Water services and regulation in Italy
issues and way forward

Antonio Massarutto
Dept of Economics, Università di Udine
IEFE, Università Bocconi, Milano
antonio.massarutto@uniud.it
ISSUES ABOUT PRIVATE SECTOR INVOLVEMENT IN WATER AND SANITATION
PSI: a hot debated issue - pros

- Why PSI is (or might be) desirable
  - promise of higher efficiency: markets expected as better allocators of resources than state officers
  - WatSan as complex industrial activities
  - Public sector failures: raiding of funds, diversion of cash flows, allocation of monopoly rents to “private agendas” of policymakers, lower efficiency

- Why is PSI necessary
  - commercial WatSan as a solution to the crisis of the traditional model based on expanding supplies and public spending
  - need of professional expertise and business-oriented mentality
  - lack of managerial-financial capabilities in the public sector, especially (but not solely) in LDCs
  - alleviate the burden suffered by public budget ⇔ need to rely on capital markets for gathering financial means
PSI: a hot debated issue - cons

• Why is PSI *problematic*: economic reasons
  – evidence that privatization alone does not improve efficiency ⇐
    competition is needed, but not easy in the water sector
  – WatSan as a natural monopoly ⇐ no direct competition possible; pro-
    competitive regulation feasible but imperfect
  – Long economic life of assets + large capital outlays to be anticipated ⇐
    business vulnerable in the long term; need to guarantee revenues and secure
debt service
  – Dynamics mostly exogenous (eg env policy) ⇐ need to ensure flexibility
    and adaptability of operators’ commitments

• Why is PSI *problematic*: social and political reasons
  – Politically hot issue; water perceived as a social right; need to balance
    affordability with cost recovery and financial viability
  – Institutional counterbalances not easy to put in place
As a matter of fact:

• Evidence against PSI
  – Schemes sponsored by international institutions during the 90s failed to deliver and caused a lot of problems
  – In most developed countries, public management performs well and often entails lower costs – FCR and economic efficiency are compatible with public management
  – Historical record of corrupted relations with PS, favoured by discretional and opaque regulation

• Evidence in favour of PSI
  – Evidence of successful PSI in many cases
  – Failures in PSI do not mean that problems can be easily solved by public sector, as the delays in achieving MDG show
  – PSI can take place in many different ways
  – Institutional learning and capacity building as a key aspect
European policy for Watsan

- WatSan as services of general economic interest
  - Commercial services on which public authority can impose special obligations in the general interest
  - Need to rely on open competitive procedures if private sector has to be involved
  - Very strict rules for in-house delivery (especially if under corporate forms or PPPs) in order to enforce the open competition principle

- FCR and PPP as a general principle for cost allocation
  - Very strict quality regulation
  - Environmental regulation aimed at good ecological status;
  - Environmental policy (WFD) is the most important cost driver in the medium term
Wrong questions about PSI

- Is “private” better/worse than “public”
- Does ownership of water companies matter
- Does ownership of assets matter
- Is it justified to make profit on essential services?
- Will “private” mean “more expensive”?
Right questions about PSI

• Organization of the market
  – Who holds responsibility for providing the service
  – Who is responsible for making investment and ensuring that assets can perform in the long run
  – What kind of competition does actually take place
  – Degree of vertical integration

• Regulation and governance of transactions
  – What are the obligations (of water companies, customers, public authorities) and how are they defined and adjusted along time
  – What are the rights (of water companies, customers, public authorities) and how are they enforced
  – What are the rules, how are they defined and enforced, how are they changed along time
  – Who pays what (and how)
  – How is risk allocated (consumers, taxpayers, investors)
Multiple transactions in the WatSan system
WatSan at the crossing of different issues

- **Market I: operators vs. responsible entities**
  - WatSan as a service of general economic interest implies that a public entity assumes responsibility for providing the service and decide about network extension, connection, performance targets, strategies
  - Responsible entity defines public service obligations and tariffs
  - WatSan implies many components of public good and externalities that should be specified by the public sector

- **Market II: operators vs. owners of water resources**
  - WatSan have access to water resources that are owned by the community as a public good
  - Regulations about how to access the natural resource and discharge are imposed by the state
  - Ev. trade-offs and conflicts with other water users
  - IWRM and management of the resource ↔ bulk water supply schemes, ev. shared with other users
WatSan at the crossing of different issues

• Market III: operators vs. the supply chain
  – Retail WatSan services as a terminal of a complex industrial value chain
  – Supply of technology, construction, engineering etc
  – Supply of capital for investment

• Market IV: operators vs. final consumers
  – Delivery of service to individuals
  – Collective systems vs. community/cooperative/self-supplied systems
  – WatSan as natural monopolies ⇔ economic regulation aimed at avoiding the arising of monopoly rents
Different meanings of private sector involvement

• Market I (operators vs. responsible entities):
  – competitive tendering for operation (and/or asset management)
  – incentive regulation, benchmarking
  – Corporatization (ev. PPP) and soft regulation of public companies

• Market II (operators vs. owners of property rights on water):
  – tradable property rights
  – Innovative agreements (eg with agriculture)

• Market III (operators vs. providers of inputs):
  – outsourcing,
  – corporate control
  – procurement,
  – DBFO

• Market IV (operators vs. final consumers):
  – Commodification of water service (WatSan as a commercial service)
  – customers’ eligibility for free autonomous organizations;
  – users’ cooperatives + community systems for asset ownership/management
# Transactions in the water industry and related market failures

<table>
<thead>
<tr>
<th>Axis</th>
<th>Description</th>
<th>Regulatory issues / market failures</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Transactions between the WSS operator and public entities holding the</td>
<td>Incomplete contracts, Transactions costs, Sunk costs, Information asymmetries</td>
</tr>
<tr>
<td></td>
<td>responsibility for service provision</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Transactions between the WSS operator and suppliers of inputs along the value</td>
<td>Vertical integration, Cost of capital for long-run undertakings, Principal-agent relations in</td>
</tr>
<tr>
<td></td>
<td>chain</td>
<td>procurement</td>
</tr>
<tr>
<td>III</td>
<td>Transactions between WSS operator and entities holding the property rights on</td>
<td>Externalities, Long-run sustainability of water management systems, Transactions costs in the trade</td>
</tr>
<tr>
<td></td>
<td>natural resources</td>
<td>of water rights</td>
</tr>
<tr>
<td>IV</td>
<td>Transactions between WSS operators and final consumers</td>
<td>Natural monopoly, Public good dimensions (eg health issues), Accessibility and affordability issues,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Resilience and flexibility</td>
</tr>
</tbody>
</table>
Value chain of water services

Environmental regulation
- Targets
- Emission standards
- Water quality standards
- Incentives

Economic regulation
- Unbundling/integration
- Price regulation
- Economic risk allocation
- Regulation on SGI-PPP

Infrastructure planning

Responsibility

Financing

Ownership

Operation

Tendering

Support activities
- Laboratories
- External relations
- Communication / education
- RTD
- Maintenance
- Intermediation twds secondary markets

Operation
- Connections
- Metering
- Billing
- Operational control
- Network monitoring
- Operation of facilities

I market
II market
III market

Construction

Engineering services

Capital market

Management core
Regulatory sphere
Market sphere

Project / service design

Construction

External relations

Communication / education

RTD

Maintenance

Intermediation twds secondary markets

......
Alternative management models

• Regulated monopoly (eg England and Wales)
  – full privatisation of assets and responsibility: water companies are obliged to supply the service with the desired quality level and maintain assets and have the right to charge customers
  – legal monopoly (no competition)
  – Full sale of water company property on the stock exchange market
  – arms’ length regulation

• Delegation (eg France)
  – public responsibility and property of assets
  – Range from full concession to pure lease contracts
  – (more or less competitive) delegation through tenders
  – Concentration and vertical integration of the water industry along the value chain
Alternative management models

- **Direct public management** (eg most of Europe, Usa):
  - public responsibility for service provision
  - public property of assets
  - Public responsibility for asset management and development
  - public management of water undertakings
  - Public sector accounting base (cash expenditure)
- **Diffused involvement of private capital market** on case-by-case (es. PPP or DBFO for single facilities)
- **Corporate public management** (eg Italy, Germany, NL)
  - Water companies run under private law
  - commercial water service
  - Private sector accounting base
  - (eventual) partial privatisation of municipal enterprises maintaining entrepreneurial autonomy (D) or with limitations and unbundling (NL); quotation on stock exchange (ITA)
  - competition along the value chain is highest
Value chain of water services – regulated monopoly

Environmental regulation
- Targets
- Emission standards
- Water quality standards
- Incentives

Economic regulation
- Unbundling/integration
- Price regulation
- Economic risk allocation
- Regulation on SGI-PPP

Responsibility

Infrastructure planning

Ownership

Operation

Capital market

Support activities
- Laboratories
- External relations
- Communication / education
- RTD
- Maintenance
- Intermediation twds secondary markets

Operational activities
- Connections
- Metering
- Billing
- Operational control
- Network monitoring
- Operation of facilities

Construction

Tendering

Equipment

Regulatory sphere

Market sphere

Management core

Value chain of water services – regulated monopoly

Regulation

Market transactions
Value chain of water services – direct public management

Environmental regulation
- Targets
- Emission standards
- Water quality standards
- Incentives

Economic regulation
- Unbundling/integration
- Price regulation
- Economic risk allocation
- Regulation on SGI-PPP

Responsibility

Operation

Construction
- Engineering services
- Equipment
- Support activities
  - Laboratories
  - External relations
  - Communication / education
  - RTD
  - Maintenance
  - Intermediation twds secondary markets

Tendering

Financing
- Project / service design
- Construction
- Capital market

Capital market
- Operational activities
  - Connections
  - Metering
  - Billing
  - Operational control
  - Network monitoring
  - Operation of facilities

Management core

Regulatory sphere

Market sphere
Hybrids and alternatives

• Public-private partnerships (PPP)
  – alternative to delegation: tender for choosing partners in PPP
  – Flexible risk allocation, commitment vs. conflict of interest

• Corporate direct public management
  – Public water companies under private law (in-house)
  – quoted on stock exchange or participated by financial investors
  – Business mentality and access to capital markets vs. loose regulation, lack of control

• Competition in market III and IV
  – IRBM favouring inter-sectoral water service trade and ecosystem services compensation
  – Self-supply, community systems and eligible customers
  – Not always feasible (although, technical innovation helps)
A general representation of economic and financial flows in WS&S

1. **Owner of property rights on water resources**
   - Water taxes
   - Ear-marked subsidies

2. **Private partner**
   - Dividends
   - Transfer prices

3. **Operator**
   - Industrial costs
   - Financial costs
   - Tariffs
   - Lease fees
   - Dividends
   - Capital gain
   - Royalties
   - Transfer prices

4. **Responsible entity**
   - Dividends
   - Capital gain
   - Royalties

5. **Asset ownership**
   - Investment
   - Maintenance
   - Renewal
   - Extension

6. **Consumers**
   - Direct cost of self-supply
   - Industrial costs
   - Financial costs

7. **Market for goods, services, labour & capital**

8. **Public budget**
   - Taxation
   - Transfers

**Markets**
- I market
- II market
- III market
- IV market

**Fiscal**
- Industrial costs
- Financial costs
Main lessons from economic theory

• Public vs. private is a false problem; evidence of good and bad outcomes under all models
• Performance is explained by quality of regulation and allocation of risk more than from ownership
• Alternative models are compatible with very different patterns of risk allocation and regulation; what matters is risk allocation and regulation, not the model per se
• Full-cost recovery implies price increases anyway; capital cost depends on risk allocation and not on “profit”
• Service dynamics is the main source of risk; need to ensure flexibility of commitments vs. incentive to economic efficiency $\Leftrightarrow$ contract renegotiation and cost-passthrough = main source of regulatory problems
• Economic regulation and affordability are separate issues
<table>
<thead>
<tr>
<th></th>
<th>Delegation</th>
<th>Private monopoly</th>
<th>Direct public mgmt</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main regulatory instrument</strong></td>
<td>Contract (concession)</td>
<td>Independent regulation</td>
<td>Hierarchical control</td>
</tr>
<tr>
<td><strong>Main pro-competitive incentives</strong></td>
<td>Tenders (competition for the market)</td>
<td>Price caps</td>
<td>Procurement</td>
</tr>
<tr>
<td></td>
<td>Threaten to go back public</td>
<td>Yardstick competition</td>
<td>Outsourcing</td>
</tr>
<tr>
<td></td>
<td>Market for takeovers &amp; corporate control</td>
<td></td>
<td>Threaten to privatize</td>
</tr>
<tr>
<td><strong>Main pitfalls</strong></td>
<td>Incomplete contracts</td>
<td>Asymmetric information</td>
<td>Vulnerability to political influence</td>
</tr>
<tr>
<td></td>
<td>Transactions costs</td>
<td>Regulatory capture</td>
<td>Limited incentives to efficiency</td>
</tr>
<tr>
<td></td>
<td>Competitive advantage of incumbents</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Critical aspects</strong></td>
<td>Transfer prices (vertical integration)</td>
<td>Cost evaluation and comparison</td>
<td>Overstaffing</td>
</tr>
<tr>
<td></td>
<td>Renegotiation</td>
<td></td>
<td>Loose enforcement</td>
</tr>
<tr>
<td></td>
<td>Responsibility for investment and risk sharing</td>
<td>Cost pass-through of new obligations</td>
<td>Raiding of funds by municipal departments</td>
</tr>
<tr>
<td></td>
<td>Strategic decisions &amp; planning</td>
<td></td>
<td>Tendency to enter the debt spiral due to unwillingness to raise prices</td>
</tr>
<tr>
<td><strong>Risks for private investors</strong></td>
<td>Contract enforcement</td>
<td>Expropriation of free cash flows</td>
<td>Political unwillingness to secure cash flows for debt service</td>
</tr>
<tr>
<td></td>
<td>Failure to renegotiate in case costs are higher</td>
<td>Setting unrealistic or too demanding efficiency targets</td>
<td>Political priority on keeping low prices and protect delinquent payers</td>
</tr>
<tr>
<td></td>
<td>Asymmetric gain: regulators learn how to anticipate progresses, companies find it more difficult to outperform</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hybrids (examples)</strong></td>
<td>Lease contracts</td>
<td>Quoted multiutilities</td>
<td>Management contracts</td>
</tr>
<tr>
<td></td>
<td>Institutional PPPs</td>
<td>Corporate privatization</td>
<td>DBFO</td>
</tr>
</tbody>
</table>
From theory to practice

Contractual regulation

Pure
Concessions

Mixed-venture
with industrial
partner

Lease
contract

DBFO
Management
contracts

Traditional
DPM

Corporate
DPM

PSP

Minority

Quoted
Multiutility

Performance
contracts

Privatized
Monopoly

Discretional
regulation

Hierarchical
regulation
REGULATION OF WATER SERVICES IN ITALY
Public vs. private: a misplaced debate

• Objectives of the presentation
  – Discuss the main issues arising from the Italian water industry reform
  – Use Italy as a case study that shows how the “public vs. private” debate is misplaced
Drivers of 1994 reform

• Prior situation
  – Reliance on public spending for all investment
  – 13,000 undertakings, mostly with very low capabilities, responsible for urban networks (distribution and sewage collection)
  – Sometimes organized as municipal enterprises or joint syndicates, most of the time direct labour orgs
  – System relying on simple technologies, incapable of modernizing and managing complex value chain
  – State and regional planning for larger water supply schemes (when needed) and sewage treatment; municipal budget for water distribution and sewage collection

• Objectives of the reform
  – Create self-sufficient management units (in terms of water and finance) by forcing municipalities to create intermunicipal agencies being collectively responsible for provision
  – Foster the transformation of water utilities into industrial and commercial companies (not necessarily private)
  – Adopt a full-cost recovery model also including investments
  – Integrate investment decision in the water utility system $\Rightarrow$ no more “dualism”
EU and national level

Basin authorities
- Responsible for providing services and meet environmental and quality standard
- Contractual counterpart of water companies
- Compile the AMDP
- Define + approve financial plan (max Δ tariff)
- Control and contract enforcement
- Approve contract renegotiations

ATO
- Define basin-relevant targets
- Implement IRBM + WFD

Regions
- Minimum quality standards
- Set env requirements
- Determine size of
- Regulate how

Municipalities
- Legislation on public service provision
- Choose (in house or after tender)
- Participate to
- Ev. partially own

COVIRI
- Appoints
- Controls and contract enforcement
- Approve contract renegotiations
- Compile the AMDP

Water companies
- Organized as private limited companies
- Full delegation to private companies (rare)
- Mixed venture capital with public majority
- Partially privatized municipal enterprises
- Fully publicly-owned (in house)

Infrastructure
- Own
- Free loan
### Before and after the reform

<table>
<thead>
<tr>
<th>BEFORE</th>
<th>AFTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsibility for service provision on municipalities</td>
<td>Responsibility on municipalities, compulsorily associated within “optimal management areas” designed by Regions Possibility to maintain local management systems if demonstrated as “effective and efficient”</td>
</tr>
<tr>
<td>Voluntary agreements btw municipalities allowed and sometimes encouraged</td>
<td></td>
</tr>
<tr>
<td>Over 13,500 undertakings Separate arrangements for drinking water and sanitation</td>
<td>Approx. 90 undertakings “Integrated water service” ↔ water supply + sanitation</td>
</tr>
<tr>
<td>Prevalence of direct labour orgs Larger cities often managed through municipal companies</td>
<td>Industrial operation on a commercial base Many alternative forms allowed, ranging from publicly owned company to delegation</td>
</tr>
<tr>
<td>Hierarchical regulation under pubic law</td>
<td>Contractual regulation based on commercial law</td>
</tr>
<tr>
<td>Tariff set at the national level regardless the cost</td>
<td>Tariffs regulated nationally and applied locally on a full-cost recovery base</td>
</tr>
<tr>
<td>Investments programmed and financed by budget law through taxation</td>
<td>Investments self financed and geared by tariffs Investment plan defined by ATOs and implemented by water companies according to the contract</td>
</tr>
<tr>
<td>Investment and operation carried out by separate entities and not coordinated</td>
<td>Integrated responsibility for investment and operation</td>
</tr>
<tr>
<td>Economic risks borne by the state</td>
<td>Economic risks borne by operators</td>
</tr>
</tbody>
</table>
Economic regulation

- Regulation based on the delegation model (ATO)
  - ATO plan: levels of service, PSO, investment, financial plan (tariff dynamics)
  - Service contract (between the ATO and water companies): adopt and implement ATO plan; monitoring and control
  - Service charter adopted by water company

- Status of economic regulators:
  - National level (CONVIRI): non independent committee appointed by Central + Regional Gov
  - Regional level: non independent bodies

- Tasks of national regulator
  - Definition of minimum quality targets
  - Rules for price setting: regulatory accounting, admissible costs, price caps
  - Benchmarking and reporting to parliament and public
  - Support to government acts

- Tasks of regional regulator
  - Integrate minimum PSO
  - Integrate benchmarking and reporting
  - Frame the activity of ATO (standard contracts and reports, governance of ATO)
The tariff regulation system

• In the past
  – Tariff set by municipalities but capped annually by central government
  – Sewerage: tariff set annually by central government (budget law)
  – No requirements for cost recovery (for OPEX only, but theoretical and mostly not implemented)

• Legal provision:
  – Full cost recovery (including depreciation + capital remuneration)
  – Mandatory to achieve financial equilibrium
  – Law attributes to Ministry the power to define price setting regulations (on proposal by Conviri)

• What happened in practice
  – Tariff setting scheme approved in 1996 (“metodo tariffario normalizzato”), but applicable only after the transition to the new organization is completed
  – In the meanwhile, annual max increase defined by central Gov body (CIPE)
  – Some Regions (eg Emilia-Romagna) claimed responsibility over price regulation and set up own regulations (still under settlement of the Supreme Court)
The standard pricing model (MTN)

- Definition of the regulatory cost
  - Operational cost
    - First year: all cost directly related to WatSan; obligation to set up separate accounts (unbundling) in case the regulated company also operates other activities
    - Following years: min efficiency gain target based on a benchmarking formula
  - Depreciation
    - Applies to existing assets (if realized by the water company or capitalized in it) and to new investment made according to the AMDP
    - Depreciation ratios are derived from tax legislation
  - Capital remuneration
    - A lump-sum remuneration of 7% to be applied to net assets
    - Financial costs of existing loans if transferred on the operator
    - Conviri should periodically review the remuneration rate according to the conditions in the capital market
Application of the tariff

• The tariff setting process
  – Definition of the volume of water sold (VE)
  – Calculation of the average cost-recovery tariff (TRM) by dividing the regulatory cost per the volume of water sold
  – Initial tariff set as the weighted average of existing undertakings
  – Annual maximum increase (K): 7.5% first year, 5% later
  – Average tariff each year (Teff) set as the lower value between the maximum allowed tariff (t-1 + K) and the TRM.
  – In case revenues are lower than total cost (Teff*VE < TRM*VE), the unbalance can be transferred to the next year as a cost

• The tariff structure
  – The average tariff is later transferred into a rate schedule based on an increasing block scheme
  – A subsidized block is defined for the first volume (variable size); the unbalance is recovered from the higher rates applied to upper blocks
  – Fixed charge (meter rent) almost negligible
Tariff reviews

• Triennial reviews:
  – Every 3 years the operator proposes actions to be done in order to achieve the targets set down in the AMDP
  – Main parameters are verified (quantity of water sold, total revenues, investments made etc) and tariffs adjusted accordingly
  – No upwards revision of opex allowed at this stage

• Ordinary and extraordinary review
  – AMDP can be reviewed when a set of circumstances occur, which have an impact on the management model (eg new legislation)
  – Renegotiation requires an agreement btw the two parts; unclear regulation of how disagreements are settled
  – In theory, ATOs are obliged to guarantee the financial equilibrium; but disagreement may occur i.e. because costs are different than foreseen in the initial plan and ATO refuses to accept the higher cost
ACHIEVEMENTS
A very slow improvement

- % of customers declaring to receive regular and sufficient supply
  - 1987: average = 65% (22% in the South and 45% in the Islands);
    - half of the population in the south declared irregular supplies for more than 3 months
  - 2000: Average = 85%; south = 65%
  - 2008: Average = 90%; south = 80%

- Leakage
  - Apparent leakage (water produced – water sold): from 29% to 40%
  - Commercial leakage (unaccounted for water) also high

- Sanitation
  - Implementation of EUWWD in 1999: 80% on average, 70% in sensitive areas; urban wastewater treatment complete in only 50% of load
  - In 2009, average = 76% (more or less unchanged despite the elimination of some “black spots” as Milano
  - WFD: still unknown whether it will implemented (and at what cost)
  - Evidence that gap with “good ecological status” depends largely on untreated wastewater pollution from the urban service (+ overflows)
Customers claiming irregular supply
Quality of surface water - 2005

- 43% classe 3
- 32% classe 2
- 15% classe 1
- 5% classe 4
- 5% classe 5
Figura 1.17 - Stato Ecologico dei corsi d'acqua e laghi lombardi
Investments

• An ambitious investment plan?
  – Overall, ATO plans foresee an investment of 60 B€
  – Much larger than before (almost 0 during the 90s!!), but still insufficient
  – ATO plans optimistic: only 55% of foreseen investments have been performed so far (higher rate in the north, lower in south)
  – Annual investment largely lower than “consumption of capital” (measured as the annual depreciation of real assets)

• Annual investment per capita
  – Italy: 35 € per capita/year (planned)
  – France = 80 €/ab; UK = 96 €/ab; Germany = 95 €/ab
MARKET DEVELOPMENT
A multi-faceted market

Delegation

- Full concessions (eg Frosinone, Enna)
- Mixed-venture PPP (eg Arezzo, Latina, Firenze)
- Quoted multiutility (ACEA; Hera; Enia; Iride)
- Corporate privatized multiutilities
- In house companies

Investor-owned utility

DPM
## Structure of the market (million inh)

<table>
<thead>
<tr>
<th></th>
<th>Diretti a Spa quotata</th>
<th>Partner in PPPi</th>
<th>Concession</th>
<th>In house</th>
<th>Totale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acea</td>
<td>3,6</td>
<td>4,2</td>
<td>0,5</td>
<td></td>
<td>8,3</td>
</tr>
<tr>
<td>Hera</td>
<td>2,7</td>
<td></td>
<td></td>
<td></td>
<td>2,7</td>
</tr>
<tr>
<td>Enia</td>
<td>1,1</td>
<td>0,2</td>
<td></td>
<td></td>
<td>1,3</td>
</tr>
<tr>
<td>Iride</td>
<td>0,9</td>
<td>0,8</td>
<td>1,2</td>
<td></td>
<td>2,9</td>
</tr>
<tr>
<td>Other private</td>
<td>0,3</td>
<td>2,5</td>
<td>0,8</td>
<td></td>
<td>3,6</td>
</tr>
<tr>
<td>Acq. Pugliese</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>SMAT</td>
<td></td>
<td>2,2</td>
<td></td>
<td></td>
<td>2,2</td>
</tr>
<tr>
<td>Amiacque</td>
<td></td>
<td>1,7</td>
<td></td>
<td></td>
<td>1,7</td>
</tr>
<tr>
<td>Abbanoa</td>
<td></td>
<td>1,6</td>
<td></td>
<td></td>
<td>1,6</td>
</tr>
<tr>
<td>MM</td>
<td></td>
<td>1,3</td>
<td></td>
<td></td>
<td>1,3</td>
</tr>
<tr>
<td>GardaUno</td>
<td></td>
<td>1,1</td>
<td></td>
<td></td>
<td>1,1</td>
</tr>
<tr>
<td>Uniacque</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>SII Salerno</td>
<td></td>
<td>0,8</td>
<td></td>
<td></td>
<td>0,8</td>
</tr>
<tr>
<td>Alto Trevigiano</td>
<td></td>
<td>0,8</td>
<td></td>
<td></td>
<td>0,8</td>
</tr>
<tr>
<td>Acque Veronesi</td>
<td></td>
<td>0,7</td>
<td></td>
<td></td>
<td>0,7</td>
</tr>
<tr>
<td>Cosenza Acque</td>
<td></td>
<td>0,7</td>
<td></td>
<td></td>
<td>0,7</td>
</tr>
<tr>
<td>Brianzacque</td>
<td></td>
<td>0,7</td>
<td></td>
<td></td>
<td>0,7</td>
</tr>
<tr>
<td>Acq. Lucano</td>
<td></td>
<td>0,6</td>
<td></td>
<td></td>
<td>0,6</td>
</tr>
<tr>
<td>Acque Reggine</td>
<td></td>
<td>0,6</td>
<td></td>
<td></td>
<td>0,6</td>
</tr>
<tr>
<td>Gaia</td>
<td></td>
<td>0,5</td>
<td></td>
<td></td>
<td>0,5</td>
</tr>
<tr>
<td>Etra</td>
<td></td>
<td>0,5</td>
<td></td>
<td></td>
<td>0,5</td>
</tr>
<tr>
<td>Acqua Novara</td>
<td></td>
<td>0,5</td>
<td></td>
<td></td>
<td>0,5</td>
</tr>
<tr>
<td>Other in house</td>
<td></td>
<td>6,2</td>
<td></td>
<td></td>
<td>6,2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>8,6</strong></td>
<td><strong>7,5</strong></td>
<td><strong>2,7</strong></td>
<td><strong>25,5</strong></td>
<td><strong>44,3</strong></td>
</tr>
</tbody>
</table>
# Structure of the market (%)

<table>
<thead>
<tr>
<th></th>
<th>Privatized monopoly</th>
<th>Partner in PPPi</th>
<th>Concession</th>
<th>In house</th>
<th>Totale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acea</td>
<td>8%</td>
<td>9%</td>
<td>1%</td>
<td></td>
<td>19%</td>
</tr>
<tr>
<td>Hera</td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
<td>6%</td>
</tr>
<tr>
<td>Enia</td>
<td>2%</td>
<td></td>
<td></td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>Iride</td>
<td>2%</td>
<td>2%</td>
<td>3%</td>
<td></td>
<td>7%</td>
</tr>
<tr>
<td>Other private</td>
<td>1%</td>
<td>6%</td>
<td>2%</td>
<td></td>
<td>8%</td>
</tr>
<tr>
<td>Acq. Pugliese</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9%</td>
</tr>
<tr>
<td>SMAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5%</td>
</tr>
<tr>
<td>Amiacque</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>Abbanoa</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4%</td>
</tr>
<tr>
<td>MM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3%</td>
</tr>
<tr>
<td>GardaUno</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Uniacque</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>SII Salerno</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Alto Trevigiano</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Acque Veronesi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Cosenza Acque</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Brianzacque</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2%</td>
</tr>
<tr>
<td>Acq. Lucano</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Acque Reggine</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Gaia</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Etra</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Acqua Novara</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1%</td>
</tr>
<tr>
<td>Other in house</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>14%</td>
</tr>
<tr>
<td>Total</td>
<td>19%</td>
<td>17%</td>
<td>6%</td>
<td>58%</td>
<td>100%</td>
</tr>
</tbody>
</table>
A multi-faceted market (I): “true” delegation

- Despite the initial expectations, this model is not the most diffused one
- It is adopted in particular in areas without strong incumbents: mixed venture companies with private partners (in some cases international companies)
- Territorial differences
  - Central Italy: good tradition of local administration, high income; preferred model: mixed PPP with tender for choosing the private partner
  - Some successful bids of multinationals (Suez, Veolia) and Italian companies (especially Acea)
  - South: tradition of poor management, local + regional authorities very weak, heavy need of investment for upgrading systems; first attempts to delegate frustrated by lack of interest of private companies (at least at the conditions set out in the plans)
A multi-faceted market (II): corporate privatization

- From municipal companies under public law to publicly-owned private-law companies
- The market leaders emerge through partial privatization of larger MCs and/or from merger and acquisition
- Process driven by other industries (gas, electricity) driving also WSS when historically linked in the multiutilities
- Private-law corporate systems ease the process of cross-partnership
- Smaller companies increasingly “in the orbit” of large players, either within a regional dimension (eg Hera) or via more open market transactions (eg Acea, Amga)
A multi-faceted market (III): DPM (in house)

• Back to public management (“in house”):
• EU legislation tends to create obstacles to market-oriented PPPs and forbid to entrust “third parties” without a tender
• Partially privatized municipal companies fail to meet the strict requirements for “in house provision”
• In the fear of a tender to be won by external companies, many LAs are engaged towards the re-creation of municipal companies, often by unbundling the WSS business from the parent company and keeping 100%
Towards a new “hierarchy” of public companies

• Large players:
  – often quoted at stock exchange,
  – usually multiutilities (water playing a minor role in corporate strategy, which is dominated by energy and gas);
  – participate in smaller companies;
  – corporate growth sought for via mergers & acquisitions (eg IREN; Acegas-Aps) or via participation to tenders in areas not already occupied by incumbent companies (eg Acea)
  – Large players arising from mergers of neighbour companies (Hera; Enia; Linea Group)

• Medium players:
  – strategy of consolidating the local market;
  – sometimes participated by larger players,
  – sometimes seek for other kind of alliances (banks; international companies)
  – Sometimes tried to become “multiutilities”, but with limited success and high costs

• Small local players
  – Temptation to follow the successful models (eg Hera) vs fear to lose weight in the large alliances; withdrawal to “in house” management
  – Trend towards outsourcing of functions entailing economies of scale to the larger neighbours
Some case studies

- **Hera (Bologna):** creation of local holdings on a regional base
  - Results from the merger of many companies previously owned by municipalities within a regional area (Emilia-Romagna+Marche)
  - Assets of former companies + contracts are underwritten in exchange of shares of the new holding company
  - Also owns (most of the) infrastructural assets
  - 49% of the holding is quoted on the stock exchange
  - Cost rationalisation through the transfer of replicable assets at the holding level; local companies maintain only contracts + sunk assets
  - Successful model since allows flexible patterns of participation and is open to further growth (eg Hera + Meta)
  - Model followed also by other areas: Enia (Western Emilia); Linea Group (Southern Lombardia);

- **Cross-municipal mergers (btw companies of different areas),**
  - driven by financial/industrial strategies
  - Amga (Genova) + Aem(Torino) = Iride; (+ Enia in 2010 = Iren)
  - Acegas (Trieste) + APS (Padova)
Some case studies

• Acquedotto Pugliese
  – Integrated WSS system at the interregional level, also concerned on bulk supply and water transfers (historically this is the “core” activity)
  – Rumours of privatization through corporate sellout with ENEL as the most likely candidate; later on shareholding transferred from state to Regions, that reversed completely the orientation towards privatization
  – 100% publicly-owned company continuing to operate as a vertically integrated bulk supplier + local service operator

• Acea (Roma)
  – Multiutility also providing electricity distribution in the city of Rome
  – Quotation at the stock exchange (49%)
  – Corporate growth strategy with a significant role of the water sector: some extraEU experience (Central and South America, Armenia) and substantial growth in the Italian market as partner of other LAs (eg Tuscany)
  – Growth in the electricity sector (purchase of assets from the former national monopolist; partnership with Electrabel)
ISSUES
What went wrong - I

• With politics and legislation
  – Legal framework changing every 6 months
  – Previous legislation not implemented
  – “Syndrome of permanent reform”, while the water industry needs stability of rules and predictability of future conditions for investors!

• With economic regulation
  – MTN approved in 1996 and never updated
  – Bias in favour of investment: risk that management attracts construction industry and finance searching for “cash cows”
  – Benchmarking absent
  – Vague and fuzzy rules (eg about unbundling and regulatory accounting)
  – Technical weaknesses never resolved
  – Weak profile of CONVIRI + unwillingness of government to take unpopular decisions
What went wrong - II

• With the ATOs
  – Pletoric and ungovernable (also in order to guarantee a political role to small municipalities)
  – Lack of enforcement rules against municipalities that do not want to comply with the decisions taken collectively
  – Misunderstanding btw “regulation” and “politics”
  – Misunderstanding about planning: objectives to achieve and price-caps vs. “list of facilities” ⇔ willingness to keep public works under political control
What went wrong - III

• With AMDP and contracts
  – Initial AMDP based on unrealistic assumptions (e.g., theoretical calculation of OPEX; optimistic estimate of volumes sold)
  – Unwillingness to renegotiate: temptation to expropriate cash flows + encourage companies to over-gear
  – Vague and fuzzy contracts, lacking elements that can govern future contingencies (e.g., termination clauses; renegotiation clauses)
  – Many tenders had no show-up!
  – Discovery that once tariffs are set on a correct base and not “dreams”, incidence of water bill might become critical

• With (some) water companies
  – Many in-house companies created overnight, lacking managerial skills
  – Many former municipal companies with good technical skills, but unprepared to face the financial market
  – Political control still dominant (on employment, public works, managing boards, tariffs …)
Main issues in Italy today

• Financial sustainability & bankability
• Water price increase (and privatization)
• Competitive tendering (and privatization)
• Regulatory system
• Market development (and privatization)
Main issues: financial sustainability

• Transition to the new financial model lagging behind
  – 15 years of gap, along which almost no investment has been done
  – Implementation of the new management system slower than expected +
    difficulty of water companies to follow prescriptions of plans
  – Investments below schedule (actual investment < 50% of planned
    investment)
  – Evidence that in-house public companies are the weakest, since they cannot
    easily access capital markets due to regulatory failures

• Financial sustainability
  – Evidence that the tariff setting procedure does not guarantee protection of
    investors against risks
  – Perception of financial markets of a high risk (mostly due to opaque,
    overlapping and contradictory regulation and uncertain political
    commitment to enforce cost recovery)
  – Law strategy: sudden move from “all in the public budget” to “all in the
    tariff at the operators’ risk”; probably we should need something
    intermediate in order to produce a more effective allocation of risk
Attractiveness of Italian water sector for investors

<table>
<thead>
<tr>
<th>Criterion</th>
<th>BUL</th>
<th>CZ</th>
<th>HUN</th>
<th>POL</th>
<th>ROM</th>
<th>FRA</th>
<th>GER</th>
<th>ITA</th>
<th>SPA</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operational risk</td>
<td>8,00</td>
<td>4,30</td>
<td>4,00</td>
<td>4,00</td>
<td>7,50</td>
<td>2,70</td>
<td>2,70</td>
<td>6,30</td>
<td>4,00</td>
<td>2,30</td>
</tr>
<tr>
<td>Tariff</td>
<td>8,00</td>
<td>3,70</td>
<td>3,70</td>
<td>5,00</td>
<td>6,50</td>
<td>3,70</td>
<td>3,30</td>
<td>6,50</td>
<td>4,70</td>
<td>5,00</td>
</tr>
<tr>
<td>Profitability</td>
<td>8,00</td>
<td>3,30</td>
<td>4,00</td>
<td>4,70</td>
<td>7,00</td>
<td>3,30</td>
<td>3,70</td>
<td>6,50</td>
<td>4,30</td>
<td>6,30</td>
</tr>
<tr>
<td>Competition</td>
<td>4,00</td>
<td>4,70</td>
<td>4,70</td>
<td>5,00</td>
<td>4,00</td>
<td>4,70</td>
<td>4,70</td>
<td>4,50</td>
<td>4,30</td>
<td>2,00</td>
</tr>
<tr>
<td>Regulatory risk</td>
<td>8,00</td>
<td>5,30</td>
<td>6,00</td>
<td>6,30</td>
<td>8,50</td>
<td>3,30</td>
<td>3,30</td>
<td>6,00</td>
<td>3,30</td>
<td>5,30</td>
</tr>
<tr>
<td>Municipal risk</td>
<td>9,00</td>
<td>4,30</td>
<td>5,00</td>
<td>5,00</td>
<td>8,70</td>
<td>3,30</td>
<td>3,30</td>
<td>6,30</td>
<td>4,00</td>
<td>1,00</td>
</tr>
<tr>
<td>Political commitment</td>
<td>5,00</td>
<td>4,30</td>
<td>4,70</td>
<td>5,70</td>
<td>5,30</td>
<td>4,70</td>
<td>7,00</td>
<td>4,30</td>
<td>5,00</td>
<td>2,80</td>
</tr>
<tr>
<td>Instability</td>
<td>8,00</td>
<td>3,70</td>
<td>3,70</td>
<td>4,70</td>
<td>7,70</td>
<td>3,70</td>
<td>3,70</td>
<td>3,00</td>
<td>3,70</td>
<td>2,80</td>
</tr>
<tr>
<td>Civil society</td>
<td>7,00</td>
<td>4,70</td>
<td>4,70</td>
<td>5,70</td>
<td>7,50</td>
<td>3,30</td>
<td>3,70</td>
<td>4,80</td>
<td>5,00</td>
<td>1,80</td>
</tr>
<tr>
<td>Country interest</td>
<td>6,30</td>
<td>1,70</td>
<td>1,70</td>
<td>2,30</td>
<td>6,30</td>
<td>1,30</td>
<td>1,25</td>
<td>1,30</td>
<td>1,25</td>
<td>2,50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>71,3</td>
<td>40,0</td>
<td>42,2</td>
<td>48,4</td>
<td>69,0</td>
<td>34,0</td>
<td>36,4</td>
<td>49,5</td>
<td>39,6</td>
<td>31,8</td>
</tr>
<tr>
<td><strong>Ranking</strong></td>
<td>10</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>9</td>
<td>2</td>
<td>3</td>
<td>8</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>

Main issues: Regulatory system

• Overlapping of regulators
  – Too many levels, often with overlapping competences and contradictory behaviour
  – Confusion between “contractual counterpart” and “regulation”
  – Regulation is hostage of politics; no independence
  – Conflict of interest between the role of client, owner and regulator

• Weakness of national regulators
  – Prevalence of “ex ante” norms over “ex post” regulation (eg. tenders and contracts vs. renegotiation of contracts)
  – COVIRI has no autonomous profile; all decisions by ministerial decree
  – No technical structure

• Lack of regulatory culture
  – Regulation intended as “control”
  – Independence of regulator is not considered a value added
  – No clear mandate (eg. industry viability is not explicitly required)
  – Regulation mostly intended as formal and bureaucratic control

• Main regulatory failures:
  – Plans are formal exercises; the contribution of the water company should instead be essential
  – Plans as “lists of facilities” instead than priorities and constraints
  – Discipline of renegotiation
Main issues: competitive tendering

- After a long political struggle lasting for 10 years …
  - Laws introducing competitive tendering
  - Laws reducing the scope of competitive tendering immediately after
  - Horizontal legislation on public services + sector-specific legislation

- Law 113/08 + DL 135/09:
  - introduces compulsory competitive tendering
  - Limits to in house delegation; but public companies can participate to tenders
  - A lot of debate about “privatization” (that is actually not the case here) leading to the request for a popular referendum to be held in 2011

- Still unclear:
  - Tender design: What will be put out for tender? What are the awarding criteria?
  - Who can and who cannot participate? (law says: whoever has a direct assignment wherever in the world cannot …)
  - What kind of competition is expected?
  - How will contracts be written, managed and modified along time?
  - What mechanisms will be created for ensuring the completion of contracts along time?
Main issues: privatization?

• The popular referendum challenges:
  – Compulsory competitive tendering
  – Obligation to manage services through commercial entities
  – Remuneration of capital
  – The underlying hypothesis: prices are rising because of “profit” and “golden salaries paid to managers”

• Is “privatization” really taking place?
  – Most of the industry is public
  – Public companies will win the tenders at home very easily
  – Privatization vs liberalization vs de-fiscalization

• What are the main issues today?
  – Insufficiency of contractual regulation
  – Lack of appropriate governance of the system
  – Inheritance of political interference in managing decisions
Main issues: rethinking the contract?

• The planning system today:
  – ATO issue the investment plan for 30-40 years (mostly intended as a list of things to be done) and the financial plan
  – Financial plans made by consultants have the duty to remain within the limits set nationally ↔ acrobatic provisions in order to fit the list of desires within these limits
  – Most plans are based on contingencies that will probably not take place (but no provision about what happens then)
  – Operator has the duty to implement at his own risk a plan that has been written by someone else, with financial provisions made by someone who will not be responsible

• The proposal: a two-layer planning system
  – Strategic plan (issued by ATO) defining targets, priorities and constraints
  – Implementation plan proposed by operators and approved by ATOs for each regulatory period (5 years) containing (i) actual investments and (ii) tariff and revenue dynamics
  – National authority mediates and settles disputes
Main issues: big is better?

• Three concepts that should be kept separate
  – What is the territorial unit in which to conceive the political responsibility
  – What is the optimal size of water companies
  – What is the optimal scale for finance and equalization

• The rhetorics of the reform
  – Economies of scale
  – Managing services at the basin scale ⇔ WatSan as an instrument for implementing basin plans (conflict with commercial service?)
  – ATOs as a political compromise in order to keep politics, management and equalization together in the same entity (as in the past)

• Lessons from the experience
  – Economies of scale are mostly on the financial and commercial scale
  – Corporate finance (geared by energy) vs. smart public finance (eg revolving funds)
  – Technical economies of scale can be achieved from the market through externalization and outsourcing (eg NL)
Main issues: sustainability

• Incidence of water bill on poor incomes (average of 200 m3/hh)
  – 1995: 0.95%
  – FCR of existing service: 0.84% on average (but 1.54% on the first decile and 3.40% on people in the “absolute poverty” range
  – After 15 years (assuming 1% annual real increase of GDP): average = 1.09%; first decile = 1.99%; poor = 4.35%

• Evidence calculated on a per-capita basis
  – If investments correspond to real capital depreciation, incidence on the poor may reach over 10% in some areas of Northern Italy (rural, mountain)

• Need to rethink the equalization system?
  – ATO: equalization on a provincial base (urban + rural)
  – Size insufficient to guarantee enough cross-subsidies (but unmanageable to increase size unless governance changes (from mun to reg)
  – Volumetric tariff: is it the right way?
### Tabella 1 – Impatto della crescita della spesa media reale per i servizi idrici, prevista nei Piani di Ambito, sui redditi delle famiglie (con una previsione di crescita reale dei redditi dell’1% annuo)

<table>
<thead>
<tr>
<th></th>
<th>TMPP</th>
<th>TRM 1° anno</th>
<th>TRM 10° anno</th>
<th>TRM 15° anno</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tariffa media Euro a mc.</strong></td>
<td>0,97</td>
<td>0,99</td>
<td>1,37</td>
<td>1,46</td>
</tr>
<tr>
<td><strong>Aumento media della spesa (200 mc/anno)</strong></td>
<td></td>
<td>4,96%</td>
<td>44,77%</td>
<td>55,24%</td>
</tr>
<tr>
<td><strong>Sostenibilità media</strong></td>
<td></td>
<td><strong>0,84%</strong></td>
<td><strong>1,06%</strong></td>
<td><strong>1,09%</strong></td>
</tr>
<tr>
<td>(Spesa media/reddito familiare medio)</td>
<td></td>
<td>minima</td>
<td>0,53%</td>
<td>0,72%</td>
</tr>
<tr>
<td>Massima</td>
<td></td>
<td>1,66%</td>
<td>1,26%</td>
<td>1,45%</td>
</tr>
<tr>
<td><strong>Sostenibilità sul 1° decile di reddito</strong></td>
<td></td>
<td><strong>1,49%</strong></td>
<td><strong>1,94%</strong></td>
<td><strong>1,99%</strong></td>
</tr>
<tr>
<td>(Spesa media/reddito familiare 1° decile)</td>
<td></td>
<td>minima</td>
<td>0,89%</td>
<td>1,33%</td>
</tr>
<tr>
<td>Massima</td>
<td></td>
<td>2,79%</td>
<td>2,30%</td>
<td>2,65%</td>
</tr>
<tr>
<td><strong>Sostenibilità sulla spesa media al di sotto del livello di povertà relativa</strong></td>
<td></td>
<td><strong>2,30%</strong></td>
<td><strong>2,91%</strong></td>
<td><strong>2,99%</strong></td>
</tr>
<tr>
<td>(Spesa media/spesa media famiglie sotto la soglia di povertà relativa)</td>
<td></td>
<td>minima</td>
<td>1,37%</td>
<td>1,99%</td>
</tr>
<tr>
<td>Massima</td>
<td></td>
<td>4,31%</td>
<td>3,55%</td>
<td>3,98%</td>
</tr>
<tr>
<td><strong>Sostenibilità sulla spesa media al di sotto del livello di povertà assoluta</strong></td>
<td></td>
<td><strong>3,29%</strong></td>
<td><strong>4,23%</strong></td>
<td><strong>4,35%</strong></td>
</tr>
<tr>
<td>(Spesa media/spesa media famiglie sotto la soglia di povertà assoluta)</td>
<td></td>
<td>minima</td>
<td>1,96%</td>
<td>2,89%</td>
</tr>
<tr>
<td>Massima</td>
<td></td>
<td>6,15%</td>
<td>5,06%</td>
<td>5,78%</td>
</tr>
</tbody>
</table>

**Fonte:** Elaborazioni su dati del COVIRI, Banca d’Italia e ISTAT.
COMPARATIVE ANALYSIS: ITALY VS. FRANCE, UK, USA, GERMANY & OTHERS
Background
Trends in selected countries

Contractual regulation

Pure Concessions

Performance contracts

Quoted Multiutility

Privatized Monopoly

Mixed-venture with industrial

Lease contract

DBFO

Management contracts

Hierarchical regulation

Discretional regulation

Spain

Germany

Italy

France

England

USA

Germany

Spain

Trends in selected countries
Alternative models: regulation

• Delegation (eg France)
  – Competitive elements: tenders; competition for the market (market I)
  – Focus on contractual obligations and tender documents
  – Shortcoming: need to renegotiate ↔ flexibility vs. risk of capture, corruption etc; tends to favour vertically integrated water companies (little competition in market III)

• Regulated monopoly (eg England and Wales)
  – Competitive elements: yardstick competition
  – Focus on discretionary regulation of service dynamics at arms’ length
  – Shortcoming: requires informed regulators and sophisticated tools; need for public participation and open decision

• Direct public management (eg Germany)
  – Competitive elements: none in market I, but potentially high in market II
  – Focus on hierarchical control
  – Shortcoming: bureaucratic operation; vulnerable to political pressures
Alternative models: asset ownership and responsibility for investment

• England and Wales
  – Assets fully owned by water companies who are responsible for their long-term management and efficiency
  – Investments decided by water companies within a regulatory period of 5 years
  – Tariff increase needed to finance investments approved by Ofwat at the beginning of the regulatory period of 5 years
  – Obligation for Ofwat to guarantee industry viability in the long term

• France
  – Assets owned by municipalities
  – Investments financed by municipalities and transferred onto tariffs through a lease charge
  – Investments agreed upon with operators who make the proposal about asset management and do project and engineering work
Alternative models: asset ownership and responsibility for investment

- Germany, USA
  - Assets owned by municipality
  - Investments decided by water company and municipality and financed by tariff increase
  - Obligation to recover costs enforced by public law

- Italy
  - Assets owned by local authorities and delegation of management on a free loan basis
    - Exceptions: LA might maintain loans on themselves (directly or through special-purpose companies) and finance them through a fee
  - Responsibility for investments on operators, regulated by the asset management plan issued by ATOs specifying the quantity of investments to be done within the contract
  - Investment plans and related financial plan is the basis for tendering and contract ⇔ ex ante regulation on a long term basis
  - Problem: how can this be enforced and adjusted along time?
Alternative models: regulatory asset base

- Traditional direct public management
  - Public responsible for both OPEX and CAPEX
  - Cost recovery for OPEX only; public finance for CAPEX
  - Ev. local taxes earmarked to water services (eg Sweden; NL)
  - Public finance or publicly-guaranteed financial institutions ↔ interest rate corresponds to conventional inter-government lending rate

- France (lease contracts)
  - Private responsible for OPEX, public for CAPEX
  - FCR includes OPEX + lease charges (corresponding to loans)

- England and Wales; USA (regulated monopoly)
  - Private responsible for both OPEX and CAPEX
  - Market finance mechanism + FCR of new investment + existing assets evaluated at the privatization price (in E&W this corresponds only to 5% of reconstruction cost!)
  - USA: RAB defined through regulated accounting; admissible costs are defined by regulators; judicial procedures in case a change is required
Alternative models: regulatory asset base

• Germany, USA: publicly-owned, partially privatized companies (D)
  – Public enterprise responsible for both OPEX and CAPEX
  – FCR for the full OPEX + CAPEX of all assets (including existing ones, valued at full reconstruction cost, depreciation according to economic life)

• Italy: delegation of operation and investment
  – Private (or publicly-owned ltd) responsible for both OPEX and CAPEX
  – Market finance mechanism + FCR for planned investment only
  – Tariff regulation caps the cost of capital at max 7% (whatever the managing model adopted)
Advantages and shortcomings

• Traditional model
  – Advantage: minimizes the cost of capital
  – Shortcoming: need to rely directly or indirectly on public budget and public planning of investment

• British (and Italian) model
  – Advantage: tariff provides only for new investment
  – Shortcoming: no guarantee that actual investment corresponds to true depreciation; risk that costs are shifted to future generations

• French (and Italian) model
  – Advantage: reduces the cost of capital
  – Shortcoming: risk of “dualism” if OPEX and CAPEX are separated; risk of “capture” if CAPEX is decided by operator but financed by the public

• German model
  – Advantage: cost recovery is ensured in literal terms; infrastructure can be rebuilt at any time
  – Shortcoming: need to monitor the use of cash flows that do not correspond to actual expenditure ⇔ OK if public companies, but careful if private !!
  – Other shortcoming: could lead to “gold plating” (unnecessary investment)
Alternative models: renegotiation and adaptation

• England and Wales
  – Regulatory periods of 5 years along which obligations and maximum prices are fixed
  – Cost pass-through of specific costs is possible in certain cases but should be agreed by Ofwat

• France, Spain
  – Renegotiation is allowed (provided that it does not change the substance of contracts) and based on voluntary agreements

• USA
  – Regulatory periods have an undetermined duration (until some of the parts asks for a renegotiation)
  – Renegotiation takes place through a regulated procedure; new tariffs are set by regulators on the base of the recognition of admissible costs, ev. taking care of efficiency improvements

• Italy
  – Renegotiation is allowed but not disciplined
  – Asset plans have to be “revised” every 3 years, but the procedure is not regulated
Alternative models: economic risk (and r)

• UK model
  – No market risk (except risk of takeover)
  – Operational and capital risk is borne by water companies
  – Performance risk also borne by water companies (quality regulation)
  – Regulatory risk is reduced since Ofwat is committed to ensure industry viability

• French model
  – Some market risk (although incumbents are normally favoured)
  – Operational and performance risk on the private company
  – Capital risk suffered by municipality (ev. shared)
  – Regulatory risk is reduced via cooperative renegotiation of contracts; tradition of low conflictuality vs. risk of corruption
  – Cost-pass through of capex through lease charge, but limited to financial costs actually paid (debt service)
Alternative models: economic risk (and r)

- **German model**
  - No market risk (publicly-owned companies, even if partially privatized)
  - Performance risk on the company
  - Operational and capital risk on the consumer via commitment to ensure ex-post full-cost recovery
  - Rischi in parte socializzati attraverso circuiti di finanza speciale e agevolata (Sparkassen) e condivisi con gli altri servizi attraverso il modello multiutility

- **Italian model**
  - Market risk (tenders)
  - Operational and performance risk on the company
  - Capital risk shared and limited by the assumptions contained in the plan (problem: plans should be realistic)
  - Regulatory risk difficult to predict since depends on future attitudes of local authorities; no formal commitment for regulators to ensure viability of investment
Alternative models: economic risk (and r)

• Portugal
  – State holding (Aguas de Portugal) entering with shares of capital in the new investment and responsible for larger projects
  – AdP centralizes recourse to capital market and provides guarantees to investors;
  – Involvement of the EIB

• Wales
  – Public-law entity (NGO) responsible for managing service and asset ownership
  – Service operation outsourced to private water company that uses assets but does not assume risk
  – Main financing source = long-term bonds
Alternative models: economic risk (and r)

- **Usa**
  - Mainly under DPM, some RM and D
  - Initial investment financed publicly, then FCR
  - State revolving funds ↔ mutual systems secured by the Federal government, supplying subsidized loans
  - SRF are fed by federal contributions (20%) and by cash flows generated by debt repayment ↔ separate loan reimbursement from financial guarantee
  - Cost of capital halved with respect to market (??)

- **Netherlands**
  - No market risk (publicly-owned corporate water companies)
  - Performance risk lies on operator
  - Economic risk lie partly on consumer (ex-post FCR) and partly on taxpayer (cost evaluated on the base of actual cash expenditures and not on economic accounting)
  - Specialized institutions providing subsidized credit lines coherent with economic life of assets (Watershapsbank)
Equalization mechanisms

• England and Wales (and to some extent Italy)
  – Large management units ⇔ redistribution between high- and low-cost areas
  – Water charges proportional to property size and not to consumption (E&W)
  – “green dowry”: a significant part of the pre-existing debt has been re-publicized (E&W)
  – Continuing role of the public sector at least for “large” investment (eg interbasin transfers) (Ita)

• France
  – Agences de l’Eau manage an ear-marked budget fuelled by a taxation mechanism ⇔ around 15% of investment is financed at 0 interest
  – Own capital is remunerated only if provided by the private company (what occurs only in a few cases)
  – Two-part tariffs with significant connection charge ⇔ allows some redistribution in favour of large families / low property values

• Germany
  – Cross-subsidies ⇔ cash flows generated by all infrastructure fuel municipal CAPEX
  – Very long depreciation schedules
  – Two-part tariffs with high marginal rate per m3 (but low consumption !!)
Public budget

Taxes

WMS1

WMS2

WMSn

Water users

Subsidies

Water charges

Public budget

WMS1

WMS2

WMSn

Water users
Regional water agencies

- Ear-marked taxes

Water users

- Water charges

Bulk suppliers

- Bulk prices (equal)

Water users

- Water charges

Ear-marked subsidies (contribution to investment)
# Summing up

<table>
<thead>
<tr>
<th></th>
<th>Asset value</th>
<th>Depreciation</th>
<th>r</th>
<th>Equalization</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Traditional</strong></td>
<td>Not accounted</td>
<td>Not depreciated</td>
<td>based on conventional inter-governmental rate</td>
<td>Public budget</td>
</tr>
<tr>
<td><strong>British</strong></td>
<td>New investment + market value of assets bought at privatization</td>
<td>Private sector accounting rules</td>
<td>Market rate based on investors' expectations</td>
<td>Territorial + no volumetric charge</td>
</tr>
<tr>
<td><strong>French</strong></td>
<td>Historical cost</td>
<td>Loan reimbursement</td>
<td>Based on public sector borrowing rates</td>
<td>Ear-marked basin systems</td>
</tr>
<tr>
<td><strong>German</strong></td>
<td>Full reconstruction cost</td>
<td>True economic life</td>
<td>Based on public sector borrowing rates</td>
<td>Cross-subsidy + public sector guarantees for loans</td>
</tr>
<tr>
<td><strong>Italian</strong></td>
<td>New investment</td>
<td>Private sector accounting rules</td>
<td>Market rate based on investors' expectations (capped at max 7%)</td>
<td>Territorial (some) + public budget for large projects</td>
</tr>
</tbody>
</table>