

WETLAND DEVELOPMENT PROJECT

MUTHA RIVER, PUNE

A CASE STUDY

BY



IN ASSOCIATION WITH



About

Jeevitnadi – Living River Foundation

‘Jeevitnadi’ started as an informal group of people passionate for River Conservation in 2014. In 2016, the group acquired the status of a non-profit section-8 company as ‘Jeevitnadi-Living River Foundation’.

Since beginning, the mission of Jeevitnadi has been Revival of Rivers through public participation.

Over the last 3-4-year span, Jeevitnadi has been playing instrumental role in changing the perception of common people towards the river and recreating the lost relationship of society and the rivers in Pune city.

www.jeevitnadi.org



LEARNING

- How a group of motivated citizens can bring about change
- How one can start small and make a big difference
- Help is always available, all we need to do is ASK



WHO IS THIS FOR

- Anybody and everybody wishing to do something for river
- Citizens, citizen groups, students, NGOs, Corporates
- Government agencies, Environment Departments, Education institutions

ABOUT

ADOPT A RIVER STRETCH PROGRAM

We believe that river restoration is not possible without active involvement of the citizens.

With this belief, we launched “Adopt a River Stretch” program in May 2017.

Idea is to adopt a stretch of a stream or river nearby, look after it, work there regularly, keep it clean, prevent pollution, record biodiversity, implement conservation measures, watch it come alive.





PROJECTS UNDER PROGRAM

(AS OF AUGUST 2018)

4 stretches of river
Mutha

2 stretches of river
Mula

within Pune city

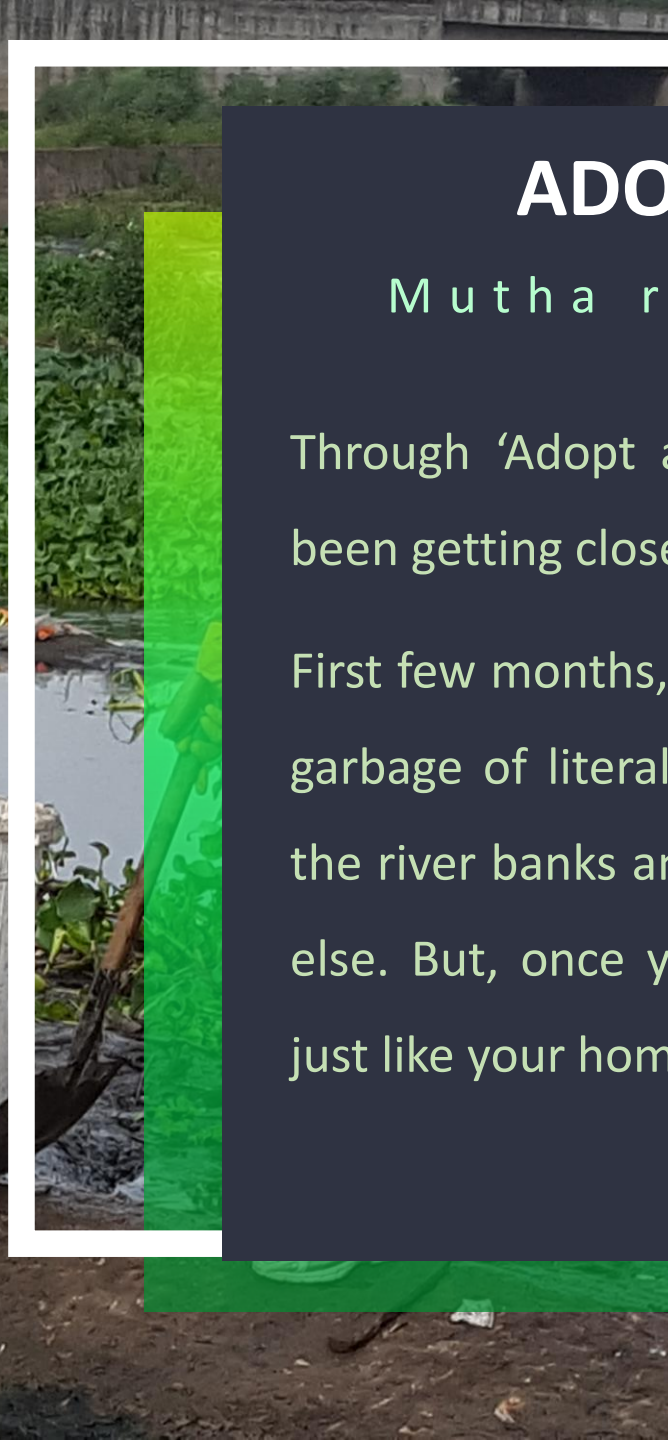


ADOPT A RIVER STRETCH

M u t h a r i v e r , V i t t h a l w a d i , P u n e

Through 'Adopt a Stretch' project at Vitthalwadi, we have been getting closer to the river for more than a year now.

First few months, it was nothing but cleaning! Overwhelming garbage of literally all possible kind was getting dumped in the river banks and river bed. So, could not think of anything else. But, once you make the river your own responsibility just like your home, cleaning will not be enough.



ADOPT A RIVER STRETCH

M u t h a r i v e r , V i t t h a l w a d i , P u n e

Back of our minds, we all knew that we need to do something more. It was important to change the urban perception towards the river.

It's not a garbage dumping site but it's our native land, it's our place to recreate, it's our place to rejoice, it's our place to rejuvenate.





ADOPT A RIVER STRETCH

M u t h a r i v e r , V i t t h a l w a d i , P u n e

With that motive, we started thinking how my river will be welcoming to all its citizen.

We must celebrate our river

We ideated and did “storytelling session”, “Kirtan (traditional socio-devotional musical event)” and other celebrations. With the same motive, we started looking at our adopted stretch more affectionately to understand its beauty and also its pain

ABOUT THE STRETCH

Stretch is around 1 km, spanning over both sides of the temple known as Pundalik temple in Mutha riverbed, at Vitthawadi, Pune

<https://goo.gl/maps/8pgma48sweH2>

Vitthal temple is on the river bank which is around 175 years old. This stretch represents all the stresses a river has in an urban landscape.



WETLAND DEVELOPMENT

Background

Two *gomukh* are present at the edge of the riverbed, which continuously discharge water.

Gomukh is the structure looking like cow-head, usually made of stone through which water of a live spring/ stream flows. It is a traditional practice of stream conservation across India





***GOMUKH* AT THE
EDGE OF THE
RIVERBED**



WETLAND DEVELOPMENT

Background

Water from this stream used to continuously feed to the river.

In the decade of 2000-2010, various interventions happened in the riverbed.

River was channelized. Sewage pipeline was laid along the river.

Beautiful basaltic rock in the riverbed was blasted to make way for it.

Those rocks were dumped in the riverbed. Over the years, silt carried by flood waters accumulated in them. A number of mounds are formed, blocking path of water to the river.

There are many such marshy formations in the riverbed.

The background image shows a river with a stagnant pool of water. The water is dark and still, reflecting the surrounding greenery. The banks are covered in dense, lush vegetation, including various types of ferns and leafy plants. Some white flowers are visible among the greenery on the left bank. In the foreground, there is a rocky, uneven ground with some dry leaves and small plants. The overall scene depicts a natural, somewhat neglected wetland environment.

WETLAND DEVELOPMENT

Background

There are many such stagnant pools in the riverbed.

They stink, provide breeding ground to mosquitos.

As a result, people find river and riverbed repulsive

A WORD ABOUT MARSHES

Marshy place is itself a habitat.

Then why did we interfere?

In this case, it was not the original character of the riverbed. Marshy places happened due to thoughtless development and equally careless execution.

Normally water that should have reached the river, resulted in stagnant pools in the riverbed.

- River thus was deprived of fresh water
- Stagnant pools bred mosquitos
- Stagnation caused water to stink
- People perceived riverbed as an unhealthy and stinky place and avoided it
- Since it became a neglected place, garbage dumping became rampant



**STAGNANT
POOLS, WITH
DUMPED
GARBAGE
BEFORE
PROJECT**

**TYPHA, TARO,
POLYGONUM
IS TYPICAL
MARSHY
VEGETATION**



**WHERE YOU SEE THIS
VEGETATION, THERE
ARE MARSHES**



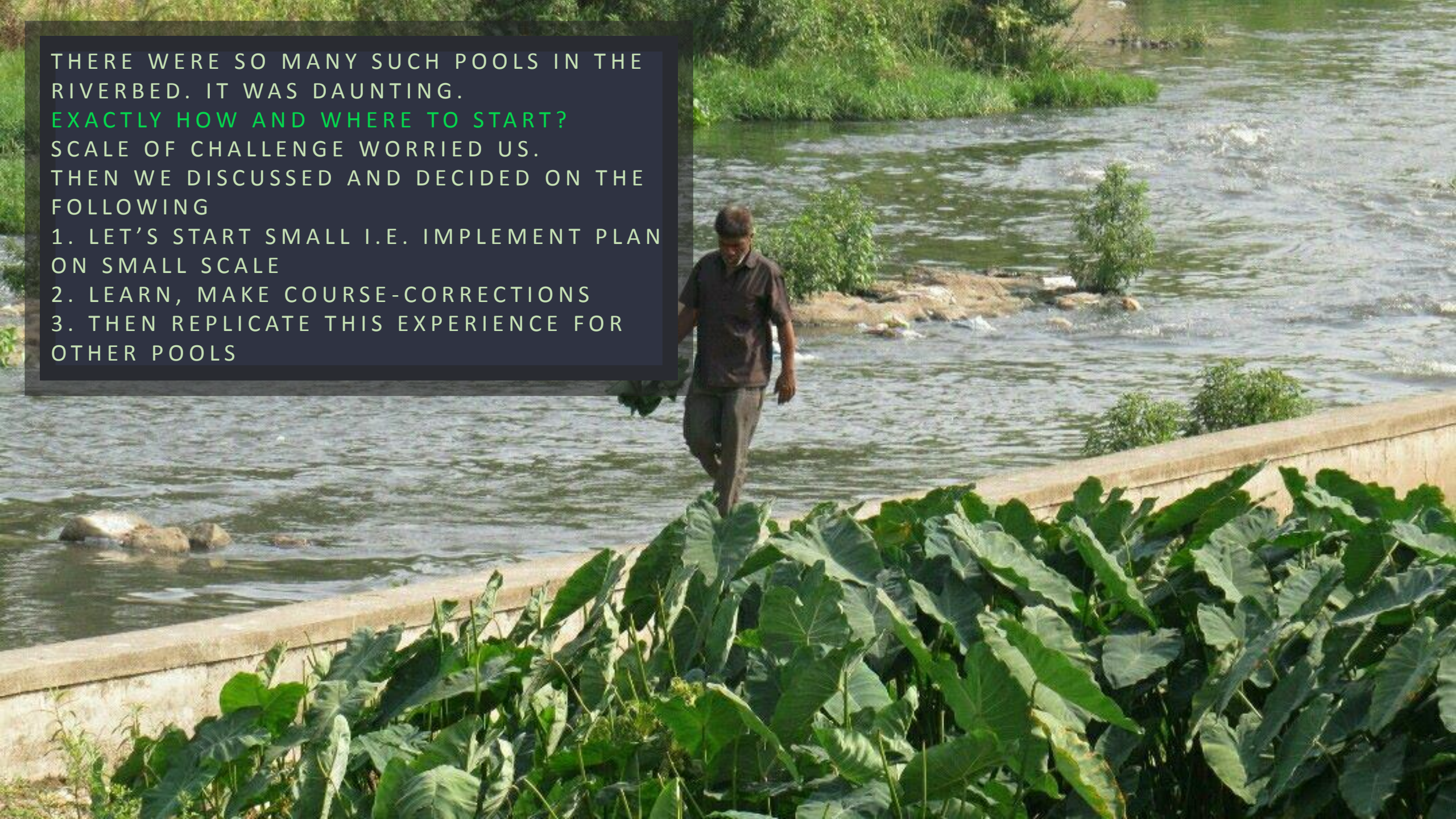
THERE WERE SO MANY SUCH POOLS IN THE
RIVERBED. IT WAS DAUNTING.

EXACTLY HOW AND WHERE TO START?

SCALE OF CHALLENGE WORRIED US.

THEN WE DISCUSSED AND DECIDED ON THE
FOLLOWING

1. LET'S START SMALL I.E. IMPLEMENT PLAN
ON SMALL SCALE
2. LEARN, MAKE COURSE-CORRECTIONS
3. THEN REPLICATE THIS EXPERIENCE FOR
OTHER POOLS



NOW OUR TASK WAS
EASY. WE SELECTED
ONLY 4 POOLS TO
WORK ON.
WOW!!
THAT LIFTED BURDEN
OFF THE TEAM.
4 POOLS WAS NOT AT
ALL SCARY 😊



Sewage pipeline runs parallel to the river in the riverbed. Concrete platform is constructed over the pipeline for protection. Chambers like the one in the picture are present every 100 meters on the platform for maintenance purpose.

Pool2 at the base of the chamber is due to leakage in the pipeline. Leaking sewage creates stinky, unhealthy pool in the riverbed.

Sewage Treatment facility in Pune city could not keep pace with the growing city. Pune Municipal Corporation admits they discharge into river 29% of untreated sewage.

Hence, instead of sealing the leakage, we decided to treat this pool as part of wetland development



SEWAGE TREATMENT

ROLE OF WETLAND

Wetlands play a number of roles, providing services like flood control, waste purification, habitat provision, carbon sink, groundwater recharge, stability of riverbank.



WETLAND DEVELOPMENT

B e g i n n i n g

Thanks to our ecologist experts, we learnt how these wetlands are integral part of the river ecosystem.

We decided to give it a go and convert those stinking places, home to mosquitos into a beautiful phenomenon which will be naturally purifying the drainage mixed water before reaching to the river stream and at the same time a welcoming site for its visitors





WETLAND DEVELOPMENT

Planning

With this motive and thanks to our enthusiastic volunteers and experts such as, **Lemnion Green Solutions Pvt Ltd**

and

Oikos for Ecological Services

we embarked on this task.

We did not know what challenges might crop up, what difficulties lay ahead. We decided to tackle them as they come.

With 4 stagnant pools to start with, we chalked out a

SIX-SUNDAY plan.

WETLAND DEVELOPMENT

Planning

We decided to join these 4 pools by digging passage in between.

Thus we would make water flow from

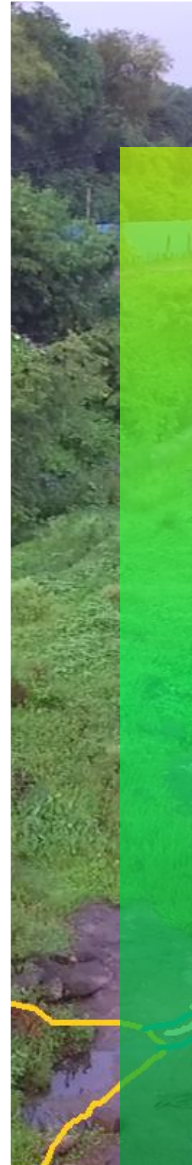
Pool 1 -> Pool 2 -> Pool 3 -> Pool 4

From Pool 4, water would flow into river

Marshy vegetation was already present, which aided water purification. We enhanced this role by planting some more.

Duckweed in the pools further helped in purification.

Our knowledge told us soil and these plants would be able to purify water, to the extent we expected.



FOR EACH
SUNDAY, WE
DECIDED A SET
OF TASKS FOR
EACH POOL
AND SHARED
WITH THE
TEAM ON
WHATSAPP
GROUP

10th June 2018, Vitthalwadi
7 a.m. to 8 a.m.

Uproot plants from POOL 1 and plant the same on POOL 2 and POOL 3 borders. Ensure flow from POOL 1 to POOL 2.

Aloo, Kardal, Typha would be planted on the borders of POOL 2 and POOL 3. Idea is to define the wetland, beautify it so that people do not dump garbage in it and it provides an elegant look to the place while emphasizing ecological role of the wetland.

Water by the time it reaches the river, is of superior quality, no smell and turbidity.

Prevent stagnation in the pool between the concrete channel and rock inside the river channel.^{IL1}

Water enters this gap. Around 10 ft x 2 ft pool is formed. Silt gets deposited here after the floods. Set of steps block way further. As a result, a stagnant, unhealthy pool is created. Solution is to block the entry of water in this gap filling up the gap with rocks.

Clean up of rock in the channel

POOL 2

POOL 3

POOL 4



with





WETLAND DEVELOPMENT

Execution

Each Sunday morning, team gathered.

We had 5-minute stand-up meeting.

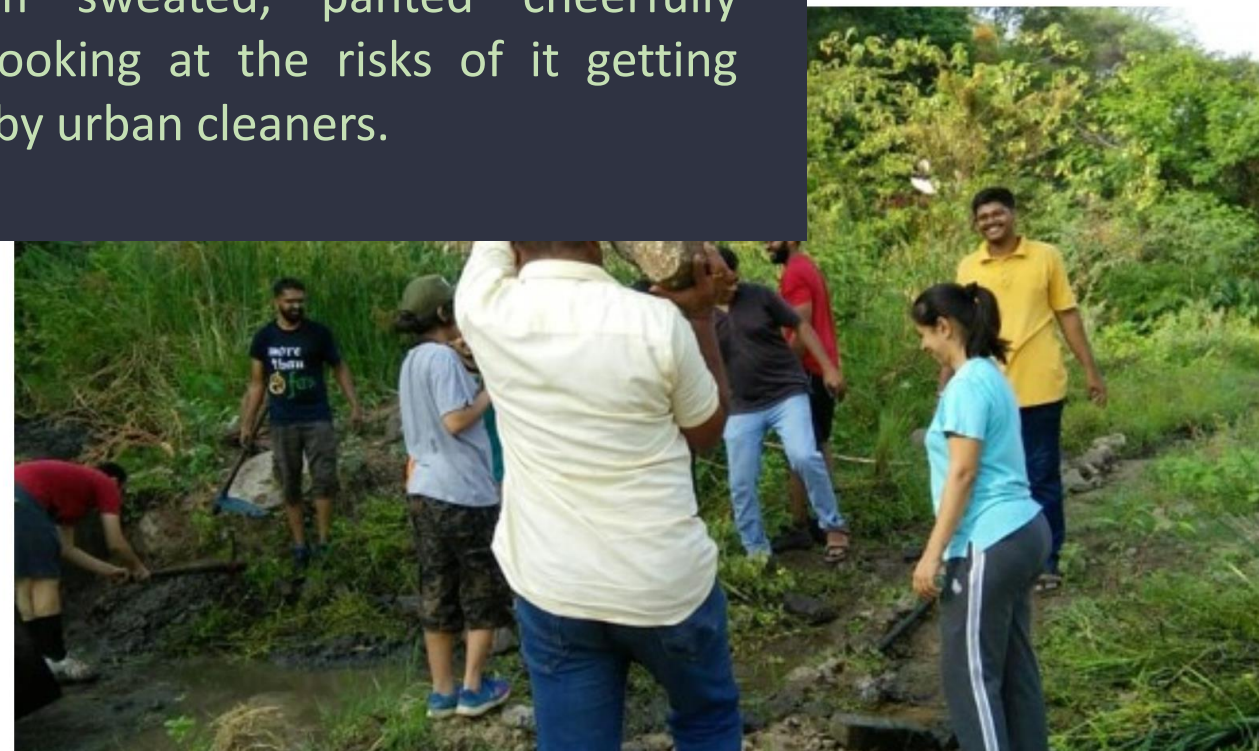
Tasks distributed, queries answered, the work began



WETLAND DEVELOPMENT

Execution

The team sweated, panted cheerfully without looking at the risks of it getting thrashed by urban cleaners.



WETLAND DEVELOPMENT

Execution

We took all care not to disturb the natural integrity of the wetland, but helped it to sustain by shaping, sizing and streamlining it.





POOL 1, THE RESULT OF WATER FALLING FROM THE *GOMUKH*, TURNED OUT TO BE MOST CHALLENGING.

BEING URBAN DWELLERS, NONE OF US ARE USED TO HARD PHYSICAL WORK.

TYPHA AND TARO PLANTS WERE EVEN TALLER THAN US. THEY BLOCKED VISUAL ACCESS TO THE WAY AHEAD.

WATER HAD ACCUMULATED, DON'T KNOW FOR HOW MANY YEARS. IT WAS BLACK, STINKY.


MARSHY PLACE MADE IT DIFFICULT TO GET A FOOTING. DIGGING TO MAKE PATH FOR WATER WAS A MAJOR CHALLENGE

ENCOUNTERS WITH SNAKES AND CRABS SCARED US.

JUNE HEAT AND HUMIDITY DRAINED OUR ENERGY

BLACK,
STINKY WATER
AND MUD.
RESULT OF
YEARS OF
STAGNATION



A man in a white t-shirt and khaki pants is using a long metal lever to move a large, dark, irregularly shaped rock in a stream bed. The stream is filled with water and surrounded by lush green vegetation and tall yellow reeds. In the foreground, a young boy in a red and blue striped polo shirt and grey shorts stands with his back to the camera, watching the man work. To the right, another person in a brown shirt and a woman in a patterned sari are also working near the stream. The background shows a concrete wall and a body of water with some distant buildings.


MOVING AND LIFTING
ROCKS.
LITERALLY HEAVY-DUTY
WORK

MADE HUMAN-
CHAIN TO
TRANSPORT
ROCKS TO CREATE
BORDER TO THE
POOLS. CHAIN
MADE OTHERWISE
DIFFICULT TASK A
LOT EASIER





TRANSPORTED
AROUND 100
ROCKS FROM
OTHER PLACES IN
THE RIVERBED
AND MADE
BORDER FOR ALL
4 POOLS

A photograph of a small pond or stream with a rocky border and green plants. The water is calm, reflecting the surrounding rocks and vegetation. The rocks are dark and jagged, forming a natural-looking barrier. Green plants with long, thin leaves are growing along the edges of the water. The background is a sandy or dirt bank.

CARRYING
100 ROCKS
TIRED US.
BUT IN THE
END IT WAS
ALL WORTH
IT.



AND THEN IT HAPPENED..


AT LAST IN THE WEEK 4 OF THE PROJECT, WATER
STARTED FLOWING OUT OF POOL 1.

EXPRESSIONS OF THE TEAM MEMBERS SAY IT ALL, ISN'T
IT?

4 WEEKS OF TOILING IN THE MUD, STINKY WATER
FINALLY PAID OFF..

THOUGH COVERED IN MUD AND SWEAT, WE FELT
FRESH.

WE REMOVED 3 BINS OF PLASTIC FROM IT.



THIS WAS THE
WATER THAT
FLOWED FROM
POOL 1. BLACK
AND MURKY.

ONCE ALL
STAGNANT WATER
WAS GONE, CLEAR
WATER FROM
GOMUKH TOOK
ITS PLACE

The background image shows a wetland development project. In the foreground, a man in a blue shirt and gloves is planting a large green leafy plant into the soil. To his right, a woman in a red shirt is sitting on the ground, and another person in a purple shirt is standing nearby. In the background, a woman in a blue shirt is standing. The area is surrounded by lush green trees and vegetation. A concrete structure, possibly a dam or a wall, is visible in the distance. The water in the wetland is clear and flowing.

WETLAND DEVELOPMENT

And it was done!

Water in this newly created wetland system is flowing and clear.

The foul smell has vanished.

Growing duckweed and water skaters which are integral part of a healthy wetland formation are assuring us that we are on the right track.

This wetland system is home to crabs and fish.

Various birds visit it from time to time

WETLAND DEVELOPMENT

Success Story

There were many pools in the riverbed.

However, for a year that we have been working here, we did not have fresh water to wash hands after work.

Thanks to the newly created Wetland System, now we have it right in the riverbed





We received acknowledgement of our work, like we never imagined. On the 6th Sunday, we had just finished our work when this group came by. Kids literally cheered and went to the clear, flowing water. They go biking every Sunday and confessed that they used to pass this stretch, but never felt like coming to river until that day.



WETLAND DEVELOPMENT

After six weeks, what we are left with is the most fulfilling sentiment and confidence to embark on to the next wetland rejuvenation.



SALIENT FEATURES

EVERYTHING WAS ACHIEVED
THROUGH
COMMUNITY COLLABORATION

GOOD INTENTIONS IN THE SOCIETY
COUPLED WITH SOUND
ECOLOGICAL KNOWLEDGE,
BROUGHT ABOUT THIS CHANGE

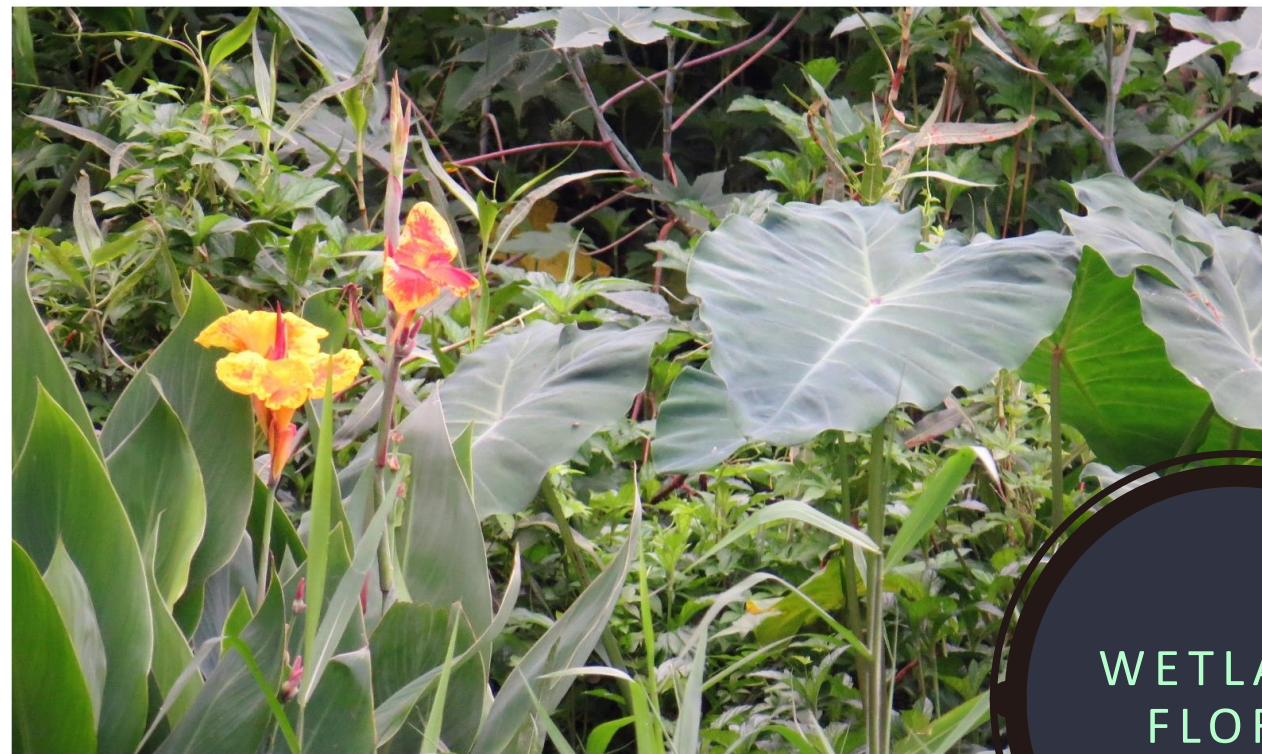


SALIENT FEATURES

NO FOREIGN MATERIAL WAS INTRODUCED IN THE RIVERBED.

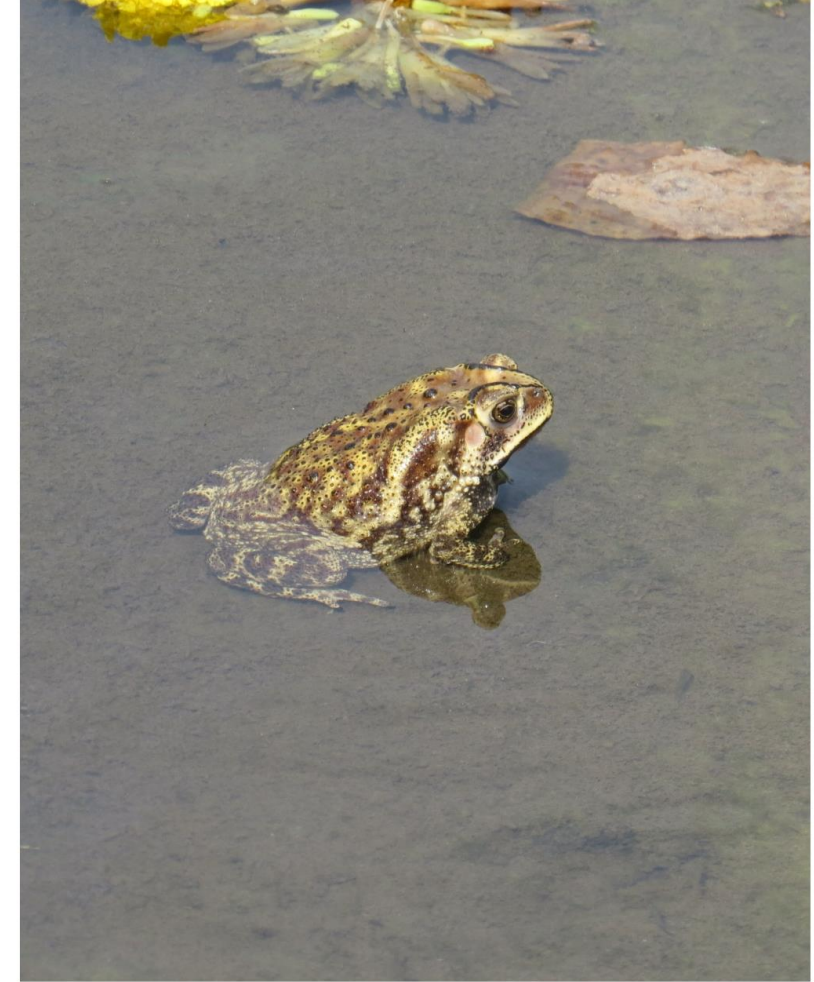
ROCKS FROM THE RIVERBED WERE USED TO DEMARCATATE POOLS.

TARO, TYPHA, POLYGONUM FROM POOL 1 WERE PLANTED ON BORDERS OF POOL 2, POOL 3 & POOL 4.



WETLAND
FLORA





About

Lemnion Green Solutions Pvt. Ltd

Lemnion Green Solutions Pvt. Ltd. promotes and provides tailor-made, green/eco-friendly solutions and services to the environmental problems. These services benefit water treatment and its up-cycling, animal feed, pisciculture, bio-energy and other environmental leads.

www.lemnion.com



About

Oikos for Ecological Services



Oikos provides a spectrum of services catering to different users - private landowners, corporate sector, entrepreneurs, & NGOs - with a specific objective of nature conservation to restore and improve the status of natural resources, processes and biodiversity. We are a social business working for ecological land management since 2002.

www.oikos.in

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MAITHILI PATIL OMKAR GANU VARSHA SHRIPAD MANISH GHORPADE
TANMAYI SHINDE KIRTI WANI ANUP KINIKAR VANDANA KOLARKAR
PRASANNA PACHWADKAR ASHWINI BHILARE MUKTA DEODHAR
APARNA DOLE ARCHANA PACHWADKAR LALIT SHRIPAD
MOHAN DATAR DEVYANI RATHOD PRIYA PHULAMBRIKAR YOGINI PALANDE
SATCHET PACHWADKAR APARNA BRAHME ADISH BARVE PRIYAMVADA PACHWADKAR
PRAVIN JAT MUGDHA NALAVADE NITI DANDEKAR SANJAY RATHOD
MADHAV PATIL VEENA BAGADE RAHUL SANE PURNIMA PHADKE
ADITI DEODHAR NIRANJAN UPASANI SUCHETA SHRINGARPURE
MANJUSHA OAK AKASH SWAPNIL MANGESH BHAGYASHRI
SURABHI NERKAR USHAPRABHA PAGE AJINKYA SHRIPAD SWATI KOTLIKAR
DHRUV ANURADHA KODILKAR ARYA MOTAGHARE
ADITYA TALASHILKAR HEMANT PAWAR BABA WAGHMARE DHARMARAJ PATIL
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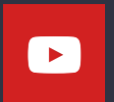
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<https://www.youtube.com/user/JeevitNadiAbhiyan>





THANK
YOU