Improving Water Services through Small Scale Private Providers

WATER VENDING
in Chennai (Madras)

Although the CMWSSB claims to have a 96 per cent coverage of population, the public water supply system actually meets about 65 per cent of the total demand for water. The shortage is generally supplemented by obtaining water from other sources, namely community and in-house sources and private water vending. Dependence on community tanks and wells, although decreasing over time, still meets 10.4 per cent of the demand. Most public tanks which used to function as storage and percolation points for rain water have been filled and built upon. Only 36 temple tanks have survived and most of them are highly silted and polluted. In-house wells continue to cater to about one-quarter of the water demand. Private water vending through tankers meets a small proportion (4.4%) of the total water demand of Chennai but it is increasing over time.

This Field Note indicates that private vendors are finding a niche in Chennai in the backdrop of a poorly performing public sector monopoly and providing additional water to those who need it and better quality drinking water to those who can afford it. The present regulation aims to check over drawl of ground water by private providers. However, a suitable regulatory mechanism needs to be evolved to make optimum use of water resources as well as to exploit such private enterprise more effectively.

Chennai Urban Agglomeration (formerly known as Madras) is India's fourth largest metropolis, with a population of 5.42 million in 1991 and projected population of about 7.0 million in 2001. The metropolis consists of the Municipal Corporation of Chennai city, 5 municipalities, 24 other urban local bodies and 27 rural local bodies, covering an area of 1,166 sq. km. Although the population growth of Chennai has been declining, from 63% in 1961-71 to 26% in 1981-91, the proportion of low income citizens has been increasing. At present, about 30% (2 million) of the population lives in slums and informal settlements.
Water is supplied to the poor free of cost. The CMWSSB has started bearing the cost of providing water to the poor supplied through public fountains and fixed tanks since September 1998. The Municipal Corporation of Chennai used to pay the CMWSSB for free water supplied to the poor prior to this date.

Water provided by vendors is too expensive to be bought by the poor consumers. The incidence of poor people purchasing water from private vendors occurs only in peripheral areas falling outside the CMWSSB jurisdiction.

The Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB) was formed in 1978. The CMWSSB is responsible for supplying water to the entire municipal corporation area and some of the adjacent urban and rural local body areas in the metropolitan region.

PUBLIC WATER SYSTEM

The CMWSSB supplied 440 million liters per day (MLD) in 1997-98. Water is presently supplied intermittently for 2-3 hours a day, with an estimated average of 100 liters per capita per day (LPCD), much below the prescribed norm of 140 LPCD. The CMWSSB has prepared a Master Plan 1991-2021, with a total outlay of Rs. 12,960 million, to augment water supply from the Krishna river as well as to strengthen the distribution system. The Plan aims to increase the level of water supply from the present 100 LPCD to 140 LPCD with an additional capacity of 530 MLD.

About 10,000 bulk industrial and commercial connections are metered while most of the 200,000 domestic connections are not metered. Differential pricing by the type of consumers as well as quantity of consumption is followed for the metered water supply, with the price ranging from Rs. 2.50 to Rs. 40 per Kilo Liter (KL). The un-metered domestic consumers pay a flat rate of Rs. 50 per month per connection, which includes water and sewerage charges. The CMWSSB also sells treated surface water through tankers at a price of Rs. 450 per 9,000 liter tanker. The tanker water is sold to bulk consumers and also to other consumers for meeting their special occasional demand. The demand for this type of water supply varies between 62 and 100 total tanker trips per day.

There are 6,200 stand posts supplying water to the poor living in numerous slums and informal settlements. In addition, 950 water tanker trips, with the capacity of 9,000 liters per tanker, are made every day to provide water to those low-income areas which are not connected to the piped supply system. These tankers transfer water to storage tanks made of concrete, steel or plastic which have been installed by the CMWSSB in these areas.

At a community stand post - Voluntary or paid service?
PRIVATE WATER VENDING

There are two types of private water supply systems prevalent in Chennai, that is bulk untreated water supplied by tankers and mineral/purified drinking water in sachets, bottles and jerry cans.

**Bulk Supply:** The private water vending by tankers is dependent on ground water sources drawn from rural areas outside Chennai. The major sources of ground water are located along the east coast road south of Chennai, near Ambattur north-west of Chennai, and in Porur area west of Chennai. There are 80 licensed tankers which on an average make 3 trips per day to fill and deliver the untreated ground water. The water sold by these tankers is priced at Rs.350-400. The private vendors pay Rs.25-40 per tanker for filing water from the bore wells owned mostly by the farmers. There is significant seasonal variation in demand and price of tanker water. The following table shows that bulk water supplied by private providers is cheaper than that provided by the public utility.

<table>
<thead>
<tr>
<th>Water supply by Public and Private Tankers</th>
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<tbody>
<tr>
<td><strong>Indicators</strong></td>
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<tr>
<td><strong>CMWSSB tankers</strong></td>
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<tr>
<td><strong>Private tankers</strong></td>
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<tr>
<td>Capacity (liters)</td>
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<tr>
<td>Number of trips per day</td>
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<td>Price per tanker (Rs.)</td>
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<td>Price per KL</td>
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<tr>
<td>Cost of production-distribution (Rs. per KL)</td>
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<td>Quality of Water</td>
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The main clients of private water provided by tankers are bulk users, such as industries, hotels, theaters, academic institutions, government as well as private offices across the city. The residential users also buy tanker water from the private vendors to supplement water being provided by the public agency, especially in the affluent areas and in those areas at the tail end of the piped water system who receive water at a very low pressure.

The users of private tanker water can be put in three broad categories: (i) those who buy water on a regular basis through out the year; (ii) those who purchase water during dry season between April and June when the quantity of public water supply becomes much less; and (iii) those who buy water occasionally for marriages, parties and festivals.

**Drinking Water Retail:** There are several leading brands of mineral/purified drinking water, such as TEAM, Apollo and Shriram which are sold through retail outlets. Mineral water is available in sachets and bottles.
Profile of a Private Mineral/Purified Water Producer

Titanium Equipment and Anode Manufacturing Co. Ltd. (TEAM) is a major producer and supplier of mineral/purified water in Chennai. TEAM has been manufacturing water treatment plants and water filters for the past 25 years. They had also set up a water desalination plant in the late 1970s, which closed down in 1982. This plant was subsequently redesigned to produce purified drinking water. Now TEAM has two plants, one plant produces mineral water in sachets and bottles, and the other plant produces 12 and 20 liter jerry cans of purified drinking water.

Both the plants use raw water from their own wells. The mineral water is manufactured by demineralisation-mineralisation process while purified water is produced by using reverse osmosis/ozoneation process. The capital cost of a typical 100,000 liter per day reverse osmosis based mineral plant is Rs.5 million. Power consumption per 1,000 liters of water produced is 4 KWH. Cost per liter of mineral water with concessional power tariff is 5 paise and with normal power tariff it is 6 paise, excluding the cost of labour and bottling.

where as purified drinking water is available in recycled jerry cans. An initial deposit of Rs.50 per 12 to 15 liter jerry can has to be paid and the refills can be purchased for Rs.20 to 22. A one liter bottle of mineral water costs Rs.10 to 12 and a 200 ml. sachet costs one rupee. The price of mineral water varies by the brand name. This type of water is mostly consumed by the high and middle class groups who are not satisfied by the quality of water being supplied by the public agency, and in areas where the alternative ground water is not potable. It is also becoming a status symbol to buy highly priced bottled drinking water.

Jerry cans of drinking water on way to retail outlets

GROUND WATER REGULATION

The Government of Tamil Nadu state passed ‘The Madras Metropolitan Area Ground Water (Regulation) Act’ in 1987 which came into force on 15 February 1988 to regulate extraction, use or transportation of ground
License Fee for Ground Water Extraction and Transportation

<table>
<thead>
<tr>
<th>Category</th>
<th>Annual fee (Rs.)</th>
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<tr>
<td>License for extraction or use of ground water for agricultural purposes</td>
<td>Free</td>
</tr>
<tr>
<td>License for extraction or use of ground water for other purposes</td>
<td>50</td>
</tr>
<tr>
<td>Using pumps with capacity not exceeding 5 HP</td>
<td>500</td>
</tr>
<tr>
<td>Using pumps with capacity exceeding 5HP but not exceeding 10 HP</td>
<td>1500</td>
</tr>
<tr>
<td>Using pumps with capacity exceeding 10 HP</td>
<td>2000</td>
</tr>
<tr>
<td>License to transport ground water by lorry, trailer or any other goods vehicle</td>
<td>5000</td>
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water. The objective of the act is to check over drawl of ground water and the consequent saline intrusion in the coastal aquifers. The Act is applicable in the Chennai metropolitan area and in 243 neighboring villages. The act envisages (i) registration of existing wells, (ii) regulation of sinking of new wells, (iii) issue of licenses to extract water for non-domestic use, and (iv) issue of licenses for transportation of water through goods vehicles. Licenses are issued after technical clearance by the CMWSSB and payment of an annual fee ranging between Rs.50 and Rs.5,000.

However, the Act has been able to check extraction of water to some extent and the dry season water table has improved from about 7.50 meters in 1988 to 4.25 meters in 1998.

In the past one month, the CMWSSB has apprehended about 30 private vehicles for extracting and transporting water without a license in a drive to implement the ground water regulation. Some of these private operators have filed court cases against the CMWSSB, demanding exemption and lowering of the license fee.
CONCLUSION

This note reveals that private water vendors provide bulk untreated water as well as mineral/purified drinking water in Chennai. The buyers of private water are largely commercial and institutional users, and also, middle and high income households. Water provided by vendors is too expensive for the poor consumers. The incidence of poor people purchasing water from private vendors occurs only in peripheral areas not covered by the public utility. However, private vendors are certainly increasing the over-all supply of water to the metropolis, thereby, indirectly improving supplies to the poor. It is not clear at this stage whether in times of acute water shortages, the poor also resort to buying water at the prevailing high price.

It is now widely held that the monopolistic public delivery of water is unsustainable and falling both in quantity and quality while the demand is increasing. The inefficient public sector is also providing subsidies to higher income groups. The small scale private sector has found a niche in an uneven market and is still making a profit. The case of water vending in Chennai highlights the growth of private water providers in urban areas, and raises the following issues for consideration in the context of the need for supporting small scale independent providers of water:

- Should the public utility move out and allow quality service to be provided efficiently by a number of operators, with competition working as automatic price regulator? Or, should public utility establish a partnership with the private sector and change its role?

- If it is to change its role, how can public sector facilitate innovative unbundling of water supply to meet the demand of the poor at affordable prices?

- What is a suitable regulatory framework to effectively regulate the operations of multiple private providers in terms of the use of ground as well as surface water, price and quality of water?

For further information, please contact:

Pushpa Pathak (ppathak@worldbank.org) or
K.M. Minnatullah (kminnatullah@worldbank.org)
at

UNDP-World Bank
Water and Sanitation Program
55 Lodi Estate, New Delhi 110 003
Tel: 91-11-469 0488/89; Fax: 91-11-462 8250

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