Abstract — Water is an important resource available for humans and fresh water is much more important given its limited availability and erratic distribution over space and time and the most basic of human needs a safe and reliable supply of drinking water. In the current state of water supply, three major points are included—such as water availability, Inefficiencies in the supply of water and pricing of water and the area for urban reform indicates the different options of urban reform such as pricing reform, financial reform, Water services Governance. In this paper, we see that access to water in urban area and different options for reform.

INTRODUCTION:—

Urban anthropology has widely covered the perception and appropriation of urban space by its inhabitants (Hengartner 2000: 91; Hutchison 1994), but so far it has been less concerned with the discourse about the concrete infrastructure. Yet the setting-up of water mains, telephone lines, transformer stations, gas-pipelines or sewer pipes is not merely a practical and technical process; the infrastructure is shaped in a social discourse on privileges, distribution of assets, rights to access to services, hopes of future possibilities and so on. In over 50 years of political independence and economic development, India has not been able to ensure the most basic of human needs — safe drinking water — for all its citizens. Rural areas contain the largest number of people without access to safe water but, in common with many developing countries, the fastest growing unserved populations live in urban and peri-urban areas. Given the primacy of drinking water as a national objective (GOI, 2002, Section 6.1). The objective of this paper is to assess the ongoing water sector reforms in urban India. We assess the current state of urban water provision with respect to, water availability, water sector efficiency and pricing structures. We then review the options for urban and water delivery with a focus on pricing reform, financial reform and we analyze the status of ongoing attempts, including those involving civil society, to reform the water sector.

Access to Water

To examine patterns in household water delivery across different geographic and socioeconomic dimensions we employ data from the NFHS taken in 2005-2006. This is India’s version of the Demographic and Health surveys taken worldwide. Looking across India, we note substantial heterogeneity in water delivery. Piped water supplies 69% of households in large cities, 45% in smaller cities and towns, and only 9% of rural households. Hand pumps are still the predominant source of drinking water in rural areas. Overall, 88% of households in 2005-06 were estimated to receive their drinking water from improved sources. The NFHS does not collect income data at the household level, but does ask households questions on ownership of a number of durable assets.

THE CURRENT STATE OF URBAN WATER SUPPLY: -

I. Water availability

The water supply in most Indian cities is only available for a few hours per day, pressure is irregular, and the water is of questionable quality. No major Indian city has a 24 hour supply of water, with 4 to 5 hours of supply per day being the norm. This compares to the Asian-Pacific average of 19 hours per day supply. These averages conceal a great deal of heterogeneity within cities. Most households (88 percent) have access to an improved source of drinking water, with greater access in urban areas. The most common improved source of drinking water for urban dwellers is piped water: 71 percent either have water piped into their living area or use a public tap. By contrast, only 28 percent of households in rural areas have access to piped water. Most people in rural areas obtain their drinking water from a tube well or borehole (53 percent). McIntosh notes that consumers without 24-hour supply tend to use more water than those with continuous supply because consumers store water, which they then throw away to replace with fresh supplies each day. Intermittent water supply, insufficient pressure and unpredictable service impose both financial and health costs on Indian households. Many
households with in house connections were found to have undertaken long-term investments in the form of water tanks, hand pumps or tube wells. Households with water tanks install booster pumps on the main water line itself and pump water directly to water tanks. This increases the risks of contamination of the general water supply and reduces the pressure in the network for other users, leading them also to install motors on the main line.

2. Inefficiencies in the supply of water

A standard indicator of inefficiency is the percentage of water produced that does not reach water board customers. Unaccounted for water results both from leakages and illegal connections. In addition to the financial costs to the water utility, high levels of unaccounted for water are also a major reason for intermittency in the supply of water, since leaks and illegal connections lower water pressure in the distribution system. The consequence of overstaffing, underpricing, and high levels of unaccounted for water is that most urban water utilities in India are unable to cover even operating and maintenance costs out of revenues from tariffs, let alone provide capital for the expansion and improvement of the network.

3. Pricing of water

State Governments in India are responsible for choosing urban tariff structures, and the result is wide variety in pricing practices. Average tariffs in India are low relative to costs. A cross-region study by the Asian Development Bank found average rates in Delhi of 0.007 US$. In comparison, rates were 0.006 US$ in Dhaka and Karachi, 0.007US$ in Lahore. Indian cities therefore tend to have much lower prices than other Asian cities. Raghupati and Foster (2002) surveyed water charging practices in all 23 metropolitan areas (cities of over 1 million population) and 277 smaller cities of populations 50,000 to 1 million. They find that most cities operate a mixture of measured and unmeasured tariffs. For unmeasured areas, a flat rate is the most common form; for metered connections, the predominant charge is a constant rate per kilolitre. 42% of metropolitan areas and 23% of smaller cities use an increasing block tariff (IBT). Under an increasing block tariff, a low rate is charged for the first few units of water, and then higher amounts of use are charged at higher rates. Increasing rates on higher amounts forces wealthy households to subsidize a poorer household, which is seen as desirable for equity and public health reasons.

AREAS FOR URBAN REFORM:-

1. Scope for pricing reform

Upgrading and maintaining an existing water system is the primary rationale for pricing reform. Several studies have argued that poor people will pay for water if it is conveniently and reliably supplied (e.g. WSP 1999) and that appropriate pricing reform can promote both efficiency and equity (e.g. Rogers, de Silva and Bhatia 2002). Existing evidence suggests that many low-income households in India can afford to pay more for water, particularly if the increase in prices is accompanied by better service. At present, households may pay several times the municipal charges in coping costs arising from the irregularity and unreliability of supply (Connors 2005). Basic calculation of per capita monthly budget of Rs 300 could pay up to Rs 6 per KL for a block of up to 8 KL per month. But given estimates of operating and maintenance costs in the range of Rs 10 per KL, some subsidization would remain necessary.

2. Scope for financial reform

A traditional mechanism for raising the capital needed for water and sewerage system expansions and upgrades is the municipal bond, usually issued without guarantees from the state or the federal government. Through such bonds, private credit markets lend money to local governments for a fixed period of time and at predetermined interest rates. Financing water and sewerage expansions through bonds is not common in South Asia, but in 1998 Ahmedabad Municipal Corporation (AMC) became the first Indian municipality to use this mode of raising capital.

An ambitious project to extend water and sewerage to 3.5 million unserved people in Ahmedabad was financed through multiple mechanisms, including municipal bonds issued within India and USAID-guaranteed loans from international banks. AMC first worked to gain the trust of the credit markets by lowering its budget deficits, increasing the transparency of its financial administration and the capacity of its water sector staff. These reforms made it the first Indian city to earn an A+ rating from the Credit Rating Information Services of India, and with this rating the AMC raised over $20 million through municipal bonds sold both to the public and to institutions. As the Indian credit markets mature, it seems possible that other municipalities could replicate Ahmedabad’s example. In fact, both Hyderabad and Chennai Municipal Water Supply Boards have now issued municipal bonds to raise investment capital (World Bank 2006). But we note that it was essential for AMC to prove its reliability and creditworthiness before issuing bonds without any guarantees from the state, and that even before its attempts to get a bond rating AMC was considered one of the best-run municipalities in the country.

3. Water services Governance

However, apart from improving water allocation and management efficiency of water sector through reform process, it is also to undertake the reforms in the service delivery, wherein the potential is also very high due to the much closer interface with public. The major areas of reform in service delivery include:
**Governance and management**

Urban water governance is highly skewed towards bureaucratic or departmental functioning without much involvement of all stakeholders. Even in the current design, the institutional arrangements are weak and the management organization lacks incentives for giving better outputs. Most of the water supply functions are catered by the public health engineering, municipal water works and public works departments with little coordination among them. The organizational structures do not encourage efficiency and outputs, but reward positions based on the tenure and past experience. It is therefore geared towards serving the needs of public/departmental services rather than catering to the needs of the customers/citizens. Moreover, decentralized governance principles are yet to be followed i.e., citizen group empowerment, local level access and community/public involvement.

**Organizational design and focus**

The organizational design is hierarchical, which is mostly the case of large public organizations, and not suited to a customer-focused service delivery. The departments within the organization confine to the functions but their integration is a real challenge to the senior management. The technical staff members (engineers) are promoted based on their tenure but not outcomes; the service staff is assigned jurisdictions but its accountability is often poor. The focus of the organization has also to shift from that driven by supply expansion and bureaucratic style of functioning to that driven by customers' demand and service oriented functioning, which requires appropriate organizational design (Rangachari 2003).

**Information/database management and Deployment of technology**

Most of the water supply entities lack good management information systems (MIS) of their organization. The data generation methods and recoring are poor, data formats are not well designed, record maintenance and retrieval is done in a haphazard manner. The result is poor capacity of the organization to understand its own business and run it in an efficient manner. Not only that there is potential for automation of operations but also restructuring the organization and management structures. For this to be effective and to enhance the capacity to monitor water resources - both quantity and quality - deployment of new technologies is very necessary.

**Economic Incentives and Accounting systems**

The current structure of water tariffs do not provide any economic incentives in terms of recovering costs - both operation and maintenance and depreciation of capital - in the urban areas; rather, they provide incentives for over consumption and inefficient use while not reflecting the scarce conditions of water availability. Further, most of the water supply organizations face financial constraints as their business is not completely run on the revenues, especially when it comes to the capital works this is a major constraint. It is therefore imperative that they become more proactive and borrow finances from private sector to provide adequate returns. Water accounting needs to be separated from general pool and it should be based on the double entry or fund based accounting systems.

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