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**Discussion Draft: Comments Welcome**

# Regulating Utilities: Thinking About Location Questions

Warrick Smith*

* Manager, Private Provision of Public Services, the World Bank. This paper benefited from useful comments by Michael Warlters.

Utility industries such as telecommunications, electricity and water provide important building blocks for development, with both direct and indirect impacts on poverty alleviation. The last two decades have witnessed a major wave of utility reforms in both developed and developing countries, encompassing privatization, liberalization, and new approaches to regulation, including the establishment of specialist regulatory agencies.

This paper focuses on a relatively narrow set of issues relating to the location of regulatory authority within the broader institutional arrangement. Specifically, which tier of government should have responsibility for regulating utilities? And at any tier of government, should regulatory agencies be created on an industry-specific or some broader basis?

The paper is structured in four parts. *Part A* provides a brief overview of the objectives and challenges of utility regulation. *Part B* focuses on questions of vertical location; that is, whether regulatory authority should be assigned to national or sub-national tiers of government. It outlines the principal advantages and disadvantages of various options, suggests some key decisionmaking criteria, and considers some practical implementation issues. *Part C* focuses on a dimension of what might be termed "horizontal" location; that is, whether regulatory agencies should be established for each individual utility industry or on a broader multi-industry basis. It considers the main advantages and disadvantages of alternative approaches, suggests some key decisionmaking criteria, and considers some of broader considerations that may influence decisionmaking on this issue. *Part D* concludes by noting the importance of several issues that go beyond the narrow question of regulatory location.

## A. REGULATING UTILITIES

Regulation of utilities like telecommunication, electricity and water aims to achieve two main objectives. The first is to address market failures associated with the provision of utility services. The most prominent of these relates to monopoly power, which usually requires the control of prices and service quality. Utility services may also give rise to other potential market failures flowing from externalities or imperfect information, with implications for controlling standards to protect the environment and public health and safety.

The second objective is to establish an investment environment capable of attracting capital at reasonable cost. The main concern here flows from the political economy of utility regulation: prices for utility services are "political", which creates incentives for political authorities to use regulation to hold prices below cost covering levels. Investors in immobile assets with long payback periods are vulnerable to populist regulatory actions of this kind, with these risks increasing the cost of investment capital, and thus reducing the proceeds from privatization, reducing the volume of new investment, and/or increasing required utility prices. To address this concern, governments need to create regulatory arrangements that provide credible commitments to investors that they will be treated fairly over the life of the investment.[1]

[1] See Levy and Spiller (1997). For a broader discussion of political and regulatory risk in infrastructure, see Smith (1997a).

## Regulatory Discretion & The Role of Regulatory Agencies

In principle, a government might seek to pursue these objectives by entering into highly-specified contracts with operators covering the life of the investment. However, this strategy presents a number of practical problems. Highly-specified contracts are unable to accommodate changing circumstances or new information without re-negotiation, which introduces risks for investors as well as the government, and usually involves substantial transaction costs. It is also difficult to pre-specify a permitted rate of return on the investment that will be perceived as "reasonable" throughout the life of a long-term contract, and even if such a formula could be divined, regulating a firm by reference to rates of return reduces its incentives to minimize costs. And no matter how precisely the key terms of the contract are defined, discretion cannot be eliminated entirely as there will always be questions of interpretation as well as room for judgement on enforcement policy. Regulatory rules thus represent at best incomplete contracts.

Reflecting these limits, modern regulatory systems for utilities comprise two distinct but intimately-related elements. First, there are the regulatory rules which specify the rights and obligations of key actors, and may be defined in laws, concession contracts, licenses or other regulatory instruments. Second, there are specialist regulatory agencies, which are given responsibility for exercising the discretion created by those rules. Typically, this will involve responsibility for administering tariff adjustment and interconnection rules, as well as monitoring and securing compliance with the regulatory framework as a whole.

While all regulatory agencies have some discretion, there are significant differences in approach. Regulatory agencies in many industrialized countries are given relatively broad discretion to define and enforce the detailed rules applicable to their industries. Indeed, it has been suggested that regulatory agencies in the United States have been entrusted with a discretion "so wide that they can offer a more or less plausible explanation for any conclusion they choose to reach with respect to many, perhaps the great majority, of the matters coming before them".[2] In contrast, regulatory agencies in developing countries are typically given far more limited discretion, with greater efforts to elaborate more detailed tariff adjustment and other rules in laws, licenses or contracts.[3]

## Challenges Facing Regulators

There is growing consensus around the key design features for a modern regulatory agency for utilities, including the scope of their responsibilities, measures required to foster agency independence, decisionmaking structures, and resources.[4] No matter how sophisticated the agency design, however, utility regulators will face a number of challenges in performing their duties. The main challenges include:

- Developing and applying the expertise required to address challenging issues in highly complex and increasingly dynamic industries. While understanding the technical features of the regulated industry is clearly essential, the regulator will also

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[2] See Phillips (1993) at 875, citing a 1960 Staff Report to the US House Subcommittee on Legislative Oversight of the Committee on Interstate and Foreign Commerce.

[3] As we might expect, attempts to create more "brittle" contracts result in strong pressures for re-negotiation. This is particularly evident in Latin America, where governments relied heavily on this strategy during initial waves of infrastructure privatization in the early 1990s.

[4] For a summary, see Smith (1997b), (1997c) and (1997d).

need to draw on expertise in economics, finance and law, and to understand the art as well as the science of regulatory decisionmaking.

- Operating in an environment characterized by severe informational problems. The most significant problem relates to the regulator obtaining reliable information from regulated firms. But well-informed decisions also require inputs from a broad and diffuse group of consumers, who individually have limited incentives to provide full or accurate information.

- Resisting undue pressures or influences from political authorities, which will often have an interest in promoting short-term political interests.

- Resisting undue pressures or influences from regulated firms, which will have incentives to "capture" the regulator, and thus ensure the balance between consumer and producer interests is struck in their favor.

- Exercising their responsibilities in a way that builds public support for their role and decisions, and thus helps to sustain the reforms.

This is difficult path to tread for seasoned regulators operating within a mature regulatory system and a stable political, social and economic environment. But newly-created agencies in developing countries typically face more severe challenges, particularly when they are established as part of a broader reform program which includes privatization. Agency personnel will usually be new to the task of regulation, and have no established practices or precedents to build on. Reliable cost and performance information about the regulated firm will often be non-existent. The regulator may be required to introduce unpopular tariff increases at a time when privatization remains contentious and consumers may have unrealistic expectations about the timing of tangible service improvements. At the same time, the notion of an "independent" regulatory agency will be novel in many societies, which will create additional challenges in establishing the role and legitimacy of the agency and its decisions.

Many institutional design issues may influence the success or otherwise of regulatory agencies in responding to these challenges. These include the extent of discretion given to the regulatory agency as well as the qualifications for appointment, the safeguards given to foster independence, the resources and powers available to the agency, and the procedures established for managing interactions with stakeholders. This paper treats all these dimensions as fixed, so as to focus on location variables.

## B. VERTICAL LOCATION: WHICH TIER OF GOVERNMENT SHOULD REGULATE?

Most countries allocate public responsibilities between national and one or more sub-national tiers of government.[5] In federal systems, there may be three main tiers: national, state and municipal. In other systems, the main division of responsibilities may

[5] There have also been recent moves towards supra-national regulation of utilities, both at a regional level (eg, the European Union), and at the global level (eg, the inclusion of telecommunications rules under the World Trade Organization regime). To date, however, these approaches have not included the creation of specialist agencies responsible for administering and enforcing these rules. This paper focuses on allocation issues within a single nation state.

between national and municipal tiers of government. How might allocation of responsibilities among these tiers affect the effectiveness of utility regulation?

**Potential Advantages of Decentralizing Responsibility**

There are four main advantages in assigning responsibility for utility regulation to lower tiers of government.

*Differentiation*: Decentralization allows regulatory objectives and approaches to be shaped by local conditions, priorities and preferences. Particularly in large countries, the "optimal" regulatory approach may vary significantly between regions.

*Addressing Information Asymmetry vis-à-vis Regulated Firms*: Decentralization can bring the regulator closer to the "front-line" of service delivery, and thus help to reduce the information asymmetry between regulators and firms.

*Addressing Information Asymmetry vis-à-vis Consumers*: Decentralization can facilitate interaction with consumers. This may reduce the information asymmetries between regulators and consumers, and also help to build grass root support for the regulator's role and decisions.

*Opportunities for Innovation*: Decentralization can foster experimentation with more innovative approaches to regulatory problems, and is sometimes characterized as a benefit of "regulatory competition". According to this view, governments compete against each other to attract mobile factors of production—including workers and private investment—through their regulatory regimes, with competition creating incentives for governments to improve the quality of their regulatory systems and to emulate the approaches of successful governments.[6]

The last potential benefit may be more pronounced in relation to the definition of rules, rather than the administration of rules by regulators with limited discretion. In the latter case, regulatory agencies will have more limited opportunities to innovate, and may seek rewards in forms other than attracting additional citizens to their jurisdiction.

**Potential Advantages of More Centralized Approaches**

Arguments of the kind outlined above are sometimes considered sufficient to support a presumption in favor of decentralization. However, decentralizing responsibility for utility regulation may also have several weaknesses.

*Potential Misalignment Between Jurisdictional and Industry Boundaries*: Many utilities require large capital investments and exhibit significant scale economies. Some sub-national jurisdictions will be smaller than the efficient size or scope of operation of particular utility industries. As discussed below, it will rarely be sensible for small jurisdictions to each procure and regulate their own electricity and telecommunications systems, for example.

*Spillover Effects*: Even when a firm or industry operates solely within a single sub-national jurisdiction, regulatory decisions on some issues may have spillover effects on

[6] This insight comes from Tiebout (1956). For a useful review of the literature, see Oates (1999).

other jurisdictions. For example, decisions on the regulation of effluent discharges into rivers can have implications for users locating in different sub-national jurisdictions.

*Inter-Jurisdictional Trade*: While not strictly spillovers, some regulatory issues may affect inter-jurisdictional trade and have impacts beyond sub-national jurisdictions in this way. For example, adoption of different technical standards in different jurisdiction may limit opportunities for trade, and other regulatory decisions may also have the effect of restricting or distorting trade.

*Concerns Over "Destructive Competition":* Even when none of the above conditions exist, concern is sometimes expressed over the potential for competition between regulatory jurisdictions to result in a "race to the bottom". A specific concern relevant to utility regulation is that competition to attract foreign investment, coupled with limited mobility of citizens, may lead sub-national jurisdictions to bid-up subsidies or regulated rates of return, or to bid down taxes or other regulatory obligations. Evidence in support of this contention is mixed.[7]

*Mobilizing Regulatory Expertise*: Expertise in utility regulation is scarce in many countries, and constraints typically more extreme in developing countries, where the resource pool typically becomes much shallower as one moves outside the principal cities. While this constraint may be addressed in part by contracting-out regulatory tasks to consultants, the regulatory agency still requires the expertise to evaluate the findings and recommendations of such experts. Even if expertise can be mobilized, there are potential economies of scale in many regulatory activities that are forgone if regulatory responsibilities are spread between several agencies.

*Potentially Greater Risk of Political and Industry Capture*: Closer proximity to firms and consumers may facilitate the collection of information, but may also increase the risk of regulators becoming captured by those interests. In the case of political capture, while much may depend on the nature of the broader political structure, local governments are often perceived to be more populist than higher-level political authorities, who will usually bring a broader perspective to such issues.

**Striking the Balance**

The optimal roles of national and sub-national tiers of government in utility regulation cannot be determined in the abstract. Much will depend on the size of the respective jurisdictions, the characteristics of the particular industry, the regulatory issues in question, and the broader institutional environment.

*Jurisdictional Size*: In very small countries, there may only one effective tier of government and little room for debate over decentralization to sub-national tiers. In countries as large as Brazil, India and China, however, there is potential for far more decentralization and more room for debate about the allocation of roles between several sub-national tiers of government.

*Industry Characteristics*: Issues associated with the alignment between jurisdictional and industry boundaries and spillover effects will depend in part on the nature of the

[7] See Siebert and Koop (1993) for an evaluation of the findings on the impact of inter-jurisdictional tax competition.

industry in question. At the risk of over-simplification, it is possible to make some general observations on the three main utility industries.

- Telecommunications: Telecommunications networks are national (and indeed international) in reach, and major firms tend to operate on a national level. Telecommunications is also the utility industry where progress in introducing competition is most advanced, which means that firms based in different sub-national jurisdictions should in principle be subject to consistent regulatory treatment in so far as this affects their competitive position. Reflecting this, virtually all countries locate responsibility for regulating telecommunications at the national level. The United States provides a partial exception, in so far as the jurisdiction of the national-level regulator is complemented by some residual (but declining) role of state regulators on matters not affecting interstate transactions.[8]

- Water: Many water utilities operate solely through local networks, with limited interconnection between networks. While some water utilities may operate solely within a particular sub-national jurisdiction, this will not always be the case and many utilities serve several contiguous municipalities or draw on water resources that do not respect political boundaries. For these reasons, we often see tensions between the role of municipal, state and even national governments in water regulation.

- Electricity: Different segments of the electricity industry exhibit different characteristics. Distribution utilities most closely resemble water utilities, as some utilities operate solely within sub-national boundaries. As with water, however, there may be exceptions. Transmission grids are usually designed to operate on a national basis. The salient characteristics of electricity generation may vary. While some assets operate solely within sub-national boundaries, some investments may serve multiple sub-national jurisdictions and some generation technologies (such as hydro, coal, and nuclear) may give rise to possible spillovers affecting neighboring jurisdictions. The increasing trend towards competition in generation may also involve cross-border trade, which may also suggest benefits for regulating of at least some issues at the national level. Reflecting these kinds of considerations, transmission and at least some aspects of generation may be best regulated at the national level, while at least in larger countries it may be feasible to regulate distribution at some sub-national level.[9]

*Nature of the Regulatory Issue:* Different regulatory issues may be assigned to different tiers of government. For example, utilities that are regulated primarily at a sub-national level may be subject to national regulation in some particular respects. To illustrate, in a federal system electricity distribution utilities may be regulated primarily at the state level, but some technical standards may be mandated by national level authorities while municipal governments may be involved in land use decisions. Multi-tiered approaches are the norm in mature regulatory systems in large industrialized countries, but add to the complexity of establishing new arrangements in developing countries.

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[8] The inter-relationship of state and national regulatory jurisdictions has led to much acrimony, and was recently considered by the US Supreme Court in *AT&T* vs. *Iowa Utilities Board* (January 1999).

[9] This pattern in fact exists in countries such as the United States and Australia, where national-level regulators deal with inter-state transmission, trade and spillover issues, while regulation of distribution and other issues without an inter-state dimension is the responsibility of state-level regulators. For a discussion of the special challenges associated with regulating small off-grid electricity providers, see Smith (2000).

*Regulatory Capacity:* Concerns over constrained regulatory capacity—including scarce expertise and vulnerability to political and industry capture—may vary between countries. The more acute the capacity constraints, the stronger the arguments for centralizing regulatory responsibility, at least in the first instance. Tradeoffs with the potential benefits of decentralization can then be addressed through other strategies. For example, national-level regulators can differentiate their approaches according to local conditions, and can establish regional offices or adopt other mechanisms to facilitate the monitoring of firms and interactions with other stakeholders.

**Implementation Challenges: Addressing Constitutional or Political Constraints**

Few countries approach the question of locating regulatory responsibilities with a blank slate. In many cases, national Constitutions define the allocation of responsibilities between tiers of government, and even in the absence of binding rules most governments are jealous of their prerogatives and thus reluctant to cede authority that have historically enjoyed. Yet traditional jurisdictional boundaries only rarely coincide with notions of efficiency or effective regulation. International experience illustrates two main strategies for addressing these constraints:

*Horizontal Cooperation*: Where regulatory issues transcend the boundaries of a single sub-national jurisdiction, it is open to the affected governments to negotiate a common approach. Experience shows that such negotiations can be slow and difficult, however, and in some cases the resulting agreement may lack stability under thus credibility to investors. For example, twenty three municipalities agreed to cooperate to award a single water concession for the city of Caracas. However, the resulting agreement lacked credibility to investors, and was identified as one of the reasons why no responsive bids were received from investors.[10]

*Vertical Cooperation*: There is some experience with vertical tiers of government negotiating cooperative arrangements relevant to utility regulation. For example, in Australia, sub-national governments agreed to delegate to the national government certain powers to ensure a national regulatory framework governing, inter alia, the introduction of competition into utilities was effective. And delegation can work in both directions. In Brazil, the national constitution assigns responsibility for regulating the electricity sector to the national government, but the national-level regulator is delegating certain responsibilities to state-level regulatory agencies.

## D. HORIZONTAL LOCATION: HOW MANY REGULATORY AGENCIES?

The discussion of vertical location issues included questions of which tier of government should have responsibility for determining the rules governing the relevant industry, as well as for hosting the regulatory agency responsible for administering and applying those rules. If we assume that regulatory responsibility for several utilities have been assigned to a single tier of government, the question remains of whether that government should establish a series of industry-specific regulatory agencies or an agency with a broader mandate.

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[10] See Triche, Mejia and Idelovitch (1993).

**Potential Advantages of Industry-Specific Agencies**

There may be four main advantages in establishing separate regulatory agencies for each utility industry:

*Differentiation:* Each utility industry has its own unique set of issues and challenges. While multi-industry agencies will be applying regulatory frameworks tailored to each industry, industry-specific agencies may be more inclined to treat each industry as unique.

*Industry-Specific Expertise and Focus*: An industry-specific agency has the advantage of concentrating on a single industry which, other things being equal, should improve its ability to make appropriate regulatory decisions. Multi-industry agencies usually have industry-specific departments to ensure that approaches reflect the circumstances in individual industries, although the need for decisionmakers to deal with multiple industries may dilute their focus relative to industry-specific agencies.

*Diversifying Risk of Institutional Failure*: It has been suggested that creating a series of regulatory agencies helps to diversify the risk of institutional failure. The premise is that creating new regulatory institutions is a risky business, and may result in failure. Putting all utility industries under the authority of a single regulatory agency is thus akin to "putting all your eggs in one basket". The counter view is that consolidating responsibilities may create, in effect, a stronger basket, thus reducing the risk of failure.

*Opportunities For Innovation*: Creating several distinct regulatory agencies can foster experimentation with more innovative approaches to regulatory problems. Such innovation may be spurred by a degree of "competition" between regulatory agencies.

"Regulatory competition" between regulators responsible for different industries at the same tier of government has different features to competition between regulatory systems established for the same industry at different tiers of government. In this case, there is limited scope for competition between sets of rules, so the boundaries of competition are limited to matters within the discretionary control of agencies, which we have noted is typically much more limited in developing countries than in their counterparts in industrialized countries. Moreover, as all ostensibly rival regulators operate at the same tier of government, there can be no notion of successful competition being rewarded by the influx of new citizens or taxpayers, even if regulatory agencies had incentives to optimize against such criteria. The idea of competition increasing private investment in one utility industry over another located at the same tier of government may also be problematic, potentially creating distortions unintended by government in question. Indeed, any social benefits flowing from such arrangements may be limited to more subtle forms of competition to achieves goals of increased consumer satisfaction, industry compliance, and (perhaps) prestige among peers.

**Potential Advantages of Multi-Industry Approaches**

Arguments of the kind outlined above are sometimes considered sufficient to support a presumption in favor of industry-specific agencies. However, establishing a number of separate agencies at one tier of government also has several weaknesses.

*Sharing Resources*: Creating multi-industry agencies allows scarce resources to be shared. For example, economists, financial analysts, lawyers and other professionals can work across industries as demands arise, which may be a particular advantage in countries where expertise in regulation is scarce. There are also opportunities to realize economies of scale in supporting services, and in the establishment of regional offices.

*Fostering Expertise in Cross-Cutting Issues*: While all utility industries have unique features, the main challenges associated with economic regulation are substantially the same: administering tariff adjustment rules, managing the introduction of competition into traditionally monopolistic industries, and managing relationships with stakeholders. Establishing a single regulatory facilitates the transfer of insights and experience between industries, which can be particularly useful in less-experienced agencies.

*Reducing Vulnerability to Industry Capture*: Industry-specific industries necessarily develop a close relationship with their industry, exposing them to risk of capture. The broader responsibilities of a multi-industry agency reduce its dependency on any one industry, and thus provide a potentially useful additional safeguard against capture.

*Reducing Vulnerability to Political Capture*: As mentioned when discussing vertical location issues, much may depend on the political structures within individual countries. However, there are two reasons to believe that multi-industry agencies may be in a better position to resist such pressures than industry-specific agencies. First, the agency's broader constituency raises the stakes of political interference. Attempts to interfere in a decision on, say, water tariffs, will be seen as a threat not only to investors in water, but to investors in all utilities regulated by the agency. Second, an agency responsible for more several industries can develop greater independence from sectoral ministers. Political pressures are thus unlikely to be effective unless they come from higher-level authorities, who will normally have a broader perspective from which to consider the possible repercussions of short-term behavior.

*Dealing With Blurring Industry Boundaries*: The traditional notion of distinct utility industries is under threat.[11] Deregulation and evolutions in business strategy have seen with electricity, gas, rail and water companies entering the telecommunications business, gas companies entering the electricity business, energy companies entering the water business, and water and electricity companies merging. The birth of such "multi-utilities" raises a number of new and challenging regulatory issues. Multi-industry regulators have clear advantages in addressing such issues in a coherent manner.

*Reducing Risks of Economic Distortions*: Some utility industries compete with each other directly, such as electricity and gas. But all utilities compete with each other to attract investment capital. Inconsistent approaches to common regulatory issues has the potential to distort this competition.[12] Multi-industry regulatory agencies are in a better position to adopt consistent approaches to common issues and thus guard against such distortions.

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[11] Some have gone so far as to suggest that the notion of distinct "industries" is already obsolete, but rather is an artifact of earlier history, and "a fiction conjured up by policymakers, regulators, investment analysts and academic students of business strategy". See James Moore, cited in Wirick (2000).

[12] Helm (1994) refers to this phenomenon as "regulatory arbitrage".

**Striking the Balance**

Deciding on the breadth of industry coverage of utility regulators involves a number of trade-offs. No single approach will be unambiguously superior in all circumstances. Much will depend on the size of the economy, the scope of the agency's responsibilities in each industry, the nature of the industries in question, the broader institutional environment, and the government's reform strategy.

*Size of the Relevant Economy:* The larger the economy, the greater the possibility that the advantages of multi-industry approaches may be outweighed by concerns over sufficient industry focus, and potential economies of scale being exhausted and leading to diseconomies. In considering this issue, the most appropriate reference point is arguably the number of consumers, rather than the total population, as alas there can be a very large difference between the two in developing countries. There are several examples of multi-industry agencies dealing with these challenges successfully in relatively small economies, such as the national regulators in Panama, Jamaica and Costa Rica, and state-level regulators in the United States, Canada, Australia and Brazil. It is not clear where the upper limit may be. The California Public Utilities Commission has responsibility for regulating power, water, gas and aspects of telecommunications and transport in an economy with a population of over 30 million people. However, a jurisdiction of the same size may be more challenging for a less experienced regulatory agency.

*Scope of Regulatory Responsibilities:* Regulatory agencies in developing countries typically have more limited discretionary authority than their counterparts in industrialized countries, and in some systems regulatory authority over a particular industry is shared between regulators located at different tiers of government. In general, the narrower the scope of the agency's responsibilities in relation to any industry, the less should be the concern over inadequate industry-focus or potential diseconomies of scale with multi-industry agencies.

*Nature of the Industries*: The nature of the industries proposed to be regulated by a multi-industry agency may be an important variable. While each utility industries has its own distinct features, from a regulatory standpoint there are many similarities. The risk of economic distortions arising from inconsistent approaches to common issues may be greater where there is a degree of product market substitution between the outputs of regulated industries, most notably between electricity and gas, but potentially between various transport or communication modes. Pressures arising from industry convergence may affect some clusters of industries more than others. Reflecting these considerations, the case for consolidating regulatory responsibility for some industries may thus be stronger than for others. For example, there is relatively little controversy over merging responsibility for electricity and gas in a single energy agency. Regulation of more monopolistic power and water industries may also share more common features than regulating a competitive telecommunications industry, although the advent of competition in electricity is eroding this distinction.[13]

[13] Joskow (1998) has suggested that these considerations may warrant separating responsibility for telecommunications from other utility industries, although his brief analysis did not review the full set of variables that may be involved.

*Regulatory Capacity:* Concerns over constrained regulatory capacity—including scarce expertise and vulnerability to political and industry capture—are particularly acute in many developing countries, but will still vary between countries. The more acute the constraints, the stronger the arguments for considering a multi-industry approach. Tradeoffs with the potential benefits of industry-specific agencies can then be addressed through other strategies, including the creation of industry-specific departments or cells within the multi-industry agency.

*Government's Reform Strategy*: Alternative government reform strategies may place different levels of demands on newly-created regulatory agencies, which may have implications for the ability to develop and apply expertise and maintain sufficient focus. Two main strategies might be contrasted:

- Staggered Reform: Under this approach, the government sequences reforms to individual utility industries over a period of time. For example, it might first focus on the telecommunications industry, and follow this with power and then water. This strategy allows a newly created regulatory agency to focus initially on one industry and build up some experience. The agency may then be better prepared to assume responsibility for additional industries as they emerge from the reform process. This approach resembles that adopted with the state-level regulatory agencies in the United States, which were initially responsible only for railways and had additional industries added to their responsibilities over time.

- Concurrent Reform: Under such a "big bang" approach, the government seeks to privatize and reform all or most utility industries more or less simultaneously. This strategy could place significant demands on a newly-created multi-industry agency. Accordingly, governments intent on this strategy might give more weight to the potential advantages of creating industry-specific agencies initially, and perhaps merging them subsequently.[14] Another approach, adopted in Bolivia, may be to establish a hybrid structure which captures some of the benefits of both industry-specific and broader approaches.[15]

**Implementation Challenges**

Most countries consider utility reforms on an industry-by-industry basis. For example, a Ministry of Energy might be responsible for proposing a regulatory framework for the power sector, while a Ministry of Post and Telecommunications may have similar responsibilities in relation to telecommunications. Typically, each agency will commission its own consultants to advise on these issues, with terms of reference focussing on individual industries. Ministry staff will also be focussed on their particular industry, and often may not even be aware of proposals being developed by colleagues working on other utility industries. In this environment, the strengths and weaknesses of industry-specific and multi-industry agencies are often not even evaluated.

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[14] An exception might be called for if the government's strategy involved privatization of a single firm that provided more than one utility service, such as a combined water and power concession of the kind awarded in Morocco. In this situation, the advantages of dealing with a single operator in a coherent would reinforce the advantages of establishing a multi-industry regulatory agency from the outset.

[15] Bolivia's 1994 Law on the System of Sectoral Regulation (SIRESE) created a model where industry-specific superintendencies formed part of a broader regulatory "system" led by a General Superintendent. For a discussion of the Bolivian approach, see Criales and Smith (1997).

Multi-industry agencies also tend to be unpopular with sectoral ministries and their advisors, and it is not hard to see why. Proposals to create such agencies require cooperation across Ministries during the design and establishment process, which may increase the authority of central ministries while creating additional delays and reducing the autonomy and influence of individual sectoral ministries. By design, multi-industry agencies also enjoy greater insulation from sectoral ministries, which may be a source of concern for those hoping to influence the agency's decisions. For these reason, if the alternative of a multi-industry regulatory agency is to be explored, a central ministry or agency usually needs to be involved early in the process.

If industry-specific agencies are created initially, it may be possible to merge them subsequently. While industry-specific regulatory agencies have incentives to resist consolidation—given the potential impact on their autonomy and jobs—the recent merger of the electricity and gas regulators in the UK shows that, with sufficient political will, this may be feasible. Of course, any proposal to merge agencies must also have regard to the implications for establishing a stable regulatory environment for investors.

## D. BEYOND REGULATORY LOCATION

Location decisions can have an important impact on the effectiveness of regulatory systems, and thus on the success of overall reform program. Such decisions can have implications for the proceeds of privatization, the volume and direction of subsequent investment, the efficiency of regulated industries, the prices and levels of services enjoyed by consumers, and ultimately the sustainability of reforms.

Given the potential significance of such decisions, it is unsettling to see that judgements on these questions are precisely that: there is no hard evidence that may directly guide decisions. This reflects the number and nature of the variables concerned, and thus the difficulty in conjuring useful counterfactuals. Issues of vertical location have been the subject to analysis and debate for many years, and have spawned a useful literature. Horizontal location issues, in contrast, have received more limited attention, and then mostly in the context of debates within individual countries.

It was also observed that decisions on these issues will be influenced by various dimensions of the broader institutional environment. Regulatory capacity is (or should be) a crucial variable. Another example common to both vertical and horizontal location questions is the role of the broader political framework in influencing the most likely source of political interference, and hence the risk of political capture. We also saw the role of Constitutions and political arrangements in influencing the choice set on vertical location questions, and the role of a government's internal administrative arrangements in influencing decisions on horizontal decisions. It is thus impossible to look at location issues without regard to the broader institutional environment in which decisions will be made and the agencies must operate.

Finally, while institutions are designed to reduce the significance of individuals, a review of experience in reforming countries highlights the continuing importance of individuals in determining the success or otherwise of newly-created agencies. While regulatory systems can be designed to prescribe the qualifications of the people appointed to these roles, the safeguards they enjoy, the decisionmaking processes they must adopt, and the resources they have at their disposal, it is impossible to eradicate completely the

human element. As was observed in a report reflecting on nearly a century of regulatory experience in the United States, “good men make poor laws workable; poor men will wreak havoc with good laws”.[16] In this regard, some of the key selection criteria are difficult to enumerate in regulatory statutes. One seasoned regulator may have come closest when suggesting that the job requirements for a regulator should include: “the wisdom of Solomon, the patience of Job, the determination of a bulldog, and the hide of a rhinoceros”.[17]

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[16] See Phillips (1993) at 869, citing a 1960 report to the US President elect on regulatory agencies.

[17] See Phillips (1993) at 160, citing then Chairman Lundy of the New York Public Services Commission in 1966.

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