

# A Financial Framework for Water Utility Management

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for Improving Performance of Water Utilities  
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## Preliminary observations

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- Public water utilities may or may not have explicit MDG-related targets – many evidently do not
  - Still, they are not just businesses but instruments of public policy
    - Extending water and sanitation services to the unserved – notably the poor – is an important policy objective
    - If water utilities don't do it, who will?
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## The service challenge

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- How to maintain and improve water services to existing customers, including the poor,
  - while providing for an extension of services to those not yet connected to the network, notably the poor?
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## The related financial challenge

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- Ensuring the utility's financial solvency and long-term sustainability while
  - Providing service to all in its service area, including the poor, at an affordable rate
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## Water subsidies one instrument of “pro-poor governance”

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- Common means of making water affordable to the poor
    - But often not well targeted
    - Hence more costly than need be
  - Other measures may be important
    - Improving operational and capital efficiency, reducing water losses, to lower costs
    - Raising revenue collection rate, revising billing methods to address cash flow problems of poor
    - Revising technical norms to permit lower cost delivery systems
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## Economic features of water pertinent to subsidies

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- Water supply is a natural monopoly: short-run MC is below AC due to scale and network economies
    - Hence, marginal cost pricing may not lead to full cost recovery; involves implicit subsidy
  - High proportion of non-attributable costs, difficult to allocate to customers
    - Significant discretion in cost allocation across user classes
  - High capital intensity and long-lived assets (capital @ 2/3 of total costs, asset life @ 20-40 yrs)
    - Relatively easy to underfinance capital maintenance
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## Typology of subsidies

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- For connection     Targeted     Explicit
  - For consumption     Untargeted     Implicit
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## Types of targeting:

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- **Explicit targeting**
    - by quantity consumed (IBT, VDT)
    - by group (e.g., means testing)
    - by location (poor neighborhoods)
    - by other characteristic:
      - E.g., service level: free water from standpipes
  - **Implicit targeting**
    - flat fee for service implicitly subsidizes high-cost customers (e.g., 2-part tariff)
    - low collection rates mean those who pay subsidize those who do not
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## Stylized facts of water subsidies

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- Consumption subsidies are commonplace, often combined with generalized underpricing of water
    - Recent WB survey of water utilities in 132 major cities:
      - 39% have avg tariffs too low to cover O&M costs
      - Another 30% have tariffs too low for capital cost recovery
  - Connection subsidies uncommon – at least explicit subsidies, though many are implicitly subsidized through unauthorized connections
  - Water connection charges avg @ 8-10% of per capita income:
    - EAP: Avg \$100; Median \$83
    - So Asia: Avg \$42; Median \$35
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## The poor and water subsidies

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| <ul style="list-style-type: none"><li>□ The <i>connected poor</i><ul style="list-style-type: none"><li>■ Benefit from a consumption subsidy</li><li>■ ... but not a connection subsidy</li></ul></li></ul> | <ul style="list-style-type: none"><li>□ The <i>unconnected poor</i><ul style="list-style-type: none"><li>■ Benefit from a connection subsidy</li><li>■ ... not just in terms of the one-time cost reduction</li><li>■ ... but in access to water at lower prices</li><li>■ ... also to available consumption subsidies</li></ul></li></ul> |
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## Methods of funding subsidies

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- Fiscal transfers, including
    - Concessional credits
    - Loan guarantees
    - Input price subsidies (e.g. electricity)
  - Cross subsidies
  - Unfunded
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## Drawbacks of different subsidy mechanisms

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- Fiscal transfers: unreliable; can undermine managerial incentives (soft budget constraint), so subsidy gets consumed by inefficiency
  - Cross subsidies: create distortions that can undermine financial sustainability by causing exit from network by high volume users
  - Unfunded subsidies: cause deterioration of service quality and reduced service expansion
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## Forms of cross subsidy

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- Industrial customers pay prices in excess of cost to subsidize residential consumers
  - High-volume residential consumers subsidize low-volume consumers (avg household @ 23 cu.m./mo)
    - Increasing block tariffs (IBT) (usually 2-4 blocks) – most commonplace
    - Volume-differentiated tariff (VDT)
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## Are standard quantity-targeted subsidies progressive?

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- WB study finds: Hardly better targeted to poor than subsidized linear volumetric tariff
  - Perform better where a higher proportion of poor HHs connected to network – but still not progressive
  - Reasons:
    - Low connection, metering rates of poor
    - Weak correlation between HH income and qty of water consumed
  - Even if per-unit subsidy greater for poor, total subsidy payment to non-poor greater.
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## Cross subsidy from connected to unconnected

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- Most suitable where many poor people remain unconnected (e.g., in parts of So. Asia) and where those connected have ability to pay
  - Targeting: depends on how many of the unconnected are poor – often high, but probably higher proportion with water than with sanitation
  - Financing mechanism for subsidy matters:
    - Some of the connected may be poorer than the unconnected
    - Must consider incidence of subsidy net of finance charge (e.g., on water bill) or tax
  - Institutional, physical barriers to poor's connection: no legal tenure, no network access (high connection costs)
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## Strategic predicament

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- Water utilities struggle to recover costs, with consequences for service:
    - Service interruption commonplace
    - Pipe leakage widespread
    - Water quality often poor
  - Many still unconnected to piped network, notably in slums
    - Prospect that informal settlements will grow rapidly in coming years
    - Urgent need for further network expansion
  - But, how to finance when even O&M goes unfinanced?
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## Financing needs of water utility

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- Capital works
    - Dams, reservoirs, canals
    - Pumps and pipes
    - Treatment plant
    - IT facilities (for acctg, billing, operations mgt)
  - Operating and maintenance costs
    - "raw" water
    - electricity, fuels
    - chemicals, other materials
    - parts
    - labor
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## Urban water supply systems are part of broader eco-systems

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- Eco-logy: Geography, topography, geology precipitation patterns, ecology may affect need for building reservoirs, conveyance infrastructure, pumps, etc.
  - Eco-nomy: Upstream water (and watershed) use – by agr, ind, other urban agglomerations – affects water supply cost:
    - Diminished flow may require developing new sources
    - Polluted flow may require treatment investment
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## Methods of financing investment in water-related infrastructure

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- Internal utility reserves/surpluses
  - Government fiscal transfers (inc. ODA and concessional loans)
  - Guarantees, risk cover (to leverage commercial bank, bond financing)
  - Private equity financing (direct, portfolio)
  - Other: multilateral financing facilities
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## Changing mix of financing likely

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- Reliance on fiscal transfers important at first, then subsidies
  - Reliance on tariffs increases
    - at first to cover O&M
    - eventually to service capital costs
  - As utilities become more financially viable,
    - creditworthiness improves
    - thus access to commercial financing
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## Utilities are regulated monopolies

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- So, financial viability only partly attainable by managerial action
  - Regulatory framework and changes therein may also be needed
    - To permit better targeting of subsidies to the poor
    - To permit full cost recovery from tariffs paid by the non-poor
    - To provide stronger incentives to extend service to unconnected poor households
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## Leveraging public resources

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- Gov't has interest in seeing public water utilities not only stay in business but be able to expand service coverage
    - Yet – even with ODA -- it may not be able to provide adequate financing for such expansion
    - May be able to provide leverage, e.g., through partial credit guarantees, to attract commercial financing
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## PPPs are extension of such leverage to private participation

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- Continuum of modes of PPP
    - from arm's length management contract
    - to equity investment (e.g., via BOT)
  - Examples given yesterday of foreign BOT investment in wastewater treatment facilities (China, Viet Nam)
    - What pricing, other conditions have made such investment attractive?
    - How has private participation affected affordable access by the poor?
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## Three reasons for agnosticism in ongoing debate on PPPs in water

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- Public sector has often not served poor well in terms of affordable, reliable access to clean water
- Monopoly is the most efficient form of supply: single treatment and distribution system; choice is between *regulated* public and *regulated* private monopolies
- Examples exist on both sides: privatization that has helped the poor, that has hurt the poor

In any event, private participation can take multiple forms involving different degrees of risk sharing, sharing of management responsibilities ... no one size fits all

Key question not ownership per se but characteristics of water supply systems and price structures that best advance goal of providing affordable access to poor.

(S. Olmstead in *Environment* 2003)

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