INTERNAL UTILITY REFORMS THAT WORK: A REVIEW OF TRENDS

Dr. Allen Eisendrath
Senior Infrastructure Finance Specialist
Office of Infrastructure & Engineering, USAID/Washington
**KEY FEATURES OF SUCCESSFUL REFORMS**

<table>
<thead>
<tr>
<th>Armenia, Australia, Brazil, Burkina Faso, Bulgaria, Chile, Colombia, Cote d’Ivoire, Czech Republic, Egypt, Estonia, France, Germany, Hungary, Indonesia, Jordan, Latvia, Lithuania, Malaysia, Morocco, Netherlands, Poland, Romania, Russia, Senegal, Singapore, South Africa, Spain, Sweden, Thailand, Tunisia, UAE, Uganda, UK, US, Ukraine, Vietnam, Zambia</th>
</tr>
</thead>
</table>

- New approaches to corporate governance
- Accountable, autonomous management
- Realistic business plans
- Progressive performance targets & attractive incentives
- Cost-based price setting
- Shifting from capital grants to grant/loan mixes
- PSP works but it’s not the only way to reform
WHAT ARE SOME OF THE INTERNAL REFORMS THAT DRIVE SUCCESS?

- Governance innovations – Board of Director membership; bylaws; charter
- Management plans with progressive targets, a strategy and incentives
- Install a financial management system that supports the plan
- SBU and operating unit approaches
- System technical optimization
- MIS reform to support SBUs and performance monitoring
- Metering, billing and collection systems
- HR reforms: contracts; salary scales; incentives
TYPICAL STEPS TOWARD SUCCESSFUL REFORM

• Establish a new corporate governance framework
• Establish a competent management team
• Start with an “As Is” business model, including KPIs
• Create a business plan for transition
• Develop an operating agreement with “shareholders” including baseline, targets and incentives

Prepare sub-plans for:

• Financial transition
• Commercial performance improvement
• Operational performance improvement
• Capital investments
• Staff development & incentivization
PLANNING TRANSITION TO COST RECOVERY

- Total Costs, incl. capital
- Direct Operating Costs
- Affordability Ceiling
- Tariff

This is a cash subsidy requirement.

MOST REFORMS INVOLVE A PLANNED TRANSITION TO COST RECOVERY
12 Habits of Highly Successful CFOs

1. Fund balance reserve policy
2. Multi year financial forecasting
3. Monthly or quarterly financial reporting and monitoring
4. Contingency planning policy
5. Policies regarding non-recurring revenues
6. 5 yr capital planning incorporating operating costs of new facilities
7. Rapid debt retirement policies (65% in 10 years)
8. Debt affordability reviews and policies
9. Superior debt disclosure practices
10. Pay as you go capital funding policies
11. Financial reporting rewards
12. Budgeting rewards

Source: 12 Habits of Highly Successful Finance Officers, Fitch Ratings Criteria Report
We looked at examples of excellent water utility corporate governance:

- Uganda National Water & Sewerage Corporation  [www.nwsc.co.ug](http://www.nwsc.co.ug)
- Aqaba Water Corporation, Jordan
- Copasa, Brazil
- Aqua, Poland

- It often starts with corporatization

- Put in place “good corporate governance” mechanisms

- Established performance incentives & penalties
  - Board has obligation to put in place a performance plan
  - Progressive performance targets along a “glide path”
  - Ability to dismiss management when performance is poor
Utility has external autonomy

- Management can set salaries,
- Management strongly influences staff incentives,
- Management controls procurement,
- Supervisors and management influence tariffs,
- Management has some control over external borrowing

Utility is externally accountability:

- well defined performance targets,
- independent external audit,
- effective but not necessarily independent regulator,
- subject to lender conditions,
- external parties in management oversight bodies
CHARACTERISTICS OF WELL PERFORMING WATER UTILITIES

Internal accountability for results
- Rewards and penalties for chief executive for performance targets
- Staff subject to annual performance evaluation
- Rewards & penalties for employee achievement of performance targets
- Significant expenditure on staff training

Market orientation
- Outsourcing of non-core functions
- Frequency of benchmarking
- Engaged in market research & market testing
Consumption of electricity by Lithuanian companies belonging to Group II in sewage collection in 2006 kWh (m$^3$*H/100)
PERFORMANCE CONTRACTS
Example - Corporatised Eastern European water utility with performance based contract with City
Selangor State, Malaysia: Largest NRW Contract to Date

- Water crisis combined with 40% collection loss & 25% leakage
- Cutting NRW by 50% allows 1.5 million people in K.L. to be supplied
- Contract awarded to design and implement NRW reduction activities
- Payment was agreed lump-sum, with incentives & penalties related to targets
- Contractor free to select zones in network
- Lump sum was calculated to cover all necessary activities including leak detection, repairs, equipment, establishing district metered areas, identifying illegal connections, and meter replacement
- Result of 18 month pilot phase: NRW reduced by 20,898 m3 per day vs. target of 18,540 m3 per day.
- Cost: $215 per m3 loss reduced
- Contract Phase II expanded to reduce additional 198,900 m3 NRW per day.
- Result after 4 of 9 years: 157,000 m3 per day NRW reduction.
- Pressure reduction valves were important part of the program
<table>
<thead>
<tr>
<th>Characteristics of 3 MWA Water Loss Reduction Contracts</th>
<th>Contractor 1</th>
<th>Contractor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor</td>
<td>Nonthaburi</td>
<td>Sukhumvit</td>
</tr>
<tr>
<td>Number of connections</td>
<td>99,131</td>
<td>238,591</td>
</tr>
<tr>
<td>Initial pressure (avg.) (m)</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Initial NRW (M3/day)</td>
<td>146,205</td>
<td>130,750</td>
</tr>
<tr>
<td>Initial NRW (l/conn./day)</td>
<td>1,475</td>
<td>548</td>
</tr>
<tr>
<td>Final NRW (m3/day)</td>
<td>106,300</td>
<td>97,353</td>
</tr>
<tr>
<td>NRW reduction (m3/day)</td>
<td>39,905</td>
<td>33,397</td>
</tr>
<tr>
<td>Final NRW (l/conn./day)</td>
<td>1,072</td>
<td>408</td>
</tr>
<tr>
<td>DMAs established</td>
<td>86</td>
<td>76</td>
</tr>
<tr>
<td>Mains replacement (km)</td>
<td>130</td>
<td>156</td>
</tr>
<tr>
<td>% of mains replaced</td>
<td>5.2</td>
<td>4.0</td>
</tr>
<tr>
<td>Leak repairs</td>
<td>71,307</td>
<td>31,182</td>
</tr>
<tr>
<td>Leak survey (km)</td>
<td>15,158</td>
<td>8,933</td>
</tr>
<tr>
<td>Ratio of km lead survey to pipe length</td>
<td>6.1</td>
<td>2.3</td>
</tr>
<tr>
<td>Total contract cost (US$)</td>
<td>16.3 million</td>
<td>17.3 million</td>
</tr>
<tr>
<td>Cost per m3/day NRW reduction (US$)</td>
<td>408</td>
<td>518</td>
</tr>
</tbody>
</table>

There are 35 consumption units in the Belgrade company. 27 are monitored by installed equipment + 8 occasionally monitored by mobile equipment.

To reduce losses, systematic water accounting was installed in each division, with a manager for each division.
# Water balance at KOTEŽ

<table>
<thead>
<tr>
<th>KMM 3</th>
<th>Measure unit</th>
<th>Quantity</th>
<th>l/s/km</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water inflow</td>
<td>m3/day</td>
<td>3004.21</td>
<td></td>
</tr>
<tr>
<td></td>
<td>l/s</td>
<td>34.77</td>
<td>4.54</td>
</tr>
<tr>
<td>Invoiced water</td>
<td>m3/day</td>
<td>2167.20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>l/s</td>
<td>25.08</td>
<td>3.28</td>
</tr>
<tr>
<td>Water loss</td>
<td>m3/day</td>
<td>837.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>l/s</td>
<td>9.69</td>
<td>1.26</td>
</tr>
</tbody>
</table>

-27.86% in relation to measuring at KMM3
Pipe break repair 150 mm level
After repair, consumption reduced by 37 liters/sec
Bidders propose bulk supply price for a 5 year operating contract.

Highest bulk price (per m3) wins the contract.

Winning bidder operated water treatment plant, transmission, and distribution for a period of 5 years. All capex associated with customer connections and the tertiary network is operator responsibility.

System transfers back to Water Board at the end of 5 years.
AGGREGATION

THE LARGER THE UTILITY, THE LOWER THE COST PER UNIT

Average price of water services in different groups of water enterprises in 2005 year

- 1st group (>2mln.m3)
- 2nd group (1-2 mln. m3)
- 3rd group (0.5-1 mln. m3)
- 4th group (0.25-0.5 mln.m3)
- 5th group (<0.25 mln.m3)

Price in Euros:
- 1st group: 1.27 Euros
- 2nd group: 1.41 Euros
- 3rd group: 1.59 Euros
- 5th group: 1.9 Euros

THE LARGER THE UTILITY, THE LOWER THE COST PER UNIT
# AGGREGATION: EFFICIENCY DATA BEFORE & AFTER FORMING A REGIONAL COMPANY

## EXAMPLE OF A ROMANIAN CITY

<table>
<thead>
<tr>
<th></th>
<th>UNIT</th>
<th>2005 (Before)</th>
<th>2006 (After)</th>
<th>2008 (Forecast)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water &amp; sewage connections</td>
<td>No.</td>
<td>41,921</td>
<td>67,665</td>
<td>76,905</td>
</tr>
<tr>
<td>Billed water &amp; waste water</td>
<td>Th. m³</td>
<td>56,500</td>
<td>62,933</td>
<td>65,300</td>
</tr>
<tr>
<td>Monthly issued bills (average)</td>
<td>No.</td>
<td>31,620</td>
<td>66,770</td>
<td>48,176</td>
</tr>
<tr>
<td>Total incomes</td>
<td>EURO</td>
<td>12,855,008</td>
<td>23,095,353</td>
<td>25,625,000</td>
</tr>
<tr>
<td>Turnover</td>
<td>EURO</td>
<td>12,165,683</td>
<td>20,300,865</td>
<td>22,343,750</td>
</tr>
<tr>
<td>Operational expenditures</td>
<td>EURO</td>
<td>10,189,441</td>
<td>16,676,750</td>
<td>18,343,750</td>
</tr>
<tr>
<td>Operational profit rate</td>
<td>%</td>
<td>14,57</td>
<td>17,85</td>
<td>17,90</td>
</tr>
<tr>
<td>Specific water consumption</td>
<td>l/day</td>
<td>157</td>
<td>143</td>
<td>125</td>
</tr>
<tr>
<td>Maintenance &amp; repairs/km of network</td>
<td>No.</td>
<td>0,87</td>
<td>1,19</td>
<td>1,02</td>
</tr>
<tr>
<td>Interest coverage rate for foreign credits</td>
<td>%</td>
<td>3.26</td>
<td>8.41</td>
<td>8.5</td>
</tr>
</tbody>
</table>
THE CAPITAL ASSET PROBLEM: WHO PAYS THE CAPITAL COSTS OF WATER & SANITATION?

- Surface Water Supply
- Groundwater & stream bed supply
- Water Resource Management
- Bulk Water Supply
- Pumps
- Water Treatment
- Elevated service reservoirs
- Individual Groundwater Wells
- Distribution Network
- Sewerage Drains
- Septic Tanks
- Sanitation Services
THE “UNREFORMED” APPROACH TO CAPEX
TRENDS RELATED TO CAPITAL ASSETS

- The main trend is toward treating capital costs as part of the water & sanitation business.

- A second trend is gradual, step-wise transition to recovery of capital costs from consumers.

- A third trend is transition from grant-based capital financing to grant/loan mixes of financing.

- Critical to all of these is reform of the utility sector.
  - Reduction of losses;
  - Breakeven on O&M costs;
  - Building an effective business model;
  - Revolving funds.

In the end, reformed utilities use either revenue requirements or a GAAP/IAS approach.
Example of Transition to FCR: Hungarian water utility operating costs in 2004.

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>billion HUF</th>
<th>In percentage (%) of operating revenue (75,2 billion HUF)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>2,485</td>
<td>3,3</td>
</tr>
<tr>
<td>Energy</td>
<td>4,473</td>
<td>5,9</td>
</tr>
<tr>
<td><strong>Depreciation + rental costs</strong></td>
<td><strong>12,743</strong></td>
<td><strong>16,9</strong></td>
</tr>
<tr>
<td>Wages and social security taxes</td>
<td>6,571</td>
<td>8,7</td>
</tr>
<tr>
<td>Reparation and servicing</td>
<td>4,847</td>
<td>6,4</td>
</tr>
<tr>
<td>Other direct costs</td>
<td>9,096</td>
<td>12,1</td>
</tr>
<tr>
<td>Indirect costs</td>
<td>10,499</td>
<td>13,9</td>
</tr>
<tr>
<td>Other expenditures</td>
<td>15,847</td>
<td>21,1</td>
</tr>
<tr>
<td>Sewage penalty</td>
<td>0,216</td>
<td>0,3</td>
</tr>
</tbody>
</table>
Summary of Steps toward Successful Internal Reforms

- Establish a new corporate governance framework
- Establish a competent management team
- Start with an “As Is” business model, including KPIs
- Create a business plan for transition
- Develop an operating agreement with “shareholders” including baseline, targets and incentives
- Sub-plans for:
  - Commercial performance improvement
  - Operational performance improvement
  - Capital investments
  - Staff development & incentivization