Performance of Public Private Partnership (PPP) models in water supply in Armenia

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Water suppliers in Armenia

PSRC- Public Services Regulatory Commission - economic regulator at the central level, reports to the Parliament. Sets tariff for the 5 main companies

SCWS- State Committee of Water Systems- asset holder for the GoA
Institutional Structure

- Infrastructure is the property of the local governments
- Local governments have to ensure adequate water supply by law
- 5 main companies +:
  (a) AWSC under Management contract with SAUR. Communities delegated service provision to the central government the infrastructure belong to the communities was handed over for the management to the state, and it, in turn engaged a management contractor (SAUR)
  (b) Yerevan Jur under lease contract Veolia: Yerevan municipality is the party for the MC
  (c) 3 regional companies (Nor Akunq JSC, Shirak JSC, Lori JSC) under management contract with MVV DECON: communities- 49%, central government- 51%
  (d) + 569 communities- manage their own water supply, only a few registered municipal enterprises (e.g. Nor Hachyn)
Factors affecting service outcomes

- Type of Governance
  - Robust typology
  - Accountability
  - Rule of Law

Outcomes
- Affordability
- Sustainability
- Service quality

- Economic Development
- Technological factors
- Geographical factors

Decentralization

Privatization/Marketization

Individual service areas can be classified

There are no "pure cases"
Governance models in Armenia

- **Water supply: robust governance models**
  - **Centralized**
    - Public (PPP), delegated management by LSGBs to central Government, with no local government participation (AWSC): Management Contract (MC) with Saur
  - **Decentralized**
    - Public (PPP) with local government participation (Nor Akunq, Shiak WSC, Lori WSC); Management Contract (MC) with MVV Decon
    - Public (no PSP): 560 villages
    - Public (PPP) with LSGB as lease holder (YWSC); Lease contract with Veolia (LC)

  - **Private**
Hypothesis

- The governance type, according to the robust model does not explain the outcomes (transaction costs)
- Transaction costs are affected by 3 factors: inventive structure, accountability relations and rule of law
- There is a close connection between the external factors and the three governance factors
External factors

- **Economic**: Financially weak central government and even weaker municipalities; Municipalities cannot attract IFI loans (except perhaps Yerevan)
- **Technological**: Major needs in capital investment to replace the worn out pipe network
- **Geographic**: Mountainous terrain, with significantly varying costs of production. Centralization allows for cross subsidization and exonomies of scale
PPP contracts set high KPI for high (and increasing duration of supply)

Central Government send unclear signals re decentralization vs. centralization; Different level of LSGB participation (and incentives) in PSPs; No PSP for the 560 villages
# Incentives: GoA and capital investments

<table>
<thead>
<tr>
<th>Main Performance Indicators</th>
<th>Unit</th>
<th>2004 Base Year</th>
<th>2011 September</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply Duration</td>
<td>hours</td>
<td>4-6</td>
<td>14.4</td>
</tr>
<tr>
<td>Unaccounted Water</td>
<td>%</td>
<td>74</td>
<td>84</td>
</tr>
<tr>
<td>Energy Consumption</td>
<td>Million kiloWatt-hour</td>
<td>64.4</td>
<td>18.7</td>
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<tr>
<td>Weighted average water bacteriological safety compliance</td>
<td>%</td>
<td>94</td>
<td>98.5</td>
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<tr>
<td>Collection Efficiency</td>
<td>%</td>
<td>48</td>
<td>92.5</td>
</tr>
<tr>
<td>Installed Water Meters</td>
<td>% of customers</td>
<td>40</td>
<td>81</td>
</tr>
<tr>
<td>Tariff</td>
<td>USD/m³</td>
<td>0.09</td>
<td>0.46</td>
</tr>
<tr>
<td>Total staff per 1000 individual subscribers</td>
<td>people</td>
<td>9.5</td>
<td>5.9</td>
</tr>
<tr>
<td>Number of Employees</td>
<td>people</td>
<td>2400</td>
<td>1664</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Standards</th>
<th>Unit</th>
<th>One year before Private Sector Involvement, /2000/</th>
<th>At the end of the Management Contract with A-Utility, /2005/</th>
<th>within 5 years of Lease Contract with Vedia Water, September 2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Supply Duration</td>
<td>Hours</td>
<td>4-6</td>
<td>18.4</td>
<td>20.8</td>
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<tr>
<td>Energy Consumption</td>
<td>Million kiloWatt-hour</td>
<td>240.3</td>
<td>124.2</td>
<td>73.2</td>
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<tr>
<td>Collection Efficiency</td>
<td>%</td>
<td>21</td>
<td>86</td>
<td>98</td>
</tr>
<tr>
<td>Installed Water Meters</td>
<td>% of customers</td>
<td>0.8</td>
<td>87</td>
<td>97</td>
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<tr>
<td>Water Consumption</td>
<td>l/d</td>
<td>By norm 250</td>
<td>110</td>
<td>100</td>
</tr>
<tr>
<td>Tariff</td>
<td>USD/m³</td>
<td>0.1</td>
<td>0.27</td>
<td>0.47</td>
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<tr>
<td>Number of Employees</td>
<td>people</td>
<td>1165</td>
<td>1588</td>
<td>1263</td>
</tr>
<tr>
<td>Average Yearly Public Subsidies</td>
<td>Million USD</td>
<td>4</td>
<td>0.7</td>
<td>-</td>
</tr>
<tr>
<td>Unaccounted for Water</td>
<td>%</td>
<td>72</td>
<td>79</td>
<td>82.6</td>
</tr>
</tbody>
</table>
Incentives: GoA and capital investments (cont.)

• NRW increasing in AWSC and YWSC: Underinvestment in capex by the GoA; high service standards and below-cost recovery tariffs (consequently inadequate opex) lead to the erosion of capital infrastructure and affect service outcomes (e.g. supply interruptions; problems with water quality)

• NRW is improving in the 3 regionals, but here large investments were made previously by KfW (12,782.3 Euro). 70% of water infrastructure is now replaced. However: no further capital investment program (and new loan) now. The needs in the extension and rehabilitation of the wastewater and sewerage networks are huge.
Local Government Incentives (1): investments and burden sharing

- More involvement is associated with better outcomes (regionals and YWSC).
- More investments from Local government budget
- Transfer of lease to Yerevan Municipality triggered and application by Yerevan Mayor to PWSC to subsidize the tariffs.
- At AWSC at times is it difficult to reach agreements with the communities and municipalities by the company (e.g. when arranging for the pipe works)
Local Government Incentives (2): centralization – regionalization - decentralization

- **AWS C:** community-to-state delegation contracts are expiring soon (2013). Municipalities, would like to but are afraid to quit (currently cross subsidization among communities; will have to repay the investment and they would not be able to raise funding from IFIs on their own (due to the lack of credit rating).

- **Nor Akunq:**
  - A number of neighbouring communities would like to join, but the expansion is constrained by the lack of GoA funding
  - The shares of the central Government increased from 49% to 51 %: the GoA insisted on holding the control package
Other-than Yerevan decentralized suppliers: Incentives and Outcomes

- Only 1-2 cases when a company is registered (e.g. Nor Hachyn). The Municipalities have little incentives to do so.
- Different situation- depending on location. The ones with good water resources are not interested in joining other utilities. In the case of those with poor water resources- the utilities are not keen in taking them on.
- GoA was busy with other main 5 PPPs, and has largely ignored these so far. There is no clear strategy as yet.
- In Armenia, lack of regulation for municipal suppliers. The local governments theoretically can delegate their service provision to a private operator, but there is no such case as yet and lack of incentives to do so.
- In many areas, the locally set tariffs cover O&EM expenses, but for the capex the municipalities rely on outside assistance (they receive no targeted grant from the central budget for this).
- The case of Nor Hachyn proves that stricter market discipline improves performance. However, overall, in Armenia, lack of regulation for municipal suppliers. Poor accountability, transparency; no service standards.
Rule of law and Accountability

- Lack of rule of law in the country (... Illegal connections, meter tampering, lack of judicial independence, high level of corruption at all levels). This affects the ability by the companies to manage the network effectively and as a consequence- the service outcomes. this is true for all three companies.

- Price setting procedures lack independence and oversight,

- The fact that municipalities wishing to exit AWSC have to repay the investments made is an indication of power relationships and power balance between he central and the local government as well as the accountability schemes. This affects the incentives of the municipalities and hence the service outcomes.

- Lack of information and accountability related to water quality issues, denying the customers the opportunity to act forcefully and demand improvements. The situation is worse in the communities were the municipalities manage their own water supply,
Conclusions

- Introduction of PSP models contributed to the improvement of the sector outcomes (e.g. stricter application of bill collection rules and pushing for more rational tariff structure). Better specification of PPP contracts and KPIs helped to improve PPP performance over time. However, strong external and incentives'/accountability/rule of law related factors affect the outcomes.

- External factors affect incentives, e.g.

- Centralization brings more opportunities for attracting financing, given the weak financial standing of municipalities; allows for cross-subsidization and economies of scale. But this comes at the cost, e.g. (a) decreased incentives at local levels; (b) interference; (c) at times, constrained options for expansion.

- In the decentralized model, the financial standing of municipalities becomes the crucial factor affecting service outcomes (Yerevan vs. others) in the face of no central GoA funding.

- Increased participation of local government affects their incentives and service outcomes.

- The overall challenges with the rule of law and accountability are present in all models. However, the PSP models contribute to some improvements in this regards, facilitated by clear and well defined KPIs.
.. To summarize

- Thus the main hypothesis holds, i.e. that none of the governance model determines in itself the outcomes (affordability, sustainability and service quality) because the outcomes are influenced by the incentives, accountability and rule of law. **However,**

  - PSP and local government participation improve incentives and service outcomes in all the models.
  
  - external factors are closely related to the 3 governance factors, affecting service outcomes in all models