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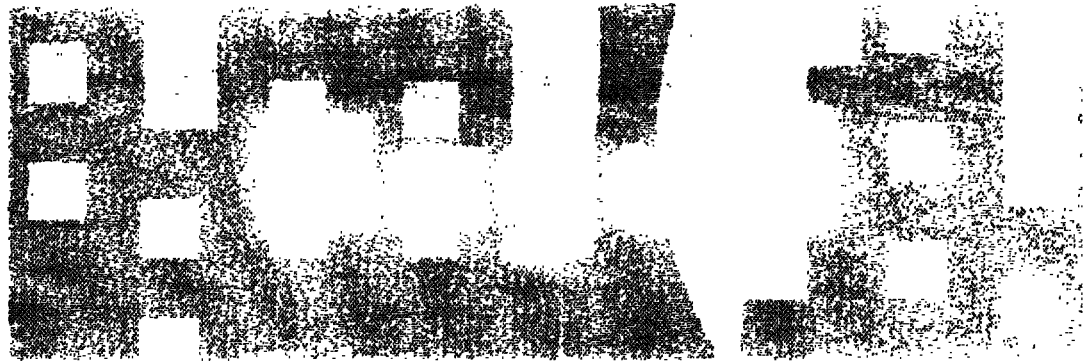
Twelfth Meeting of the Urban Think Tank

Tariffs and Subsidies

April 3-4, 2001 • Mumbai, Maharashtra

Water and Sanitation Program

An international partnership to help the poor gain sustained access to improved water supply and sanitation services



South Asia Region

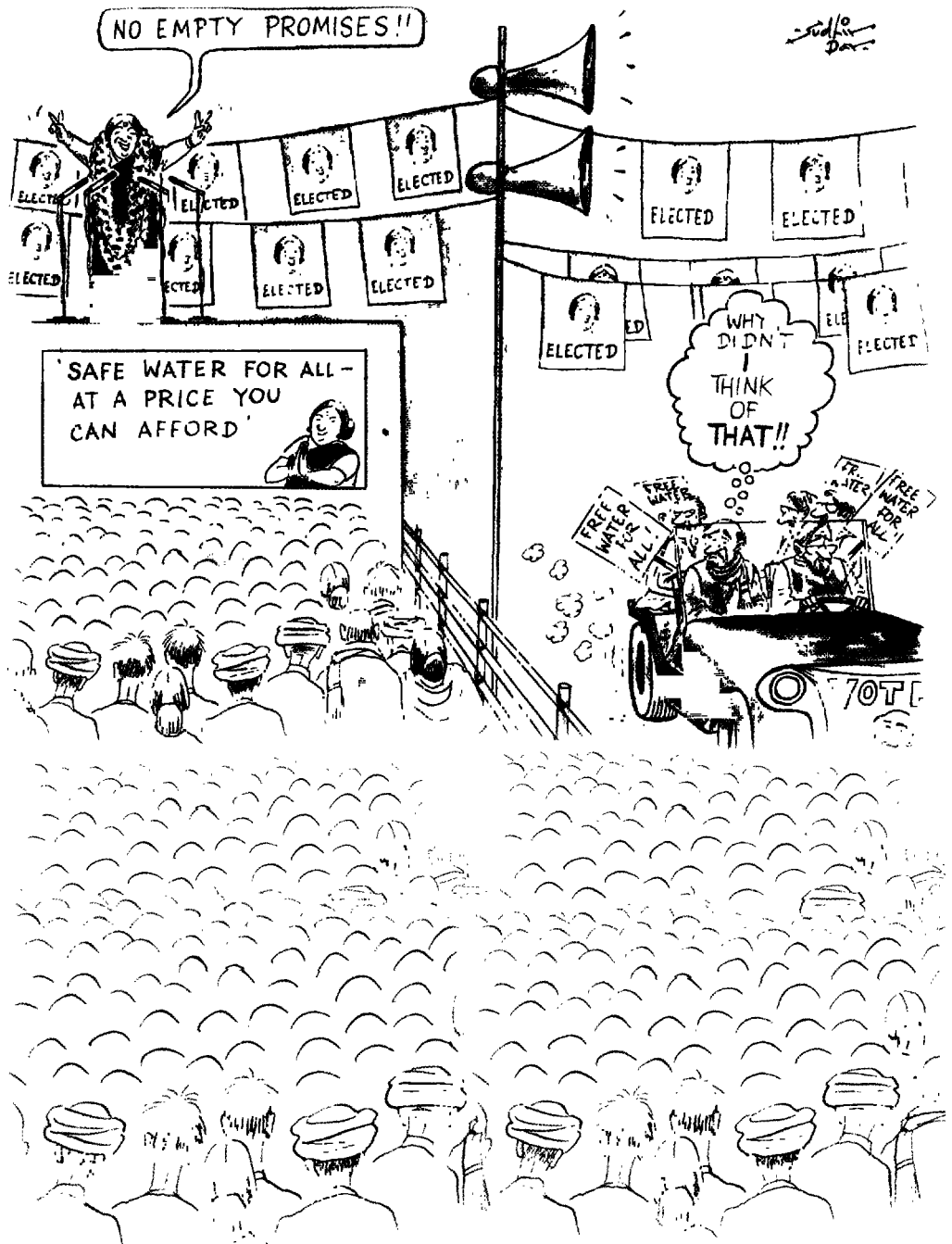
Urban Think Tank
Water and Sanitation Program - South Asia

FOREWORD

by Hareshwar Patil
Mayor of Mumbai

When I became Mayor two years ago, I announced four major reform programs; the most important of these was to expand the water supply to all the residents of Mumbai, whether they lived in slums or elsewhere, and to eliminate theft and seepage from the system. Everyone has a right to clean water and to correct bills, but while we have old and corroded transmission pipes and broken and faulty meters this cannot happen. Last year I recommended that private suppliers should be considered to provide water to some areas. The political support is there both for privatization initiatives and an increase in prices, provided this is linked to an improved water supply for the whole city, rich and poor alike.

As water is the most essential commodity for all of us, I am hoping our deliberations at this Think Tank will go a long way to help all the citizens of Mumbai achieve a comprehensive, safe and affordable water supply.



MUNICIPAL MATTERS: A View from Three Cities

Bangalore, Karnataka

Bangalore's population of 6.0 million people will rise to 7.3 million by 2011. More water will need to be taken from the Cauvery River, which already supplies 80 per cent of Bangalore's needs. Water is pumped over 100 km, and the associated electricity charges account for 60 per cent of the tariff, which, according to a 1998 ADB survey, is the highest in the country.

All water connections are metered and charges are based on an increasing block tariff with a minimum charge for the first band. The guiding principles are that commercial and industrial consumers should cross-subsidize the 15,000 public fountains and losses from the increasing volumes of unaccounted for water; and that high volume domestic consumer should subsidize low-volume consumers. Bangalore Water Supply and Sewerage Board (BWSSB) can revise tariffs to meet electricity price increases but revisions stemming from salary increases, maintenance costs, or capital costs need the prior approval of the State Government. In the last 10 years the average tariff has risen by over 20 per cent per year and, despite these increases, overall cost recovery is only 82 per cent of total operating costs with domestic consumption covering only 35 per cent of costs.

To ensure full cost recovery and to meet the capital costs of future expansion the tariff level in 2002-03 will need to be increased. Reforms are clearly needed and, to this end, the BWSSB is investing in surveys to establish social patterns, the possibility of more shared connections, and the ability and willingness to pay more for better services. But successful tariff reforms require firm political support.

Guntur, Andhra Pradesh

Guntur was established as a municipal corporation in 1994 and now has an estimated population of 5.5 lakh receiving an average of 101 liters per capita of water daily. The water sources are up to 17 km away and pumping costs form a large part of the water tariff. The majority of connections (31,550) are unmetered with only commercial and industrial users on a metered supply (1,120 connections). The corporation is encouraging the Group Tap scheme, which is subsidized by the National Slum Development Programme (NSDP), and discouraging public standposts that have a high tariff subsidy and are wasteful of water. Water losses are running at up to 35 per cent with between 20-25 per cent lost during transmission and 10 per cent during distribution.

The tariff structure is very simple. Capital costs are recovered through a one-time connection charge

and O&M costs are covered by the water tariff. Connection charges are at present Rs 12,000 for domestic consumers and up to Rs 42,000 for commercial connections. Group connections, which typically serve up to 10 people, cost Rs 3,000 after the Rs 3,500 subsidy from the NSDP; there is no subsidy in the group tariff, only in the connection costs.

Water tax currently stands at around 18 per cent of property tax. The corporation introduced a six-monthly comprehensive billing scheme in 1995, which includes property tax, water tax, etc, and recovery rates have improved from a low of 50-60 per cent to a norm of 90 per cent. This still leaves an annual O&M deficit of 0.23 crore per annum which is being met from the General Fund.

Mumbai, Maharashtra

Mumbai's population of almost 12 million people receives water for between 3-5 hours daily; water losses are running at 20-25 per cent. There are 3 lakh connections of which 220,000 are metered, but only 20 per cent of meters are in working order. The reasons are common to most cities in India, namely intermittent water supply, tampering by consumers and inability to repair or replace faulty meters. Meters have an average life of 5-7 years and analysis indicates that it is cheaper to replace than repair non-working meters.

At the moment, metered consumers pay sewerage charges equal to 60 per cent of the water charges, whether or not they have a sewerage connection. Unmetered consumers pay 65 per cent and 39 per cent of the rateable value of their property as water tax and sewerage tax. In addition, to meet capital costs for infrastructure development, all consumers pay a 12.5 per cent water benefit tax and a 7.5 per cent sewage benefit tax calculated on rateable values that remain frozen at the 1940 levels. The whole tariff structure and rateable values need to be reviewed and charged on a realistic basis. The tariff also needs to take into account debt servicing and repayment of loan, in addition to operation, maintenance and capital depreciation.

To improve service levels for consumers, the Mumbai Corporation wishes to launch a pilot project in one zone (K East – housing roughly 10 per cent of the city population) which will grant a private operator a five-year contract to (i) replace all meters and consumer connections within six months and maintain them during the contract (ii) identify water leakage and theft (iii) collect revenue for the water department (iv) reduce and monitor UAW. MWSSD will guarantee a 24-hour supply during this period and, depending on the outcome, replicate the scheme throughout the rest of the city.

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Water Tariffs and Subsidy Models in Indian Cities

This article is based on recently completed research in 260 cities and towns

Water utilities have two main sources of revenue, water tax, which is based on property values, and water charges, which are based on water consumption. Both have inherent flaws since tax can only be levied on registered properties, leaving an estimated 60 to 70 per cent outside the tax net, and water charges largely exclude the unconnected population living in informal settlements. Of the 260 urban centers that responded to a recent NIUA survey, 45 per cent used water charges, 17 per cent used water tax and 38 per cent used a mixture of the two to fund water and sanitation services.

Seventeen per cent of the cities used only metered connections and 38 per cent used a combination of metered and unmetered connections, but significant numbers of meters are broken or unread and metering presents challenges for utilities. For metered connections there are two types of tariff structures, a uniform rate per m³ irrespective of consumption and an increasing block tariff charging higher rates for increased consumption. The uniform rate was used in 40% of the sample with rates varying from a low of Rs 0.18 to a high of Rs 5.75 per 1,000 litres (m³). The study found that 15 per cent of cities used an Increasing Block Tariff (IBT). The number of blocks usually range between 2-6 with the first block varying from a low of 10 m³ to a high of 50 m³. Some cities have defined a fixed minimum monthly charge and the IBT comes into effect only when consumers exceed the minimum usage. There is no uniformity in the size of blocks, which makes comparisons and analysis difficult.

The tariff for unmetered connections in the survey (118 towns) falls into three categories – a simple fixed rate per month per household; a rate based on the diameter of the water pipe and a rate based on the number of taps per house.

Though the study did not specifically look at

subsidy models it seems clear that high volume domestic users subsidize low volume users, especially where IBT tariffs are used; industrial and commercial concerns generate a massive subsidy by paying a rate 5 to 10 times higher than domestic consumers; free public standposts are subsidized by other consumers; and when revenues are insufficient

Type of rates used for domestic connections

Type of rates used	No. of cities/towns	%
Combination of metered and unmetered	98	38
only metered	44	17
only unmetered	118	45
Total	260	100

Distribution of Indian cities by tariff structure for domestic connections

Type of tariff used	No. of cities/towns	%
Uniform volumetric rate + fixed rate per household per month	51	20
Uniform volumetric rate + ferrule-based rate	19	7
Uniform volumetric rate + tap rate	6	2
Only Uniform volumetric rate	28	11
IBT + fixed rate per household per month	4	2
IBT + ferrule-based rate	18	7
Only IBT	16	6
Only fixed rate per household per month	94	36
Only ferrule based-rate	22	8
Only tap rate	2	1

to cover expenditure, the State subsidizes all users by making up the shortfall.

There seems to be a consensus that tariffs should reflect cost; but for many towns and cities, especially the smaller ones, deciding what real costs are is a major part of the problem. They simply do not have the right tools to calculate costs that may originally have been set arbitrarily decades ago. The old, flawed, rates may be reviewed and increased from time-to-time but without tackling the real issues. Startling cost variations from as little as Rs 0.30 to Rs 300 per m³ emerged during this study. Despite the provision for greater autonomy in local decision-making enshrined in the 74th amendment there has been little devolution of power from the Center with respect to tariff-setting. State Governments still set the minimum tariff and must approve all proposed increases.

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Principles and Issues to Consider in Setting Tariffs and Subsidies and the Weaknesses of Increasing Block Tariffs

Water pricing is inevitably, a political process, and one that typically raises controversy. It is also a process that requires compromise, and the need to find the right balance between different objectives and the rights and needs of diverse groups. One of the reasons why setting water tariffs is so controversial is that in many cultures and countries water is seen as a resource that should be provided free; for many it is hard to give up this vision of free, abundant water even when faced with the reality that we live in a world where water is becoming an increasingly scarce commodity.

A water tariff is the set of rules and regulations regarding prices, charges, and taxes that utilities use to collect revenue. There are a wide range of water tariffs currently being used in Asian cities, and, in fact, compared to most neighboring cities, India has very low residential tariffs (see Figure 1).

Different prices have different consequences because tariffs have different functions. They determine the level of revenues that water utilities receive. For private utilities they are a method of attracting capital. They create incentives for the production and use of water. They allocate costs among different groups of customers because different people design tariffs for different reasons, using a balance of the following different objectives:

- economic efficiency, which means sending the right signals to customers about the consequences of their decisions on water usage now and a forward signal about what water might cost in future if supplies become more scarce.
- fairness in the eyes of the consumers, which may be different in different cultures
- equity, a testable hypothesis demonstrating how different prices affect different income groups
- cost recovery, which has been the main objective of the World Bank for the last decade
- steady, regular cash flow
- simple and understandable for consumers

In addition, the tariff should be seen as publicly and politically acceptable; it must be easy to implement and enhance the credit ratings of the utilities.

Tariff options entail a basic choice between:

- a single-part tariff that is either a fixed charge

FIGURE 1: Average Residential Water Tariffs – Selected Asian Cities (US\$/m³, 1997)

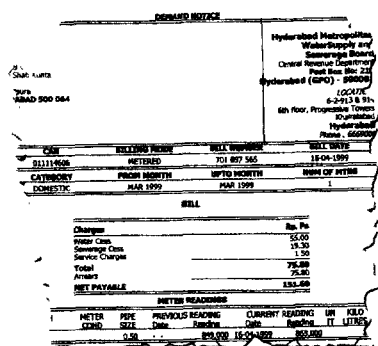


based on property values or household size, or a volumetric charge based on measured water use. There are different kinds of volumetric charges – uniform, decreasing, or increasing block structures.

- a two-part tariff that includes both fixed and volumetric charges.

With a two-part uniform volumetric tariff all units of water used are billed at the same price with a fixed monthly charge. A two-part increasing block tariff (IBT) will typically have a fixed service charge with two or more block prices that rise as consumption rises. Some variants of both these tariff structures would include a very low bottom block, usually called a lifeline tariff, which is often priced below cost; and seasonal prices in which prices vary depending on the time of year. IBTs that are currently in use have many common characteristics, for example, large initial blocks, large numbers of blocks, and more differentiation in blocks for residential users (who typically pay less per unit for water than commercial users.) IBTs are widely used in OECD countries and actively promoted in developing countries. In 1993 the Urban Water Resources Management of the UN declared "water pricing is an important instrument for stimulating efficient use of water. A basic amount could be used at a relatively low rate while water consumption beyond that amount could be charged with progressively higher rates". Nevertheless IBTs from different countries look very different (see Figure 2).

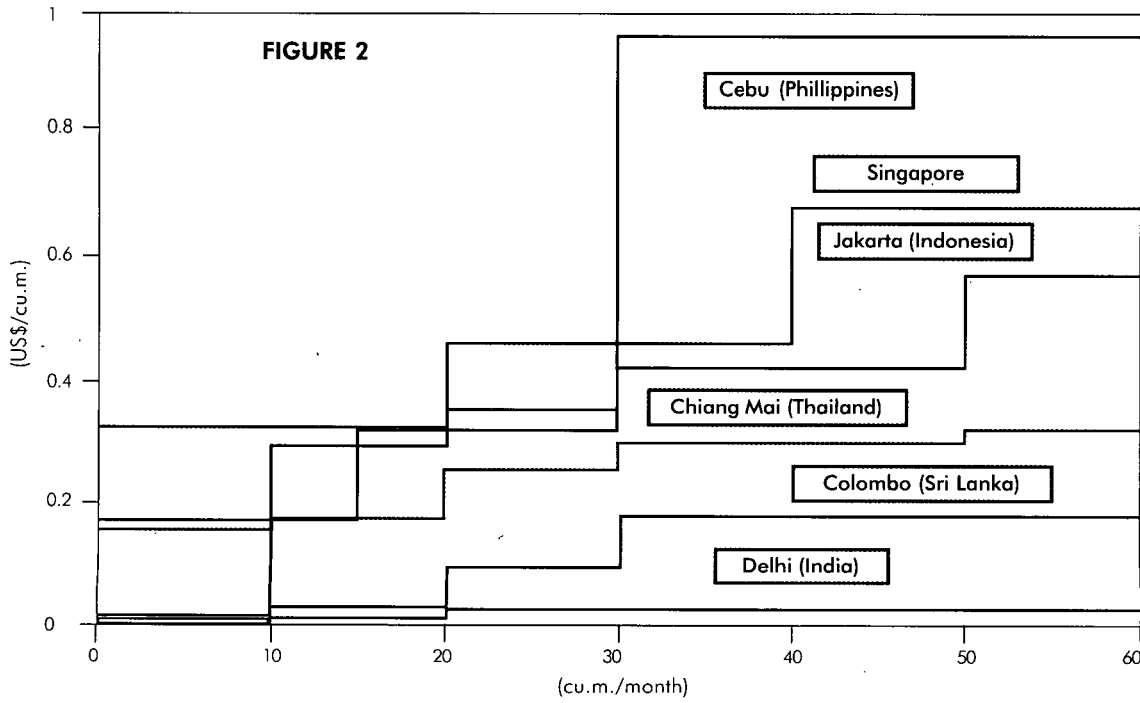
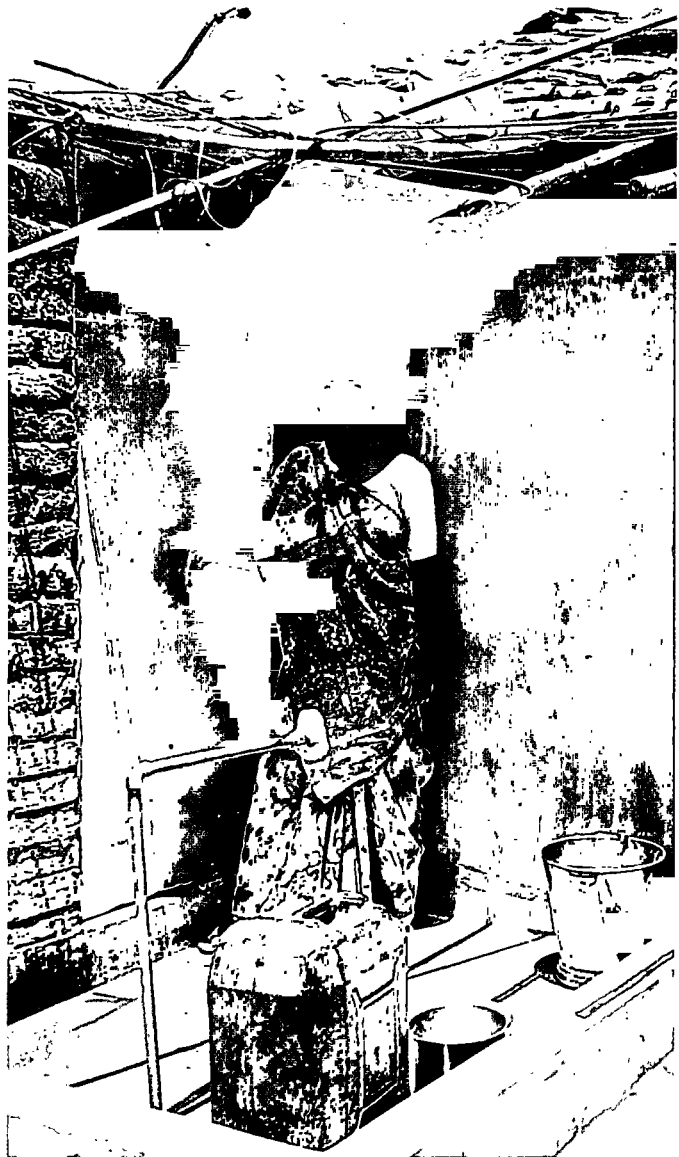
Supporters of IBTs claim that they transfer income from the rich to the poor and from businesses to poor households, and that they discourage wasteful use of water. IBTs depend on working, metered



connections so are unlikely to work effectively in many places. But it is often not true that the rich subsidize the poor. And while it is true that firms may subsidize households, these may not be poor households. Moreover, there is evidence to suggest that IBTs may drive large users off the piped water distribution system. There are other problems with IBTs. The size of the first block is typically far too large. South Africa is one of only a few countries that have restricted the size of the first block to the first six cubic meters of water. Most IBTs lack transparency and are difficult to administer. Where there are shared connections, a common situation in India, increased consumption pushes users into the higher blocks so the poor pay more for their water than better-off customers, thus creating a situation that is actually the reverse of the IBT's intent.

An alternative is to design a tariff based on lump sum transfers for poorer users; this allows a utility to set a uniform price that sends the proper economic signals about the true value of water. This Uniform Price with Rebate (UPR) tariff structure has a negative fixed charge that is in effect a credit entitlement on all water bills.

In conclusion, the usual rationale for employing IBTs are either incomplete or incorrect, and there are significant practical difficulties with IBTs in developing countries, noticeably shared connections. If the purpose of an IBT is to redistribute income, then alternative tariff designs can do this more efficiently. Tinkering around the edges of current practices will not produce pro-poor results. While no single design fits all circumstances it is possible to develop a systematic, better thought out approach that builds on the lessons learned in other countries, and introduces the efficiency, equity, simplicity, and transparency, which are typically lacking in the IBT tariff structures.



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Speaking to the Poor in a Language they can Understand

In discussions about the water problems facing our cities today most of us who are community activists working with the urban poor are unfamiliar with the language of variables and marginal cost recovery which have dominated these proceedings. Our job is to deal with the crisis of people facing scarcity and lack of access on a daily basis. When we talk about how the poor pay most for water, the response is often "if they pay so much we can charge them more".

In most Indian cities between 30-50 per cent of the population live in informal settlements and are treated, by most municipalities, like a block. They are not a block; they are individual people who want different choices and neither we as activists, nor city officials, have yet developed a meaningful language to communicate effectively with these communities and ask what it feels like to be ignored as consumers and to find out what they want changed over a period of time.

There has been a lot of talk about group connections but nothing about the governance issues involved; what happens when group connections are given? If there are problems who arbitrates? The electricity company in Mumbai gives group connections to poor people and the cumulative usage pushes bills up to industrial levels so poor people, without any representation or redress, are left paying five times more for their power than richer consumers. For many their only resort is to steal; companies complain they are losing 30-50 per cent of output through theft, yet where are the incentives for people to be honest, to do things more efficiently? It is easy to talk about the need to make things easy, transparent and simple. But the reality is that poor people are disadvantaged even in paying their bills, where the procedures are time-consuming, problematical and frequently involve bribes.

So far NGOs have had a limited role in facilitating dialogue between poor communities and city authorities, but this is changing and NGOs will have an important role to play when tariff restructuring is discussed. Explaining the details of choices available, strengthening peoples' understanding of things such as privatization, and being honest about what we don't know are vital. The poor need these things explained in a language they can understand. In today's environment of mistrust and fear poor people need demonstrable evidence that change can work for them.



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DESIGNING TARIFF STRUCTURES FOR AN IDEAL WORLD?

Having listened to all the discussions and presentations, participants at the Think Tank definitely agreed that water tariff reform was long overdue. But the difficulties and complexities which surround this subject in India today became apparent when participants were divided into groups and charged with designing a tariff structure for a "mythical city" for which details were provided. The intention was not so much to try and devise a set of figures but to consider the processes and the constraints which people face when grappling with the conflicting objectives of tariff-setting in practice. Some groups never got beyond the wishful thinking stage. Others came up with fragmented solutions as members disagreed about the correct approach. One group decided that achieving full cost recovery was so important that they proposed pricing water at a level that few consumers would have been able to afford.

It is interesting to note that almost all groups designed a tariff with an in-built subsidy related to consumption. However, one group designed a model that escapes the disadvantages of this approach; the group's tariff structure was designed to cover present (and future) costs while incorporating a pro-poor approach. It would do this by:

- Setting a flat rate volumetric charge that would be the same for everyone and reflect the full marginal cost of water. All customers would pay the same unit charge for water so everyone would make decisions about consumption based on the true cost of the service.
- Applying a different fixed charge to each of three income groups – poor, middle, and rich; for poor consumers this would be a **negative** fixed charge, in effect a credit on their monthly bill; an arrangement that would be subsidized by positive fixed payments, commensurate with certain income brackets, from more affluent consumers.

But while this model solves one of the prime objectives of tariff-setting – economic efficiency – and adopts a pro-poor stance, it actually creates a number of new difficulties. Most importantly, it is a means-tested tariff and assumes that poor, middle and rich income groups can be readily identified; this is not an easy process in India. It might be hard to prevent bogus claims for the negative fixed charge, and the regular update of income data required would create significant administrative costs. The fixed charge could, paradoxically, actually result in the utility paying money to households with very low consumption, below the value of the fixed charge. Finally, this type of structure requires 100 per cent metering, an assumption that does not hold in most Indian cities at the present.



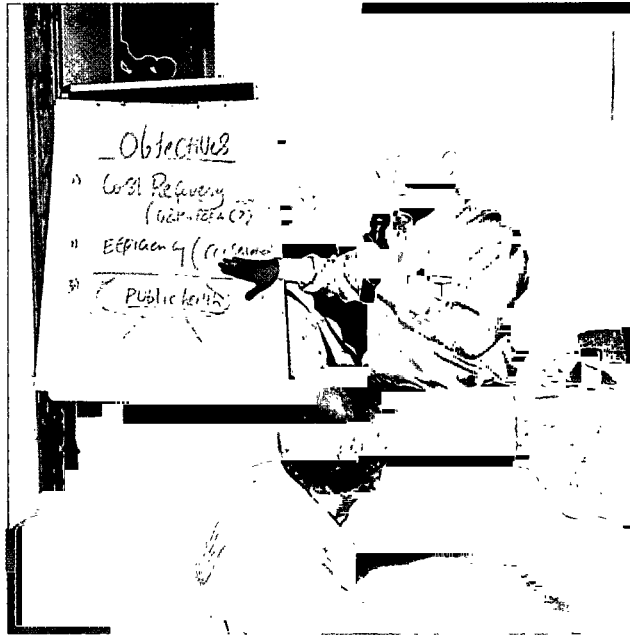
The Heart of the Argument— Tariff Reform in the Indian Context

Six clear points emerged from the deliberations of the 12th Urban Think Tank 'Tariffs and Subsidies in the Urban Water and Sanitation Sector':

- Concern for tariff restructuring is widespread and decision-makers are aware of the need for tariff reform. Over the last 10 years many cities have altered their water tariff structure to try and bridge the gap between revenue and expenditure but most continue to face a growing deficit.

- So far, attempts at tariff reform have been seen as an isolated activity, divorced from institutional change and reform. Unless the two are developed together as essential elements of the same process, any gains from improved tariff-setting will be lost.

- Utilities face a common challenge: how to structure tariffs in order to recover O&M and capital costs? The subject is complex and no one design fits



all circumstances. The Think Tank stimulated debate on a wide range of contingent issues that opened up the possibilities of improved, alternative, tariff designs.

- Without better data and improved accounting systems it will be difficult to make much progress with tariff restructuring.

- Awareness creation and the active involvement of all those who will be affected are crucial to successful reform. NGOs will have an important advocacy role to play. Transition costs will be high and need to be planned for at the outset of the restructuring process.

- Pilot projects have both negative and positive externalities. They need to be carefully designed and should not be treated as isolated experiments.



The Case for Institutional Reform

“Tariff reform can only bring in greater efficiency and accountability if it is done in the context of institutional reform and city restructuring”

Institutional models for water service delivery in India can be broadly illustrated by the following analogies:

- **Stand Alone Model** as found in Hyderabad where a Corporate Board delivers services to, but is separate in many ways from, the municipality since the Board reports to the State Government.

- **Too Close for Comfort Model** similar to the arrangement in Mumbai where the Water Board functions as a department within the city administration.

- **Split Personality Model** as in Kolkata where the Water Board provides the capital works and the municipality is responsible for the O&M.

The inefficiencies and inequities of each institutional model need to be resolved if tariff reforms are to have their intended impact. For example, a common thread in all these models is that Boards report *upwards* to the state or the city, not *downwards* to the clients. Broadly speaking there are two types of customers; the ‘missing poor’ living in slums and getting water from tankers and vendors at the local level; and the rest of the population – ‘the three-hour connectivity’ customers who mimic a 24-hour service by pumping water into storage tanks. Tariff reform alone is not sufficient to bring better services to these households.

Some argue that the issue is not institutional reform, but the need for an increased water supply. But with unaccounted for water at levels of 35-45 per cent in many cities and towns, a supply approach would be akin to trying to fill a **leaky bucket!**

In Johannesburg, South Africa, to take one international example, duplication of services in

overlapping urban centers was resolved by **centralizing** municipal authority into one city management but **de-centralizing** services such as water, solid-waste collection, and public transport into companies with different types of public/private partnerships. Both the companies and city politicians are now responsible for service delivery directly to the citizen – an important structural change that altered the nature of accountability and the efficiency of service delivery. The central government financed some of the cost of the transition to the new system, acknowledging that city restructuring has a national impact.

To achieve a similar form of accountability in India, city authorities will need to develop a contract with the water boards to deliver according to the needs of the city. At the same time, the state may also need to devolve more decision-making to the city level, thus clarifying the role of the state and city in the management of municipal services. But even then, the public sector may find it difficult in terms of capacity or finances to turn around the water and sanitation situation in India; the private sector needs to be brought in as a partner. If the objective of 24-hour water supply in Indian cities is to be achieved, it will be important for decision-makers to take a holistic approach and, to get the sequence of institutional change, transition, and finally, a more appropriate tariff and subsidy policy, right.

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Partnerships

This Think Tank was supported by the World Bank Institute (WBI), the Public-Private Infrastructure Advisory Facility (PPIAF) and the South Asian Infrastructure Department of the World Bank (SASIN). As part of support to the implementation of the World Bank’s India Urban Water Sector Strategy, WBI and SASIN, in partnership with the Government of India, and with funding from PPIAF, have mounted a two-year learning and policy dialogue initiative. The initiative’s main objectives will be to: 1) facilitate policy dialogue among decision-makers and stakeholders to bring about policy reform; 2) enhance public awareness and build support for reforms; and 3) increase capacity among those involved in projects for enhanced effectiveness and sustainability of reform efforts.

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The Urban Think Tank

The Urban Think Tank is a participatory forum that enables experts and practitioners to address issues related to the delivery of water supply and sanitation services to the poorest sectors of the community. The Think Tank is also intended to spark policy level debate and provide a forum where the issues and concerns of municipal managers can be brought forward. Regular meetings have been hosted by the Water and Sanitation Program-South Asia (WSP-SA) in collaboration with the UK Department for International Development (DFID) since December 1994.

The 12th Urban Think Tank was held in Mumbai on April 3-4, 2001 at the invitation of the Brihan Mumbai Municipal Corporation. The purpose of the meeting was to generate discussion and debate on issues of tariff and

subsidy design in the water sector, and to develop some models and principles of good practice.

Through the publication of *Nagari*, the proceedings and key issues of each meeting are disseminated to municipalities all over India. The purpose of *Nagari* is to share lessons learnt, highlight emerging issues, illustrate examples of best practice and provide a link between municipalities and other stakeholders to foster a better operating environment in the water supply and sanitation sector. We would welcome your ideas on any of the issues discussed and feedback forms are enclosed for this purpose. Please also write to us with any comments and suggestions on topics that you feel are important for managers of local urban bodies.

5. Give up to three subjects/issues in the Water Supply and Sanitation sector that interest you and you would like to know more about:

- i)
- ii)
- iii)

6. Do you know anyone else who might benefit from receiving our publication?

If yes, provide the following details (optional)

Name:

Designation:

Organization:

Address:

Phone Numbers:

E-mail:

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Area of work: Government / NGO / Private Sector / Academia / Consultant / Bilateral Agency / Dev Bank / any other

8. Indicate your area of interest:

- Water
- Sanitation
- Rural
- Urban

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