

**P.O.W.E.R. -Politics of water and emerging realities***Kathryn S. Tovey, Uk*

URBAN WATER SUPPLIES (UWS) provided by public utilities are facing an acute crisis in many low-income countries (Nickson, 1997). Capacity has fallen far short of the exponentially rising demand; 450 million urban dwellers, particularly in marginal settlements, are excluded from piped water network which compromises their health and productivity (Black, 1994). Thus private sector participation (PSP) in water utilities and full cost-recovery pricing measures have been widely advocated (Serageldin, 1995). However, given the scale of the problem and limited funds available, neither public nor private utilities alone may necessarily provide the ideal delivery vehicle (Subramanian et al., 1997).

Water supply market failure can be examined from an institutional perspective by investigating ways of bridging this public-private divide and acknowledging the existence of local, informal institutions capable of providing a basis for synergy and coproduction with formal water utilities (Ostrom, 1996). Studies of marginal settlements throughout the developing world have shown that, where municipal services are unavailable or involve unacceptable waiting costs, missing water markets have been replaced by an almost ubiquitous informal service: water vending (Whittington et al, 1991). More attention should focus on the range and resilience of such informal institutions since they may present a more appropriate, reliable and flexible system, better suited to the community's needs (Cairncross, 1990).

In India, evidence of private water markets among lower-income, unconnected urban households remains poorly documented. The purpose of the study reported here was to identify the range and efficiency of informal water institutions in Delhi's illegal squatter settlements. Two million squatters, roughly 20 per cent of Delhi's population, live in these illegal *Jhuggi Jhompri* (JJ) colonies (Jain, 1997), where households are denied access to individual municipal piped water connections. This study had three objectives: Identify the characteristics of existing water institutions and to determine whether informal markets such as water vending were competitive or monopolistic with evidence of rent-extracting behaviour; Ascertain whether households were willing to pay (WTP) for piped water, in a city where water from municipal standpipes is officially available free of charge, and identify which factors influenced the decision making process; Examine the opportunities and constraints for the coproduction of water.

**Methodology**

This report describes a case study of 6 JJ colonies representing a total of 19,000 *Jhuggi* dwellers located in the midst

of the upper middle-class residential district of RK Puram in Southern Delhi. Although the squatter settlement clusters studied are located in a privileged neighbourhood, the results obtained nevertheless illustrate the range of institutional responses available in JJ colonies. The colonies were selected through stratified random sampling to ensure that they represented the range of municipal water supply sources (un)available to JJ colonies in Delhi. A total of 80 households were surveyed. The questionnaire covered households' socio-economic status, water consumption patterns, attitudes and financial contributions. Willingness To Pay (WTP) for piped water was estimated using a contingent valuation exercise. The bacteriological quality of the water supply sources and stored drinking water in households was also tested, but will not be discussed in this paper.

**Institutional aspects of water provision**

Officially, the Municipal Corporation of Delhi (MCD) must provide, under the UBSP, 37 l of water per day to all *Jhuggi* dwellers, free of charge. The selected JJ colonies were serviced by a variety of MCD water sources ranging from public taps to tubewells or Deep Bore Well (DBW) handpumps. MCD tankers also occasionally delivered water to camps. However MCD water supply sources were insufficient in 4 out of 6 colonies and totally absent in one of the camps. Per capita daily water consumption was also significantly below the UBSP minimum, reaching only 28 litres (although water used at the source for bathing and laundry was not included). The households' main water sources were located at an average distance of 150 m from the dwelling and queuing time was on average 40 min per trip. As water usually has to be fetched 2 or 3 times a day, it was estimated that an average household spends at least two hours daily collecting water. At the MCD taps, water only flowed for 2-3 hours a day. Frequently, the supply was cut off before all those queuing were served, causing much tension and frequent fights.

By failing to meet the UBSP guidelines, the state provision of water has clearly been unable to meet the communities' water needs. As a result, in all camps, a variety of non-MCD sources were used as supplements or alternatives to the free public municipal water supply. Nearly 80 per cent of households used two or more different water sources regularly; (50 per cent on a daily basis) and 20 per cent used three sources regularly each for specific purposes. Many of those water sources used regularly during the survey were only temporary (particularly tankers, water from

neighbouring colonies and illegal tapping of water) which emphasises the dynamic- but unreliable- nature of water supply in these camps. Given the institutional failure of the state to provide sufficient water to supply all slum dwellers, it was expected that the existence of private water markets in the form of street water vending, commercial tankers or the resale of neighbours water would be identified. Despite the notable absence of private water transactions, responses to the insufficient MCD coverage have taken a variety of institutional forms, which will be described below.

These local, informal institutional responses were found to vary in their degree of “privateness”, which was measured in two ways. Firstly, the “level of excludability” concerning water access was determined. For instance, rainwater is accessible to all but the collection of tap water within an office is generally restricted to its employees. Secondly, privateness was assessed by the financial expenditure required to obtain water from a particular source; either in terms of initial capital investment (e.g. installing a handpump) or per unit of water consumed (e.g. purchasing water from a *Sulabh*).

The use of truly open access common property water resources (rainwater harvesting; public streams; ponds) was not observed. The practice of water harvesting, once common throughout much of India, has now virtually died out, particularly in urban areas. Local surface water bodies were all open sewers unfit for use.

One common alternative “public” source observed in several colonies was the delivery of free water by commercial tankers. The institutional framework governing the provision of this service is, however, very different from its MCD counterpart. Although not involved in financial transactions themselves, *Jhuggi* dwellers are nevertheless clients of political patronage; this may involve “political costs” as well as benefits. These private water tankers were paid for by a local politician who was running for the November 1998 elections to the Delhi State Legislative Assembly. For two months prior to the study, this person had been providing free water daily to 25 JJ colonies located within the RK Puram-Vasant Vihar constituencies, as JJ colonies form strategic vote banks (Singh, Pers Comm.).

*Jhuggi* dwellers were also found to take advantage of their strategic location within RK Puram. Neighbouring colonies are informal providers of private or public tapped water. Although water thus obtained is free of charge, such sources tend to be highly “excludable” since mostly found in private offices or homes where a household member is employed.

The Indian NGO, Sulabh International, was present in every colony. It provided, in addition to its traditional communal latrines, laundry and bathing facilities. Tariffs varied but were typically US\$ 0.01 per bucket of water/laundry and US\$ 0.02 for a bath. Sulabhs are thus truly private water providers since they require a nominal financial contribution to cover operation and maintenance (O&M). Sulabhs were not, however, considered to be really private water vending markets since the prices are

heavily subsidised. The capital investment for the Sulabh infrastructure is usually provided by Sulabh International. O&M is sub-contracted to the MCD or, in some instances, to private companies. Although Sulabhs are rarely used as the main water source, their ubiquity and reliability means they are used regularly by 40 per cent of the households. Sulabhs may also provide a vital “lifeline” during water shortages when Sulabh water is distributed free of charge.

Other sources may be privately owned. Twenty percent of all households had contributed an average US\$ 6 towards the construction of a tap connection in their lane to be shared with neighbours. These connections were either an extension of the MCD filter supply (public tap) network or, more frequently, of MCD tubewell hydrants (i.e. connected to a local tubewell). Water was subsequently received free of charge. Only two households owned exclusive access to a handpump which effectively provides free water after the initial investment. No one owned truly private taps.

The classification of illegal tapping was less straight forward. The illegal tapping of the water mains could possibly be defined as the most private of all sources since the costs involved (i.e. sanctions for breaking the law) are exclusively privately borne. However, official public bodies appear to tacitly collude with the offenders (Kundu, Pers. Comm) since illegal tapping enables the MCD to, in effect, provide an extra source at no extra cost. Viewed from this perspective, illegal tapping then becomes a public source.

The repairs of public MCD water supplies offered a further institutional dimension. A quarter of households had made financial contributions towards the costs of repairing “free” MCD water supplies (particularly for handpumps and tubewells) - although the total contributions, over recent years, only amount to an average US\$ 0.33. Moreover, repairs and the installation of new public water sources usually required some form of collective action among the *Jhuggi* dwellers. The survey revealed that sixty percent of MCD repairs were, in reality, organised by community members. In colonies where commercial tankers were used, the elected *Pradhan* (slum head) recruited the camp’s children to clean the communal water tanks weekly.

In one instance, the *Pradhan* chaired a committee of 11 who met twice weekly and had recently succeeded in obtaining 4 MCD taps due to continued pressure on local authorities. However, even in these more organised camps, co-operation between households appeared restricted to certain lanes. Lack of social cohesion in these well established JJ colonies was manifest in the *Jhuggi* dwellers’ frequent fights when queuing for water, their poor awareness of, and participation in, community based organisations (panchayats) and widespread complaints of internal political rivalries. Many camp dwellers were unaware of major events affecting the camp such as eviction notices threatening other lanes (e.g. due to road enlargements). These defective information networks would suggest that “social capital” tends to be weak in squatter settlements - an important consideration for future collective action and co-operation within the camps.

### Willingness to pay

The contingent valuation exercise revealed an overwhelming 82 per cent of Jhuggi dwellers declared themselves willing to pay for piped water. Respondents were prepared to spend US\$ 1-2 median-mean for metered water (about 5 per cent of their monthly income). Nearly half were prepared to pay the US\$ 16 connection fee and a quarter were prepared to provide labour or share the costs (and taps) with neighbouring families. Eighteen per cent of the sampled households declared themselves unwilling to pay for metered water, of which 55 per cent declared themselves unable to afford it, 18 per cent (all female) could not discuss financial matters in the absence of their spouse or sons. The remaining 18 per cent showed evidence of “public posturing”; these more economically and politically influential members of the community refused to pay for water as they believed that water is a fundamental right and a service which the state should provide free of charge.

Modelling of WTP through logic regressions showed that income and the time spent collecting water (which is an indirect measurement of water availability) were the most powerful explanatory variables in determining whether a household would choose (and pay for) in-house piped water connections over free municipal water sources. The quality of the current source, use of Sulabhs and participation of male heads in water collection were also important factors. However, the limited sample size prevented a rigorous validation of the model. Empirical observations showed that most households obtained water from several sources, the choice being determined by quality, convenience, cost and purpose of use.

### Discussion: India, a unique institutional response?

Although 82 per cent of RK Puram Jhuggi dwellers were willing to pay for piped water, and over half had made financial contributions towards their acquisition of water, this study did not record evidence of private water vending markets as commonly reported in squatter settlements throughout the rest of the developing world (Whittington et al, 1991). Yet, in Indian JJ colonies too, the municipal water supply failed to meet basic minimum requirements both in terms of per capita daily water consumption and availability of water sources.

Indeed, there would appear to be an absence of any market niche for water vending in most Indian urban slums. Although Gnadeshikan (1995) and Giles and Brown (1997) both report the existence of water vending in Tamil Nadu and elsewhere, there have been no specific case studies of water vending in Indian slums. Moreover, in the 1995 UBSP survey, which recorded water sources used by the urban poor, water vending would have been included in the “other” category which scored 0.74 per cent (Malhotra, 1997). Thus although water vending has been estimated to serve between 20 -30 per cent of the Third World urban population, particularly those resident in

slums and peri-urban squatter settlements (Zaroff and Okun, 1985), it appears to be virtually non-existent in urban India.

The unexpected informal institutional responses to the failure of municipal water supplies described in this study could partly be ascribed to India’s unique political and institutional macro-environment based on an evolving bargain between the interests of the elite and those of the poor. In many developing countries, the monopolies of private water speculators remain unchallenged by the municipal authorities due to the weak socio-political powers of squatters (E.g. Ecuador, see Swyngedouw, 1997). In contrast, institutions governing access to water in India are (at least partially) the product of a broad based, politically engaged electorate of which urban squatters constitute a growing part. This is reflected through national and state policies geared to providing free water or ration cards to the poor as a “fundamental right” and, at the local level, through political patronage and the lobbying of local authorities, particularly in politically strategic districts like RK Puram. This institutional environment has perhaps made the problem of access to water less acute for the Jhuggi dwellers, thus reducing the appeal of water vending.

However, India does face a public institutional failure to meet water needs in marginal settlements. The situation in Delhi’s JJ colonies remains a classic example of the infamous law of hydraulic subsidies (Serageldin, 1995). Despite official free water policies, 37 per cent of households in Delhi are deprived of piped water (Giles and Brown, 1997) and face direct and/or indirect costs which often substantially exceed the price of subsidised municipal piped water enjoyed by the wealthier households connected to the piped network. Direct private financial investments remained limited, averaging US\$ 6 for the installation and repairs of shared or private hydrants, handpumps and taps. More substantial costs may, however, be indirectly associated with unsafe water supplies and lost productive labour time (given high employment rates in these settlements). Contaminated water increases the risk of water borne diseases and hence indirect costs through lost days of work and medical expenditure. Although this study did not quantify these costs, the incidence of faecal contamination was found to be significantly higher in non-piped water sources; contamination also occurred in 29 per cent of samples from stored clean drinking water. Moreover, an average of two hours of productive labour per day was wasted fetching, and especially queuing for, water. This costs a household the equivalent of US\$ 7 a month based on casual labour rates (US\$ 0.10 per hour). This is ten times more than the DWSSDU charged for in-house metered piped water.

### Recommendations

Given current direct and indirect costs associated with “free” public supplies, privately owned piped water connections would be the most appropriate long term solution. This single source could simultaneously meet a

household's needs in terms of quantity, quality and convenience, at a cost which most households are willing to pay. There are however several constraints. The sensitive issue of land tenure could be potentially bypassed by a private water company. It could charge low income groups for the provision of a service and cut off the water supply in the event of non-payment (thus lowering financial risks) although this raises delicate equity issues.

A more likely option, recently recommended by the 1998 *Buch Expert Committee on Slums* involves the legalisation of Delhi JJ colonies, which are mostly erected on state land. Only colonies on land of "special interest" would be ineligible and still face eviction. For eligible colonies, the municipality could provide in-situ upgrades, including privately owned piped water connections. However the Buch report recognises that a major financial contribution will be required from the Jhuggi dwellers to reduce the municipality's burden. While the findings of this study suggest that most Jhuggi dwellers appear willing to pay for piped water, only 25 per cent declared themselves able to afford the initial connection fee.

This problem may be overcome if the municipal (or private) water utility adopts a flexible approach by encouraging the creation or strengthening of local community based organisations to help reduce information costs and to provide communities with various options. Depending on a household's needs and financial constraints, these may include the individual or collective ownership of a tap or the provision of labour for the laying of pipes. Such "coproduction" could help utilities combine financial sustainability and efficiency with greater equity. The low social cohesion and intense political rivalry found, even in these well-established colonies, should not be overlooked. Effective coproduction may be inhibited unless co-operation among Jhuggi dwellers is nurtured, perhaps through increased NGO involvement, which aside from Sulabhs, was surprisingly absent in these colonies.

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