

Tariff Setting

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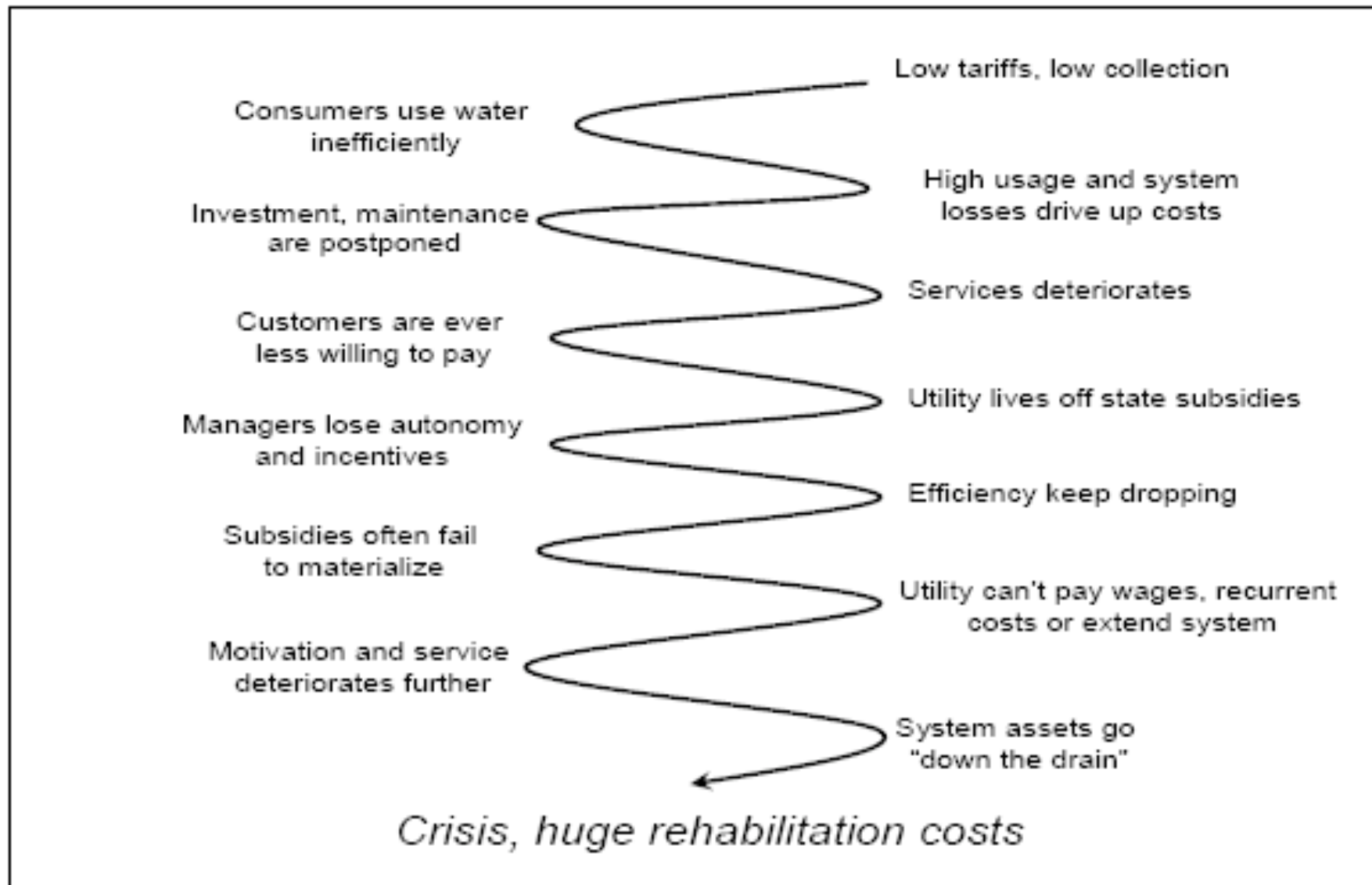
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Outline

1. The Problem
2. Objectives of tariff setting
3. Models of tariff setting
4. Advantages and disadvantages
5. Options for tariff adjustment
6. International practices on tariff setting
7. Non-tariff measures for demand management

1. The Vicious Cycle Problem



2. Objectives of Tariff Setting

1. Promote cost recovery (user pay principle)
2. Economic efficiency (discourage waste)
3. Equity (ensure access by the poor)
4. Affordability (water as basic right)

3. Models of tariff setting

Box 1: Basic Types of Water Tariff Structures

1. Single-part tariffs:

A. *Fixed charge* - monthly water bill is independent of the volume consumed

B. *Water use charge*

a. Uniform volumetric tariff

b. Block tariff - unit charge is constant over a specified range of water use and then shifts as the use increases

(i) Increasing block

(ii) Decreasing block

c. Increasing linear tariff - unit charge increases linearly as the water use increases

2. Two-part tariffs (fixed charge + water use charge)

Tariff setting practices: As percentage of water utilities

Country	FC	UVC	IBT	DBT
AUSTRALIA	-	68%	27%	5%
CANADA	56%	27%	4%	13%
FRANCE	2%	98%	-	-
HUNGARY	-	95%	5%	-
JAPAN	-	42%	57%	1%
NETHERLANDS	7%	90%	3%	-
NORWAY	87%	-	13%	-
SPAIN	-	10%	90%	-
SWEDEN	-	100%	-	-
TURKEY	-	-	100%	-
UK	90%	10%	-	-
US	2%	33%	31%	34%

FC- Fixed Charge UVC – Uniform Volumetric Charge; IBT – increasing block tariff; DBT- Decreasing block tariff

4. Advantages and Disadvantages

Tariff Structure	Cost Recovery	Objectives		Affordability
		Economic Efficiency	Equity	
Fixed Charge	Adequate Provides stable cash flow if set at appropriate level, but utility may be vulnerable to resale of water and spiraling consumption.	Poor Does not send a message about the cost of use of additional water.	Poor People who use large quantities of water pay the same as those who use little.	Adequate If differentiated by ability to pay, but households are unable to reduce their bills by economizing on water use.
Uniform Volumetric Charge	Good If set at appropriate level, moreover revenues adjust automatically to changing consumption.	Good If set at or near marginal cost of water.	Good People pay according to how much they actually use.	Good Can be differentiated by ability to pay, and people can limit their bills by reducing consumption.
Increasing Block Tariff	Good But only if the size and height of the blocks are well designed.	Poor Typically little water is actually sold at marginal cost.	Poor People do not pay according to the costs their water use imposes on the utility.	Poor Penalizes poor families with large households and/or shared connections.
Decreasing Block Tariff	Good But only if the size and height of the blocks are well designed.	Poor Typically little water is actually sold at marginal cost.	Poor People do not pay according to the costs their water use imposes on the utility.	Poor Penalizes poor families with low levels of consumption.

5. Tariff Adjustment Practices

5.1 cost pass-through

5.2 tariff indexation

5.3 tariff resets

5.4 extraordinary tariff resets

5.1 Cost pass-throughs

- allocate the risks of the cost of inputs to customers.
- Cost pass-through should be considered for important costs over which the operator has no control.
- include the cost of changes in sales tax or value-added tax and
- changes in regulations governing the quality of water or wastewater.

5.2 Tariff indexation formulas

- serve a purpose similar to cost pass-throughs.
- The formulas adjust tariffs according to the change in an index of prices, not the operator's actual costs.
- Tariffs are adjusted at regular intervals rather than in response to particular events.
- Indexation formulas attempt to anticipate changes in certain determinants of the cost of service.
- They automatically adjust (customer or operator) tariffs according to specified rules.
- One kind of tariff indexation formula simply adjusts the tariff according to the change in the average level of prices measured by, say, the consumer price index,

5.3 Tariff resets

- Tariff resets recognize that contractual incompleteness is unavoidable: that no tariff indexation formula can adequately cover all eventualities.
- If it were possible to identify in advance all the factors that might affect an operator's profits—and how they would do so—it would be possible to write an indexation formula into the arrangement to adjust tariffs or the operator's remuneration in the desired way with any possible change in costs.
- But in practice it is generally not possible to predict profit drivers with accuracy and certainty, so more discretionary, flexible approaches are often required.

5.3 Tariff resets (cont.)

- The design of reset formulas and processes assumes a long-duration contract, such as an afterimages-lease, concession, or divestiture. Resets are usually unnecessary in management contracts. Tariff resets involve a set of rules, principles, and processes that can be used to
- adjust tariffs in a predictable fashion. (They can also be used to adjust service standards,
- but for convenience, they are called tariff resets). The rules are agreed on before the arrangement, and their design is a major determinant of the allocation of risk between operator and customers.

6. Tariff Setting

Price regulation : Case of water utilities in India and SE Asia

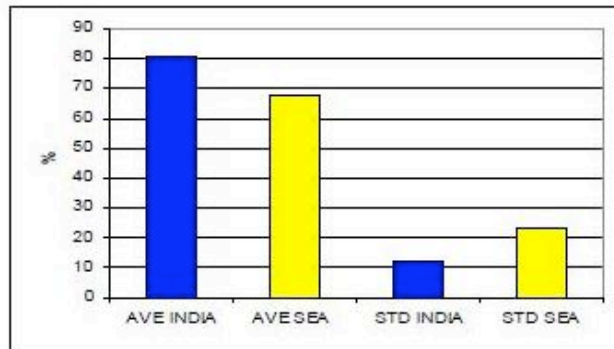


Fig 1 Water supply coverage (%)

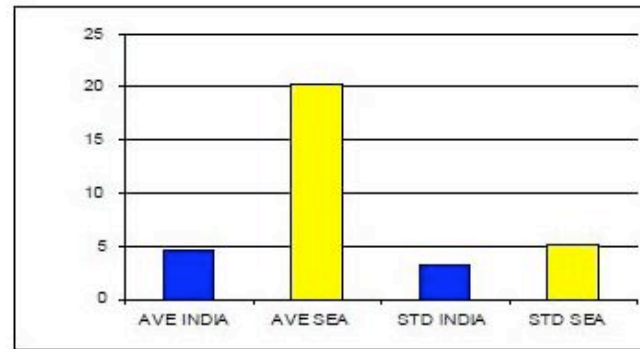


Figure 2 Water availability (hrs/day)

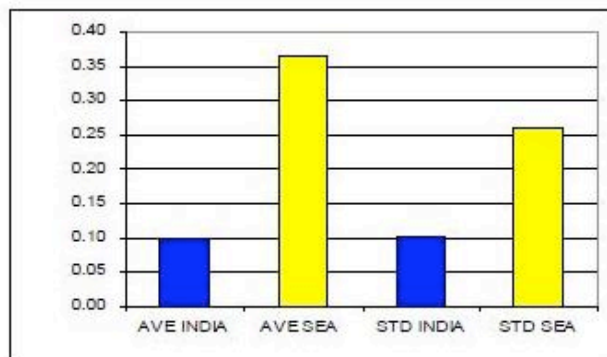


Fig 3 Average tariff (USD/cu. m)

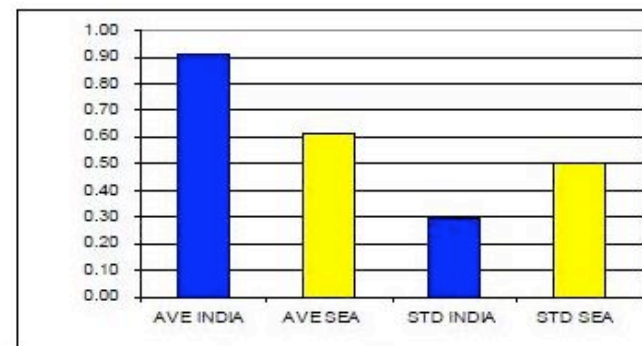


Figure 4 Provision for public taps

6. Tariff Setting

Price regulation of water utilities in India and SE Asia

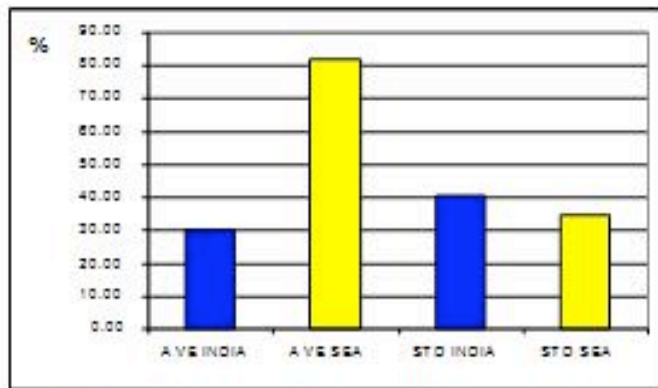


Fig 5 Metered connections (% of utilities)

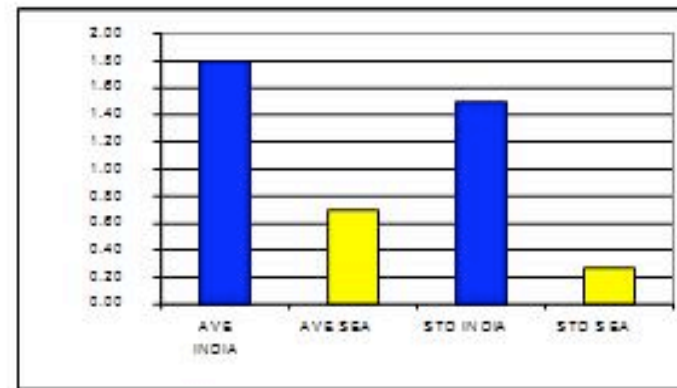


Fig 6 Operating ratio (O&M cost / revenue, USD)

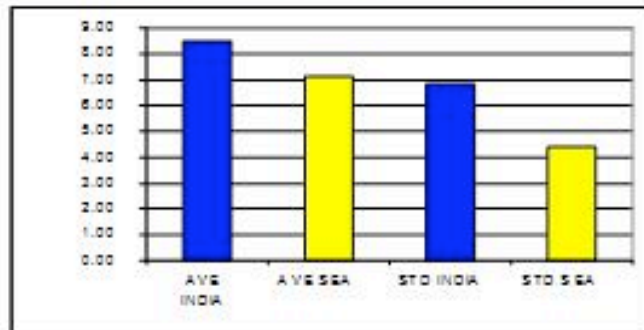


Fig 7 Staff per 1000 connections

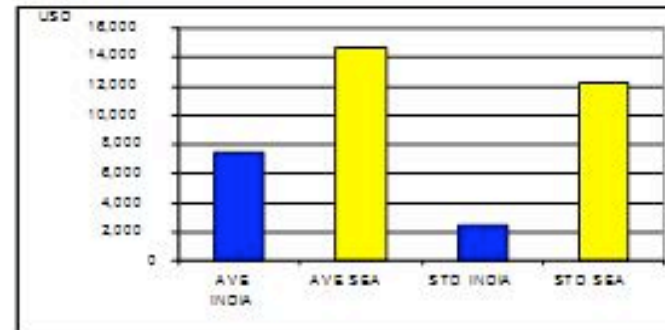


Fig 8 Management

6. Tariff Setting

Figure 11.3a Tariff Structures in South Asia (*ADB Second Water Utilities Data Book, 1997*)

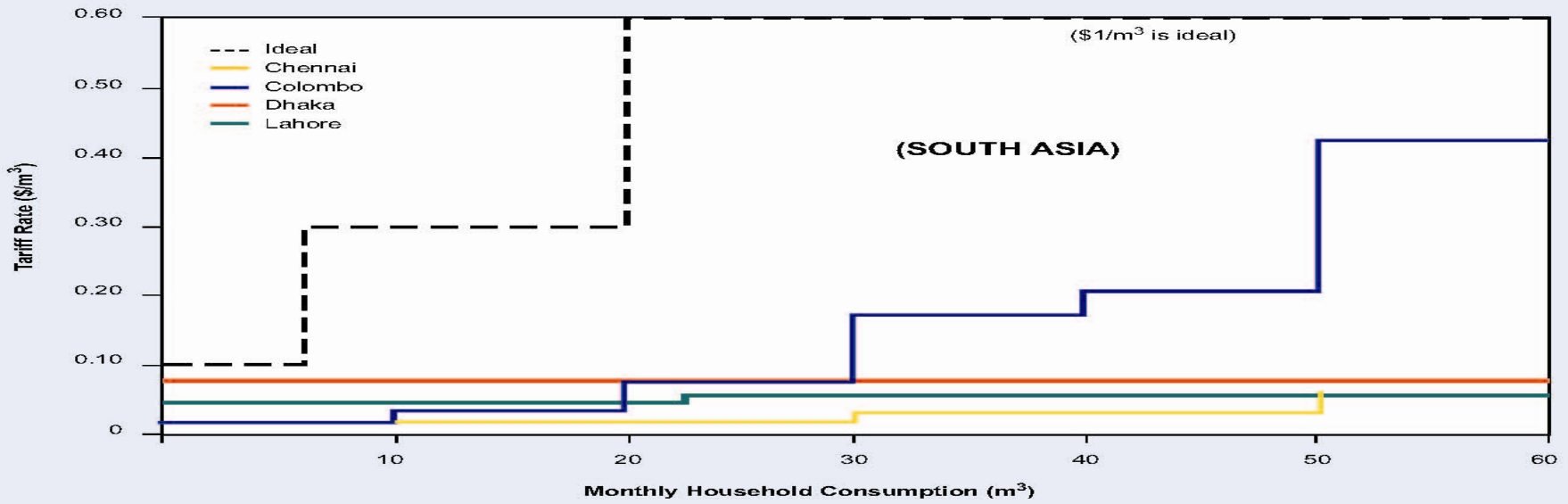
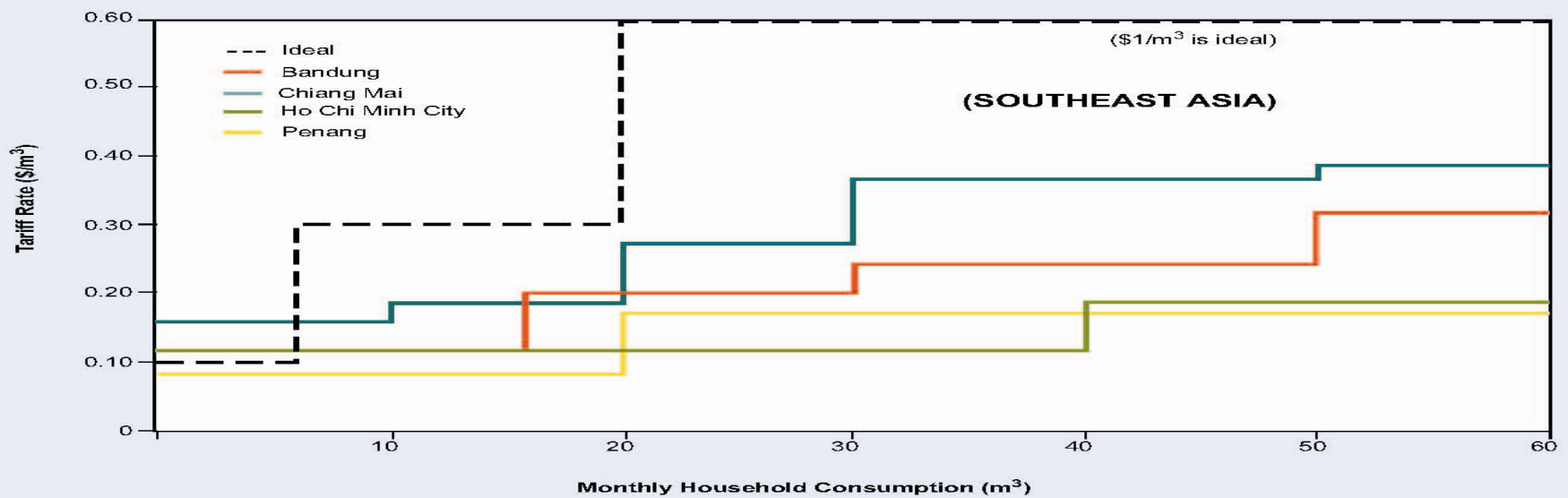
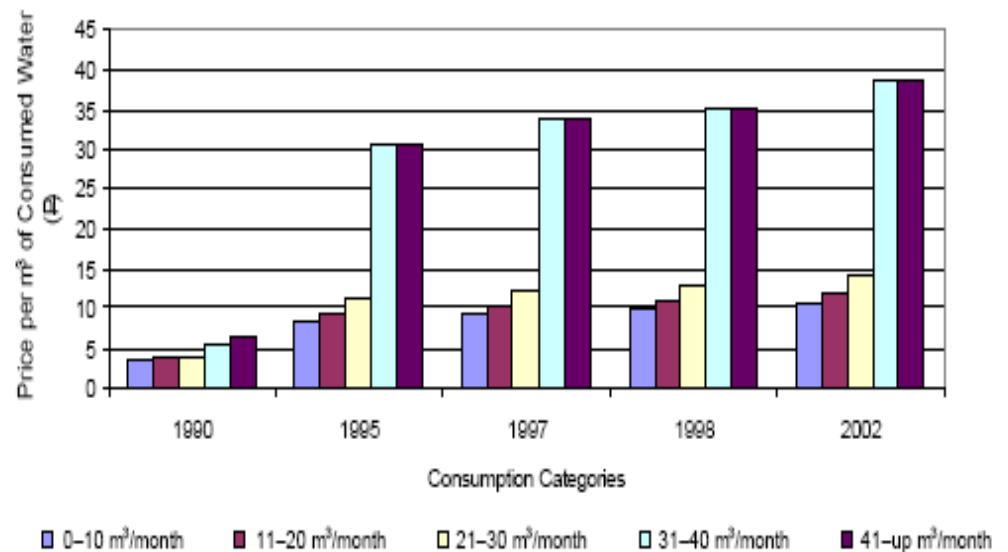


Figure 11.3b Tariff Structures in Southeast Asia (*ADB Second Water Utilities Data Book, 1997*)



6.Tariff Setting in SEAWUN(cont.) Metro Cebu Philippines

Block	Percentage increase (1990-2002)
0-10 m ³ / mo	150%
11-20 m ³ /mo	200%
21-30 m ³ /mo	300%
31-40 m ³ /mo	530%
41-up m ³ /mo	440%



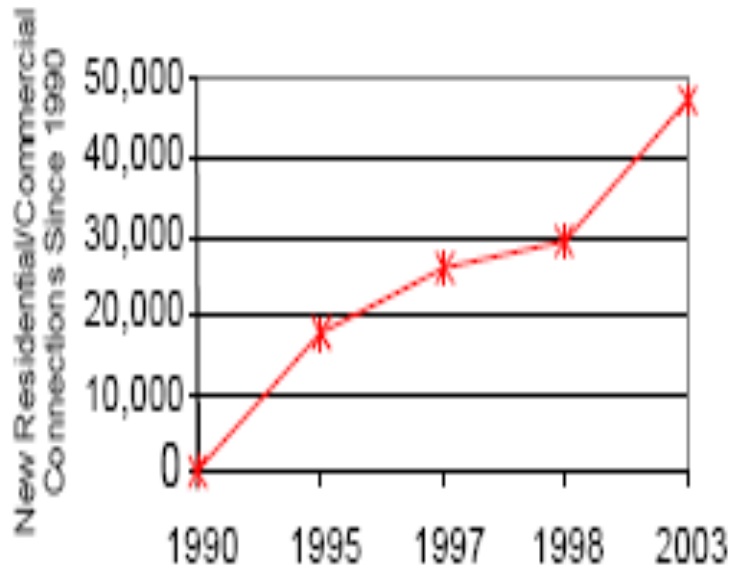
Source: Metropolitan Cebu Water District data.

- Revenues increased by 38% (1997-2001)
- Gross Operating Income Increased by 46%
- Current ratio 1.8 (2002) – liquid

6. Tariff Setting in SEAWUN(cont.)

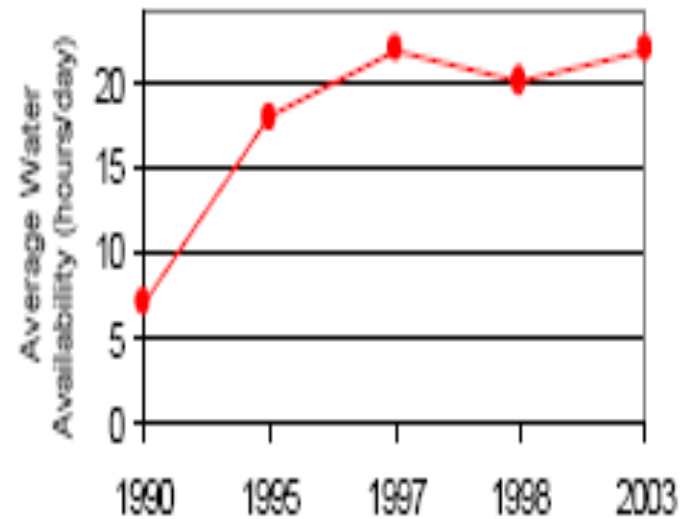
Result of Tariff Reforms in Metro Cebu

Figure 2: New Water Connections



Source: Metropolitan Cebu Water District data.

Figure 3: Water Availability



Source: Metropolitan Cebu Water District data.

122,000 new residential consumers;
13,500 poor communal users (< 50% of target)

7. Non-tariff measures for demand management

7.1 Management measure

7.2 Technical/engineering measure

7.3 Institutional/ regulatory measure

7.4 Leadership/Public education and community involvement

7.1 Management measure

- Performance targets: reduce NRW
- Decentralized management: demand management zones/territory management approaches to reduce NRW effectively.
- Performance based contracts for NRW
- Capacity building (employee empowerment and twinning arrangements)

7.2 Technical/engineering measure

- Replacement of leaking and aging pipes
- Pressure reducing valves for water pressure management
- Emphasis on metering

7.3 Institutional/Regulatory measure

- Responsibility and accountability transferred to local governments in Indonesia.
- Clear definition of responsibilities of governments at different levels (federal and state) in Malaysia, Philippines, Indonesia.
- Public-private partnership - Manila and Jakarta.
- Permitting and licensing system for ground water extraction in Thailand, Myanmar, Laos and Vietnam.
- Service standard regulations in Singapore.

7.4 Leadership/Public education and community involvement

- Stable, competent and committed leadership makes substantial differences in performance of urban water supply agencies.
- Public education is an integral part in UWDM in Singapore.
- Community involvement in reducing NRW (from 63% in 1990s to 20% in 2009 in Manila).

Conclusion

- Design of water tariff structure is challenging because of conflicting objectives involved.
- Fixed charge approach is most problematic as it fails to achieve at least 3 out of 4 objectives.
- IBT structures often fails to meet all objectives simultaneously and convey incorrect pricing signals