Working Paper No. 60
September 2004

Impact of Urban Growth on Water Bodies
The Case of Hyderabad

C. Ramachandraiah
Sheela Prasad

CENTRE FOR ECONOMIC AND SOCIAL STUDIES
Begumpet, Hyderabad-500016

Impact of Urban Growth on Water Bodies The Case of Hyderabad

C. Ramachandraiah*

Sheela Prasad**

Abstract

Being located in the Deccan Plateau region, Hyderabad city has been dotted with a number of lakes, which formed very important component of its physical environment. With the increasing control of the State and private agencies over the years, and rapid urban sprawl of the city, many of the water bodies have been totally lost. Many have been shrunk in size while the waters of several lakes got polluted with the discharge of untreated domestic and industrial effluents. This study makes an attempt to analyse the transformation of common property resources (the lakes) into private property. The adverse consequences of the loss of water bodies are felt in the steep decline in water table and the resultant water crisis in several areas. Further, the severity of flooding that was witnessed in August 2000 was also due to a reduction in the carrying capacity of lakes and water channels. The State has not bothered to either implement the existing laws or pay attention to the suggestions of environmental organisations in this regard. The paper argues that in this process of loss of water bodies in Hyderabad, the State is as much responsible as private agencies in terms of the policies that it has formulated and the lack of ensuring legislation and implementation.

---

* Reader, Centre for Economic and Social Studies, Begumpet, Hyderabad-500016. E-mail: rama@cess.ac.in

** Reader, Centre for Regional Studies, School of Social Sciences, University of Hyderabad, Central University P.O., Hyderabad-500046. E-mail: spss@uohyd.ernet.in

Impact of Urban Growth on Water Bodies
The Case of Hyderabad

Introduction

A welcome fallout of the environmental crisis, at the global and local levels, has been the debates that it has generated on the mainstream development model. Industrialisation, urban sprawl, irrigation, large dams, green revolution – all the cornerstones of the development paradigm – are today subjects of discussion and critique. It is in this context that the present paper attempts to trace the impact of rapid urban growth on water bodies using Hyderabad as a reference point.

Any discussion on a city's heritage needs to move beyond the conservation of built environment to include its physical environment. The city of Hyderabad, located in the Deccan Plateau, has a distinct physical identity characterized by huge rock formations and water bodies dotting its landscape. The last 50 years of its growth have witnessed large scale destruction of this physical heritage of Hyderabad. Large scale encroachments have lead to filling up of lakebeds and conversion to built up area by both the government and private agencies over the last few decades.

How does one understand this loss – in just environmental terms or within a broader political economy paradigm? It would be useful to locate the debate within the framework of common property resources. The present model of development is based on the mechanistic worldview that sees natural resources as a commodity. Thus, forests, lakes and oceans start becoming sources of not survival of a community but the means to maximize profits for a few. There is seen a shift in property regimes from common property to that of State and privately owned. On the relevance of common property there are differing viewpoints. One view that seeks to explain the loss of water bodies terms it the 'tragedy of commons' after Hardin (1968). This view argues that

water bodies (lakes, rivers, oceans) are resources where ownership is not clearly defined and hence access to them is open to all members of a community. Such a regime of property rights worked well earlier, but with rapidly growing population and development, is today under tremendous pressure of encroachment and exploitation by the community. Another school of thinking that differs from the former view argues that if resources are commonly owned, shared and used, there is greater sustainability of the resource rather than if the State or private individuals owned it. As the community is dependent on the resource they will ensure its survival and prevent its abuse. While Hardin refers to an open access system where there are no owners and hence no control on use, the second view speaks of resources that are shared by a community in a given area and the resource is available to all members within the community. The lakes of Hyderabad, till independence, were a resource of the local community that took care to conserve it as a water body. But after independence, these lakes were taken over by the State and then by private individuals who were, in many instances, not part of the local community. Gradually the lakes were encroached and replaced by concrete buildings by the more powerful and wealthy class. This study attempts to understand this transformation of common property resources (the lakes) into private property. The paper argues that in this process of loss of water bodies in Hyderabad, the State is as much responsible as private agencies in terms of the policies that it has formulated and the lack of ensuring legislation and implementation.

The impact of the spatial spread of the city on water bodies in Hyderabad agglomeration area is the main focus of analysis in the present paper. In addition to the published and semi-published sources, the paper has relied on notifications/orders issued by government and para-statal bodies, and print media reports (which is known as ‘grey literature’) to analyse/substantiate the arguments. The information from the latter type is an important source material on issues like encroachment and pollution of water bodies in day-to-day life. After this introduction, the historic significance of some of the water bodies has been discussed briefly. It is followed by an analysis of the urban sprawl of Hyderabad especially in eighties and nineties. Loss of water bodies has been discussed with a little more focus on Hussainsagar, Osmansagar

and Himayatsagar. Pollution of water bodies is the subject of analysis later. Initiatives to protect water bodies by citizens and the legal provisions that are available for such protection have been discussed briefly followed by concluding remarks.

Historical Significance

Many big tanks were built by the Qutub Shahi rulers (1534-1724 A.D.) and later by the Asaf Jahi rulers (1724-1948) in and around Hyderabad city. Some of the big tanks built during those periods are Hussain Sagar, Mir Alam, Afzal Sagar, Jalpalli, Ma-Sehaba Tank, Talab Katta, Osmansagar and Himayatsagar etc. (Rekha Rani, 1999). Most of the big tanks were constructed by the former rulers or ministers whereas the minor tanks were built by zamindars. The Hussain Sagar was built in 1575 by Sultan Ibrahim Kutb Shah at a cost of about Rs. 2.5 lakhs. When full, the water-spread covered an area of about 8 sq.miles and it was the source of water for the Residency and suburbs north of Musi river. (Imperial Gazetteer, 1909: 34, 118). Another source refers to the year of construction of this lake as 1562 A.D. When the lake was not filled with water even after four years of completion, a channel is known to have been made from the Musi river to bring water to this lake (Alikhan, 1990: 65).

The Mir Alam tank is another magnificient lake whose circumference measured about 8 miles. The dam consisted of 21 semicircular retaining walls with their convex side facing the water. It was built by French engineers who were in Nizam's service.[1] (Briglani, 1984: 106). Its construction was completed in 1806. From these two tanks (Hussain Sagar and Mir Alam tank) there was plenty of water supply to the city and the suburbs. The cholera disease, which used to affect people annually, was not known for several years (Imperial Gazetteer, 1909: 118). It may be noted that Hussainsagar and Mir Alam tank are no longer used as sources of drinking water to the city. A water body by name Ma Saheba tank was built in the year 1624 A.D. 'to meet the requirements of the general public… and for the convenience of living beings of various classes'

[1] Mir Alam, who supervised its construction, met the cost out of the prize money he got after the fall of Seringapatnam. He led the forces of Nizam during the war with Tipu Sultan in 1799 (Briglani, 1984: 107).

(Briglani, 1984: 51-52). This tank has later come to be known as Masab Tank. At a place near Mir Alam tank, a reservoir by name Musa Bam or Husaini Nahr is known to have been built in 1770 A.D. 'when pure and sweet water was scarce in the city'.[2]

Saroornagar Lake is known to have been built in 1624 with an area of about 5 sq. kms. in the eastern part of the city. It is the main water body in the eastern sector of the city. Its water spread in 1980 was estimated at 35 hectares. Sharmirpet Lake is located at a distance of 24 km. from Hyderabad in the northern side with an area of about 97 hectares (www.aptourism.com). Durgam Cheruvu, also known as a secret lake (because it is surrounded on three sides by hillocks with beautiful rock formations) is located at a distance of 16 km from Hyderabad at Madhapur near Hi-Tech City. It is a 400-year-old lake with an area of about 150 acres. Some of the other important lakes are Fox Sagar measuring about 2 sq. km in Jeedimetla area, Malkam Cheruvu in the Old Bombay Highway, Errakunta in Lalaguda area of Secunderabad, Banjara Lake (also known as Hameed Khan Kunta) in Banjara Hills, and Hasmathpet Lake (also known as Bom Cheruvu) measuring about 41 hectares. There are a number of other lakes like Yousufguda Cheruvu, Yellareddy Cheruvu, Phuta Cheruvu, Nadmi Cheruvu, Ramakrishnapuram Cheruvu, Huryalaguda, Nacharam, Kapra, Alwal Yamjal, Trirumulgherry, Nallakunta, Pedda Cheruvu, Ramanthapur (Public School and Village), Mohini (Osmania University), Uppal, Kukatpally, Shatam (Golconda) and Afzal Sagar etc. (Rekha Rani, 1999). This is only an indicative list of some of the well-known water bodies.

Urban Sprawl of Hyderabad

The concept of urban sprawl, though in simple terms, refers to the areal expansion of urban concentrations, it refers more to the pace and magnitude of land conversion to urban use and areal expansion of the city. In recent times the 'the land needs and areal expansion of cities have increased greatly'

[2] Its water was so good that besides public and aristocracy, the Kings also reserved it for their use. Not only that, whenever the Kings of Hyderabad went out of their Dominion, 'this water was dispatched everyday to the Royal camp as far as Delhi and Simla' (Briglani, 1984: 100), which are more than 2000 km away.

(Northam, 1975: 467). As the cities expand in area with more population growth the land use gets changed with the hitherto non-urban areas like agricultural lands, other vegetative areas, water bodies etc., getting replaced by concrete structures and black-topped roads (Strahler, 1975: 139). Urban sprawl makes intensive demands on the environmental resources and pose problems by eating into valuable natural habitats of their hinterlands (OECD, 1990). Urban sprawl is associated with loss of natural wetlands along with loss of core forest habitat, loss of prime farmland and increase of impervious surface (Hasse and Lathrop, 2003: 3). As the urbanisation proceeds, the biological needs like water increase in complexity. As the local water resources like rivers, lakes and groundwater get increasingly polluted, the highly urbanized areas are forced to seek water from ever greater distances and expense (Detwyler and Marcus, 1972).

Hyderabad city had a population of 1.25 million in 1961. It was the fourth largest city in India prior to independence, and has been the fifth or the sixth largest ever since. It is a primate city of the State of Andhra Pradesh. The decadal growth rate of Hyderabad Urban Agglomeration (HUA) was a high of 43 per cent and 67 per cent during seventies and eighties respectively. But it came down to 31.0 per cent during 1991-01. Its population has gone up from about 2.55 million in 1981 to 4.3 million in 1991 and to 5.7 million in 2001. With an area of about 778 square kilometres, the HUA consists of Municipal Corporation of Hyderabad (MCH), Secunderabad cantonment, the ten surrounding municipal towns, Osmania University, some out growths (OGs), and a few smaller settlements.

Much of the spatial expansion in the last two decades in the HUA has occurred in the surrounding municipalities. These towns recorded a high growth rate of 71 per cent in nineties as compared to only 18.7 per cent by the core city (MCH). Several of these towns have been growing at high rates from eighties onwards. Together, their share of population in the HUA has increased from about 23 to 30 per cent while there is a corresponding decline in that of the MCH (Table 1).

Table :1 Area, Population and Growth of Different Components of Hyderabad Urban Agglomeration

Components of HUA	Area (sq.km) 2001	Population		Growth rate 1991-01	Density-persons/ sq.km 2001
		1991	2001		
A. Municipal Corporation of Hyderabad (MCH)	172.68 (22.2)	3043896 (69.8)	3612427 (63.2)	18.7	20920
B. Surrounding Municipalities					
1. Alwal	26.32	66471	93206	40.2	3541
2. Kapra	43.81	87747	159002	81.2	3629
3. Kukatpally	43.12	186963	292289	56.3	6779
4. L.B. Nagar	64.61	155514	268689	72.8	4159
5. Malkajgiri	16.75	127178	193863	52.4	11574
6. Qutbullapur	52.02	106591	231108	116.8	4443
7. Rajendranagar	50.87	84520	143240	69.5	2816
8. Serilingampally	96.99	72320	153364	112.1	1581
9. Uppal	21.97	75644	117217	55.0	5335
10. Gaddiannaram	2.12	35187	52835	50.2	24922
B. Total	*418.58 (53.8)*	*998135 (22.9)*	*1704813 (29.8)*	*70.8*	*4073*
C. Secunderabad Cantonment	40.17 (5.2)	171148 (3.9)	206102 (3.6)	20.4	5131
D. Osmania University	2.85	10153	11224	10.5	3938
E. Other Census towns					
1. Patancheru	15.06	26862	40273	49.9	2674
2. R.C. Puram	19.28	46129	52363	13.5	2716
3. R.C. Puram (BHEL)	11.21	17707	14815	-16.3	1322
4. Meerpet	4.04	5089	12935	154.2	3202
E. Total	*49.59 (6.4)*	*95787 (2.2)*	*120386 (2.1)*	*25.7*	*2428*
F. Out Growths (OGs)	94.38 (12.1)	44191 (1.0)	62028 (1.1)	40.4	657
Grand Total	**778.17**	**4363310**	**5716980**	**31.0**	**7347**

Note : 1. Figures in parentheses indicate percentage to Grand Total.

Source : 1. Census of India, Andhra Pradesh, Final Population Totals of 1991 and 2001.
2. HUDA (2003).

A study based on remote sensing data revealed that the built-up area of Hyderabad city has increased by about 136 per cent during 1973-96 - from 245 sq.km in 1973 to 355 sq.km in 1983, 522 sq.km in 1991 and to 587 sq.km in 1996. The urban sprawl (built-up area) has occurred at an annual rate of

3.77 per cent during 1973-83, 4.95 per cent during 1983-91 and 2.37 per cent during 1991-96. Agricultural land to the extent of about 128 sq.km was converted to residential, commercial, institutional and industrial purposes during this period (EPTRI, 1996: 23; *The Hindu*, 25 January 1997). Another study indicates that the urban built-up area has increased from 49.3 to 62.4 per cent of the total geographical area of the MCH and the surrounding municipalities during 1988 to 1999. This built-up area has increased at a much higher rate (44.5 per cent) in the surrounding municipalities than in the MCH (2.7 per cent). The growth of the built-up area is more pronounced in the northwest along the national highway (NH-9) in Kukatpally and Serilingampally; in the north along NH-7 and Medchal Road in Qutbullapur and Alwal; in the northeast in Kapra, in the southeast along NH-9 in L. B. Nagar; and southwest along NH-7 in Rajendranagar municipalities. A lot of real estate activity has taken place in the last several years along these national highways passing through the city and on Medchal Road, which is considered 'ribbon development'. The location of the proposed international airport closer to the NH-7 in the southeast and the creation of Cyberabad closer to the Old Bombay Highway and NH-9 may lead to further growth of built-up areas in these directions in future (Ramachandraiah, 2002).

Loss of Water Bodies

As the city has grown, the urban sprawl has encroached into vacant lands and water bodies due to the increasing pressure on land for housing and other activities. Many water channels that used to carry floodwaters from one lake to the next in a catchment area, have also been encroached by private and government agencies. Discharge of untreated industrial effluents has led to the total degradation of the water quality in many water bodies. Non-implementation of building regulations and pollution control laws has encouraged encroachment and pollution of water bodies.

It is estimated that there were 932 tanks in 1973 in and around Hyderabad which came down to 834 in 1996. Consequently the area under water bodies got reduced from 118 to 110 sq.km. About 18 water bodies of over 10 hectare size and 80 tanks of below 10-hectare size were lost during that period in the

HUDA area (EPTRI, 1996: 23; *The Hindu*, 25 January 1997).[3] A yet another study on land use/land cover for Hyderabad and a large area around, reveals that the area under water bodies has come down from 2.51 per cent of the geographical area in 1964 to 2.40 per cent in 1974 and to 1.57 per cent in 1990 (Mujtaba, 1994). The decline during 1974-90 period has been sharp. This was also the period of rapid growth of the city and its environs. Another study based on remote sensing data on 1:50000 scale reveals that the area under water bodies got reduced from 22.79 sq.km in 1989 to 20.84 sq.km in 1999 in the city and the surrounding municipalities. Micro level studies would indicate much more reduction in the area under water bodies (Ramachandraiah, 2002). The studies mentioned above differ in the size of the area covered around Hyderabad but all of them indicate, in varying degrees, that the area under water bodies has been declining over time due to urban sprawl.

The Shrinking Lakes

Hussainsagar

Hussainsagar lake has not been used as a drinking water source since 1930 though it was originally constructed to supply drinking water (EPTRI, 1996: 48). Located in the centre of the city, the lake area has shrunk from about 550 hectares to about 349 hectares (nearly 40 per cent decline) at present due to encroachments by both private and public agencies over the years. Evidence based on satellite data reveals that the Lake has shrunk by about 300 acres in the last 25 years (www.hyderabadgreens.org accessed on 5 December 2002).

In addition to encroachment, the lake water got polluted severely due to the continuous discharge of untreated domestic sewage and toxic industrial chemicals for several years. Till a few years ago, the stink emanating from the lake was felt up to distance of several kilometres depending on the prevailing wind direction. About 15 mld (million litres a day) of industrial effluents containing mainly nitrates, phenols and cyanides from about 100 units under hazardous category in the Jeedimetla industrial estate, in addition to 55 mld domestic sewage, are released into Kukatpally Nallah which flows into

[3] There were about 262 lakes in Bangalore 30 years ago which have come down to 81 only (CPCB, 2000: 76).

Hussainsagar lake in the centre of the city. Twenty mld more of sewage enters this lake from three other nallahs (channels) (EPTRI, 1996: 49, 67). In course of time, common effluent treatment plants (CEPTs) were set up in some industrial areas and the inflow of toxic effluents into this lake has reduced drastically. In addition, a 20 mld capacity sewage treatment plant (STP) has been constructed right in a corner of the lake to treat domestic sewage. Substantial quantity of untreated domestic sewage still flows into the lake from the nearby colonies.

Osmansagar and Himayatsagar

The Osmansagar (also known as Gandipet) and Himayatsagar were planned by the well-known engineer, M. Visweswarayya, for control of floods in Musi river and for supplying drinking water to the city of Hyderabad.[4] After this experience Osmansagar across Musi and Himayatsagar across Esa (a tributary of Musi) were constructed in 1920 and 1927 respectively (Alikhan, 1990: 174, 178).

Of the 145 Mgd (million gallons per day) water drawn during 2000-01 from the four main sources for Hyderabad city, 40 Mgd (27.6 per cent) was drawn from these two reservoirs (HMWSSB, 2001: 3). The water from these two sources flows into the water distribution system entirely by gravity and therefore costs very little. For the first time in about 80 years, Osmansagar has dried up in the second week of February 2003 making it difficult for the Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) to draw any more water for drinking purposes. This reservoir has a catchment area of about 738 sq.km. The Himayatsagar, which has a catchment area of about 689 sq.km, more or less dried up for the first time in the last week of June 2003. Thus the two large reservoirs and the oldest sources of drinking water for Hyderabad have dried up in 2003. A massive water supply project is currently taken up at a cost of Rs. 10000 million to transport 45 Mgd water in the first phase from the Nagarjunasagar reservoir (across Krishna river).

---

[4] The city experienced disastrous floods in Musi river in September 1908. About 17 inches of rainfall was recorded within one day and the water level reached 11 feet and higher at several places. While thousands of people died, several thousand houses were washed away.

In view of the importance of these two reservoirs for drinking water needs of the city, the State government issued an order in 1996 prohibiting certain activities in their catchment areas.[5] Some of the salient features of the order are: To prohibit polluting industries (both upstream and downstream within 10 km radius to prevent acidification of lakes due to air pollution), major hotels, residential colonies or other establishments that generate pollution in the catchment of the lakes upto 10 kms from full tank level; residential development was permitted subject to 60% of the total area to be kept as open space and roads and a floor space index (FSI) of 1:0.5 which would ensure 90% of the area to remain under agriculture; and the district local bodies (zilla parishads) of the three concerned districts (Rangareddy, Mahabubnagar and Medak) in which their catchment areas fall, the panchayat raj department, irrigation department and social welfare department were directed not to take up any building works/check dams/lift irrigation works/storage reservoirs across vagus (streams) flowing in the catchment areas.

Growing urbanisation and the related activities are posing serious threat to the survival of these two reservoirs. Experts from several research institutes voiced such concerns in a workshop on 'Protection of Surface Water Bodies' in Hyderabad. Based on satellite maps, an area of about 140 sq.km was recognised as a 'dangerous zone' in their catchment areas.[6] It is reported that the catchment areas have shrunk to the extent of 80 per cent for Osmansagar and 70 per cent for Himayatsagar. The proposed international airport near Shamshabad is going to affect another 11 per cent of the catchment area of the latter.[7] The managing director of the HMWSSB expressed helplessness and inability to control the activities that had an adverse impact on these reservoirs, and remarked that 'at this rate we do not know how long the reservoirs will survive'.[8]

---

[5] See Government Order No. 111, dated March 8, 1996, Municipal Administration and Urban Development Department (II), Government of Andhra Pradesh. This was an amended version of the then existing order No. 192 dated 31 March 1994. Also see Government Order No.50, dated January 28, 1989, Municipal Administration and Urban Development (A2) Department, Government of Andhra Pradesh.

[6] See *Andhrajyothi* (Telugu Daily), Hyderabad, 23 July 2003.

[7] See *Eenadu* (Telugu Daily), Hyderabad, July 28, 2003.

[8] 'HMWSSB chief sees grave threat to reservoirs', See *The Hindu*, Hyderabad edition, 4 March 2003.

By analysing the rainfall and inflow pattern over a 36-year period (1961-1996), a study has found that there is a progressive decline in the per cent of rainfall converted into inflows due to increased usage of surface and groundwater in the catchment areas. These two water bodies reached their full reservoir levels more number of years (10 times by Osmansagar and 11 times by Himayatsagar) in the first 18 years of the study period as compared to the later period (only 5 times by Osmansagar and 6 times by Himayatsagar) even as the rainfall has been more or less same during that time. Based on this trend, the study concluded that these two reservoirs would dry up completely: Himayatsagar in 2036 and Osmansagar in 2040. If not dried up, they will receive polluted water with the increasing urbanisation of the catchment area, as is now the case with Hussainsagar. In any case, these two reservoirs would cease to be the sources of drinking water, if proper remedial measures are not taken. The remedial measures that were suggested include complete protection for forestland in the catchment, conversion of wastelands into forestlands, stoppage of transportation of water from the catchment areas, and government control on diversion structures such as check dams on various streams in the catchment (Venkateswar Rao and Srinivasa Rao, 1998).

In a judgment of far reaching importance on 1 December 2000, the Supreme Court of India prohibited setting up of water polluting industries within 10 km radius of these two water bodies in view of their importance in meeting the drinking water needs of the twin cities. The Court applied the ‘precautionary principle’ to protect these two water bodies, and ordered the closure or shifting of the existing polluting industries within their 10 km radius. The Supreme Court further held that access to clean drinking water is a fundamental right under ‘right to life’ in Article 21 of the Constitution of India and that the State is duty bound not only to provide adequate drinking water but also to protect water sources from pollution and encroachment.

Despite all the above, the government of Andhra Pradesh has proposed to develop an international airport in about 5000 acres of area near Shamshabad on the outskirts of the city. As about 40 per cent of this area (2000 acres) falls within the catchment area of Himayatsagar, several environmental groups opposed the setting up of the airport and demanded that the same be shifted

beyond the 10-kilometre radius of the water body. When the airport was cleared by the Andhra Pradesh Pollution Control Board (APPCB), a group of environmentalists filed a public interest litigation in the Andhra Pradesh High Court. The High Court noted that 'we have no doubt whatsoever in our mind to *prima facie* conclude that neither the A.P. Pollution Control Board nor the Ministry of Environment and Forests, Union of India adverted themselves as to the effect of permitting' the important structures within the prohibited area and gave an interim stay on the project on 1 April 2003. In the final order, however, the High Court dismissed the petition on the ground that 'the project has been cleared after considering several aspects elaborately by Expert Bodies at different levels'.[9]

Other Water Bodies

Ibrahimpatnam cheruvu, built in 1850 by the Qutub Shahis covering an area of about 1300 acres originally, has dried up for the first time in 1993 and again in 2000. To carry more water into this lake, the then rulers constructed a 72-km long canal by connecting several smaller water bodies along its way. Over time, the inflows as well as the storage capacity have come down. In addition to the encroachments of the inflow channels, the necessary repairs and desilting have not been done to this important water body.[10] Two water bodies, Satam cheruvu and Jamali kunta, built by Qutub Shahi kings near the historic Golconda fort, are facing threat with that area being handed over to Hyderabad Golf Association for construction of a golf course in the name of promoting tourism. Jamali Kunta is getting filled up from one side (even while there is water in the lake) to construct the golf course. About 2 acres of the 30-acre lake has already been filled up.[11]

---

[9] Andhra Pradesh High Court, Hyderabad, writ petition no. 1297 of 2003, Interim Order dated 1 April 2003 and Final Order dated 24 November 2003.

[10] *Vaartha* (Telugu Daily), Hyderabad , 7 May 2003.

[11] *Andhra Jyothy* (Telugu Daily), Hyderabad edition, 5 July 2003. In a clarification given to this news item and published in the same newspaper on the next day, the proponents of the golf course partly agreed to filling the lake. But the authorities have not taken any steps to implement the rules to protect the lake.

Even three years after the breach, the bund of Garlakunta cheruvu (near Hafeezpet) has not been repaired despite repeated appeals to the authorities by the local people. Further, the authorities turned a blind eye even as real estate agents constructed a road by digging the same bund.[12] Nandi Muslaiguda cheruvu in the old city has shrunk from the original area of 15 acres to 10 acres due to encroachments and reduced inflows of water. This lake used to provide water for irrigation and drinking needs for people in the Kishanbagh area. Instead of protecting at least the existing area of the lake, the government has permitted the construction of an electric sub-station, a school and a telecom building in the lakebed, and the land grabbers are filling the lake along the road.[13] It was observed that some of the water bodies like Chalmakunta, Irlakunta, Mallaiahkunta, Yamkunta, Kanukunta and Garlonikunta have been converted into residential land use. The third phase of the construction activity of a real estate company, Doyens, almost occupied certain parts of Gopicheruvu. The company even tried to break the lake's bund to drain out the water to facilitate its real estate activity (Basavaiah, 1996).

How powerful the real estate mafia has become in the city is borne out by the following case. The 100-year old Errakunta, in Lalaguda area of Secunderabad, is reported to have been reduced to a mere 2 acres or so from its original area of about 26 acres. Rampant construction activities in the lakebed have reduced the lake to this stage.[14] It is a sorry state to note that the efforts of District Collector also did not yield positive results against the real estate mafia. Some excerpts from a letter written by the Collector to the City Police Commissioner would make it clear:

> (real estate person)..'has also dismantled the Dhobighat, on which nearly 200 families of washermen were depending, and also damaged the borewell drilled for the freshwater. He has accomplished this with the assistance of one ..(person's name) and now they have put muddy oil in huge quantity in the said

---

[12] *Vaartha* (Telugu Daily), Hyderabad, 11 May 2001.

[13] *Vaartha* (Telugu Daily), Hyderabad, 7 February 2003.

[14] *Vaartha* (Telugu Daily), Hyderabad, 21 June 2002.

> water tank to see that the washermen will not wash the clothes and they will leave the tank free so that he can develop the entire tank as plotted area and sell it to the public'. Without obtaining permission from the concerned authorities, he was developing land on the tank bed based on forged and fabricated documents.[15]

With rapid urbanisation in the catchment as well as command areas of the Saroornagar lake in the last two decades, land use has changed from agricultural to non-agricultural. Three fish kills in this lake in October 1993, April and September 1994 raised a lot of concern about the rising pollution levels in the lake (Kodarkar et al, 2003: 38). Its original area was about 180 acres which is now reduced to about 63 acres.[16] The four water bodies in the Uppal region (Ramanthapur Pedda Cheruvu, Chinna Cheruvu, Uppal Nalla Cheruvu, and Pedda Cheruvu) are facing severe threat to their existence due to encroachments.[17] Stories of encroachment of water bodies by the real estate agents keep on appearing in the local press quite frequently. Close to the Yousufguda Cheruvu, another water body that has totally vanished under urban sprawl without even traces of memories is the Yellareddy Cheruvu. Another prominent locality in the city that is known by a lost water body is Nallakunta. Many such examples can be found at micro level in the city.

One of the consequences of the encroachments of water bodies was seen in the unprecedented floods in the city in August 2000 due to a 24 cm rainfall in 24 hours. When the city witnessed heavy rains, the narrowed/encroached water courses/bodies could not carry rainwater thus inundating large areas in the vicinity. Low-lying areas down the Hussainsagar, though occupied by middle

---

[15] Letter No.F3/714/98 dated 25-05-1999 by the Hyderabad District Collector to the Commissioner of Police where in the Collector demanded criminal prosecution of a notorious land grabber by citing how the latter was destroying Errakunta. The said land grabber was very close to the then ruling Telugu Desam Party.

[16] Report on *Water Vision Messages Collection* workshop of Hyderabad district (24 June 2002), organised by the Mission Support Unit, Water Conservation Mission, Government of Andhra Pradesh.

[17] *Vaartha* (Telugu Daily), Hyderabad edition, 11 June 2002.

and upper middle class people, experienced worst ever flooding. In the areas downwards of Indira Park (such as Ashoknagar, Gandhinagar and Himayatnagar) and those near Shankarmutt-Nallakunta, navy boats had to be used to traverse in the flood waters. Flood water levels reached up to the first floor level in some apartment complexes. Protection of water bodies and watercourses assumes even more significance in view of the experiences of August 2000 in Hyderabad.

Pollution of Water Bodies

In addition to encroachments, pollution of lake waters by untreated domestic sewage and toxic industrial effluents has been going on unabated over the years. Many lakes which provided drinking water earlier no longer serve the same purpose. While there were six very old industrial areas in the Hyderabad city corporation limits (Azamabad, Musheerabad, Sanathnagar, Kavadiguda, New Bhoiguda, and Lalaguda), eleven new industrial estates have come up around the city in course of time.[18] Many of the industrial estates are located in the foreshore areas of the lakes. Of the 38 lakes identified as potential sources of drinking water, bacteriological and chemical tests revealed that the water of only 6 lakes was in a usable condition. The tests showed negative reports for the waters of other lakes.[19]

Continuous discharge of untreated industrial effluents into the water bodies has turned them into 'toxic ponds' almost devoid of any life. Some of the important polluted lakes/cheruvus are: Kazipalli cheruvu, Gandigudem cheruvu, Nagulal cheruvu, Kistareddypet cheruvu, Muktakanta cheruvu, Aminpur cheruvu, Bollaram cheruvu, Saki cheruvu, Muthangi cheruvu, Isnapur cheruvu, Chitkul cheruvu, Lakadaram cheruvu, Pedda cheruvu, Yerdanur cheruvu, Gummadidala tank, Bonthapalli tank, Jinnaram cheruvu, Kalateleal cheruvu, and Digwal cheruvu etc. Some of the important rivers/streams polluted by the industrial effluents are Bollaram, Isakavagu, Nakkavagu, and Manjeera

---

[18] These industrial estates are 1. Jeedimetla, 2. Balanagar, 3. Chandulal Bardari, 4. Medchal, 5. Moulali, 6. Nacharam, 7. Cherlapalli, 8. Uppal, 9. Katedan, 10. Autonagar, and 11. Gagan Pahad industrial development area (EPTRI, 1996: 63).

[19] *Andhra Jyothy* (Telugu Daily), Hyderabad, 23 July 2003.

(upstream of Nakkavagu confluence). Due to seepage and infiltration from these polluted water bodies/drains and other waste dumps, the groundwater in the area is highly polluted. The drinking water sources of many villages in the area are highly polluted (Kishan Rao, 2001: 24-26).

The pollution control board has been ineffective to a large extent in penalizing the polluting industries despite the provisions of the Environment Protection Act, 1986, the Water Act, 1974 and the Air Act, 1981. Rampant corruption and the industrialist-politician-bureaucrat nexus have played havoc on water bodies. The industrial lobby is so powerful that a sitting judge of the Andhra Pradesh High Court was transferred overnight for giving closure orders to the highly polluting industries in Patancheru area.[20]

The water of Noormahammad kunta has turned thick red in colour due to the discharge of untreated effluents directly into the lake through the secretly laid pipelines by the textiles mills of Katedan industrial area. Rayakunta cheruvu in Jeedimetla industrial area has practically disappeared due to encroachments, release of effluents and dumping of solid wastes. In several water bodies in the industrial areas, toxic sludge has accumulated to a depth of 2-3 feet. Even as the local farmers try to let out rainwater also from such tanks, lest the accumulated storage further pollute ground water, tankers from industries release fresh loads of effluents secretly in the nights.[21]

In a study done for HUDA, it was found that 18 water bodies were identified as the most polluted while 67 were polluted to a lesser extent. While the biological oxygen demand (BOD) should be less than 1 mg/litre for aquatic life to grow, it was 13.25 in Medchal cheruvu, 13.75 in Safilguda cheruvu, 12.0 in Saroornagar cheruvu, 18.4 in Durgam cheruvu, 29.25 in Langarhouse cheruvu, and 6.5 in Kapra cheruvu. While the cheminal oxygen demand (COD) should

---

[20] Justice Jeevan Reddy described this area as 'mini Chernobyl' and was about to issue closure order to Voltas (a pesticide unit owned by a powerful group), along with 12 other industries. The counsel (advocate) for Voltas asked for an additional day to produce evidence in their defense. By the next day, Justice Jeevan Reddy was transferred to Allahabad High Court (Gujarat) and was relieved even before the hearings started (Kishan Rao, 2001: 46).

[21] *Eenadu* (Telugu Daily), Hyderabad, 8 May 2002.

be less than 5 mg/litre, it was 111, 58.25, 116, 42, 137.5 and 72.5 respectively in the above water bodies. The values for certain other indicators are also very high in them.[22] Unabated discharge of domestic sewage from nearby colonies has made the water of Kothakunta cheruvu so polluted that its water is not found to be suitable for consumption by animals also.[23]

Protection of water bodies

Citizen Initiatives to Protect Lakes

The beginnings of the efforts to save lakes in and around Hyderabad goes back to 1993 especially after the fish kills were reported in the Saroornagar lake. Under 'save the lake campaign', concerted efforts were made to raise awareness in the public during 1993-95. After making a number of representations to authorities and getting no hopeful response, a group of environmentalists filed a writ petition (No. 21676 of 1995) in the High Court of Andhra Pradesh praying for judicial intervention to protect 170 lakes in and around Hyderabad. In September 1997, the High Court directed the State government not to give any permission for conversion of lakes, tanks and ponds in the State for any other purpose. Further, the State government was directed to take up necessary measures to protect, rehabilitate and conserve the water bodies (Kodarkar et al, 2003: 39). By 1995 itself, it was feared that, of the 170 lakes, 30 had already disappeared and 40 were on the verge of extinction.[24]

Efforts were also made by citizen groups in 1995 to take the issue to the highest level of political authority to protect the lakes. Important suggestions were made by the representatives of the Society for Preservation of Environment and Quality of Life (SPEQL) in a meeting with the Chief Minister:[25] Very recently, a non-governmental organisation, 'Forum For A Better Hyderabad' had proposed several measures for the protection and

---

[22] *Eenadu* (Telugu Daily), Hyderabad, 12 March 2001.

[23] *Vaartha* (Telugu Daily), Hyderabad, 21 August 2002.

[24] SPEQL (Society for Preservation of Environment and Quality of Life), Hyderabad, *Hyderabad Bachao – Save Hyderabad*, 1(5), 1995, pp. 6-7.

[25] Minutes of the meeting regarding protection of lakes in and around Hyderabad city held in the chambers of the Chief Minister on 26 July 1995.

conservation of water bodies in Hyderabad as well as other urban areas in the state. It was felt that water should be treated as the ecological foundation of all life and as a common property resource for all living beings. To ensure water supplies to the present and future generations, the following measures, along with some others, were proposed: 1. Full Tank Level (FTL) boundary should be demarcated for all the water bodies. Fencing (either thorn or by plants) should be done along the boundary as a physically visible, easily identifiable demarcation. 2. MCH and Revenue Departments must stop giving house numbers and clearances respectively to plots inside this boundary. In this way, further encroachments can be prevented. 3. Lake Protection Committees (LPCs) should be set up for such water bodies. The LPCs should include members from the local community, political parties, teacher in-charge of Green Cadet Core in the nearby school, an official from the concerned government department etc. Complaints given by LPCs, relating to release of domestic/industrial wastes and encroachments should be considered most serious and attended to accordingly. 5. Desiltation and removal of encroachments should be taken up for a chain of water bodies within the catchments. In the process, ecological balance of the water bodies should be slowly restored as freshwater ecosystems. 6. All water bodies should be taken out of the purview of the revenue department and brought under the Forest Department to be conserved as protected areas under Wild Life Protection Act. A separate Lake Conservation and Management Authority should be set up. Many of these suggestions, however, have not received much attention from the authorities in implementation.

A notification by the HUDA[26] gives particulars of 169 lakes of 10 hectares and above, covering an area of approximately 90.56 sq.km. While 62 lakes are fully owned by the government, 25 are under private and 82 are under partly by government and private ownership. As per this notification, the entire area falling within the full tank level must be kept free from any type of constructions, irrespective of the ownership or any land use or master/zonal development plans that may have been previously notified. Further, a buffer belt of 30-metre width on all sides of each lake must be kept free of any type of

[26] Notification No. 3195/PR/H/2000 dated 4 May 2000 (*Deccan Chronicle*, Hyderabad, 6 May 2000).

construction in the interest of prevention of pollution to the lake and allow free flow of water into the water bodies. Despite such notification, there are several instances of permissions given by HUDA itself for residential colonies in lakebeds. A number of tourism-related beautification works carried by HUDA (under the aegis of Buddha Purnima Project Development Authority) around Hussainsagar could be considered a serious violation of its own notification.

The recently approved Water, Land and Trees Act of the State government clearly states (in Section 23) that the concerned authority 'may notify water bodies like lakes, village ponds and minor irrigation tanks along with nalas (water course or drainage course) as heritage bodies and conservation areas to prevent conversion of their intended use and the authority shall take all measures to permanently demarcate the boundaries….as per the memoirs of lakes/tanks/ponds/nalas… and shall take measures to evict and prevent encroachment'. Further, as per Sections 19.1 and 23.3 of this Act, the groundwater resources shall not be contaminated in any manner by anybody and undesirable wastes including liquid wastes shall not be dumped in the water bodies (GoAP, 2002: 18-20). The implementation at ground level is, however, discouraging.

There are about 200 Central and State laws to protect environment in India (Sinha, 2001: 47). As per section 24 of the Water (Prevention and Control of Pollution) Act, 1974, poisonous, noxious or polluting matter shall not be discharged, directly or indirectly, into water bodies, sewers or on land. Similarly, under sections 7 of the Environment (Protection) Act, 1986 'no person carrying on any industry, operation or process shall discharge or emit or permit to be discharged or emitted any environmental pollutant in excess of such standards as may be prescribed' (Divan and Rosencranz, 2001: 653, 676). The government of India's (GOI, 1992) policy statement on abatement of pollution declares four guiding principles with the objective of integrating environmental considerations into decision making (Divan and Resencranz, 2001: 36): (i) prevention of pollution at source, (ii) adoption of the best available technology, (iii) the polluter pays principle, and (iv) public participation in decision making. The 42nd amendment to the constitution of India in 1976 gave priority, among others, to the protection of the environment. Thus, in fundamental duties, it is stated Article 57A(g) that 'it shall be the duty of every citizen of India to protect

and improve the natural environment including forests, lakes, rivers and wildlife and to have compassion for living creatures'(GoI, 1986: 17).

Conclusion

Some lakes, after getting encroached and dried up, have been converted into parks. The Masab Tank has totally disappeared as a water body and is replaced by Chacha Nehru park. Only the area is known by its name probably as a reminder of the past. The site of the 'beautiful park', built at a cost of about Rs. 20 million and inaugurated on 15 August 2002, was once an important water body known as Anumula Kunta, which was highly conducive for groundwater recharge.[27] Yousufguda cheruvu is a lake totally damaged by filling up of garbage by the MCH in the last ten years or so. It is now being developed as a park with an investment of Rs. 40 million.[28] Thus, in the euphoria of beautification, importance is not given for reclaiming and restoring such important water bodies.

The HUDA has initiated a lake conservation programme with the assistance of Royal Netherlands government under the Green Hyderabad Environment Programme (GHEP). 87 lakes have been identified for conservation based on their pollution levels. They are grouped into Category-I or highly polluted lakes, which number 18. The remaining lakes are put into Category-II or moderately polluted. Lakes. Three major lakes in the highly polluted category - Safilguda, Saroornagar and Langer Houz – 'have been cleaned up and are being conserved with a green belt around'[29] . Sewerage treatment plants (STPs) have been set up in these lakes for treating sewage before being let into their waters. Conservation measures are also supposed to have been completed in 21 moderately polluted lakes.[30] The involvement of local communities in the conservation and management of lakes is not taking place at a desired level in the city.

---

[27] The site of this water body is known to be a very conducive for groundwater recharge as it is located in a fault line that runs from KBR National Park (Source: Based on discussion with a scientist in the A.P. State Remote Sensing Applications Centre – APSRAC, Hyderabad).

[28] If the same investment were made in reclaiming the lake as a full-fledged water body, it would have served a more useful purpose in the long run.

[29] Conference brochure of the international workshop on 'Urban lakes: Conservation and management', June 16-18, 2003, organised by the HUDA at Hyderabad.

[30] Ibid.

Non-implementation of building and environmental rules in a rapidly growing metropolitan city has led to large-scale encroachment and pollution of the water bodies. The importance of preserving the water bodies has been stressed in various policy documents. The National Commission on Urbanisation has also observed that there should be development of water bodies within city areas to feed reservoirs and/or permit groundwater recharge instead of constantly looking for new and distant sources of water (NCU, 1988: 296). The HUDA's draft master plan for Hyderabad (HUDA, 2003: 101) mentions that while the existing area under water bodies is 84.3 sq.km, it is proposed to increase to 95.44 sq.km by 2020. This is most unlikely to happen and the proposal is quite misleading. The figure of 95.44 sq.km is the area of 169 water bodies (of 10 hectare and above size) as per revenue records, which has been mentioned in the HUDA notification on lakes (see Annexure I). The figure of 84.3 sq.km is the existing area (as per satellite images), which means that their area has already shrunk by over 10 sq.km. The draft master plan does not propose the modalities about reclamation of the lost area.

Hyderabad's location in a semi-arid region has historically determined that life is sustained not by a river but by wells, tanks and lakes. The loss of these water bodies due to urban sprawl is a critical factor in the lowering of water table and the resultant water crisis being faced by many localities in the city. The drying up of the lakes has adversely impacted on the recharging of groundwater with the water table sinking sharply in recent years. Any master plan drawn up for Hyderabad should necessarily focus on the lakes, rock formations and hills that are such distinctive features of the identity of this city. Added to the destruction of water bodies is the pollution of the remaining ones. The paper strongly brings out the fact that when the lakes of Hyderabad were common property of the locals they were conserved but with growing statisation and privatization, these water bodies have been lost. In conclusion, we would like to emphasise that there is an urgent need to get out of the reductionist approach to water bodies - which first destroys them for profit and create a crisis which is resolved by drawing up grand plans to bring drinking water miles away from the river Krishna. It becomes, therefore, imperative for the urban planning bodies to include the sustainability of the physical environment along with planning the built environment.

References

Alikhan, R. (1990) *Hyderabad: 400 years (1951-1991).* Hyderabad: View Point.

Basavaiah, M.C. (1996) 'Peoples Action to Protect Water Sources', *Economic and Political Weekly* 31 (25): 1572-74.

Briglani, S. A. A. (1984) *Landmarks of the Deccan*. Delhi: Manas.

Census of India (1981): Series-2, Andhra Pradesh, *Special Report on Hyderabad City* (Draft by Khaja Moinuddin and B. Tarakeswari Rao).

Census of India (2001): *Provisional Population Totals, Paper 2 of 2001*, Series-29: Andhra Pradesh.

Chandraiah, K. (1996) *Hyderabad: 400 Glorious Years*. Hyderabad: Government of Andhra Pradesh.

CPCB (2000) *Annual Report 1999-2000.* New Delhi: Central Pollution Control Board.

Detwyler, T.R. and M.G. Marcus (1972) *Urbanisation and Environment: The Physical Geography of the City*. California: Duxbury Press.

Divan, S. and A. Rosencranz (2001) *Environmental Law and Policy in India: Cases, Materials and Statues*. New Delhi: Oxford.

EPTRI (1996) *State of Environment for Hyderabad Urban Agglomeration*. Hyderabad:

Environment Protection, Training and Research Institute.

GoAP (2002) *Andhra Pradesh Water, Land and Trees Act* (Act No. 10 of 2002). Andhra Pradesh Gazette Hyderabad: Government of Andhra Pradesh.

GoI, (1992) *Policy Statement for Abatement of Pollution*. Delhi: Ministry of Environment and Forests, Government of India.

GoI (1986) *Constitution of India*. Delhi: Government of India.

Hardin, Garret (1968) 'The Tragedy of the Commons', *Science*, Vol. 162, December, pp. 1243-48.

Hasse, J.E. and R.G. Lathrop (2003) 'Land resource impact indicators of urban sprawl', *Applied Geography* 23 (2-3): 159-75.

Haughton, G. and C. Hunter (1994) *Sustainable Cities*, Regional Policy and Development Series 7. London: Jessica Kingsley.

HMWSSB (2001) *12th Annual Report 2000-2001*. Hyderabad: Hyderabad Metropolitan Water Supply and Sewerage Board.

HUDA (2003) *Hyderabad 2020: A Plan for Sustainable Development*, Draft Master Plan for Hyderabad Metropolitan Area, Hyderabad: Hyderabad Urban Development Authority.

Imperial Gazetteer of India (1909) *Provincial Series-Hyderabad State*. Hyderabad.

Kishan Rao, A. (2001) *Patancheru-A Hell on Earth (A Saga of a People's Struggle Against Industrial Pollution)*, Hyderabad (Patancheru): A.V.R.R. Memorial Charitable Trust.

Kodarkar, M.S., S.V.A. Chandrasekhar, M. Subbaiah, G. Anitha and D. Malthi (2003) 'Environmental Status of Lakes in India' (with special reference to water bodies in and around Hyderabad, Andhra Pradesh, India), Abstracts of the national conference on "Urban Lakes – Environmental Status, Economics and Management Options" (5-6 April).

Mujtaba, S. M. (1994) *Land Use and Environmental Change due to Urban Sprawl: A Remote Sensing Approach*. Delhi: Daya.

NCU (1988) *Report of the National Commission on Urbanisation, Vol. II*, New Delhi: Government of India.

Northam, R.M. (1975) *Urban Geography*. 2nd edition, New York: John Wiley & Sons.

OECD (1990) *Environmental Policies for Cities in the 1990s*. Paris: OECD.

Ramachandraiah, C. (2002) 'Location and Land use Characteristics of Hyderabad', paper prepared for the WHO-NIUA project on Healthy Cities, Hyderabad: Centre for Economic and Social Studies (mimeo).

Rekha Rani, T. (1999) 'Lakes of Hyderabad: Transformation of Common Property to Private Property'. M.Phil dissertation, University of Hyderabad.

Sinha, S. (2001) ‘Environmental Protection: Role of Constitutional Courts’, in *Contribution of the Andhra Pradesh High Court in the Development of Constitutional Law*, High Court of Andhra Pradesh, Hyderabad.

Strahler, A.N. (1975) *Physical Geography*, Fourth edition. New York: John Wiley and Sons.

Venkateswara Rao, B. and N. Srinivasa Rao (1998) ‘Influence of Urbanisation over the nearby Catchments of the City – A case Study of Hyderabad (India)’. Hyderabad: JNT University (mimeo).

Annexure I

List of lakes larger than 10 hectares in Hyderabad Metropolitan Area

S.No.	Name of Lake/Kunta	Approximate Area (hectares)
1	Himayat Sagar Lake	2148.68
2	Osman Sagar Lake	1958.46
3	Hussain Sagar Lake	549.32
4	Mir Alam Tank	335.07
5	Fox Sagar (Kolla Cheruvu)	199.71
6	Inne Cheruvu	198.12
7	Shamirpet Cheruvu (part)	97.06
8	Lakshminarayan Cheruvu	94.50
9	Turka Yamjal Cheruvu	77.49
10	Pedda Cheruvu	75.60
11	Sikam Cheruvu	73.40
12	Patancheru Cheruvu	64.58
13	Ralsamudra Cheruvu	61.74
14	Rampally Cheruvu	59.88
15	Mallamma Cheruvu	56.00
16	Jilavarkhan Cheruvu	53.58
17	Pedda Cheruvu	50.40
18	Bomraspet Cheruvu	50.00
19	Saroornagar Tank	49.50
20	Pedda Cheruvu	48.83
21	Gurram Cheruvu	47.70
22	Lungerhouz Tank	46.71
23	Pedda Cheruvu	43.75
24	Boin Cheruvu	40.95
25	Maisamma Cheruvu	39.69
26	Meddal Cheruvu	39.38
27	Pedda Cheruvu	37.80
28	Chandanagar Cheruvu	36.88
29	Yanke Cheruvu	36.54
30	Sunnam Cheruvu	36.23
31	Devattamma Cheruvu	32.51
32	Sikham Cheruvu	32.13
33	Pedda Cheruvu	32.00
34	Kamuni Cheruvu	31.50
35	Umda Sagar	31.50
36	Yelimela Kunta	31.50
37	Gandi Cheruvu	31.25
38	Pedda Cheruvu	30.87
39	Gadi Cheruvu	28.35
40	Srivaru Cheruvu	28.35

S.No.	Name of Lake/Kunta	Approximate Area (hectares)
41	Dundigal Cheruvu	28.35
42	Miryalguda Cheruvu	26.78
43	Jadar Kunta	26.46
44	Sultanpur Cheruvu	26.46
45	Brahmanpally Cheruvu	25.52
46	Durgam Cheruvu	26.23
47	Kollur Cheruvu	25.20
48	Baroog Cheruvu	25.00
49	Lakshminarayan Cheruvu	24.57
50	Naramuna Kunta	24.57
51	Aprya Cheruvu	24.26
52	Nanakramguda Kunta	23.94
53	Burhankhan Cheruvu	23.65
54	Pedda Cheruvu	23.63
55	Teegalasagara Cheruvu	22.05
56	Malla Cheruvu	22.05
57	Rai Kunta	22.05
58	Sumaru Cheruvu	21.88
59	Mallampet Cheruvu	21.87
60	Kummari Kunta	20.79
61	Rainder Kunta	20.76
62	Pedda Cheruvu	20.50
63	Kuntlur Cheruvu	20.48
64	Pedda Cheruvu	20.16
65	Gagilapur Cheruvu	20.16
66	Cherial Kunta	20.00
67	Pedda Cheruvu	20.00
68	Suram Cheruvu	19.80
69	Intaya Cheruvu	19.65
70	Medchal Kunta	19.53
71	Timmakka Cheruvu	19.53
72	Pedda Cheruvu	19.21
73	Nadimi Cheruvu	18.90
74	Kuruma Cheruvu	18.78
75	Nalagandla Cheruvu	18.75
76	Pare Cheruvu	18.75
77	Pudur Kunta	18.75
78	Somaram Kunta	18.75
79	Yapral Kunta	18.75
80	Yeerala Cheruvu	18.00
81	Ghanapur Kunta	17.64
82	Muthyal Kunta	17.64
83	Patancheru Kunta	17.64
84	Bandlaguda (Nagole) Cheruvu	17.64

S.No.	Name of Lake/Kunta	Approximate Area (hectares)
85	Turka Cheruvu	17.50
86	Balapur Cheruvu	17.33
87	Pirzadiguda Cheruvu	17.07
88	Boduppal Cheruvu	17.01
89	Palle Cheruvu	16.80
90	Mantrala Cheruvu	16.70
91	Pedda Cheruvu	16.70
92	Aushapur Kunta	16.38
93	Hakimpet Tank	16.07
94	Kudi Cheruvu	16.00
95	Chintal Cheruvu	15.78
96	Edulanagupally Kunta	15.75
97	Patla Cheruvu	15.75
98	Safilguda Cheruvu	15.75
99	Gundala Cheruvu	15.63
100	Bowrampet Kunta	15.62
101	Kotha Cheruvu	15.43
102	Dubba Kunta	15.12
103	Dungal Cheruvu	15.12
104	Girmapuram Cheruvu	15.12
105	Gopi Cheruvu	15.00
106	Nalla Cheruvu	15.00
107	Manikonda Khalsa Cheruvu	14.80
108	Gun Cheruvu	14.50
109	Pochana Cheruvu	14.50
110	Bachipalli Cheruvu	14.50
111	Moosapet Kunta	14.49
112	Pishakbowli	14.18
113	Nadergul Kunta	14.18
114	Dharni Cheruvu	13.86
115	Patancheru Kunta	13.86
116	Moosapet Cheruvu	13.86
117	Pochamma Kunta	13.55
118	Noormohammed Cheruvu	13.50
119	Irlakunta	13.23
120	Nandikalvu Cheruvu	13.00
121	Kasurrani Kunta	12.92
122	Madharam Kunta	12.92
123	Sahebnagar Kalan Cheruvu	12.91
124	Pavakaran Cheruvu	12.81
125	Dabirpur Kunta	12.72
126	Kadukunta Cheruvu	12.60
127	Nalla Kunta	12.60
128	Narsaram Kunta	12.50

S.No.	Name of Lake/Kunta	Approximate Area (hectares)
129	Pedda Cheruvu	12.50
130	Thumkunta Cheruvu	12.50
131	Pedda Cheruvu	11.97
132	Pothraj Kunta	11.97
133	Chandanagar Kunta	11.88
134	Manikonda Jagir Kunta	11.85
135	Patel Cheruvu	11.66
136	Nacharam Kunta	11.65
137	Qutbullapur Kunta	11.65
138	Makta Mahboobpet Kunta	11.34
139	Mala Kunta	11.34
140	Marri Kunta	11.34
141	Mohini Cheruvu	11.34
142	A. Kunta	11.25
143	Pedda Cheruvu	11.25
144	Chinna Cheruvu	11.03
145	Khadi Cheruvu	11.03
146	Narla Kunta	11.03
147	Alwal Cheruvu	11.03
148	Eaghameri Kunta	10.84
149	Maisireddypalli Kunta	10.71
150	Sutar Kunta	10.71
151	Jeedimetla Kunta	10.63
152	Khanamel Cheruvu	10.33
153	Bommal Cheruvu	10.08
154	Rampally Kunta	10.08
155	Turka Yamraj Kunta	10.08
156	Bachipalli Cheruvu	10.08
157	Antappa Cheruvu	10.00
158	Gurunath Cheruvu	10.00
159	Kazi Cheruvu	10.00
160	Marripally Kunta	10.00
161	Masani Cheruvu	10.00
162	Medpally Kunta	10.00
163	Nagole Cheruvu	10.00
164	Poora Cheruvu	10.00
165	Shamirpet Kunta	10.00
166	Suran Cheruvu	10.00
167	Vanam Cheruvu	10.00
168	Velgalkunta Kunta	10.00
169	Gollapally Cheruvu	10.00

Source: HUDA notification dated 4th May 2000, Hyderabad.

Note: Names of some of the lakes are similar but they are located in different villages.