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Fit for Purpose Regulation

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SUMMARY

Regulation in the water sector is essential to manage the complex interplay of social, environmental and economic concerns. Countries in all regions and at all levels of development have established regulatory systems to address these issues but all too often these systems are characterised by both gaps and overlap. To achieve regulation that is fit for purpose, governments need to match regulatory instruments to specific policy targets. In the water sector, governments face the greater challenge of designing a regulatory system that is fit to achieve broad, interlinked policy goals like development and sustainability. This paper suggests that the regulatory system as a whole needs to strike the right balance between integration and coordination and between consistency and flexibility along three dimensions: spatial, sectoral, regulatory approach.

Keywords: Fit for purpose regulation, Regulation of water and wastewater services, Division of responsibilities, Regulatory functions, Regulatory governance, Resources

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CENTRAL QUESTION:

How should regulatory systems in the water sector be designed to take into account the dimensions of space, sector and regulatory approach to achieve policy goals?

INTRODUCTION AND CONTEXT

Regulation in the water sector is essential to manage the complex interplay of social, environmental and economic concerns. Countries in all regions and at all levels of development have established regulatory systems to address these issues but all too often these systems are characterised by both gaps and overlap.

To achieve regulation that is fit for purpose, governments need to match regulatory instruments to specific policy targets. But in the water sector, governments face the greater challenge of designing a regulatory system that is fit to achieve broad, interlinked policy goals like development and sustainability. The regulatory system as a whole needs to strike the right balance between integration and coordination and between consistency and flexibility along three dimensions:

- Spatial
- Sectoral
- Regulatory approach

The spatial dimension relates to the allocation of regulatory authority and functions to local, regional, national or international levels. What factors should governments take into account when deciding between centralised and decentralised systems?

The sectoral dimension refers to potential synergies across sectors, such as regulating water services through a multi-utility regulatory agency, or regulating water resources and other natural resources under a common regime. How large are the benefits from integration across sectors and what are the possible drawbacks?

The third dimension, regulatory approach, is concerned with the differences in the design and implementation of rules-based regulation, economic incentives and natural resource management. What is the impact on effectiveness and efficiency of combining these different approaches within a single agency?

Governments must find answers to these challenging questions that work in the existing institutional framework and that are feasible given the available budgetary and human resources. These decisions will be particularly tough in developing countries where resources

are scarcer. Sometimes it will be possible to build incrementally on existing organisational strengths, but in other cases major disruptive changes will be needed to move towards the desired regulatory system.

This short paper considers experience from a range of developed and developing countries to shed light on these questions and offers some preliminary suggestions for action by policy-makers, international organisations and the research community as well as regulators themselves.

CURRENT TRENDS

Spatial Division of Responsibility

There is huge variation across countries in terms of the spatial scope of regulatory responsibilities and the degree of decentralization of regulatory authority. This depends jointly on the overall administrative structure of the country – federal, unitary etc. – and on the particular historical development path of the water sector.

The spatial aspects of regulatory design are particularly complicated for water due to the mismatch between the administrative boundaries that delineate service supply areas and the physical boundaries of catchments and river basins, which are central to the regulation of source management and environmental quality. Governance structures need to provide strong and effective mechanisms for coordination between levels and layers of government.

In many countries, water service is a municipal responsibility and regulation is conducted at the local level. While regulating at this level can help to tailor decisions to local conditions, it also poses

Box 1. Water regulation in the Philippines

The Philippines has a complex, highly decentralized sector structure with more than 1500 entities of different types providing water services. In small cities and towns, local government units (LGUs) are responsible for providing services under the oversight of the National Water Resources Board. The central government has sought to improve the regulation of this group of utilities by introducing a system of voluntary regulation but few LGUs have put themselves forward because they find it difficult to meet the administrative requirements. NWRB is now reviewing the regulatory system to see if the regulatory structure can be simplified to fit better with the capacity of LGUs.

challenges because of the limited technical and financial resources of local administrations; the dense social networks in which the actors are embedded; and the profound information asymmetries that result from limited competition. Both regulatory governance and practice may need to be adapted if regulatory authority is retained at the local level.

In some countries, concerns about the effectiveness of local regulatory institutions have prompted the expansion of central government involvement. In 2010, Denmark established a system of national economic regulation of municipal water utilities through a new water sector law. Greater centralization of monitoring functions is also underway in Italy. In some countries, like Canada, oversight of local utilities by municipal commissions or boards is coupled with provincial or national level regulation. Governments will need to consider whether multi-layered regulation of this kind increases its effectiveness or creates wasteful duplication of effort and increases the chances of contradiction or confusion.

Other countries have developed forms of 'indirect regulation' in which the centre issues guidelines that are implemented by local authorities, or 'consultative regulation' in which municipalities voluntarily submit to regulation by a central oversight body. These systems are currently being introduced in Mozambique and the Philippines. The evolving regulatory regime in the Philippines described in Box 1 illustrates some of the challenges that may be encountered with voluntary approaches.

Ironically, a clear division of responsibility between administrative zones risks leaving some areas under-regulated. This issue is highly pertinent in rapidly growing cities in the global south, where the built-up area has spread far outside official municipal boundaries. The authorities responsible for 'rural' areas, on the other hand, may not be in a position to oversee service provision in densely populated areas. Box 2 describes the situation in Ghana.

Box 2. PURC, Ghana

In Ghana, the Public Utilities Regulatory Commission, PURC, was set up in 1997 to regulate utility service quality and tariffs for all cities and towns. Rural water supply is under the purview of another ministry. As urbanization has taken place in Ghana, this has left uncertainty about who is responsible for services in peri-urban areas, the densely populated areas outside current municipal boundaries. Discussions are now underway about extending PURC's role to cover these areas.

Sectoral Allocation of Regulatory Functions

Many countries have sought to overcome resource constraints and benefit from economies of scale by setting up multi-sector utility regulators. However, some practitioners argue that the extent to which expertise is actually shared within these organisations is limited and that the issues that need to be dealt are so different in each sector that there is little scope for efficiency gains to be made by bundling them together.

Others argue that even if the content of regulation varies across the sectors, common principles, processes and technologies can be shared. This has been the case for the Hungarian Energy and Public Utility Regulatory Authority (MEKH), for example. MEKH was established in 1994 to regulate electricity and gas markets but its role has been extended over time to include district heating and water services, to meet the needs of new market structures and operating models as well as EU regulation.

Perhaps even more important than these economies of scope, however, is the reputational effect. MEKH has won the trust of the public and built a good reputation for technical skill and impartiality among regulated firms in one sector and it has been able to transfer these strengths to other sectors. This has allowed MEKH to become an effective regulator in the water sector in a short space of time.

The province of Alberta, Canada, has sought regulatory synergies through a different route, by combining all the functions related to water regulation in the hydrocarbon sector under the provincial energy regulator (see Box 3). In this case, the regulated entities are all “prosumers” – entities that produce water and consume it. The regulator is now facing the challenge of how to take account of public interest considerations in its regulatory decisions.

Prosumers are a growing segment of regulated entities and

Box 3. Energy & Water Regulation in Alberta

The Energy Regulator of Alberta was created in 2013 to be a sole regulator of the hydrocarbon production sector in the province of Alberta, including the use, treatment, and disposal of water and wastewater by energy companies. These water-related responsibilities were transferred from the regulatory arm of the provincial environment department. The driver was to reduce duplication and enhance efficiency by having a single sector regulator rather than two – “a one-stop shop” for companies in the sector.

regulators are beginning to consider whether separate regulatory mechanisms or approaches will be needed to address this.

Regulatory Approaches

Governments seek to balance prescriptive, rules-based regulation, which is necessary when public safety is at risk, with outcome-based or incentive regulation which encourages innovation and efficiency.

The former is comparatively easy to implement but imposes a potentially high cost and regulatory burden on regulated parties, whereas the latter implies a lower regulatory burden but is more difficult to measure and enforce compliance. A risk-based approach can help to guide governments to adopt a regulatory system which is proportional to risk as well as effective, credible, and efficient.

The skills and knowledge required of the regulator are quite different depending on the approach used, from scientific and technical expertise on the one hand, to economic and accounting expertise on the other. This raises the question of whether it is more effective to separate regulatory functions between agencies according to their regulatory approach and the techniques they employ. The regulatory system in England and Wales, in which responsibilities are shared between the Environment Agency, Drinking Water Inspectorate and OFWAT, provides an example of how this might be structured. Many practitioners feel that this division of authority has generally been effective in achieving sector goals.

Institutional Context

Each country has unique institutional strengths – particular institutions that enjoy trust and have strong track records. This could be a transparent and respected judiciary, an administrative court system with long experience in public contracting, a strong Auditor General, a large pool of skilled economic graduates or an active and engaged civil society.

These linked institutions form the basis of successful regulatory systems. In the US, regulation by state-level public utilities boards through rate cases has been effective because of a high level of transparency and strong courts. In France, a long history of private provision of water and wastewater services under delegated management contracts has been supported by the system of administrative law and dedicated courts experienced in settling disputes between public and private parties.

Reforms in regulatory governance structure should take advantage of these existing institutional strengths and build on them, rather than trying to apply an ideal model of economic regulation

developed in a very different institutional context. The regulatory reform process could therefore begin with an institutional analysis mapping the formal and informal powers of existing institutions against the required functions of water regulation.

Resource Constraints

In addition to creating the right structure, adequate financial and human resources are essential to the regulator's effectiveness. This is particularly problematic in low-income and small countries where there is rarely a pool of qualified and experienced regulators to draw from. Regulators experienced in other jurisdictions may not be sufficiently aware of local conditions to be effective either. This underscores the need for degree and certification programmes which can equip future regulators with the requisite skills. Governments can also explore the potential to tap alternative sources of funding. Many regulators, like OFWAT in the UK, MWSS Regulatory Office in Manila (Philippines) and MEKH in Hungary are funded through a fee levied on regulated companies, thereby reducing the pressure on the public budget.

Small and developing countries face particular challenges in implementing regulation due to resource constraints and small markets. For these countries, one option could be to set up a multi-country regulatory agency with jurisdiction over several neighbouring states or states with similar market conditions. Although there do not seem to be any examples of multi-country water service regulators currently in existence, there is experience with multi-country competition authorities, such as the Caribbean Community Competition Commission. Bilateral and multilateral river basin authorities, which allocate resources and regulate environmental quality, are more common. These could potentially provide an institutional basis for multi-country environmental regulation.

Incremental and Disruptive Reform

While most countries implement changes to the regulatory system incrementally, there are also examples of countries that have introduced radical reforms to the regulatory system for water services. These dramatic reforms bring with them the potential for considerable improvements in efficiency and effectiveness but also imply major risks and challenges. Box 4 describes the reforms that have taken place in Hungary and the impact on the consolidation of the industry.

Box 4. Reforms in Hungary

In 2010, Hungary had more than 400 water utility suppliers with different organizational structures operating under a range of contractual frameworks. In order to address the fragmentation and lack of transparency in the sector, a comprehensive Water Utility Supply Law was adopted in 2011. The law granted the Hungarian Energy and Public Utility Regulatory Authority (MEKH, previously the Hungarian Energy Office) responsibility to issue licenses for drinking water supply and wastewater management. The licensing process has resulted in the consolidation of the sector: as of 2015 there were 42 water utilities nationwide.

Another interesting case is Malaysia, where far-reaching reforms were ushered in in 2006 under two new laws which transferred responsibility for water services from the state to the federal level and set up a national water asset holding company, PAAB, and a national economic regulator, SPAN. The reforms were intended to address the financial sustainability of the sector and to stimulate efficiency. The planned transfer of assets from states to PAAB has taken longer than expected and is still not complete as of mid-2015. The reforms appear to have been successful in boosting efficiency in the sector – non-revenue water rates have been reduced, for example – and in reducing the cost of capital for the sector. However, progress on two initial goals – to raise tariffs to cost recovery levels and to harmonise tariffs across the different states – has been slower.

International rules and systems are also an important part of the puzzle. This is clearest in European Union, which has a unique hybrid structure for the regulation of water, in which EU-wide directives are superimposed on a great variety of national institutional structures for the regulation of water. The directives themselves represent different types of regulation, with some typifying command and control regulation. The Water Framework Directive, on the other hand, embodies the principle that priorities and required actions will be different in different localities.

FUTURE PROSPECTS

The fundamental requirements of regulation in the water sector will remain the same in the next decade but regulators are likely to face increasing challenges relating to:

- Aging infrastructure and declining demand in developed countries in the context of local budget constraints.
- Rapid urbanisation in developing countries coupled with financial constraints and an infrastructure deficit.
- Security of supply and sustainability in the face of changing patterns of water resource availability and demand.

Regulators in all countries will face upward pressure on tariffs and the challenge of communicating this to policy-makers and consumers.

Climate change poses new challenges for regulators as they will need to tackle new orders of uncertainty. While regulators need to take direction from policy-makers, the short political cycle does not match the long-term planning horizon that regulators need to adopt when addressing climate change. Regulators may be able to play a proactive role to encourage long-horizon planning.

On the other hand, regulators will be able to benefit from some positive trends. Firstly, there is a growing pool of expertise in economic and environmental regulation which will make it easier for regulators to source the skilled staff that they need. Secondly, the quality and quantity of data are constantly improving, as are the tools available for data management and analysis. Smart meters, networks of sensors and satellite imaging are just some of the technologies currently being rolled out which will give regulators access to more timely and accurate information. All this helps regulators to take better decisions and to justify those decisions to stakeholders. Finally, key stakeholders such as consumers and civil society groups are in many places becoming better informed and more environmentally-conscious, which may make them more supportive of the regulators' goals and better able to understand regulatory decisions.

RECOMMENDATIONS

- There are already many training manuals, handbooks and courses on the broad principles of economic regulation. However, there are gaps in the kind of practical, detailed guidance that many regulators actually need, like how to classify expenditure between capital and operating costs in a tariff review, what assumptions to make about financial structure when calculating the cost of capital or what shortcuts regulators can legitimately use in the absence of adequate information from the regulated utilities. Guidelines showing the differences in the approaches used by regulators in both advanced and developing countries and worked examples of the implications of the different approaches for tariff decisions could be very useful for regulators.
- There are not enough skilled regulators. More tailored degree programmes and certification courses are needed to staff regulatory agencies.
- Further guidance on how and when to outsource regulatory processes and how to prioritize tasks in the context of resource constraints could also be very useful to regulators.
- The differences between countries' institutional frameworks makes it difficult to come up with recommendations that will be relevant to everyone, but it is possible to offer tentative recommendations on how to approach the reform process. For example, governments should conduct an initial institutional mapping and match the capacity of existing institutions to regulatory objectives and requirements.
- Regulators can benefit greatly from regular opportunities to meet and share experience with each other. This can take the form of "regulatory implementation partnerships", akin to water operator partnerships for water utilities, in which more experienced regulators partner with newly established regulators to transfer skills and experience; formal networks of regulators convened to exchange best practices; and regular meetings and conferences promoted and sustained by a sector body like IWA. Regulators could consider benchmarking themselves to incentivise good performance and efficiency.
- Regulators should work together to develop common technology and data formats to create a broader market to attract private-sector solutions for regulatory business functions, creating the economies of scale needed for

system developers to craft affordable solutions for regulators (as opposed to force-fitting solutions built for business).

- Further research is needed into 'light' models of regulation to identify models which are effective where both the regulatory agency and the regulated entities are operating on a small scale and with a relatively low level of accounting and financial sophistication and where there are few supporting institutions.
- A deeper understanding is also needed of local regulation and the way in which dense organizational and social networks at the local level pose a challenge to the ideal of arms-length regulation but also provide opportunities to resolve issues in a cooperative, non-adversarial manner.
- With regard to future challenges like climate change, further research on how regulatory principles can be adapted to best take account of risks, to establish the optimal level of redundancy and to support the swift resumption of services after a major storm event or other shock might also be useful to utilities.

USEFUL LINKS

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

- Canada: Alberta Energy Regulator: www.aer.ca/
- England and Wales: The Economic Regulator of the Water Sector in England and Wales (Ofwat), <http://www.ofwat.gov.uk/>
- England and Wales: The Environmental Agency, <https://www.gov.uk/government/organisations/environmental-agency>
- England and Wales: The Drinking Water Inspectorate (DWI), <http://www.dwi.gov.uk/>
- Ghana: The Public Utilities Regulatory Commission (PURC), www.purc.com.gh/
- Hungarian Energy and Public Utility Regulatory Authority (HEA), www.mekh.hu/home
- Malaysia: Water Asset Management Company (PAAB), <http://www.paab.my/>
- Malaysia: National Water Services Commission (SPAN), <http://www.span.gov.my/index.php/en/>
- The Philippines: National Water Resources Board (NWRB), www.nwrb.gov.ph/
- The Philippines: the Metropolitan Waterworks and Sewerage System (MWSS) Regulatory Office, <http://ro.mwss.gov.ph/>