

# Eco-restoration of IDL Lake, Kukatpally, Hyderabad



Plan Submitted by

GOCL Corporation Limited & Hinduja Foundation

with technical support from SaciWATERS





Lakes are highly important part of urban ecosystems. They play a significant role in providing environmental, social, and economic, aesthetic, and recreational services. These urban waterbodies at large also help in improving Climate Change resilience of the cities in three significant area i.e., regulating groundwater, accommodating floodwater and cooling cities.

The historical city of Hyderabad, the capital of the Indian state of Telangana was once nicknamed as the city of lakes. True to its name, unofficial oral accounts suggests that the city was once dotted with 3000 – 7000 wetlands (both natural and man-made). As of the year 2010, the Hyderabad Urban Development Authority (HUDA) has a list of 500 wetlands under its jurisdiction. However, by the year 2018, the list was shrunk to just 169, with each having a water surface area of more than 10 hectares. These major wetlands of the city have been shrunk in their area and capacity over time due to various anthropogenic activities.

***“To create water secure and climate resilient community and ecosystem”***

Similar to the other lakes of Hyderabad, once a healthy multiple-use ecosystem, the IDL Lake is now facing threat from all directions, be it encroachments or direct discharge of untreated liquid waste and dumping of solid waste. The lake over time has developed hypereutrophic conditions because of the constant dumping of sewage in it.

This highly degraded lake ecosystem calls for urgent action to restore it to its past glory and to create water secure and climate resilient community and ecosystem.





## IDL Lake Kukatpally, Hyderabad

Rangadamuni or Ranganayaka Cheruvu popularly known as IDL Lake, is located adjacent to the GOCL Corporation Limited (GOCL) facility, at Kukatpally, Hyderabad.



**Toxic Algal blooms in the lake**

- The IDL Lake, a human-made freshwater body appears to be hyper-eutrophic with deteriorated water quality indicated by majority of area covered with a carapace of aquatic weeds and toxic algal blooms, and dead zones.
- Once a multiple-use healthy lake ecosystem, it has now turned into a green colored and stinking cesspool with untreated liquid waste solid directly released into the lake.
- The lake is abused with heavy solid waste dumping around it. One corner of the lake is accessible to passer-by's and has developed into a grey spot for dumping solid waste in the region.
- The area of the lake, originally 33 acres has reduced to 21 acres due to encroachments.



**Direct dumping of solid waste**

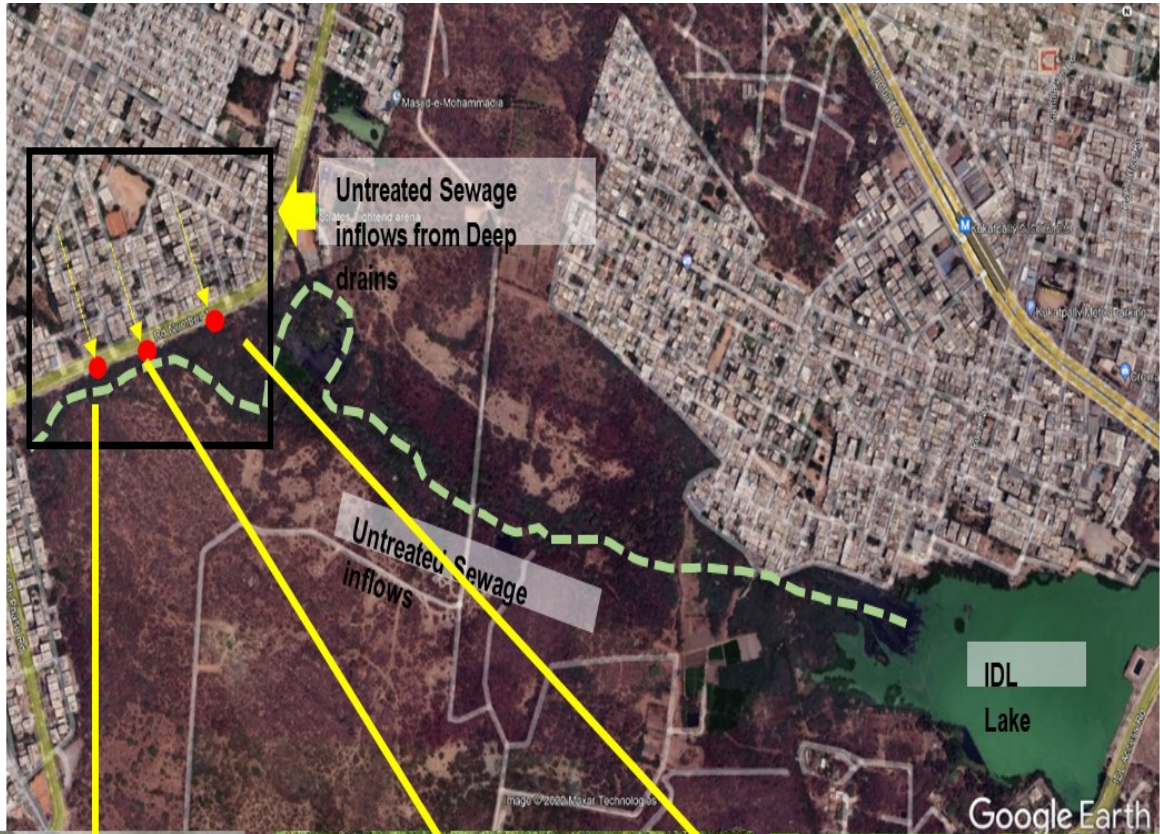


**Encroachments on lakebed**





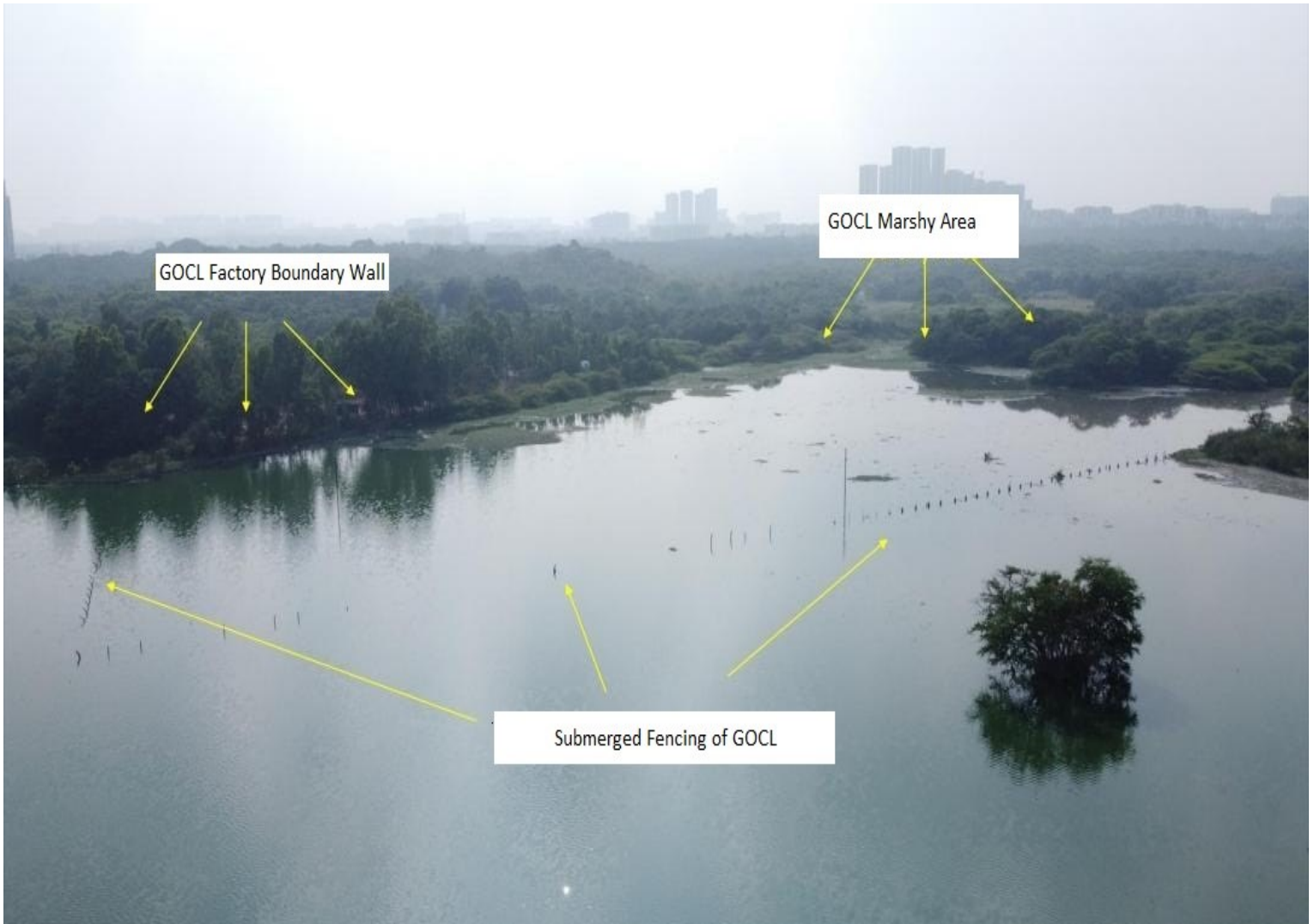




**Sewage Inflows**

Note: Not-to-scale





With heavy inflows of untreated sewage and natural rainwater, the lake in the recent past has been observed to be flooding the IDL site throughout the year and swelling towards few workshops of the company. This is a cause for serious safety concerns.

## Key Environmental Challenges

- Surface and ground water quality deterioration due to untreated liquid and solid waste, posing environmental health hazards to the communities and ecosystems
- Unnatural changes in hydrological features due to heavy inflow of untreated liquid waste, blocked natural outlets and encroachments.
- Loss of biodiversity and Ecosystem Services due to heavy pollution

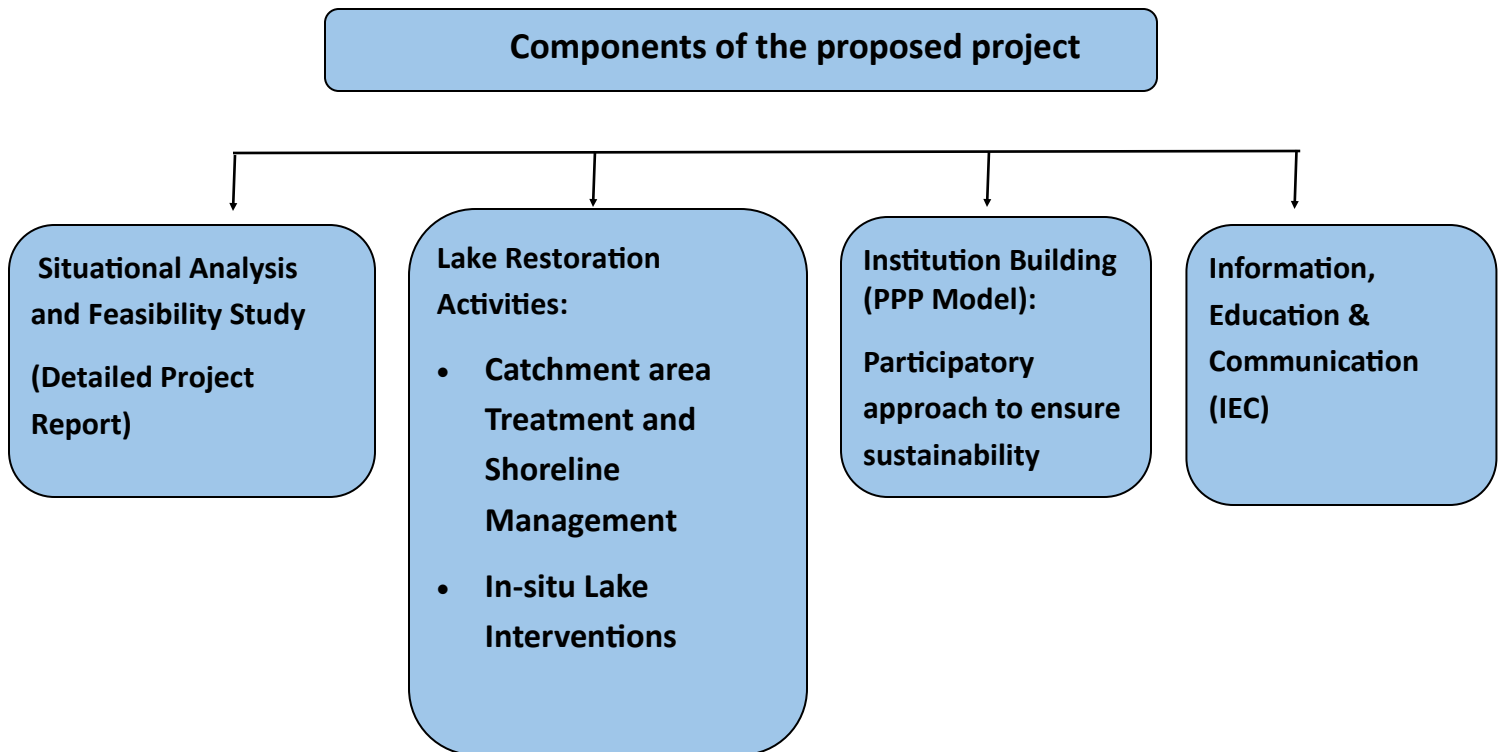




## Proposed IDL lake eco-restoration project plan

The highly degraded IDL lake ecosystem calls for urgent action to restore it to its past glory and to create water secure and climate resilient community and ecosystem.

“The aim of the proposed nature-based and integrated IDL lake development and conservation plan is to restore its ecosystem services to enhance multiple benefits for the local communities, its biodiversity and local climate change resilience, and the sustainable development as a whole”.







Note: Not-to-scale





# 1. Situational Analysis and Feasibility Study:

## Contents:

Lake area and morphology, Catchment area analysis, Lake and Catchment area Change Mapping, Land use and Land use change mapping, Runoff analysis

Hydrological studies (inflow & outflow of water) and Groundwater

Water Quality Assessments

Sediment Analysis

Biodiversity Assessment

Ecosystem services provided by the lake

Assessment and quantification of pollution loading

Stakeholders and Institutional Analysis

Identification of the nature-based and other most appropriate solutions, best management practices to address the root causes of the lake degradation.

Individual interviews /Focused group discussions and a stakeholders' workshop

Detailed Restoration and Lake Environmental Management and Monitoring Plan of the IDL Lake



Source: SaciWATERS

Prior to the commencement of any in-situ and ex-situ interventions, a situational analysis and feasibility study is being conducted. The objectives of the situational analysis and feasibility study are to:

- Understand the present status of the lake ecosystem, its catchment, and socio-economic & institutional environment (baseline survey) ;
- Identify the root causes of lake ecosystem degradation and their magnitude; and
- Develop the best feasible solutions (preferably nature based) and integrated and participatory approaches to address the problems.

A **Detailed Project Report (DPR)** will be submitted at the end of the study. The DPR will contain comprehensive lake restoration, environmental management and monitoring through participatory approach.





## 2. Envisaged Lake Restoration Activities



### 2.1 Catchment area Treatment and Shoreline Management



- i) Diversion of untreated liquid waste
- ii) Construction of Sewage Treatment Plants (STPs)
- iii) Promoting and establishing systems for Wastewater reclamation through PPP model
- iv) Maintenance of Inlet points and providing silt and garbage traps at the inlets
- v) Solid waste management
- vi) Developing shoreline vegetative conservation buffers (vegetative filter strips) to prevent nonpoint pollution source and to provide undisturbed vegetative habitat along the shoreline for breeding and feeding for birds and other aquatic species.
- vii) Butterfly garden and green lake IEC Centre at the waterfront
- viii) Walkway and IEC boards and signages - Regular cleaning of Immersion tank
- ix) Regular cleaning of outlet points
- x) Removal of encroachments
- xi) Providing fencing
- xii) Regular cleaning of Immersion tank





## 2. Envisaged Lake Restoration Activities



### 2.2 In-situ Lake Interventions to improve water quality; restore aquatic habitat; and increase water-holding capacity

- i) Dredging and desilting
- ii) Removal of solid waste
- iii) Floating treatment wetlands using Phytoremediation techniques
- iv) Aeration of lake water
- v) Artificial islands for bird fauna
- vi) Controlling growth of aquatic macrophytes



### 3. Institution Building (PPP Model)

### 4. Information, Education & Communication (IEC)



### 3. Institution Building (PPP Model):

#### 3.1 Lake conservation and management committee (A multistakeholder platform)

- Sustainability of conservation measures requires active participation from all the stakeholders i.e. local communities, civil societies, regulatory and administrative bodies, corporates, research institutes etc.

#### 3.2 Ecotourism development through PPP

### 4. Information, Education & Communication (IEC):

Awareness campaigns, Lake interpretation centre, Educational Field trips, Research



## Opportunities

- **Developing a pilot project on water reclamation:**

With huge amount of sewage inflows being diverted into IDL site and lake, it begs for necessary holistic intervention which may require a multi stakeholder approach to help water reclamation i.e., divert the flows, treat wastewater, and put water to necessary use.

Urban areas in India lack proper reuse policies of treat wastewater or similar examples, this site can possibly present a case for 'water reclamation pilot' within the city where water can be diverted, treated, and reused for various urban purposes. For any such proposal diversion of sewage inflows is necessary.

- **Development of waterfront as a true eco-tourism site with careful planning:**

The new IDL access road in the recent past has been developed as a dual space to accommodate traffic flow and providing space for food trucks in the evening. This dual space is a tactical measure which can be future developed into a place making initiative. In many places across world dualism in space utilization has been accepted as a success story and equitable urban planning/ design example. IDL Lake offers already existing crowd created space. With proper planning and design interventions, the IDL access road can astatically uplift the lake and can crate space for public interaction. This can be an incentive for local populations to preserve the lake ecosystem.





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