

WATER TARIFF POLICY

A Prerequisite For Financial
Sustainability of a Water Utility

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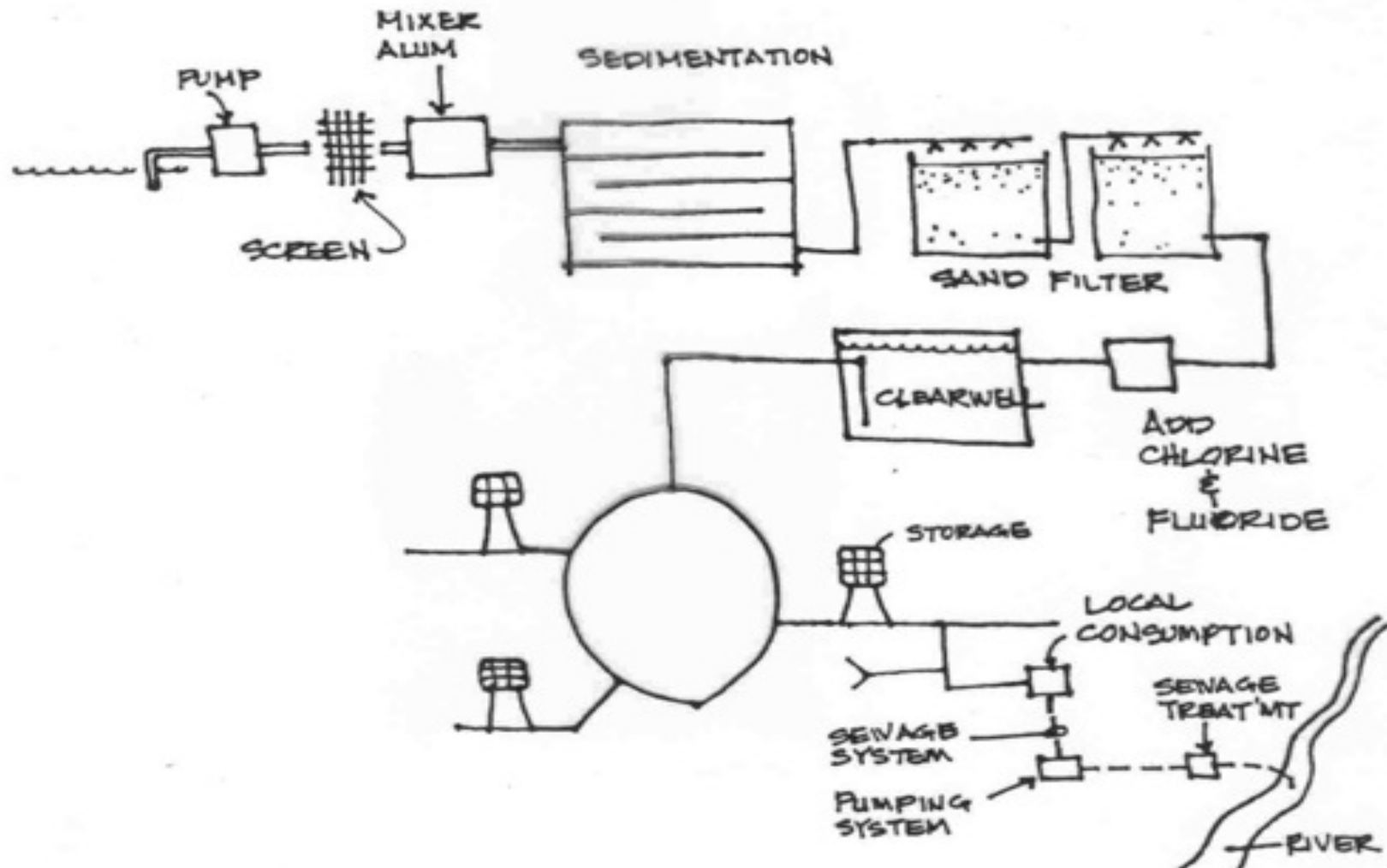
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Water tariff : a controversial Topic?



Water pricing is an important instrument for stimulating efficient use of water.



Water Tariff

- Money value set, usually by water utility
 - Set of prices, charges and taxes, to generate revenue
 - Aim of recovering the cost of production,
 - Rules and regulations which govern their use
- Tariff setting process may involve some negotiations, but not necessarily with buyer.
- Important economic instrument for
 - Improving water use efficiency,
 - Enhancing social equity
 - Securing financial sustainability of utility

General Water Pricing Policy

- Establish a dynamic mechanism to structure water tariffs and increase cost recovery gradually to recover O&M cost and depreciation
- Water tariffs shall be structured to encourage and motivate efficient water use taking into consideration low income consumers.
- Water meters shall be read in a timely manner and water bills should include consumption data to give consumers current knowledge of their water usage and send a clear pricing signal to the consumers.
- Best management practices should be developed, implemented and followed to reduce the cost of production and increase energy efficiency.

Tariff Objective

Tariffs should be:

- Conserving - Structure of tariff should influence consumption to the extent that customers will purchase enough to satisfy their needs without being wasteful
- Adequate - A level of resources must be produced which will enable financial commitments to be met
- Fair - This level of revenue must be allocated between consumer groups in a fair and equitable manner having particular regard to needs of poor section of community
- Enforceable and Simple - Tariff should be simple to administer and enforce and easy for customers to understand

Is water an economic or financial good?

- Dublin Declaration said that 'water is an 'economic good' – not a financial good
- How should we treat it as an 'economic good'?
- Does it relate to a 'financial good' ?



Economic rationale to recover cost

- Economic good – a service that has value to people, that can be sold for a non-negative price
- Then water pricing should be recognised as one of the important incentive measures for water demand management
- Financial good – a service as determined by people's preferences, a value the market places on the item
- But Potable water is a rival good, so once appropriated by a household, is unavailable for another, so can be priced like a private rival good.
- Waste water is mostly generated as a byproduct of potable water service, and generates substantial external costs.

Economic rationale to recover cost

- In most cities, water supply is sourced from long distances
 - length of the pipeline and elevation determines the costs,
 - including costs of pumping.
- In the current water supply system, there are enormous losses in the distribution system because of leakages and bad management.
- Equally important are the huge challenges posed by the fact that water is divided very unequally within cities.
- if Price < Costs?, What effects?
 - 1 Quality will fall
 - 2 Not sustainable
 - 3 Kills entrepreneurship
 - 4 Affects other projects
 - 5 Demand too high
- Emphasis should be for Sustainable Water Management

Economic rationale to recover cost

- One should have a sense of value on water subsidies.
- Subsidised water or anything for matter take away their value
- Subsidies are a tough issue which once granted are difficult to be withdrawn.
- We all have to pay for good quality piped water.
 - Directly as a consumer,
 - Indirectly as tax payer or even more indirectly as inflation
 - Best to pay as a consumer and keep the utility supplying water fiscally buoyant so as to be able to extend services and keep up the quality of the infrastructure.
- If water is free for the domestic sector there will be no incentive to conserve it. Pricing is a must for this sector too.

Economic rationale to recover cost

- People are not hindered by the price of piped water but by the absence of connections.
- Important environmental and social externalities need to be factored in.
- On the environmental side, continuous availability of good quality water will demand investment in water resources.
- Negative externalities will need to be costed and wastewater treatment cost to be included in the price of water.
- On the social front, water is a community property resource and its increased availability up to a point improves health and economic outcomes of communities.

Economic rationale to recover cost

- In light of all this understanding, it is somewhat disappointing to see the zeal being shown by the political parties to rush into free water agenda.
- Loss of revenue from freebies to those already getting water could end up pushing the unconnected even further down deprivation ladder.
- it is not laudable giving subsidies, that will press the management to unwanted effects.
- One should be able to help people out difficult conditions and poverty but eventually create conditions that allow them to manage on their own.
- We should focusses on a strategy that is both affordable and sustainable.

Service Quality vs. Cost Recovery

Asian Water Utilities Handbook, 2011	Good Service	Poor Service
Costs Recovered	Kuala Lumpur Seoul Singapore Taipei	Colombo Hanoi Jakarta Lahore
Costs Not Recovered	Beijing Hong Kong Shanghai	Kathmandu Dhaka Delhi/B'lore

Tariff Policy Design

- Assessment of full service cost level.
- Full cost recovery implies that revenue is fully adequate to meet all cost categories:

$$RR = (O\&M + DS) + T + CC$$

RR – Revenue requirement

O&M – Operations and maintenance costs

D – Depreciation(capital maintenance)

T – Taxes

CC – Cost of capital (interest, opportunity cost, full amortisation)

- These costs are to be reflected in the water tariffs

Water Tariff Strategies and Issue

- Flat rates
- Consumption based tariffs
- Constant tariff rate
- Block tariffs (two consumption intervals)
- Subsidised tariffs
- Price discrimination issue
- Subsidies for poor
- Higher rates for non-domestic consumers

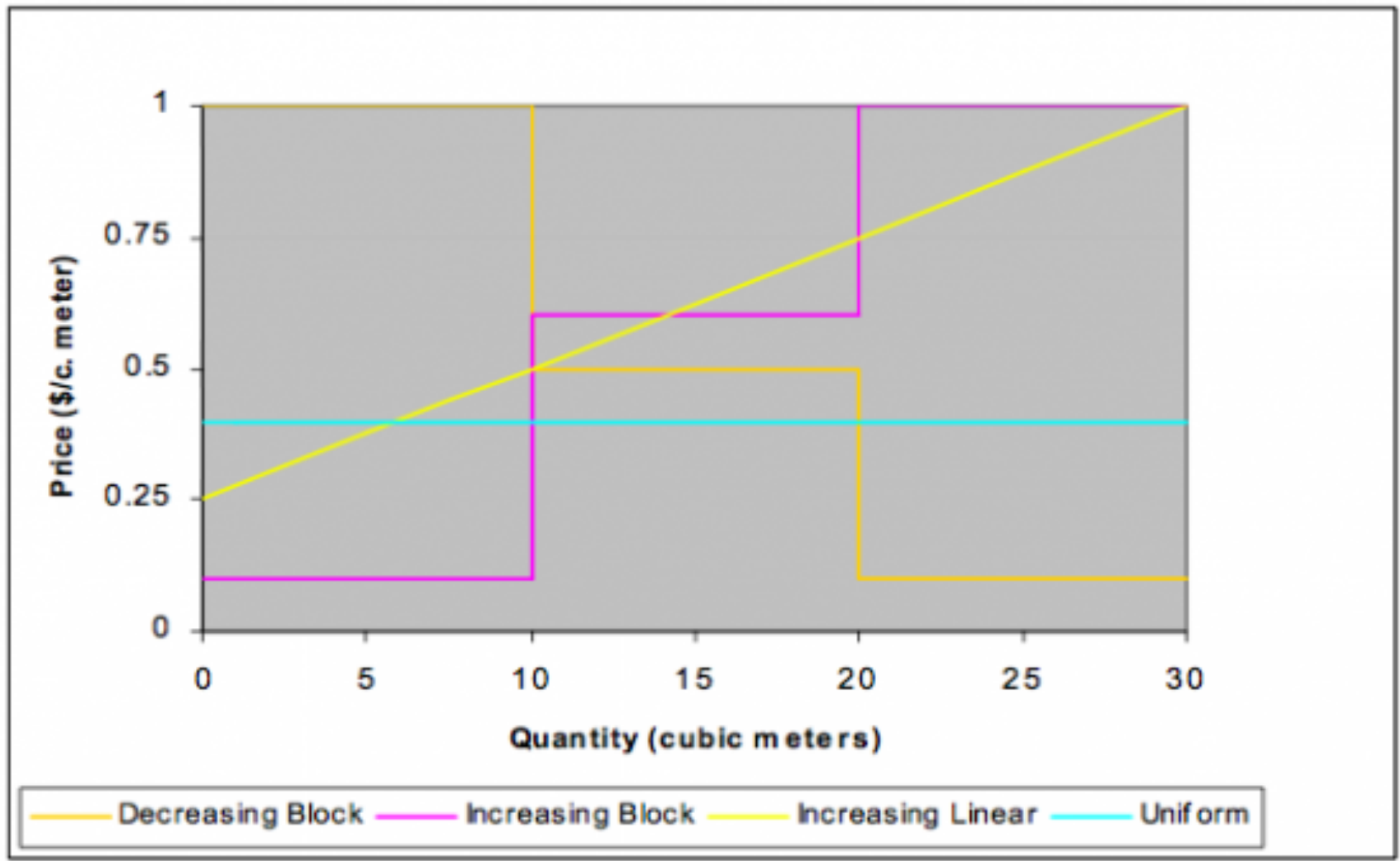
Tariff Policy Design

- Rates can vary based on the cost of providing service in each of the communities we serve.
- User charges should plan to cover
 - increasing proportions of O&M costs,
 - while building in equity by providing a “lifeline” amount of water 50 Lpcd (WHO guideline) at very low low price
 - Anything above must be charged at O & M cost
 - For increasing levels of use: Above 135 Lpcd should be charged at the actual cost of water
- Water charges for non-domestic consumers should be fair
 - proper incentive for their growth, and state’s economy
 - 50% of consumption, charged to cover O & M costs
 - Balance 50%, charged to cover actual cost of water

Tariffs – The Practice

- Flat rates/area charges/property charges
- Metering (metering costs - 25%?) Fixed Charges ?
- Block Pricing (increasing/decreasing)
- Prices for the poor:
 - Lifeline blocks (15m³?6m³? Asian countries)
 - Free Allowances (South Africa)
 - Cross Subsidies (10 times ? 20 times?)
 - Paying at stand posts/kiosks (no where)
 - Direct subsidies (Chile)

Water tariffs design



Some Basic Tariff Options

- Single part tariff, consists of either:
 - Fixed charge (not based on measured water use)
 - Volumetric charge (based on measured water use)
- Two part tariff,
 - includes both fixed and volumetric charges
- Uniform price design
- Periodic fixed service charge, INR/month/connection
- Single commodity price,
 - INR 50.00/month for residential connection +
 - INR 1.00/m³ for all water use

Volumetric Charges

- Uniform price – all units of water billed at same price
- Block-type structures – several prices,
- Each applies to use within a defined consumption of monthly use
- Decreasing block – block price falls as use rises
- Increasing block (IBT) – block price rises as use rises
[Note: first block price usually set below cost]

Tariff Design – Decreasing Block

- Periodic fixed (“service”) charge
- Two or more commodity prices (INR/m³) decreasing with use:
 - Rs 5.00/month for residential connection, plus
 - Rs 1.50/m³ for water used up to 15 m³/month
 - Rs 1.00/m³ for water used in excess of 15 m³/month, up to 30 m³/month
 - Rs 0.75/m³ for water used in excess of 30 m³/month

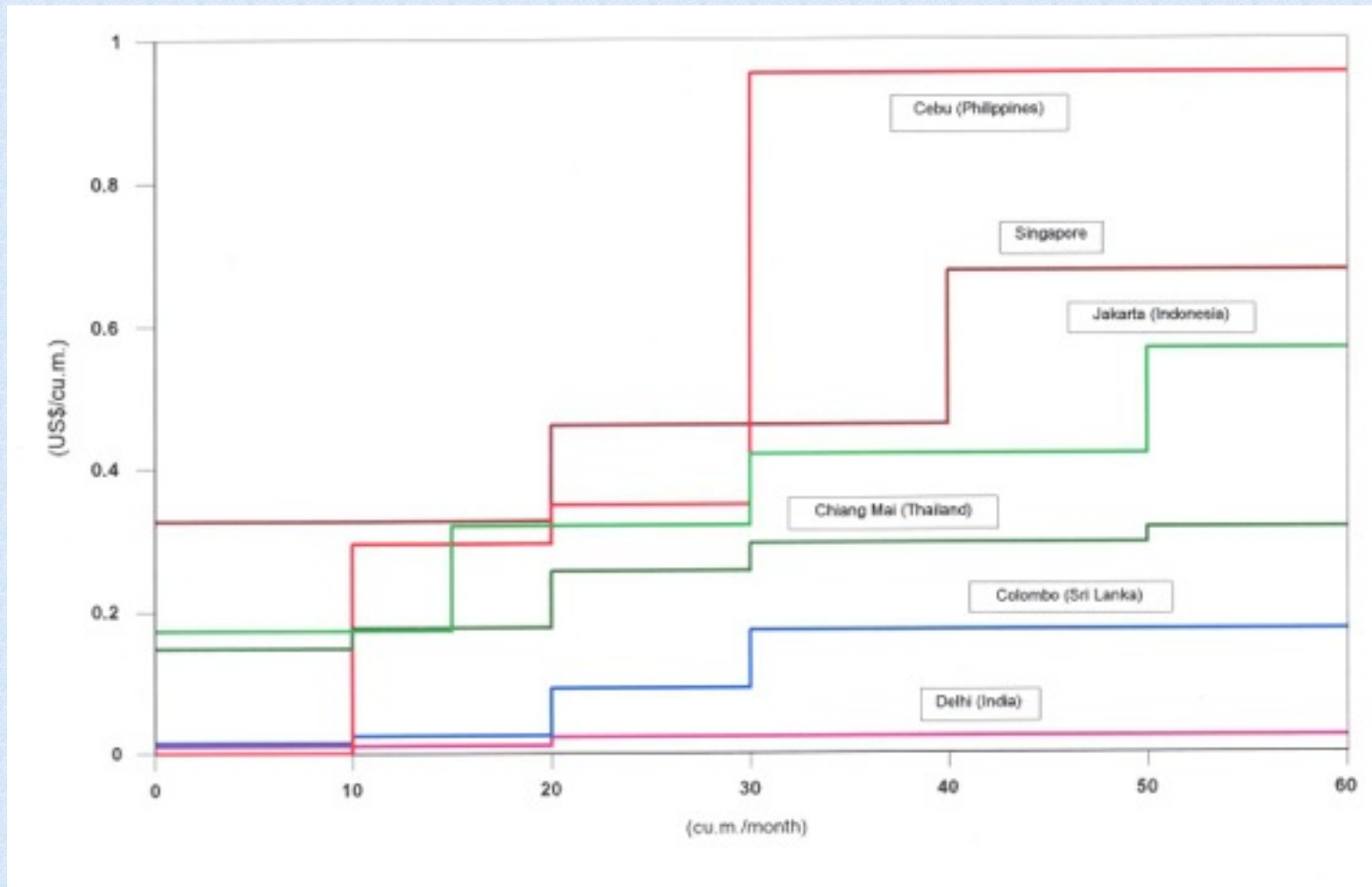
Tariff Design- Increasing Block Tariff

- Periodic fixed (“service”) charge
- Two or more commodity prices increasing with use:
 - Rs 5.00/month for residential connection, plus
 - Rs 0.75/m³ for water used up to 6 m³/month
 - Rs 1.00/m³ for water used in excess of 6 m³/month,
 - Rs 1.50/m³ for water used in excess of 15 m³/month
- Basic amount could be used at a relatively low rate, while water consumption beyond that amount could be charged with progressively higher rates.
- (Urban Water Resources Management, UN, 1993, p 19).
- Actively promoted in developing countries

What is Rationale for IBTs?

- Claimed to transfer income from rich to poor
- Very high prices in top blocks claimed to discourage “extravagant” and “wasteful” use
- IBTs are said to implement marginal cost pricing principles
- IBTs are said to reflect assumed rising marginal cost curves

Examples of IBTs



Tariff Design – Variants

- Increasing rate designs
- Combination block designs
- Free service allowances (form of increasing block)
- Seasonal water tariffs
- Seasonal sewer tariffs
- Lifeline rates

Commonly Overlooked Facts

- Water and sewer services are bundled commodities
- Users respond to the sum of water and sewer tariffs
- Developing tariffs separately according to different criteria is illogical
- Prices determine water use, not tariff design
- Each user responds to his/her last block price regardless of what other prices may be, or what other users may do.
- Block type rates permit price discrimination, individual users respond to the price in specific block(s)

Illustrative Example,

<i>Items</i>	<i>Unit</i>	<i>Rate</i>	<i>Amount</i>	<i>Amou</i>	<i>Amount</i>	<i>Remarks</i>
		<i>per kL</i>	<i>LIG (6kL)</i>	<i>MIG (25 kL)</i>	<i>HIG (60 kL)</i>	<i>water costs</i>
<i>Water charges</i>	<i>0 - 6 kL</i>	<i>10</i>	<i>60</i>	<i>60</i>	<i>60</i>	<i>O & M Cost</i>
	<i>6 - 15 kL</i>	<i>20</i>		<i>180</i>	<i>180</i>	<i>Rs 15/kL</i>
	<i>15 - 25 kL</i>	<i>25</i>		<i>250</i>	<i>250</i>	<i>Capital cost</i>
	<i>25 - 50 kL</i>	<i>30</i>			<i>750</i>	<i>Rs 25/kL</i>
	<i>50 kL and above</i>	<i>40</i>			<i>400</i>	<i>Amortisation cost</i>
<i>Sub total</i>			<i>60</i>	<i>490</i>	<i>1640</i>	<i>Rs 40/kL</i>
<i>Sanitary charges</i>	<i>25% of water</i>		<i>15</i>	<i>123</i>	<i>410</i>	
<i>Meter charges (amenity)</i>	<i>bore size</i>	<i>50/75</i>	<i>50</i>	<i>50</i>	<i>75</i>	
<i>Total</i>			<i>125</i>	<i>663</i>	<i>2125</i>	
<i>Rs/kL</i>			<i>21</i>	<i>27</i>	<i>35</i>	

Tariff Policy Rationale

- Key question when propose to increase water tariff is whether the consumer view a tariff increase as:
 - Technically & financially justified, hence inescapable, or
 - They perceive it as being the result of factors such as:
 - Inefficiency, losses and poor planning of the water utility
 - Gains to the politicians who are viewed to be biased
 - “Excessive” profits being taken by staff/private investors
- Another aspect is whether consumers feel discriminated against lower prices or against different consumer group

Household Tariff Affordability

- Affordability is closely linked to the willingness to pay which gives information of whether the households are prepared to pay the increased price
- However, affordability of households is an indicator of objective ability to pay the water tariff
- The notion of **affordability in households** is related to the:
 - “Upper limit of expenditure on water and wastewater services”

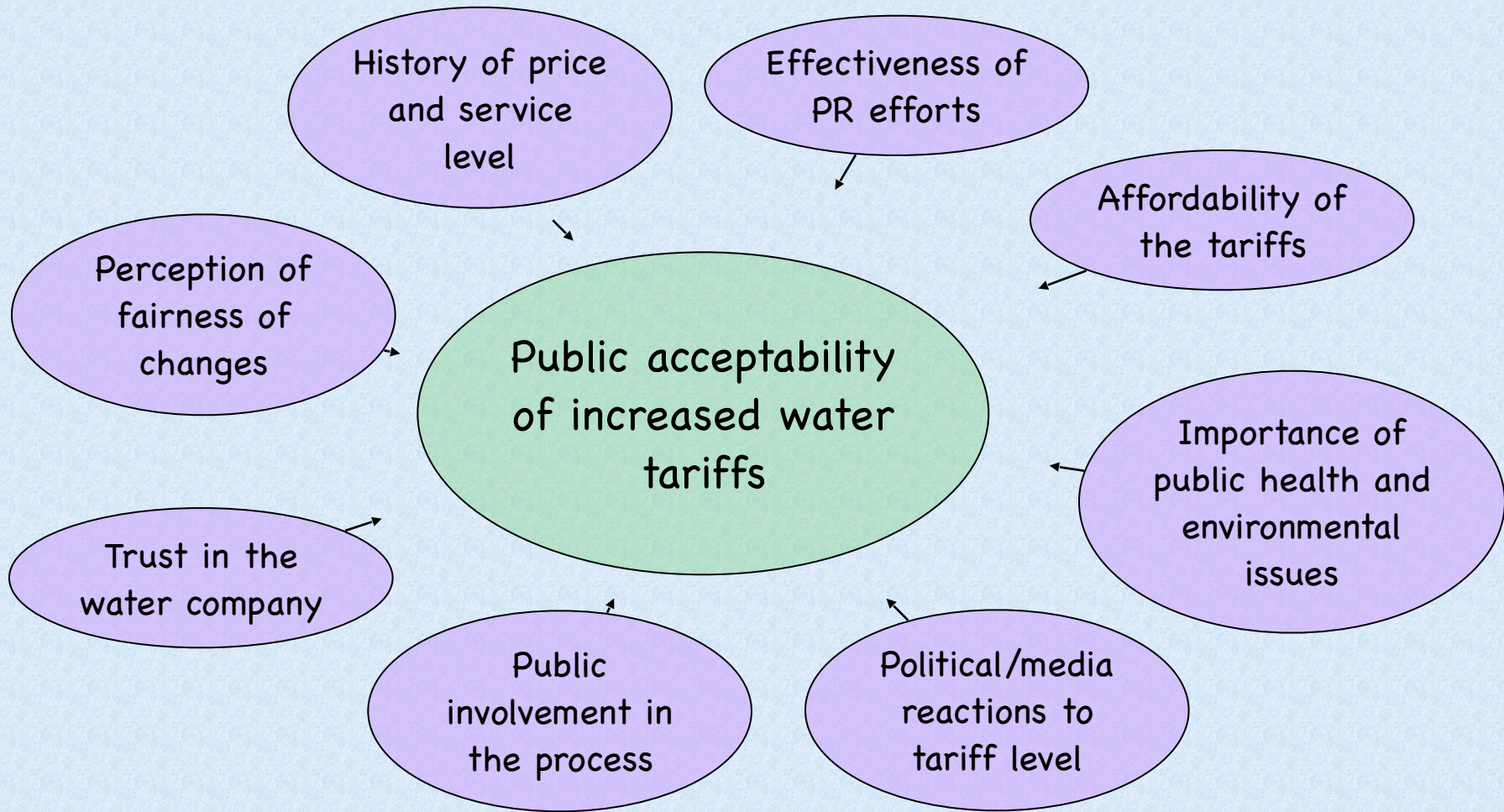
Household Tariff Affordability Assessment

- Overall assessment of the household affordability can be based on macro-economic data on average:
- Household income
- Expenditure for water services and food expenditure as share (%) of total household income
- Rule of a thumb: water service expenditure are affordable if they do not exceed 3 – 5 % of disposable household income
- If possible, a more detailed household data is recommended to gather in order to assess the nature and size of the affordability issue.

Customer perceptions, Willingness to pay and Demand for Services

- Term 'willingness to pay' describes the consumer's preference in relation to changes in the water & wastewater services and tariffs.
- Two accepted methods:
 - Revealed preference data
 - Stated preference data

Willingness to Pay Determinants



Political acceptability of tariffs

- Political acceptability refer to decision maker's attitudes to a specific water sector investment that entails changes in water tariffs.
- Local decision makers are:
 - Local politicians
 - Civil servants and administrative municipal units
 - Local population (as voters)
 - NGOs with interest and some national actors

Conclusions

- No free water for anyone
- Tariff policy is closely connected to the demand for water services, i.e. customer's perception, willingness to pay and affordability
- Political acceptability should not be neglected
- Assessment of full service cost is key to structuring sound tariff policy
- Different approaches and strategies for setting tariffs
- Properly designed tariffs are powerful management tools
- Comparisons of alternative designs can be complex
- No single design fits all circumstances

Conclusions

- Increasing block designs, though widely used, have many disadvantages
- Usual rationales for employing IBTs are either incomplete or incorrect
- If the purpose of an IBT is to redistribute revenue, alternative tariff designs can do so more effectively
- IBTs, on the other hand, introduce inefficiency, inequity, complexity, lack of transparency, revenue instability, and forecasting difficulties
- Real water tariff is the basis
 - for sustainable water supply infrastructures
 - for healthy neighbourhood

THANK YOU

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