Designing effective water policy: capacity and effectiveness of reforms in developing countries

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ABSTRACT
Designing effective water policy in developing countries is challenging for many reasons, including limited capacity to formulate and implement policy. This paper examines major water policy reforms in two exemplary cases, Malaysia and the Metro Manila region of the Philippines, considering the quality of regulatory design and how this relates to policy capacity. The paper identifies ways in which policy design can anticipate challenges associated with capacity limitations.

KEYWORDS
Policy design; water policy; Asia; policy capacity

1. Introduction

Water policy has undergone considerable shifts in the last three decades towards greater emphasis on efficiency and managing water as an economic good (ICWE, 1992); adoption of the integrated water resource management paradigm (Cook & Bakker, 2012; Giordano & Shah, 2014); greater priority given to environmental sustainability (Connor, 2015); and shifts in responsibilities between levels of government (Herrera & Post, 2014);

Focusing on water utility services, the dominant policy trend has been from direct service delivery by government towards provision of services by corporate entities operating as local monopolies, whether publicly or privately owned. In recent years, water utilities in many countries have been restructured as state-owned enterprises subject to financial and managerial separation from government in a process known as corporatization (McDonald, 2014; Herrera & Post, 2014; Abbott, Cohen, & Wang, 2012; on Australia; Klien, 2014; on Austria; Fratini, Brown, Elle, Jensen, & Mikkelsen et al., 2012; on Denmark; Gupta, Kumar, & Sarangi, 2012; on India; Citroni, Lippi, & Profeti, 2015; on Italy; Mahayni, 2015; on Jordan; Smith, 2004; on South Africa; Dagdeviren, 2008; on Zambia).

Alongside corporatization, economic regulation has gained prominence as a policy instrument in the sector (Jensen & Wu 2017). Regulatory agencies for the water sector have been established in more than 30 countries since the 1990s, including transition and developing countries (Bresnihan, 2016; Kastchiev, 2017; OECD, 2015; Peci, Márcio Leite, Michelle Moretzsohn, & Celso Florêncio, 2017). In some countries, agencies established to regulate electricity or other utility services have had their remit extended to cover water services (OECD, 2015).
The majority of these regulators are responsible for tariff regulation and monitoring operational and financial performance and set incentives for efficient investment. Some are tasked with promoting innovation, sustainability or water security, and play a role in shaping the structure of the sector (for example, promoting consolidation) and defining competition rules (Quezada, Walton, & Sharma, 2016; on Australia; Littlechild, 2014; on Scotland).

Regulators may also play a role in building capacity of the regulated entities in areas like accounting and business planning (Klien, 2014; on Austria; Martins, Cruz, & Barata, 2013; Pinto & Marques, 2015; on Portugal; Crase, Pawsey, & Cooper, 2015; on Australia), allocation of finance (Ruiters, 2013).

The trend to establish economic regulation in the water sector is viewed positively by many analysts, who argue that these institutions improve transparency, accountability and drive improvements in efficiency in the sector while balancing the interests of utilities, consumers and taxpayers (Beecher & Kalmbach, 2013; Gerlach & Franceys, 2010; Rouse, 2013). However, progress towards effective use of regulatory instruments in developing countries has been slow (Zhang & Thomas, 2009). Some empirical work suggests that they may contribute to improved sector outcomes. For example, there is evidence that regulation improves welfare outcomes when water services are provided under public–private partnership (PPP) (Abdala, 2000; Andres, Guasch, & Straub, 2007; P. Cook, 1999; Devkar, Mahalingam, Deep, & Thillairajan, 2013; Wallsten, 2002) and the presence of a regulator is associated with lower rates of contract renegotiation (Guasch, Laffont, & Straub, 2008).

Case-specific studies, on the other hand, show that it is often extremely difficult for new regulators to fulfil their mandated functions because of limited capacity (Ioris, 2012; Marson & Savin, 2015). This may lead to a situation in which the regulator engages in formulistic rituals rather than meaningful regulation (Kastchiev, 2017; Peci et al., 2017; Teo, 2014). This has prompted some authors to suggest that regulatory instruments cannot be employed successfully in low- and middle-income countries: ‘Studies of regulatory enforcement give considerable reason to despair about the effectiveness of regulation in the context of industrialization and development’ (Baldwin, Cave, & Lodge, 2012, p. 424).

This paper considers the links between governments’ capacities to formulate and implement policies and the effectiveness of these policies in the context of water policy in developing countries. It examines two cases, the metropolitan area of Manila, Philippines, and Malaysia, in which far-reaching reforms were introduced, combining shifts in ownership and the establishment of regulatory agencies. These cases allow us to consider the ways in which capacity limitations constrained the policy formulation process, whether difficulties in implementation were anticipated and how effective the reforms were in meeting policy goals.

2. Regulatory design, capacity, and effectiveness

2.1. Design

There are three main components in regulatory design for water utilities, as for other network industries: regulatory incentives – the sticks and carrots used to influence other actors’ behaviour (Littlechild, 2003); regulatory governance – the institutions and processes of regulatory decision-making (Minogue and Cariño, 2008; Stern & Holder,
and what we might call ‘regulatory fit,’ borrowing from the notion of ‘policy fit’ (Howlett, 2014; Howlett & Rayner, 2013). This refers to the coherence between regulatory governance and incentives and the broader organisational, institutional and political context of the sector concerned. The effectiveness of the regulatory design in meeting policy goals depends on all three.

However, even under optimal design conditions, regulatory design is characterized by several sources of tension and trade-offs.

First, there is a trade-off between the power of efficiency incentives and the information rent earned by regulated industry. There is a rich literature in agency theory on information asymmetries and market-based information revelation mechanisms that can be used to address them such as competitive tendering and auction procedures and incentive (price-cap) regulation (Laffont & Tirole, 1988, 1988; Laffont & Tirole, 1986) but under conditions of natural monopoly, the trade-off will still have to be made.

Second, at the level of governance, there is tension between independence, embeddedness and accountability. The regulator needs sufficient autonomy to avoid undue influence from the regulated industry or political sources and to remain accountable, while being sufficiently embedded in the policy-making arena to ensure implementation of its decisions (Black, 2002; Hancher & Moran, 1989). A new agency may lack acceptance by other policy actors of its authority and legitimacy (Baldwin et al., 2012), while an established agency may act without adequate oversight.

In relation to fit, regulatory designs will need to be broadly compatible with macrolevel laws and institutions (Howlett, 2009), but at the same time, innovative policy designs may be needed to address new policy problems.

In addition to these static trade-offs, regulators face dynamic challenges: markets are increasingly complex and regulators, restricted by statute and resources, sometimes cannot keep up. The regulatory design therefore needs to allow for the demonstration of commitment while providing sufficient flexibility to allow the system to adjust to changes in the external environment and to reflect shifts in societal preferences (Delmon, 2011; Levy & Spiller, 1994; Stern & Holder, 1999).

A second dynamic phenomenon is that even well designed regulators may drift from their intended functions over time, as a result of regulatory capture, political capture or interference, or bureaucratic self-interest. The regulator may over time become more susceptible to capture by the regulated entities (Bernstein, 1955; Howlett & Newman, 2013). Unfortunately, government interference and industry capture are not alternative problems. On the contrary, they are likely to co-exist and to interact in what Wu and Ramesh (2014) call the ‘duality problem.’

Finally, with regard to fit, even far-reaching policy designs that set new objectives, reallocate property and decision rights in a sector and create new agencies will be constrained by established institutions in interlinked policy domains (Hancher & Moran, 1989; Scott, 2001). Policy-makers will face a trade-off between working within a design space that is narrower but immediately available and the longer and more uncertain process of broadening the design space (Howlett & Rayner, 2013).

These design issues are summarized in Table 1.
2.2. Capacity

The ability to design effective instruments and institutions in water policy will depend on policy capacities, understood as the set of skills and competencies necessary to formulate and implement policies (Wu, Ramesh, & Howlett, 2015). Wu et al. (2015) identify three sets of interconnected capacities: analytic, operational and political. Analytic capacities are required primarily at the policy formulation stage to define a goal and to identify and assess possible instruments and packages of instruments to meet the goal. Operational capacities refer to the ability to plan, manage and secure the necessary resources for implementation. Political capacities relate to the ability to rally political support for the policy and to overcome sources of opposition among stakeholders.

The use of economic regulatory instruments in water policy requires considerable policy capacities at all levels (Baldwin et al., 2012; Stern & Cubbin, 2005) – individual, organization and system. At the system level, the ‘institutional endowment’ of a particular place, including its legislative and executive institutions, judicial institutions, customs and norms will matter (Alexander, 2014; Auriol & Picard, 2009; Gassner & Pushak, 2014); and the ‘character of contending social interests’ (the balance, roles, and importance of social forces and ideologies) (Stern & Holder, 1999).

When analytic capacities for policy formulation are relatively weak, one possibility is to appoint skilled consultants to advise on policy reforms but this in itself requires technical and knowhow on the part of government to develop terms of reference, and to be able to understand, assess and use their output (Howlett & Migone, 2013). Governments may also seek to draw on the experience of other jurisdictions to identify and adapt successful models to the local context. However, this raises considerable risks that the approach will fail at adoption or implementation if operational and political capacities are also constrained. A successful design using this approach would anticipate limitations in operational and political capacity and adapt it accordingly.

2.3. Effectiveness

Effectiveness of regulatory instruments is sometimes construed narrowly, as the extent to which they fulfil their stated functions. Comparative empirical work evaluating regulation tends to use indicators of formalised attributes of regulatory governance and regulatory outputs like decisions or reviews (Stern & Holder, 1999) rather than indicators of sector performance. This is partly because of the difficulty of identifying
suitable comparative indicators, given the differences in policy context between countries. However, from a policy perspective, the relevant criteria are whether policy goals are met (Mukherjee & Bali, 2018) and the extent to which the package of instruments chosen have contributed to meeting these objectives (Berg, 2000). A case study approach makes it possible to consider this rich context and understand the pathways through which policy instruments affect sector outcomes (Gomez-Ibanez, 2009).

3. Methodology

This paper adopts a comparative case study approach. Two cases are examined of major policy shifts in the water sector in Manila (Philippines) and Malaysia. By focusing in some depth on two cases, the paper intends to contribute to an understanding of the interaction between design, capacity and policy effectiveness in water policy. The case studies are exemplary: the policy windows that opened up in the water sector in the two countries in the 1990s and 2000s, respectively, were exceptional and the far-reaching reforms that were subsequently adopted are rare in the water sector. The two cases are of particular interest in the context of the exploration of policy design and capacity because they took place in developing countries where we would expect capacity constraints to be pervasive, rather than in high-income countries which usually provide the setting for the study of policy design.

The actual policy packages adopted in the two cases were strikingly different in some respects – in Manila, management rights were privatized, while in Malaysia, PPP contracts were cancelled and control rights were centralized under the federal government, although both emerged from what was recognizably a deliberate policy design process.

Given the unusual nature of these reforms, it is not possible to draw out generalisations on critical capacity constraints for policy design in developing countries, or in the water sector. Rather the two cases illustrate what can be achieved in policy design and how capacities available at different stages in the policy process interact and shape the final design.

The case studies are based on extensive fieldwork conducted between 2004 and 2015, including eight field visits to Manila, Selangor, Johor and Melaka, and over 40 interviews with key informants, including government officials, utility managers, regulators, academics, and representatives from non-governmental organisations (NGOs). In addition, data were gathered and analysed data from the regulatory agencies (annual reports, audited regulatory accounts and performance indicators).

4. Manila

4.1. Policy objectives

In the mid-1990s, the quality of water service delivered to the 11 million inhabitants of Metro Manila was poor and deteriorating. One-third of the population in the service area did not have a piped water connection; for those that did, water was supplied intermittently. Only 8% of the population was covered by the sewerage network. Non-revenue water (NRW, the proportion of the volume of water supplied to the
distribution system lost in leaks and illegal connections) stood above 50% and was on an upward trend. Metropolitan Waterworks and Sewerage System (MWSS), the incumbent public utility, had a mounting debt burden and depended heavily on government subsidies to cover both operating and capital costs.

The government aimed to improve operational efficiency, raise financial resources for water investments and end the need for government subsidies and identified PPP as the most suitable policy option (Dumol, 2000). The Water Crisis Act was enacted in 1995, giving the president authority to award PPP contracts for water services within one year. The contracts were awarded to two joint ventures between local and international companies in 1997. A new regulatory agency, MWSS-Regulatory Office (RO), was established with its legal basis in the contract.

4.2. Policy capacity: formulation

The government had limited knowledge of PPPs at the time but was able to employ advisors and had sufficient absorptive capacity to understand and assess recommendations (Dumol, 2000). International financial institutions played a significant role in the formulation of the policy. The Asian Development Bank (ADB) provided technical assistance to assist MWSS in preparing the concession and the International Finance Corporation (IFC), the private sector lending arm of the World Bank, acted as the lead advisor for the design and implementation of the PPP.

The external advisors reviewed different PPP models and recommended the adoption of the concession model, in which responsibility for investment, management and operations is transferred to a private party under a long-term contract, was selected as the most suitable as the private party would take on responsibility for servicing existing debts as well as for future investments. They also advised on the establishment of a hybrid regulatory system combining a detailed contract and a regulatory agency was designed with input from the IFC, drawing on regulatory models from England and France (Dumol, 2000). The structure provided for tariff adjustments to be made automatically according to rules set out in the contract and for a periodic review of targets and tariffs every five years, in order to balance the need for commitment by both parties with the need for flexibility to cope with changes in the operating environment.

4.3. Policy capacity: implementation

Operational capacity was limited. The agency in charge of implementing the contracts, MWSS, had no previous experience of PPP, no staff with relevant skills and limited financial resources.

The design also took into account system-level gaps in operational capacity. The budget for the new regulatory agency, MWSS- RO was established with its legal basis in the contract. It was given the responsibility of monitoring performance and conducting the periodic review and was allocated a share of the concession fee paid by the private parties to cover its administrative costs.

Political capacity to secure the adoption of the policy and its implementation in the initial phases was high, due to the direct involvement of the President and his team. Resistance from MWSS, which would lose authority and resources as a result of the new
policy, was anticipated. Recognizing its ability to block implementation, it retained a role in managing water resources (dams, reservoirs and pipelines) and the associated procurement budgets. Furthermore, the RO was located under MWSS. The recommendations of the Chief Regulator are reviewed by the MWSS Board of Trustees (BOT), which takes the final decision. It does not, therefore, have decision-making powers. Nor is it autonomous in terms of appointments. The Chief Regulator and the four other members of the Regulatory Board are appointed by the BOT. The members of the BOT, in turn, are either appointed directly or ex officio by the President of the Philippines. This arrangement provided a somewhat uneasy accommodation between the technical and political objectives of the reform, but were successful in so far as MWSS did not block implementation.

Difficulties for the new, inexperienced RO to deal with the information asymmetry with the large, experienced firms that it had the authority to regulate were foreseen and partly addressed through the design. The metro was split into two zones with separate but identical concession contracts to allow for some performance benchmarking between the two zones.

The reforms also addressed concerns about system-level capacity gaps, and in particular the weakness and politicization of the Philippines’ judiciary by creating a parallel, separate system for contract dispute resolution – an Appeals Panel that can overrule the regulatory decisions of the MWSS BOT and the contract specifies that the panel’s decisions are final. It therefore exercises regulatory functions of an appellate character.

The risk of arbitrary discretionary behaviour by the regulator was addressed through the detailed contract provisions on tariffs, targets, and grounds for adjustment and by the provision for international arbitration to settle disputes. At the same time, the establishment of a regulatory agency and the periodic review mechanism allowed for the flexibility to adjust to changing external conditions in a planned manner.

The risk of political interference was addressed primarily through the constraints of the contract. The risk of capture by industry, particularly in the early days when the gap in accounting and financial capacity of the concessionaires and of the RO was wide, was partly addressed with provisions on transparency (the contract was made public, for example) but no formal role was given to consumers in the regulatory process. The structure anticipated limited technical capacity at the regulator and specified that the regulator could hire consultants to conduct the rate rebasing.

However, it was unclear how the role of the RO was intended to evolve over time and whether the combined contract-agency structure was to be permanent solution or an initial phase. Some of those involved in the design of the Manila privatization saw it as an intermediate step towards a stronger regulator (Wu, Batac, & Malaluan, 2011).

4.4. Effectiveness

Consumers, unions and civil society groups were initially highly sceptical of the PPP and mobilised to oppose it (Dumol, 2000). However, this opposition faded away as service improved and there was no significant attempt to block the re-award of the west concession contract in 2006, after a year under public management. Nor has there been
concerted resistance to repeated tariff increases, or a refusal to pay bills, which would be reflected in a decrease in bill collection rates.

The water reforms in Manila have proved robust to the early challenges and to changes in the social, economic and political conditions, including the dramatic shock of the 1997–8 Asian financial crisis on the west concessionaire. The fall in the value of the peso at the time doubled the concessionaire’s debt service payments, and Maynilad’s financial position deteriorated rapidly. This triggered a long process of contract renegotiation which led to the adoption of an amendment in 2001, followed later by bankruptcy proceedings and eventual termination in 2005, followed by rebidding of the contract (Wu & Malaluan, 2008).

The reforms were successful in mobilising private sector finance. This is shown in the high level of industry interest in the initial bidding and the competitiveness of the bids, which exceeded expectations (Dumol, 2000). Similarly, when the west concession was rebid in 2006, bids were well above the government’s reservation price, suggesting a relatively low risk premium. Since 2006, both concessionaires have consistently paid their concession fees, allowing MWSS to pay back its loans to the government.

The regulator’s capacity to fulfil its mandated functions has developed over time. A key function of the regulatory system is to adjust tariffs periodically to provide efficiency incentives while ensuring the financial balance of the concession. Three rounds of rate rebasing which took place between the inception of the contracts and 2016. The first round took place in 2002. The analysis for this was contracted out to external consultants as the RO felt that this would lend weight to the recommendations, making the concessionaires more likely to implement the tariff adjustment (Wu et al., 2011).

The first rate rebasing revealed that the information requirements on the firms were too limited for the required analysis to be conducted and that the contractual incentives for firms to reduce NRW and improve customer services were weak. The RO therefore introduced a set of key performance indicators (KPIs) and business efficiency measures (BEMs) to improve its ability to monitor the concessions. These performance indicators have not been formally added to the contracts and so they are not legally binding, but the concessionaires proved willing to cooperate in providing the necessary information and accepted that the RO would use these as measures of efficiency during subsequent rate rebasing. While the RO has continued to employ consultants for the rate rebasing exercise, the capacity of the RO to procure these services and to review and use the outputs has increased considerably over time.

The concessions have been very successful in terms of meeting broad policy goals. While there is no counter-factual to assess this performance against, it is clear that the main objectives of extending coverage, improving efficiency and quality of service and reducing the financial burden on government have all been achieved.

Performance outcomes are shown in Table 2. By 2014, coverage of piped water supply was above 90% and was almost complete in the east zone. Quality of service has also improved, indicated by the achievement of continuous supply of water to all customers. The data also show very considerable achievements in efficiency through the indicators for NRW and labour productivity. Tariffs have risen considerably, even accounting for inflation over the period. However, in the context of Manila, tariff increases can be seen as desirable in order to improve financial sustainability, as long as they remain affordable.
5. Malaysia

5.1. Policy objectives

In the early 2000s, water supply in Malaysia was a looming problem. The country had developed rapidly in the preceding two decades, driving large increases in demand for water in the main urban and economic regions. Water supply and sanitation infrastructure had failed to keep pace and restrictions of supply in the Kuala Lumpur area were considered imminent (Chin, 2008).

The water supply sector at the time was an organizational, institutional and policy patchwork, complicated by Malaysia’s federal structure. Under the constitution, legal responsibility for water supply and water resources lay with the state governments but water supply infrastructure was largely financed through subsidized loans from the federal government. However, many states were unable to meet loan repayments, leading to a mounting debt burden and limited access to finance for further investment (Teo, 2014). State water utilities, meanwhile, had a variety of organizational forms. Some were structured as a government department or board, others as corporatized utilities, and one was a publicly listed state-owned enterprise, implying different levels of financial and managerial autonomy and efficiency incentives. Water tariffs and performance targets were set, monitored and enforced by state government departments or agencies. This led to wide variations across the country.

In addition, several states had introduced private sector participation, in the form of ‘build-operate-transfers’ (BOT) contracts for water treatment plants and long-term concessions. The first BOTs were signed in the late 1980s. They provided for firms to be paid a fee based on treatment volume at a rate set in the contract and subject to automatic adjustment for inflation, input prices, etc. However, state governments were unwilling to raise tariffs, leading to an unsustainable situation: ‘From 1987, privatization efforts proceeded without reforming the water services industry. The privatized entities were economically focused on their returns on investment and the States were focused on the social sensitivity by keeping tariffs low. There was a major disconnect between the privatization model and the States’ water industry model.’ (Chin, 2008, p. 25).

Table 2. Performance indicators: Manila 1997–2014.

| MANILA WATER | MAYNILAD |
|--------------|----------|
|              | 1997     | 2004     | 2014     | 1997     | 2004     | 2014     |
| SERVICE QUALITY |         |          |          |          |          |          |
| Coverage (% pop. with piped connection) | 67% | – | 99% | 55% | 78% | 92% |
| Total Service Connections | 311,978 | 425,802 | 949,230 | 467,402 | 628,729 | 1,190,062 |
| Continuity of Supply (24/7 available % of network) | 26% | 99% | 100% | 26% | – | 100% |
| Billed volume (MLD) | 471 | 797 | 1,230 | 694 | 734 | 1,267 |
| EFFICIENCY |          |          |          |          |          |          |
| Staff per 1000 connections | 9.8 | 2.9 | 1.0 | 9.8 | 3.6 | 1.7 |
| Non-revenue water | 61.0% | 47.2% | 11.3% | 61.0% | 68.8% | 34.0% |
| Collection rate (value collected as % billed value) | 93% | 100% | 100% | 93% | – | 99% |
| FINANCIAL |          |          |          |          |          |          |
| Concession fees (PHP million) | – | 487 | 1,167 | 392 | 751 |
| Capital expenditure disbursed (PHP million) | – | 3,053 | 3,249 | – | 398 | 7,618 |
| Tariff (all-in) (PHP current) | 8.78 | 14 | 37.3 | 8.78 | 19.92 | 41.76 |

POLICY AND SOCIETY
The combination of inadequate infrastructure, financing constraints, low efficiency and wide gaps between regions in standards and tariffs prompted the federal government to explore options for reform. Two broad policy goals were set: to establish an efficient and effective delivery system to meet rising demand; and to ensure long-term availability and sustainability of water supply including the conservation of resources (Teo, 2014). Specific policy objectives included harmonizing tariffs and service standards across the country, improving operational efficiency, and, in particular, reducing NRW, and raising efficiency in water supply infrastructure investment.

5.2. Policy capacity: formulation

The federal Ministry of Energy, Water and Communications (MEWC) took the lead in the formulation of the new water policy. This began in 2004 with discussions and workshops on water regulation and market structure leading up to a decision to commission a formal study on policy options. The contract was awarded to the local branch of international accounting firm, KPMG. The consultants reviewed models of regulation in Europe, America and Australia, considering how these could be adapted to the conditions prevalent in Malaysia, in particular the lower ability of customers to pay and of local governments to raise finance (Chin, 2008). The Ministry, supported by the consultants, led a consultation process which included the state governments, suppliers, contractors, financiers, trade associations and NGOs over the course of a year.

MEWC was led by skilled and experienced officials and by a dynamic and respected Minister, and so had considerable absorptive capacity as well as political capacities to secure the adoption of the reform package.

The constraints on the scope of possible reforms imposed by the national constitution were recognized from the outset. The government identified the need to amend the constitution as a prerequisite for the adoption of a policy package that would meet its objectives for the sector. The federal government recognized that state governments would be likely to block an amendment which transferred authority for water resources to the federal level. A series of meetings were held with the state governments, and their agreement was secured by narrowing the scope of the amendment to transfer ‘water services’ from the ‘state list’ to the ‘concurrent list,’ giving both federal and state powers to legislate and regulate issues of water supply and services (MEWC, 2008). The amendment would not apply to the two states of eastern Malaysia, Sarawak and Sabah, which have greater autonomy from the federal government than the states of peninsular western Malaysia in a number of policy domains.

The policy package adopted was an innovative one, to establish a national asset holding company (PAAB) and a national regulatory body (SPAN). Two laws were passed in 2006 setting out the new sector structure: the Water Services Industry Act (WSIA) and the National Water Services Commission Act (SPAN Act).

WSIA provided for the transfer of all water supply assets from state ownership to federal government ownership, for the cancellation of existing long-term PPP contracts and their replacement with short-term operating contracts. Assets were to be transferred to PAAB, the national asset-holding company. PAAB raises finance on the capital markets backed by a federal government guarantee. Assets under PAAB are leased back to the states, allowing states to benefit from low-cost, long-tenure financing.
The SPAN Act, meanwhile, created a national level regulator for water services, responsible for setting performance targets and tariffs and for monitoring performance through benchmarking and licensing.

5.3. Policy capacity: implementation

The implementation of the reform has been a slow and difficult process. This did not come as a surprise to the reforms’ designers: ‘We have developed an effective strategy in reforming the water services industry in Malaysia...However, we must appreciate that success is 10% strategy and 90% execution’ (Chin, 2008, p. 210).

A key point of contention has been the valuation of assets and the level of lease payments to be paid to the federal government implied by the valuations (Interview, SPAN, 2017). Disputes over valuations have held back the process of ‘migration’ – the transfer of assets and liabilities to the federal government. The process proceeded state by state and remained incomplete as of late 2017, as shown in Table 3.

In part, this has been a technical issue. In Johor and Selangor, migration required the unravelling and cancellation of multiple bulk supply and water service PPPs. Insufficient technical capacities in law and accounting at state level and in the new agencies of PAAB and SPAN has made it more difficult to agree on the terms of transfer. In the less developed states like Perak and Perlis, the utilities are not fully corporatized and lack complete, reliable data on assets and their condition and local governments are unable to put together a viable business plan for consideration by SPAN. Without this, they cannot access PAAB financing and SPAN cannot impose performance requirements or set tariffs.

However, an even more important issue has been the intense politicization of the negotiations, especially in the capital region and state of Selangor. The federal government and Selangor government have been led by opposing political parties since 2008 and both sides were very unwilling to compromise and to be seen as ‘giving in’ by their respective electoral bases.

At SPAN, lack of political capacity has proved to be a more serious constraint than organizational capacity. SPAN has been functioning since 2007 and its founding Chief Executive Officer was the former Deputy Secretary of MEWC who had been closely involved in the formulation of the policy. However, SPAN has no formal authority over

| State          | Agreement signed/status | Note                                         |
|----------------|-------------------------|----------------------------------------------|
| Melaka         | 2008                    |                                              |
| Negeri Sembilan| 2009                    |                                              |
| Johor          | 2009                    |                                              |
| Perlis         | 2010                    | No business plan approved                    |
| Penang         | 2011                    | No funding sought from SPAN                  |
| Perak          | 2012                    | No business plan approved                    |
| Selangor       | 2015                    | Negotiations with BOT company SPLASH ongoing |
| Kelantan       | 2016                    |                                              |
| Pahang         | Negotiations ongoing    |                                              |
| Kedah          | Negotiations ongoing    |                                              |
| Terrenganu     | Negotiations ongoing    |                                              |
| Labuan         | Corporatized; under federal ministry |                                              |

Source: SPAN.
states and no power to initiate reviews – this must be done by the state governments. After the passage of WSIA and the SPAN Act, the attention of the MEWC leadership turned to other policy areas, leaving the new agency without the political capacities or levers to incentivize state governments to develop business plans and request tariff reviews. The agency has sought alternative ways to exercise regulatory functions and has begun to develop benchmarking by harmonizing financial and operating data collection and analysis across states. It is also seeking to develop detailed, transparent guidelines for tariff-setting and launched a consultation with states on the guidelines in 2016 (Interview, SPAN, 2017).

SPAN is not an autonomous agency, as originally envisaged by the reform designers. Its Chairman is an elected official appointed by government; other SPAN board members are political appointees. However, SPAN officials recognize that in the transition period during which negotiations with state governments are a key role for SPAN, it may enhance the political capacity and thus the negotiating power of the agency to be led by a politician (Interview, SPAN, 2017), although its effect has not been strong enough to speed implementation.

Operational capacities at PAAB have been adequate to fulfil its mission to raise finance but some state governments take the view that PAAB does not have adequate skilled human resources to run a large procurement programme and see PAAB as creating a bottleneck to further infrastructure investment. State governments retain large procurement departments which have more resources and experience than PAAB and some are resisting the transfer of responsibility for infrastructure procurement to the federal level.

5.4. Effectiveness

Between 2007 and 2017, the impact of the reforms on the achievement of policy objectives at the national level was limited. Data are presented in Table 4. There is still wide disparity in tariffs and service levels. Focusing just on the three states which are being regulated by SPAN and are drawing on PAAB financing (Melaka, Negeri Sembilan and Johor) suggests that the regulatory structure may be providing stronger incentives for efficiency (shown in a reduction in NRW) and financial sustainability through tariff increases (shown in the latest tariff revision date) and through access to low-cost finance. In states which have completed the asset transfer negotiations but have not come under the regulatory purview of SPAN and thus gained access to finance have not seen such improvements.

PAAB has successfully raised low-cost capital: it staged two successful bond issues, including an Islamic finance bond in 2011 which raised US$884 million spreads of 36-basis points over central bank borrowing rates. However, the bulk of this finance is unutilized. Between 2010 and 2014, investment in water infrastructure in Malaysia amounted to US$487m. on the markets at attractive rates but this lower-cost financing has not been passed on to states as originally envisaged. So far, the new policy has therefore not been effective in increasing in infrastructure investment in many of the poorer states where it may be most needed.
6. Discussion

Both cases demonstrate considerable analytic and political capacity for policy formulation. The policy options identified were innovative and technically sophisticated, and were closely matched to the broad goals and more detailed policy objectives identified. The two sets of reforms were far-reaching, involving changes in ownership and transition rights, new laws and regulations, the establishment of new institutions, including regulatory agencies. In this respect they were able to adopt integrated policy packages, rather than patching, stretching or tinkering with existing policies (Howlett & Mukherjee, 2017). Policy-makers deliberately extended the policy space by opening the sector to private management in Manila and by changing in the constitution in Malaysia.

While policy-makers in both cases drew on expertise outside of government to advise on policy design, government actors had adequate analytic and absorptive capacities to procure these advisory services and to act on the findings. Advisors in both Manila and Malaysia drew on international experience when assessing the policy options but in neither case were international models adopted wholesale. On the contrary, these models were carefully adapted to meet local conditions, taking account of different priorities and constraints on the part of government and also among the public who were the potential beneficiaries of the reforms, for example, in terms of their ability to pay for services.

Operational and political capacity gaps became evident in both cases as policy moved to the implementation stage, especially in the Malaysian case. There, incomplete and contested data, the technical complexity of historic legal and financial arrangements for water supply infrastructure and a lack of appropriate skills in the newly created agencies, state governments and the water utilities themselves has led to protracted negotiations on the transfer of assets. Concurrently, inadequate operational capacity to implement the procurement programme has blocked the flow of investment funds into the sector, one of its main aims.

Table 4. Performance indicators: Malaysia 2008–2014.

| State      | NRW 2008 | NRW 2014 | Change 2008–14 | 2014 Total expenditure/total revenue | Tariff RM/m3 domestic, first 30 m3 | Most recent tariff revision |
|------------|----------|----------|----------------|----------------------------------------|--------------------------------------|-----------------------------|
| Melaka     | 30.1     | 21.3     | −29%           | 0.95                                   | 0.85                                 | 2015                        |
| Negeri     | 50.5     | 35.9     | −29%           | 0.96                                   | 0.65                                 | 2015                        |
| Johor      | 31.3     | 25.9     | −17%           | 0.84                                   | 1.2                                  | 2015                        |
| Perlis     | 41.7     | 55.8     | 34%            | 0.58                                   | 0.55                                 | 1996                        |
| Penang     | 16.9     | 18.3     | 8%             | 0.83                                   | 0.3                                  | 2015                        |
| Perak      | 31.4     | 30.6     | −3%            | 0.7                                    | 0.67                                 | 2006                        |
| Selangor   | 33.9     | 33.6     | −1%            | 1.35                                   | 0.72                                 | 2006                        |
| Kelantan   | 49.4     | 49.4     | 0%             | 0.99                                   | 0.62                                 | 2013                        |
| Pahang     | 52.9     | 53.1     | 0%             | 1.75                                   | 0.54                                 | 1983                        |
| Kedah      | 45       | 46.1     | 2%             | 0.93                                   | 0.63                                 | 2010                        |
| Terengganu | 38       | 31.0     | −18%           | 0.96                                   | 0.5                                  | 1997                        |
| Labuan     | 33.2     | 29.5     | −11%           | 1.18                                   | 0.87                                 | 2015                        |

Source: SPAN 2015
Some implementation capacity issues were anticipated in the formulation period. These were not simply cases of ‘good policy, bad implementation’ (Bali & Ramesh, 2018). Both sets of policies reflected political capacities to identify and neutralize potential sources of opposition. In Manila, resistance was expected from the incumbent utility so MWSS retained authority over water resource infrastructure. In Malaysia, state governments were expected to object to the loss of authority over water policy, so the scope of reforms was narrowed to cover only water services. In Manila, concerns about gaps in system-level capacities were addressed through the contract design. Overall, the cases show a pragmatic approach on the part of policy-makers to adopt wide-ranging reforms, anticipating some implementation challenges while acting quickly enough to take advantage of high political capacities creating a policy space at a particular point in time (Howlett, 2010).

However, it is important to note that operational and political capacities in the implementation period are dynamic. The policy design itself may lead to a gradual increase in the capacity of implementing agencies. Thus, the establishment of regulatory agencies and processes in low-capacity environments may lead to the gradual accumulation of capacity which can then be fed back to design, leading to a virtuous circle of capacity expansion and effectiveness. The dynamic nature of capacity stands out in the Manila case where the hybrid agency-contract system has evolved over time and the agency has gained technical operational and political capacities. The RO in Manila seems to fit the archetype of ‘vigorous youth’ (Howlett & Newman, 2013) while SPAN may still be its infancy. SPAN may be able to look forward to increasing effectiveness as the implementation of other aspects of the policy package proceed. Slow implementation is not the same as failed implementation: coalitions of support and the legitimacy of new institutions may take time to build.

These reflections on the dynamic nature of capacity point to the need to consider longer time horizon and uncertainties related to the policy process itself during formulation. This seems especially important in the context of developing countries where the overall institutional environment may also be undergoing considerable change, propelled by economic growth and demographic change.

The need to move quickly, and the great difficulties inherent in dealing with legacy policies and institutions explains why certain aspects of policy design did not fit with sector realities, even when policy-makers were aware of these at the formulation stage. In Malaysia, a particular problem was the diversity of organizational forms taken by utilities and the difficulties associated with valuing assets and reviewing operating and financial efficiency when utilities are structured as public boards or government departments rather than corporatized entities. While this might have been foreseen, it was necessary for reforms to be designed for consistent application across states, while taking advantage of a window for policy adoption. To have waited for all states to complete corporatization before passing the reforms would have failed to address the urgent need to invest in deteriorating systems in other states.

In both the cases considered, policy reforms were restricted to water services and the closely inter-related policy areas of wastewater and water resources were not covered by the reforms. While this may simply reflect realism on the part of policy-makers on the scope of the policy space, it would have been preferable to consider the relationships between these policy areas more deeply and explicitly in the policy design. The result is that in both cases, security of water supplies is not assured.
7. Conclusions: moving towards effective water policy through design

This discussion of water regulation in Manila and Malaysia, while revealing some deficiencies, is still far from providing only ‘considerable reason to despair.’ In Manila, a regime has been established that addresses both commitment and flexibility and has endured almost two decades, through the termination and re-award of the contract on which its authority is based, and has contributed to significant increases in coverage and quality of service in the Metro Manila region.

In Malaysia, the unique regulatory design and sector structure set out under WSIA have not been fully implemented yet. Given that the restructuring of the water sector in Malaysia required not just the introduction of new legislation but of changes to the country’s federal constitution, the slow pace of implementation is perhaps not surprising. This does not necessarily reflect badly on the regulatory design, but might instead reflect the great difficulties involved in tearing out and replacing deep levels of the sector’s institutional structure. The model of a national asset holding company and national regulator moving the water sector towards greater financial sustainability and higher efficiency remains an interesting and relevant one for other countries at a similar level of development.

The cases shed light on broader aspects of effective regulatory design. First, regulatory capacity is not static. In the context of a developing country or a new policy field, regulatory capacity will develop over time. The challenge for policy design, then, is not to structure a second-best system of regulation suitable to the confines of current capacity, but to foresee the potential for change and establish an adaptive system that can allow for and stimulate the development of regulatory capacity over time.

The balance between aspirational regulatory design, in which an optimal regulatory governance and incentive structure is designed to achieve sector objectives, and ‘realistic’ design, which may be sub-optimal in terms of the strength of efficiency incentives but that takes into account political and social feasibility, implementation challenges, etc., may be difficult to strike. One possible approach would be to allow for the functions and powers of the regulator to change over time, linked to the achievement of benchmarks.

Second, the characteristics of the regulated entities matter, and regulatory design can be made more effective where this is deliberately taken into account. For example, the effectiveness of incentives will be affected by whether the regulated entity is fully or partly privately owned, stock-exchange listed, foreign or domestic, etc. In the water sector, it seems likely that in many countries public and private entities will co-exist in the future, so the design of flexible regulators capable of regulating different types of entities would be likely to contribute to effectiveness.

Thirdly, in the developing country context, striking the balance between autonomy and embeddedness may lie to some extent in the hands of the regulator itself. In order to be effective, the regulator appears to need to play a dual role, developing expertise in its staff to carry out its activities with an increasing degree of professional neutrality. At the same time, the leaders of regulators need to deepen the embeddedness of these new organisations in the larger regulatory system.

Finally, an ongoing problem for policy design in the water sector across developed and developing countries is how to allow or even encourage regulation to adapt to new issues and priorities while keeping down regulatory risk and the associated cost of
capital. In the past, slow rates of demand, supply and technological change in the water sector made this seem an easier task than in other sectors, adequately addressed by periodic reviews of tariffs and targets. Now, the pace and scale of urbanization, climate change and the development of decentralized treatment technologies may shake up the established model of a single municipal water and wastewater utility, with significant implications for the way the sector is structured and regulated. In the future, elements of adaptive policy-making such as defining triggers for policy review and processes to institutionalise learning (Walker, Rahman, and Cave 2001) may be usefully integrated into economic regulation in the water sector.

Disclosure statement
No potential conflict of interest was reported by the author.

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POLICY AND SOCIETY 93
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