

Infrastructure regulation in developing countries: an exploration of hybrid and transitional models¹

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1. Introduction

The most widespread feature of infrastructure reforms in developing countries and emerging economies over the past 15 years has been the establishment of new regulatory laws, institutions, contracts, regimes and processes.³ These regulatory systems are designed to respond to natural monopolies and market failures associated with network industries such as electricity, gas, water, telecommunications and transport. The aim of regulation is to encourage efficient, low-cost and reliable service provision while ensuring financial viability and new investment. It was hoped that regulatory agencies and contracts would de-politicize tariff-setting and would improve the climate for operational management and private investment through more transparent and predictable decision-making.

Utility regulatory systems in developing countries have been shaped by two broad legal traditions. In the countries with previous colonial ties to Great Britain, independent regulatory agencies have been established, operating within a legal system based on common law. The regulator is expected to act in the public interest and has considerable, although bounded and accountable, discretion in its decisions over tariffs and service standards.⁴ On the other hand, those developing countries with colonial histories linked to continental Europe – France and Spain, in particular – have tended to rely on regulatory contracts, such as concessions, with pre-specified tariff setting regimes, administered within a tradition of civil law and various

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² The author would like to acknowledge the assistance of Bernard Tenenbaum in shaping the early ideas for this paper, although he cannot, and should not, be held responsible or accountable for all the ideas, analyses, discussion, conclusions and recommendations in *this* paper.

³ Tremolet & Shah (2005) and Brown, Stern, Tenenbaum and Gencer (2006) estimate that about 200 regulators in some 130 countries are regulating infrastructure sectors such as electricity, water and telecommunications.

⁴ Independence does not necessarily imply full discretion. In UK style regulatory systems, the regulator's discretion is bounded by legislation, case law and evolving regulatory practice. In the US variant, regulators operate under a statute that requires tariff setting to be "just and reasonable" and "not unduly discriminatory". US Courts have further interpreted these definitions and placed limits on the decision-making discretion of US regulators (Brown, Stern, Tenenbaum & Gencer, 2006).

provisions for contractual renegotiation or arbitration.⁵ Hybrids of these regulatory traditions, which involve combining independent regulators with regulatory contracts, are increasingly being explored and implemented.⁶ A number of factors account for these developments. First, regulatory contracts may be more sustainable when backed by independent regulators. Many developing countries do not have credible specialist courts such as the French *Conseil d'Etat* with discretion to administer the contracts and resolve disputes. Low-discretionary rules in fixed contracts may be difficult to adjust or renegotiate without the assistance of an established independent regulator with decision-making discretion. Second, independent regulators may enjoy greater confidence when coupled with regulatory contracts. Investors have been wary of the high levels of discretion granted to independent regulatory agencies and have advocated regulatory contracts with more predictable tariff regimes and hence revenue streams.⁷

The issue of regulatory discretion is thus central to regulatory design and performance. But how much decision-making power is appropriate for effective regulation in developing countries? In examining this question, much of the recent literature draws a distinction between regulatory governance and regulatory substance.⁸ Regulatory *governance* refers to the legal design of the regulatory system, institutional arrangements and the processes of regulatory decision-making. It includes issues such as regulatory commitment, clarity of roles and functions between the regulator and policy makers, regulatory autonomy, the organisational structure and resources of the regulator and issues such as transparency, participation, accountability, predictability, proportionality and non-discrimination. Regulatory *substance* refers to the content and outcomes of regulation, such as tariff-setting or service standards, and their impacts on consumers or utilities.

Some have argued that the fundamental challenge for regulatory design is to find regulatory governance mechanisms that restrain the degree of regulatory discretion over substantive issues such as tariff-setting.⁹ Others have taken the view that a certain degree of regulatory discretion is inevitable (and even desirable) and hence the fundamental problem is how to establish governance arrangements and procedures that allow for a “non-trivial degree of bounded and accountable discretion.”¹⁰

⁵ The French regulatory model is most commonly associated with the long tradition of water concessions in that country. The concession contracts transfer operating rights, while at the same time imposing regulatory obligations. There is no separate regulator. Instead the contract is legally enforceable by France’s highest administrative court, the *Conseil d'Etat*, which has also developed and accepted several legal doctrines that shape and constrain the contracts. These include the right of the operator to receive tariff adjustments for “adverse government action”, “hardship” and “unexpected constraints” (Brown, Stern, Tenenbaum & Gencer, 2006).

⁶ Examples include Uganda, a country with an Anglo legal tradition and an independent electricity regulator, which has recently created long-term concessions in electricity generation and distribution. Counter examples, are Francophone African countries such as Mali and Cameroon that have electricity and water concession and have subsequently established independent regulatory agencies.

⁷ Brown, Stern, Tenenbaum and Gencer (2006)

⁸ The seminal paper by Levy and Spiller (1994) makes this distinction and this has become the dominant paradigm in thinking about regulatory performance, See for example Stern & Cubbin (2005) and Brown, Stern Tenenbaum and Gencer (2006).

⁹ Levy & Spiller (1994) define regulatory governance as “the mechanism that societies use to constrain regulatory discretion and to resolve conflicts that arise in relation to these constraints.”

¹⁰ Stern & Cubbin (2005).

Much of this paper will dwell on regulatory governance arrangements (rather than regulatory substance) and will investigate whether they have resulted in outcomes that have met the expectations of consumers, operators and investors in developing countries. Have appropriate regulatory models been selected? Have they been securely located in the political, constitutional and legal arrangements of individual countries? Has implementation been effective? Ultimately the question is whether regulation facilitates an appropriate balance between development and investment outcomes: i.e. are consumer and country benefits advanced while maintaining the financial health of utilities and incentives for further investment?

This paper summarises the experiences of regulation in developing countries over the past decade and a half and explores ways of improving the design and performance of regulatory systems. Some of the problems and challenges with existing regulatory models are highlighted, including weak regulatory commitment, institutional fragility, lack of transparency and legitimacy, and lack of capacity and competence. A menu of regulatory options is proposed, including independent regulation, regulatory contracts, outsourcing of regulatory functions and expert panels. The paper looks at various further ways of strengthening regulatory performance, including mandated periodic reviews of regulators, building the demand-side for regulatory transparency and capacity building. The paper also looks at ways of mitigating regulatory risk through partial-risk guarantees and other investment protection instruments. Finally, the paper argues that while independent regulation may, in many instances, be an appropriate model, the credibility and legitimacy of regulation depends on judicious use of hybrid and transitional regulatory models incorporating varying degrees of regulatory discretion that best fit the local country context of regulatory commitment and institutional and human resource capacity.

2. Challenges and problems with utility regulation in developing countries

Relatively few in-depth formal reviews have been conducted of regulatory agencies in developing countries.¹¹ However, the large literature on infrastructure reform in developing countries indicates, on balance, that original expectations of regulatory performance have not been met.

2.1 Lack of regulatory commitment: political expediency and the limits of independence

One of the most widespread regulatory models has been the establishment of independent or separate regulatory agencies. However, not all regulators in developing countries are fully independent. Some do not have authority to set

¹¹ Brown, Stern, Tenenbaum & Gencer (2006) provide a summary of a limited number of regulatory reviews.

tariffs¹²; others may only recommend tariffs for approval by the Minister. In these instances, governments resist allowing tariffs to be set according to transparent processes and objective economic principles.

Even in cases where separate regulatory institutions have been established with legal mandates for tariff-setting and other regulatory decisions, government can still exert pressures on regulators to modify or over-turn decisions. Tariff-setting remains highly politicized and governments are sensitive to popular resentment against price increases (that are often necessary to cover costs).

Political expediency can undermine regulatory independence. While legislation may, in theory, empower regulators to set tariffs, government often finds other ways of influencing regulators. A number of international surveys have pointed to high turnover of commissioners, with many not completing their full term due to pressure from Ministers to resign.¹³ There is a large gap between “law” and “practice”.¹⁴

There are also instances of government departments actually undermining regulators. Many new regulatory institutions in Africa have been staffed by officials who moved over from government departments. These tend to be the more ambitious and competent officials who are attracted by the prospects of a more professional environment and higher salaries. The government officials that remain behind tend to be resentful and will attempt to exclude the regulator from relevant policy processes, or might even try to subvert the reputation of the regulator.

Establishing new, “independent” regulatory agencies in contexts where prices are not revenue-sufficient, and where the sector is being reformed, can be a risky strategy for all stakeholders – government, utilities, investors and customers. In some ways, it is not surprising that there has often been political interference or attempts to limit regulatory discretion.

In summary, a lack of regulatory commitment is characterised by an unwillingness or inability to transfer regulatory decision making powers to an independent regulator or a regulatory contract and reluctance to move towards cost-reflective or revenue-sufficient tariffs. A low level of regulatory commitment could also be evident in weak and slowly operating courts of law and ineffective appeal systems. These problems highlight the need to adequately secure regulatory systems within the economic, political, constitutional and legal arrangements of individual countries.¹⁵

¹² For example, the power sector in Egypt

¹³ For example, in the six years since the Electricity Regulatory Board was established in Kenya there have been five different Chairmen. The Electric Power Act provides for a four year term of office and Regulators can only be removed under specified conditions (such as fraud). However, the Kenyan government has used another law, the State Corporation Act, which gives the President authority to remove heads of state institutions.

¹⁴ Tremolet and Shah (2005)

¹⁵ Brown, Stern, Tenenbaum & Gencer (2006); Stern and Cubbin (2005)

2.2 Lack of transparency, participation and accountability

Regulators do not always publish written explanations of the reasons for their decisions, although many claim that reasons are provided to regulated entities. While some may hold public hearings where stakeholders can provide inputs¹⁶, many do not. An international survey of regulators reveals that only a quarter of respondents are required by law to disclose reasoning behind regulatory decisions.¹⁷

Transparency is also often compromised in regulatory contracts, such as concession agreements or power purchase agreements. Few of these contracts are open to public scrutiny. Government officials and private operators often justify such secrecy on the grounds of “commercial necessity or competition.” But it is unclear why the secrecy is needed if the operator has been granted a *de facto* or *de jure* monopoly that eliminates any possibility of competition, at least for a significant number of years. When there is no access to these contracts, it should not be surprising that the general public tends to assume the worst (i.e. excessive profits or corruption). This, in turn, leads to a lack of trust in the regulator and government in general.

Transparency requires a set of measures that assist all stakeholders to understand and have confidence in regulatory processes and decisions. Measures include: clarifying the objectives and functions of regulation; stakeholder consultation in the process of developing new regulatory methodologies and standards; publishing final standards, regulatory contracts and regulatory methodologies, including scheduled tariff review procedures and timetables; public hearings where stakeholders can make submissions and inputs into important regulatory decisions; written public explanations of regulatory decisions; pre-scheduled independent regulatory reviews and impact assessments; accountability through appeal mechanisms; and open access to information. Transparency measures provide a common understanding of the “rules of the game” and how they are applied.¹⁸

Transparency in utility regulation is most needed where institutions face grave governance and capacity challenges, but it is in precisely these situations that transparency is most difficult to achieve. Fostering transparency goes hand-in-hand with institution and capacity building. Ultimately, transparency is critical for developing legitimacy.

2.3 Institutional fragility

Many regulatory institutions in developing countries are no more than a few years old. Few are older than 10 years. The challenges in establishing new public institutions in developing countries have often been underestimated. It takes time to build and entrench governance, management and organisational systems and practices, in addition to the imperative of building new professional capacity. The meetings of new regulatory entities are often taken up with corporate governance and

¹⁶ Mwenechanya (2006)

¹⁷ NERA (2005)

¹⁸ NERA (2005)

management issues rather than discussion of core regulatory issues (e.g. tariff levels, quality of service standards, investment plans). Many regulatory institutions are still quite fragile.

The appointment of regulators (or commissioners) remains largely a government responsibility and few have experimented with appointment committees – even if these only make recommendations to the Minister. The consequence can be inappropriate choices of commissioners without the requisite skills or experience. In addition, some agencies are severely hampered by delays in appointments. And, in many cases, the majority of regulators are replaced simultaneously – i.e. they don't have staggered terms. African regulators have experienced high turn-over of Board¹⁹ members and management.²⁰ As a result institutional development and memory is hampered.²¹

Many regulatory agencies are also hindered by funding constraints. While there has been a move away from direct fiscal grants to levies on regulated utilities, budget approval is often still necessary. Approval processes often require high-level decisions in government, resulting sometimes in delays in approvals and funding disbursement.

Not only do developing country regulators face challenges associated with the creation of new institutions, they do so within an unstable and changing policy environment. The power and water sectors in most countries are being reformed under highly contested conditions and the demands being placed on the regulator shift unpredictably over time. Regulating a state-owned utility is very different to regulating a private concession, for example. The changing nature, structure and ownership of utility sectors in developing countries inevitably affect the institutional design and functions of regulators. Regulators are frequently forced to get involved in policy debates and even in the development of policy, placing further, extraordinary demands on already fragile institutions.²²

2.4 Regulatory substance compromised: lack of capacity/competency

In addition to governance and institutional challenges, developing country regulators face huge issues around regulatory substance, i.e. the quality, credibility

¹⁹ Regulator Boards in Africa are equivalent to Regulatory Commissioners and comprise part-time or a combination of part-time and full-time members. They are responsible for regulatory decisions as well as general governance of the regulatory body. Regulatory staff are managed by a CEO who may or may not be a full member of the Board.

²⁰ In the electricity sector in South Africa there have been four different boards and five CEOs in 10 years. The institution has been rocked by three serious allegations of corruption and/or mismanagement – and although these were finally resolved by the Board (with the assistance of the Minister) this was accomplished at a high cost to the organisation in terms of institutional stability and morale. In one instance, the entire management team resigned or were fired. There has also been high turn-over of staff. The most competent and qualified often leave for the private sector. See also the Kenyan example cited previously.

²¹ Tremolet & Shah (2005)

²² Brown (2003)

and impact of their regulatory decisions.²³ Regulatory substance can be compromised by inadequately trained and experienced regulators. Building the professional capacity of new regulators is one of the biggest challenges facing the infrastructure sector in Africa.

In a recent global survey of regulators, the most frequently reported constraint was the lack of specialised skills in utility regulation: 30% of respondents cited insufficient training as a significant constraint and 61% stated that training received to date was deficient in that it generally lacks continuity and was poorly targeted. The survey concludes that “quality human resources are scarcer than money” and quotes regulators saying “we lack good people”.²⁴

There is widespread recognition of the need for capacity building and training.²⁵ Most regulators have sent staff to well-known international regulator training programmes and to emerging regional specialist training centres.²⁶ Multi-lateral agencies, such as the World Bank, understandably, have placed most attention on regulatory governance issues. However, it is critical that core regulatory competencies are also developed in order to strengthen regulatory substance.

Capacity constraints may be alleviated by: initially limiting regulatory discretion; minimizing regulatory complexity; building in mechanisms for outsourcing some utility functions; and adopting a gradual approach to modifying or expanding the scope of the regulator’s responsibilities as capacity is built for a more fully fledged regulatory agency.²⁷ The greater the discretion enjoyed by the regulator, the more acute is the need for trained, experienced and competent staff.

2.5 Regulatory contracts also under stress

Many of the challenges around utility regulation in developing countries, identified above, apply largely to independent regulators. It should also be noted that regulatory contracts - embedded in leases, concessions or bulk purchase agreements - are also experiencing stress.²⁸

²³ There are few examples of independent assessments of regulatory performance in developing countries. One rare example is a set of reviews undertaken by the Presidency and National Treasury in South Africa, which concluded that “the National Electricity Regulator has not yet implemented a robust approach to regulating Eskom prices.” Steyn (2004a,b). While the NER has been able to restrain monopoly pricing by the national utility, it has often made inconsistent decisions. As part of its rate-of-return tariff setting methodology, it calculated weighted average costs of capital of 13.3%, 14.5% and 11.14% for the years 2003-2005; Eskom’s actual cost of capital did not alter materially in this period. It also arbitrarily introduced an *ex-post* claw-back of excess revenue without inclusion of this mechanism in its published regulatory methodology that had gone through a prior stakeholder consultation process.

²⁴ Tremolet & Shah (2005)

²⁵ These are key priorities for the African Forum for Utility Regulators (AFUR) and the Regional Electricity Regulators Association (RERA).

²⁶ For example, the training programmes of the Public Utility Research Centre at the University of Florida (www.purc.ufl.edu), Management Programme in Infrastructure Reform and Regulation at the Graduate School of Business at the University of Cape Town (<http://www.gsb.uct.ac.za/mir>) and the South Asia Forum Infrastructure Regulation (<http://www.safir.teri.res.in>)

²⁷ Tremolet & Shah (2005)

²⁸ See for example Guasch (2004). Examples in Africa include Mali and Cameroon (2005).

Leases and concessions involve various types of long-term leases of state assets and rely on detailed contracts that generally take one of two forms: either an *affermage* contract under which the private operator has operational but no investment responsibilities, or a full concession where the private operator has both. In a traditional *affermage* contract the operator is paid for each unit sold. The average tariff charged is higher than the unit earnings of the operator; the difference generally goes into an investment fund managed by government. Effectively, the operator is paid to run the system, provided it meets certain performance targets. Commercial risk is shifted to the operator. In practice, some *affermage* contracts may also include limited investment obligations, or the contractor may have responsibility for developing investment plans and even managing the investment fund, subject to government oversight.

Concession contracts transfer operating rights to the private operator while at the same time imposing regulatory obligations. Most concession contracts provide operators with full management discretion in operating assets. But the concession contract also imposes regulatory standards, targets and obligations in terms of tariffs, quality of service, expanded access and new investment. In this sense, concessions are forms of regulatory contracts that are used to establish elements of regulation over the operator.

It is very difficult to write “bomb-proof” long-term concession agreements. Investors and lenders understandably seek long-term agreements, often 15 to 20 years, to manage or shift risks. But circumstances change; tariff-setting parameters may need reformulation; investment requirements may need to be reconsidered. Insisting on the application of the original formula in the concession contract may result in patently unfair outcomes for either the private sector or government/consumers. In this context, the obsolescence of long-term contracts is frequent and perhaps inevitable.²⁹

A review of a large number of concessions in Latin America concluded that *“setting up a separate and autonomous regulatory body appears to reduce renegotiations significantly”* and *“if concessions are lodged within a separate regulatory framework that defines the basis and criteria for contract revision, socially desirable, dynamic adaptations would be feasible and less likely to place significant strain on concessions facing uncertain economic conditions”*.³⁰

Concession agreements need to be clear on principles and on renegotiation mechanisms. This implies the continued need for expert panels or competent regulatory agencies to facilitate early mediation or renegotiations prior to legal arbitration. Regulators can face strategic behaviour by investors who may overbid in order to win contracts and then later seek to shift risks towards consumers or taxpayers by renegotiating contracts.

Many of the challenges that arise in independent regulators and in regulatory contracts, point to the need to improve regulatory design.

²⁹ Victor et al (2004); see also Covindassamy, Oda, & Zhang (2006)

³⁰ Guasch (2004: 142, 143). However, Gabon and Cameroon appear to provide contrary experiences.

3. A range of regulatory models

A central hypothesis of this paper is that problems have arisen with newly created independent regulatory agencies (and sometimes also with regulatory contracts) because inadequate thought was given to the requirement of matching regulatory design and the level of regulatory discretion with the local country context of regulatory commitment and institutional and human resource capacity. In this section, we review the range of possible regulatory models with varying levels of regulatory discretion.

A review of international experience indicates that most regulatory models employed fall into four broad categories: regulation by government, independent regulation, regulation by contract, and outsourcing regulatory functions to third parties, including expert panels.

3.1 Regulation by government

Traditionally, governments – at either national or local levels – have assumed responsibility for regulation in areas where there is obvious market failure and/or where governments seek to achieve specific social, economic and environmental objectives. Network industries such as electricity transmission lines, or gas and water pipelines, tend to be natural monopolies; i.e. average costs decrease with additional output and competing utilities are thus not economic. Governments are able to exercise full regulatory discretion in determining, monitoring and enforcing maximum tariffs and minimum service standards.

Social objectives and environmental standards are appropriately set by national government, although governments are not always effective in monitoring and enforcing these standards. Effective *economic* regulation, on the other hand, is not possible simply through setting national objectives or norms and standards. Economic regulation requires an understanding of the costs and revenue requirements of individual utilities, including operating costs, assets, investment plans and the required rate of return that should at least cover the costs of capital. In other words – arbitrary setting of common prices at a national level – or even at the local level – can be dangerously ineffective.

Effective economic regulation requires the application of established economic regulatory methodologies to individual utilities by professionally competent staff. A question that often arises, is whether professional regulatory capacity can be more easily built within separate, independent regulatory agencies, rather than within government departments operating under civil service conditions and constraints?

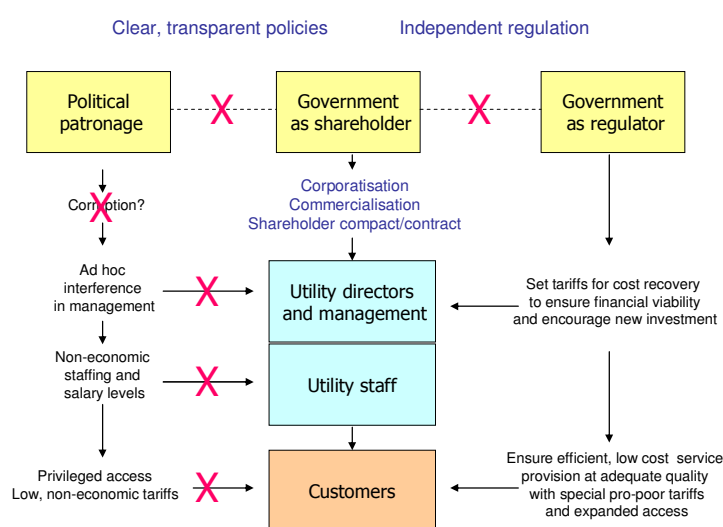
Additional challenges arise where government regulators seek to regulate state-owned utilities.³¹ The different objectives, roles and functions of government in relation to state-owned utilities can be ambiguous and contradictory. First,

³¹ See Eberhard, A (2006). Is it possible to regulate state-owned utilities effectively? Presented at the 19th International Training Programme on Utility Regulation and Strategy, Public utility Research Centre, University of Florida, 9-20 January 2006

governments represent political constituencies and wish to offer low cost or free services to these constituencies. Second, governments, as owners of utilities, need a sufficient return on assets for maintenance and expansion. Finally, governments also have to play a third role of regulator, balancing the need for financial viability with customer protection through ensuring affordable and reliable services. These different roles are seldom separated explicitly, with the result that one or more functions could be compromised.

Effective regulation of state-owned utilities requires clarification and separation of government roles and functions – as illustrated below.

Figure 1: Regulation of state-owned utilities: the importance of separating governance and regulatory roles and functions



Ad-hoc interference in utility management and staffing has to be prevented, as does non-transparent influence-peddling by individual politicians seeking privileged access to existing or new services. Government’s political role in relation to utility services should be made explicit through transparent policies and public funding streams.

Government should also clarify its role and expectations as owner of the utility through a shareholder contract – and through corporatisation³² and commercialisation³³ policies that incentivize management to achieve financial viability – i.e. a focus on earning an adequate return to maintain and expand assets and cover

³² *Corporatisation* means that the utility is not part of a government department but has legal corporate or company status. Its shareholding is defined. Its reporting relationship to its shareholder (government) is in terms of a shareholder agreement and performance contract, and not in terms of day-to-day management decisions. The corporation could be governed by a board that includes independent and non-executive members. The corporation is generally liable for the payment of ordinary company taxes and dividend payments.

³³ Full *commercialisation* implies that the utility charges tariffs that are revenue-sufficient; that the state does not subsidise the utility’s cost of capital; that the utility has autonomy to raise finance from private capital markets, and earns commercial returns on equity. Employment and procurement should be done on a commercial basis and international accounting standards would be applied.

operating expenses. This commercial focus need not compromise the achievement of social objectives which should be funded through ring-fenced and transparent subsidies and public grants.

Finally, role clarification can be strengthened through government transferring its regulatory functions to an independent agency or a regulatory contract – as discussed below.³⁴

However, attempts to improve the governance and regulation of state-owned utilities are not without its problems. One of the challenges is to ensure that the shareholder compact or performance agreement (negotiated between the utility and the government ministry) is also consistent with regulatory objectives. Unfortunately, regulators do not always have access to the shareholder compact as a matter of course.

There are typically significant information asymmetries and the state-owned utility can seek to influence key provisions of the performance contract in a way that limits regulatory discretion. On the other hand, the state may insert additional social or developmental obligations that are not directly related to the provision of electricity services. Ideally these should be funded from profits, taxes, dividends or special programmes, and not from core costs.

Important questions arise as to whether shareholder performance and regulatory contracts should always be separated – or whether, at least in the beginning before a fully capacitated and independent regulator is established, transitional regulatory provisions could be included in the performance contract between government and the utility. Whether this arrangement will be viable will depend, in part, on the effectiveness of these contracts and the reality of penalties or sanctions for poor performance. In general, the effectiveness of performance contracts in developing countries has not been good. They tend to be vague and not strongly enforced. They tend to be more “compacts” than “contracts”.³⁵

A principle problem in regulating state-owned utilities is the difficulty in applying penalties or sanctions for poor performance. When a private utility is inefficient, it can be penalised through lower tariff increases – which hurt shareholders and provide incentives for improved performance. However, refusing adequate tariff increases for a state-owned utility is self-defeating: the state, as utility owner, will ultimately have to cover deficits through fiscal grants which are covered by taxes. Alternatively, the utility could cut back on capital costs, at the expense of worsening service. Either way, the public suffers.³⁶ Instead, the focus should be on improved information on

³⁴ For example, in South Africa, Eskom, the state-owned electricity utility, has been corporatised and operates according to commercial imperatives. It reports to the Ministry of Public Enterprises, its shareholder, and pays taxes and dividends. The independent regulator, on the other hand, reports via the Ministry of Minerals and Energy to Parliament and is ultimately responsible for consumer protection. Social programmes, such as electrification, are also overseen by the Energy Ministry, rather than the shareholding Ministry. In this model, there is a healthy tension between utility managers who seek to maximise financial returns, and the regulator who seeks to improve efficiencies and lower costs while still ensuring financial sustainability.

³⁵ See World Bank (1995), especially Chapter 5 – “Contracting: What Works, What Doesn’t Work and Why”.

³⁶ Castalia (2006)

performance parameters and incentives and sanctions that can be applied to the utility's management.

Ultimately, regulation of state-owned utilities will only be effective if the multiple, and potentially conflicting, roles of government are separated. Furthermore, a range of parallel reform measures should be undertaken, including corporatisation and commercialisation of the state-owned utility, effective performance contracts and public-entity management legislation which makes managers legally accountable.

3.2 Independent regulation

The independent regulator model has been propagated widely in developing countries.³⁷ For example:

“AFUR recommends that the following key principles form part of an initial framework for utility regulation in Africa:

- *Minimum regulation necessary to achieve policy and sector objectives;*
- *Adherence to transparent decision-making and due process requirements;*
- ***Independent or autonomous regulation where possible [emphasis added];***
- *Accountability towards government, investors and end-users;*
- *Non-discrimination when not in conflict with policy prerogatives of government;*
- *Protection of investors against physical and regulatory expropriation; and*
- *Promotion of competition by limiting anti-competitive behaviour.”*³⁸

Independent regulation has tended to be more common within the Anglophone legal tradition (based on common law) than within Francophone territories (civil law). Thus, for example in Africa, Zambia and Kenya have independent water regulators that exercise discretion in the public interest. On the other hand, in Gabon, regulation of their country's electricity and water sectors is embedded in a concession contract that is overseen by administrative law and a dedicated Ministerial Unit, i.e. it is generally not credited with having a separate or independent regulator. Another example is Senegal, whose water sector is regulated in an *affermage* contract, rather than by an independent regulator. However, there now seems to be a more general trend of establishing separate, independent regulators, even in Francophone countries with concession contracts which incorporate regulatory contracts; Mali is an example.

Regulatory independence has at least three dimensions:

- *decision-making independence* – a clear mandate in law to make regulatory decisions without prior approval of government and no entity other than a court or pre-designated arbitrator can overrule the regulator's decision;
- *institutional and management independence* – where the regulatory institution is outside of a government ministry or department and the regulator has control over internal administration as well as protection from removal from office for political reasons; and

³⁷ See for example Warrick Smith's (1997a) note on regulatory independence – which captured the thinking within the World Bank during the 1990s.

³⁸ African Forum of Utility Regulators (2003). Framework for Utility Regulation in Africa.

- *financial independence* – where the regulator has an earmarked, secure and adequate source of funding.

The effectiveness of separate regulatory agencies depends on the degree of independence enjoyed by the agency. Their effectiveness depends also on a number of linked governance issues such as clarity of roles and objectives, accountability, transparency, participation, predictability, proportionality and non-discrimination.³⁹

Clarity of roles and responsibilities is critical to good regulatory design. This principle requires that there be a separation between regulation and policy making. The role of regulators should be defined by law and there should be no overlaps between the regulator and the minister's duties. Regulators should have precise objectives that are accompanied by clear measures of success and failure

The principle of *accountability* requires that the regulator be accountable to parliament, the government and to the public. Consumers and the regulated body should preferably have a legal right to appeal against the regulator's decisions and there should be the possibility of legal redress if a regulator fails to fulfill its functions. Government could also periodically seek experts to evaluate the performance of the regulatory body.

Transparency requires that regulators have clearly defined, published procedures under which they take and announce decisions and their justifications. The decision making process should be outlined and documented and the rationale for decisions should be explained. Stakeholders' inputs and comments should be published.

Participation is a process whereby stakeholders are able to present their views and inputs into key regulatory processes and decisions. Stakeholders should be afforded the opportunity of commenting on proposed regulatory methodologies, provide inputs at public hearings and comment on final decisions.

Predictability implies that the regulator will follow published regulatory procedures and methods in a consistent and timely fashion. The credibility of the regulatory process depends on predictability and consistency of decision-making.

Non-discrimination implies that regulators do not discriminate between either service providers or within customer categories: i.e. regulatory decisions should be similar for utilities facing similar contexts and for the same types of consumers. Regulation should be fair.

Proportionality means that regulation should involve the minimum level of controls necessary to achieve regulatory objectives: i.e. regulation should be light handed and should involve incentives where possible.

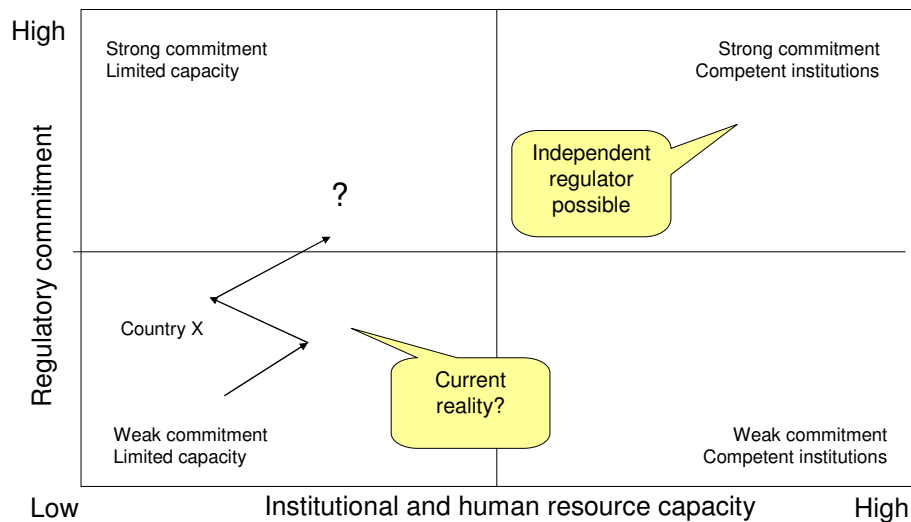
The efficacy of independent regulation is also dependent on strong professional regulatory competence. Economic regulation requires a thorough understanding of regulatory fundamentals and regulatory mechanisms. It also requires good access to data and a thorough understanding of the operations, investments and costs of utilities.

³⁹ NERA (1998); Stern and Holder (1999); Tremolet & Shah (2005); Brown et al (2006)

Professional regulation requires specialist skills and relevant experience. Ultimately the legitimacy of regulatory institutions and decisions are dependent on good governance arrangements and practices – but also on competent and credible decision-making.

Independent regulation thus requires strong regulatory commitment, good governance and competent institutional capacity. The reality is that developing countries often demonstrate only weak political commitment to independent regulation and face considerable constraints in terms of institutional capacity.⁴⁰ While an independent regulator might be feasible where there is a strong regulatory commitment and competent institutions (upper right hand quadrant in Figure 2), it will be less successful in environments where there is weak government commitment and limited institutional capacity (lower left hand quadrant).

*Figure 2: Regulatory commitment and institutional capacity
(adapted from Brown, Stern, & Gencer (2006))*



These distinctions relating to the political and institutional environment are now starting to be reflected in some World Bank documents. Figure 3 shows the World Bank’s pronouncements on regulation in two separate policy statements, one issued in 1993 and the other in 2004.

⁴⁰ Levy & Kpundeh (2004); Fukuyama (2003); Tremolet & Shah (2005).

Figure 3: World Bank rethinks the classic independent regulator model

THEN	NOW
<p><i>“A requirement of all power lending will be explicit movement toward the establishment of a legal framework and regulatory processes satisfactory to the Bank.....this requires countries to set up transparent regulatory processes that are clearly independent”</i></p>	<p><i>“.. a credible regulatory system requires more than a formally independent regulatory entity.....other transitional arrangements may need to be established.... including limiting the amount of discretion that regulatory bodies have in setting prices and key parameters..”</i></p>
<p>The WB’s Role in the Electric Power Sector World Bank Policy Paper 1993</p>	<p>Public and private sector roles in the supply of electricity services Operational Guidance for World Bank Group Staff 2004</p>

Acknowledging that there are limits to independent regulation of utility services in developing countries, because of weak regulatory commitment, political expediency, fragile institutions, an absence of transparency and capacity constraints, does not mean that independent regulation is not desirable. Rather, the actual experience of utility regulation in developing countries needs to be contrasted with the uncritical and pervasive policy prescriptions and language (i.e. the mantra) of “independent regulation”.

The creation and building of independent, competent, credible and legitimate regulatory institutions may, in many contexts, remain a goal. However, current challenges and problems mean that we need to start considering complementary, transitional and/or hybrid regulatory options and models. These include regulatory contracts and outsourcing of regulatory functions, including advisory regulators and expert panels. Regulatory systems can also be strengthened through mandated pre-scheduled independent regulatory assessments and building the demand-side for regulatory transparency and fairness.

3.3 Regulatory contracts (regulation by contract)

In regulatory contracts (or regulation by contract) regulatory regimes, including multi-year tariff setting systems, are pre-specified in detail in one or more legal instrument such as basic law, secondary legislation, licences, concession contracts, power purchase agreements, etc.⁴¹ Regulatory contracts are generally constructed within the context of private sector participation. Regulatory contracts may also be used to improve the performance of state-owned utilities.

There are three variants to this model. In the first case, key contract provisions, such as tariff setting formulae, are self-administered by the parties to the contract – i.e. regulation without a regulator or the assistance of third parties. A difficulty with this model is that parties to the contract are both “players and referees”. They are

⁴¹ This section relies heavily on the seminal publication of Bakovic, Tenenbaum & Woolf (2003).

responsible for fulfilling certain contractual obligations – but also tracking their performance. For example, if government is a party to the contract – and then is also directly administering the contract, including tracking performance provisions – there could be challenges regarding impartiality and credibility – particularly if government is not fulfilling certain contractual commitments such as investment obligations.

In the second case, provision is made for aspects of the contract to be undertaken by third parties. For example, the water and electricity concession in Gabon, although administered by a contract supervisory unit housed in the line Ministry (a party to the contract), includes requirements to use external contractors for specified data gathering and performance monitoring. Such regulatory contracts could also include the use of arbitration panels – such as those employed in Chile.

In the third variant, a detailed tariff-setting agreement, although embedded in a law, licence, concession or contract, is administered by a regulator. In this case the regulatory contract complements but does not eliminate the regulator. Regulatory discretion is limited. While the contract may specify a definitive price path for the initial years, it is not common that actual prices are specified. What is generally pre-specified is a pricing formula with parameters that determine average tariff levels or average total revenue in subsequent tariff reviews. Costs defined as non-controllable may have automatic pass-through provisions. Costs defined as controllable may be tied to external indices or benchmarks with performance targets.

A regulatory agency can co-exist successfully with a regulatory contract where the contract is incomplete and additional regulatory mechanisms are needed. Or there could be situations where the law and/or the contract explicitly define the role of the regulator – for example in periodic tariff setting, or monitoring of performance or mediation and arbitration. The regulator can also play a role in enhancing the transparency of regulatory contracts by collecting, analysing and publishing performance data.

But problems can also arise when these two very different legal traditions are welded together. While tariff-setting formula may be specified in the contract, the regulator may feel obligated in terms of its legislative mandate to intervene in the public interest. In these cases, it is essential that regulatory mandates and functions are clarified.⁴²

Regulatory contracts are usually established as part of the privatisation package.⁴³ There are a number of key provisions that typically make or break regulatory contracts, including: pass-through of bulk purchase costs; indexation of key costs, foreign exchange risks; efficiency targets; poor initial data; investment obligations; subsidies for pro-poor service; unexpected and extraordinary events; periodic and emergency adjustments; resetting of values at the end of the multi-year tariff period;

⁴² Mali is an example where considerable conflict has arisen between the independent regulator and the regulatory contract embedded in a private water and electricity concession (Balance and Tremolet, 2005).

⁴³ For example, the proposed concession for the Lesotho Electricity Corporation specifies average price-levels for the first three years and includes detailed formulae for determining tariffs thereafter.

monitoring and enforcement; dispute resolution and arbitration provisions; and termination clauses.⁴⁴

Bulk purchase costs can comprise a major proportion of the final tariff to consumers. A key design question is whether pass-through costs should be linked to a market or administrative benchmark and whether this should be done *ex ante* (does the contract comply with pre-specified guidelines) or *ex post* (less common – perhaps applied only where there are allegations of corruption).⁴⁵

Large shifts in exchange rates have often put foreign investments in developing countries under stress. Investors may wish to push all the risk to the national off-taker (who collects revenue in local currency), and typically do. However, major currency devaluations upset the balance between negotiated investment and development outcomes and could make these projects unsustainable. Increasing attention is being given to local capital markets and joint ventures with local partners or the use of split-currency revenue arrangements (that provide for local costs to be paid in local currency but still allow repatriation of profits in foreign currency).⁴⁶

Efficiency targets are another key parameter in these regulatory contracts. Most distribution concessions, for example, have obligations to reduce technical and non-technical losses. Key design questions are the accuracy of initial baseline values and the desired trajectory of improvement. Metering, or the absence of metering, is often an initial constraint to setting reasonable targets.

Long-term contracts have to account for unexpected or extraordinary events. Within the French tradition, the approach is to restore “financial-economic equilibrium”. There is a general legal framework and understanding between the parties that facilitate renegotiation. Within the Anglo tradition, the approach is to try to specify in detail “triggering” events, which would then be addressed.

As we have seen above, many concession agreements incorporate investment obligations. It is in this area that many concessions have failed to deliver.⁴⁷ While insufficient revenue (through non cost-reflective tariffs or poor metering, billing and collection) often constrains utilities, disagreements or misunderstandings around key contractual clauses can also be to blame. Contractual clarity is clearly desirable. As with the issue of bulk purchase costs (discussed above), a key design question is *ex ante* approval of investment plans or *ex post* review of specific investments.⁴⁸

Some regulatory contracts make allowances for the regulator to reset tariffs at the end of the multi-year tariff period – albeit within a defined regulatory regime or formula. Key areas of uncertainty might be new efficiency factors and whether the regulator has discretion in resetting baselines.

Regulatory contracts usually specify arbitration mechanisms. The contract may require the regulator to rule on disputes – but situations may also arise where there is

⁴⁴ Bakovic, Tenenbaum and Woolf (2001); Castalia (2004b)

⁴⁵ Arizu, Maurer & Tenenbaum (2004)

⁴⁶ Gray (2003); Matsukawa, Sheppard & Wright (2003)

⁴⁷ For example, Mali and Cameroon

⁴⁸ Alexander & Harris (2005)

disagreement with the regulator and then the question is whether these go to mediation, expert panels, a specialised appeals tribunal or local or international courts.

Highly specified contracts may provide comfort to investors, but may later have to be renegotiated. Increasing discretion in regulatory systems can facilitate adjustment to new events, but exposes investors to political and regulatory risk. In the end, there will be an unavoidable need for some form of discretion.

Finally, a regulatory contract will not work if the economics are unsound. There has to be an appropriate balance between investor interests and development outcomes.

3.4 Outsourcing regulatory functions

Outsourcing or contracting-out of regulatory functions is the use of external contractors, either by regulatory agencies or as stipulated in a regulatory contract, to perform certain functions such as tariff reviews, bench-marking, monitoring of compliance or dispute resolution. Outsourcing may be considered when there are challenges or problems regarding a regulator's independence, capacity or legitimacy – or where regulatory contracts require additional support for their effective administration. Outsourcing or contracting-out may also be employed for cost-benefit reasons.⁴⁹

In cases where regulators contract-out, strategic decisions will need to be made around the required core competencies of the regulatory authority, which functions should be undertaken in-house and which could, or should, be outsourced. These decisions will shift over time: in the early years of building the institutional and professional capacity of a regulatory agency, the proportion of functions that are outsourced may be greater than in subsequent years when in-house experience grows. In such situations, contractors may be required to assist in knowledge transfer and training.

Outsourcing or contracting-out has many potential benefits. It can increase regulatory competence through access to specialised skills and knowledge, and can leverage international experience. If well managed, contractors can build core, in-house skills. The regulator's independence and legitimacy can also be enhanced through the external contractor's reputation. Regulatory studies may be perceived to be more credible. Regulators are not then fully dependent on inexperienced staff, some of whom may have been foisted on the regulator through political patronage.

Contracting-out can be politically sensitive and requires sound contract management. Paradoxically, those regulators who would benefit the most from outsourcing are the ones that have the most difficulties in entering into such agreements or to monitor contract performance and ensure adequate transparency and accountability.⁵⁰

⁴⁹ This section draws on the recent work of Tremolet, S, Shukla, P & Venton, C (2004) on contracting out utility regulatory functions.

⁵⁰ Ibid

Contracting-out models take two broad forms. First, they may involve primarily consulting or technical support for regulators or the parties to a regulatory contract. Second, they may involve the contracting by government of separate advisory regulators or expert panels. The first instance is a regular “in-house versus outsourcing” decision by regulators. The second instance involves a more fundamental policy decision by government when they design the regulatory framework – and will be discussed in more detail below.

Most regulators outsource at least some regulatory functions, which most frequently takes the form of technical support, rather than any formal role in regulatory decision-making.⁵¹ Donor support for regulatory authorities is common, particularly in mapping-out and extending regulatory frameworks and rule-making. Regulators also set aside a portion of their budgets for consultancy support.⁵² There is seldom any transparency or public scrutiny of this work.

3.5 Advisory regulators and/or expert panels

As mentioned above, one form of contracting-out or outsourcing may involve the creation of advisory regulators or expert panels. The water concession in Bucharest is an example where expert panels (including international members) are involved in tariff setting.

The advisory function may be expressed either strongly or weakly.⁵³ In a weak advisory regulator model, advice is usually given confidentially and the minister or appropriate authority is under no obligation to explain rejection or modification of recommendations, or indeed to respond within a specified period of time. The terms of reference and directives to the advisory regulator or expert panel are not made public. There is little or no public consultation with affected parties. And the advisory function might be funded from the general Ministry, rather than separate, earmarked budgets. Unfortunately, the experience of this model is that the Minister or the relevant authorities frequently overrule advice and the model quickly loses credibility with investors, and perhaps also consumers.

In a strong advisory regulator model, the regulator or expert panel’s advice must be given in a publicly available document that provides a clear statement and explanation of the decision. The minister or relevant authority may request reconsideration of the recommendations, but must do so within a specified time period. If the minister or relevant authority fails to react then the recommendations are enacted. The minister or relevant authority must provide a written, public explanation if the recommendations of the regulator are rejected or modified. The minister’s policy directives and other communications to the regulator or expert panel

⁵¹ A survey of 51 infrastructure regulators by Tremolet, Shukla and Venton (2004) found that 75% contracted-out at least some regulatory tasks and devoted between 20% and 33% of their budgets for outsourcing.

⁵² For example, the Regulatory Board in Kenya employed international consultants for its first tariff setting in 1999. The National Electricity Regulator in South Africa regularly employs consultants who also support the annual tariff review process.

⁵³ Brown, Stern, Tenenbaum & Gencer (2006).

must be in a public document. The regulator or expert panel has public consultations with affected parties and is funded from an earmarked budget outside of the line ministry. The second model is clearly stronger in terms of transparency and accountability and could help build a political constituency for independent regulation at a later stage.

Expert panels may also be used to arbitrate disputes between regulators and utility operators (for example, in Chile) or disputes that arise out of contested interpretations in regulatory contracts (for example, the water and electricity concession in Gabon). A key advantage of expert panels versus conventional arbitration mechanisms is that arbitrators generally do not have the required specialist expertise needed for analysing comprehensive tariff reviews and the procedures followed can be too formal and adversarial.

The functioning of expert panels or advisory regulators needs to be governed by a set of rules (embedded in a regulatory contract or in primary or secondary legislation). The rules need to attain an appropriate balance between constraining the discretion of the expert panel – but still allowing them to undertake the regulatory function that has been outsourced to them. This is particularly important in comprehensive price reviews. For example the rules may define the regulatory regime and regulatory methodologies – and even tariff structures – but would empower the expert panels to undertake cost studies and do the necessary revenue requirement calculations.

An important design question is whether to create a standing panel or to set up the expert panel anew each time it is needed to carry out a price review. Although standing panels may be costly (if a retainer has to be paid), they have obvious advantages in terms of continuity and predictability.⁵⁴

Another important design challenge is the appointment process which needs to be transparent and credible, and should ensure that panellists have the requisite qualifications, skills and experience. The expert panel would ordinarily incorporate multi-disciplinary skills such as economics, engineering and law. The panel would also typically engage assistants and consultants to provide support for the price reviews.

An interesting use of expert panels could be at the regional level. Regional economic bodies or regional regulatory associations could employ an expert regulatory panel to provide technical assistance to a number of individual country regulators. Regional panels would provide greater continuity and consistency in technical assistance. They could make better use of scarce regulatory expertise. They could also assist with the harmonisation of regulatory regimes that could be beneficial to increased integration of regional networks.⁵⁵

Expert panels have not been widely employed. One of the reasons might be that governments are often reluctant to give up their power to influence the regulatory process, often on political grounds. However, expert panels can provide a powerful

⁵⁴ This section relies heavily on a study on expert panels by Shugart & Balance (2005).

⁵⁵ For example, a regional telecommunications regulator (ECTEL) has been established in the Caribbean enabling the pooling of scarce regulatory competencies and skills.

ancillary or transitional mechanism to build confidence in the regulatory systems and to ensure greater consistency and credibility in regulatory decisions.

4. Towards improved design of regulatory systems

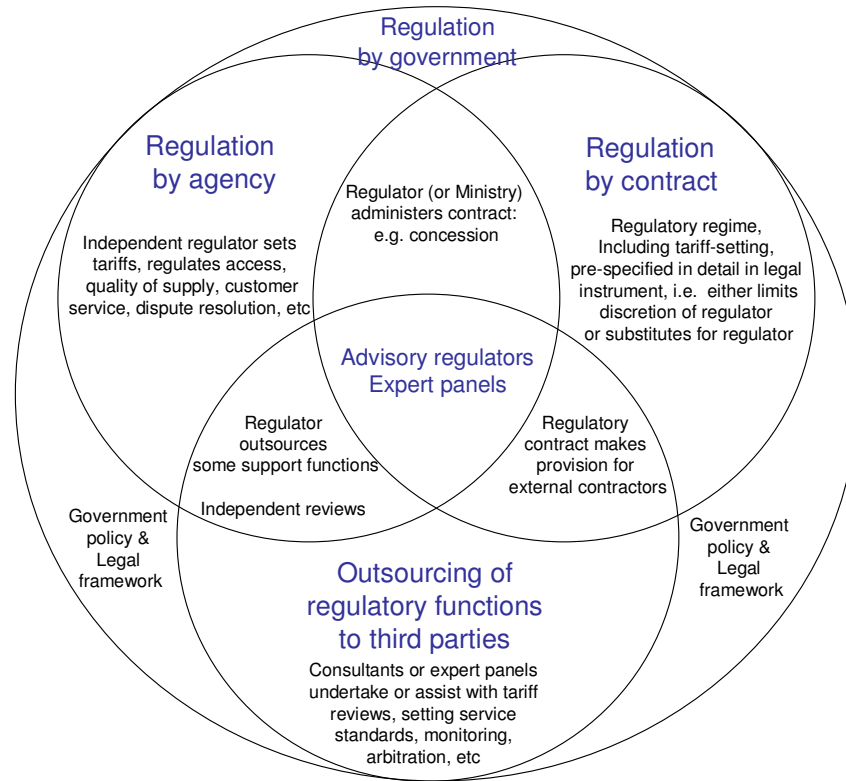
4.1 *Best fit with local context*

We have reviewed a number of regulatory models, including direct regulation by government, regulation by independent agencies, regulation by contract and outsourcing of regulatory functions to third parties. These models embody varying degrees of regulatory discretion. The highest level of discretion is associated with *dirigiste* regulation by government ministries. A high level of regulatory discretion is also associated with independent regulatory agencies with responsibility for setting tariffs and service standards – although their founding legislation and case law would typically constrain or define their mandate, objectives, functions, powers, governance arrangements and mode of operation. Decision-making discretion is typically much more constrained in regulatory contracts such as concessions. The regulatory regime, including tariff setting, would typically be specified in detail in a legal instrument, either in primary or secondary legislation, or in regulatory contracts which either limit the discretion of existing regulators or, indeed, substitute for them.

We have noted that these regulatory models are not mutually exclusive and often co-exist. Hence, regulatory contracts (such as concession agreements) may be administered by government; they could also be overseen by independent regulators. Regulatory contracts and independent regulatory agencies may also be supported or strengthened by various forms of outsourcing. Specific regulatory functions, such as tariff reviews, developing quality of service standards, monitoring and arbitration, might be outsourced to consultants or to expert panels. For example, regulatory contracts may have specific provisions for third parties to monitor performance or to arbitrate between the parties to the contract. Independent regulators may also (and typically do) contract consultants to assist with tariff reviews or with other technically complex functions and tasks. Or expert panels may substitute for an independent regulator and may provide support direct to government or to regulatory contracts.

This *pot pourri* of regulatory options may be hard to digest. Figure 4 provides an illustration of the menu of options and the manner in which they overlap.

Figure 4: Institutional options for regulation



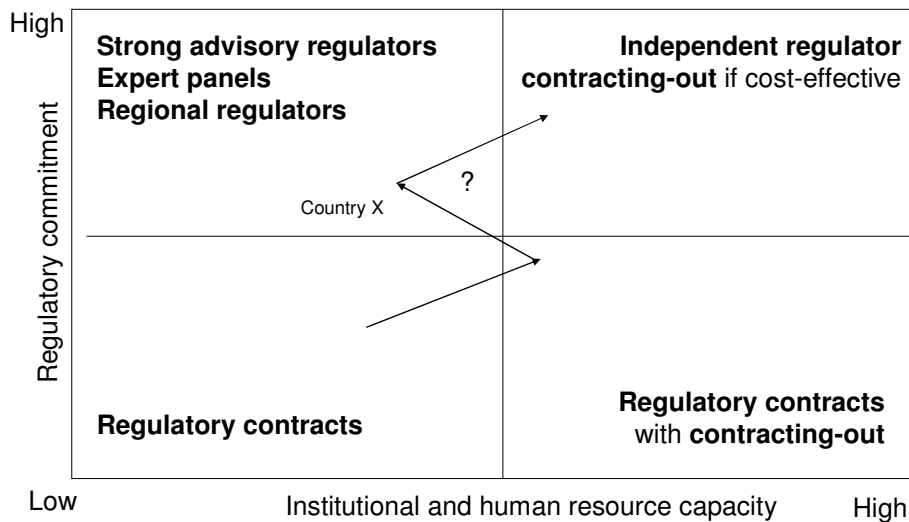
Our description and analysis of the various regulatory models and options has also highlighted potential problems and challenges. How do we then make choices between these options or decide on the appropriate combination of options?

We have previously suggested that regulatory design is essentially about the appropriate level of regulatory discretion that should be informed by the local country context. Regulatory models and governance systems should be securely located within the political, constitutional and legal arrangements of individual countries. They should also fit levels of regulatory commitment and levels of institutional development and human resource capacity in those countries.

By regulatory commitment we mean the willingness of governments to depoliticise tariff-setting and service standards and to transfer regulatory decision-making powers to an independent regulator or a regulatory contract or an expert panels. Regulatory commitment is expressed in strong political support for constitutional and legislative frameworks that underpin transparent regulatory systems and encourage the honouring of contracts. Regulatory actions and contracts need to be subject to courts of law with effective appeal systems. Governments should not only be willing to constrain arbitrary regulatory action, they should also have the ability to do so. This requires strong institutions and capable human resources.

Thus, as mentioned previously, the choice of an independent regulatory agency is premised on the existence of a high level of regulatory commitment and strong institutions and human resource capacity – i.e. the upper right quadrant in Figure 5 below.

Figure 5: Regulatory context and choices⁵⁶



In contexts where there is weak regulatory commitment and capacity, the initial choice might be a set of regulatory contracts without a regulatory agency. Where there is strong regulatory commitment, but low levels of institutional development and capacity, regulatory functions could be contracted to an expert panel.

4.2 Hybrid and transitional models

Figures 4 and 5 suggests the possibility of hybrid models. An independent regulatory agency may be supplemented and strengthened by contracting-out or outsourcing of certain regulatory functions, if the external capacity is there and if it is cost effective. A regulatory contract may also be supported by outsourced functions and expertise provided by third parties (consultants or an expert panel). Thus hybrids are possible, including the co-existence of regulatory contracts and independent regulatory oversight. The choice from the menu of options, including hybrid combinations, depends ultimately on the best fit with the local context. The various models imply varying degrees of regulatory discretion – and these should be commensurate with local political, legal, institutional and human resource capacities that support or constrain credible and legitimate regulatory decision-making.

Figure 5 suggests also the possibility of transitional paths. The situation in an individual country may change over time. As regulatory commitment increases, strong advisory panels may be contracted, or a separate regulatory agency may be established, perhaps initially with limited discretionary powers.⁵⁷ As institutional and human resource capacity is built, the responsibilities and functions of the regulatory agency could be expanded. And as these transitional and hybrid models evolve,

⁵⁶ Adapted from Brown, Stern, Tenenbaum & Gencer (2006).

⁵⁷ Tremolet & Shah (2005).

sensible decisions could be made on outsourcing certain regulatory functions where cost-effective.

Another important factor to consider in the initial design of regulatory systems is the status and performance of the utility that will be regulated. If the utility is state-owned and operating under non-commercial conditions, with tariffs below costs, then it may be politically unrealistic to expect an independent regulator to be successful in moving tariffs quickly to revenue sufficient levels. The initial focus may need to be on building political and regulatory commitment with parallel work on commercialisation reforms coupled with diminishing subsidy support.

No inevitable and normative destination or end-state is implied. The transition may not always end up with a full-fledged independent regulatory agency. There may well be situations where an independent agency is simply not justified and an expert panel or a well designed regulatory contract may suffice.

With the benefit of hindsight, these recommendations may seem sensible, but in many respects the “train has left the station”. For example, in Africa, separate electricity regulators have been created in roughly 18 African countries and are in the process of being set up in 15 more. In many countries, regulators have been granted a high degree of discretion, although, as we have argued above, there is often a gap between “law” and “practice”; regulatory discretion is in effect constrained, in many cases, by political expediency, institutional fragility and competency challenges. Hence many of the hybrid and transitional models outlined above may still be applicable.

5. Towards improved regulatory performance

Regulatory performance can be improved through better regulatory design. Investors, operators and consumers will benefit from regulatory governance systems that match regulatory discretion with levels of regulatory commitment and institutional endowment. Regulatory performance can also be improved through: mandatory, independent reviews of regulators; building the demand-side for regulatory performance and through sustained regulatory capacity building initiatives, as explained below.

5.1 Mandatory, periodic, independent reviews of regulators

One powerful mechanism to build the competence, credibility and legitimacy of regulatory institutions is to mandate in primary or secondary legislation the requirement of pre-scheduled, periodic, independent reviews of regulatory performance and impact. These are *ex-post* evaluations and should include recommendations that are made public and are used to guide remedial action. The reviews should cover both regulatory governance and regulatory substance, as well as the impact of the regulator’s actions and decisions on sector outcomes. Regulatory reviews could be undertaken by a panel of independent national and international experts.

There are few examples in developing countries of mandated, periodic, public reviews of regulators, although there have been some ad-hoc assessments.⁵⁸

5.2 Building the demand-side for regulatory transparency and participation

Ultimately the best guarantee for ensuring legitimate, credible and transparent regulatory institutions and practices is to build powerful demand for this amongst all stakeholders. Investors and large industrial consumers usually have the resources to lobby for improved regulatory governance and substance – and greater predictability and certainty in regulatory decisions. But small consumers are rarely organised in ways that allow their voice to be heard in the regulatory process.

Within the USA, public advocates, funded by state governments or through levies on electricity bills, are appointed to represent residential consumers in public hearings and rate cases. Within Africa, there are cases of regulatory commissioners being appointed to represent various stakeholder constituencies, including consumers (for example, the Electricity Regulatory Board in Kenya).

Options to be considered are funding university and research institutions to team up with civil society and consumer groups to undertake training, research, dissemination and advocacy work on regulatory governance and substance. Funding could also be made available for NGOs and CBOs (community-based organisations) in order to mobilise popular demand for regulatory transparency and for regulatory decisions that protect consumers and are pro-poor.⁵⁹

Tri-sector partnerships between private, public and civil society sectors can also be effective. Partnerships can help gather information, relay complaints and can create a more flexible, cooperative and innovative environment for shaping regulatory rules that are better suited to the needs of small consumers and the poor.⁶⁰

5.3 Capacity building

The quality and credibility of regulatory decisions depends in large measure on the competence of regulatory staff. We have already noted that one of the most serious constraints faced by regulators is the scarcity of qualified and experienced regulatory staff.⁶¹ And all regulators acknowledge the need for quality and relevant training. Capacity building is thus a vital element in improving the performance of regulators.

A recent study⁶² on capacity constraints in regulators in developing countries recommends a number of strategies to alleviate these constraints, including:

⁵⁸ Steyn (2004a,b)

⁵⁹ Prayas (2003)

⁶⁰ Tremolet & Browning (2002)

⁶¹ Tremolet & Shah (2005)

⁶² Tremolet & Shah (2005)

- be realistic about local capacity;
- build in mechanisms for contracting out some utility functions to external agents;
- limit regulatory discretion and minimise regulatory complexity;
- some key rules (such as tariff setting) may be specified in the contract, rather than being at the regulators discretion;
- minimise tasks of the regulator;
- adopt a gradual approach to modifying the scope of regulator's responsibilities;
- rely on simple regulatory tools;
- build up core of qualified, skilled and experienced staff and rely on external advice for specialised tasks;
- make employment terms at the regulator attractive;
- recruit from different sectors (e.g. government, private sector, civil society);
- keep fixed costs of regulation to minimum;
- establish multi-sectoral agencies;
- establish central-level regulators instead of local ones;
- strengthen customer groups to act as checks and balances in a constructive manner;
- create regional regulatory agencies or regional networks – exchange experience; develop common methodologies and tools, share training expenses or access to specialised knowledge;
- foster twinning relationships with more established regulators; and
- offer on-the-job training.

There has been an explosion in regulatory training courses over the past decade, a number of them funded by donor agencies. One unfortunate trend has been the number of short, fly-in courses that offer a standard curriculum with teaching staff from northern, industrialised countries. These courses often suffer in terms of quality and relevance. Insufficient attention is given to understanding the training needs of individual regulators or the issues they face in developing countries. And there is little opportunity for subsequent learning or adjusting the course to improve relevance and quality.

An important trend is the emergence of regional training centres that have a long term commitment to building sustainable regulatory capacity in developing countries.⁶³ These emerging centres of excellence are able to understand local challenges and problems and to design and update courses to ensure relevance to the training needs of regulators. They also have the potential for maintaining alumni and ongoing professional learning networks. The quality and relevance of training courses can be further enhanced through these centres also undertaking research on sector reform and regulatory trends in the region.

⁶³ See for example the Infrastructure Reform and Regulation courses in Cape Town (www.gsb.uct.ac.za/mir) and those offered by the South Asia Forum for Infrastructure Regulation.

6. Mitigating regulatory risk

Unhappiness with regulatory systems in developing countries has been expressed by private investors who increasingly complain of regulatory risk.⁶⁴ Regulatory risk for private infrastructure investors is the potential loss of regulated revenues resulting from arbitrary changes to an agreed or pre-specified legal framework governing the regulation of infrastructure investments. The changes could be in primary or secondary law, regulations, licences or contracts, and they could relate to arbitrary changes in tariff-setting regimes, formulae or parameters, or in various performance requirements including investment obligations, quality and extent of service, environmental and safety performance, etc, that have financial implications. Regulatory risk also derives from arbitrary *application* of the rules.

Regulatory risk may be mitigated through regulatory governance systems that constrain regulatory discretion. Regulatory risk may also be mitigated through measures to improve regulatory performance, as described above. The section below describes some additional mechanisms to mitigate regulatory risk.

6.1 Partial risk guarantees for regulatory systems

The first application (anywhere in the world) of a World Bank partial risk guarantee (PRG) for utility regulatory systems was concluded in Uganda in 2004. The PRG was designed to protect the investors in the electricity distribution concession against the regulator making decisions that are in conflict with the tariff-setting provisions in the concession agreement. The lessor is the Uganda Electricity Distribution Company (UEDCL) and the lessee/investor is Umeme, which is a joint venture between Globeleq and Eskom of South Africa. The concession term is 20 years and the transfer date was 1 March 2005. The PRG is a relatively modest amount (US\$ 5 million) and covers the first regulatory review period (7 years). It provides support for potential loss of regulated revenues resulting from a “guaranteed event”, according to pre-defined loss-of-revenue formulae. These include non-compliance by the regulator of the pre-agreed tariff framework, full pass-through of the bulk electricity tariff supply from the state-owned Uganda Electricity Transmission Company (UETCL) and timely adjustments of tariffs (i.e. within 45 days after tariff submission).⁶⁵ A key feature of the PRG is provisional payments pending dispute resolution, thus supporting liquidity in the utility during the period of contract stress. The CEO of Globeleq has described this feature of the PRG as deal-clinching.⁶⁶ The PRG catalyzed a US\$65 million investment commitment by Umeme in network expansion and complemented an IDA credit of US\$11 million for additional network investments and MIGA shareholder equity insurance of US\$ 45 million.⁶⁷

⁶⁴ Gupta, Lamech, Mazhar & Wright (2002); Lamech and Saaed (2003)

⁶⁵ The PRG in Uganda also covers non-payment of government agency electricity bills (60 days) and termination (buy-out) payments for un-depreciated investments in the case of breach of concession agreements by the government or its agencies.

⁶⁶ Presentation by Bob Hart, CEO of Globeleq, at the World Bank Energy Week, 2005 – “good fences make good neighbours”.

⁶⁷ Presentation by Farida Mazhar at the World Bank Energy Week 2005.

The framework for the PRG includes a government support agreement with the project sponsor/investor, a government letter of credit to the local bank which has a loan/guarantee agreement with the project sponsor/investor, a PRG agreement between the World Bank and the local bank and a project agreement with the project sponsor/investor.

In the event of the project sponsor/investor triggering a dispute, there is an initial review and conciliation period followed by independent arbitration (decision not binding) and then international arbitration. The government letter of credit and WB PRG is triggered after the expiry of the initial conciliation period but the investor has to post an irrevocable letter of credit for repayment if final arbitration is in favour of the national government.

A subsequent PRG has been concluded in Romania and one is being considered in Lesotho. In Romania the PRG helped to reduce the cost of capital of the initial concession and hence set a more competitive benchmark for subsequent investments.

We do not yet have a track-record to evaluate adequately the effectiveness of these PRGs. But initial experience would indicate that they could be relatively low-cost instruments to encourage deal closure and to reduce the cost of capital.

6.2 Other risk mitigation measures

Regulatory risk may also be mitigated through a range of parallel risk mitigation measures.⁶⁸ These include:

- Political risk insurance
- Investment partial risk guarantees/partial credit guarantees
- Additional financial security measures for investors
 - sovereign guarantees
 - escrow accounts
 - letters of credit
 - stand-by debt facilities
 - hedging and other derivative instruments
 - committed public budget and/or taxes/levies
 - targeted subsidies and output based aid
 - hard-currency contracts
 - indexation in contracts
- Change of law exemption in contracts
- Bilateral Investment Treaties
- Appeal, arbitration and other dispute resolution mechanisms

These instruments are employed for mitigating risks for infrastructure investors in developing countries and a number of them have linkages to regulatory contracts and systems.

⁶⁸ World Bank / PPIAF Workshop: Mechanisms to Mitigate Regulatory Risk for Private Infrastructure Investments. London: 28 September 2005

7. Conclusion

This paper has set out to assess whether utility regulation in developing countries has met the expectations of investors and host countries. Have consumer and country benefits been advanced while maintaining the financial health of utilities and incentives for further investment? Have regulators been able to set tariffs independently of political manipulation and have they made transparent, consistent, credible and competent decisions that have created incentives to improve technical and financial performance, attract new, private investment and expand access to services? And has “independent regulation” been an effective model for achieving the above?

While we do not yet have definitive conclusions in terms of the role of regulation in relation to improved technical, financial, investment and social performance, we have pointed to a number of problems and challenges with the “standard model” of independent regulation. We have also pointed out the problems of the old model of direct regulation by government ministries. Many regulatory contracts are also under stress.

There is thus a need for policy intervention and the development of a more nuanced set of regulatory models that are appropriate to individual country contexts in terms of regulatory commitment and capacity. These models can be built into new legislation or newly negotiated regulatory contracts. Even within existing legislation there is scope to consider a wider range of regulatory contracts and outsourcing of regulatory functions.

There are a number of further detailed regulatory design choices. It may be appropriate for the regulator to initially focus primarily on one element of the value chain – depending on the structure of the utility market. For example, in the electricity sector, if there has been reasonable competition for private Independent Power Producers or distribution sector investments, the regulator would want to focus on transmission regulation. Monitoring, administration and oversight of regulatory contracts could come later. Or it may be important to first develop regulatory competency in quality of supply issues (both technical and commercial) - areas which are often neglected but have significant impacts on economic and social development. Early emphasis on consumer complaints helps build legitimacy and popular support for the regulator, as does a focus on investment and connection obligations.

We have focused primarily on issues of regulatory governance and institutional choices and models. Ultimately the intent is to affect positively regulatory substance, i.e. competent and credible regulatory decisions. There are two areas that have probably not received enough attention in this paper. First, regulators can and should play a critical role in setting incentives for improved efficiencies and cost reduction. Constraining regulatory discretion can also have the effect of limiting the potential for cost and price reductions. Second, widened access to affordable utility services remains the most important priority in many developing countries – and regulators have an important role in working with governments to establish and monitor

connection and investment targets, oversee appropriate cross-subsidies and to design and implement pro-poor tariffs.

As we have seen, the requirement of setting up independent utility regulators in all utility reform contexts became a mantra over the past 15 years. But mantras become substitutes for thinking. It is clear that the success of a regulatory system depends on its compatibility with a country's regulatory commitment and institutional and human resource endowment. We need to select from a menu of regulatory options to create hybrid models that are appropriate to individual country contexts and challenges. And the nature of these hybrid models will change over time as regulatory independence and capacity is built. The design and implementation of legitimate and competent regulatory institutions in Africa, and in other developing regions, is and undoubtedly will continue to be a dynamic challenge.

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