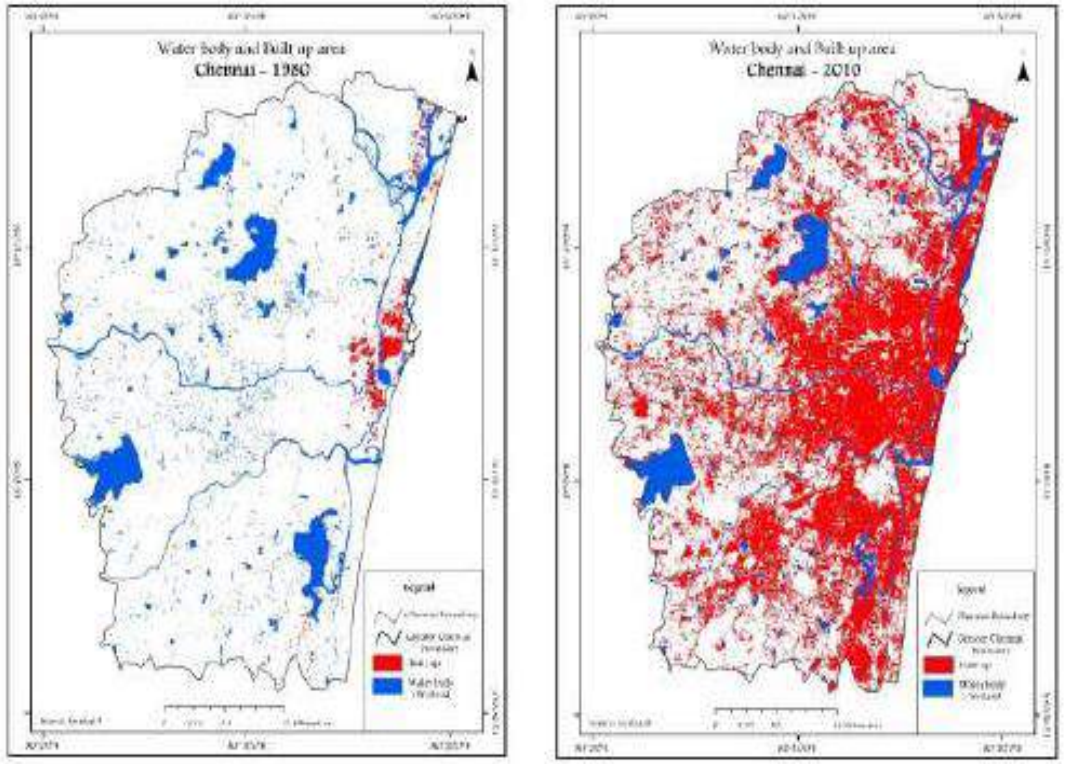
Restoration of Waterbodies in Chennai

210 Water Bodies & 15 Temple Tanks

January 2021

Problem Statement: Where have the wetlands gone?

- ***Rapid urbanisation and loss of wetland area in Chennai***
- Hydrological vagaries for the city- multiplied by ***climate change***
- Between 2016- 2020, Chennai has face ***floods, drought and cyclone***
- ***Topographically flat terrain*****-** watershed management is difficult
- Over 85 % of the area that constitutes the Chennai Metropolitan Area was in a position to function as a wetland. This has now been ***reduced to 15%*** which is essentially the area under water bodies.



Problem Statement: Where have the wetlands gone?

Water hyacinth & degradation

Water pollution & Dumping of wastes

Encroachment

Solution: Restoration of Water Bodies

- 210 waterbodies identified in Chennai; Greater Chennai Corporation initiative
- ***62 water bodies and 15 temple tanks*** taken up for restoration and rejuvenation under Chennai Smart City; additionally, Villivakkam Tank restoration
- Cost of Restoration of Water bodies ***Rs. 435.37 crores***; funded by ***Smart City- Rs. 59.59 crores.***
- Also done in ***partnership*** with civil society organisations, Corporate Social Responsibility funding from various companies and with environment impact assessment agencies
- ***Consultants and hydrologists*** were onboarded to prepare detailed reports depending on the topography, catchment area, water balance study, inter-connectivity of the lake, environmental screening and remedial measures.

Solution: Restoration of Water Bodies

Components in baseline study:

- Capture level of usage in past & present
- Assess level of encroachment
- Understanding soil & liquid pollution
- Hydrology & Hydro-geology
- Community perception

Restoration of Water Bodies – Temple Tanks

Components of Temple Tanks restoration:

- clearing out landfills
- removing excess earth/ silt
- clearing encroachments
- Increasing depth of Tank
- Providing RWH well
- Inter-connection with rooftop pipes from surrounding areas

Restoration of 15 Temple Tanks: In Images

PARASURAMESWARAR KOIL KULAM

EKAMBARESWARAR KOIL KULAM

Solution: Restoration of Water Bodies

Components of Water Bodies restoration:

- clearing out landfills
- removing excess earth/ silt
- clearing encroachments from water body areas
- preparing inlet drains
- construction of toe-wall in the lakes
- bund formations wherever required
- widening & deepening of lakes
- retrofitting with walkers' paths & children's play area, wherever suitable
- building bio-fences
- phased plantation

Restoration of Water Bodies: Different work components

Before

THAMARAIKULAM

Earth work

Restoration of Water Bodies: Different work components

Before

ANDARKUPPAM BURIAL GROUND POND

Bund Formation

Restoration of Water Bodies: In Images

Before

OMAKULAM

After

Restoration of Water Bodies: In Images

Kanniamman Koil Street Kulam
Zone - 2 Division - 16

Samiyar Kulam
Zone - 3 Division - 32

Key Impact


0.87 TMC
DIRECT VOLUME
RESTORED
4.35 TMC
ADDITIONAL
GROUNDWATER RECHARGE
RESTORATION BY
CHENNAI SMART CITY LIMITED
CAPACITY ASSESSED BY
C40 CITIES

Key Impact: Water Stored is Water Saved

- By implementation of this project, around ***1 TMC*** of additional water could be stored in ***210 water bodies covering an area of 969.69 acres***. 130 out of 210 completed.
- Wetland restoration leading to ***rejuvenation of natural ecosystem***- including return of aquatic birds and animals
- Increase in the average groundwater levels in Chennai- ***2.5 metres increase, as of North East Monsoon 2020***
- ***Creation of open community space-*** residents and walkers visiting for recreation and exercise
- Rebuilding supply channels through fixing nearby storm water drains; ***building city's climate resilience***


DAILY THANTHI (NEXT)
Date: 8 DEC 2020

Incessant rain pumps up groundwater level in Chennai

CHENNAI: The strong, incessant rain in November has improved the groundwater level in the city, with all 15 zones recording a rise in water table. Things have improved so much that the groundwater table at 14 zones rose by more than 1 metre, while some have gone beyond 2 metres. Overall, the city's groundwater level has increased by an average of 1.61 metres.

According to data from the Chennai Metropolitan Water Supply and Sewerage Board (Met ro Water), zones such as Thiru Vi Ka Nagar, Ambattur, Valasaravakkam and Alandur witnessed a rise of more than 2 metres.

Among the zones, Thiru Vi Ka Nagar registered the highest improvement, as the groundwater level in the zone in central Chennai rose by 2.86 metres. In October, the zone had groundwater at 3.22 metres. Just a month later, the same has increased to 2.36 metres in November.

At 1.70 metres, Anna Nagar zone has the shallowest groundwater level in October. Anna Nagar had the groundwater at a depth of 3.65 metres.

Among the other core city zones, Tondiarpet and Royapuram have groundwater at a depth of 4.61 metres and 4.89 metres respectively. Teynampet and Kodambakkam have groundwater at 2.74 metres and 3.59 metres.

The only exception to the substantial rise recorded by the city was Sholinganallur zone that registered a rise of only 0.54 metre.

To put this rise in perspective, the groundwater level had increased by only 0.44 meter at the beginning of the northeast monsoon in October when compared to the level recorded in September.

When asked, an official from the utility said the groundwater level increased not only due to monsoon rain but also because of the proper maintenance of rainwater harvesting structures and community wells.

The Metro Water has several observation wells (open wells) across the city to measure the groundwater levels (shallow aquifer) every month.

MONSOON EFFECT
Comparison of Chennai's groundwater levels between October and November

KK NAGAR

Tiruvottiyur, Manali, Madhavaram, Tondiarpet, Royapuram, Thiru Vi Ka Nagar, Ambattur, Anna Nagar, Teynampet, Kodambakkam, Valasaravakkam, Alandur, Adyar, Perungudi, Sholinganallur

OCT NOV

Replicability/Scalability: Joining hands with all stakeholders

- 62 water bodies with Smart City; however, Greater Chennai Corporation scaling up with 210 water bodies and more.
- Since the ***works are decentralized at zone level***, execution and maintenance becomes organized and replicable pan-city.
- ***64/210 ponds restored with the help of CSR*** from organisations such as CII and CREDAI
- Partnerships with civil society organisations such as ***Environment Foundation of India, Care Earth Trust, Rotary Club and C40 cities***

THANK YOU