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Inequity in water supply and impact on the poor: The case of Hyderabad

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There are significant variations in the access of households to tap water between the core city and the surrounding urban areas in Hyderabad. In the surrounding areas, a substantial proportion of the households have their source of water outside their premises. Rather than the lack of water, it is the iniquitous distribution and denial of clean drinking water to the urban poor that led to the outbreak of water-contaminated diseases on a large scale in 2003 in Hyderabad city. The two main reservoirs that are the principal sources of drinking water to the old city have been neglected over the years leading to their drying up, for the first time, in 2003. Despite untold miseries suffered by the poor, the State continues to be lukewarm to their plight, which is highlighted in this paper. Such neglect by the State is probably due to lack of mobilization by the poor to form an effective pressure group at grassroots level to lobby for basic amenities.

Introduction

In recent years, the Hyderabad Urban Agglomeration (HUA) has emerged as an important software centre in India. Spread over an area of about 778 square kilometers, the HUA consists of the Municipal Corporation of Hyderabad (MCH), Secunderabad Cantonment, the ten surrounding municipal towns, and a few smaller rural and urban settlements. With a population of about 5.5 million in 2001, it has registered a growth rate of about 43 %, 67 % and 28 % during the seventies, eighties and nineties respectively. The MCH forms the main core of the city and accounts for over 70 % of the population but only one-fourth of the area of the HUA. An attempt is made in this paper to analyse the variations in access to piped drinking water between the core city and its surrounding towns. Major portion of the paper, however, has been devoted to a discussion of the decline in the water supply from two main reservoirs and how consequently several poor localities of the city were badly affected by water contamination and disease.

Water supply variations

Within the HUA, there is a significant variation between the MCH and the surrounding municipalities in the access of households to tap as the main source of water supply. While 93 % of households depend on tap in MCH area, the same is true for only about 50 % in Malkajgiri and Rajendranagar (see Table 1). Gaddiannaram, which has 96 % of households using tap water, is the smallest sized municipality in the state of Andhra Pradesh, covering an area of only 2.12 sq. km. In Alwar, Qutbullapur and Kapra, this figure is in the range of 60-70 %. The Hyderabad Metropolitan Water Supply and Sewerage Board (HMWSSB) is the main agency supplying water. Its operations have been previously largely confined

to the MCH area but, in recent years only, it has started supplying water in the surrounding areas. In terms of location of the source of water, the tap is within the premises for over 80 % of households in Gaddiannaram, MCH and Uppal Kalan. Once the main source is located outside the premises of the household, fetching water involves carrying the load, walking and waiting time. This burden invariably falls on women in India.

Water supply in the city

Due to growing population and inadequate water resources, since 1986, the water supply in Hyderabad city has been restricted to a couple of hours per day on alternate days. In August 2003, the HMWSSB was supplying 120 Mgd (555 Mld) of water as against the demand of 250 Mgd (1137 Mld). About 80 % of the population is covered by water supply while 71 % of the households have access to individual tap connection. The average per capita supply is estimated to be 79 litres. The sewerage system covers only about 54 % of the population and 62 % of the geographical area. There is no proper sewerage system in much of the surrounding municipal towns. In addition to the surface water, about 25 Mgd (114 Mld) of groundwater is also extracted for augmenting the supplies in the city. About 300 tankers are engaged daily by the HMWSSB to supply water to the poorer localities and low-income areas, which are not served by taps (MCH, 2003). About 25 % of the city's population is living in slums. The National Commission on Urbanisation (NCU, 1988) observed that the 'water supply system is unequal and unjust, being highly biased in favour of the rich' and it is 'inequitable distribution which causes real problems' than the lack of water. And, the 'sewerage system is even more unjust and even more highly biased in favour of the rich' in urban

Hyderabad urban agglomeration	Total and location	All sources	Source of water supply (per cent)			
			Tap	Hand pump	Tube well	Others
Hyderabad (M Corp.)	Total	100.0	93.1	2.6	1.2	3.2
	Within Premises	83.9	87.8	29.8	67.0	
Serilingampalle	Total	100.0	70.9	13.1	9.4	6.6
	Within Premises	57.3	69.5	10.0	56.1	
Kukatpally	Total	100.0	85.1	6.8	5.3	2.7
	Within Premises	66.6	71.3	25.2	66.9	
Qutubullapur	Total	100.0	64.1	11.1	8.1	16.8
	Within Premises	53.5	74.3	10.3	34.7	
Alwal	Total	100.0	61.1	13.6	15.2	10.1
	Within Premises	59.5	70.4	27.6	55.3	
Malkajgiri	Total	100.0	49.4	12.8	20.2	17.6
	Within Premises	56.7	62.1	57.0	58.1	
Kapra	Total	100.0	67.4	7.9	8.4	16.2
	Within Premises	67.0	84.2	31.7	51.9	
Uppal Kalan	Total	100.0	82.3	4.3	6.1	7.3
	Within Premises	72.2	78.8	45.6	47.6	
Gaddiannaram	Total	100.0	95.6	1.6	1.8	1.0
	Within Premises	96.1	98.4	8.4	82.1	
Lal B Nagar	Total	100.0	60.7	9.2	22.4	7.7
	Within Premises	62.4	76.0	20.6	62.4	
Rajendranagar	Total	100.0	50.0	17.2	11.9	20.9
	Within Premises	37.0	59.5	13.8	33.2	

Note: The total number of households is 968,411.

Source: Census of India, 2001, Andhra Pradesh, Household Amenities

areas. It strongly recommended that the water distribution systems be overhauled in such a way that even the poorest colony is ensured the minimum supply of at least 70 litres per capita per day of water on a regular basis.

The four main sources of surface water are Osmansagar Reservoir, Himayatsagar Reservoir, Manjira Barrage and Singur Dam. Of these, the first two were constructed in the 1920s on the outskirts of the city. Most of the old city of Hyderabad is dependent on these two reservoirs. The withdrawal of water from these two reservoirs has fluctuated over the years, and became nil for some months in 2003. The city has experienced water scarcities during 1985-88, 1993-95, 1997-98 and in 2003 (see Table 2). For the first time in about 80 years, these two reservoirs dried up in 2003. Most of the areas in the old city that depend on this reservoir for water supply went through very tough experiences. It is estimated that the gross storage capacity of Osmansagar has declined by 12 % and that of Himayatsagar by 20 % during 1973-88 (HMWSSB, 1995). There has been a progressive decline in the percent of rainfall converted into inflows into these two

reservoirs during 1961-1996 even though the rainfall pattern has not changed much. These two water bodies reached their full reservoir levels more times (10 times by Osmansagar and 11 times by Himayatsagar) in the first 18 years of 1961-96 compared to the second half of the period (only 5 times by Osmansagar and 6 times by Himayatsagar).

Based on this trend, it was concluded that these two reservoirs would dry up completely: Himayatsagar in 2036 and Osmansagar in 2040. If they do not dry up, it is expected that they will receive mostly polluted water resulting from the increasing urbanisation of the catchment area and would cease to be the sources of drinking water, unless proper remedial measures are taken (Venkateswar Rao and Srinivasa Rao, 1998). In terms of cost, water from these two reservoirs is considered very low since the water flows by gravity into the treatment and distribution systems. The State government has shown very little interest in protecting the catchment areas of these two reservoirs despite several government orders and judicial pronouncements in this regard probably due to the power of real estate lobbies in

Table 2. Main Water Supply Reservoirs for Hyderabad

Periods (Not continuous)	Osmansagar	Himayathsagar	Manjira/ Singur	Total in Mgd
1980-81	25	20	15	60
1981-83	25	20	36	81
1985-87	10	8	15	33
1987-88	2	8	32	42
1988-91	28	22	40	90
1991-92	25	20	65	110
1993-94	1	3	69	73
1994-95	5	2	85	92
1996-97	15	25	105	145
1997-98	20	5	70	95
1998-99	25	15	105	145
2002-03	27	18	117	162
27 February 2003 to 16 April 2003	0	14	111	125
17 April 2003 to 14 June 2003	0	14	115	129
25 June 2003 to 29 August 2003	0	0	120	120
30 August 2003 to 29 February 2004	9	9	120	138

Note: Mgd – Million gallons per day. 1 Mgd = 4.546 Mld.
Source: www.hyderabadwater.gov.in (accessed in March 2004).

the area. Also, the proposed international airport is going to further endanger the catchment areas of these reservoirs (Ramachandraiah, 2004).

Water contamination

In several parts of the old city, contaminated water flows through rusted pipes, which were laid decades ago. Cement pipes and galvanized-iron (GI) pipes laid during Nizams days (1920s, 1930s and even earlier) for water supply have depreciated and are known to have developed holes and cracks. Since these pipes are laid along side sewerage/drainage lines (open as well as closed), the drainage water can enter the water pipes and get mixed with drinking water. Proportion of such mixing increases when the pressure of water in the pipes is low due to alternate (or once-in-three days) supplies in such areas. After the Osmansagar Reservoir dried up, and with the resultant low pressure in water supply, this problem became worse in 2003 and affected many areas. Some of these areas are also economically the most 'depressed areas' inhabited by socially disadvantaged and poor people in larger numbers (Alam, and Khan, 1972). To cite one instance, the then tourism minister had first hand experience of polluted water being supplied to people in the old city. At Goshamahal, water was released on arrival of the minister and to the shock of everyone it was black liquid that trickled out of the taps (The Hindu, 10 April 2003). In

another instance, the local people mobbed the water works office in Madannapet division. There were a number of protest activities demanding an end to such contaminated water and for supply of clean drinking water. Even in areas that did not depend on this reservoir, people experienced similar problems. Though the problem is well known, and despite several protests, the authorities try to attend to the problem temporarily by delivering water in tankers. The long-term need of replacing the old pipelines with new ones is never taken up seriously. Where people had to wait for official tankers, it was a desperate situation. Those who could afford to pay were able to buy water from private tankers, filled by groundwater and by large-scale businesses.

Apart from the MCH area, the neighbouring municipal towns of Malkajgiri and L.B. Nagar have also experienced similar problems. Added to this, improper sanitary conditions in poor localities compounded the problem. To cite a few instances, the spectre of choked drains and overflowing nalas (small drains) haunt the people in the congested low-lying Amannagar area. This slum represents the seamier side of the State capital (The Hindu, 15 July 2003). Conditions like kuccha roads reduced to sewers and open patches turned to garbage dumping points with mosquitoes swarming everywhere have made hygiene the first casualty in most of the slums in the city. With basic facilities lacking, the contagious diseases reported at Ambedkarnagar, Muralidhar Bagh and

Singadikunta slums could be found everywhere (The New Indian Express, 5 July 2003).

As a consequence, thousands of poor people were affected by contaminated water and were admitted in various hospitals. As per the figures collected from local print media reports, about 2706 persons were admitted in various hospitals and about 47 persons, including children, died in several localities. One Telugu newspaper reported that in the first seven months of 2003, about 96,000 people were treated in the Fever Hospital for water and sanitation-related ailments (Andhra Jyothy, 23 July 2003). In just one public hospital forty-five people died and several thousands were admitted due to diseases caused by polluted water and poor sanitary conditions (see Table 3). The figures given in the Table 3 relate to seven diseases - Cholera, Infectious Diarrhoea, Dysentery, Gastro-Enteritis, Enteric Fever (Typhoid), Acute Diarrhoea Disease (A.D.D), and Urinary Tract Infection (U.T.I). Tens of thousands of people were treated as out-patients in this hospital. The numbers admitted and died in 2003 are more than double to those in 2002 for the same period. In Niloufer Hospital, during May-October 2003, about 10,500 persons were treated for just two diseases, acute diarrhoea and enteric fever (typhoid), of which 22 died. As thousands of people were getting affected and hospitalized in several parts of the city, the chief minister declared a 'health emergency'. This has been happening even while the State government is projecting Hyderabad city as a 'health capital' in India because of the presence of large number of super-specialty corporate hospitals.

The large number of admissions and death of people due to water and sanitation-related diseases in the earlier years of 1995, 1996 and 1998 (see Table 3) may, therefore, be attributed to the decline in water supplies from either or both of Osmansagar and Himayatsagar Reservoirs during those

years (see Table 2). The cause of disease and death of poor people in the low-income localities of the old city are thus directly linked to the availability of water from these two reservoirs. The importance of protecting the catchment areas to these reservoirs should not be overlooked.

Conclusion

Apart from the decline in water sources, it is the inequitable distribution of the available resource and its denial to the poor even to the minimum required levels that has caused such a widespread of outbreak of water-related diseases in Hyderabad city in 2003. It is an entirely a human-made crisis. Despite the prevalence of laws to protect human life, the State appears to be lukewarm in its response when it comes to the lives of poor people. Replacement of the age-old pipelines, which are rusted and leaking, and separating them from the drainage lines to avoid intermixing should become priority issues in the policy making as far as drinking water is concerned in Hyderabad.

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Table 3. Number of patients admitted and dead due to water and sanitation-related diseases in Fever Hospital in Hyderabad: 1995-2003

Years	Admissions	Deaths
1995	11722	44
1996	14018	76
1997	8973	31
1998	13353	86
1999	8189	32
2000	7147	23
2001	6647	17
2002	5936	20
2003	13473	45

Source: Hospital records, Fever Hospital, Hyderabad.

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