Lake Study in the Peri-Urban extent of Hyderabad

Baseline Assessment of physical condition and stakeholder mapping

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Submitted To:

SaciWATERs

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This study on the urban and peri-urban water bodies of Hyderabad focuses on the existing condition of lakes all of which fall in the outskirts of the urban core of the city of Hyderabad (area outside the jurisdiction of the erstwhile Municipal Corporation of Hyderabad, but falling within this existing boundary of Greater Hyderabad Municipal Corporation).

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1. Background of Study

The city of Hyderabad has been reported by various credible sources to have anywhere between 3000 to 7000 lakes and kuntas (a kunta may be synonymous to a pond-like tank feature). However, this number is dwindling presently to be anything from 70 to 500 (Goode, Say your goodbyes to Hyderabad lakes, 2016).

The unregulated development of urban real estate that has seen rampant civil construction activities around the city and the corresponding severe demand on water resources has affected various urban watersheds from replenishing low lying tanks and lake beds.

Keeping in view of this, SaciWATERs (South Asia Consortium for Interdisciplinary Water Resources Studies) has commissioned and overseen this study to be conducted as a need to understand the nature of how these developments interact with the inland surface water bodies of the city.

2. Scope for this study

Figure 1: The above image is an illustration developed at the World Resources Institute showing the Ramanthapur Cheruvu[1] on the left and Gurram Cheruvu[2] on the right (Goode, 2021)

The above image provides an account of physical change taking place temporally for two lakes in the city of Hyderabad. While this is only a specific case of two lakes, such is the situation prevailing across most inland water bodies in the city of Hyderabad.

At a regulatory level, there are bye-laws which limit construction activities within the lake's immediate catchment. However, the actual prevailing scenario is quite different from desired. As such, this study on the urban and peri-urban water bodies of Hyderabad focuses on the existing condition of lakes all of which fall in the outskirts of the urban core of the city of Hyderabad (area outside the jurisdiction of the erstwhile Municipal Corporation of Hyderabad).

Over time, the unregulated development of urban real estate in the city that has seen rampant civil construction activities around the city (particularly outside the original core of the city) and the corresponding severe demand on water resources has affected various urban watersheds from replenishing low lying tanks and lake beds. This study aims to:

- Document the existing nature of physical developments around a selected list of inland surface water bodies that have been listed out by the Greater Hyderabad Municipal

[1] The Ramanthapur Cheruvu on the left shrunk by over 83% — from 1.2 lakh sq m to a measly 20,000 sq m.

[2] The Gurram Cheruvu lake on the right shrunk by almost 55% — from 3.3 lakh sq m to 1.5 lakh sq m in this perio d.

Corporation (GHMC) as the priority water bodies that need to be managed. In doing so, the study will document the type and heterogeneity of land uses, challenges of lake governance and management, and accordingly classify water bodies within a proposed framework for protection of transitioning urban and peri-urban water bodies.

- The study will also map the stakeholders associated with the land use around the lakes in order to gauge the level of community and government participation required for management of in the region.

3. Study Rationale

The main rationale that guides the premise of this study is to gauge the nature of stakeholders from the kind of physical developments visible around inland surface water bodies. For instance, a single gated community with 20 different independent households will need to be differently gauged from two apartment complexes that have 10 households each. While the number of residents may be similar, the number of institutional entities involved is different (one in the case of the gated community and two resident welfare associations across the two apartment complexes). As such, in mapping the nature of physical developments, the study will provide an understanding on the physical developments that require regulation, but more importantly, it will help classify the nature of stakeholders around the lakes. This is crucial to assign a mandate for the stakeholders who could potential participate in the maintenance of the lake site. In addition to this, mapping stakeholders will help towards the following:

- Stakeholders living in these settlements require a transfer of shared ownership to be developed for lake maintenance (which may entail cleaning activities and supporting with biodiversity management)
- Improving Interactions with lake will also require lake beautification activities by building place-making infrastructure, that would require buy-in from such stakeholders

4. Sites selected for Study

The lakes selected within this study fall in the Serilingampally mandal (which falls in the outer peri-urban fringe of the Greater Hyderabad Municipal Corporation area). These lakes have been identified in consensus with the Chief City Planner of Greater Hyderabad Municipal Corporation (GHMC) as the priority lakes which the city officials have been looking to rejuvenate.

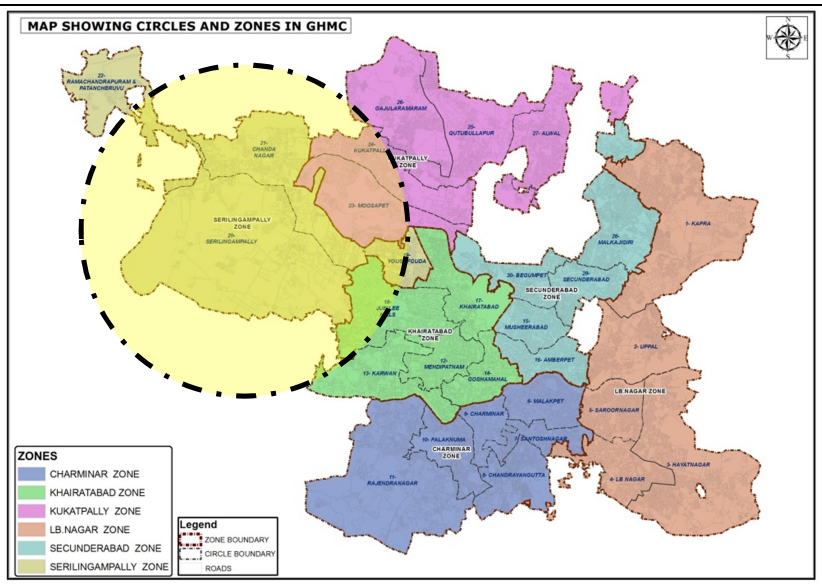


Figure 2: Map showing zones and circles of GHMC (Greater Hyderabad Municipal Corporation)

Table 1: Like of Lakes selected for the study

S.No.	Name of the Tanks	Village	Mandal
1.	**Mallai Kunta**	Chandanagar	Serilingampally
2.	**Chinna Pedda Cheruvu**	Goopanpalli	Serilingampally
3.	**Nayanamma Kunta (Basapalli)**	Hafeezpet	Serilingampally
4.	**Thouthu Kunta**	Khajaguda	Serilingampally
5.	**Khanamet Lake**	Khanamet	Serilingampally
6.	**Kothacheruvu (Novatel Lake)**	Khanamet	Serilingampally
7.	**Kondapur Forest Lake**	Kothaguda	Serilingampally
8.	**Regula Kunta**	Miyapur	Serilingampally
9.	**Meedi Kunta**	Hafeezpet	Serilingampally
10.	**Thammidi Kunta**	Khanamet	Serilingampally
11.	**Gopi Cheruvu**	Lingampalli	Serilingampally
12.	**Chakalavani Cheruvu**	Lingampalli	Serilingampally
13.	**Patel Cheruvu**	Madeenaguda	Serilingampally
14.	**Bachu Kunta**	Chandanagar	Serilingampally
15.	**Erla Cheruvu**	Madeenaguda	Serilingampally
16.	**Nallagandla Cheruvu**	Nallagandla	Serilingampally
17.	**Kaidamma Kunta**	Hafeezpet	Serilingampally
18.	**Ramasamudram Cheruvu/ Kalapuram Basti**	Miyapur	Serilingampally
19.	**Ramamma Kunta (Dr. Y.S.R. Tourism College)**	Gachibowli	Serilingampally
20.	**Gosai Kunta**	Goopanpalli	Serilingampally
21.	**Edgavani Kunta**	Goopanpalli	Serilingampally
22.	**Komati Kunta**	Goopanpalli	Serilingampally

5. Baseline Assessment at Study Sites

5.1 Tavtoni Kunta

Figure 3: Different views of Tavtoni Kunta

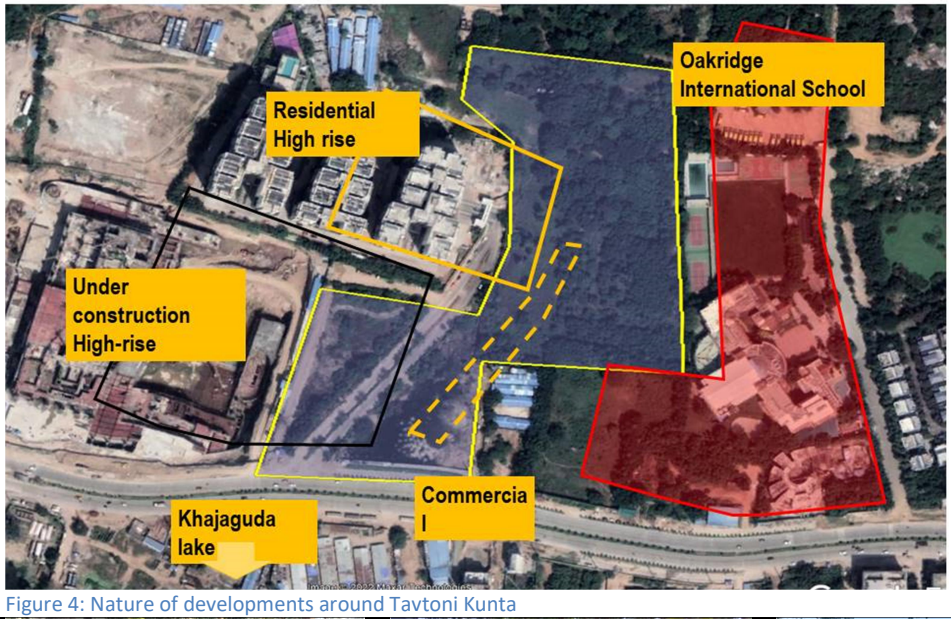


Figure 4: Nature of developments around Tavtoni Kunta

Figure 5: Illustrations captured around Tavtoni Lake

Table 2: Tavtoni Lake Profile

Basic Info	
Area	**11.9 Acers (4.82 Hectares)**
Land use	**Mixed (Residential and commercial)**
Existing inlet	**No**
CPCB Data	**Not Available**
Existing Lake management infrastructure	**None**
Access to lake	**No access**
Available water	**None**
Visible water quality	**NA**
Visible Eutrophication	**NA**
Shore line	**None**
Bund	**Yes (Currently a road)**
Full tank level map	**Available (mapped by HMDA)**

Tavtoni lake is currently dry and is surrounded by existing and upcoming developments. The inlets of the lakes are not visible but a small sewer drain passes through the lake-bed and pools near the outlet. An access road to a nearby residential cuts the lake bed into two areas. The lake drains into Khajaguda Lake just across the road that acts as bund of the lake.

5.2 Wipro Lake

Figure 6: Different views of Wipro Lake

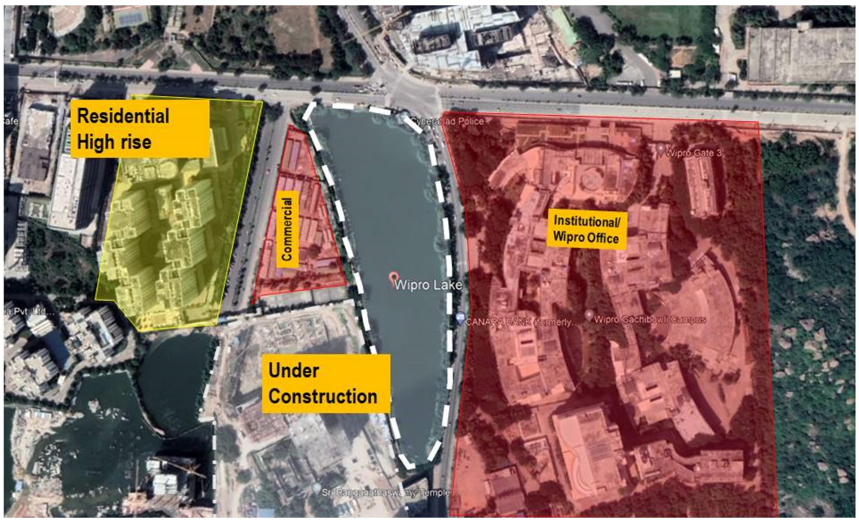


Figure 7: Nature of developments around Wipro Lake

Table 3: Wipro Lake Profile

Basic Info	
Area	**8.57 Acers (3.47 Hectares)**
Land use	**Mixed (Residential and commercial)**
Existing inlet	**Not marked**
CPCB Data	**Not Available**
Existing Lake management infrastructure	**Yes –The lake has been srovided support under CSR activities**
Access to lake	**Access available but locked**
Available water	**Filled**
Visible water quality	**Water is green, no floating sewage or pollution visible**
Visible Eutrophication	**No**
Shore line	**Yes, Kutch walking rack available**
Bund	**Yes (Currently a road)**

Wipro lake is currently filled and is in between the financial district of the city with mix of both residential and commercial activities along the edges of the lake. The lake has a walking lane, and it is gated and with minimal visible pollution.

Figure 8: Illustrations captured around Wipro Lake

5.3 Meedi Kunta Lake

Figure 9: Different views of Meedi Kunta Lake

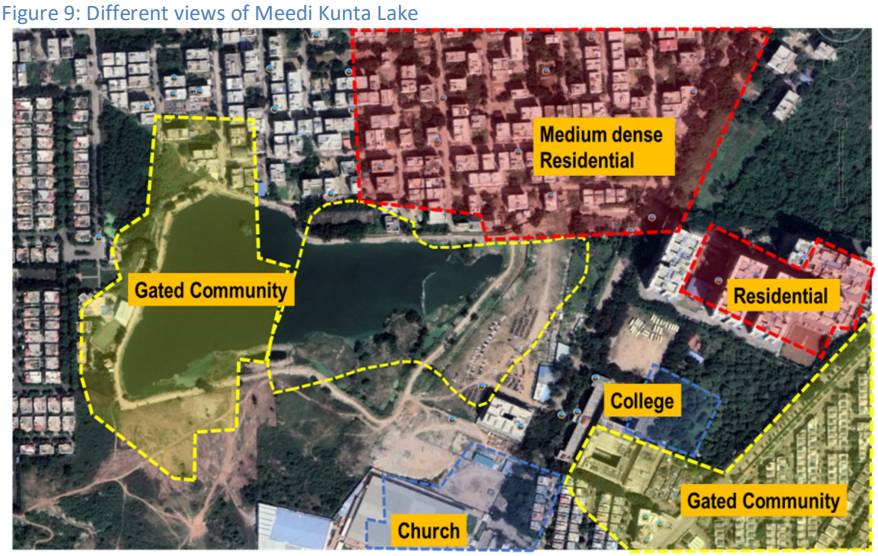


Figure 10: Nature of developments around Meedi Kunta Lake

Table 4: Meedi Kunta Lake Profile

Basic Info	
Area	**16.5 Acers (6.67 Hectares)**
Land use	**Residential**
Existing inlet	**Multiple inlets spotted**
CPCB Data	**Available from July 2020**
Existing Lake management infrastructure	**Yes, elevated bund**
Access to lake	**Yes –but very difficult access**
Available water	**Yes**
Visible water quality	**Minimal**
Visible Eutrophication	**Minimal**
Shore line	**Shoreline under transition**
Bund	**Yes**

Figure 11: Illustrations captured around Meedi Kunta Lake

Medium sized lake linked to Khaidamma kunta lake with a gated community on two sides of the lake. Medium dense residential community to one end and vacant land under transition on the other. The lake has been cleaned and maintained well. Source of this effort is unknown. Though the lake is in a good condition, accessing the lake is tough due to lack of process access to the lake.

5.4 Gosai Kunta Lake

Figure 12: Different views of Gosai Kunta Lake

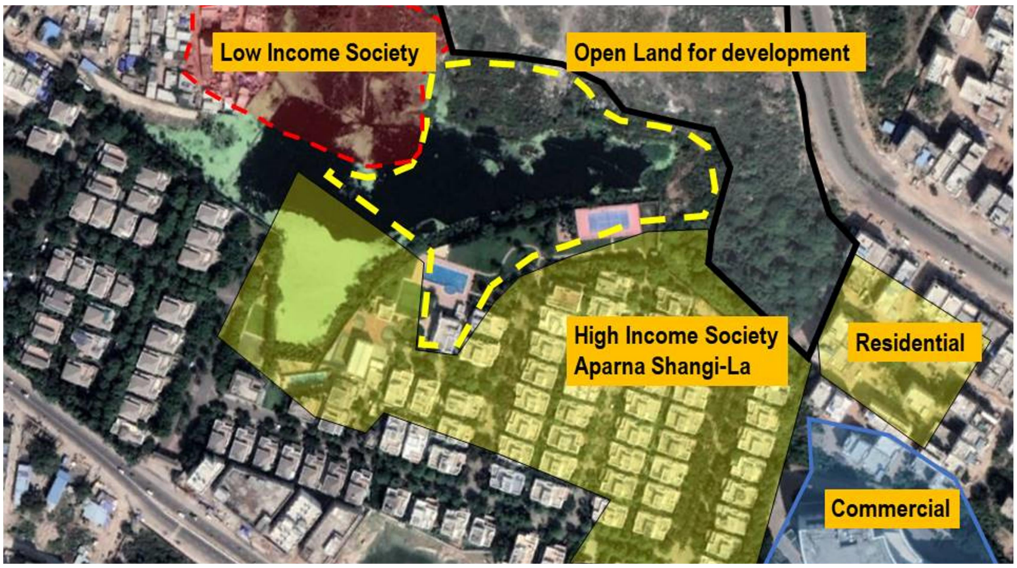


Figure 13: Nature of developments around Gosai Kunta Lake


Figure 14: Illustrations captured around Gosai Kunta Lake

Gosai Lake has been just adjacent to Aparna Shagri-LA society with no proper access. The only way to access the lake is from low income community behind the Sri Sai Housing colony. Untreated sewage has been identified entering the lake from the community and heavy eutrophication has been spotted. Active bubbling and patches of oxidation have been spotted in the lake. The shoreline is complexly filled with construction waste barring any access to the lake.

5.5 Komati Kunta Lake

Figure 15: Different views of Komati Kunta Lake

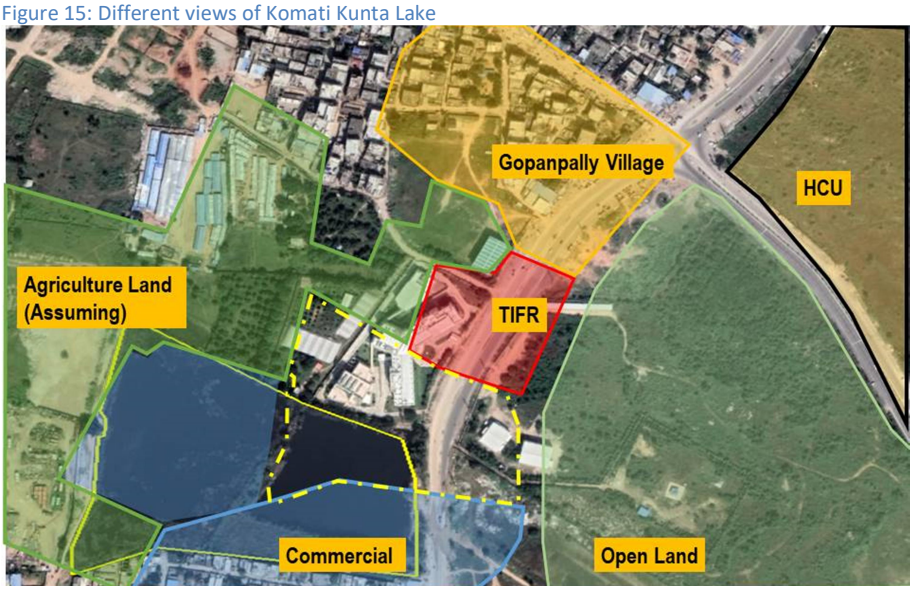


Figure 16: Nature of developments around Komati Kunta Lake

Table 5: Komati Kunta Lake Profile

Basic Info	
Area	**12.9 Acers (5.23 Hectares)**
Land use	**Mixed (Institutional & Commercial)**
Existing inlet	**No**
CPCB Data	**Available June 2020 & MARCH – May 2021**
Existing Lake management infrastructure	**No**
Access to lake	**The lake is currently accessible from the highway**
Available water	**Filled**
Visible water quality	**Very minimal**
Visible Eutrophication	**No**
Shore line	**None – Natural shoreline eroding with increasing developments around the lake**
Bund	**None identified**

Figure 17: Illustrations captured around Komati Kunta Lake

Komati Kunta is adjacent to Tata Institute of Fundamental Research and surrounded with commercial establishments. No visible pollution is seen near the lake. Developments around the lake are yet to come up. On the other side of the lake is HCU campus which acts as buffer to the lake. Land behind the lake is predominantly agriculture and plotting for developments has been identified.

5.6 Edlagavani Kunta Lake

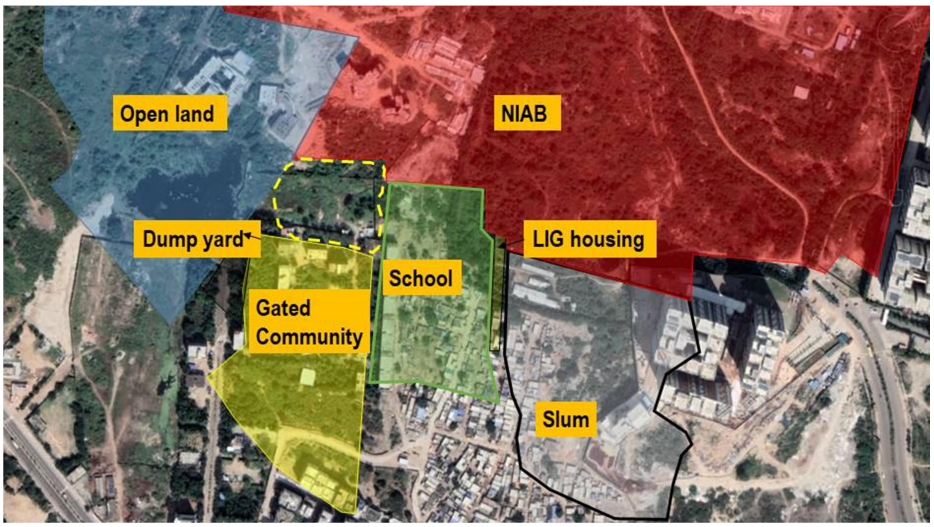


Figure 18: Nature of developments around Edlagavani Kunta Lake

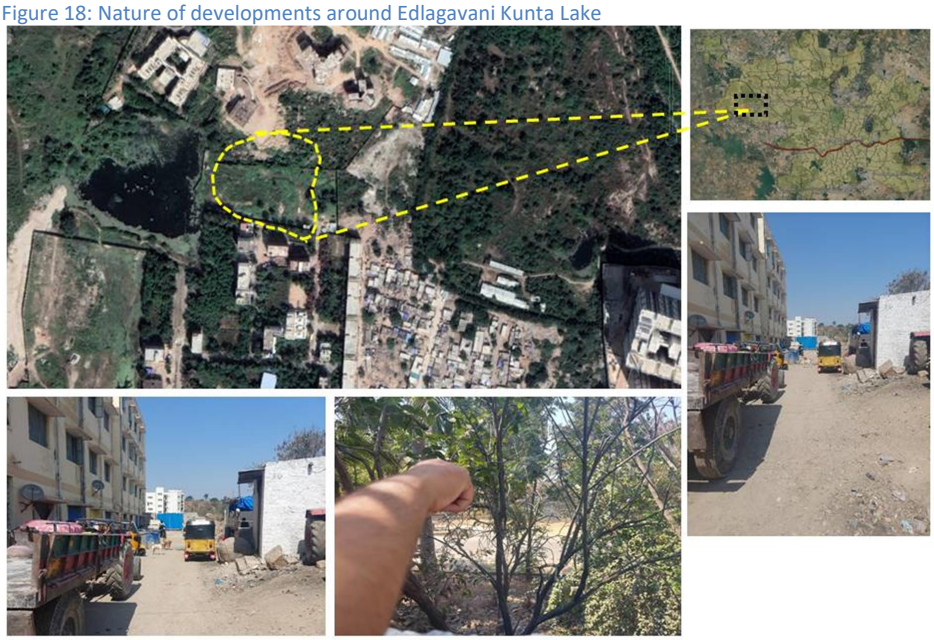


Figure 19: Different views of Edlagavani Kunta Lake

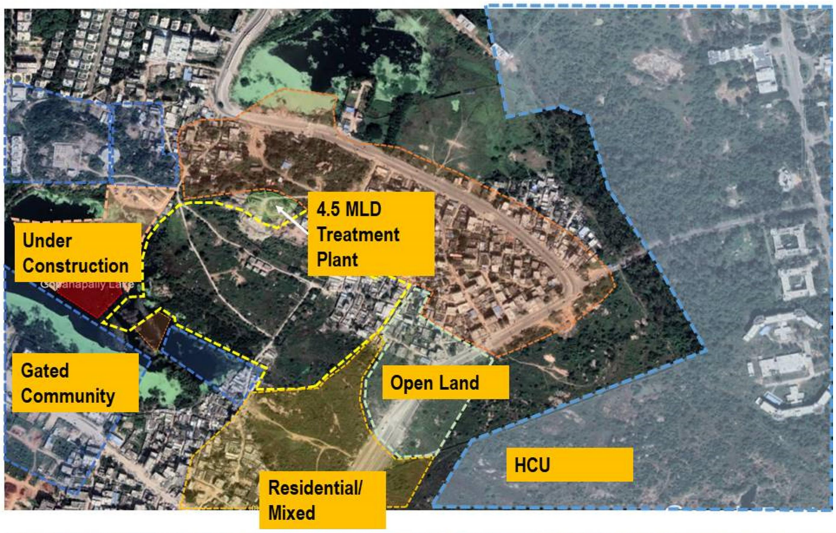
Table 6: Edlagavani Kunta Lake Profile

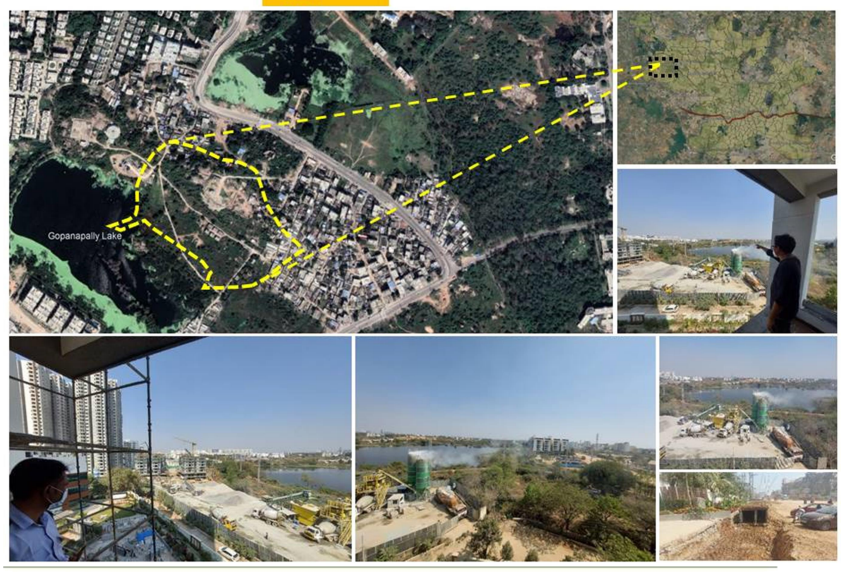
Basic Info	
Area	**3.76 Acers (1.52 Hectares)**
Land use	**Mixed (Institutional & Residential)**
Existing inlet	**None marked**
CPCB Data	**Not Available**
Existing Lake management infrastructure	**No**
Access to lake	**The lake is completely blocked from access from all sides.**
Available water	**We could not access the lake to define the same.**
Visible water quality	**No data**
Visible Eutrophication	**No Data**
Shore line	**Shoreline is totally blocked and not accessible**
Bund	**No Data**

Figure 20: Illustrations captured around Edlagavani Kunta Lake

The Kunta is completely surrounded and has no access we could find. Large construction activity has blocked the access. So not much observations could be deducted from the current lake.

5.7 Chinna Pedda Lake – also called Gopppanpally Lake





Basic Info	
Area	**28.5 Acers (11.6 Hectares)**
Land use	**Mixed (Institutional & Residential)**
Existing inlet	**Multiple**
CPCB Data	**Not Available**
Existing Lake management infrastructure	**Yes – 4.5 MLD treatment facility**
Access to lake	**Access still available but in few places blocked by gated communities.**
Available water	**Moderate, with visible pollution**
Visible water quality	**Moderate**
Visible Eutrophication	**In few patches**
Shore line	**Partially accessible and can be restored**
Bund	**No data available**

Lake is in process of degradation, being surrounded by gated communities. This is a massive lake and has a mixed land use dominated by residential use. The lake is close to HCU camps which allows sharing the ecological spaces of the same and is close to Komati Kunta. Lakes in HCU and Komati Kunta and the current lake can be developed into interconnected wetlands (if the geography is feasible) .

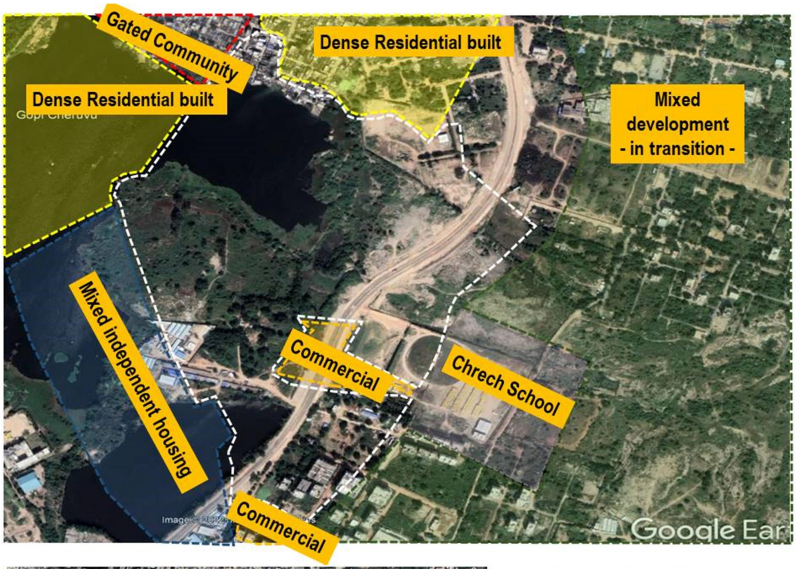
5.8 Nallagandla Lake

Basic Info	
Area	**91.3 Acers (36.9 Hectares)**
Land use	**Mixed (Institutional & Residential)**
Existing inlet	**Multiple**
CPCB Data	**Available for Jan 2020 and few other months**
Existing Lake management infrastructure	**Bund road**
Access to lake	**Yes –Available**
Available water	**Yes to its brim, till Full tank Level (in Feb)**
Visible water quality	**Polluted**
Visible Eutrophication	**Yes along the edges**
Shore line	**Fast changes along the bund**
Bund	**Yes**



Second biggest lake from the list, The lake bed is filled with high rise residential projects, The building are so tall that they hit the aquifer for their foundations and are currently draining the water into the lake. The lake is in a fast degradation state with edges covered with hyacinth. A very important resource and can be taken up for rejuvenation may be once we have implement one example. This lake also is very close to other lakes (Gopanpally, Komati, Lakes in HCU, Gopi Lake) forming a interconnected wetland zone.

5.9 Gopi Lake



Basic Info	
Area	**144 Acers (58.3 Hectares)**
Land use	**Mixed (Commercial & Residential)**
Existing inlet	**Multiple**
CPCB Data	**Available for Jan 2020 and few other months**
Existing Lake management infrastructure	**Bund road**
Access to lake	**Yes –Available**
Available water	**Yes to its brim, till Full tank Level (in Feb)**
Visible water quality	**Polluted**
Visible Eutrophication	**Yes along the edges**
Shore line	**Fast changes along the bund**
Bund	**Yes**

The biggest lake from the list, The lake bed is surrounded with Middle income and low income housing built. The lake is accessible from two sides. One of the main access to the lake is Road no 9 of Serlingamaplly Zone and land adjacent to the road is under the transition process from vacant lands to built up spaces. Landuse towards the bund has high dense characters and all the sewage is draining into the lake. A very large lake with complex landuse slowly heading towards degradation.

5.10 Patel Cheruvu

Basic Info	
Area	**13 Acers (5.29 Hectares)**
Land use	**Mixed (Commercial & Residential)**
Existing inlet	**Multiple**
CPCB Data	**Available for most months in 2020**
Existing Lake management infrastructure	**Steps to access the lake and a side bund**
Access to lake	**Yes –Available**
Available water	**Yes to its brim, till Full tank Level (in Feb)**
Visible water quality	**Polluted**
Visible Eutrophication	**Yes along the edges to the centre**
Shore line	**Fast changes along the bund**
Bund	**NA**

Patel Cheruvu is a small lake along the road. The lake is surrounded by residential buildings and new construction and in the back the lake ends at a elevated railway track. High eutrophication is observed in the lake and the shore line is fast eroding with development around the lake.

5.11 Kaidhamma Kunta

5.12 Meedi Kunta

Basic Info	
Area	**17.9 Acers (7.24Hectares)**
Land use	**Mixed (Commercial & Residential)**
Existing inlet	**Multiple inlets spotted**
CPCB Data	**Available for most months in 2020**
Existing Lake management infrastructure	**None**
Access to lake	**Yes –Available**
Available water	**Yes**
Visible water quality	**Heavily Polluted**
Visible Eutrophication	**Yes along the edges to the centre**
Shore line	**Fast changes along the bund**
Bund	**NA**

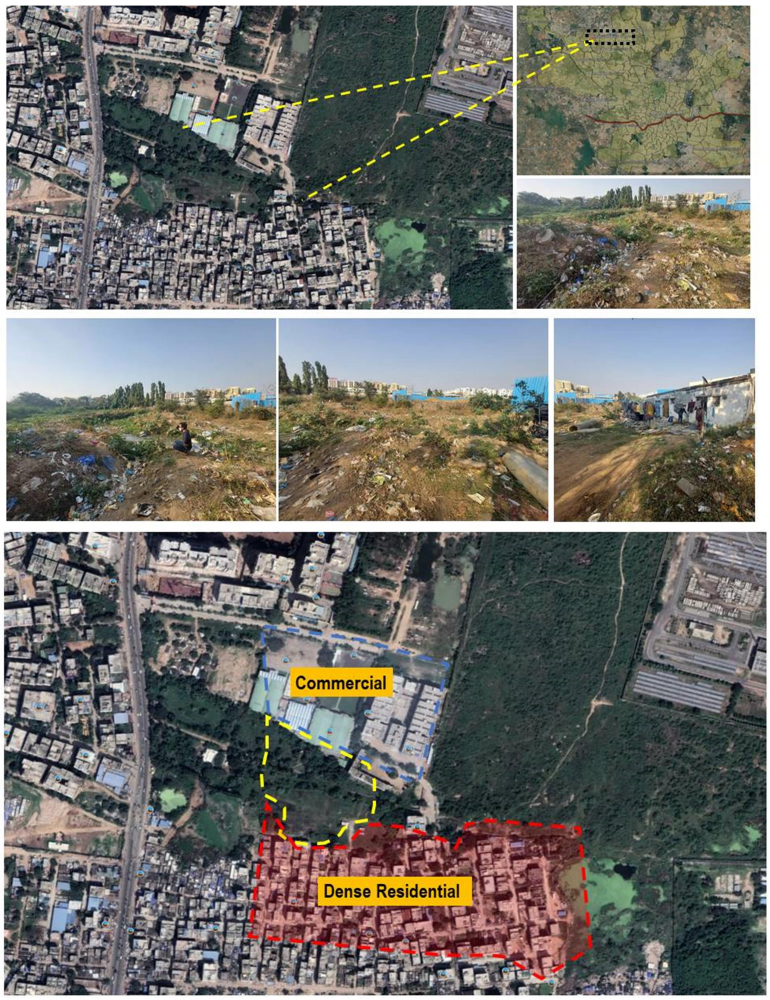
Medium sized lake linked to Meedi Kunta Lake with a gated community separating the both. The lake is surrounded with gated community, mixed dense housing and shorelines acts as a main access to the high dense housing areas. The gated community is acts as one of the banks of the lake and the water is seen to be heavily polluted with active bubbling and sewage inlet flowing directly into the lake. Heavy solid waste dumping along the shoreline has been observed.

5.13 Bachu Kunta

Basic Info	
Area	**1.65 Acers (0.67 Hectares)**
Land use	**Residential & Commercial**
Existing inlet	**Sewer line connected**
CPCB Data	**Available for 2020**
Existing Lake management infrastructure	**Yes, elevated bund**
Access to lake	**Yes –but very difficult access**
Available water	**Yes**
Visible water quality	**Heavy**
Visible Eutrophication	**Been cleared recently**
Shore line	**Shoreline deteriorated**
Bund	**Yes**

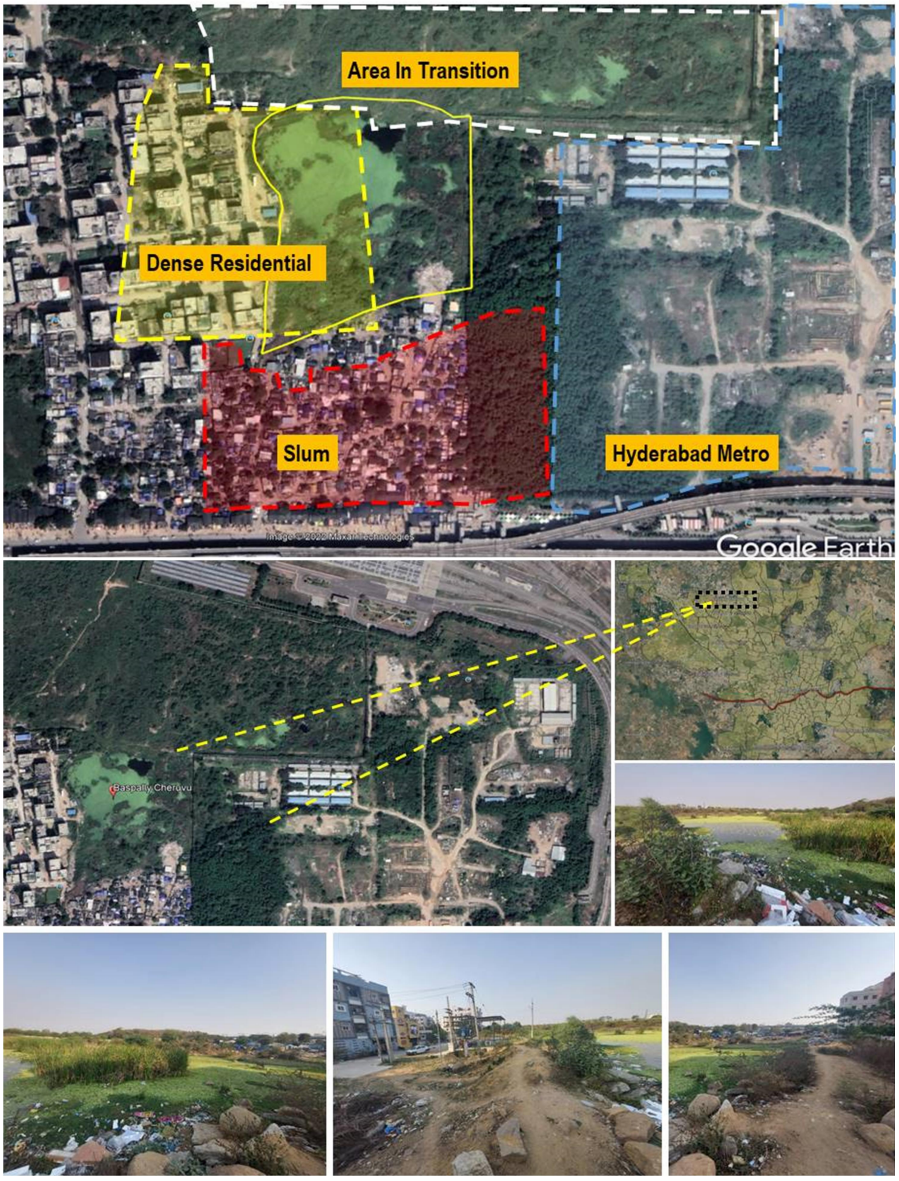
Small water body in between dense housing connected with sewer lin. The water is green in colour and the residents mentioned – recently there has been clearance of hyacinth by the Government. A diversion canal has been made adjacent to the water body that acts as an outlet.

5.14 Kalapuram Basti Cheruvu



HMDA marked the area as a lake, though the area is waterbody, it has been reduced to area with vegetation and the drain passing through the lakebed is the only water in it. The lake is completely dead. The lake swells during monsoons and floods the nearby houses.

5.15 Baspally Cheruvu



Basic Info	
Area	**6.44 Acers (2.61 Hectares)**
Land use	**Residential**
Existing inlet	**Multiple inlets**
CPCB Data	**No**
Existing Lake management infrastructure	**No**
Access to lake	**Yes**
Available water	**Yes**
Visible water quality	**Very bad**
Visible Eutrophication	**Heavy**
Shore line	**Shore line disturbed and encroached**
Bund	**Yes**

Hyderabad Metro shed built a wall near this lake reducing it's size (analysis through satellite imagery). The lake is in a deplorable state with full of water and covered in Hyacinth. The lake has a bund that is being used as a site for open defecation and as a dump yard for nearby communities. The slum residing on the lake banks is in very unhygienic condition and would take dedicated long term commitment to rejuvenate the same. The lake drains in Kalapuram Basti Lake to which the link is cut off.

6. Summary of Evaluation

As already stated, the need to evaluate the nature of physical developments is to gauge:

- The level of stakeholder engagement required if the stakeholder groups are large but not sheltered by few institutional entities (for instance, a single gated community might have a large number of households but can be considered as one institutional entity compared to the case of a colony with multiple resident welfare associations).
- Also, the nature of physical developments is also important to gauge the level of disruption within the water shed that is causing
    - Wastewater discharge
    - Disruption to water recharge into lake bed

Table 7: Summary of baseline assessment across all 15 lakes assessed during this study

S.No.	Name of Lake	Baseline Situation	Land use Ownership
1.	**Tavtoni Kunta**	The overall situation of this lake is a situation of the watershed drying up. At the watershed level, the drainage of water should be allowed to flow unrestricted in order for the lake to first have water.	Large private residential gated communities and a few institutions and commercial establishments.
2.	**Wipro Lake**	This lake is owned and gated by the company WIPRO. The situation seems to demand only beautification following which the lake can be connected to the passerby or people within the	One main arterial road and an institutional campus covering one side of water body.

		WIPRO campus.	
3.	**Gosai Kunta**	North East of this Lake is covered by low income settlements which need community level intervention and south of the lake, Aparna Constructions (Shangrilla) needs regulation in the form of Zero Discharge to avoid the lake from being deteriorate by effluents.	Few informal settlements on one side and one major gated residential community on one side of river.
4.	**Komati Kunta**	South of the lake has commercial developments (Looks like one lake; but needs to be clarified) which needs regulation to prevent the aquifer loss feeding the lake	Few institutional entities and commercial establishments around the lake with a road on one side.
5.	**Edlagavani Kunta**	Lake was not seen because it is occupied by Jaiberry real estate group. Needs to be informed to GHMC that adopting such a lake for any intervention requires the lake to be first inspected. Presently the site seems privately occupied.	Gated Community and School cover most of the lake boundary. But the lake boundary needs to be clarified as a path did not lead to the site. Was blocked from the outside.
6.	**Chinna Pedda Lake/ Gopppanpally Lake**	Land Use around the lake is not clear. A sewage treatment plant already is present but the inlet channels and land use must be ascertained.	Lake already has an STP which is seemingly defunct. Most of the lake boundary is covered by rampant constructions underway to build gated communities. Mostly gated communities flank the lake.
7.	**Nallagandla Lake**	To the west side (occupied by Aparna Constructions), there is water that is being pumped out which will affect the lake. But the land use is stable all around so an intervention seems feasible.	This lake is again flanked by gated communities. There is one by aparna constructions which is pumping water out of the lake as noticed at site.
8.	**Gopi Lake**	Nature of Housing around makes community engagement with multiple RWAs a hurdle which is too difficult to address.	Flanked by too many small residential entities which brings in the challenge of negotiating participation from too many individual residential stakeholders.
9.	**Patel Cheruvu**	Visually speaking the lake is located adjacent to a main arterial road; Place making may be required so as to make the residential settlements identify with the lake through community level social infrastructure.	This lake is flanked by a main road on one side and two gated communities on the other. Seemingly requires long term ownership from those communities, which makes the lake a favourable case for rejuvenation.
10.	**Kaidhamma Kunta**	Huge mixed residential housing adjacent to lake and will be difficult to build a community engagement strategy for lake rejuvenation	Flanked by mixed individual residential entities all over with a few commercial establishments.
11.	**Meedi Kunta**	Lower density mixed residential housing adjacent to lake and will be difficult to build a community engagement strategy for lake rejuvenation	Again is surrounded by lower density apartments and too many of them around the lake.
12.	**Bachu Kunta**	Hard to reach and covered on all sides by dense residential land use	This is also surrounded by low density residential entities but also the lake is difficult to access.
13.	**Kalapuram Basti Cheruvu**	Because there is no water in the lake bed. This requires water shed level intervention and not a mere site specific treatment intervention.	This lake is surrounded by multiple low income settlement on one side and small commercial establishments on the other.

14.	**Baspally Cheruvu**	Dense residential settlement adjacent to the water body which is extremely mixed. So intervening in this lake will be difficult. Also, the slum settlement south of the lake makes regulation of any land use here difficult.	Surrounded by dense residential settlements and low income settlements all around, with a majority of area in transition. Requires regulatory intervention and coordinated development by government without compromising the existing settlers in this locality.
15.	**Banjara Lake**	Already existing infrastructure in terms of I&D structures. Stabilized land use (MLA colony). There is a multiple stakeholder issue but the proximity to MLA quarters means that the lower income stakeholders will cooperate.	This lake is characterized by a unique mix of multiple low density residential settlements on one side and a high income politically connected settlement on the other.

Works Cited

1. Goode, N. B. (2016, December 28). Say your goodbyes to Hyderabad lakes. *The News Minute*.

2. Goode, N. B. (2021, October 21). Satellite images show how Hyderabad lakes have shrunk by upto 83% since 1967. *The News Minute*.

3. Field Observations conducted with Sunil Kraleti, Senior Research Fellow at SaciWATERs