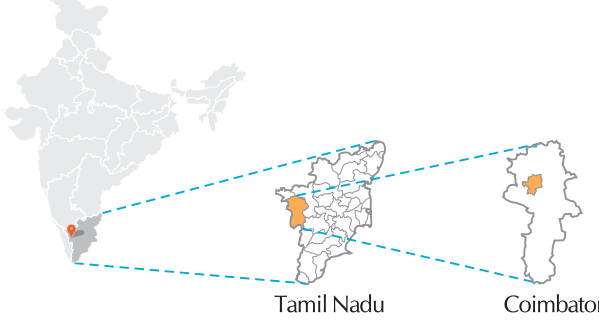
Consortium for DEWATS Dissemination **Society**

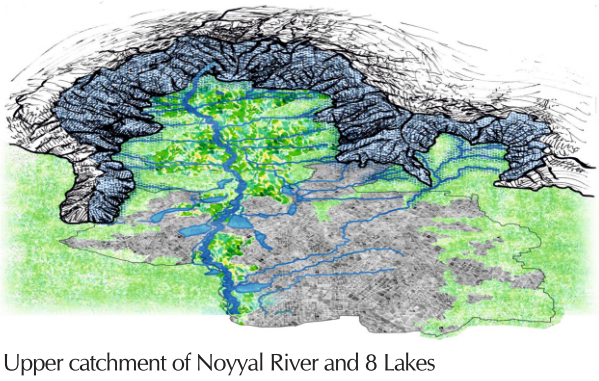
Eco-Restoration of Coimbatore's **8 Lakes**

Rejuvenating waterbodies, **Thriving** neighbourhoods

Key strategies proposed for Eco-restoration of Eight Lakes in Coimbatore City under the Coimbatore Smart City Proposal

8 LAKES
PERIYAKULAM
SINGANALLUR
VALANKULAM
NARASAMPATHY
KUMARASWAMY
KRISHNAMPATHI
SELVAMPATHY
SELVACHINTAMANI





Upper catchment of Noyyal River and 8 Lakes

Project Background

Coimbatore is the second largest city in Tamil Nadu, India. The city is an industrial hub which lacks green spaces. The smart city project in Coimbatore envisages to redevelop, revitalize and restore eight lakes of the city connected to Noyyal River. It aims to create vibrant neighborhoods with recreational facilities around the lake without disturbing the ecology of the lake and making it environmentally sustainable.

Project Objectives

- Redevelop and restore eight lakes identified under Area Based Development (ABD) area of Coimbatore Smart city
- Revitalize the lake and surrounding areas into active and vibrant spaces around the lakes
- Improve access to the lakes from surround neighborhoods by providing safe and convenient mobility corridors for pedestrians and cyclist
- Protect and enhance biodiversity by introducing native flora and fauna in and around the lake

Urban Placemaking around lakes

Water Management Plan

Assessment of **Environmental & Social Issues**

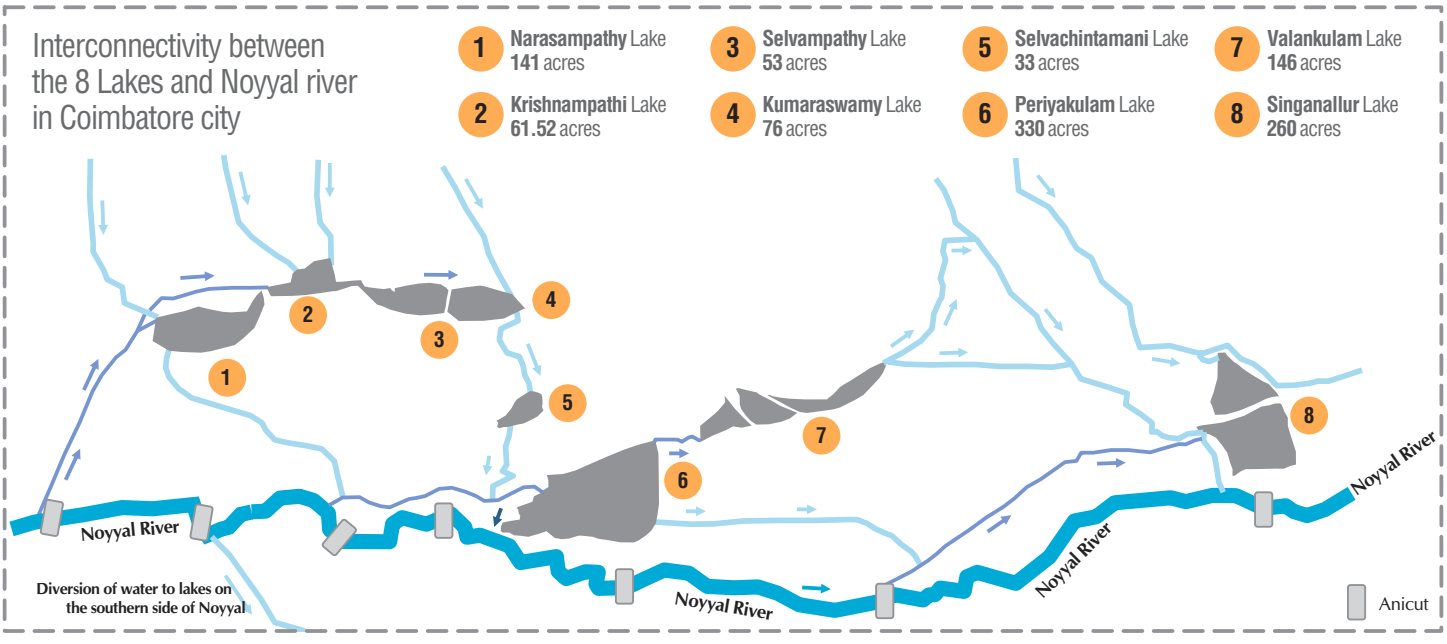
Financial and **Institutional** Framework

Scope of work

CDD Society led the planning of wastewater treatment & water infrastructure, Environmental and social impact assessment including biodiversity assessment. CDD's role also included development of financial and institutional framework for implementation and Operation and Maintenance (O&M).

Published by CDD Society & CASS

Project Area in Coimbatore City



Problem Statement

58 MLD of wastewater inflow in 8 lakes

Solid waste accumulated in drains and lakes

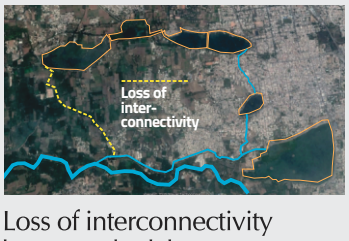
Weed infestation in lakes
Reduced storage volume due to silting

Encroachment of the lake area

Damaged hydraulic structures

Drying of lakes

Decreased biodiversity



Loss of interconnectivity between the lakes

Lake Restoration Strategies

Wastewater Treatment

Nature based solutions with respect to quality and quantity of wastewater inflow

- Treatment at 'source of pollution'
- Treatment along the drains using meandering arrangements and wetlands
- Treatment by tapping wastewater at mouth of inlet
- Tertiary treatment inside the lake using floating and free water surface wetlands.

Biodiversity Enhancement

- Introducing indigenous flora and fauna
- Creating active edges by stratification of bunds
- Creating designated biodiversity zones within the lake - no go zone
- Creating Bird Islands

Data collected and Investigations carried out



- Quality and Quantity of Wastewater Inflow
- Catchment Area and Flood Management Analysis
- Condition of Hydraulic Structures Water Balance Analysis
- Topography and Bathymetry Survey
- Sewer and Stormwater Network Analysis
- Biodiversity Mapping
- Sediment Quality of lake bed
- Environment and Social Impact Assessment
- Historical Data Analysis

Proposed Water & Wastewater Management Plan in Periyakulam Lake

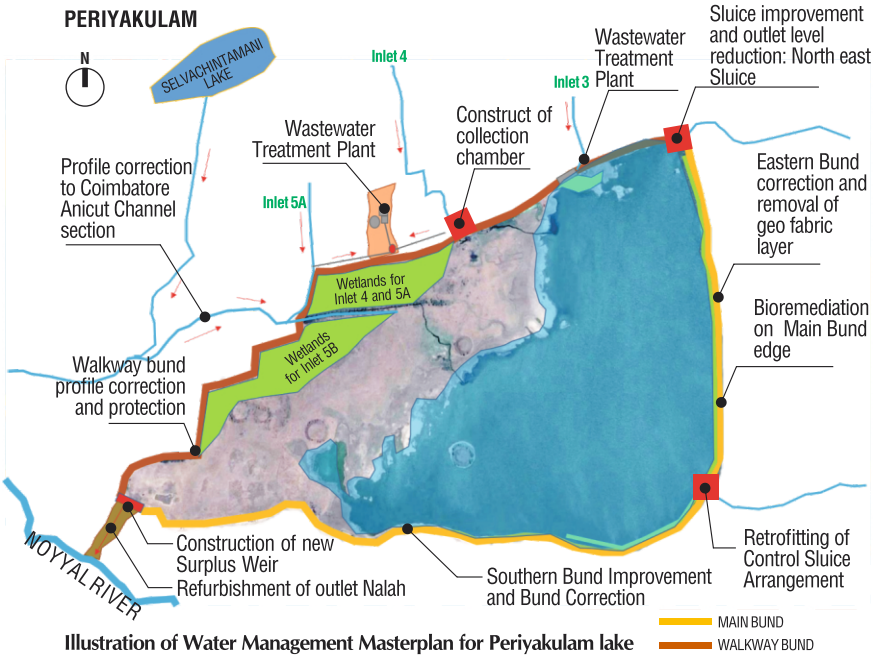


Illustration of Water Management Masterplan for Periyakulam lake

Problems and Challenges

- 5 inlets with 12 MLD of wastewater inflow with varying pollutant load
- Damaged surplus weir and non functional sluice gate
- Encroached inlet channels and Eroded Bunds
- Catchment flooding issues

Solutions

- Decentralized Wastewater treatment at the mouth of the inlet
- Free water surface wetlands as tertiary treatment
- Refurbishment reconstruction of sluice gate and surplus weir
- Bund strengthening and profiling
- Profile correction of drains

Problems were identified similarly in all of the other lakes and solutions were provided based on key strategies presented.

Urban Placemaking

- Promenades, parks, walkways, cycle tracks, community center are proposed in around the lake

Desilting & Deweeding

- Judicious desilting (only if lake storage is compromised and contaminants present)
- Spot dredging
- Combination of mechanical and manual desilting proposed

Water Infrastructure

- Refurbishment of hydraulic structures catering to current hydrological changes of catchment
- Improving the interconnectivity between the lake system

Environmental & Social Impact Assessment

Environmental and Social (E&S) Impact Assessment was carried out to evaluate if the proposed project was compliant with Tamil Nadu State Government's E&S Framework, World Bank E&S Safeguards and the National and State level E&S Policies.

Environment and social management plan was developed to mitigate and manahe E&S issues.It also provided practices for management of - general waste, construction activities, drainagechannels, landscaping, disposal of silt and weeds.

Funds Allocated

For Implementation (**Capex**)
INR 353 crores (50M USD)

For Operations (**Opex**)
INR 22 crores/annum (3.14M USD)

Duration of Project

Planning and DPR
1.5 years

Implementation
upto 3 years

Status as of
July 2019

Restoration works have started in Periyakulam, Selvachintamani and Valankulam Lakes

Proposed Institutional Setup

The management of the 8 Lakes Project is a complex function; the assets created under the eco-restoration project may fail without focused and continuous management. Hence, a dedicated institution, Coimbatore Lakes & Catchment Management Authority (CLCMA) is proposed to be created for O&M of the project so that all the benefits are sustained for a long time.

Proposed Financial Framework

Funds for the implementation of the project are proposed to be sourced from the Smart City Fund in convergence with funding from various other existing schemes/programs as well as private sector financing (Public Private Partnerships - PPPs). Revenue Model were worked out for sustainability of O&M activities.

Promenade construction in Periyakulam Lake

Key Expected Outcomes

- Protection of the lake and wetland associated habitats
- Improvement in water quality of the lakes
- Improved water storage
- Enhanced biodiversity
- Flood management
- Microclimate improvement
- Tourism development
- Groundwater recharge
- Improved lake shore with afforestation
- Increased pubic awareness and participation
- Employment creation
- Increased convenience for pedestrians and cyclists

Project Consortium

Project Lead:
OASIS DESIGNS INC.

Consortium Partner:
Consortium for DEWATS Dissemination Society

Sub Consultants of CDD Society:
ALCON

Independent Consultants :
- Water Resources Expert
- Environmental Expert
- Biodiversity Expert

Client

COIMBATORE Smart city

CDD SOCIETY
Survey No.205 ,Opp. Beedi Workers Colony, Kommaghatta Road, Bandemath,
Kengeri Satellite Town, Bengaluru, Karnataka 560 060 E : bangalore@cddindia.org
P : +91 80 2848 6700/ 2194/ 2274/ 2262 | F : +91 80 2848 2144 |

Follow us on
@cddsociety
/CDDSocietyIndia
@CDDSociety