

HCLFoundation

Water

The Essence of Life





Resting flock of Eurasian Coot



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Foreword

Water is life, and is crucial for the sustenance of human beings and the various other life forms and ecosystems it supports. Water, which was once abundant, has now become a critical common due to unsustainable anthropogenic activities and negligence. This has resulted in the degradation of terrestrial water structures, leading to the loss of groundwater along with the loss of native biodiversity. This underlines the fact that water is central to nature conservation and building climate resilience. India is a diverse country and has different forms of rainwater harvesting structures to cater to the spectrum of needs of its communities living in both urban and

rural areas. With time, these traditional water structures became encroached upon, polluted, degraded, and neglected. HCLFoundation is working towards water conservation across India through various initiatives, that are aligned with the theme of 'Water for Sustainable Development'. By doing so, it has helped in improving the quality and quantity of the water in the given area and, at the same time, enhancing the health and condition of water bodies. As a result, the waterbodies have been thriving with the native flora and fauna and have enhanced the aesthetic sense of the surroundings.



Grey-headed Swamphen
(*Porphyrio poliocephalus*)



Dr. Nidhi Pundhir

Senior Vice President, Global CSR, HCLTech
& Director, HCLFoundation

Our commitment towards water conservation

HCLTech delivers its CSR commitments in India through HCLFoundation, and has been striving to bring a lasting positive impact to the lives of people and the planet.

Water is one of the most important natural resources, and it is the core of all life on Earth. We have been methodically investing and persistently working on water conservation through convergent community action and public - private partnerships.

We are focusing on creating water ecosystems and enhancing native biodiversity through the rejuvenation and conservation of water structures.

Through a portfolio of interventions, we have been able to harvest ~81 billion liters of water within a span of 5 years.

All these interventions address the 'triple bottom line' and are environmentally friendly, economically viable, and socially acceptable. With the application of an integrated life cycle and ecosystem-based approach in our interventions, we have ensured the development of nature-based solutions. Therefore, all these interventions have a good scope of replicability and scalability in other locations as well.

We are fully committed to the journey of conserving natural water resources.

Introduction



Dr. Santanu Basu

Project Director,
Harit by HCLFoundation

Key approaches towards water conservation

We believe that the alignment of corporate social responsibility (CSR) in India with the UN Sustainable Development Goals (SDGs), has tremendous potential to develop a cohesive sustainable growth model.

Innovation in concept

We foster sustainable, scalable, innovative, and time-bound efforts towards effective water conservation through comprehensive programmes, in the rural as well as urban environment space, that are aligned to address the national missions and the larger SDGs.

Public-Private Partnership (PPP) Model

To achieve this, we ensure collaboration with relevant government agencies, efficient NGO partners, and community members through various environmental outreach activities, campaigns, and evidence-based advocacy.

All the interventions follow the '**Participatory and Convergent Approach**' in attaining the desired results.

Community-based participatory approach

The success in these water conservation interventions lies in recognizing communities as a key stakeholder, and selecting community mobilizers from within the community. There is also a focus on advocacy with the government and local bodies.

Systems thinking and integrated approach

HCLFoundation works through systems thinking and an integrated community development approach. With this, we try to maintain the natural balance in the ecosystem, which can result in numerous cascading benefits down the line.



Purple Sunbird
(*Cinnyris asiaticus*)

Types of interventions

Water being one of the most important natural resources and the core of all life on Earth, HCLFoundation, has been methodically investing and relentlessly working on water conservation through community action.

Waterbody rejuvenation

We have rejuvenated 243 water structures including rainwater harvesting ponds across India in partnership with the Government Agencies and local NGOs.

In certain geographies, we have focused on rejuvenating and re-vitalizing irrigation tanks and ponds. Interventions in drought prone areas are primarily focused on creating a large number of rainwater harvesting structures in partnership with Local Administration for sustainable water availability for community use.

Based on the success of these interventions, they easily can qualify to be a model for 'Water Security', for the ground water dependent urban communities, through revitalizing traditional surface water bodies.

River/ canal rejuvenation

In India, Lotic ecosystems, such as rivers, canals, etc. play a vital role in maintaining the ecological balance, recharging groundwater levels, and flood control. However, the proliferation of invasive species such as *Prosopis juliflora*, can obstruct the natural flow of a river, thus affecting the ecosystem service they provide.



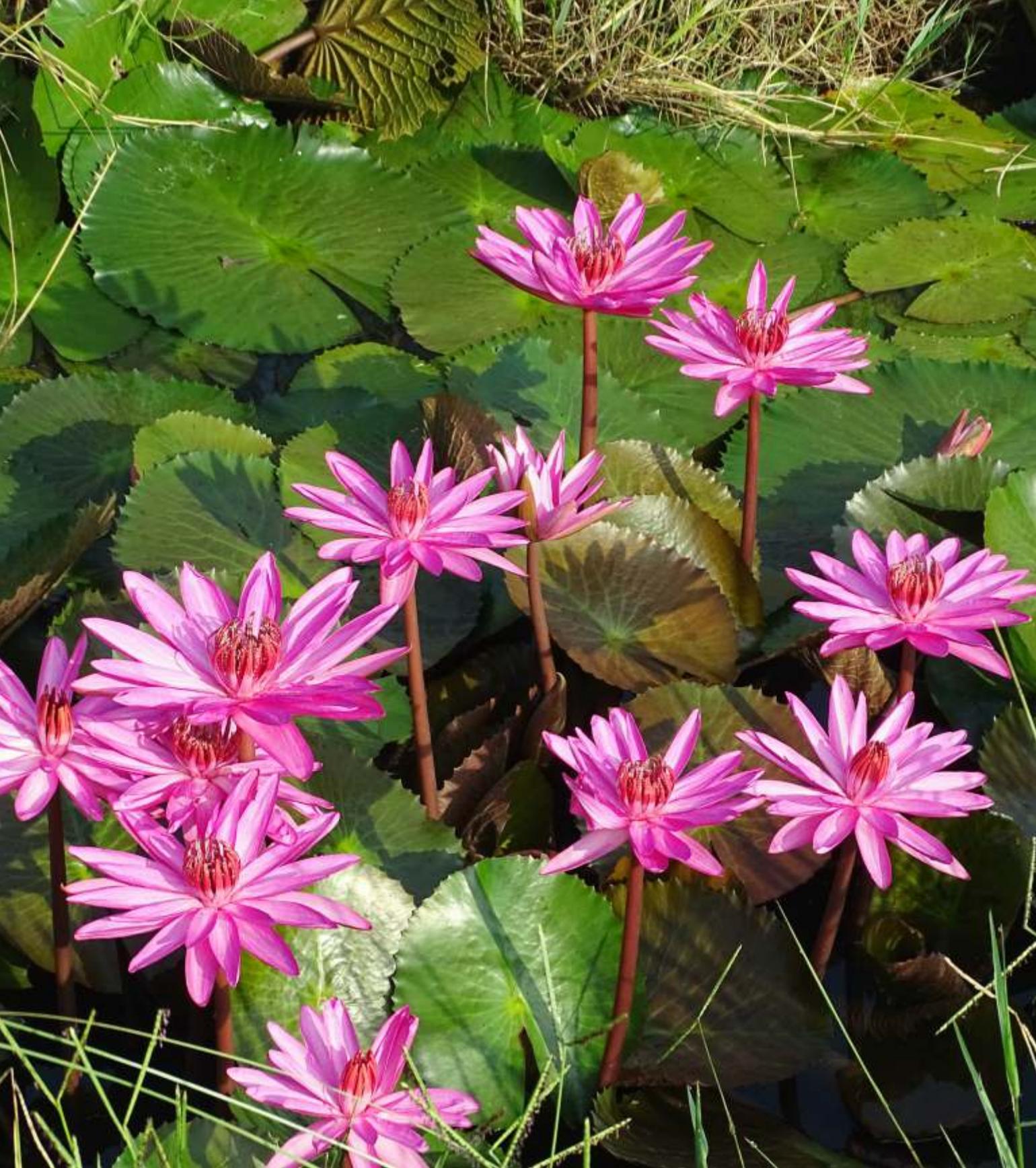
Eurasian Coot
(*Fulica atra*)

Therefore, HCLFoundation has been carrying out systematic removal of such invasive species along with other cleaning interventions that would help in restoring the flow of the river and canals.

River catchment treatment

HCLFoundation recognizes the importance of riparian plantation along the river catchment to restore the drainage pattern.

Plantation of native saplings in the river catchment would develop a strong root network in the long run, ensure soil moisture retention and prevent topsoil erosion. It will create a healthy terrestrial environment leading to a self-sustained ecosystem. This would also ensure cascading benefits such as water conservation, and enhancing climate resilience.



Water conservation at a glance

243

Water structures
rejuvenated

11.65 km

Irrigation
canal restored

**~ 81 Bn
litres**

Water harvested

20+ Ha

Invasive species
removed of water
structure

~ 1,300 Ha

Total area of
waterbodies
treated

29,130+ Ha

Area greened
and brought
under community
management

**~ 7,200
Mn litres**

Water holding capacity
of water structure increased

140,000+

People lives
positively impacted



Our water conservation interventions directly address:

- SDG 6** Clean Water & Sanitation
- SDG 13** Climate Action
- SDG 15** Life on Land
- SDG 17** Partnerships for the goals which is cross-cutting through our collaboration with relevant stakeholders

However, they also indirectly address other SDGs:

- SDG 3** Good Health and Well-being
- SDG 4** Quality Education
- SDG 11** Sustainable Cities and Communities

The interventions are sustainably and meticulously aligned to establish the natural stabilizing feedback of the ecosystem, which will ensure larger benefits in different forms.

Interventions

The process

Waterbodies act as sources of portable water, support biodiversity, provide livelihood opportunities and maintain ecological balance. However, waterbodies have been under continuous and unrelenting stress, caused primarily by rapid urbanization, and unplanned growth.

HCLFoundation recognizes this and is working towards improving water quality and enhancing storing capacity through waterbody rejuvenation and conservation.





The entire waterbody rejuvenation process is divided into 3 phases:

1st phase is the pre-intervention phase, which includes - planning meetings with relevant stakeholders, conducting baseline surveys, and waterbody demarcation with the help of government officials.

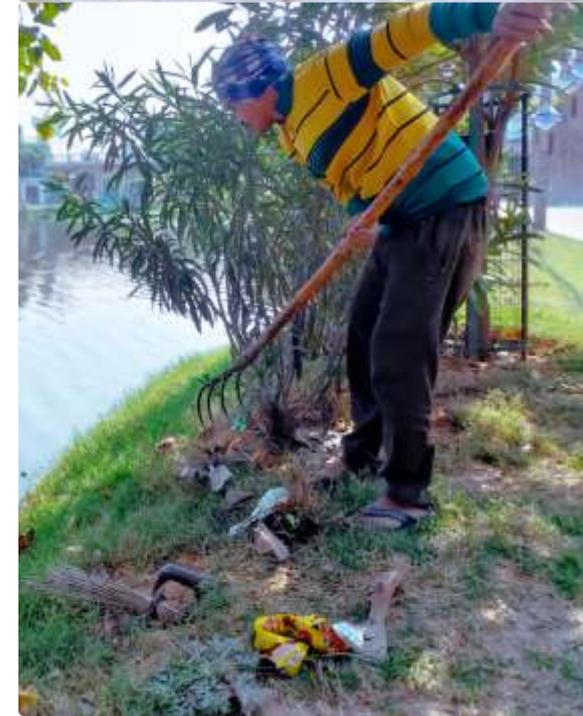
2nd phase is the intervention phase. In this, the ponds are dredged and de-silted to increase the water-holding capacity. It would also involve the physical removal of waste or invasive species, installation of inlets and outlets, and construction of filtration chamber/artificial wetland to filter incoming water.

A bird island is raised so as to create a roosting and resting place for birds.

Raised boundaries are reinforced and bio-fencing (planting with native species) is carried out. This increases the green cover in that area and also plays host to the local biodiversity.

Water user groups are formed in the villages. Young people are also encouraged to enroll as water volunteers. Capacity building workshops and trainings are conducted to create awareness and an understanding of water commons.

3rd phase is the regular maintenance of the water body.





The positive transformation of the water structures and restoration of the surroundings into a pollution-free pristine habitat has created a sense of accomplishment and motivated the communities to actively participate in the rejuvenation process and the water structure maintenance.

Engaging with the community

We work closely with NGO partners, technical experts, government departments and community stakeholders using a convergence approach. Our integrated approach places the communities at the very centre of our efforts.

One of the major impacts of these initiatives has been on the behavior of the locals residing around the waterbody. As they have been an integral part of the intervention process, it has created a sense of ownership amongst them.

Role of women

In India, the water structures are integral to socio - cultural practices, and there is a high dependency of village women on these water structures. The rejuvenation of these water structures has increased the

motivation levels of the villagers, especially women. They have been actively participating throughout the rejuvenation process and maintenance, being advocates of the sustainable usage of water.



Building future climate action leaders

Combating current global challenges such as climate change, environment degradation, water security and biodiversity loss would require urgent and collective action.

To achieve this change, we need to build awareness and develop skills, values and attitudes that lead to more sustainable and climate-resilient societies. Individuals should be encouraged to participate in protecting their natural environment in order to become change makers and nation builders.

HCLFoundation through various Environment Education initiatives is working towards strengthening these efforts at the state and national level, by empowering students and young people with the required knowledge, attitudes, skills, and values to be climate literate, and also, encouraging adoption of sustainable lifestyle practices and leading conservation action in both formal and informal education systems. Nearly 15,000+ students and youth have been sensitized to lead an eco-conscious life and take positive environment and climate action.

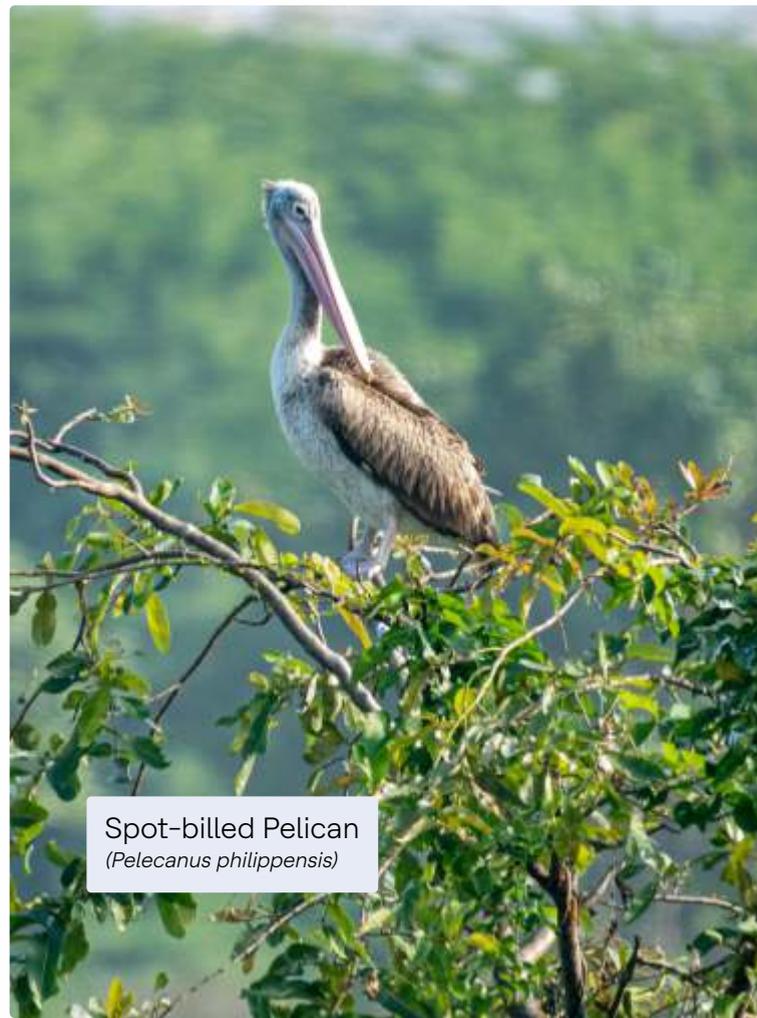




Large Gray Babbler
(*Argya malcolmi*)



Jewel Bug



Spot-billed Pelican
(*Pelecanus philippensis*)

Role of afforestation

Forests are the lungs of our planet. Creating urban forests by planting native species can help in groundwater recharge, flood control, mitigating the harmful impacts of air pollution, reducing the urban heat island effect and enhancing urban biodiversity.

HCLFoundation recognizes this and is developing urban forests through innovative

planting techniques like Miyawaki, traditional, mixed and dense plantation. In the long run, the planted native species develop a strong root network and help in retaining soil moisture.

This will aid in reducing surface runoff, increasing percolation and enhancing ground water recharge.



Success Stories

A photograph of a pond with reeds in the foreground and buildings in the background. The pond is surrounded by greenery and has a small island in the middle. In the background, there are several buildings, including a tall one with a blue facade. The sky is clear and blue.

The 'Talab' story

The talab (pond) at Police Lines in Gautam Budhh Nagar (Uttar Pradesh, India), is spread across a total area of 1.31 hectares with a circumference of 450 meters. The water level of the pond varies throughout the year.

The pond was in a dilapidated state and the feeding drainage lines brought a large amount of silt and organic matter, solid waste, etc., into it. This affected the physical characteristics of the pond including water quality.

HCLFoundation through PPP model, planned the interventions in a systematic and scientific way. The emphasis was given to the deployment of nature-based solutions and the

restoration of drains. Constructed wetlands were established that filtered the incoming grey water through phytoremediation.

Moreover, a nano bubbler was installed for enhancing oxygenation (aeration). The periphery of the water body was secured through bio-fencing and native species plantation. This helped in enhancing the aesthetic sense of the surrounding. Emphasis was also given on training and awareness programmes and the participation of locals in the conservation of the water body and surroundings.

Today, the 'talab' is a thriving habitat for local and migratory birds.



The 'Cheruvu' chapter

Konai Cheruvu (lake) is situated in Vijayawada, Krishna district (Andhra Pradesh, India) and spreads across 16 acres. The lake has been extensively impacted due to growth of invasive weeds, deposition of silt, undulated growth of urban landscape which affected the water storage capacity of the region.

Depending on the situation and site conditions appropriate interventions were undertaken that include:

Removal of invasive weeds: This played an important role in protecting the eco-system as invasive species can pose a big threat towards the naturally found flora and fauna in the region.

Removal of weeds along the raised boundaries: This involved dredging and de-silting that helped in increasing the water holding capacity. The silt removed was used for construction of the earthen bunds.

Bund construction and strengthening: The bunds help in protecting the surrounding areas in the advent of floods.

Fencing and native species plantation All these helped in rejuvenation and conservation of the 'Cheruvu'.

The lost 'Oorani'

Nila Oorani (pond) located in Madurai Corporation (Tamil Nadu, India), slowly vanished from the memories of the locals and the corporation itself, except in the revenue records. HCLFoundation took up the initiative of rejuvenation of this 1.9 acres oorani, which was demarcated with the support of Madurai Corporation and the revenue department.

The initial topographical survey revealed that the water holding capacity was

less than 10,000 liters. Later, the Oorani was de-silted to create storage with a water holding capacity of 10 lakh liters and the excavated silt was utilized to establish bunds.

The 'Nila Oorani Conservation Association' was formed comprising of the interested community members, to monitor and maintain the Oorani for generations to come.



The 'Pokhar' parable

The Karauli district of Rajasthan (India) is one of the aspirational districts under the Government of India. Uneven and irregular rainfall and decreasing groundwater levels are some of the major issues in this region.

In order to address this, HCL Foundation worked towards rejuvenation and conservation of water structures with the aim to recharge the ground water levels. These structures are earthen dams also known as 'Pokhar' in local language. Along with this, there was also a focus on community participation, training and inculcating sustainable water usage practices among the villagers.

These interventions have shown great results on the ground, with water being available even during scorching summer days. These structures are not only supporting humans but also the native floral and faunal diversity. The success of these interventions has raised the motivation levels amongst the local villagers and specifically women to conserve water and use it sustainably.

The 'tapping of indigenous knowledge' in understanding the historical drainage pattern and topping up with scientific hydrogeological survey has been the game changer.



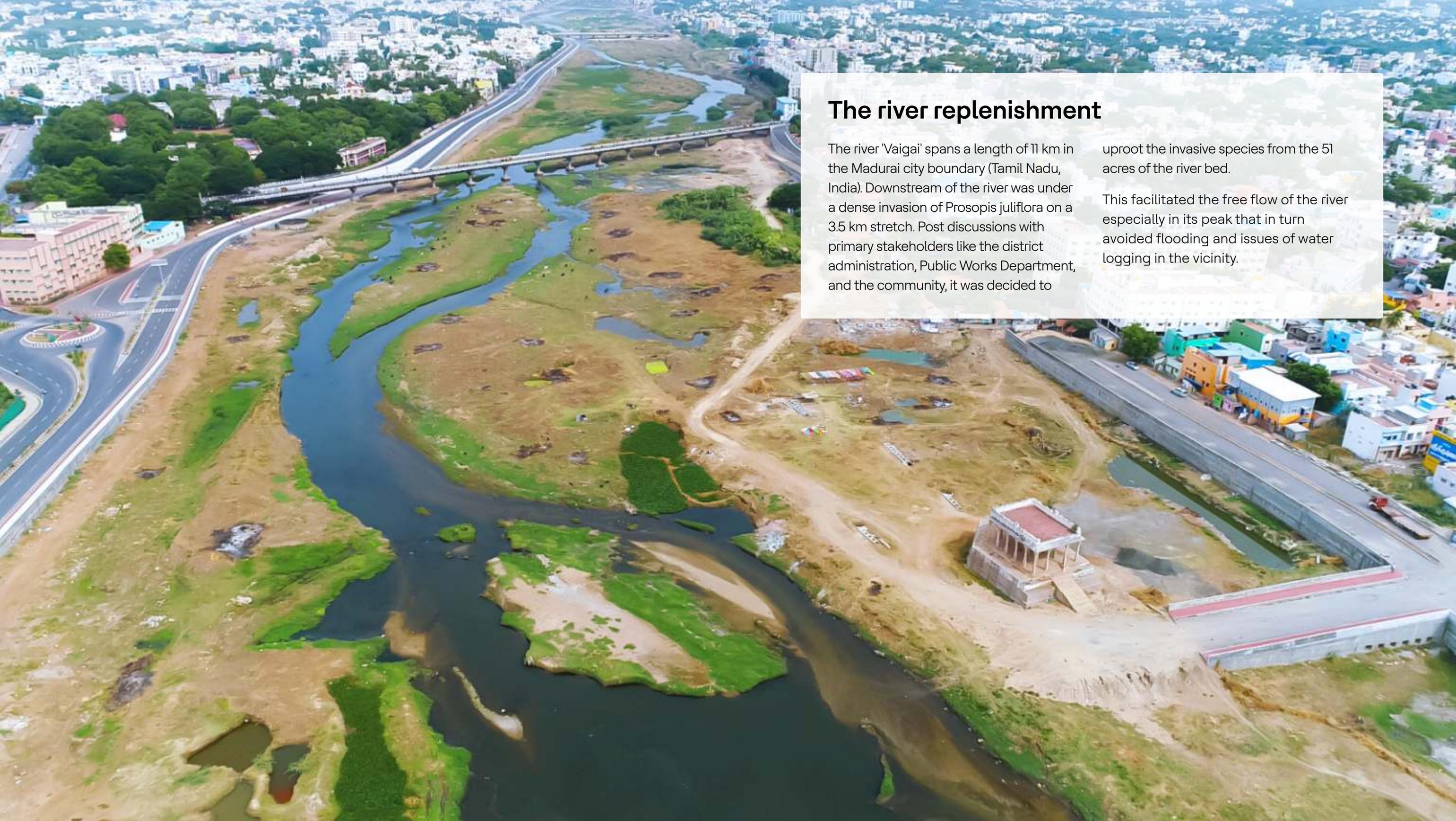


The canal chronicle

The branch canal of Periyar Main Canal (Tamil Nadu, India) feeds Narasingam, Mangalakudi, Thatankulam, Uthangudi, and Vandiyur, the five important tanks in Vandiyur Tank Cascade System.

This 11.65 km long branch canal was desilted, made debris free, de-weeded,

leakages were repaired, and the breaches were strengthened along the canal bunds. Clearing and restoring of this stretch of Madurai - Periyar canal has ensured 0.94 million litres of freshwater flow annually in Vandiyur lake.



The river replenishment

The river 'Vaigai' spans a length of 11 km in the Madurai city boundary (Tamil Nadu, India). Downstream of the river was under a dense invasion of *Prosopis juliflora* on a 3.5 km stretch. Post discussions with primary stakeholders like the district administration, Public Works Department, and the community, it was decided to

uproot the invasive species from the 51 acres of the river bed.

This facilitated the free flow of the river especially in its peak that in turn avoided flooding and issues of water logging in the vicinity.

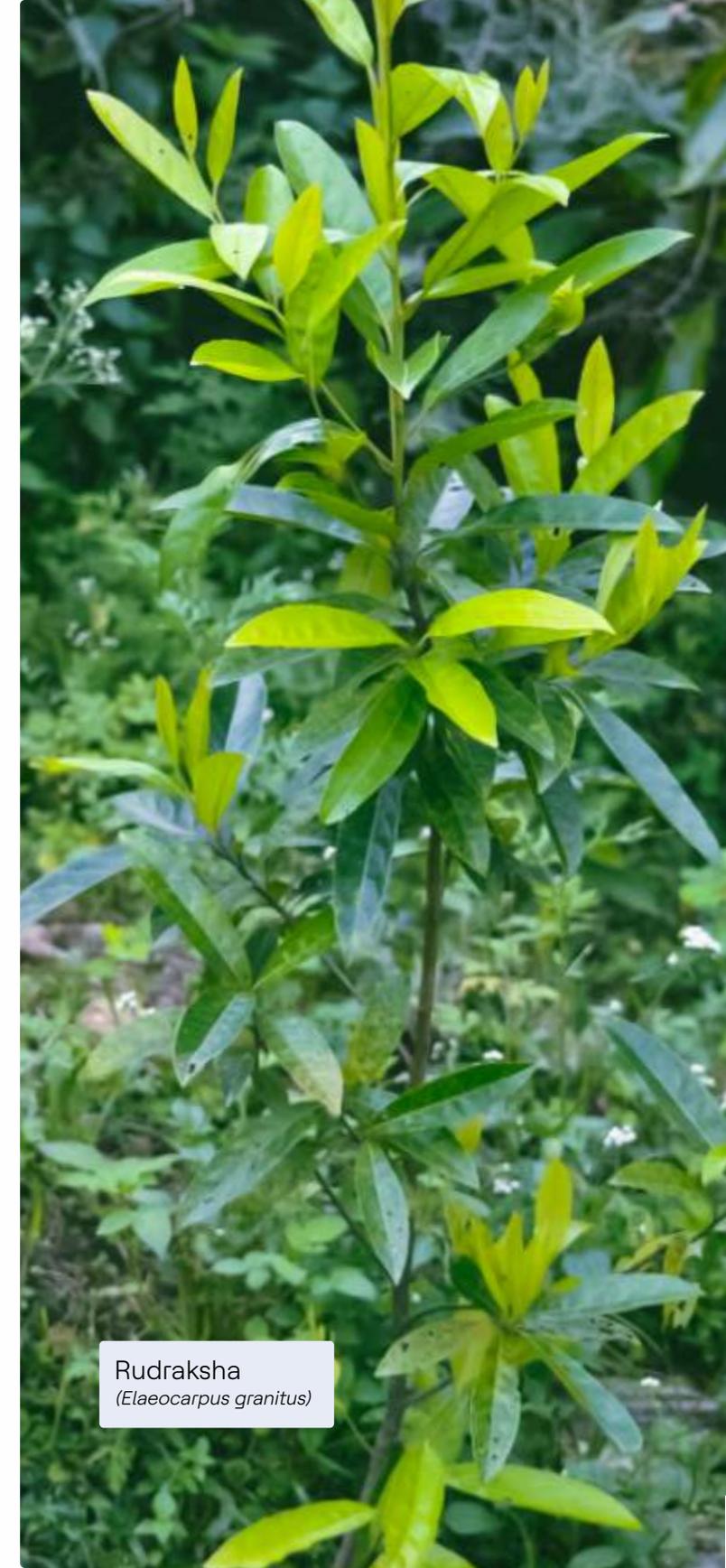


Alaknanda catchment

HCLFoundation and NMCG (National Mission for Clean Ganga) are working towards treatment of the catchment of the river Alaknanda by planting Rudraksha (*Elaeocarpus granitus*) and associated species through community engagement.

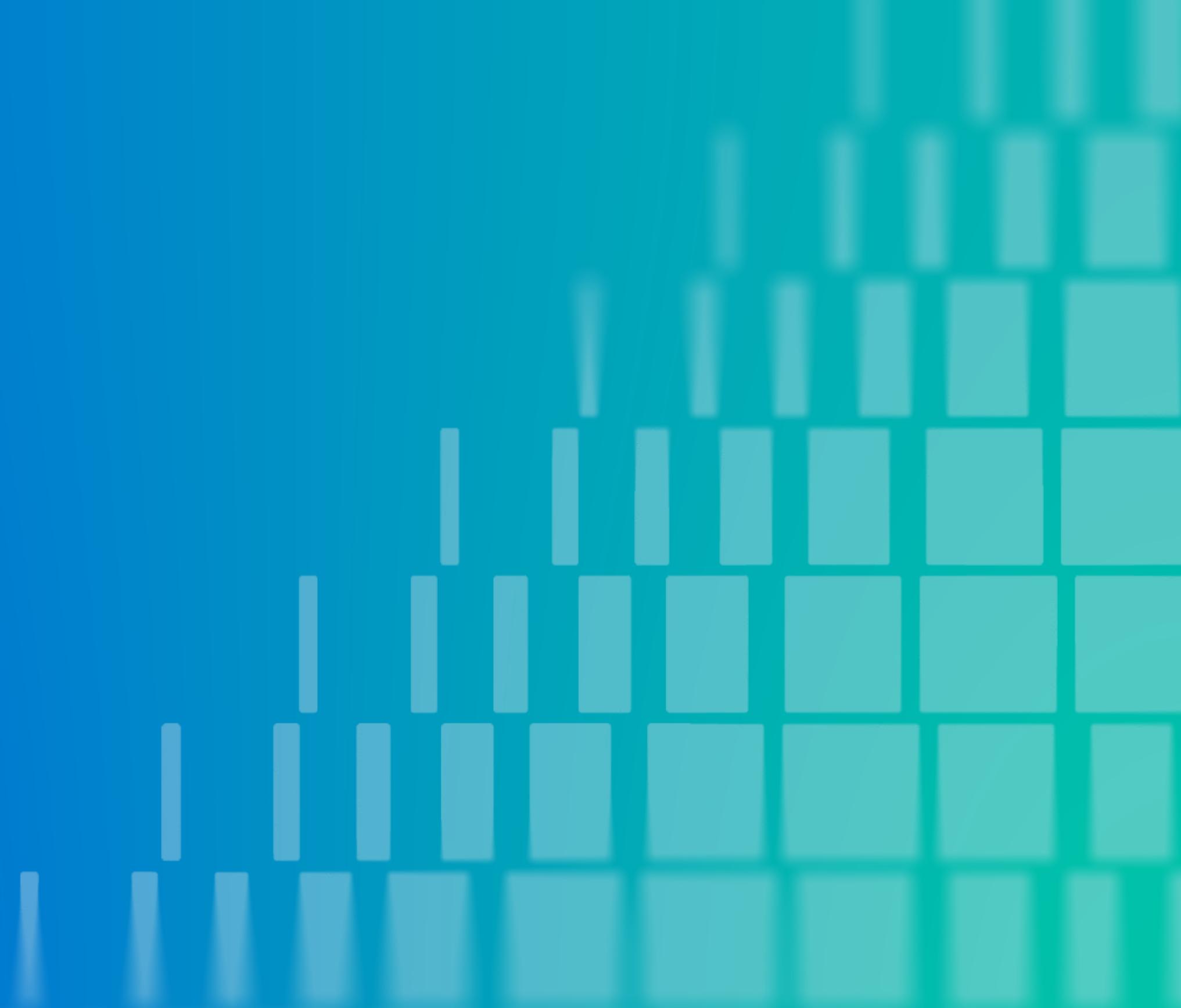
The project is aimed at long term survival of the species and regeneration of forest to ensure reduction in soil erosion and water conservation. These afforested areas will also provide vital habitats to various faunal species and help in building climate resilience.

Rudraksha, large evergreen broad-leaved tree, its seeds traditionally used for prayer beads in Indian culture. Being sacred, it is highly valued.



Rudraksha
(*Elaeocarpus granitus*)

Innovations



Bird island

Bird islands at the center of the waterbodies have been a game changer as far as biodiversity conservation is concerned. The construction of an island within a waterbody provides a disturbance free resting place for residential and migratory birds.

It has become a popular nesting and roosting place for them and as a result one can witness a thriving avian diversity in and around rejuvenated waterbodies.



Resting mixed-flock
of water birds



Nano bubbler

Bioremediation by aeration is a process of removing or degrading the pollutants from the environment by using living organisms. Thousands of tiny bubbles slowly rise to the

surface creating a gentle aerating motion. Slow bubbles mean no muddiness from stirred up pond sediments.

Constructed wetlands

Constructed wetlands have been deployed inside the ponds for the treatment of wastewater discharging from drainage lines; to ensure passage of filtered water into the

waterbodies. The constructed wetland helps to minimize the pollution load in pond water, with the help of native grasses that help in waste water purification.



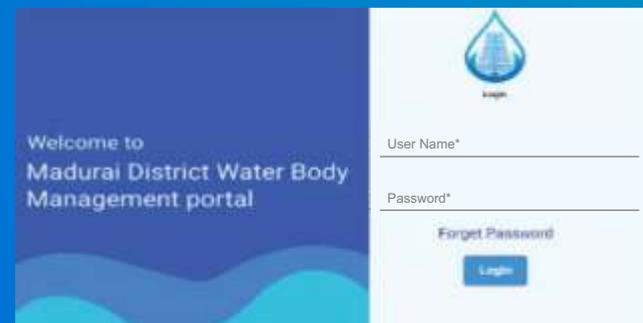
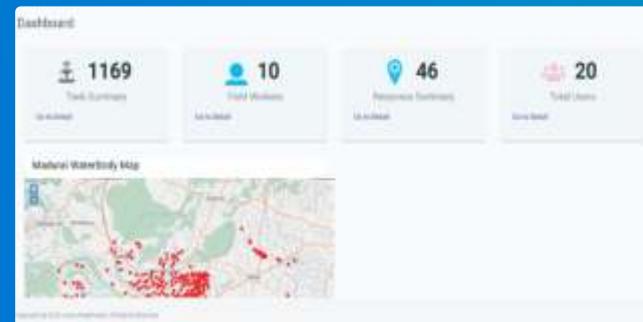
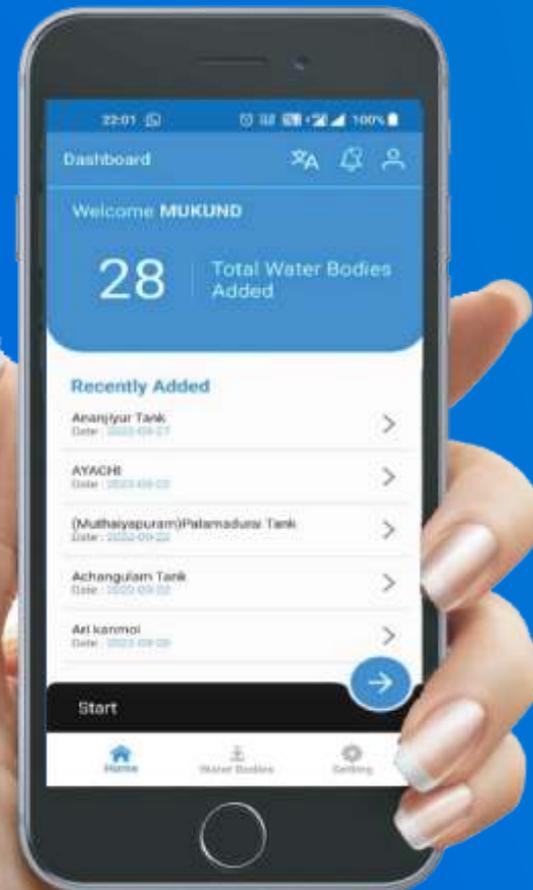
Phytoremediation

Phytoremediation is a plant based approach to extract and remove elemental pollutants from water and soil. This nature-based solution has

been deployed in most of the waterbodies in order to avoid any chemical interventions.

Waterbody decision support system

The system is aimed at supporting Madurai District Administration (Tamil Nadu, India) in real-time planning and monitoring of water conservation works across the district.



Creation of validated geo-spatial waterbody spread database of all types of waterbodies irrespective of ownership

Capacity building of Madurai District Administration officials and village panchayats at Block for **monitoring and data collection**

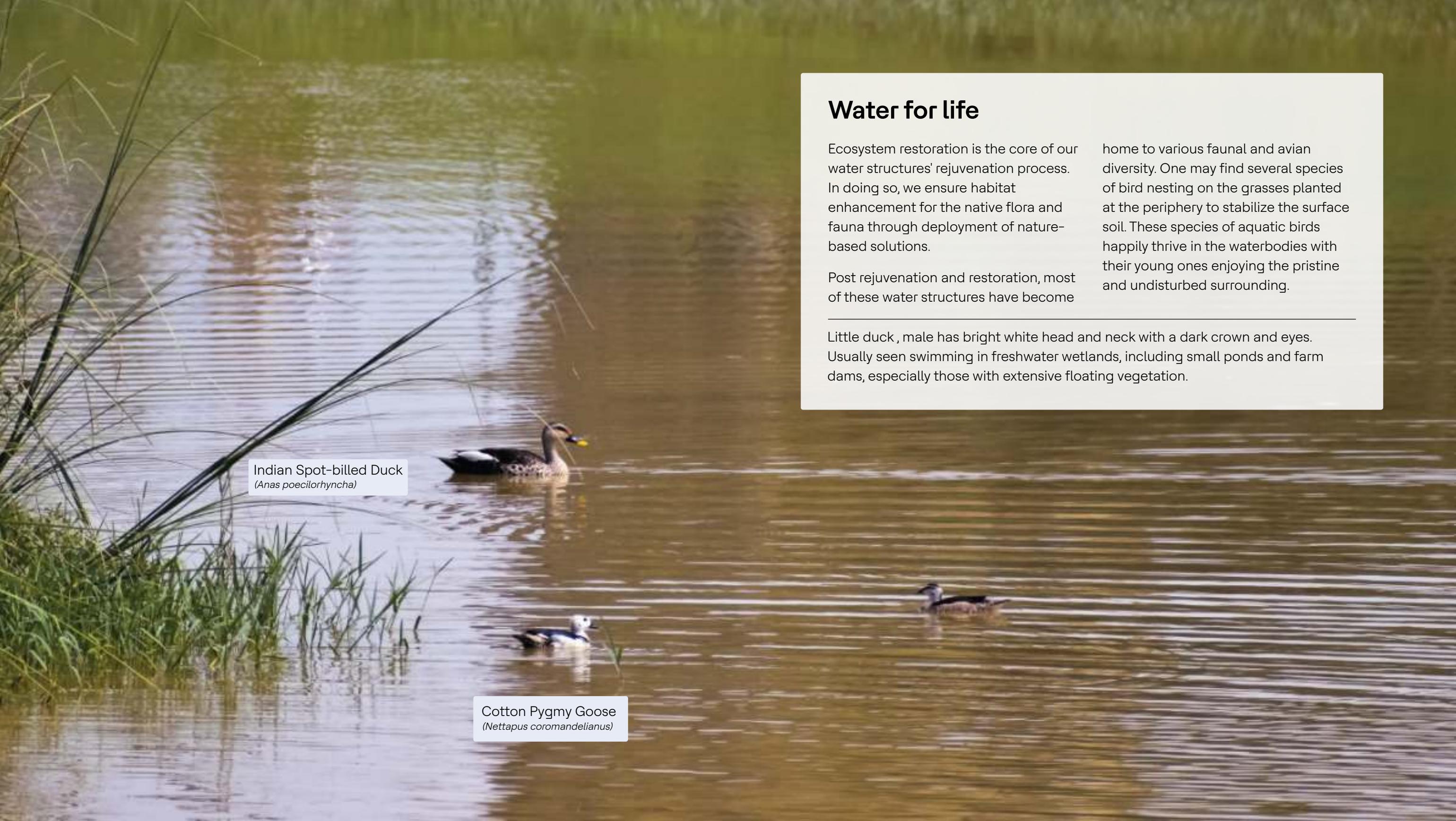
Digitization of waterbodies from cadastral maps

Development of **mobile application for ground validation and assessment** of current status and required quantified interventions for waterbody rejuvenation

Creation of **Data Management System for monitoring** of current status as well as water conservation works across the district

Creation of **Decision Support System to support real time planning** in line with available development and CSR funds for water conservation

Enhancing Biodiversity



Indian Spot-billed Duck
(*Anas poecilorhyncha*)

Cotton Pygmy Goose
(*Nettapus coromandelianus*)

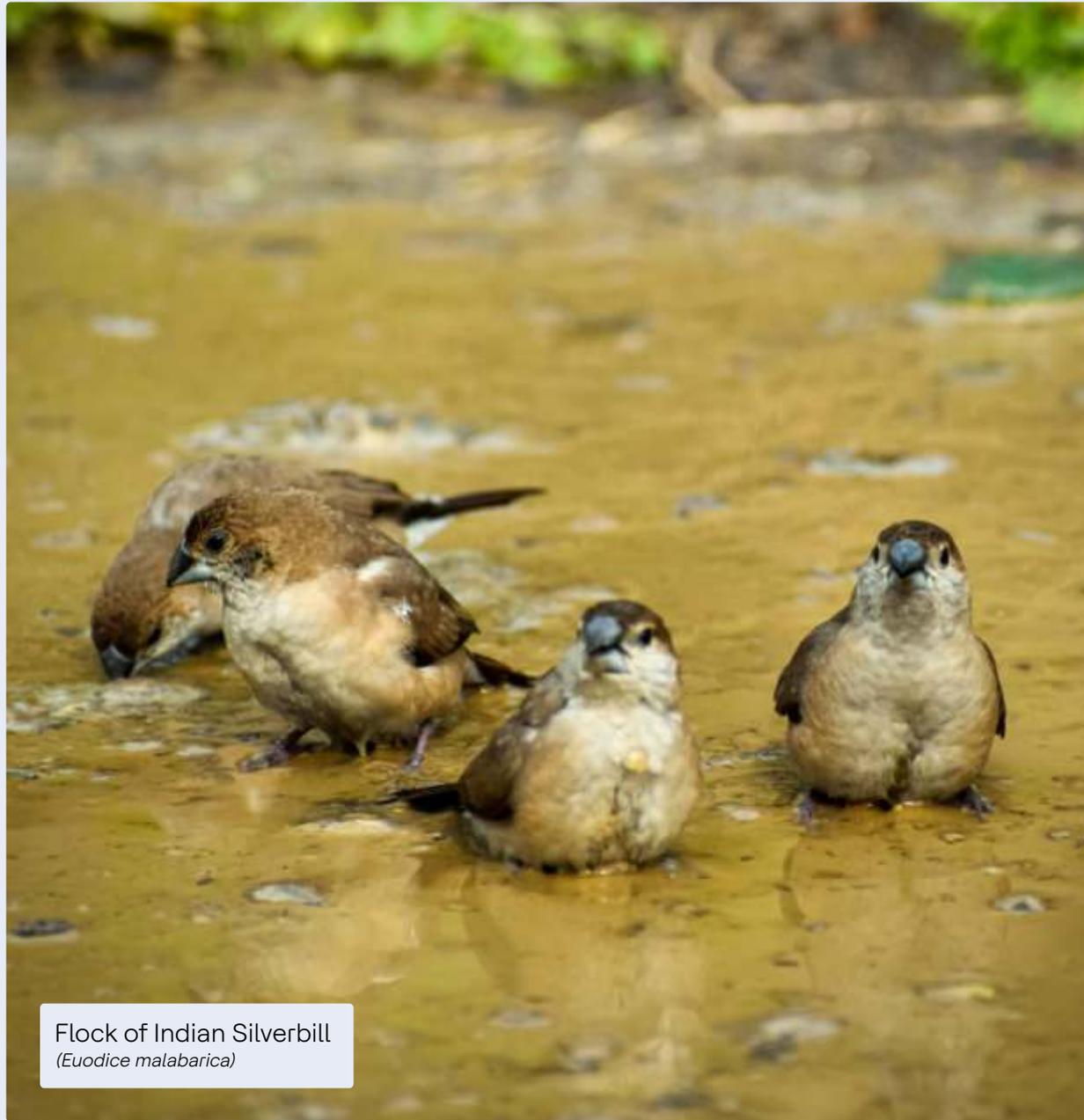
Water for life

Ecosystem restoration is the core of our water structures' rejuvenation process. In doing so, we ensure habitat enhancement for the native flora and fauna through deployment of nature-based solutions.

Post rejuvenation and restoration, most of these water structures have become

home to various faunal and avian diversity. One may find several species of bird nesting on the grasses planted at the periphery to stabilize the surface soil. These species of aquatic birds happily thrive in the waterbodies with their young ones enjoying the pristine and undisturbed surrounding.

Little duck, male has bright white head and neck with a dark crown and eyes. Usually seen swimming in freshwater wetlands, including small ponds and farm dams, especially those with extensive floating vegetation.



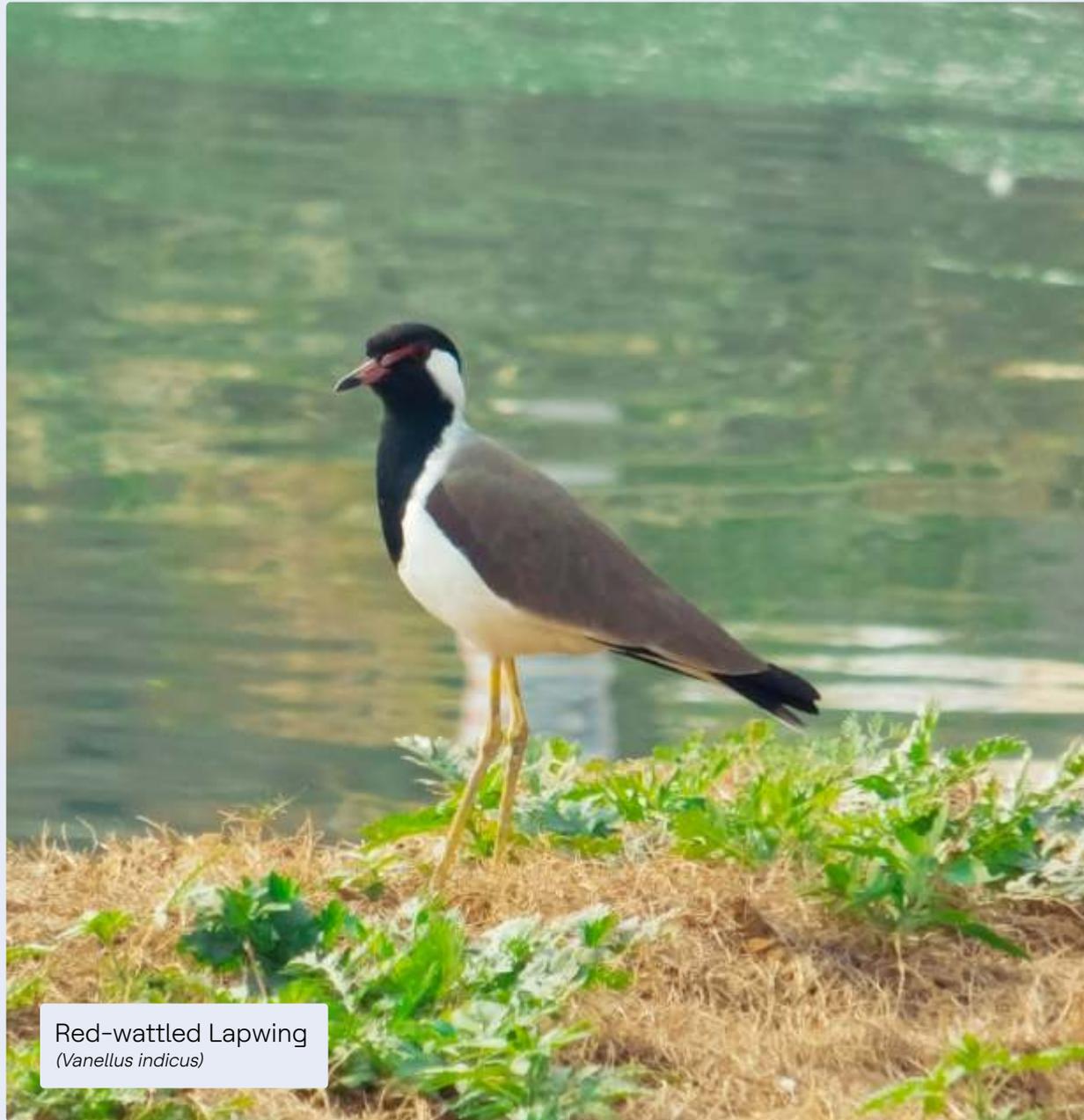
Flock of Indian Silverbill
(*Euodice malabarica*)

Small, long-tailed finch with a chunky body and short, stout bill. Highly sociable throughout the year. Found in the scrub nearby waterbodies, and dry woodland but also thrives in urban areas.



Black Winged Stilt
(*Himantopus himantopus*)

Striking large black-and-white wader with thin, straight bill and bright pink legs, found in wetlands with open shallow water through most of Africa and Eurasia, often in brackish habitats



Red-wattled Lapwing
(Vanellus indicus)

Distinctly marked lapwing with black breast and throat, and red bill with black tip. Usually found in small groups around water bodies, agricultural fields, and dry land.



Indian Pond Heron
(Ardeola grayii)

Small heron common in most aquatic habitats across the Indian sub-continent. Although typically solitary, large numbers often gather where food is plentiful. Prone to seasonal-local movements and vagrancy.



Little Egret
(*Egretta garzetta*)

Black-winged Stilt
(*Himantopus himantopus*)

Small snow-white heron with a slender dark bill, blackish legs, and yellowish feet.

The migratory stopover

We are well aware about the role of migration in a bird's life. Many of the avian species undertake several miles of journey between their winter and summer travels in search of food and other resources.

Our rejuvenated water structures have become a stopover for several migratory birds from different regions of the world and country.

We believe in creating natural spaces that provide undisturbed habitats, food, beneficial microorganisms, materials for nesting, ecosystem balance, and protection. Moreover, these rejuvenated waterbodies have become home to multiple invertebrates, amphibians, fish, reptiles, and pollinators.

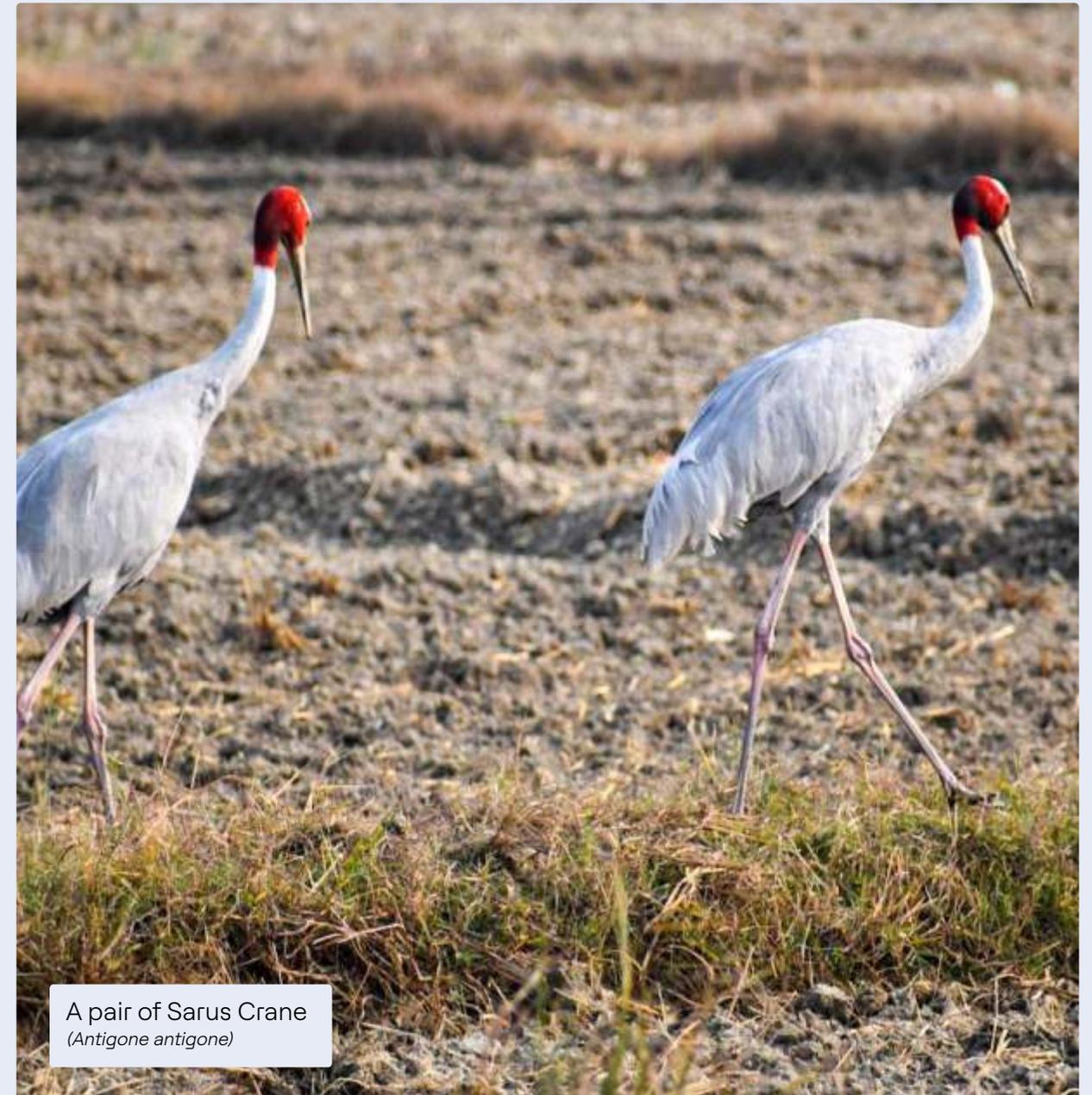


Knob-billed Duck
(*Sarkindiornis melanotos*)

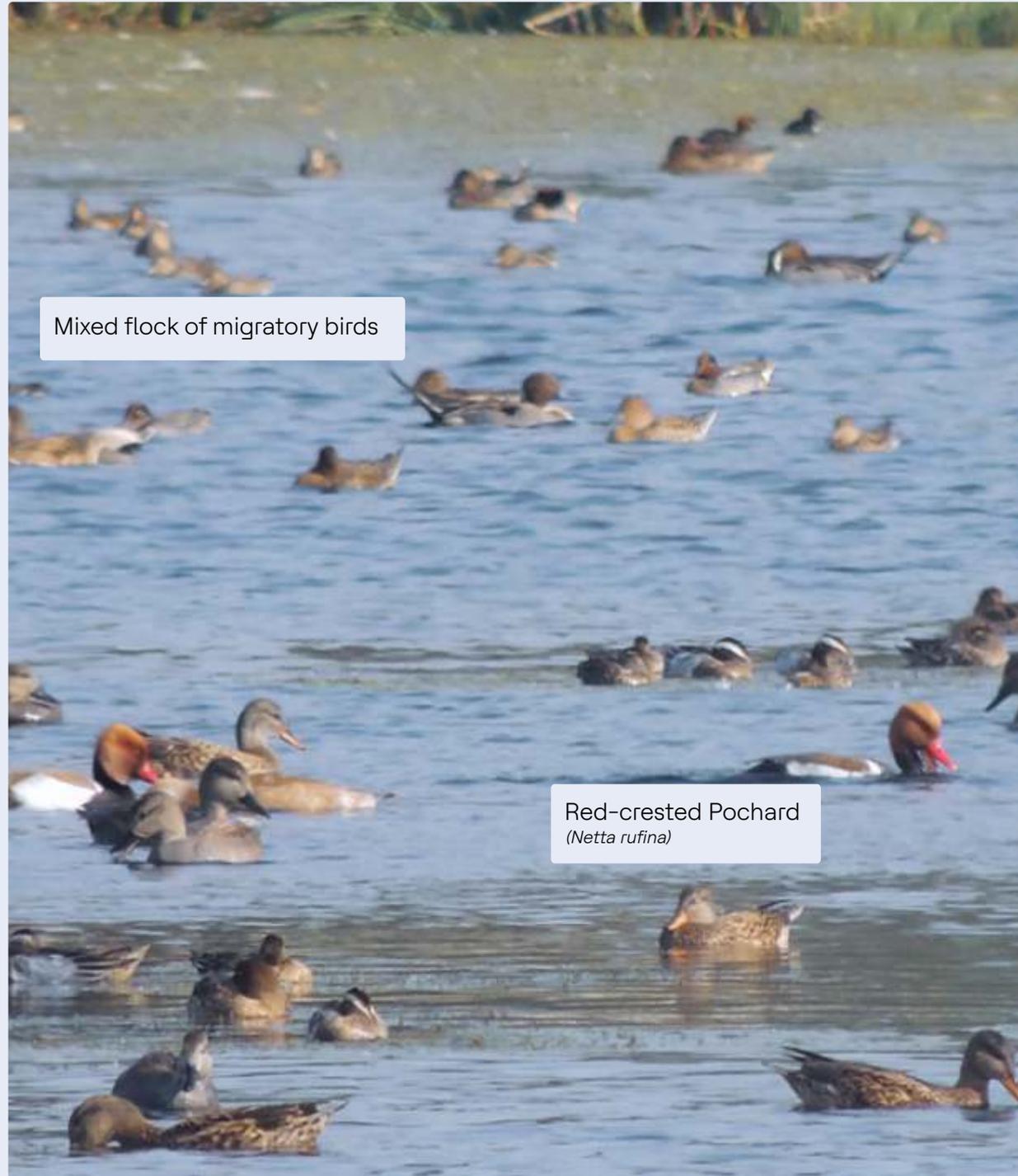
Large bicoloured waterbird. Males have a large black lump on the bill, gray flanks, and whitish belly, whereas females have a plain bill and gray flanks. Found in freshwater rivers, lakes, and marshes where it is usually uncommon.



The pale button eyes of this gull give it a somewhat fearsome appearance. Breeds on high-altitude lakes on the Tibetan plateau in summers and winters on marshes, estuaries, lakes, and rivers.

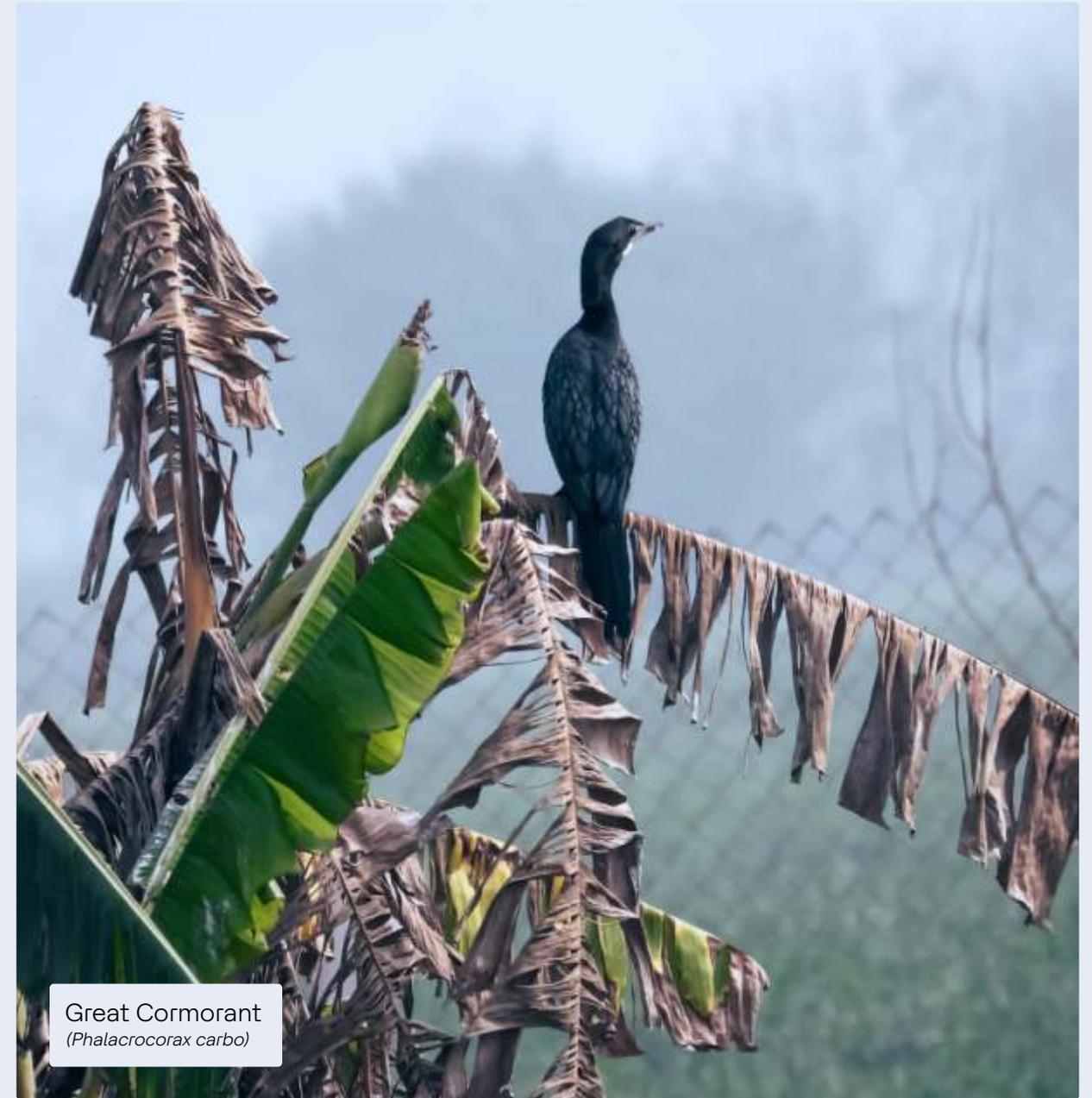


Tall pale gray crane with pink legs and red bare skin on head extending down the neck. Typically wades in shallow wetlands or in cropped agricultural areas. Sarus Crane has been listed as Vulnerable by Global IUCN, Red list category.



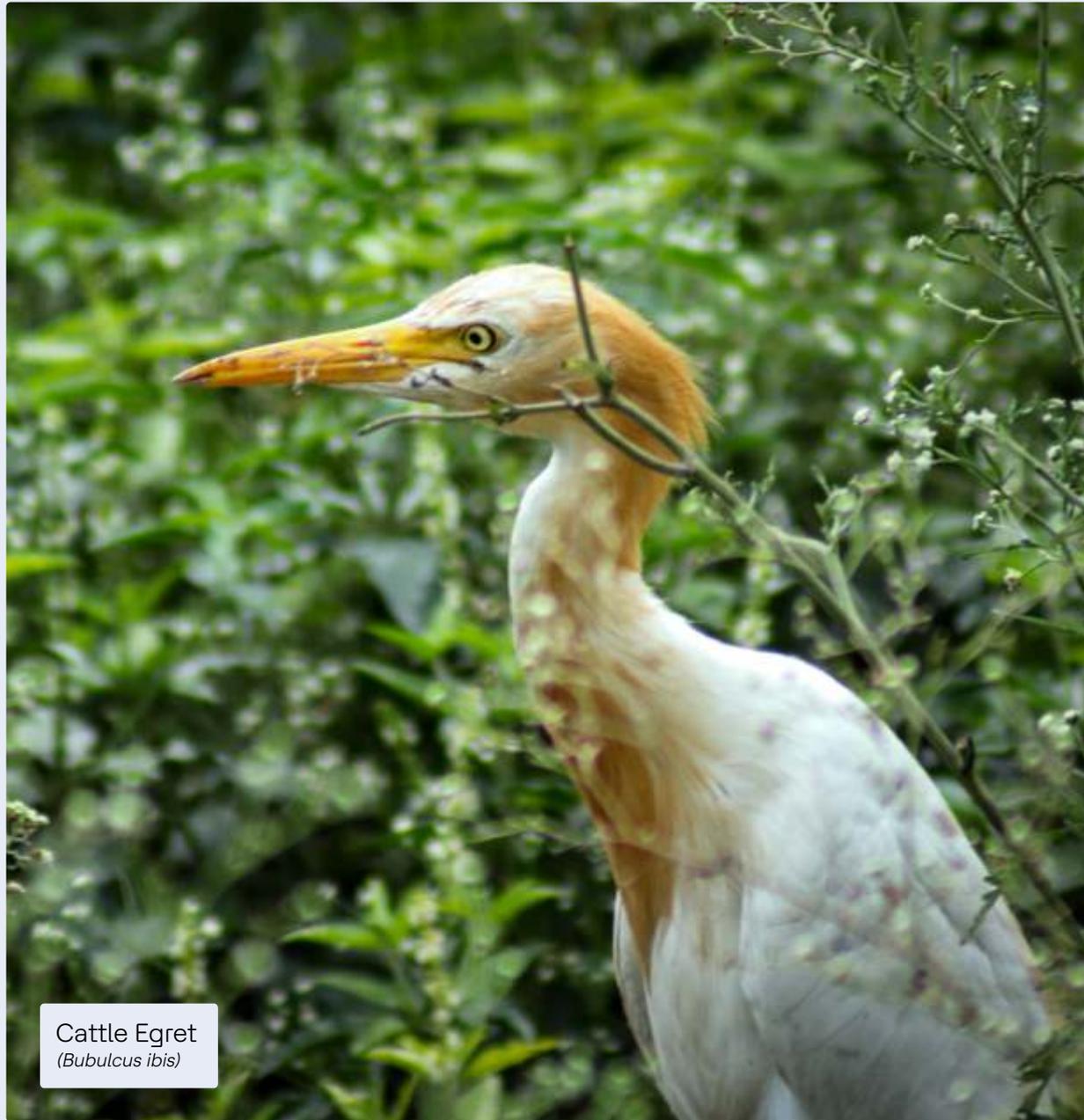
Mixed flock of migratory birds

Red-crested Pochard
(*Netta rufina*)



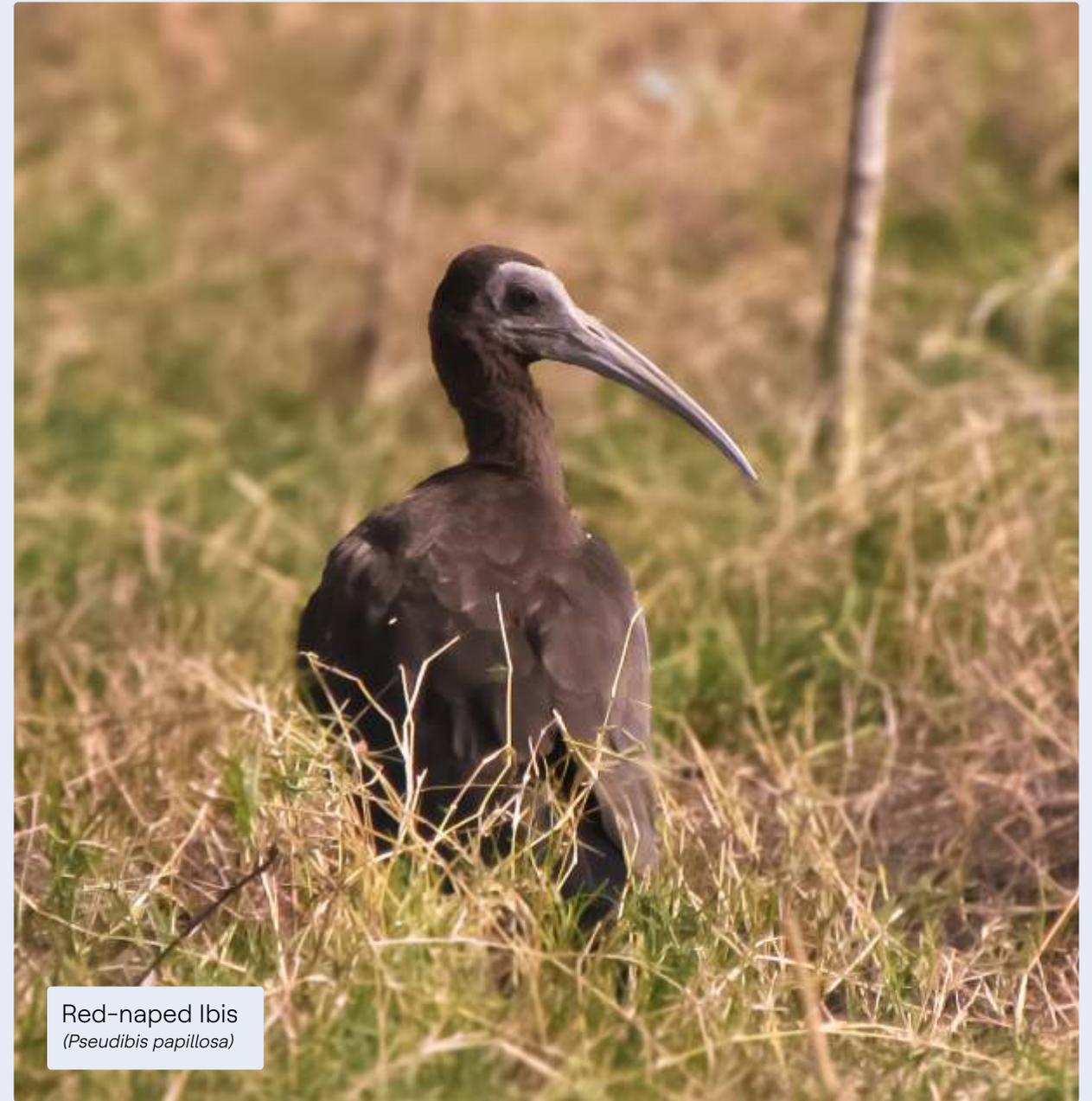
Great Cormorant
(*Phalacrocorax carbo*)

Large cormorants are found nearly worldwide. Note the large size, white patch on the throat, and lack of crest. Often spotted standing on rocks or pilings. Dives frequently, feeding on fish. Found in many types of water bodies, ranging from rivers to reservoirs to marine environment.



Cattle Egret
(*Bubulcus ibis*)

Frequently seen in dry habitats than other egrets. In breeding season, they look pale salmon colour on the head and breast (more extensive in Asia and Australasia) and a brighter bill. Widespread and fairly common across the globe. Often gather in flocks, frequently following cattle or tractors in fields.



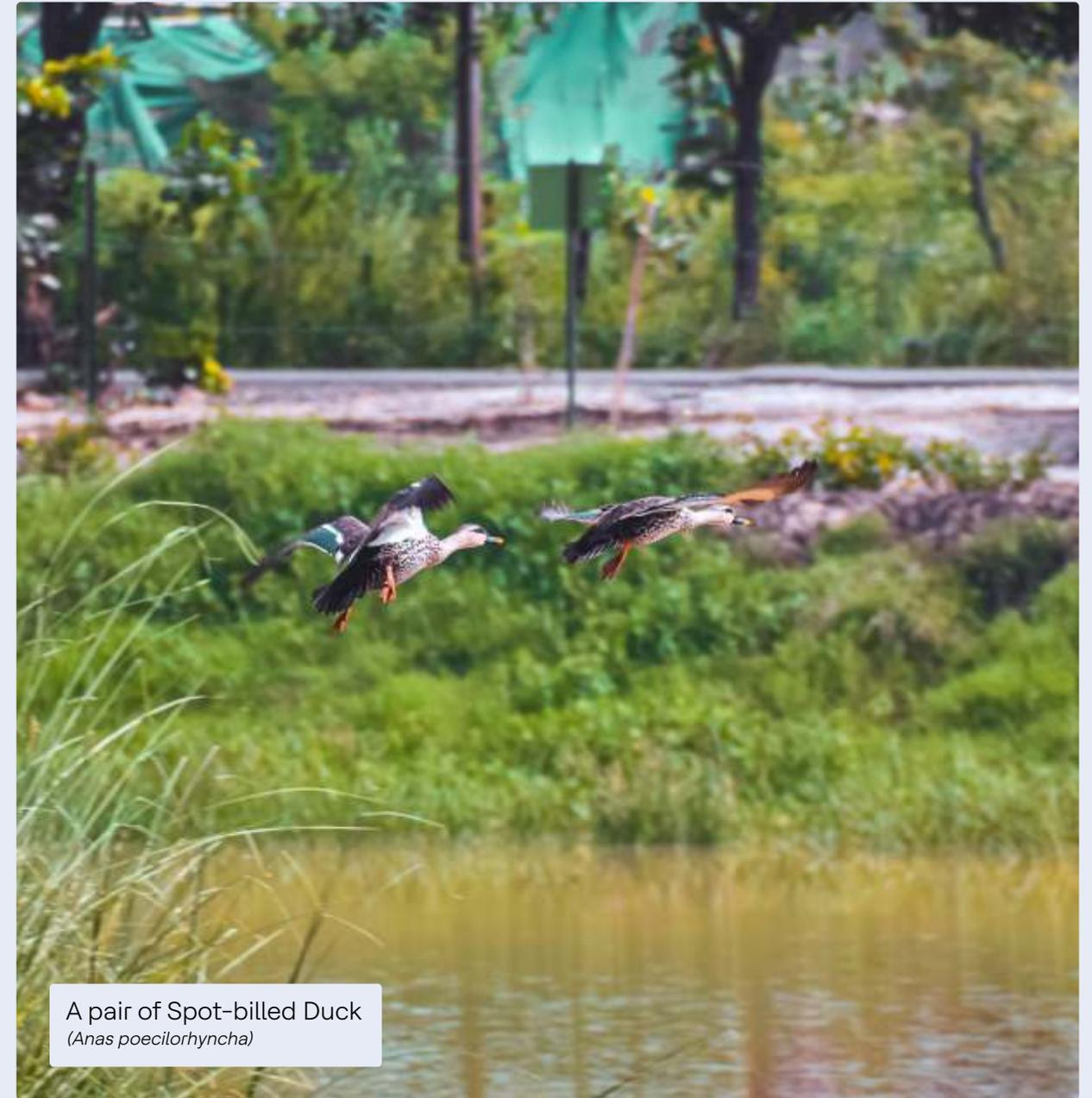
Red-naped Ibis
(*Pseudibis papillosa*)

A medium-sized ibis with a dark body, often showing a bluish-green sheen. Unlike most other ibises, the red-naped favours drier habitats, such as rye fields. Usually found solitary or in loose groups.



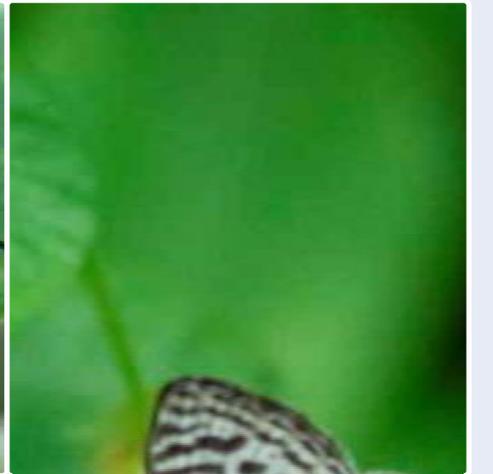
Baya Weaver
(*Ploceus philippinus*)

A widespread weaver known for its long hanging nest with a bulbous chamber and a narrow tubular entrance. Breeding males have yellow forehead and crown, a dark throat that contrasts with yellow underparts.



A pair of Spot-billed Duck
(*Anas poecilorhyncha*)

A large grayish-brown duck with a diagnostic yellow-tipped black bill and a red spot at the base of the bill. Often seen in small groups dabbling or tipping up in shallow water or walking on marshy land at the edge of freshwater lakes or in cultivated fields.





Scarlet Skimmer
(*Crocothemis servilia*)

One of the most common red dragonflies. Frequently found in ponds, puddles, rivers, big wells, tanks, ditches and paddy fields. Perches on aquatic weeds and chases any passing by dragonflies.

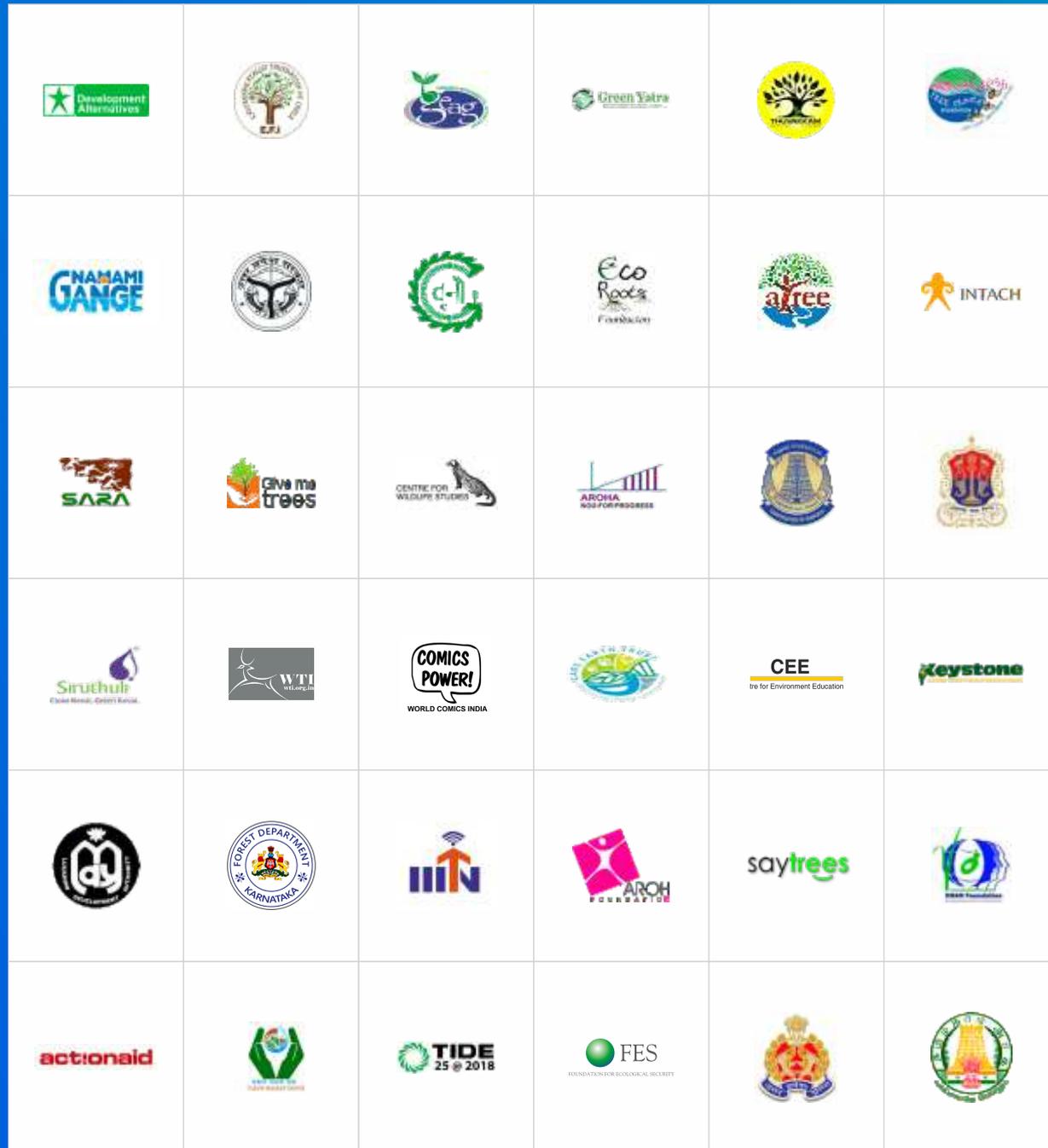
and the journey continues...

In India, rivers, ponds, wetlands, and lakes, play vital role in maintaining the ecological balance, groundwater recharge and flood control.

With the successful implementation of these projects, HCLFoundation aims to improve ground water levels, increase water availability for irrigation, restore waterbodies with its biological significance and ecosystem services, carry out in-situ conservation of the flora and fauna present there, and enable these waterbodies to serve as a habitat for bird species.

Along with this, we are targeting to improve community capacity in management of water bodies and raise their awareness on the gravity of the situation surrounding water conservation and create a sense of ownership amongst them. This will improve the hygiene conditions in the surrounding areas of the waterbodies and in the villages as a whole.

Our partners



Report Development Team

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