

# URBAN LAKES

A choice of neglect

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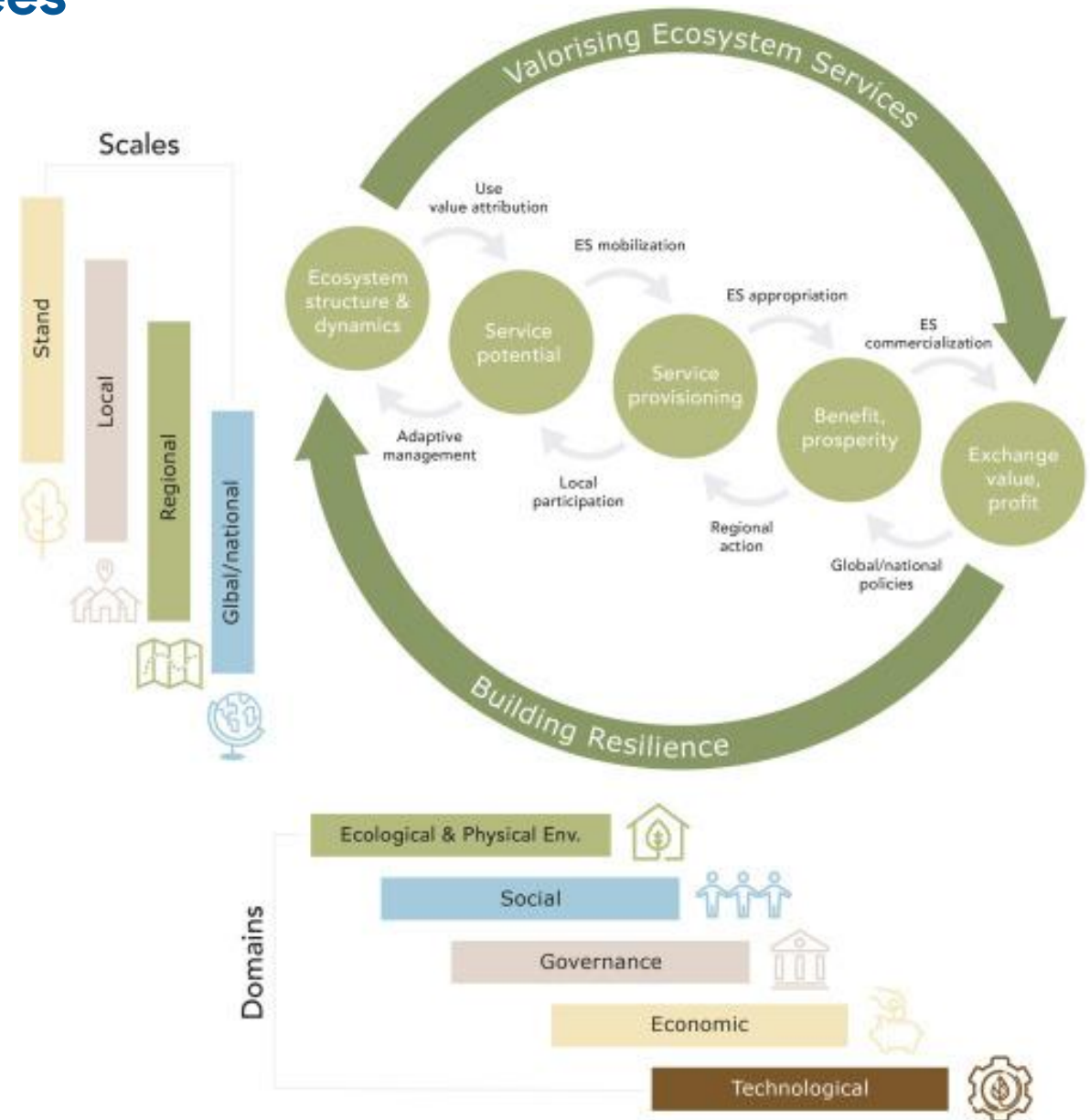


# In the last few decades, Ahmedabad sees huge fall in number of lakes!

1960: **204** Lakes

2000: **137** Lakes

- These lakes were encroached upon by slums and haphazard development and left to disuse.
- In 2017, 65 lakes within Ahmedabad had become garbage dumps, had construction, building rubble and illegal encroachment.
- Despite existing manuals and advisories on conservation and restoration of lakes, urban local body of Ahmedabad pays limited attention to potential irreversible impacts which can disrupt the balance of urban hydrological cycle.



# WHY MEMNAGAR LAKE?



Highly encroached with no buffer spaces



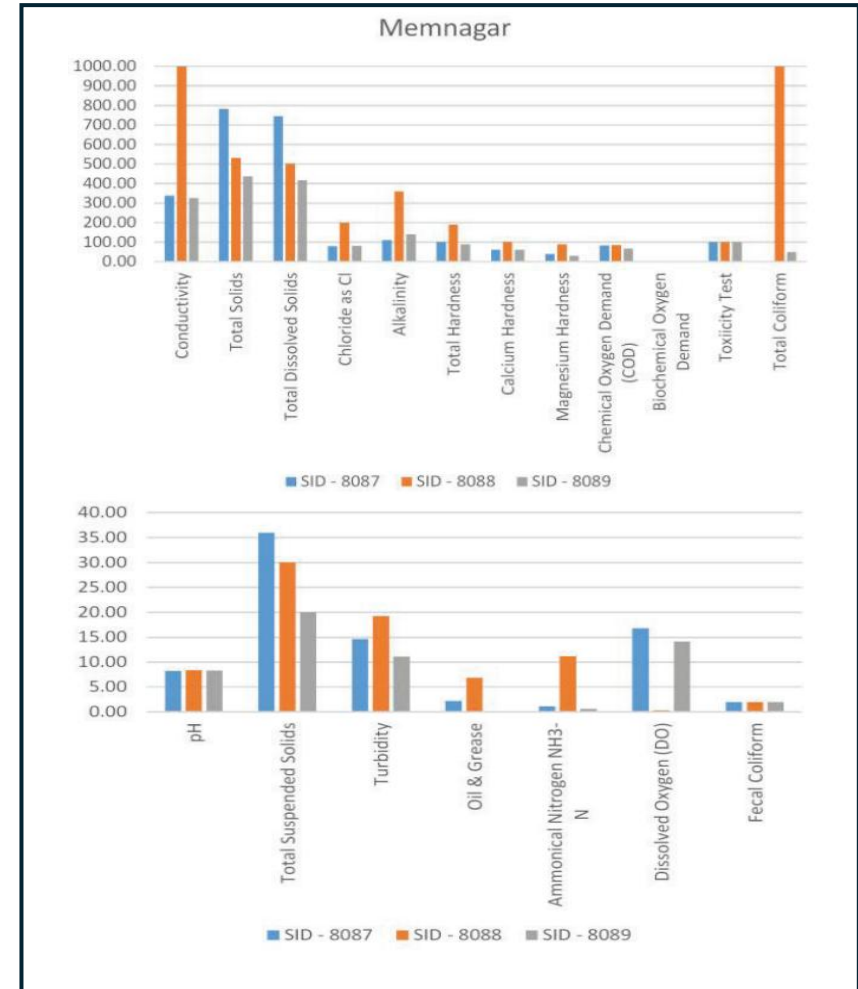
Polluted and GVP formation around the lake



No water in the lake with plants grown around

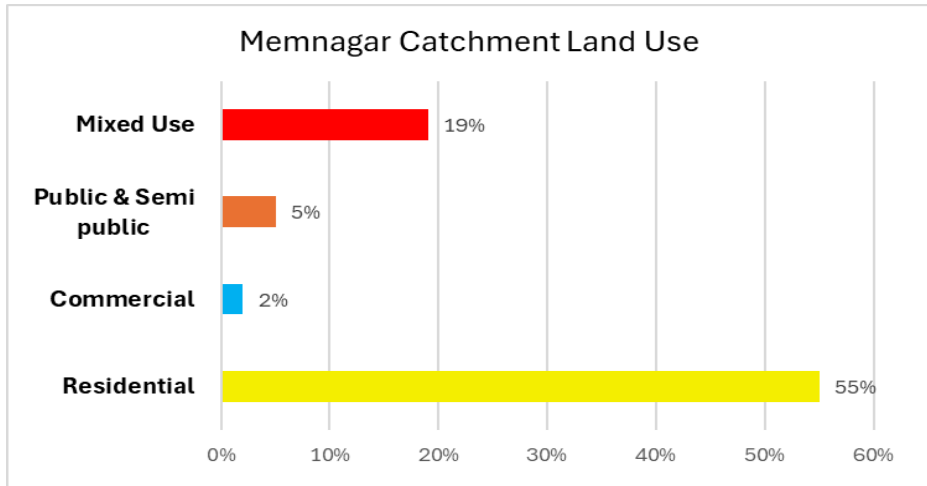
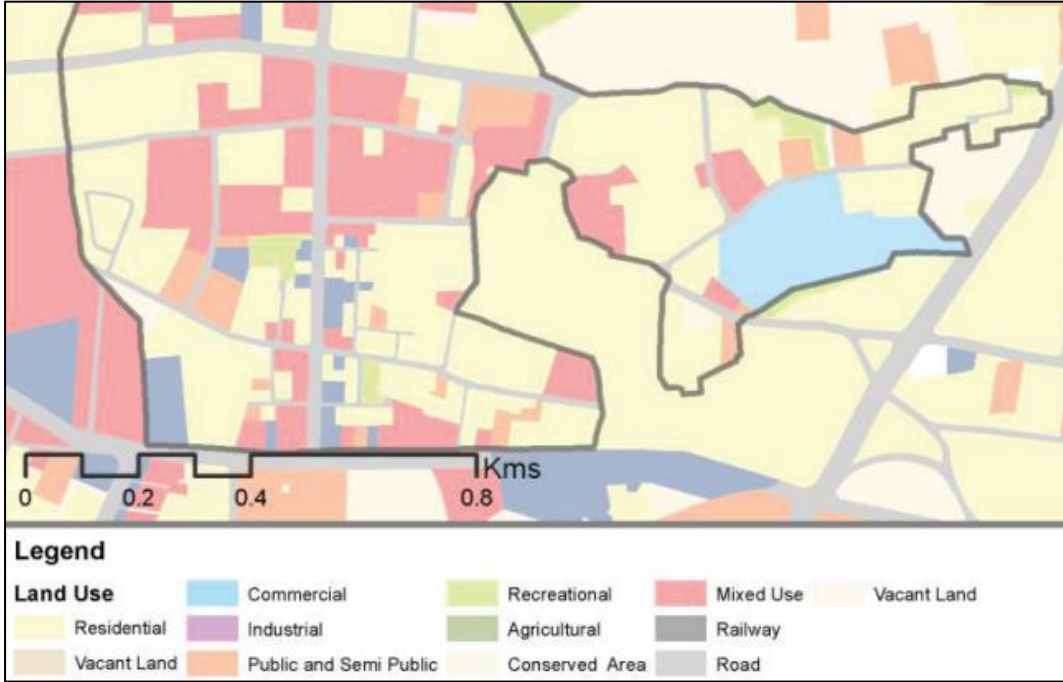


Concrete edges around the lake



The lake shows high coliform levels and suspended solids, making the lake a breeding ground for insects and increasing health risks.

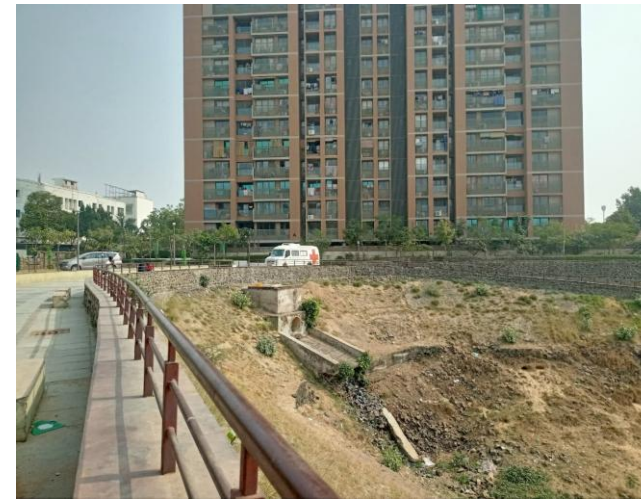
# The build-space around lake



AMUL Parlour



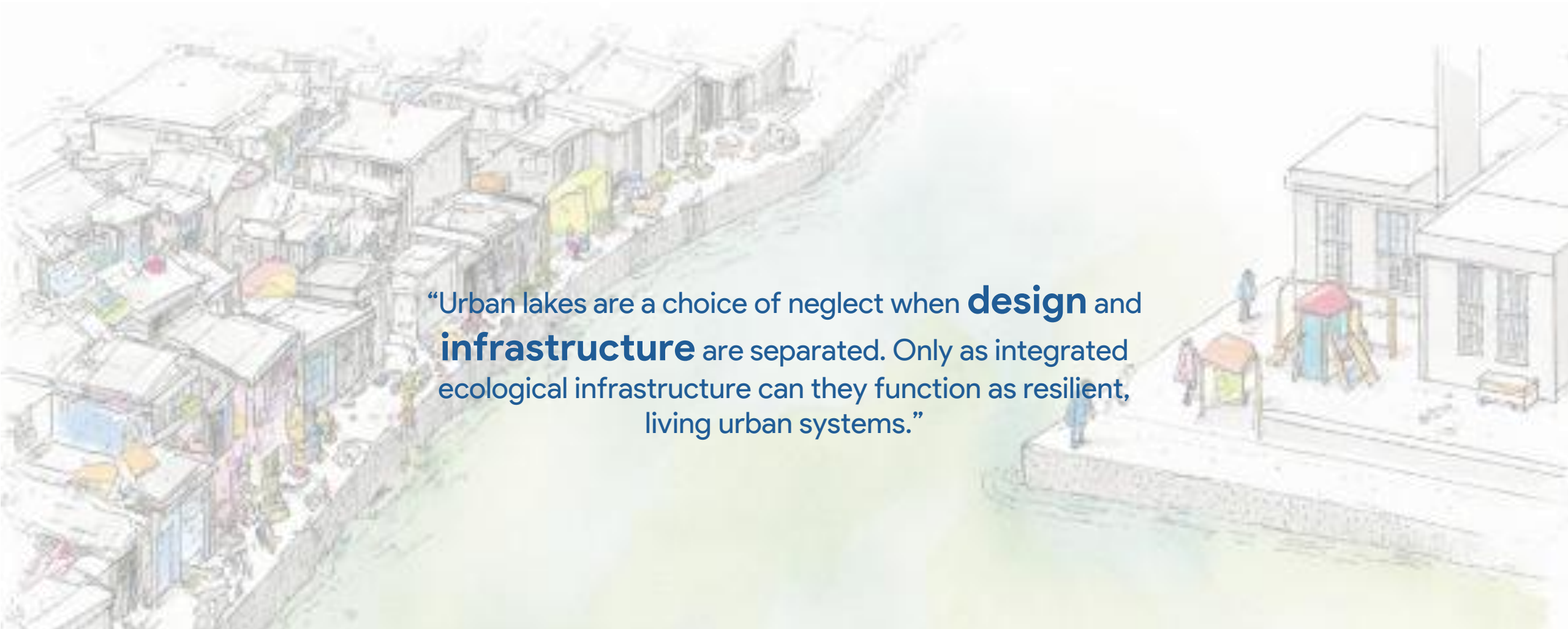
BRTS Corridor



High-rise around lake

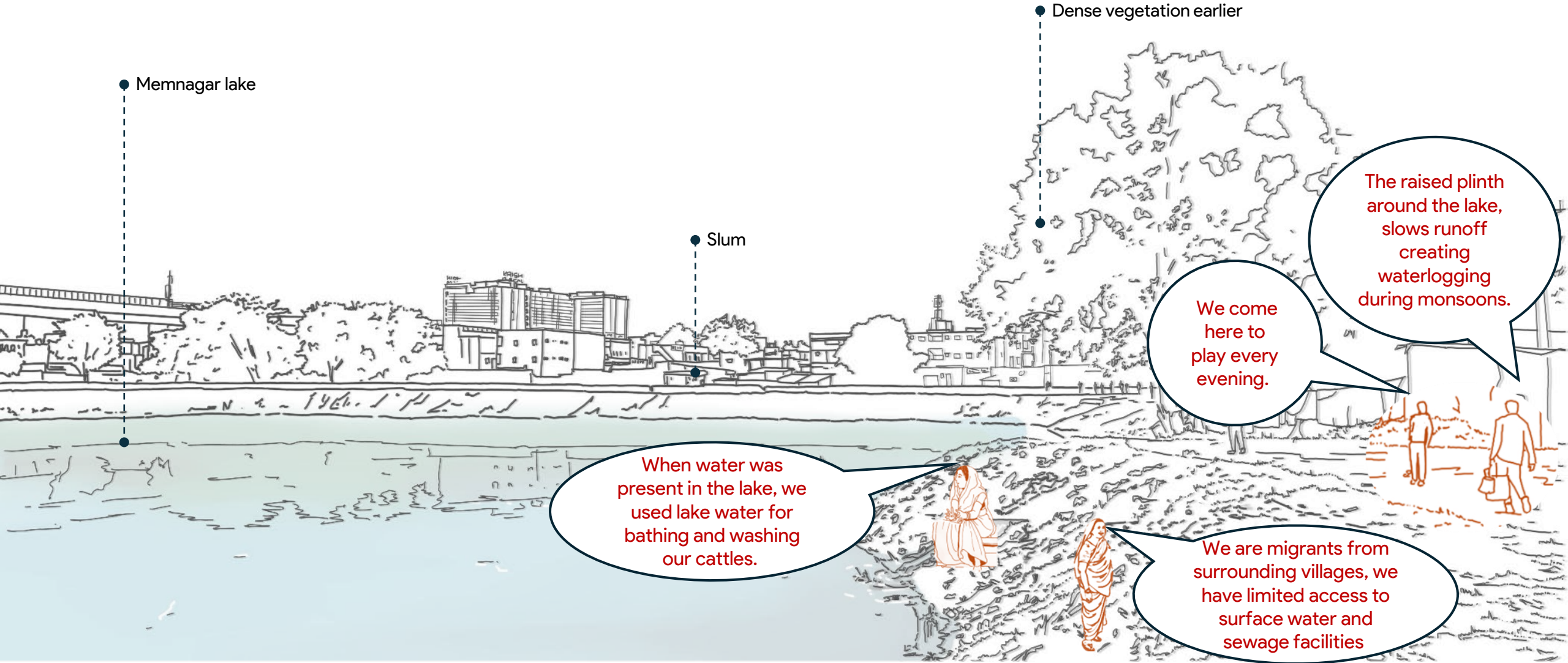


Ongoing construction



“Urban lakes are a choice of neglect when **design** and **infrastructure** are separated. Only as integrated ecological infrastructure can they function as resilient, living urban systems.”

# Voices of the people



# Case studies & key takeaways

## Emscher Restoration (Germany)

- Modern sewage treatment restores polluted rivers.
- Continuous water quality monitoring ensures ecological health.

## Karjat, Maharashtra

- Performance-based contracts improve maintenance efficiency.
- Regular O&M ensures sustained cleanliness.



## Auroville DEWATS / Canalpy (Alappuzha, Kerala)

- Decentralised systems manage wastewater effectively.
- ULB monitoring supports sustainable disposal.
- Community engagement ensures long-term maintenance.

## Upper Lake, Bhopal / TP Scheme (Pune, Maharashtra)

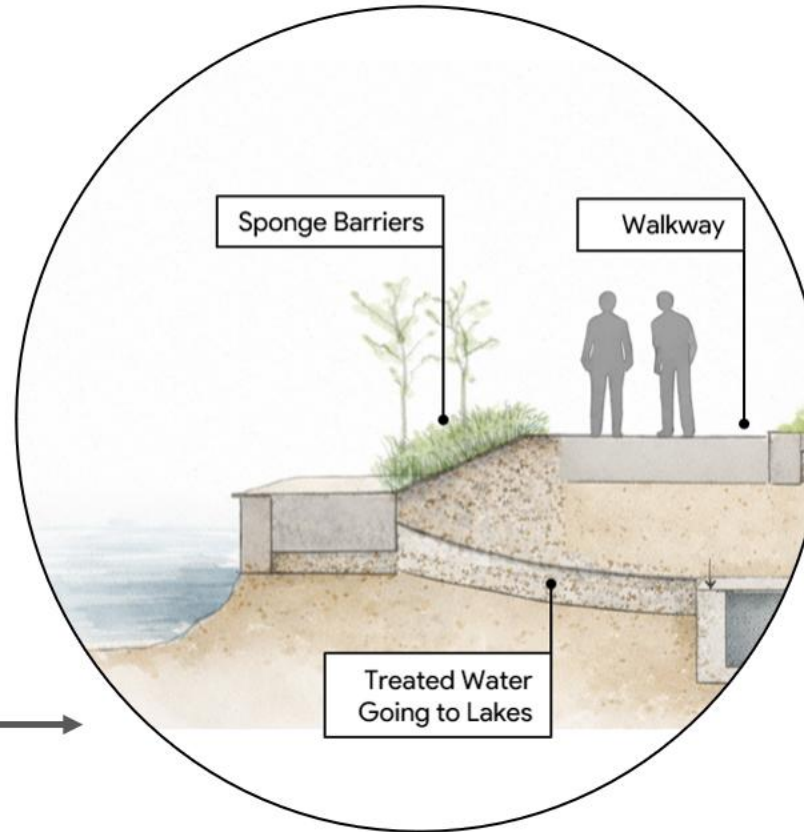
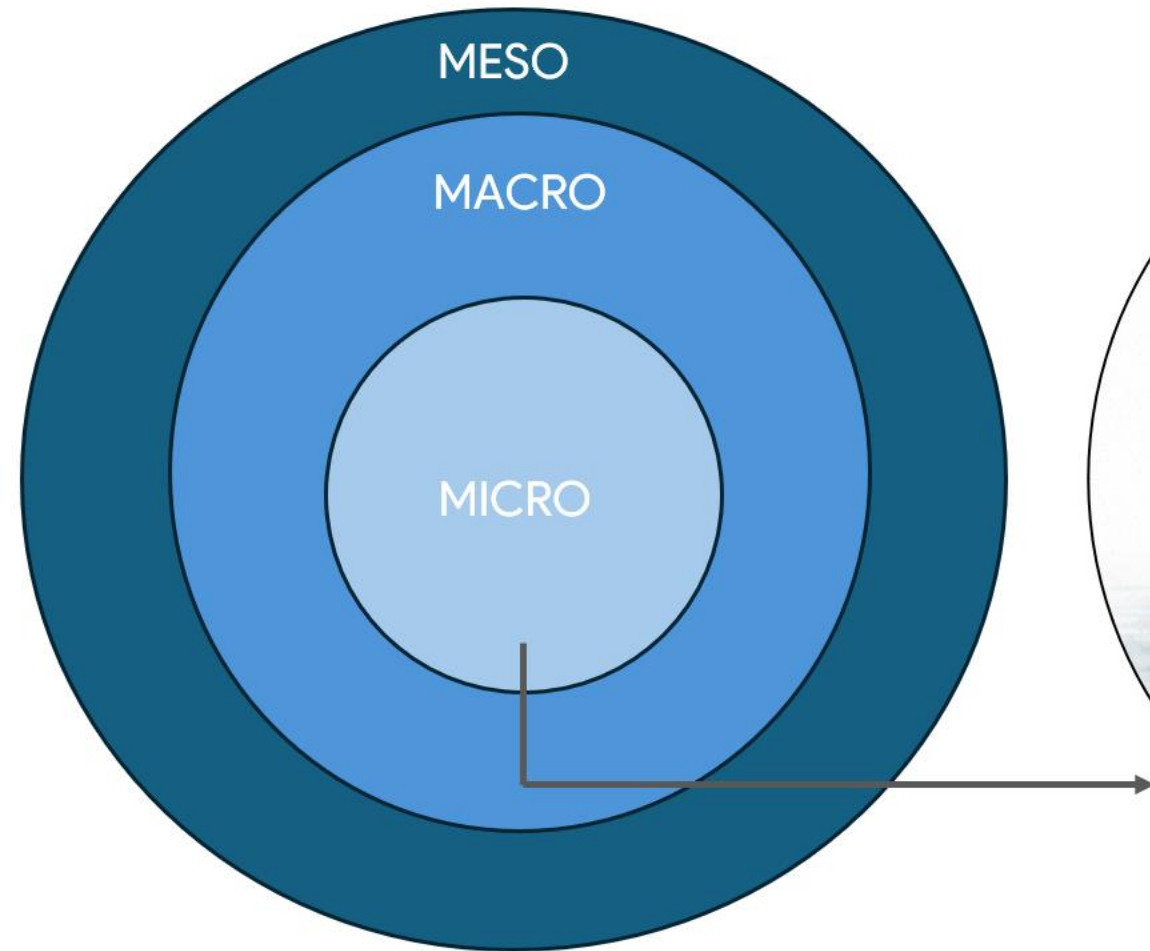
- Policy interventions safeguard urban water bodies.
- Green buffers enhance ecological and social value.

## Sponge Park, Porur (Chennai)

- Sponge concept integrates stormwater with recreation.
- Placemaking creates interactive & resilient spaces.

CASE STUDY	Karjat, Maharashtra	Emscher Restoration (Germany)	Auroville DEWATS (India)	Upper Lake, Bhopal/ Buffer in Pune TP	Canalpy (Alappuzha, Kerala)	The sponge park in Porur, Chennai
Proposal for Memnagar lake	Performance-Based Contract of lake cleaning	Water quality monitoring and treatment	DEWATS around lakes/Groundwater recharge	Guidelines for lake protection and upgrading the existing one	Community engagement for O&M	Creating an interactive space around lake

# Lenses considered for lake rejuvenation



### 3. Creation of Green & Recreational Spaces

Dividing the site of the lake to **smaller 'zones'** based on the natural character and immediate context

# Existing site plan



- Legends:**
- Porous Edge
  - Non- Porous Edge
  - Parking Zone
  - Access Points
  - Kids
  - Women
  - Men

# Scenario: 1 | Flooding and Stormwater Inflow due to Heavy Rain

## Issue:

- Uncontrolled stormwater runoff
- Contamination due to stormwater pollutants
- Overflow leading to urban flooding
- Damage to nearby infrastructure and housing
- Increased erosion of lake banks
- Reduced groundwater recharge efficiency

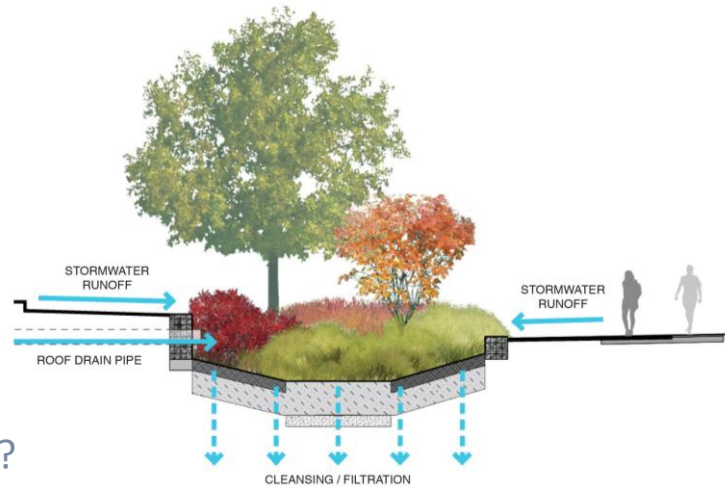
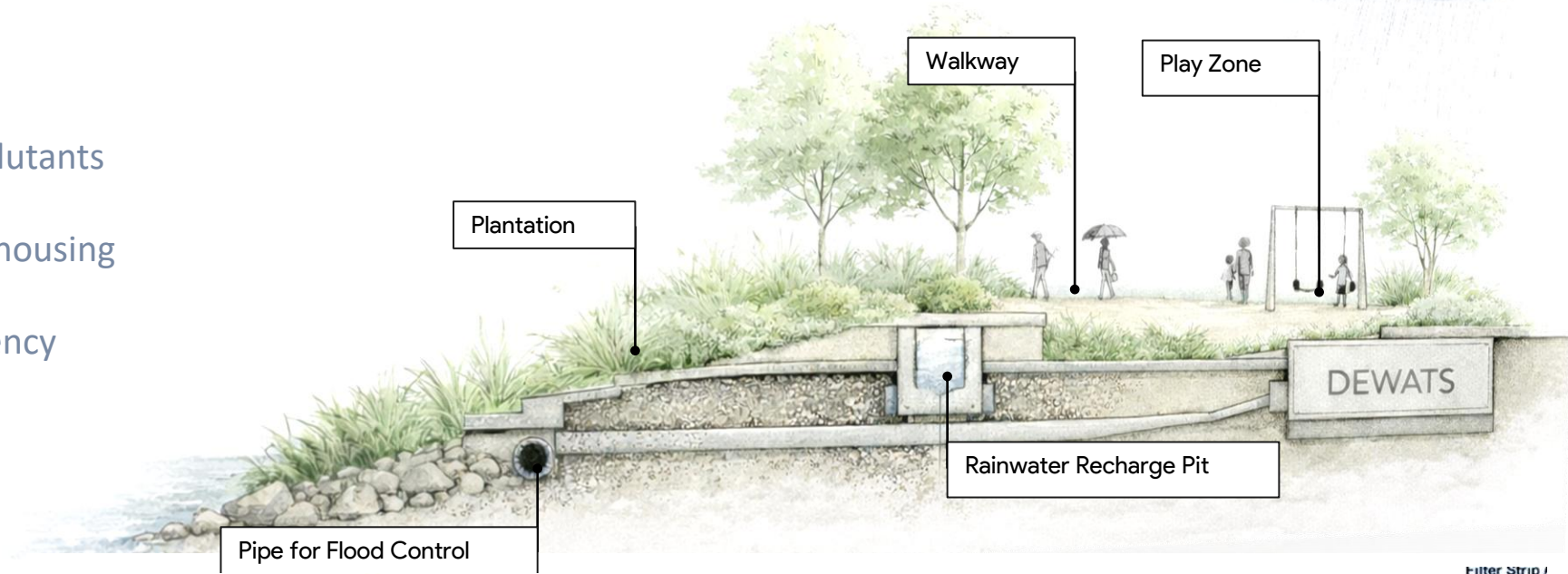
## Proposed Design Interventions:

- Bioswales
- Spong Park
- Groundwater recharge pits
- Permeable surfaces

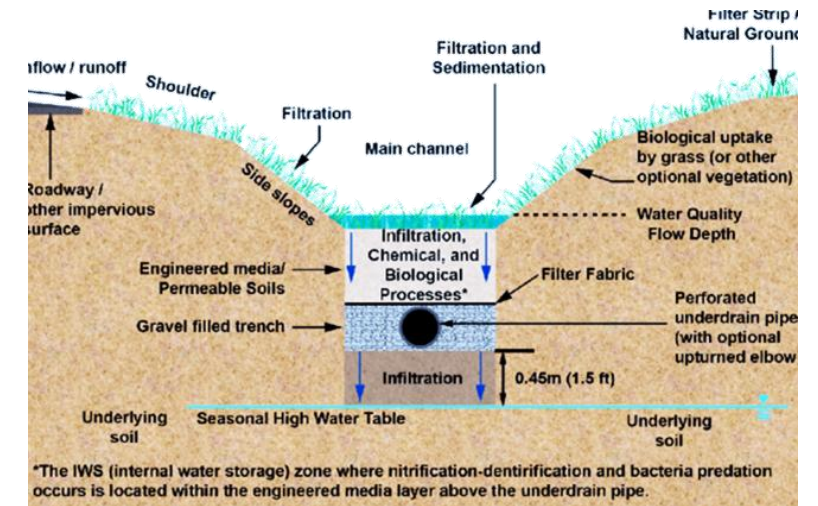
## Proposed Policy Interventions:

Existing buffer space for lake : 9m  
**( Currently, this is generalised for all waterbody irrespective of the catchment area).** Should it be more or depend on the topography near the lake?

Proposed: 15m????



Sustainable Design - Leers Weinzapfel Associates



Bioswale Cross Section

\*The IWS (internal water storage) zone where nitrification-denitrification and bacteria predation occurs is located within the engineered media layer above the underdrain pipe.

# Scenario: 2 | Water Contamination due to Sewage Dumping

## Issue:

- Direct discharge of untreated/partially treated sewage degrades water quality.
- Causes eutrophication, algal blooms, oxygen depletion, fish kills, and biodiversity loss.
- Increases vector-borne and waterborne health risks.
- Reduces suitability for recreation, cultural use, and water supply.
- Raises long-term restoration and treatment costs.

## Proposed Design Interventions:

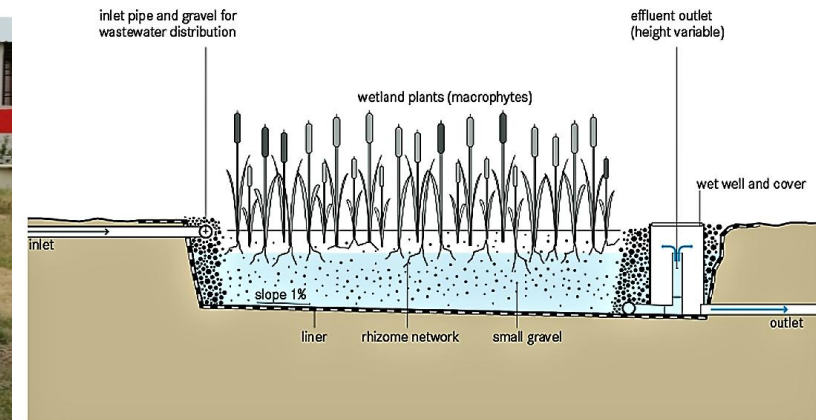
- Bioswales & duck house to balance the ecosystem
- Decentralised Wastewater Treatment Systems
- Oil and grease traps
- Water quality monitoring

## Proposed Policy Interventions:

Water quality monitoring is conducted by CPCB; however, Urban Local Bodies should also assess the quality, local conditions and penalize sources of deterioration.



Duck House



Horizontal Subsurface Flow Constructed Wetland |

## Scenario: 3 | Solid Waste Dumping and GVP formation

### Issue:

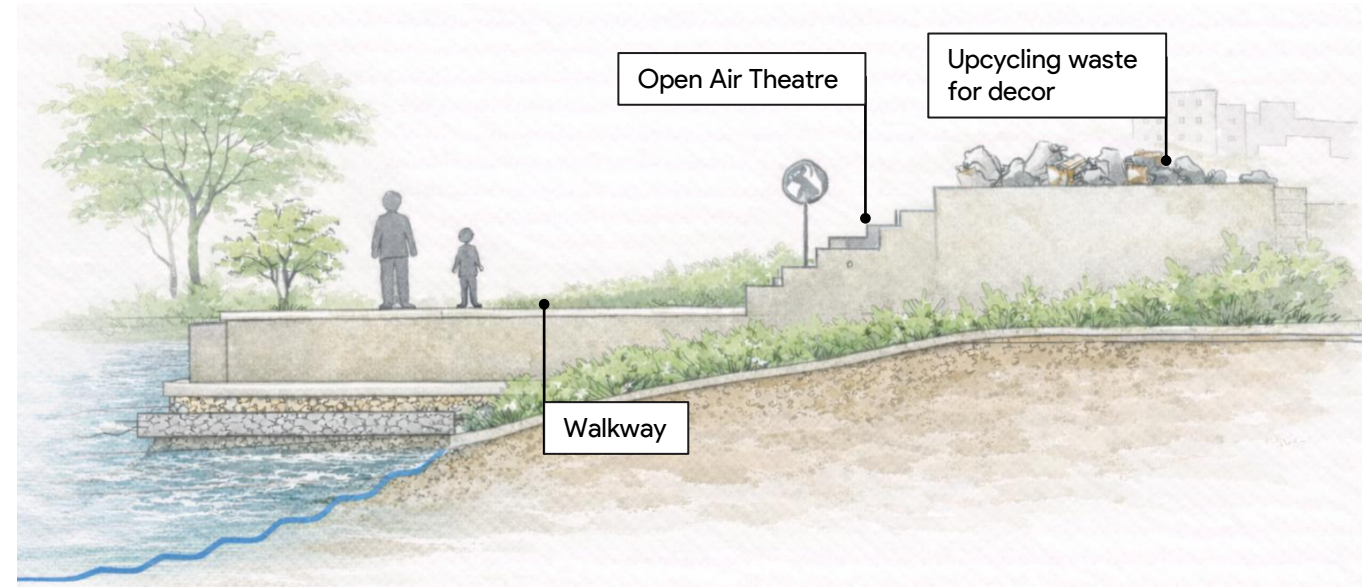
- Garbage accumulation along lake edges, inlets, and outlets.
- Blocks drains and stormwater channels, causing local flooding.
- Leachate contaminates surface and groundwater.
- Increases pests and disease-causing germs
- Degrades lake ecology and reduces public engagement.

### Proposed Design Interventions:

- Upcycling Waste (For Decor materials)
- OAT for gathering and awareness creation
- Community Composter for on-site Organic waste
- Colour-coded waste bins

### Proposed Policy Interventions:

Implement strict monitoring with penalties for waste dumping while promoting community awareness through DIY recycling initiatives, while also engaging communities for O&M of the park.



Community Composter



Rock Garden, Chandigarh

# Scenario: 4 | Encroachment and Concretization of Lake Edges

## Issue:

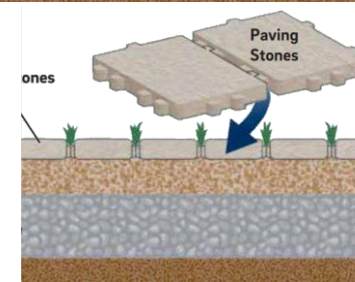
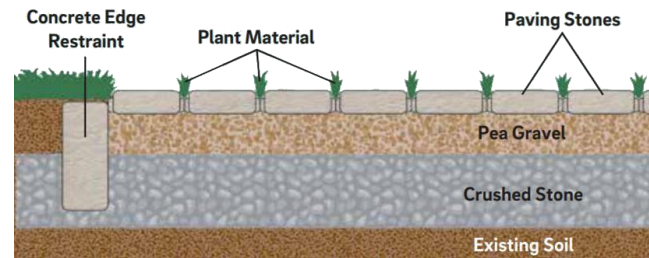
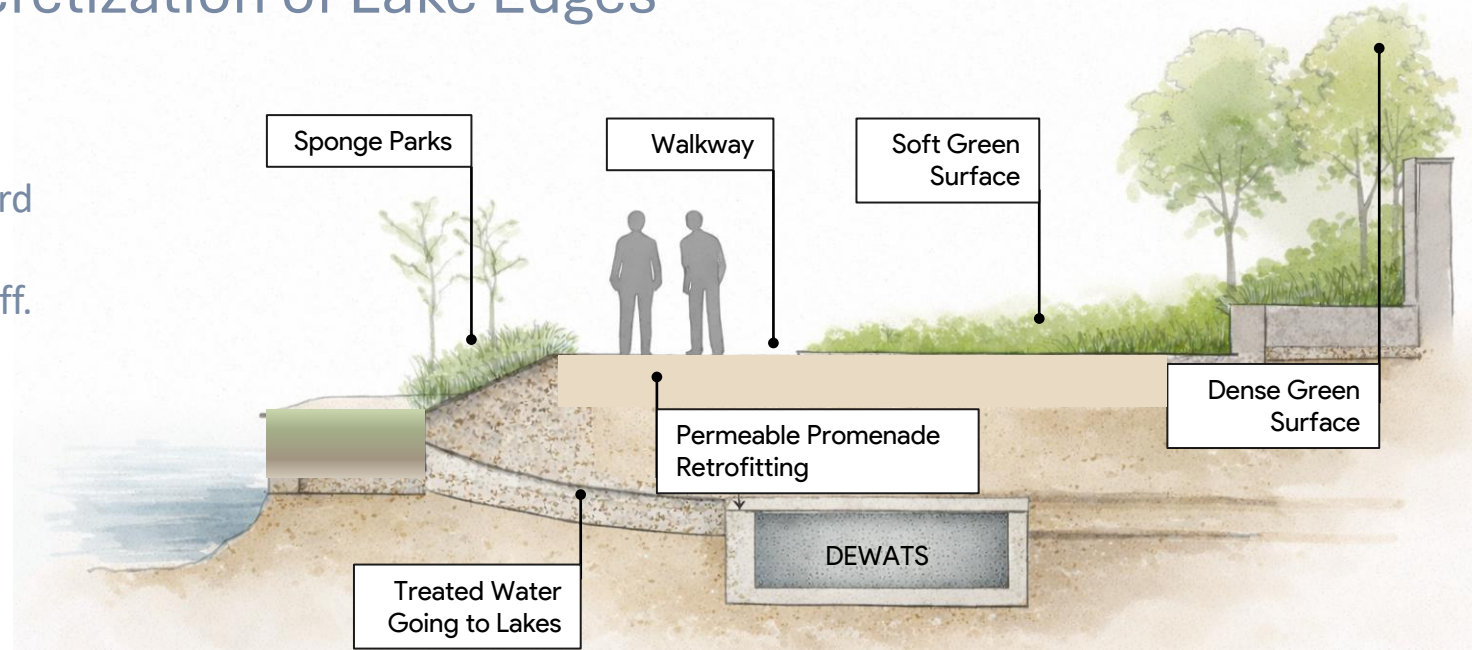
- Loss of natural buffer zones due to construction and hard paving.
- Reduced pollutant filtration and increased surface runoff.
- Shrinking lake area and storage capacity.
- Loss of wetlands and riparian habitats.
- Higher flood peaks and reduced climate resilience.

## Proposed Design Interventions:

- Green walls to restrict encroachment
- Sponge parks and barriers for soft edges
- Rain gardens
- Permeable promenade retrofitting

## Proposed Policy Interventions:

- Guidelines for lake protection and upgrading the existing one (buffer mandates).
- Regulating developmental activities through zoning plan.
- Land regulations favoring the ecological protection of the lake surrounding.



Permeable promenade retrofitting



Sponge Park

# Proposed Site Plan

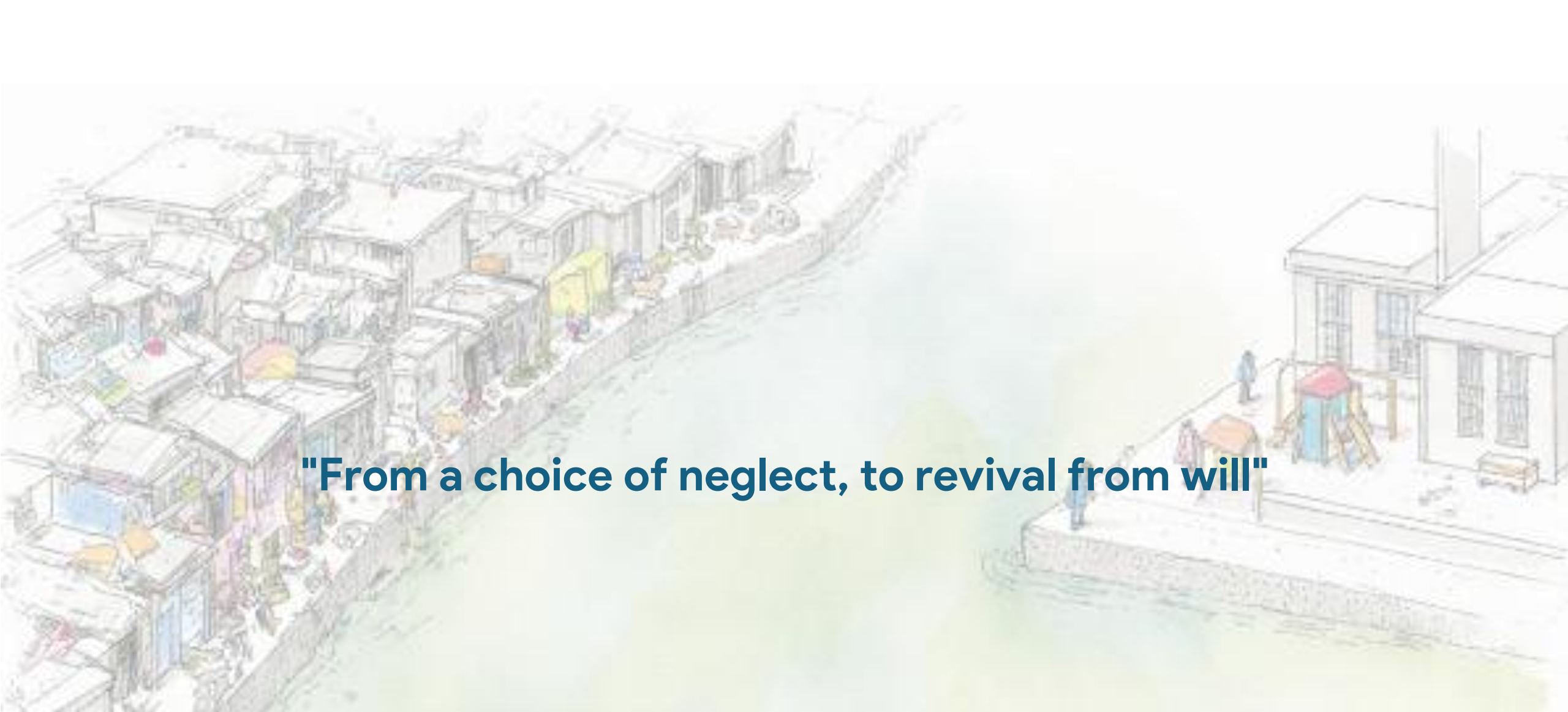


- This proposal revives the lake and gives it back to the community as a vibrant public space.
- It improves water quality through natural treatment & DEWATS system, restoring the ecological balance of the area.
- Pedestrian and cycle trails for all, relocated event spaces for community gathering, children's play areas, and upcycled waste sculptures make the lake edge active and accessible.
- By connecting surrounding neighbourhoods, the design strengthens both environmental health and everyday urban life.

# Proposed Site Plan



- The vegetation palette shows a "living" landscape where every plant has a job.
- While the flower garden provides color and cools the air for people, the wetland species act as a natural filter, cleaning water to keep the lake healthy and the ecosystem thriving year-round.



**"From a choice of neglect, to revival from will"**

THANK YOU