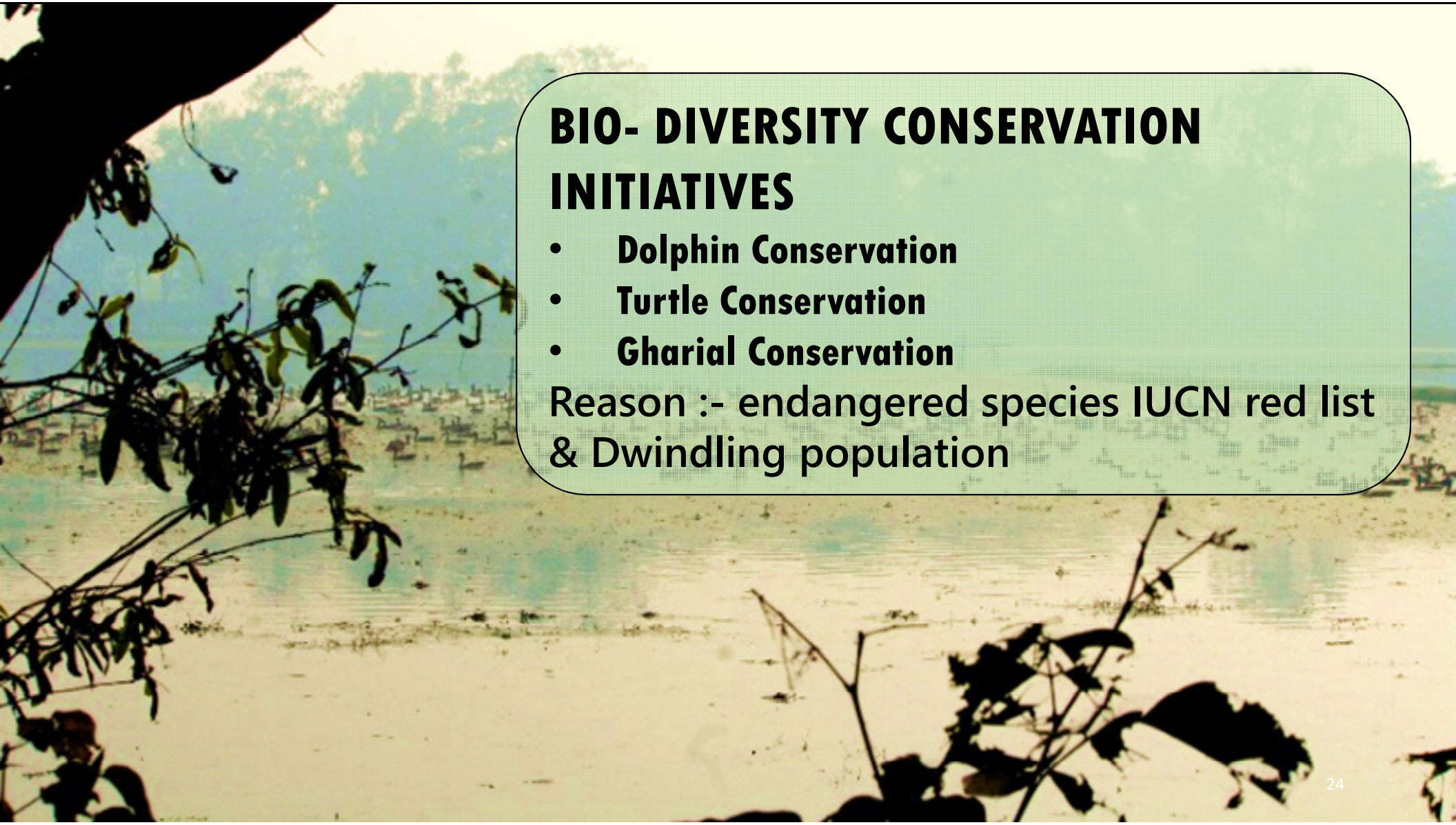
Swamp Dear

Saras

Dolphin

Otter

Turtle

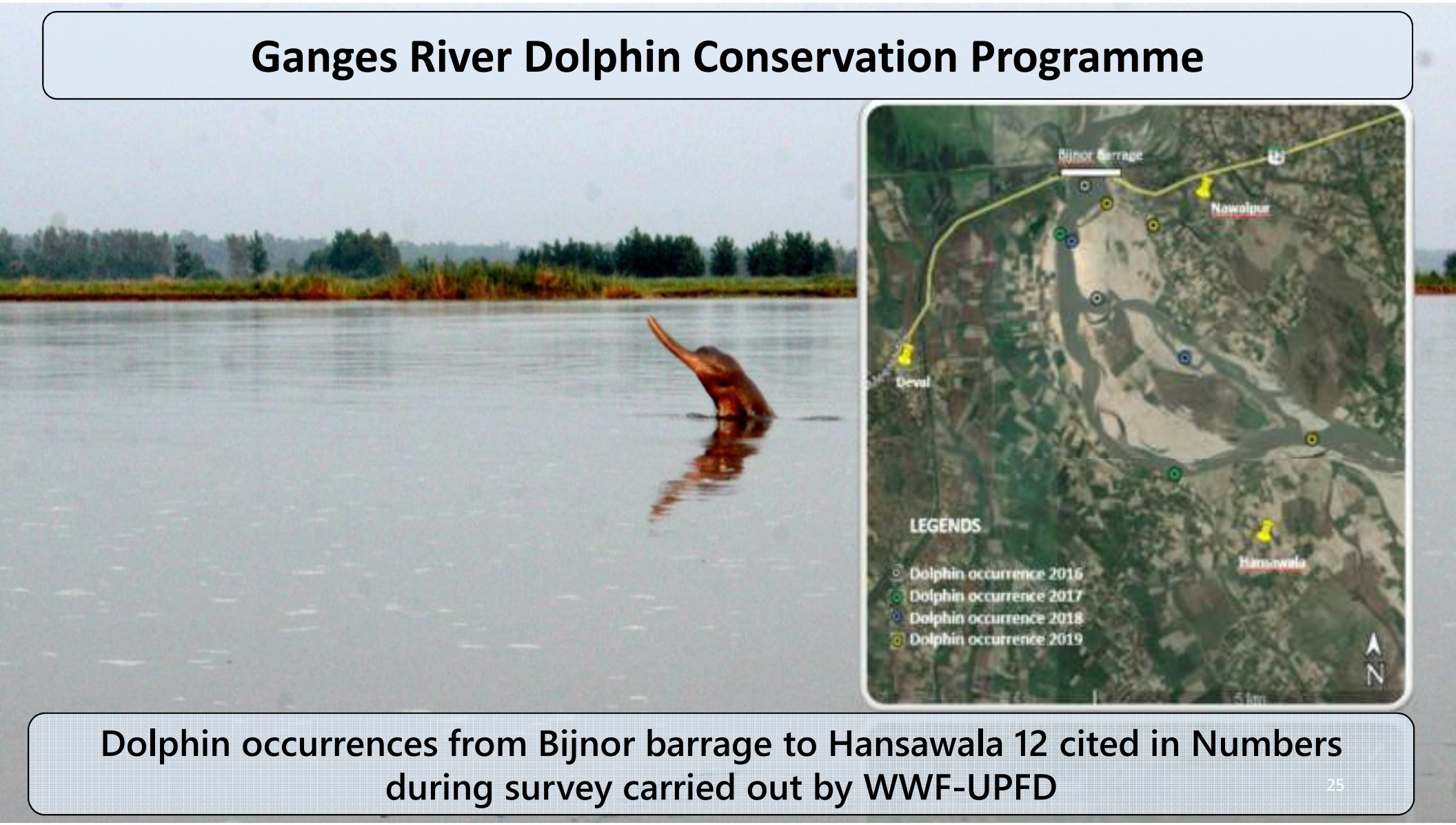


BIO- DIVERSITY CONSERVATION INITIATIVES

- **Dolphin Conservation**
- **Turtle Conservation**
- **Gharial Conservation**

Reason :- endangered species IUCN red list & Dwindling population

Ganges River Dolphin Conservation Programme

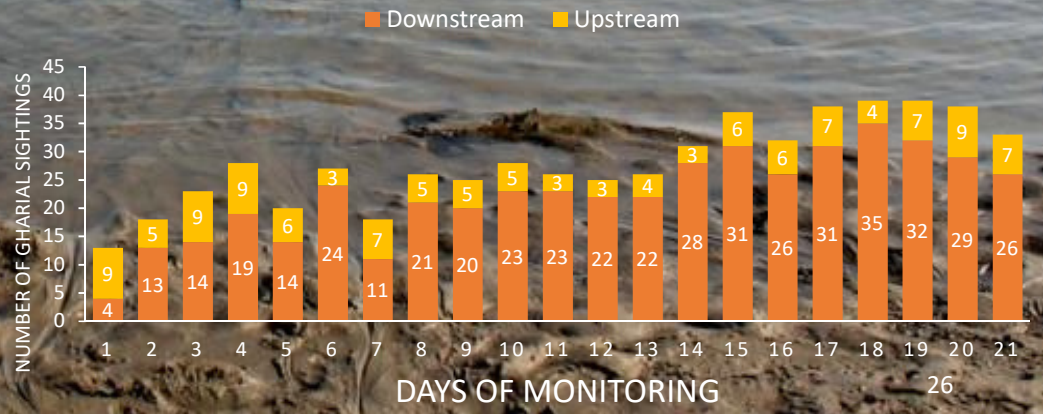


Dolphin occurrences from Bijnor barrage to Hansawala 12 cited in Numbers during survey carried out by WWF-UPFD

Gharial Conservation Programme

90 Gharial juveniles released jointly by Uttar Pradesh Forest Department and WWF-India at Hansawala village (d/s Bijnor barrage), Muzaffarnagar.
Sex Ratio: 72 female gharial juveniles13 male gharial juveniles.
Size class: 120 to 137cm total body length

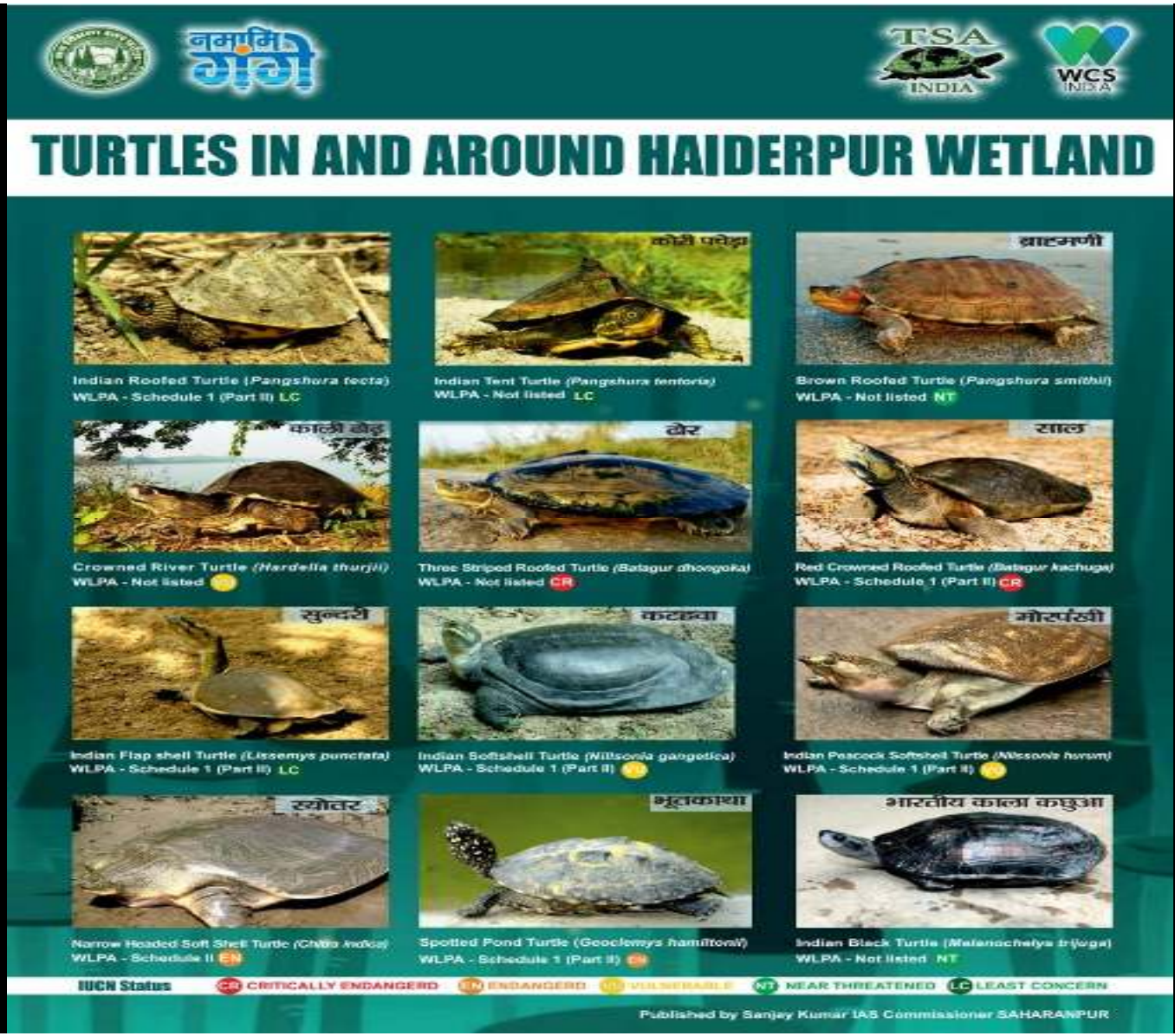
DAILY DISTRIBUTION OF GHARIAL'S SIGHTINGS IN UP AND DOWNSTREAM OF THE RELEASE SITE



Ganges River Turtle Conservation Programme

Turtle Survey Conducted by TSA (Turtle Surveillance Alliance), Lucknow
9 out of 12 gangetic river turtle have been cited in haiderpur wetland

Turtle species in Haiderpur wetland – 9 out of 12 species (Ganga River) cited.



Community-led turtle Conservation Programme

The local riverbed (palage) farmers of riparian village of Muzaffarnagar and rescued the turtle nests from palage fields in 2017-19. So far the 486 turtle hatchlings (186 belongs to Indian Tent Turtle, 31 Brown Roofed and 269 Three striped Roofed Turtle) have been recued from riverbed cultivation (Palaze) with help of local farmers and released in the stretch of river Ganga from Haiderpur to Hansawala (Muzaffarnagar).

Water Management Practices

- **On ground conservation actions**
- **Water Schools**
- **Water Harvesting Structure**
- **Restoration & Rejuvenation of Ponds**
- **Restoration & Rejuvenation of River Basin – focus on quality**
- **Awareness & Community Participation**

On ground conservation actions

- **Coordination with irrigation department to maintain minimum water level.**
- **50% water hyacinth removal**
  - **Manual as well as machines (Trash Skimmer)**

Water Hyacinth removal in 2019 & 2020

Awareness and Community ownership

- **Children Day at Haiderpur in 2019**
- **Bird festival 2019 & 2020, 2021**
- **Formation of EDC & SHGs in near by Villages.**
  - 2 EDC and 10 SHGs

Visit by Eminent persons, Birders

Mr Ashish Loya

Mr Sanjay Kumar

Ms Caroll inskipp

Ganga Gram Water harvesting/Rejuventation Works

Ganga Gram Water harvesting/Rejuventation Works

Special efforts

- **Infrastructure created**
  - **Nature trails, View points, Watch Tower, Hut , Barriers, Boat, binoculars, Toilets**
- **Projected on World Map**
  - **Proposal for RAMSAR site pending at GOI Level.**
- **Hotel Owners were engaged to promote this wetland (Eco-Tourism)**
- **Jal Police**
- **SHGs Income generation activities**

- **Infrastructure created**
  - **Nature trails, View points, Watch Tower, Hut , Barriers, Boat, binoculars, Toilets**

Community Involvement SHGs

Engaging SHGS on income generation with WII

Mapping of community dependency

Stakeholder engagement, capacity building, social and community mobilization.

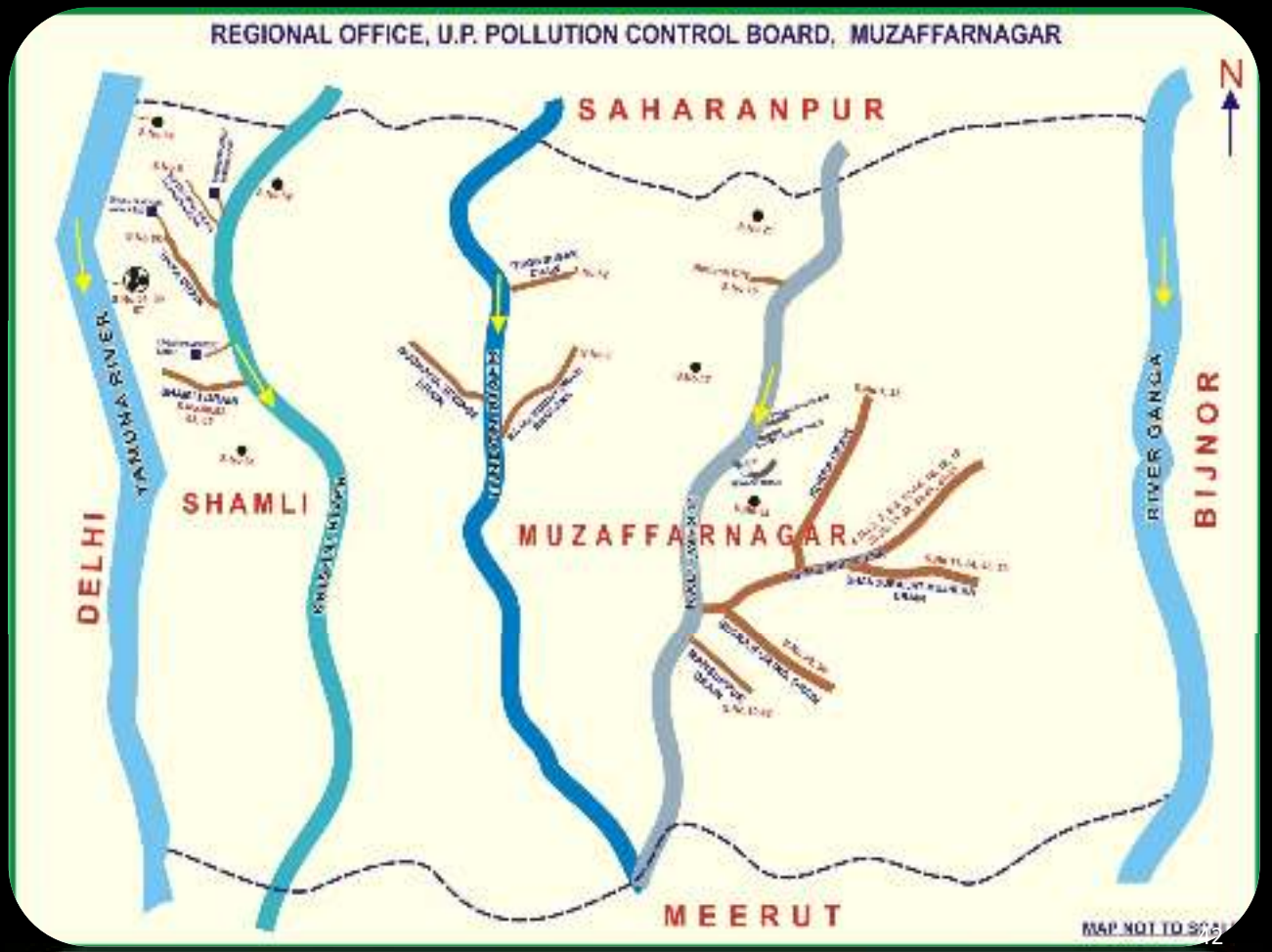
Village	Number of Mitras selected for further formal registration	Source of Livelihood			
		Fishing	Farming	Labour	Educated Unemployed
Navalpur	25	3	17	3	2
Rawali	19	7	9	2	1
Kasampur Khola	24	0	9	10	5
Deval	20	0	18	2	1
Barookhi	21	0	17	3	1
Bihargarh	21	6	8	4	3

Jal Police

- Water security - joint patrolling by boat with police department

River basin rejuvenation - Water pollution Prevention & Control
River Hindon, Kali (West), Kali (East)

- River Hindon, River kali West are tributaries of river Yamuna ultimately joining river Ganga.
- River Kali east is a direct tributaries of River Ganga.



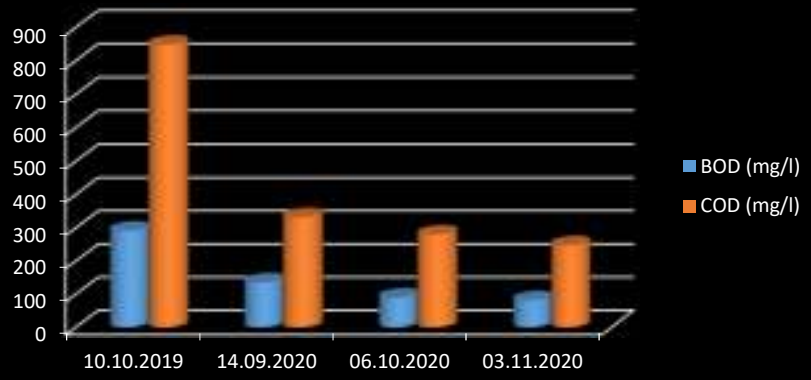
Water Pollution Control – Rivers Rejuvenation

Deep De- silting and Cleaning of major industrial drains for improvement of water quality

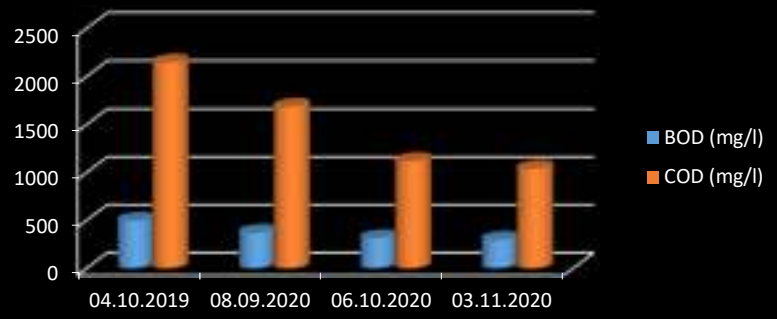
During Cleaning/ De silting

After cleaning – Observable improvements

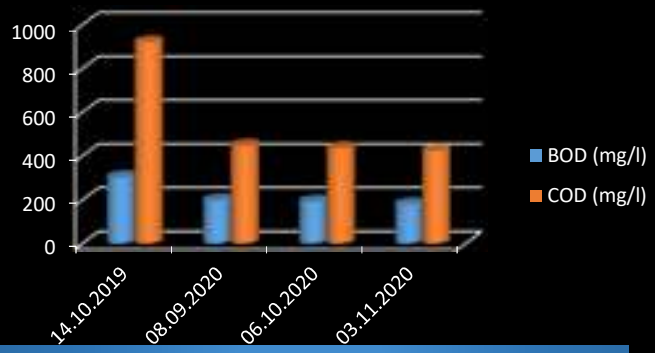
Industrial Drain Water Quality Analysis



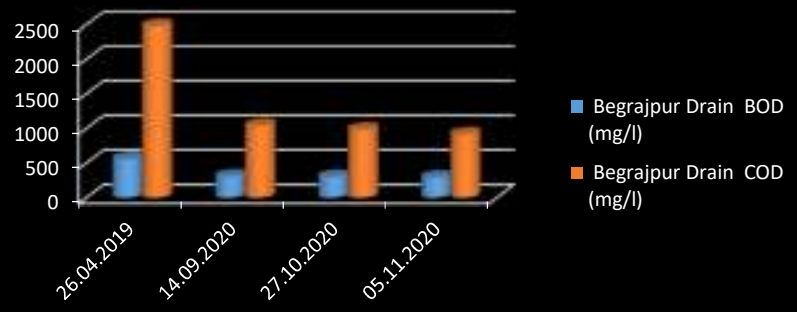
Jat Mujhera Drain		
	BOD (mg/l)	COD (mg/l)
Percentage Reduction (%)	71.9%	70.8%



Dhandhera Drain		
	BOD (mg/l)	COD (mg/l)
Percentage Reduction (%)	39.9%	51.5%

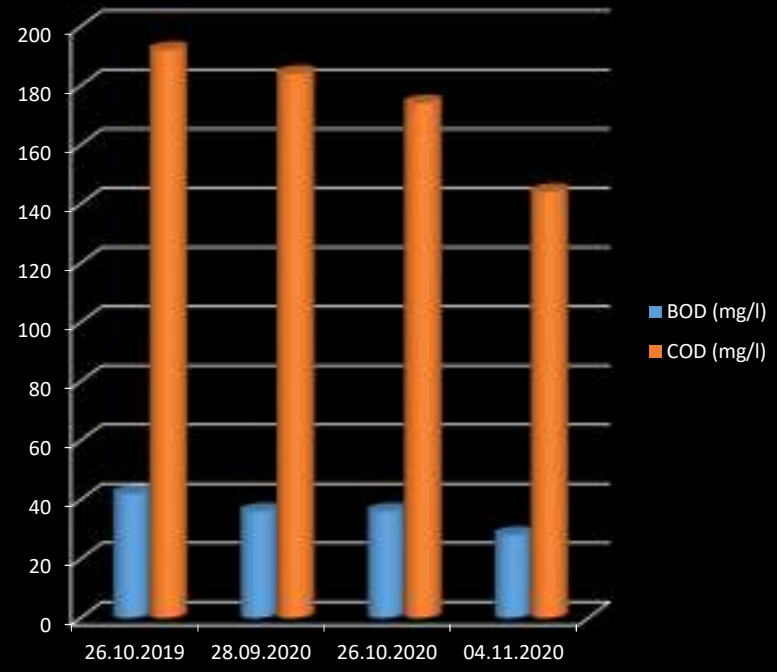


Mansurpur Drain		
	BOD (mg/l)	COD (mg/l)
Percentage Reduction (%)	40.8%	53.9%



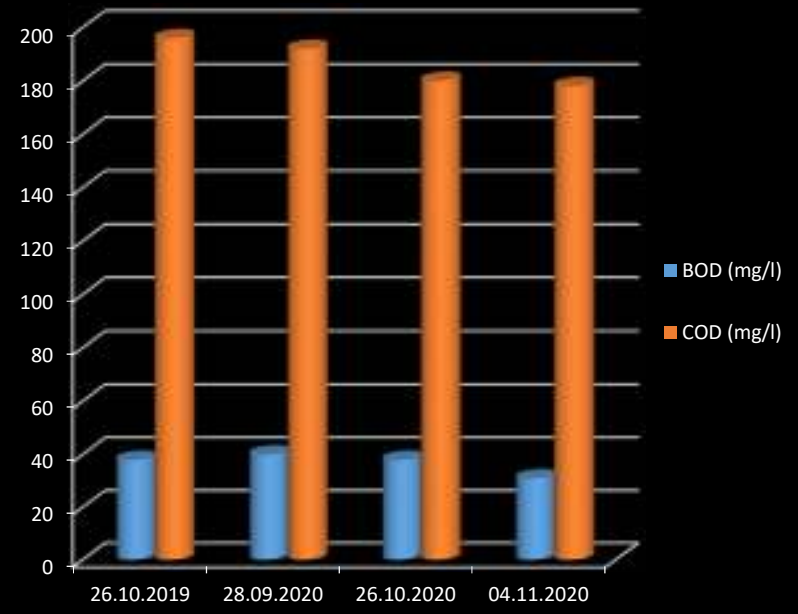
Begrajpur Drain		
	BOD (mg/l)	COD (mg/l)
Percentage Reduction (%)	47.6%	63.2%

River Kali West Water Quality Analysis



	BOD (mg/l)	COD (mg/l)
Percentage Reduction (%)	33.3%	25.0%

River Hindon Water Quality Analysis



	BOD (mg/l)	COD (mg/l)
Percentage Reduction (%)	18.4%	9.2%

Action Taken to improve Water Quality in Rivers

- De silting of industrial drains to decrease the Chemical Pollution Load in the drains under CSR activities by responsible industries

- UPPCB imposed and recovered Community Environmental Compensation of Rs 97.5 Lakhs on 24 water polluting industries which were discharging effluent into these 02 industrial drains found with high chemical load.

- Directions issued to a Distillery unit to permanently close it's major water polluting unit and operate only on latest technology(Incineration Boiler)

- Agreement done by major bulk plastic waste generators to sent the waste for co- processing in cement kilns for disposal in eco- friendly way, as a permanent solution of the plastic waste which ultimately gets dumped into water bodies/ rivers.

- **For continuous monitoring of industrial drain water quality, UPPCB is moving forward to install a floating type online continuous water quality monitoring station at the confluence of major industrial drains. The online data shall be linked to the online server. This will be the first type of instrument to be installed at the industrial drains in the State – FIRST DISTRICT IN THE STATE OF UTTAR PRADESH.**

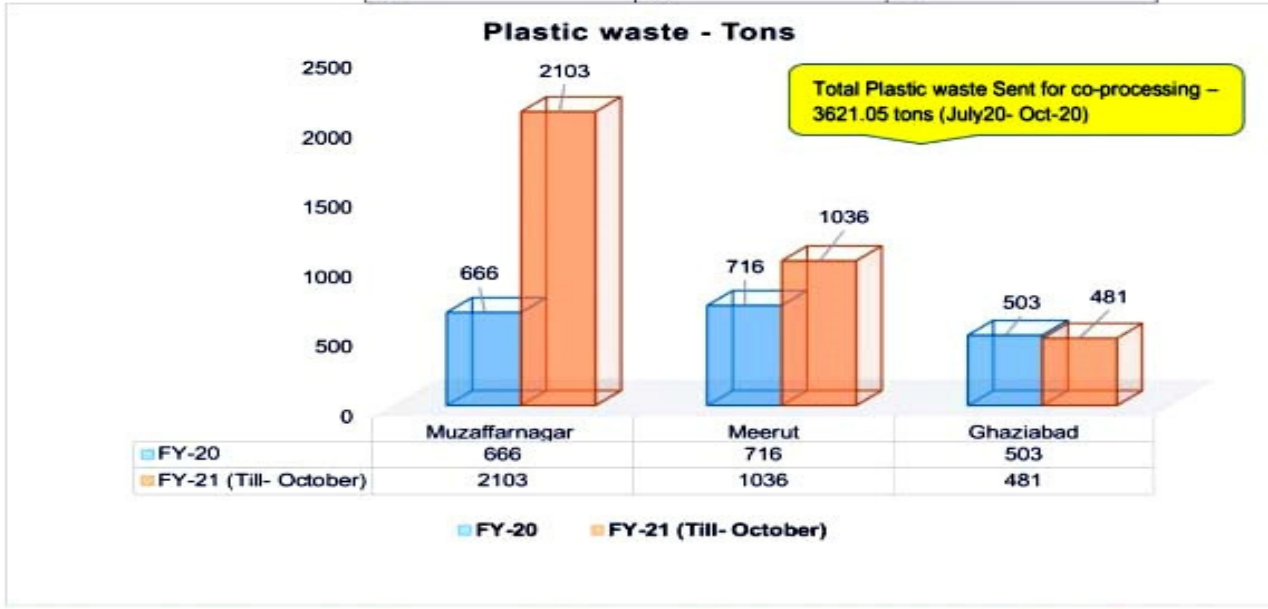
Wetlands & River Basins - Key Approach – Permanent solution for clean disposal of Plastic Waste

- Agreement by major plastic waste bulk generators with co- processing plants (Cement Kilns)

- Major plastic waste dumping and disposal Problem was being faced in the district.
- Plastic waste directly/ indirectly effects water bodies.
- As a permanent solution, all the major bulk waste plastic generators have done agreement with co- processing units (Cement Kilns) as eco friendly way of disposal of waste
- **In NCR District, Muzaffarnagar stands first to send maximum plastic waste for co-processing.**
- **Other Districts are now following on the same path as Muzaffarnagar.**

Progress

No of Paper Recycling Industries		
Muzaffarnagar	Meerut	Ghaziabad
25	17	6



Note- April-20 to June20 there was no plastic waste supply because of covid-19 lockdown

FY-21	July -20	August -20	September-20	October-20
Muzaffarnagar	345.29	350.6	508.14	899.2
Meerut	52.46	171.66	227.55	585.05
Ghaziabad	38.56	116.55	125.37	200.61

Situation on ground – Plastic Waste

BEFORE

AFTER

BEFORE

AFTER

Monitoring of wetlands

1. Sustainability of efforts – Governance & Monitoring
2. Disaster Management – eg. Bird flu, Drought
3. Future Road Map – Funds, Administrative Technical Support

Governance and Monitoring

Review & monitoring - monthly meeting on progress at District level.

Field Visits - Frequent visit of the Site by Commissioner Saharanpur, DM Muzaffarnagar & DFO.

Enforcement activities - Joint patrolling inside wetland by police & forest departments.

Capacity building –Training workshops were conducted on the site & meeting with all stakeholders with the help of WII, WWF-India, TSA.

Sustainability of efforts

- Eco Tourism Activities
  - Bird Watching.
  - Cycling
  - Dolphin Safari
- livelihood Opportunity generated
  - to near by 9 Villages
  - 6000 Men days Generated till now
  - Work as Nature Guides & Boat men
- Nature shop created
  - Laddu, agarbatti, Candles, Mat, Basket
  - Souvenir shop Proposed

Cycling

Waiting Hut

Dolphin Safari

E-Ricksaw

Disaster Management - Bird Flu Threat - challenges and approach

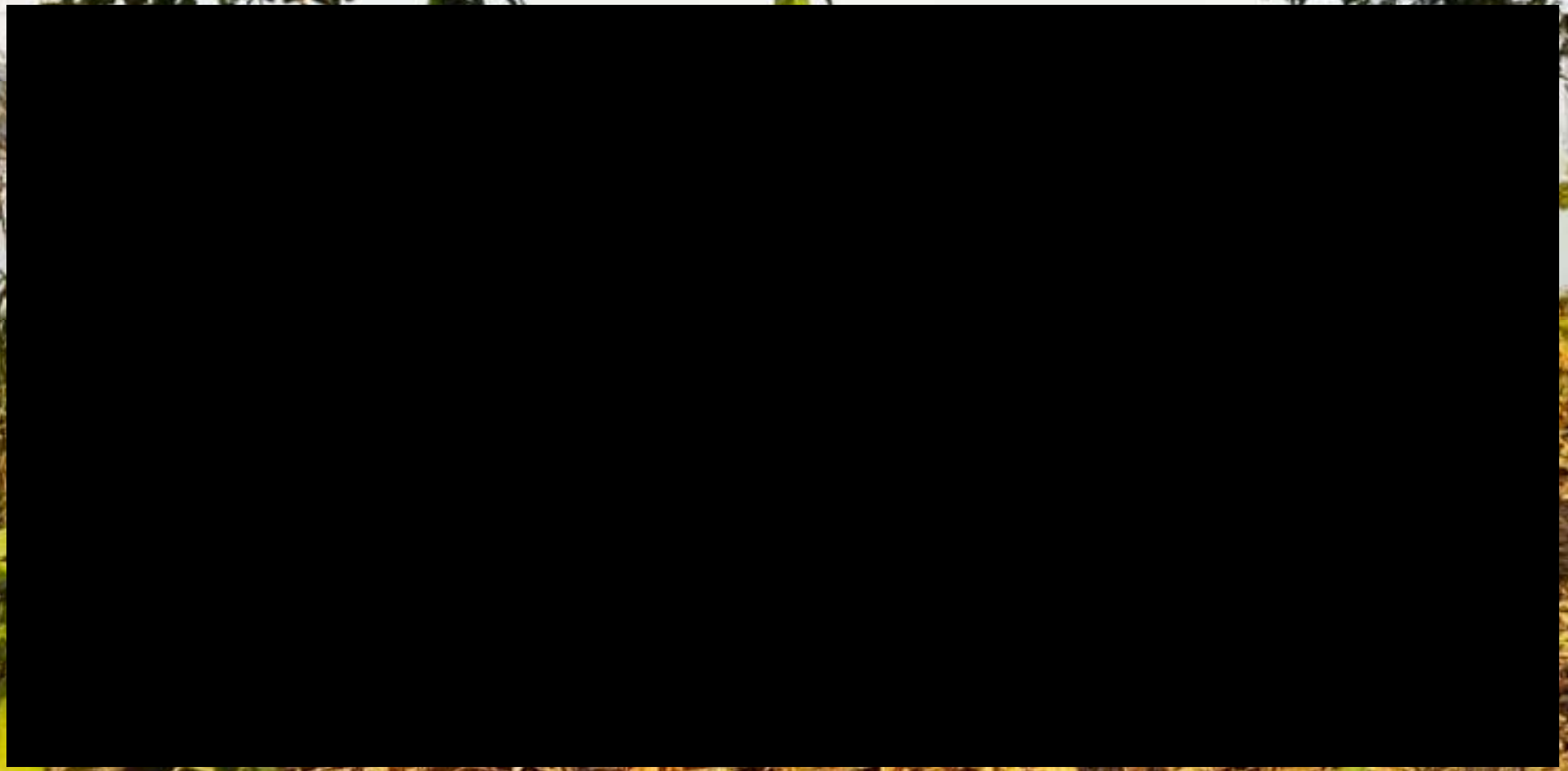
- Sample testing
  - IVRI Bareilly, NISHAD Bhopal
- Alert zone
  - Surveillance and Joint monitoring by Veterinary & forest Staff
- Sanitization & Controlling of Visitors' in haiderpur wetland
  - Spraying disinfectant
  - Saturday & Sunday closed for visitors

Future Road Map

- Funds Needed
  - Interpretation Center
  - Maintenance/ Parking
  - Staff
  - Boat
  - Bio Diversity Park
- Administrative help
  - RAMSAR Site Proposal pending at GOI level
- Expertise Needed
  - Capacity building of front line staff
  - Training/ Workshop by WWF/WII
- 9 Wetlands one in each block will be restored like haiderpur during one year

Proposed Interpretation Center

Small documentary Films on haiderpur wetland



Thank You