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Regulatory Tools for Sustainable Financing

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SUMMARY

According to OECD estimates (2006), investment needs in the water and wastewater sector for the coming 20 years roughly represent 1,160 billion euros per year. Creating incentives for investment in water and wastewater infrastructure is therefore a central issue for economic regulators. Mechanisms favoring investment and long-term planning to maintain and improve the technical and environmental performance and quality of services should hence be developed and implemented. These mechanisms should be consistent over regulatory periods to ensure the stability and effectiveness of the incentives. Tariff-setting methods should promote cost-reflective tariffs taking into account as much as possible environmental and resources costs as well as opex and capex. To a certain extent, taxes and transfers, along with tariffs, can also be considered as funding sources to reduce affordability issues.

Keywords: Investment, Tariff setting, Sustainable cost recovery, Affordability

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CENTRAL QUESTION:

How can regulators enable informed decision making regarding long-term investments and tariff setting?

Including:

- *How can financial regulation incorporate resilience to climate variability and climate change into water service provision?*
- *Financing systems for expansion, rehabilitation or upgrading – are current tariff systems sustainable? What financial mechanisms can meet the challenge?*
- *Is the system ensuring sustainable cost recovery as well as equity and affordability for users?*
- *Reviewing and setting tariffs in time – is it a question of agency vs contract regulation?*
- *How to improve accountancy practices to provide the right basis for tariff setting: are infrastructures investments, rehabilitation and renewal costs, subsidies and incentives to be included and how?*

INTRODUCTION AND CONTEXT

Because of technical and economic characteristics of network industries, water and sanitation infrastructure represent up to 80-90% of the services costs. These costs are fixed and weigh on service charges regardless of volumes sold. Moreover water and sanitation assets are designed to be able to cope with peak situations and to face emergency events. Substantial investments are thus required not only to create water and sanitation services, but also to maintain the service quality and renew the equipment. The economics of service provision are therefore framed by long-term infrastructure investments. As a result, the ability to invest in services is a major issue for sound economic regulation of services. Regulators have to develop and implement incentive mechanisms favoring investment and long-term planning in order to maintain and improve the technical and environmental performance of services.

CURRENT TRENDS

In the coming decades, countries at all stages of development will face significant challenges to raise funding to develop, expand, modernize, renew, maintain and operate their water and sanitation

systems in compliance with existing legislation, and in a context of population growth, urbanization and climate change impacts. Given the different situations and characteristics regarding water and sanitation services across continents, the issues identified may however differ somewhat from one country to another. Indeed, in some countries, the issue of investment focuses more on the financial capacity of services to create, expand and upgrade their infrastructure and to ensure a satisfactory service quality to users. In other countries, the investment issue concerns equipment renewal and sustainable asset management policy. Thus, the challenge is to implement efficient and reliable asset management policy and tools to help services adopt long-term planning of investments. Tariff setting methods of price-cap and cost-plus have shown some limits, particularly due to significant information asymmetries or limited ability to reduce inefficiency and to promote innovation. Hybrid models could be explored and developed in order to reduce information asymmetries with operators or to promote, for example, opex savings which could be redeployed to fund capex needs. Some countries are implementing a tote x approach introducing changes in terms of asset and business optimization, regulatory incentives and customer outcomes.

Box 1.

Financing services is a major concern for regulators according to IWA survey. From adequate governance settings to information sharing, the final goal reported was to adapt current financial mechanisms to meet the challenges that climate change and increasing populations impose over service provision. New developments in economic regulation are found in Portugal, Australia, Malaysia or Nigeria.

In Italy, during the 1st regulatory cycle (2010-2015), important decisions were taken. A new tariff-setting method was implemented establishing an innovative and asymmetrical regulation which takes into account multiple and specific local needs and investment plans while ensuring certainty and stability of the system. As a result of this new regulation framework, net investments have increased by 55% in the past 3 years, rising from less than 1 billion € to 1,49 billion €, putting the industry on a new path of development. The water tariff method for the 2nd regulatory period, currently under discussion and starting in 2016, will aim at guaranteeing stability and consistency with the current framework, while strengthening convergence of tariffs, management practices and quality levels of service among regions.

FUTURE PROSPECTS

All these reflections on investments are ultimately linked with the issue of permanent and sustainable financing of services which is a major concern for regulators. Regulatory authorities have the responsibility to ensure these financial mechanisms are fair, sustainable and fit for purpose. These tariff setting schemes should balance cost recovery objectives along with affordability challenges, enabling service providers to adequately perform operation and maintenance activities, considering infrastructure, environmental and resource costs. Along with tariffs, taxes and transfers should also be considered to a certain extent. Other economic instruments, such as payments for eco-system services for instance, should as well be taken into account when designing innovative financing schemes. They can be used to account for positive or negative environmental externalities and to fund investments in natural capital. The degree of contribution of these different sources of funding should be determined with the maximum degree of transparency.

RECOMMENDATIONS

- Create stable, consistent and reliable economic regulatory framework that attracts investors and capital investments in the water sector
- Implement incentive mechanisms in tariff setting methods to encourage productivity gain, innovation & long-term investment
- Promote efficiency & cost-reflective tariffs through totex approach for tariff setting
- Internalise economic impacts of environmental externalities in the water pricing
- Explore payment for eco-system services to secure funding for natural capital investments
- Establish "risk-adjusted" costs to enable appropriate comparison of alternatives of investments
- Maintain a hard budget constraint as well as allow access to resources when necessary to ensure that compliance and obligations are efficiently met

REFERENCES

Infrastructure for 2030, OECD, 2006.

ADDITIONAL BIBLIOGRAPHY

Frontier Economics, 2014. Improving Economic Regulation of Urban Water: A Report Prepared for the Water Services Association of Australia.

Water Services Association of Australia, 2014. Better Regulation for Customers: WSAA Position Statement on Improving Economic Regulation.

ANNEX – SHARING EXPERIENCES

Following the 2nd International Water Regulators Forum, the Italian and the Scottish regulators provided some detailed answers to the questions raised during the session dedicated to regulatory tools to ensure sustainable financing.

How can regulators enable informed decision making regarding long-term investments and tariff setting?

Italian regulator

In the first regulatory framework (years 2012-2015) important decisions were taken, starting from a new tariff-setting that established an innovative and asymmetrical regulation, taking into account multiple and specific local needs and investment plans (around 2500 operators in Italy), while at the same time ensuring certainty and stability for the system.

As a result of this new centralized regulation, in 2014-2015 the Italian Regulator approved tariffs for 1961 operators, covering around 50 million inhabitants. Furthermore, in the past 3 years net investments have increased by 55%, from less than 1 billion Euros to 1,49 billion Euros, hence putting the industry on a new path of development. In fact, planned investment for the period 2014-2017 is around 5,5 billion Euros.

The water tariff method for the second regulatory period, currently under discussion and starting in 2016, will aim at guaranteeing stability and consistency with the current framework, while at the same time strengthening convergence of tariffs, management practices and quality levels of service among regions.

Considering the huge gap to be recovered, the Italian regulator has reiterated several times that water service tariffs paid by end users cannot be the only instrument for financing investments.

Scottish regulator

In Scotland, an incentive based regulatory framework has been adopted. However, unlike Ofwat and other UK regulators, the Scottish regulator does not set prices using a weighted average cost of capital and regulatory capital value. Instead price limits are set based on the overall cash requirements, consistent with maintaining a level of financial strength that allows for the sustainable financing of Scottish Water. Scottish Water is expected to conduct robust selections of options based on cash costs and allowing for identified risks. The Scottish regulator believes that this should ensure that customers can get the very best value for money.

The Scottish regulator has worked hard to ensure it has a robust understanding of costs. This is a condition sine qua non for the development of an effective regulatory regime. Monitoring and public reporting on performance against rigorous benchmarks is the backbone of the Scottish regulatory model. The Scottish regulator collects clearly defined information on revenues, expenditure, operations, investment and assets in order to ensure that we establish appropriate incentives for Scottish Water to improve its performance.

The Scottish regulator sets targets for performance, which represent a 'minimum acceptable level of performance' and monitor closely.

In addressing the questions, the Scottish regulator differentiates between the funding of the industry (who ultimately pays) and the financing of the industry (equity capital or borrowing). Although borrowing can be used to mitigate the impact of large capital investment projects, financing will ultimately have to be paid by customers. This has implications in terms of sustainability, as discussed below.

How can financial regulation incorporate resilience to climate variability and climate change into water service provision?

Italian regulator

A good solution could be the experience realized in the implementation of the Water Framework Directive (2000/60). The calculation of environmental resource costs has been based on the definition of additional costs incurred by operators to build any facilities or implement any measures that could limit the economic impact of environmental externalities (ex. additional or unforeseen industrial waste, or atmospheric events). Namely, tariff to measure shadow costs to be charged on the whole system.

Scottish regulator

As previously explained, the Commission does not make decisions on policy matters. It will provide economic advice to Government only on request. This is an appropriate framework as it is questionable whether the economic regulator could ever be best placed to making decisions on matters related to climate change. The Commission's focus is on maintaining a regulatory framework that enables Scottish Water to deliver its objectives in the most efficient way.

The Quality and Standard (Q&S) process, led by the Scottish Government, brings together all the principal stakeholders (customers, the environment and water quality regulators) to discuss what is required. However, it is the Scottish Government, who ultimately defines the set of improvements for drinking water quality, environment and customer service.

Financing systems for expansion, rehabilitation or upgrading – are current tariff systems sustainable? What financial mechanisms can meet the challenge?

Italian regulator

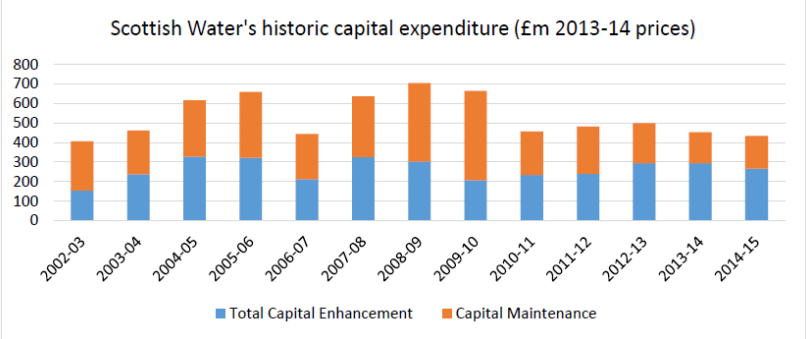
By the new tariff method the Italian Regulator has capped the increase in prices and allowed revenues, while establishing the rules through which costs incurred by the operators can be charged to final customers, including operational and capital expenditure (financial costs), and environmental and resource costs, as well as a specific anticipation dedicated to new investments.

Another important achievement of the first regulatory period was the introduction of nationwide tariff equalization systems, dedicated to collect resources to finance the restructuring of operators with a high default risk. To speed up the implementation of the new system, it was realized through the Electricity Equalization Fund (*Cassa Conguaglio per il Settore Elettrico*), a separate institution that works within the framework of the Regulatory Authority decisions in order to ensure financial convergence on the whole Italian territory. Tariffs are still "ad hoc" but specific needs are supported by the whole water system.

Scottish regulator

The figure below sets out the profile of capital expenditure profile since the creation of Scottish water in April 2002. Contrary to most expectations the level of expenditure required to meet environmental and water quality improvements has not declined

materially over the last 13 years and there is little sign that it will fall substantially[5]. This explains why the regulator is looking again at the level of new borrowing that it is appropriate for Scottish Water to take on.



The level of capital maintenance expenditure has increased. This reflects the increased expenditure on environmental and water quality improvements. In the Scottish regulator's view, there's a need to set the allowed for capital maintenance at a level consistent with the efficient level of maintenance expenditure in the regulatory control period. However, prices should reflect the long-term requirement for maintenance expenditure such that each generation of customers pays a price reflective of the costs of providing the service that they have received.

A focus on increasing financial resilience is key. The regulator wants Scottish Water to build a ring fenced cash buffer so that it will be able to meet the costs of future asset replacement when it is required. Such a reserve fund could also allow the company to take full ownership for its performance and deal with unforeseen shocks as well as long term investment needs. Scottish Water is encouraged to transfer the benefits of its out-performance to the reserve fund.

Is the system ensuring sustainable cost recovery as well as equity and affordability for users?

Scottish regulator

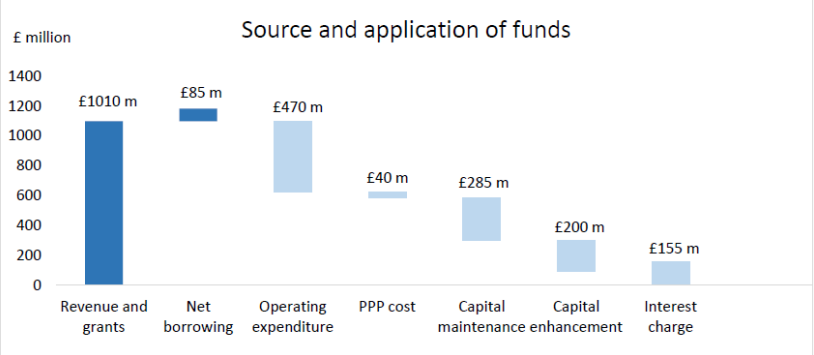
Cost recovery

In Scotland, the industry recovers its full costs from its customers. Scottish Water spends around £1.2 billion per year. It raises £1.1 billion through water charges and receives around £100 million per year of borrowing from the Government. Customers pay the interest

[5] New EU requirements will also need to be funded. More information on the EU Blueprint can be found at: http://ec.europa.eu/environment/water/blueprint/index_en.htm

costs on loans provided by the Scottish Government. At the current time the Scottish regulator is reviewing the amount of debt that Scottish Water takes on each year to ensure that is consistent with an appropriately funded industry for the long term. In other words, it wants to ensure that it is not benefitting customers today to the detriment of future customers.

Scottish Water's expenditure includes the costs of operating its assets and capital investment to maintain and to enhance service levels. The figure below provides the source and application of funds for 2013-14.



Although Scottish Water enjoys a strong financial position, the overall outstanding debt has increased over time (£3423m in 2014-15). Net new borrowing has reduced in the last few years but, notwithstanding lower prevailing interest rates, interest charges have steadily increased, as shown in the table below. Customers currently pay around £155 million to meet the costs of interest.

Year	Net borrowing (£m)	Interest charges (£m)	Outstanding debt (£m)
2007-08	196	140	2615
2008-09	161	149	2784
2009-10	219	155	3006
2010-11	106	156	3114
2011-12	50	158	3165
2012-13	100	155	3267
2013-14	85	156	3353
2014-15	70	158	3423

The charges paid by customers in Scotland have declined modestly in real terms over the last few years. This reflects the substantial improvement in Scottish Water's efficiency and the stability in the size of the investment programme in real terms.

The Scottish Government, through its Principles of Charging, also ensures that lower income household customers receive discounts to the average charge.

Equity and affordability

In Scotland, there is a clear distinction between the policy role of the Scottish Government and the setting of charges within the policy framework, which is the responsibility of the Commission. As such, WICS is independent in its price setting role but it is not autonomous. It is accountable to the Scottish Parliament, through the Scottish Ministers, for its approach to delivering its statutory duties. It also has to set prices that are consistent with the policy of Government. This exactly enhances the independence of the Commission because the regulator does not have to make political choices to discharge its statutory duties.

The Commission has the general duty of promoting the interests of customers. It is required to have regard to the interests of future customers.

The Scottish Government's 'Principles of Charging' establish that water and wastewater charges apply uniformly across the entire country. It does not matter whether you live in Edinburgh or in a remote village in the Highlands: you pay the same regardless of the underlying cost to serve.

Charges are linked to the Council Tax Band of the property in which a customer lives. This means that those living in more expensive homes will typically pay three times more for water and sewerage than those living in smaller properties. There are discounts for those on low incomes and single person households. Students do not pay any water or sewerage charges. This method of tariff setting is progressive and effective because it reduces substantially the costs of collection.

Reviewing and setting tariffs in time – is it a question of agency vs contract regulation?

Italian regulator

Stimulus for improving the quality of the service provided to users will not come from tariff rules alone, but also from completion of the regulation concerning contractual quality of the water service, which aims to strengthen protection of end users and avoid local differences by introducing minimum quality standards, recognising additional costs resulting from improvements in quality beyond the minimum standards, and introducing an incentive mechanism based on compensation, penalties and bonuses. With reference to the Italian experience, introducing an independent regulator has accelerated the public decision-making process and improved the quality of data collected from operators.

Scottish regulator

There can often be a question posed with regard to the legitimacy of an independent regulator's decisions on charges. In Scotland, this issue is less immediate because of the clear separation between the policy function of the Scottish Government and the price setting role of the Commission. However, the regulator must ensure that the customers, on whose behalf he regulates, support the approach that has been taken. The legitimacy of the process is fundamental to ensuring that customers remain willing to fund the industry for the services that they are receiving and consider their charges to be reasonable.

In the Scottish approach to regulation it is sought to avoid lapsing into de jure or de facto 'control'. For example, there is no attempt to address the asymmetries of information between the regulator and the regulated company by resorting to complex 'truth telling' incentives. The failure of central planning is sufficient evidence that such an approach cannot work effectively over the medium term. Instead the Scottish regulator works to enable Scottish Water to take full ownership for its performance and not hide behind the regulator or the government. In Scottish view, the challenge for regulators is to encourage the company to be accountable to, and deliver for, its customers not the regulator.

How to improve accountancy practices to provide the right basis for tariff setting: are infrastructures investments, rehabilitation and renewal costs, subsidies and incentives to be included and how?

Italian regulator

Additional measures are also going to be taken in the second regulatory period, in order to improve accountancy practices. Specifically, rules on the unbundling of accounts in the water sector will be developed, in order to avoid cross-subsidies and to promote cost-reflective tariffs.

Scottish regulator

A hard budget constraint is key to ensuring that a regulated company faces effective incentives. The Scottish regulator's approach is to ensure that Scottish Water faces such a constraint – in other words, it can access only the resources that it ought to need in order to deliver the objectives of the Scottish Government. It can gain flexibility in the resources available to it only by performing better than required by the regulator's determination of charges.

Transparency on annual financial performance is crucial. The Scottish regulator sets prices based on the overall cash requirements targeting a suite of financial indicators ('tramlines'),

which represent a cap and a collar on Scottish Water's financial strength. Tramlines can be used to assess the level of cash surplus and make Scottish Water's financial performance more transparent to all stakeholders.

The Scottish regulator encourages Scottish Water to adopt the lowest whole life cost solution to delivering the objectives specified by the Scottish Government. In the regulator's view, it is important to price performance and delivery risk in making this assessment. As such the regulator is prepared to allow Scottish Water differential rates[6] of return on projects. It does not want there to be any regulatory barrier to Scottish Water choosing the most effective solution to the performance improvement required. The only requirement is that Scottish Water should be able to demonstrate that the total cost of the solution would be lower than that of the next best alternative.

The regulator also supports long-term payback initiatives and encourages projects to be brought forward that may span regulatory control periods or which may only pay back over an extended period. The savings that arise from the initiative are ring-fenced until the accumulated savings have paid back the upfront cost of the initial investment on a NPV basis. Again, the only requirement is that the proposition is appropriately costed and clearly defined.

This is about delivering more with less. For example, Scottish Water is encouraged to bring forward cost saving opportunities within a portfolio of individual projects. The total cost allowance can then be set sufficient to offset the percentage of the portfolio's projects that are reasonably expected not to deliver the required outcomes. Such an approach ensures that companies live within a lower budget than would otherwise have been required.

The Scottish regulator considered carefully whether it should follow other regulators in adopting a 'totex' approach. While seeing the logic that underpins this approach, it expresses reservations. In particular, the approach appears to assume that the risks associated with a lower capital expenditure solution are de facto the same as a higher capital expenditure solution. This does not appear to be consistent with the operational evidence available. The risk of a

[6] The average industry return is far from matching the return of individual project. For instance the bid WACC for the Thames Tideway Tunnell (TTT), a 'super sewer' in London safe to regard as a highly complex project, was 2.49% against the 3.6% wholesale WACC set in Ofwat's final determination. Although an additional liquidity allowance and an adjustment factor for the cost of debt was included for the period of construction, the bid WACC is still more than 110 basis point below the allowed return.

catchment management solution encountering problems is probably rather greater than that of an established pesticide removal plant.

USEFUL LINKS

Below are the websites of regulators referred to in this paper.

- Italy: Italian Regulatory Authority for Electricity Gas and Water: http://www.autorita.energia.it/it/inglese/
- Scotland: Water Industry Commission for Scotland: http://www.watercommission.co.uk/