



SERVICES, DEVELOPMENT AND TRADE:
THE REGULATORY AND
INSTITUTIONAL DIMENSION OF
INFRASTRUCTURE SERVICES

Vol. I





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INSTITUTIONAL DIMENSION OF
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FOREWORD

The Accra Accord, adopted at UNCTAD XII, calls for UNCTAD to assist developing and transition economies in establishing regulatory and institutional frameworks and cooperative mechanisms to help strengthen their domestic services capacity, efficiency and competitiveness. As part of its efforts in that regard, UNCTAD has convened two sessions of in-depth multi-year expert meetings on key trade and development challenges with focus on the regulatory and institutional dimensions of infrastructure services, such as financial services, electricity, water, telecommunications and transportation services. This publication reflects the deliberations and results of the two sessions with a view to enhancing understanding of the various issues and identifying operational options in relation to efficient and effective regulatory and institutional frameworks for infrastructure services, in particular in developing countries and least developed countries (LDCs). The analysis report prepared by the UNCTAD secretariat on the results of an UNCTAD survey targeted at national regulators concerning key regulatory and institutional issues is also contained in the publication.

Infrastructure services are crucial for supporting other economic sectors (i.e. agriculture, manufacturing and other services sectors). In this respect, they form the backbone of national economies. At the same time, they are also major economic sectors in their own right with their global combined annual revenue accounting for 24 per cent of total world output. They account for one tenth of worldwide employment (310 million workers), and over 35 per cent of global services trade (\$1.1 trillion). Moreover, these services are essential to accelerate social development and enhance human welfare. Universal access to these services thus becomes an important objective of national and international development efforts, including those aimed at the Millennium Development Goals (MDGs), especially in the LDCs.

Over the past three decades, there have been efforts to increase the efficiency, productivity, quality and sustainability of national infrastructure services markets through improved policies, regulations and institutions that devise, monitor and enforce them. In many sectors, reforms have involved identifying and implementing regulatory and institutional frameworks needed for markets to work properly. This has been done by correcting market failures, including information asymmetries, natural monopolies and externalities; creating stable and competitive market environments; building domestic supply capacity; promoting environmental protection; and enhancing access to essential services by the poor through universal access policies.

Growing recognition of the need to strengthen regulatory and institutional frameworks has been a part of a paradigm shift in development policy thinking, particularly on the role of the State. An adequate regulatory and institutional framework is now viewed as a precondition for achieving better outcomes in terms of delivering efficiency, building competitive supply capacities and generating tangible benefits for consumers, as well as providing solutions for anti-competitive behaviour and addressing social concerns.

While the case for regulating services is widely acknowledged, less agreement exists about what constitutes good regulation. National experiences with regulatory systems have revealed both successes and failures, including the more recent regulatory failures in both developed and developing countries. There are no simple recipes for regulatory and institutional frameworks. Developing countries, therefore, face significant challenges when striving to build capacity to regulate effectively. Capacity-building, resource-sharing, training, and a gradual approach to regulatory and institutional framework development are, indeed, vital for improving regulatory performance in these countries. Strengthened capacity-building and donor support are also essential. It is hoped that this report will assist developing and least developed countries to address those challenges and strengthen their regulatory and institutional frameworks.



Supachai Panitchpakdi
Secretary-General of UNCTAD

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The volumes were edited and prepared by Mina Mashayekhi with assistance from Liping Zhang from the Trade Negotiations and Commercial Diplomacy Branch of the Division. The major contributors are the authors of the individual papers and substantive contributions of the participants in the above forum.

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LIST OF ABBREVIATIONS

BOT	build-operate-transfer
BIT	bilateral investment treaty
CEE	Central and Eastern Europe
EPA	economic partnership agreement
EU	European Union
FDI	foreign direct investment
FTA	free trade agreement
GATS	General Agreement on Trade in Services
GDP	gross domestic product
ICSID	International Centre for the Settlement of Investment Disputes
IPP	independent power producer
IRA	independent regulatory agency
ISS	infrastructure services sector
LDC	least developed country
M&A	merger and acquisition
MDG	Millennium Development Goal
PPP	public-private partnership
RoR	rate of return
RTA	regional trade agreements
SADC	Southern African Development Community
SDT	special and differential treatment
SOE	State-owned enterprise
TNC	transnational corporation
USO	universal service obligation
WTO	World Trade Organization



PART ONE:
OVERVIEW

1

I. MANAGING THE INTERFACE BETWEEN REGULATION AND TRADE IN INFRASTRUCTURE SERVICES

Introduction

Infrastructure services sectors (ISS) such as telecommunications, transport, energy and financial services are fundamental for the efficiency, growth and competitiveness of economies, for human development and for the attainment of the Millennium Development Goals (MDGs). Vibrant ISS can catalyse economic diversification and enhance domestic supply capacity and competitiveness, while providing opportunities for employment, investment and trade. In increasingly competitive and liberalized economic environments. Governments need to focus on how key developmental, social, environmental and other national policy objectives can be achieved through regulatory and institutional frameworks (RIFs) for ISS. Trade, industrial, services and macroeconomic policies need to be carefully tuned to achieve the desired combination of goals associated with the development of ISS.

ISS are closely linked to and are central inputs for other economic activities, including for industrial uses and households. They also constitute important economic sectors by themselves, as world ISS markets are extremely large and are expanding rapidly in response to growing population and climbing income levels, particularly in developing countries. The combined annual revenue of ISS services has been estimated at \$14.5 trillion or 20 per cent of total world GDP in 2008¹. Only in the United States, ISS directly contribute \$3.8 trillion and 37 per cent of United States GDP². Transport, storage and communications services in developing countries represented about 7 per cent of GDP while wholesale, retail trade, restaurants and hotels were 13 per cent of GDP in 2008. In this regard, ISS do not only exercise a fundamental support function on the overall economy but they also represent an important component of the worldwide GDP in itself. ISS are a major source of employment, accounting directly for roughly 10 per cent of worldwide employment (telecommunications 0.5 per cent, electricity and water together 1 per cent, transportation 6 per cent, and FS 3 per cent of world employment). Trade in ISS is substantial and continues to increase. Together, ISS account for over 35 per cent of global services trade, with transportation representing 22.5 per cent, financial services 10.2 per cent, telecommunications 2.3 per cent and electricity and water over 2 per cent (2007).

Among the key characteristics of some ISS are the fact that they are network services; natural monopolies and the backbone of economic development. Some ISS are public goods or feature specific characteristics (e.g. economies of scale or scope). Many are highly capital-intensive, with sunk assets that cannot be easily redeployed in other activities. In selected ISS, technological progress has diffused these characteristics (e.g. novel telecommunications services). Financial services, while neither typical network services nor natural monopolies, deserve particular attention, because of the importance of viable and stable financial systems for economic growth and development.

1. The Evolution of ISS Regulation

Historically, many ISS were provided by Governments. Three decades ago emerged a global trend towards increasing commercialization and privatization (including public-private partnerships (PPPs), concessions or built-operate-transfer contracts (BOTs)), competition and trade in ISS. In some cases, the participation of foreign service suppliers was encouraged through trade liberalization policies so as to supplement domestic supply when this one was not considered sufficient or as a means to increasing access to most efficient suppliers and best technologies. The reasons behind these shifts are several and include insufficient financial capacity of Government or the need to redirect budgets to other needs, less than optimal services management, as well as attempts to increase productivity and access to new technologies. Countries developed national regulatory systems as important components of these reforms. Regulatory systems include both regulatory measures, namely legislation, directives, standards and procedures that direct market transactions towards desired results (i.e., regulatory substance), and regulatory institutions that have the responsibility of developing, implementing, monitoring and enforcing regulations (i.e., regulatory governance).

Effective policy, legal and regulatory frameworks, backed by institutional support, can contribute to efficient provision of ISS and higher social welfare by promoting development of services sectors, responding to market failures and mitigating economically and socially undesirable results. The State's ability to provide effective RIFs for ISS is central for overall economic performance. Frequently, the establishment of independent regulatory agencies (IRAs) is central to such reforms. However, the infrastructure reforms to increase the quality and efficiency of ISS which many developing countries and countries with economies in transition embarked on in the 1990s lead to mixed outcomes. Regulatory

systems were not successful or sufficient in all countries, and significant gaps remain regarding the quality and availability of ISS between developing and developed countries. The recent financial crisis is the latest example of the risk for all countries even those with strong and sophisticated RIFs of experiencing regulatory failures. This underlines the need for a rethink and proper design of RIFs and points to the enabling and developmental role that Governments continue to assume.

2. Key Regulatory and Institutional Issues

ISS regulation can be organized into several broad and sometimes overlapping categories, including technical regulation, economic regulation, and competition regulation. Technical regulation is often specific to each sector. It involves setting and enforcing production and process standards dealing with e.g. safety/security, quality, reliability, customer relations or environment/climate change. Technical standards tend to be linked to physical aspects and the maintenance of infrastructure networks and services.

Economic regulation aims at ensuring competitive market structures in industries characterized by market failures (e.g. information asymmetries, natural monopolies, externalities) and at creating stable and competitive market environments which encourage investment, private participation and efficient ISS provision. It also aims at achieving other key domestic policy objectives (e.g. protecting consumers, developing domestic supply capacity, protecting the environment, mitigating climate change) and ensuring universal access to essential services.

Price regulation - a key component of economic regulation - for example has implications for market structures, inter-firm competition, investment and consumer welfare. The challenge lies in determining prices that strike a socially acceptable balance between the interests of investors and consumers. Sufficient rates of return (RoR) would allow transnational corporations (TNCs) to implement sustained physical investment programmes to serve future consumers. Price regulation is at the core of ISS regulation. In the past, under-pricing, while required for public policy reasons including universal access, was a common policy issue, often resulting in under-supply, sub-optimal quality of services and government subsidies. The two main pricing approaches are (a) RoR and (b) price caps. There also is a hybrid approach in which some cost changes are automatically passed through to tariffs. Existing research shows that the type of pricing regime has a bearing on overall ISS performance.

With RoR regulation, prices are set to cover firms' capital and operating costs and an agreed "fair" return on investment. The cost estimation is based on past costs and future forecasts adjusted for inflation. For the regulated company, this method provides predictability and stability for future levels of profit. For the regulator, the approach allows it to attract investors as returns are subject to less risk than those of an average firm. RoR regulation has been questioned on several grounds: it could create a negative public opinion of regulators as the regulated companies may seek to maintain high profits. It could underestimate capital depreciation, which is problematic in industries needing to adapt to exogenous technological progress (telecommunications). It may create incentives to inflate costs to raise revenues.

With price cap regulation, prices for services are set upfront and firms' returns vary according to the level of incurred capital and operating costs. This approach is used in industries that regularly need to adapt to exogenous technological changes. In this case, the approach provides better incentives for capital replacement. It has proven effective in sectors where information asymmetry is prevalent between the regulator and the regulated. Price caps can promote cost reduction and productive efficiency. The main challenge is designing an incentive that motivates a cost-reducing attitude and an optimal level of effort during the whole period of the concession. This aspect is particularly relevant for monopolies.

A third and more sophisticated methodology of "revenue cap" puts a ceiling on the revenue that operators can obtain over a given period. This methodology is based on cost, but the revenue is adjusted for end-use efficiency gains. Energy saving by consumers is therefore encouraged by the operator. Out of the three pricing options, revenue cap may appear to be the most attractive. Reasons include that it promotes demand-side efficient use of utilities. This feature is particularly relevant in a time where countries are striving for energy efficiency as part of the responses to climate change. No rule of thumb exists, however, as to which pricing approach is most suitable for any given country.

With price regulation a key operational challenge remains limited data availability. Regulators are faced with the problem of information asymmetry between them and the service providers while data requirements for determining the appropriate tariffs are demanding. One means to address this situation is by measures promoting enhanced transparency, e.g., through independent reporting or auditing.

Universal access regulation aims at enhancing access to essential services for the poor, remote and

marginalized. Frequently, poor consumers remain left out of network services and hence, a key policy choice addresses the balance between connecting the unconnected and making services more affordable for those already connected. Sometimes, additional, new providers in the market can help expand services delivery to the un-served. Often, regulation is needed, e.g., to support community-based initiatives; subsidies; and universal service obligations (USOs) imposed on the service provider to expand service delivery to certain unserved areas or to deliver at affordable prices. The allocation of subsidies to, or imposes universal service obligations on, service providers to extend service delivery at an affordable price to otherwise un-served remote areas or poorer segments of the population are among the means to achieve universal access. Many countries have opted to create a fund to help advance universal access objectives. Such funds are often used to provide subsidy support to firms to undertake additional investment in extending infrastructure and improving maintenance operations in poor urban and rural areas. A large proportion of subsidies in ISS are captured by the energy sector. Governments generally subsidize sectors or activities that exhibit positive externality such as high potential to boost economy-wide productivity growth, technological progress or support human development. Subsidies can have negative side effects given their fiscal implications and the risk that they may unduly favour some groups at the expense of others. A key issue in developing countries is targeting subsidies towards those that need them. Subsidies are allocated in ISS markets either in the form of consumption subsidies or access subsidies. Problems arise as subsidies can be regressive as the larger proportion are allocated to richer users and it is difficult to measure the consumption of poor users, hence they are unable to take advantage of subsidies based on quantities consumed. Mistargeting access subsidies is a major problem.

USOs are central when, under normal commercial profitability considerations, suppliers would not provide the service. If they are to offer workable solutions, USOs should be realistic and clearly defined; leave sufficient incentives for implementation; be adaptable – though not arbitrary – and take account of technological changes. In addition, procedural aspects matter, including multi-stakeholder processes for developing USOs; consumer protection; proper monitoring of targets; information requirements. Challenges relate to funding and financing USOs, e.g., through transfer programmes, including subsidies, universal service funds, welfare payments or special budget allocations. USOs raise concerns, including because they might not be efficient and effective; impede competition in markets; impact on companies' financial viability

(when firms cannot recover investments); or fail to protect consumers. Implementation difficulties relate to inadequate enforcement mechanisms and overly ambitious targets. Therefore, developing countries require flexibilities and the possibility for trial and error when implementing USOs.

Competition-related considerations aim at introducing competitive market structures in industries characterized by market failures resulting from economies of scale or scope, information asymmetries, externalities, natural monopolies and attendant income and wealth distribution effects. In most ISS, reforms (e.g., privatization, corporatization, break-up of vertically integrated state-owned-utilities) have led to increased need for competition policy and regulation. In markets where competition is unlikely to develop (e.g., natural monopolies), price and services regulation becomes particularly important. The unbundling of services and technological innovations often allows for competition in most segments of the value chain. In some ISS, ensuring access to bottleneck facilities is a key challenge to be addressed through competition regulation. In a number of countries, telecommunications regulation is almost entirely applied competition policy (EU telecommunications directives are based on EU competition policy rules). In financial services, competition concerns relate to switching costs (e.g. consumer finance); externalities (e.g. e-finance); access to network services (e.g. payments, distribution and information systems) and challenges arising from trends towards mergers and acquisitions (M&As) and from more complex and global financial services markets. Cross-cutting concerns arise from firms that charge excessive prices or adopt tactics to prevent new competitors from entering the market.

One of the main challenges with *investment policies and regulations* relate to the size of infrastructure investment needs; gaps in financing and the need for balancing different policy objectives to ensure that investment positively contributes to host countries, e.g. their productive capacities. Costs and benefits of TNC participation depend on host country policies and regulations (including price regulations). While foreign direct investment (FDI) and other TNC participation can complement developing countries' domestic ISS firms, TNC participation can also bring new regulatory challenges (e.g. increasing number of stakeholders in regulation; market power; crowding-out; State monopolies turned into foreign private monopolies; renegotiation of concession contracts; TNC withdrawal). While particularly pronounced in developing countries, more advanced regulatory systems also face such challenges. Adequate RIFs are required to enhance TNC participation and generate optimal outcomes regarding affordability, access and other pro-development outcomes.

Consumer protection regulations address *inter alia* answering and resolving consumer complaints; offering fair billing/payment options; number portability (telecommunications), quality of service and universal service; installation or repair time; or service cancellation conditions. Frequently, consumer protection regulations are cross-cutting, relating to the purchase of numerous goods and services, and hence to IS as well. Specific instruments can enhance consumers' participation in regulation, e.g. citizen report cards allow consumers to express their opinion on service provision (e.g., price, quality, efficiency, adequacy of services).

While the case for regulating ISS is widely acknowledged, less agreement exists about what constitutes good regulation. For regulation to promote economic growth, social welfare and environmental sustainability and to result in outcomes that meet the expectations of key stakeholders (e.g. consumers, operators, investors), it needs to be effective (achieving planned goals) and efficient (achieving

goals at minimum cost). Effectiveness depends on two aspects: the first concerns regulations: the quality of regulatory decisions, while the second relates to institutions and procedures: the quality of regulatory governance. Efficiency and effectiveness need to be pursued in the context of other public policy objectives, such as health/safety, poverty eradication, universal access, environmental quality and cultural or ethical goals.

Technology and innovations, leading to more complex and new services, have altered the context and content of ISS regulation. In the information and communication technology (ICT) sector for example, rapid technological evolution has acted as a driver and enabler of reform. Voice-over-Internet-Protocol services have gradually replaced traditional public switched telephone networks, requiring technological neutrality of regulatory practices. In financial services, e-finance and technological advances have reduced the role of financial intermediaries, facilitated cross-border trade and spurred innovative retail financial

Box I.1. The Importance of ISS Regulation - The Case of FS

The global financial crisis exemplified the paramount importance of adequate RIFs in financial services where the cost of market and regulatory failure can be extremely high. Reasons for regulating include addressing market failures; avoiding moral hazard; achieving prudential objectives of ensuring the viability, integrity and stability of financial systems; pursuing domestic development objectives, including UA; and other objectives. Financial deregulation took place among broader trends, including intensifying financial globalization; integration/consolidation of FS suppliers; proliferation of financial instruments often beyond control and understanding of regulators; growing equity markets and innovation in information technology. The attendant challenges resulted in a parallel trend to adopt new regulations – so called “re-regulation” – with focused instruments, institutions and practices that have become more important in the new deregulated environment. Rapid developments have made it difficult for both developed and DC regulators to keep up, as highlighted by the current crisis. Many cite regulatory and institutional failures as major reasons for the current financial crisis (e.g. lack of effective regulation for new, complex and opaque financial products, hedge funds and credit rating agencies; excessive leverage creating vulnerabilities). Use of derivatives to spread financial risk was largely unregulated and untransparent. Weak underwriting standards combined with unsound risk management added to the problem. Even in advanced countries, policymakers, regulators and supervisors did not appreciate and address the build-up of risks, spurring calls for proper reform, regulation and oversight. Some point to what they perceive as other weaknesses of regulatory systems: moral hazard (regulators shying away from setting strict industry standards and instead opting for self-regulation; excessive trust in the corrective forces of the market and consequent pursuit of policies of minimum interference with open markets and international trade; and overly close relations between FS suppliers and regulators (distorting and reducing the effectiveness of regulation). The current crisis also shows deficiencies of the international FS governance system. Challenges are particularly serious for DCs and countries with economies in transition, given their special needs regarding financial development and stability. However, it is these countries which may have the greatest difficulty in developing the institutional and regulatory frameworks for their FS. Even in successful industrialized countries, establishing these frameworks required considerable resources and a great deal of time. The various reform options are mainly aimed at bringing about a more stable financial sector which can provide long-term financing to productive investment projects. Many also seek to achieve a more socially efficient and equitable market through regulation. There is a need for international coordination, sharing of information, and for regulators to aim at similar standards to avoid a race to the bottom in financial regulations. However it would be a mistake to impose a common regulatory standard given there is no single regulatory system that is right for all countries. Countries with different levels of development and regulatory capacity need to adopt different regulatory approaches. By increasing the participation of developing countries in various agencies responsible for financial regulation and for guaranteeing international financial stability, those agencies may develop a better understanding of different regulatory requirements.

products (e.g., derivatives, swaps, etc.) and financial entities (hedge funds). While attractive (higher yields) these products are also more risky, requiring regulators to adapt to these new realities.

Several approaches and criteria have been identified to assess RIFs' effectiveness including (a) autonomy from political authorities; (b) transparency before institutional and non-institutional stakeholders; (c) accountability to the executive, legislative and judiciary; and (d) tools for institutional development. Several institutional factors are prone to regulatory failure. These comprise (a) limited regulatory capacity; (b) limited accountability (leading to the risk of collusion between various interested parties); (c) limited commitment (often evidenced by the recurrence of contract renegotiation); and (d) limited fiscal efficiency. Institutional capacities of national regulatory authorities can considerably compromise regulatory process and outcome.

Institutions and procedures (regulatory governance) are amongst the central determinants for the quality of regulations. Specific institutions for implementing and supervising sectoral policies and regulations are novel: until the 1990s, most ISS were public and self-regulated or regulated by a ministry. Policies and tariffs reflected political concerns more than efficiency and economic sustainability considerations.

There are two main institutional approaches: **regulation by contract** and **regulation by agency**. The two can also be combined. Under the first, objectives are pursued through the establishment of contracts outsourcing service provision, often via tenders or PPPs. Under the second, a regulatory agency/institution is established to oversee the functioning of a given sector. The choice of the "best-fit" system depends on the sector's economic attributes; technological considerations, countries' economic, social, institutional and political endowment and human and administrative resources.

Regulatory contracts (including PPPs, service contracts, management contracts, leases/affermages and concessions) are typically used in the context of private sector participation, but can also help improve the performance of state-owned utilities. When regulating by contract, investment decisions are directly made by the Government, requiring a good understanding of the functioning of the market and anticipation of different situations that may arise. Given the difficulty of providing for all possible scenarios, contracts should include re-opener clauses. Contract implementation and enforcement require monitoring which can pose capacity-related problems in developing countries. Difficulties in regulating by contract without pre-existing regulatory agencies were experienced in Latin America and the Caribbean. Key challenges relate to possibilities that investors behave strategically. In the case of PPPs it is particularly important that the private partner's objective (i.e. to maximize its profits) be aligned with the Government's objective to deliver efficient and effective services. This can be done by the Government specifying the quantity and quality of the services it requires, and by the two parties agreeing upon the price of the services concerned when concluding the contract. Various forms of PPPs can be considered, including through management contracts or investment funds. However, there may also be some trends across sectors. PPPs have yielded good results in telecommunications, but less so in electricity and water.³

When **regulating by agency**, the Government establishes a legally defined process by which terms of supply (including prices) are formulated and enforced. The regulatory agency has the capacity to adapt to changing conditions; as a result, there is less need to anticipate all eventualities. The responsibility of institutions' regulators varies between advisory and decision-making powers, authority over few or many issues and regulating private or public entities.

Box I.2. Regulatory Impact Assessments

An important tool for improving the competence, credibility and legitimacy of regulatory institutions are regulatory impact assessments (RIAs). These can be performed on an ex ante or ex post basis. In the first case the RIAs contribute to refining regulatory reforms by systematically assessing benefits and costs of regulations, usually prior to implementation. Such ex ante RIAs are promoted by in OECD countries through the OECD Guiding Principles for Regulatory Quality and Performance. They are also increasingly used in DCs and can support capacity-building. Ex post reviews are pre-scheduled, periodic, independent reviews of regulatory performance and impact, which look at both substantive and governance-related issues. Such reviews, particularly when they involve the publication of recommendations, can offer important lessons learnt. For example, the reviews of the Presidency and National Treasury in South Africa, have evaluated the national electricity regulatory authority, concluding that it had not yet implemented a robust approach to price regulation. Questions have been raised whether complex and resource intensive ex ante RIAs are the best use of DCs' scarce human and administrative resources. Ex post assessments and attendant lessons learnt can provide useful and pro-development alternatives.

Sometimes regulators are closely linked to policy-making, with regulators determining – together with Government – the right “policy mix” for achieving a particular “objective mix”.

Some IRAs have been in place for several decades, while others were established recently. Generally, IRAs are established to facilitate private participation in ISS. Many IRAs have had positive results, particularly in telecommunications and electricity, but less so in water and transport. Formally establishing IRAs is not sufficient to ensure the expected outcomes. Instead, what matters is credibility and stability, and recently established IRAs must begin by building their role and reputation and overcoming institutional fragility. It can take time to effectively build and entrench governance, management and organizational systems and practices, particularly in developing countries that lack qualified staff, funding, and legal traditions supporting IRAs. Large gaps can exist between “law” and “practice”, e.g., regarding regulatory independence. High turnover of commissioners suggests evidence for political expediency undermining regulatory independence.

RIFs entail costs, through administrative and human resources required for their implementation and for businesses who have to comply with them. Governments face numerous choices when establishing IRAs. One such choice is between a single-sector and a multi-sector regulator (for two or more sectors). Benefits cited for multi-sector regulators include: the potential to take advantage of commonalities in different ISS, leading to similar regulatory issues; economies of scope in regulating sectors together; and better use of scarce human and financial resources shared across sectors; effective management of firms operating in more than one sector; greater facility in addressing linkages between sectors; better ability to resist political interference (because broader constituencies give IRAs greater independence from sectoral ministries). Moreover, a focus on a single sector can prove difficult as sectors are interlinked and mutually influence each other. Given resource constraints, particularly in professional and human capital, developing countries might benefit from multi-sector regulators. Other choices relate to establishing functional regulators (e.g. dealing with functional issues such as universal service across sectors instead of numerous issues specific for a particular industry); industry-specific regulators (e.g. infrastructure regulators regulating only infrastructure) or infrastructure and content regulator.

The coordination between regulators and between competition authorities and other regulatory authorities is important for achieving coherence and improvements to ISS. The case of Indonesia’s

Commission for the Supervision of Business Competition (KPPU) demonstrates the relevance of harmonizing competition law and regulation governing the sector and signing a memorandum of understanding to facilitate cooperation between competition authorities, regulatory agencies and the Government. The memorandum of understanding can be used to raise sector regulators’ awareness of the existence of competition law and allow early involvement by the competition authority in the drafting of regulations to ensure compliance with the competition law. KPPU also took the initiative of monitoring implementation of the competition-related provisions after the regulations had entered into force. Regular interaction and collaboration between services policymakers, regulators, trade negotiators and civil society are essential to improve regulatory outcomes.

Countries’ broader policy and legal realities matter, as even well-staffed IRAs have difficulties operating in environments where courts, commercial law systems and other government institutions are dysfunctional. Moreover, regulators can be driven into policy debates and policy development, leading to further strains for fragile institutions.

3. Developing Countries’ Constraints in ISS Regulation

The quality and credibility of regulatory decisions largely depend on the competence of regulatory staff. The more is the discretion enjoyed by the regulator, the greater is the need for trained, experienced and competent staff. Scarcity of qualified staff is among the most serious constraints faced by regulators. Capacity-building and high-quality, relevant training are thus vital for improving regulatory performance.

A recent global survey of regulators identified lack of specialized skills as a major problem (30 per cent of respondents cited insufficient training as a significant constraint, and 61 per cent viewed training as deficient and lacking continuity).⁴ ISS regulators often require significant numbers of highly skilled professional staff, including accountants, economists, lawyers and engineers. However, the problem of certain low-income and small countries is not only finding sufficient staff but also having staff-related costs which are in line with the number of consumers to which services are provided. A study of 13 Asian countries found that 80 per cent of regulators had no access to training and that regulatory offices were usually understaffed.⁵ Properly staffing regulatory institutions carries high fixed costs, particularly for small, low-income developing countries, and is difficult to achieve. Skills and experiences required for regulators are highly specific, and the most

competent and qualified staff are often attracted to the private sector. Targeted training and human capacity-building, attractive employment conditions and hiring from diverse backgrounds can help to improve the situation.

Capacity-building are central to developing the human capital of developing countries. Often, curricula with trainers from industrialized countries and little opportunity for subsequent learning and ongoing professional networking give insufficient attention to the specific needs of developing country regulators. Regional training centres (e.g. South Asia Forum for Infrastructure Regulation (SAFIR); African Forum for Utility Regulators (AFUR) and Regional Electricity Regulators Association (RERA)) can provide courses and programmes tailored to the needs of the beneficiaries.

Outsourcing regulatory functions to external contractors is common in developed and developing countries alike, with regulators sometimes dedicating up to one-third of their budgets to it. According to a 2004 World Bank survey, most regulators (75 per cent) outsource regulatory tasks and plan to continue doing so.⁶ Of regulators that do not yet outsource, 90 per cent plan to do so. Outsourcing can enhance institutional effectiveness by improving regulatory competence, independence and legitimacy. Decisions about which functions to be outsourced can vary over time. Outsourced functions include consulting or technical support for regulators; advisory services or expert panels; performance auditing; preparation of public consultation documents; dispute resolution, etc. Outsourcing, including that to expert panels, can be particularly attractive in the short to medium term, but can also be politically sensitive. It requires sound contract management and effective skill transfer, and should complement rather than substitute the building of local regulatory capacity.

Twinning involves pairing regulatory institutions and staff with similar mandates and goals. It can promote effective institutional capacity-building, and has been used by different bilateral cooperation agencies since the early 1980s. Twinning has proved successful for cross-country transfer of technical skills, knowledge and best practices. Twinning commonly occurs on a North-South basis but is it also increasingly common on a South-South basis, as exemplified the twinning arrangement between Jamaica and the United Republic of Tanzania on utilities regulation.

Combining international and local expertise: Many developing countries rely on international consultants for drafting new regulations based on elements of RIFs that are successfully applied across countries. Instead of replicating key structural attributes of other

countries' RIFs, developing countries benefit from adapting solutions to national human and institutional capacities, varied market structures and different degrees of government participation. Sometimes, the local expertise needed to do so remains to be developed. Costa Rica offers an example where local expertise was developed by including training for government/industry staff into the terms of reference of external consultants.

If combined with a phased approach, hybrid approaches allow for experimentation and a gradual build-up of human and institutional capacity. Many African countries initially establish hybrid regulatory structures, often linked to sectoral ministries. Such structures then tend to evolve into fully independent and effective regulatory agencies. Hybrid approaches are also implemented in price-setting: Thailand successfully combined price-caps and rate-of-return approaches.

Adopting a gradual approach: Sometimes, regulators begin with the minimum RIF necessary to achieve certain objectives. This allows developing countries to establish a regulatory agency which initially enjoys limited regulatory discretion and outsources certain functions. As staff members become more experienced, monitoring capacities are developed and credibility acquired, the regulator gradually takes on further responsibilities.

Research shows that effective RIFs can be greater determinants of ISS performance than ownership or management style. So both state-owned enterprises (SOEs) and the private sector provision can be relevant for specific infrastructure services depending on the sector and specific country condition. However, differential regulation may be required in each case. It is therefore important that adequate attention be given to developing and monitoring the institutional dimensions of regulation. The corollary to the need for regulations to be best fit to prevailing national conditions is the need to constantly adapt the institutional structure and process to new conditions. Regulators are faced with the challenge of maintaining a predictable environment in a time of unpredictable economic, social, technological and environmental changes. The institutional design of the regulator needs to be flexible enough to adapt to market and other realities while not compromising its credibility.

4. The Interface between Trade Agreements and ISS Regulation

Regulation exists at different levels – national, regional and international. The global trend towards regionalism also manifests itself in ISS, with regional trade in IS increasing (including South–South) and

regional trade agreements (RTAs) covering ISS (particularly through services and/or investment liberalization chapters). Many RTAs contain specific provisions on regulatory and institutional issues, including cooperative mechanisms, training, regional centres of excellence, etc. In EU integration, capacity-building and technical assistance are offered to assist new or future members implement the “acquis communautaire”, which covers key aspects of ISS regulations and institutions in a more liberalized and competitive environment. Regional cooperation continues to play an important role in building effective RIFs. Regional regulation is often associated with regional integration, harmonization and cooperation. The development of cross-border infrastructure networks, or infrastructure sharing, often occurs at the regional level underpinning regional integration.

Pooling resources also occurs for regional training centres that disseminate local knowledge in regional context. They can help create networks of regulators and improve understanding of local challenges and problems through research and training on sector reforms and regulatory trends to ensure relevance to the needs of regulators in the region. Successful examples include the Southern Africa Development Community (SADC), South Asia (the South Asian Telecommunications Regulators’ Council) and Latin America (the Inter-American Telecommunication Commission).

Regional expert panels allow for more efficient use of scarce resources and greater continuity and consistency in technical assistance. They can assist with the development of harmonized regulatory regimes in support of regional integration. There are also regional associations of regulators. SADC actively pursues regional cooperation in IS regulation. In the telecommunications sector, national telecommunications regulatory authorities cooperate through the Telecommunication Regulators’ Association of Southern Africa on regulatory harmonization and on capacity-building through a regional training network. A framework for developing capacity of the regulator at both national and regional levels is therefore important.

International regulatory cooperation and cooperative mechanisms are important in addressing cross-border externalities, and overcoming regulatory and institutional constraints, including resource and capacity constraints at the national level. The substantial majority of countries today are engaged in some form of bilateral, regional or international cooperation. Formal and informal cooperation focuses on “hard” infrastructure facilities and policies and regulations. “Softer” forms of cooperation include regional regulatory agencies, expert panels

and associations, information exchange, regional training and research, and “twinning” activities. These forms of cooperation are not an alternative to regulation. An UNCTAD survey using questionnaires covering 66 regulatory authorities in ISS shows that information exchange and participation in international associations are the most frequently used forms of such cooperation, followed by participation in regional agencies and expert panels.⁷

There are close linkages between international rules to liberalize services trade and RIFs for ISS. Typically, barriers to services trade are not tariffs, but rather domestic regulations. Hence, when liberalizing trade in services, multilateral and regional negotiations directly address countries’ regulatory measures. The inclusion of services in the multilateral trading system and regional trade agreements (RTAs) has raised concerns over the potential conflict between the liberalization and regulation of services and the impact of trade rules on national regulatory autonomy, i.e. whether trade agreements limit regulators’ ability to regulate, if so to what extent and whether such interaction is justifiable.

The General Agreement on Trade in Services (GATS) recognizes Governments’ right to regulate in numerous places, including the Preamble and Article XIX (progressive liberalization), both stressing the particular need of developing countries to exercise this right. Also, the GATS’ positive list approach of taking market access and national treatment commitments and Members’ right to attach conditions and limitations to commitments can help preclude undue constraints on sovereignty and regulatory prerogatives.

Further issues regarding the right to regulate arise from the GATS’ coverage of key regulatory tools (e.g. laws, regulations, rules, procedures, decisions, administrative actions, or measure of any other form) and institutions (e.g. central, regional or local Governments and authorities; non-governmental bodies in the exercise of powers delegated by central, regional or local Governments or authorities) and provisions for specific institutions (e.g. Telecommunications Reference Paper (RP) requiring IRAs). The GATS also affects regulatory flexibilities – including for dynamic evolution of RIFs – through market access and national treatment commitments. Experience with modifying commitments – and attendant compensation requirements – remains limited.

GATS obligations can guide towards good regulatory practices. Provisions on transparency (article III), to avoid arbitrariness (article VI.1 on administering measures in a reasonable, objective and impartial manner); for due process (article VI on judicial,

arbitral or administrative tribunals or procedures for prompt review of administrative decisions affecting trade in services – albeit subject to compatibility with constitutions) serve as examples. Some GATS provisions go beyond procedural and institutional elements and also address the substance of regulatory measures (Financial Services Understanding requiring access for new financial services).

As part of the Doha negotiations, negotiations are underway for the establishment of multilateral disciplines on domestic regulations regarding licensing requirements and procedures, qualification requirements and procedures and technical standards, so as to ensure that they are, inter alia, consistent with the criteria listed above and do not constitute unnecessary barriers to trade in services. One outstanding issue is whether there should be a “necessity test”, which some consider likely to pose greater strains on the domestic regulatory autonomy, and, if so, whether it should apply to all services sectors where liberalization commitments are made, or only to specific sectors (e.g. accounting). Special and differential treatment (SDT) would be part of disciplines, e.g. transition periods. Developing countries have expressed that they need more room for adapting their regulation to changing circumstances given their lower levels of development of domestic regulation, effective SDT and support in building their RIFs.

Some bilateral and multilateral liberalization requests focusing on the telecommunications sector contain

regulatory elements and a call for commitments to all provisions of the Reference Paper, and that there be no limitations on the establishment or number of service suppliers (e.g. quotas, exclusive service suppliers or geographic restrictions within a WTO member’s territory). Negotiations on market access, rules (subsidies and government procurement) and domestic regulations all need to provide flexibility and policy space for developing countries’ regulatory experimentation and right to regulate.

Many South–South and North–South Agreements include provisions relating to RIFs, including cooperative mechanisms. The EU–CARIFORUM Economic Partnership Agreement (EPA) – particularly the telecommunications and financial chapters – contains regulatory provisions (e.g., transparency, public participation, multi-stakeholder approach to regulation, international harmonization, definitions for “regulatory authority” and suggestions for designating universal access policies in telecommunications. South–South Agreements, e.g. the Andean Free Trade Agreement and MERCOSUR contain sector-specific regulatory frameworks (e.g., for the telecommunications sector) which complement liberalization.

While barriers to international trade in services appear to stem largely from the differences in regulatory systems the emphasis of trade agreements and focus of policy-makers should not be on a reduction of regulations per se, but on the management of regulatory diversity reflecting each country’s legal

Box I.3. Regulatory Issues in the Two GATS Disputes

Several core issues raised in the only two GATS dispute settlement cases, the Mexico – Telecommunications (Telmex) case and the United States – Betting and Gambling case also relate to the impact of GATS on national regulation. In the first dispute the United States contended amongst other things that Mexico failed to ensure that Telmex, the largest operator, interconnected United States cross-border suppliers of services on cost-oriented and sufficiently unbundled charges as is required by the Telecom Reference Paper which Mexico had adopted. The Panel concluded that the difference between the costs presented to it and the settlement rates was “unlikely to be within the scope of regulatory flexibility allowed by the notion of cost-oriented rates” of the Reference Paper. Only costs related to interconnection itself can be reflected in prices and costs for general development of the network and for universal service programmes were not considered relevant to determining the cost basis for interconnection rates. While it was acknowledged that a Member State’s regulator can choose from several pricing approaches to regulate interconnection rates and the requirement for reasonable, cost-oriented and unbundled rates suggests a limited flexibility in terms of the ultimate results of the pricing approach selected. The case illustrates the need for Governments to involve their trade and telecommunications authorities to work closely together to make sure the trade commitments under the GATS are consistent with realistic telecommunications reform agendas.

The United States-Gambling case which focused inter alia on whether the United States measures fell within the scope of GATS Article XIV’s general exceptions relating to the protection of public morals and/or public order and whether these measures were a disguised restriction on trade in services demonstrated that specific commitments on market access preclude even non-discriminatory (regulatory) prohibitions. This second case also points to the need for regulatory authorities to pay attention to their country’s WTO commitments when they design or implement regulatory measures in sectors liberalized under the GATS.

Box I.4. Temporary Movement of Persons to Supply ISS

The liberalization of the temporary movement of natural persons (mode 4) in such professional categories as accountants, engineers and technicians could be particularly relevant for the development of ISS. However, managing this liberalization may remain a challenge as long as national laws and regulations dealing with immigration and labour do not distinguish between mode 4 categories and the general pool of immigration. Moreover, where market access exist it is often rendered meaningless by the non-recognition of the qualifications of services suppliers. Mexico's experience with its free trade agreements (FTAs) in relation to professional services illustrated how trade agreements can contribute to liberalizing the movement of categories of persons relevant for supplying ISS. It also reveals that developing countries should encourage their professionals in various sectors to form strong national associations to express their interest in the FTA negotiations.⁸

traditions on the content and form of its regulations. This fact makes the harmonization of services regulation through trade agreements, especially at the multilateral level, difficult and raises questions about its desirability. Close collaboration between regulatory authorities (including competition authorities in charge of sector regulations) and trade ministries but also of policy advice and assistance for RIFs in relation to trade liberalization negotiations are crucial.

Addressing the interface between trade and regulatory issues goes beyond the analysis of how trade agreements affect regulation and policy space. It requires the coordination of services trade liberalization and regulatory reforms and the promotion of information exchange and dialogue between the trade and regulatory communities. Irrespective of whether the impetus is provided by a trade negotiation (at bilateral, regional or multilateral level) or by a regulatory reform initiated autonomously by a Government in ISS it is essential that policy-makers/regulators consider the trade implications of regulation and for trade negotiators to assess the impact of trade commitments on policy space. This leads to the need for policy-makers, regulators, and trade negotiators to learn to speak the same language. For some this will require moving beyond a sole focus on market access and non-discrimination while for others this will imply learning to integrate trade-related impacts in a cost-benefit analysis of regulatory reforms.

International regulatory and trade cooperation can play an important role in support of national efforts to create effective, efficient and workable RIFs in developing countries.

Conclusion

For reform of and trade in ISS to generate pro-development outcomes, they need to be accompanied by appropriate policies and RIFs. The latter must be credible, sustainable and able to face multiple challenges arising from the increasingly heterogenic and complex characteristics of IS markets. Hence, Government has a primordial role to play.

RIFs need to be adapted to local realities. A RIF's success depends on its compatibility with a country's needs and circumstances, and institutional and human resource endowment. developing countries may wish to select from different regulatory options, creating hybrid models that are appropriate for their individual country contexts. Effectively adapting best-practice blueprints to local needs requires local expertise and knowledge. Best-fit models can change over time, as regulatory independence and capacity are built, turning gradualism and experimentalism into key success factors. RIFs need also be securely located within the political, constitutional and legal arrangements of individual countries. Complementarities between different institutional arrangements make it difficult to alter national systems in a piecemeal fashion. Unorthodox, home-grown solutions, as suggested by Rodrik⁸, could achieve desired outcomes at lower costs for developing countries. Multi-stakeholder consultations, including on poverty aspects and involving civil society, consumer groups and the private sector, are also important.

International trade agreements affect RIFs, by e.g. removing regulatory measures, placing constraints on Governments' regulatory prerogatives or inducing good regulatory practices. The suitability of international commitments for local economic, social and regulatory specificities is decisive for overall outcomes. Concerns arise when international obligations mandate one particular approach that might not be well-suited for all. developing countries require flexibilities for choosing the commitments that best suit them. As RIFs evolve, trade rules might lag behind and include outdated obligations. Accordingly, agreements would need to be sensitive to countries' specific regulatory, economic and social requirements. Regular interaction and cross-fertilization between trade negotiators and services policymakers, regulators and civil society can help improve regulatory and pro-development outcomes.

Additional research is needed to assist developing countries to identify and implement RIFs that can best deliver development gains. Focus areas could include:

identifying the different policy regimes required for regulating privately and publicly owned enterprises, understanding how RIFs need to evolve as countries move along the development path and clarifying whether trade liberalization commitments in ISS have impacted economic and regulatory developments.

II. REPORT ON THE UNCTAD SURVEY OF INFRASTRUCTURE SERVICES REGULATORS: ENERGY, FINANCIAL, WATER, TELECOMMUNICATIONS, TRANSPORT SECTOR REGULATORS AND COMPETITION AUTHORITIES⁹

Introduction

The United Nations Conference on Trade and Development (UNCTAD) designed a survey¹⁰ to collect and disseminate data on regulatory agencies in accordance with the recommendations of the first session of the Multi-Year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension, which was held in Geneva 17-19 March 2009. The survey is annexed to this report.

The goal of the survey was to take stock of the regulatory environment in key infrastructure services (IS) in order to ascertain regulatory and institutional practices, and challenges faced by regulators in developed, developing and least developed countries.

The survey was sent out to all UNCTAD Member States. Questionnaires were distributed through emails to three groups of recipients:

- UNCTAD Member States through Permanent Missions in Geneva;
- Selected national regulatory agencies;

- Selected regional organizations dealing with infrastructure regulatory issues.

In total, the number of questionnaires sent out was about 350. The number of responses received was 85. The following tables provide some general information on the responses received.

The survey was composed of 6 sections and 47 questions. Regulators were invited to answer each question to the best of their knowledge.

The following sections of the report review and analyze the responses received. Specific questions of the questionnaire are used as headings for the discussion of the various issues addressed. Responses received are treated confidentially in that they are not attributed to individual persons and/or organizations.

This report is divided into 6 sections. Section 1 covers Institutional Issues. Section 2 addresses Regulatory Substance and particularly issues relating to pricing, universal access and the participation of foreign service suppliers in domestic markets. Sections 3 deals with Staff and Staff Development Issues while section 4 deals with Financial and other Resources respectively. Finally, section 5 focuses on Various Forms of Cooperation, including inter-governmental and public-private cooperation, as well as cooperation at bilateral, regional and international levels before some general conclusions are offered in section 6.

Table II.1. Number of Responses according to Country Development Level and Sector

Development Status	Sector Finance	Telecom	Multi-sector	Energy	Transport	Water	Grand Total
1.Developed	6	7	5	5	3	3	29
2.Developing	13	9	9	5	4	4	44
3.LDC	2	5	2	2	1	...	12
Grand Total	21	21	16	12	8	7	85

Table II.2. List of Countries according to the Number of Responses

Country	Total
Algeria, Argentina, Barbados, Bhutan, Burkina Faso, China, Dominica, Grenada, St. Kitts and Nevis, St Lucia, St. Vincent and the Grenadines, Finland, France, Germany, Ghana, Guyana, Kyrgyz Republic, Lithuania, Netherlands, Nigeria, Romania, Trinidad and Tobago, Uganda, United Kingdom, United Arab Emirates, United States	1
Australia, Brazil, Canada, Chile, Egypt, Estonia, India, Jamaica, Japan, Kenya, Lesotho, Morocco, Peru, United Republic of Tanzania, Zambia	2
Nepal	3
South Africa	4
Colombia, Switzerland	5
Mexico, Portugal	8
Grand Total	85

1. Institutional Issues

Is the regulator and independent regulatory agency, an independent advisory agency reporting to a ministry, a regulatory department within a ministry, or other?

The *independent regulator* (i.e. the establishment of an entity/institution separate from the policy maker/ministry and the service providers) is a relatively recent phenomenon in many countries and accompanied the wave of reforms in infrastructures services in the 1980s. By establishing independent regulators, Governments seek to signal their commitments to eliminating the influence of government entities and dominant firms in IS markets. There is a clear tendency in the increase in numbers of independent regulators over time. However there remains a notable difference in the prevalence of independent regulators across sectors. While they are very common in the telecommunications and financial services sectors they tend to be less common in the electricity and water sectors.

The results of the survey are consistent with the literature and what has been observed in most countries. The vast majority of respondents are IRAs though some 30 per cent are still institutionally linked to the relevant sector/line ministry in some form or another.

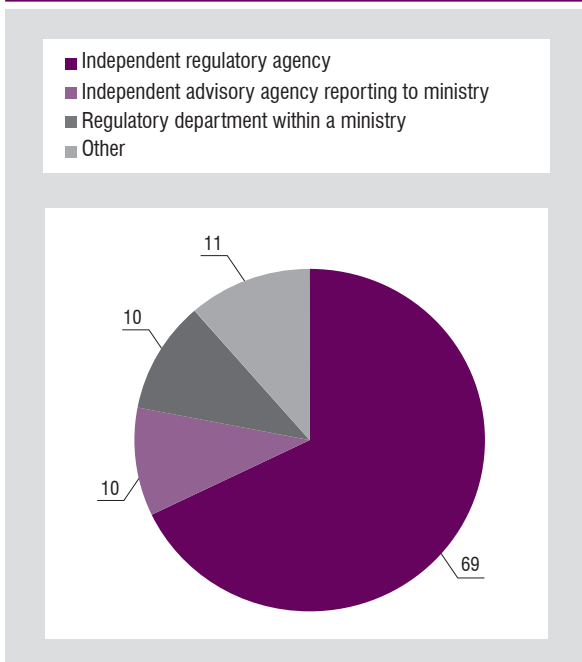
As the above graph indicates the pattern is not substantially different across respondents in function of their development level. LDCs, however, reported having less diversity in the type of entities in charge of regulations as they did not report being either a regulatory department within a ministry or another form of regulator.

The results of the survey indicate that energy, finance and telecommunications sectors all have more than 50 per cent of respondents that are IRAs. As expected the transport and water sectors still seem to be largely regulated by some form of arrangement within a relevant sector/line ministry. As for agencies active in several sectors (the multi-sector agencies) the very fact that they were created to cover several sectors implies that they are in their vast majority separate from the different sector/line ministries involved.

When was the agency created?

The above graph was plotted on the basis of the responses received to the question of when the responding entity had been created. It is interesting to note that the regulatory entities that were created the earliest are generally those that relate to the financial services sector (e.g. central banks). The majority of respondents, however, indicate that their institution

Figure II.1. Level of independence of regulatory agencies (IRAs) (%)



Note: Category "Other" includes: (a) the agency is separate from the decision-making process of the Ministry but annexed to it and therefore has no legal personality; (b) the agency is semi-independent with participation of the Ministry; and (c) the agency is subject to public law in terms of legal entity, but autonomous in operation.

Figure II.2. Degree level of independence of regulatory agencies (IRAs) (Breakdown by development status) (%)

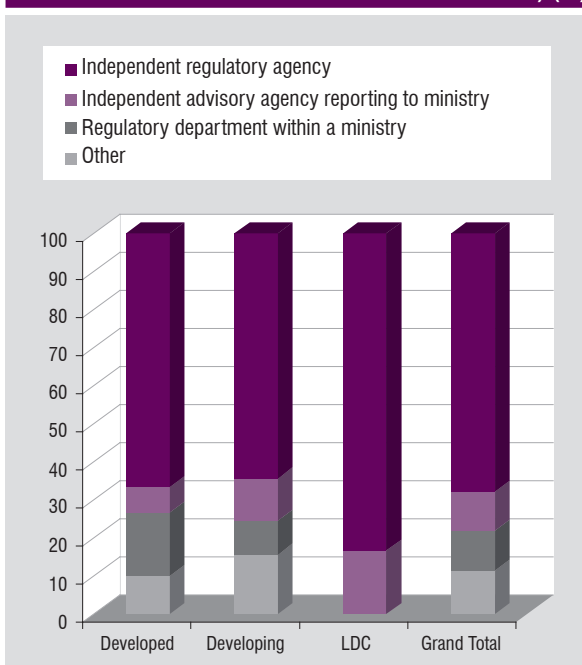
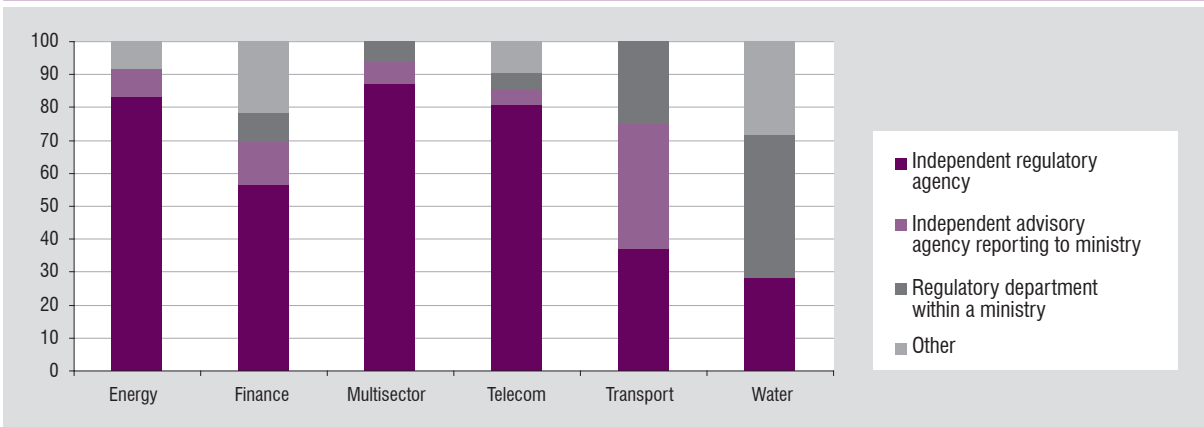


Figure II.3. Level of independence of regulatory agencies per sector (%)



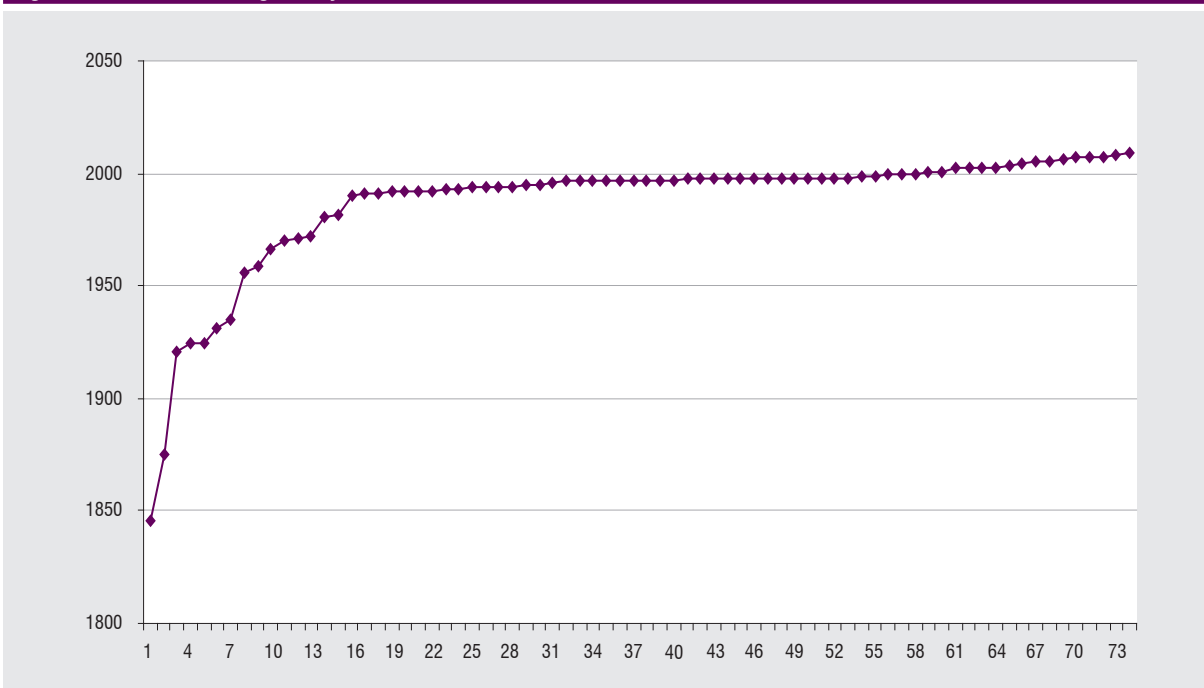
was created in the 1980s. The regulators that reported their creation date to be before 1980 include 9 regulators in the finance sector, 1 energy regulator, 1 multi-sector regulator and 2 water regulators.

How does the regulatory agency rate its level of autonomy and from what source does it derive the legal authority to carry out economic regulation?

The concept of *autonomy* of the regulator as it is used in this questionnaire is a slightly more complex or subjective notion as it is based on self-assessment by the institutions concerned. The independence/

autonomy of the regulator can be associated *inter alia* with the source from which the institution derives the legal authority to carry out economic regulation. For the independence/autonomy of the regulator to be real the institution must be established within a broader legal framework. However, absolute independence of regulatory bodies is neither possible nor desirable.¹¹ Moreover, the independence and autonomy of regulators can be related to staffing issues (discussed in section 3) as occurrences such as a high turnover of commissioners may undermine regulatory independence.

Figure II.4. Number of regulatory institutions over time



It is generally considered that one of the criteria of regulatory independence is that the regulatory agency be created by law (or constitution), rather than by decree or other subsidiary legislation. The inclusion in the constitution of a country may be a more burdensome and lengthy process which probably explains why the majority of respondents answered that they drew their legal authority from a law or statute as opposed to the Constitution itself. Only a minority of respondents (4 per cent) indicated getting their legal authority from a governmental decree while almost 20 per cent indicated that their authority derived from a combination of sources.

It is important, however, to consider whether the institutional model is being contemplated for adoption may be incompatible with established and accepted legal or cultural norms in a country. One example is that of a country's constitution which prohibits a minister from delegating final decision-making authority to a non-ministerial body. Alternatives must in this case be considered such as the creation of a body that provides advisory opinions even if all final decisions are legally required to remain with the minister.¹²

Almost half of the respondents considered themselves to be "completely autonomous" while a slightly smaller proportion of them stated that they were "somewhat autonomous". All responding organizations which considered that they were not autonomous were of the category "Regulatory departments within a ministry". If one considers the answers of this group more closely, 50 per cent of them consider themselves

as "not autonomous", 37.5 per cent as "somewhat autonomous" and only in 12.5 percent as "completely autonomous". Those who have declared themselves as not autonomous strongly believe that being autonomous is important for a regulator.

What sectors is the regulator directly involved in?

There are several options when establishing regulatory institutions for infrastructure services. For example, it is possible to choose between a *single-sector* and a *multi-sector regulator* (for various sectors). For developing countries in particular there can be advantages to establishing a multi-sector regulators linked with the commonalities in the handling of economic issues for various infrastructure services sectors: economies of scope in regulating sectors together; better use of scarce human/financial resources shared across sectors; effective management of firms operating in more than one sector; and greater facility in addressing linkages between sectors. One additional benefit that is sometimes cited is a better ability to resist political interference (because broader constituencies give the institution a greater independence from sector or line ministries).

The results of the survey show that many regulators are involved in multi-sector agencies, or in regulating several sub-sectors within a same sector (e.g. an energy regulator active in the electricity and gas sub-sectors). Also, many indicate that they are involved in dealing with competition issues. These results reflect both the interlinkages between sectors and sub-

Figure II.5. Source of legal authority (%)

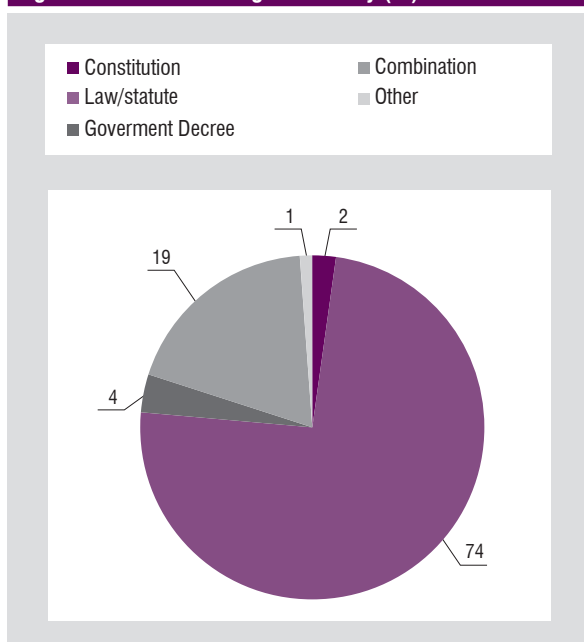


Figure II.6. Self-declared level of autonomy (%)

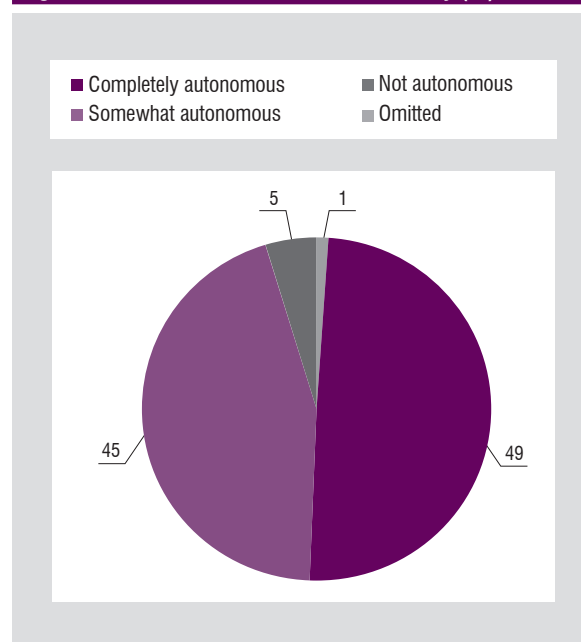


Table II.3. Involvement of Regulators across Sectors

Direct sectors regulated	Number of regulators	These regulators also indirectly regulate the following sectors	Multi-sector	Same sector, but different sub-sector	Others	Competition	No information
Competition	1		1
Energy	11		1	2	...	5	3
Finance	23		7	7	1	1	7
Multi-sector	16		3	...	3	3	7
Telecom	20		3	4	1	5	7
Transport	7		1	3	3
Water	7		1	2	2	...	2
Grand Total	85		17	15	7	17	29

sectors as well as between work of sector regulators and competition authorities.

Does a separate competition authority exist in the country and do regulators and competition authorities collaborate with one another?

In most countries sector regulators were established in parallel to competition authorities. The work of regulators tends to be of a general nature and to take place *ex ante* (e.g. incentives for investors, granting of concessions, determination of acceptable prices levels), while competition authorities tend to intervene *ex post* and on a case-by-case basis.

Given potentially overlapping functions, there is a need for effective coordination to minimize uncertainty regarding the jurisdiction of particular regulators and

to avoid confusion for consumers and the business community.

The results of the survey suggest that in most responding countries, sector regulators and competition authorities do not collaborate with each other. In cases where collaboration does exist, it takes various forms, such as regular meetings and exchange of information, ad hoc informal meetings on topics of common interest, consultation with the competition authority on draft regulations that may have an impact on competition, providing opinions upon formal requests from the competition authority. In a few cases, collaboration is done through such mechanisms as interface agreement, a protocol or memorandum of understanding between the competition authority and the sectoral regulator, regular meetings and exchange of information.

Figure II.7. Existence of a separate competition agency (%)**Table II.4. Share of Respondents that Collaborate with Competition Agencies (%)**

Not responded	Collaborate	Don't collaborate	Grand Total
7	20	74	100

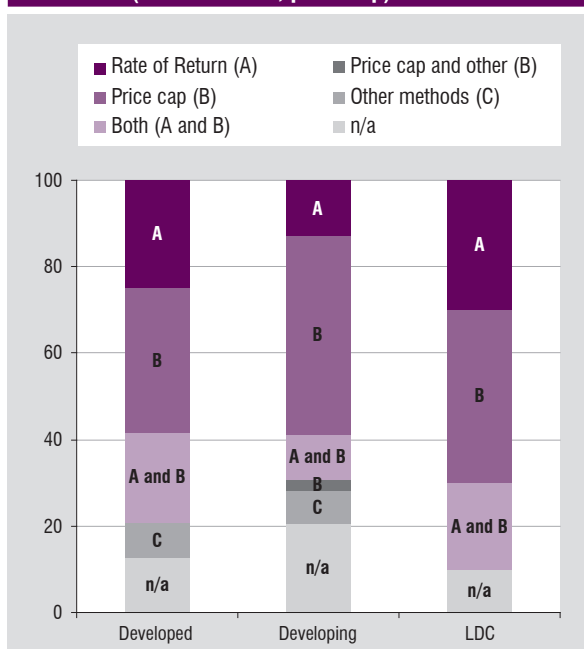
2. Regulatory Substance

What pricing method does the regulator use and what are challenges encountered?

Main targets of regulation in infrastructure services sectors cover such aspects as market structure and entry, pricing and universal access. Pricing is at the core of economic regulation. The two main pricing approaches are (a) rate of return and (b) price caps. There also exists a hybrid approach in which some cost changes are automatically passed through to tariffs. Existing research shows that the type of pricing regime has a bearing on overall infrastructure services sectors performance.

The results of survey show that price cap seems to be more common in all countries irrespective of their development status, but it is more common in developing countries than in developed countries and LDCs. LDCs use the rate of return approach more than developed and developing countries.

**Figure II.8. Applied pricing methods
(Rate of return, price cap)**



**Table II.5. Challenges in Price Regulation
(Multiple choices possible) (%)**

List of challenges	Share from total of responses
a. Insufficient data availability	59.7
b. Unforeseen changes to market conditions	37.1
c. Negative reactions by investors	25.8
d. Negative reactions by consumers	27.4
e. Other	14.5

The challenge lay in determining prices that struck a socially acceptable balance between the interests of investors and those of consumers. However, there are a number of difficulties associated with identifying such socially-balanced prices. Among the key operational challenges associated with price regulation is limited data availability. Data requirements are demanding and complicated by problems of information asymmetry between regulators and service providers. Enhanced transparency through independent reporting or auditing is thus important.¹³

Two other challenges need to be taken into account: how to treat extraordinary events that impact earnings and the treatment of controllable and non-controllable costs.¹⁴ In some instances the regulator allows the operator to pass through to customers changes in non-controllable costs. A typical example of non-

controllable costs is the cost of fuel for electricity generation which is traditionally considered beyond the control of the electricity generator.¹⁵

The results of the survey indicate that most respondents agreed that insufficient data availability is the major challenge in price regulation (accounting of 60 per cent of the responses) followed by unforeseen changes to market conditions (37 per cent of the responses).

Does the regulator have a specific universal access policy for its sector and how are universal access UA goals achieved?

Universal access is also an important aspect of infrastructure services regulation as it used not only for promoting investment and expanding these sectors but also to achieve a country's social objectives such as ensuring access by all to essential services, to expand service delivery to certain un-served areas or to deliver at affordable prices.

The results of the survey show that in all categories of countries (developed, developing and LDCs) the majority of respondents did have a specific universal access policy. The percentage of respondents stating that they have such a policy is significantly larger in LDCs and developing countries than in developed countries. One explanation for this may be that universal access has already been achieved in certain sectors in developed countries - through earlier market development and reforms - so a specific policy is no longer needed.

Regulation in this regard takes several forms including universal service obligations, which can be imposed on all or some of the services providers or subsidies to either infrastructure services providers or consumers or statutory universal services obligations on service providers with a view to ensuring service delivery

Figure II.9. Existence of a Universal Access Policy (%)

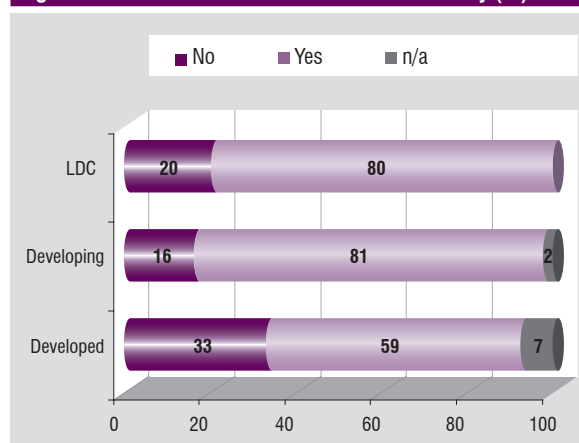
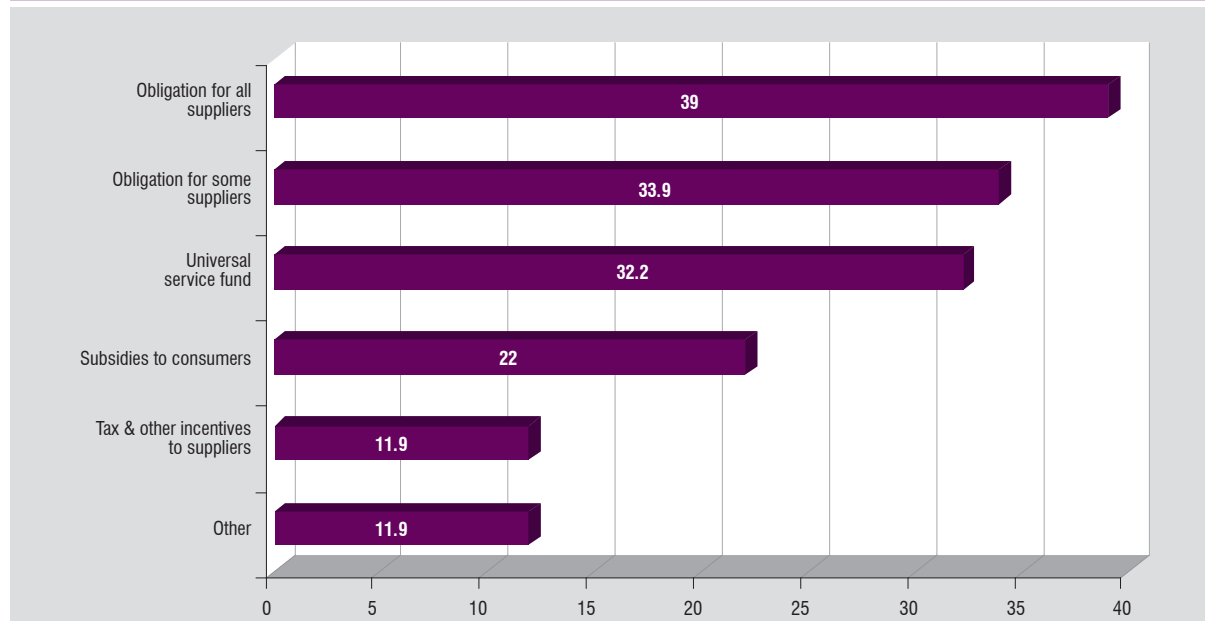


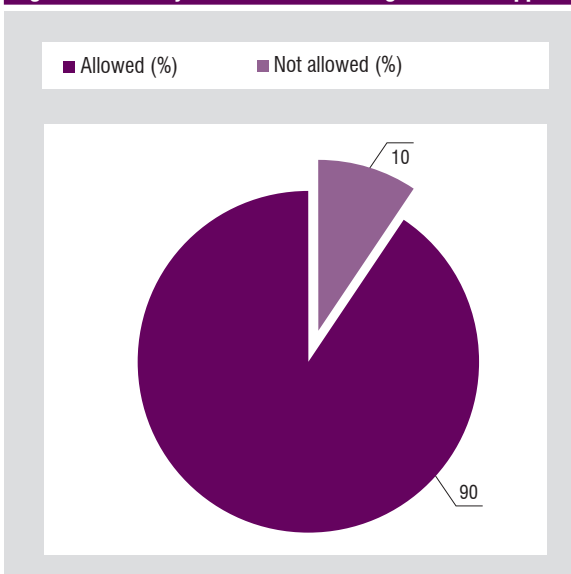
Figure II.10. Various options for universal service funding (%)

at an affordable price or to otherwise un-served remote areas or poorer segments of the population. Alternatively, many countries have opted to create a fund to help advance universal access objectives.

The results of the survey suggest that universal access obligations for some or all suppliers is the main approach to achieve universal access goals (accounting for 72 per cent of the responses) followed by universal service fund (32 per cent of the responses) and subsidies to consumers (22 per cent of the responses).

Are foreign operators allowed in the domestic market with their management and expert personnel being brought from abroad on a temporary basis?

The regulation and liberalization of services are two phenomena that for a long time were kept separate. Regulators did not normally have to worry about the trade-related or discriminatory impact of their regulations on foreign service suppliers. Moreover, infrastructure services have traditionally been provided by Governments. However, over the past decades, with a world economy that is increasingly globalized, reforms in countries to unbundle and open most infrastructure services sectors to private participation - including through privatization, PPPs, concessions, build-operate-transfer, foreign investment and international trade - and the inclusion of liberalization principles covering key infrastructure services sectors in the multilateral trading system as well as the bilateral, and regional services trade agreements have led to the entry into domestic markets of foreign services providers. This entry can take the form of

Figure II.11. Entry into markets of foreign service suppliers

firms establishing themselves through commercial presence of natural persons present in the market of another country than his/her own to provide services on a temporary basis.

The responses to the questionnaire indicate that in the vast majority of cases foreign service suppliers are allowed to enter into the domestic market, with the financial sector and telecommunications taking the lead in absorbing foreign presence. Foreign operators are generally allowed to bring in their management and expert personnel from abroad on a temporary basis.

3. Staff and Staff Development Issues

Significant human resources and skills are required in designing and implementing effective and efficient infrastructure frameworks.

How is the regulatory agency managed?

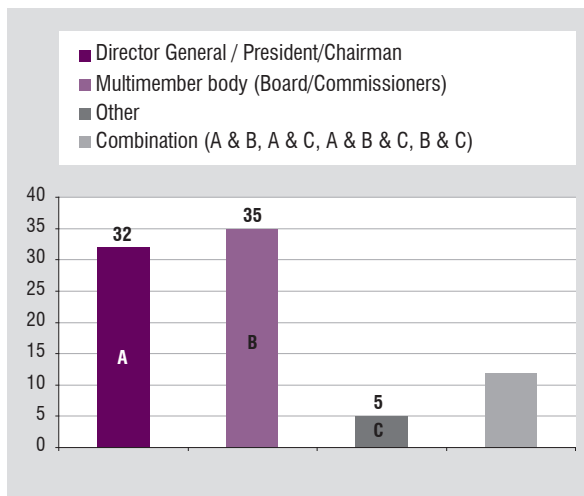
Studies suggest that being responsive to broad policies of the government and ensuring independence is important for effective regulation. In this sense, having well defined professional criteria and transparent process of appointments, ensuring appointments for fixed periods and providing for the removal of staff only for serious causes such as irresponsibility, illegal act, or misconduct are key elements to gauge independence from political intervention and being subject to system of check and balances.

The results of the survey suggests that most of the regulatory agencies are managed (a) through a multimember board, chaired by board and commissioners or (b) by a Director General, President or Chairman.

Are terms the regulatory agency's head(s) fixed or infinite, who determines this and how can they be removed?

The results of the survey also suggest that, in most developing countries, the head or board of the agency is selected by presidential appointment or by departmental minister appointment (particularly in developing countries). In developed countries departmental minister appointments are fewer than in LDCs. The survey also shows that the category "other" captured the involvement of other stakeholders such as the Head of State (the King), the Board of Commissioners, the Supervision Board, or a public contest.

Figure II.12. The management of regulatory agencies



Most of the surveyed independent regulatory agencies indicated that the term of the head of the regulatory agency is fixed. The maximum length of cumulated terms for a head with fixed term contracts is 16 years. When appointments of head of the regulatory agency are indefinite, it is at the discretion of the president or the department minister.

In most cases, respondents indicated that the head of the regulatory agencies could be removed by the state court of justice, the attorney general, the parliament or the board of governors. The survey also shows that in case the terms are fixed the regulatory agencies' head

Figure II.13. Involvement of different actors in the selection of the head or board of the regulatory agency (%)

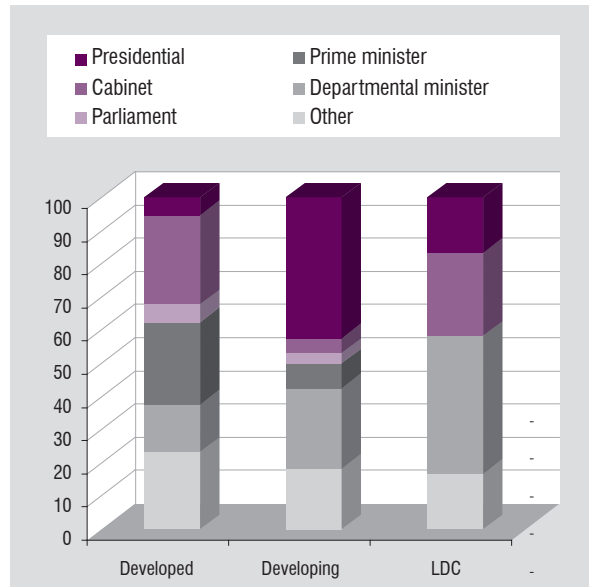


Figure II.14. Maximum length of term for head of agencies with fixed-term contracts

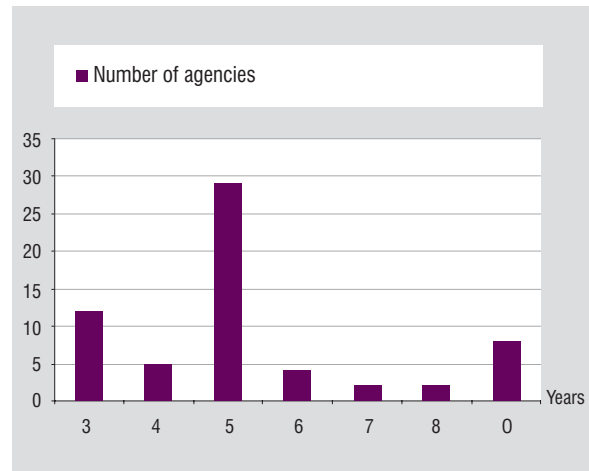
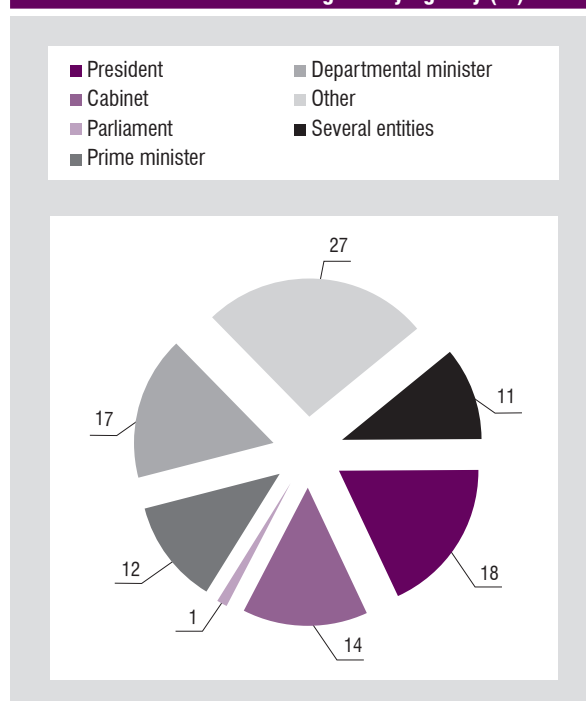


Figure II.15. The entity with the legal power to remove the head of the regulatory agency (%)

can be removed for causes such as irresponsibility, illegal act, misconduct, etc.

What is the number of total staff employed by the regulator and what professions are represented among the agency's staff?

The following results were obtained in the survey concerning composition of staff and term of employment:

- Average number of staff employed is 678.
- The highest number of staff employed was 17 000 (an environmental protection agency) and the lowest 8 (a regulator for postal services).

- 60 per cent of staff are employed for more than 5 years.
- In developed countries the staff is mainly composed of economists, followed in importance by administrative and lawyers. In developing countries, most of them are engineers and administrative and in LDCs, they are mostly accountants, engineers and administrative.
- Most of the staff in regulatory agencies are permanent.

Concerning staffing needs, the survey results indicate that developed and developing country respondents believe their total amount of staff is sufficient to fulfil the agency's responsibilities, while this is not the case of LDC respondents. It is worth noting that, in the case of developing countries, a large number of agencies surveyed indicated that the total number of staff was not sufficient to fulfil its responsibilities.

Is the total number of staff in your agency sufficient to fulfil the regulator's responsibilities and which categories of professional staff does the regulator lack?

The results of the survey indicate that over 60 per cent of developed and developing country respondents consider that they have a total number of staff which is sufficient to allow them to fulfil their responsibilities. In contrast less than 20 per cent of LDC respondents consider that they are in that case.

When asked why regulatory agencies believed they did not have the sufficient staff to fulfil the agencies responsibilities, respondents indicated this was due to lack of financial resources (they cited uncompetitive pay, growing demand in tasks and responsibilities not matched with budget increases and public sector cutbacks) and lack of qualified professionals in the labour market.

Building regulatory capacity is an essential element to making regulation effective. Various organizations and

Table II.6. Composition of Specialists in the Regulatory Agency (Simple average in percentage) (%)

Specialist	Developed	Developing	LDC	All Countries
a. Economists	17.7	8.4	11.6	11.8
b. Lawyers	13.8	8.3	5.1	9.7
c. Accountants	1.6	7.1	18.7	6.8
d. Technicians	11.2	9.0%	6.5	9.4
e. Engineers	12.7	14.8	14.2	14.1
f. Advisors	1.9	4.4	3.4	3.5
g. Administrative	14.5	14.0	13.6	14.1
h. Other	13.4	21.5	18.3	18.6
Not defined/missing	13.4	12.5	8.6	12.0

Figure II.16. Evaluation of whether existing number of staff is sufficient to fulfill the regulatory agency's responsibilities (%)

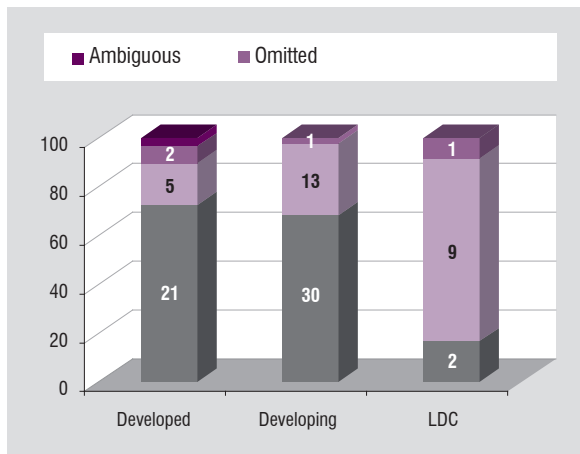


Figure II.17. Evaluation of whether the number of high-level professional staff is sufficient to fulfill the regulatory agency's responsibilities (%)

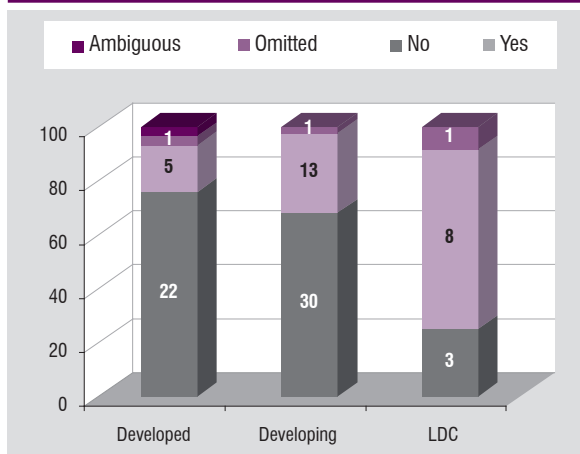
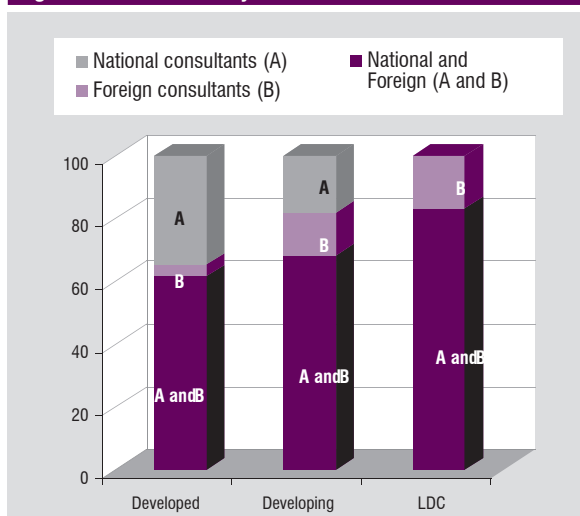


Figure II.18. Nationality of consultants



donor countries have devoted resources to enable developing countries retain the services of consulting experts to work with and to train regulators. Others have made this a conditionality for loans or grants. However, while all of these programs are useful, they are not necessarily fully sustainable on their own and sufficient efforts have not necessarily been expended to ensure effective capacity building. It is important, therefore, for countries with functioning regulatory systems, or even contemplating them, to fully support the requisite intellectual infrastructure that will not only assist in the building human resource capacity, but will also enrich the debate on regulatory matters.¹⁶

With respect to high level professional staff, the majority of regulatory agencies in developed and developing countries (75 and 68 per cent respectively) believed their number of staff is sufficient to fulfil the agency responsibilities. This was not the case in LDC respondents (only 25 per cent thought they had enough professional staff members).

When asked about how does insufficient number of high level professional staff limit their performance, the agencies responded that it affects their monitoring, analysis and enforcement capacity, delays decisions and affects the quality and coverage of activities. The data collected in the survey indicates that high level professional staff specialized in economics and law are most needed.

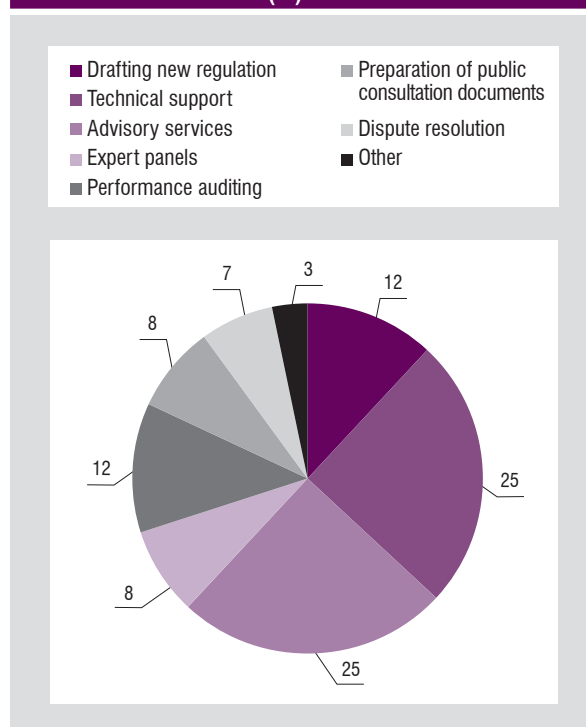
What has been the experience of the regulator with private consultants?

The use of consultants can complement regulatory capacity and help improve regulatory performance, particularly in IRAs that are intensive in knowledge and information technologies. Ensuring an effective transfer of skills between the consultant and regular staff of the regulatory agency is important to avoid substituting the local regulatory capacity.

With respect to the services of consultants by regulatory agencies, the survey indicates a high percentage (98 per cent) of regulators of use of consultants irrespective of the development status. Agencies also indicated they generally believed their experience with consultant services was good.

Results of the survey also indicate that among LDC respondents none indicated relying solely on national consultants.

Outsourcing of certain functions can be an efficient manner to make up for they lack of human resources. External experts can for example provide inputs as advisors to improve competence or as decision-makers in order to enhance the independence and legitimacy of the regulator when necessary.

Figure II.19. Type of functions outsourced to consultants (%)

However, this does give rise to a number of issues including potential conflicts of interest introduced by outsourcing. While it is expected that the consultants recruited will be independent politically, they can in some case represent certain interests (i.e. favouring a particular company), thus putting into question the legitimacy and independence of their services. For outsourcing to be successful, several criteria can be used including ensuring: (a) clear criteria of what needed to be done; (b) engagement of an appropriate consultant familiar with the issues at hand; and (c) a consulting contract with clear terms of reference and provisions spelling out criteria for the dismissal of consultants if the terms of reference were not met.¹⁷

The results of the survey show that the functions that

are mostly outsourced to private consultants include technical and advisory services, followed by drafting of new regulations and performance auditing.

An alternative reason for periodically retaining the services of outside consultants (both nationals and foreigners) would be to provide an independent assessment of the regulatory system and assess the performance not only of regulatory agencies, but the entire regulatory system, including the relevant laws, processes, resources, governmental actions, institutional arrangements, substantive provisions such as ratemaking and tariffs, market rules, and other issues.¹⁸

What incentives does the regulator use for new recruits?

Staff incentives are important in terms of recruiting and retaining staff and securing national competencies with respect to regulation, particularly in cases where the number of professionals is limited. The results of the survey indicate that health insurance (59 per cent), competitive pay with respect to the private sector (58 per cent) and vacation time (45 per cent) are cited as the most common

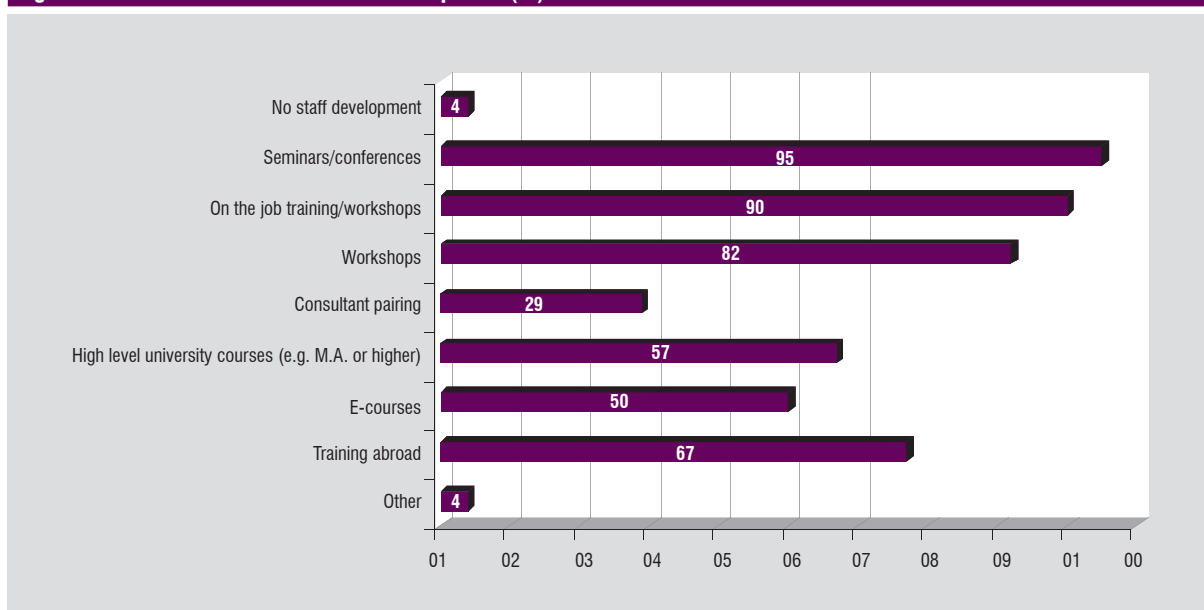
How does the regulator ensure staff development?

The competence of regulatory staff is important for having an effective regulatory quality and the credibility of regulatory decisions. Capacity building efforts therefore need to be continuous to have a real impact on human resources. In this sense, ensuring staff development is a key aspect to building skills related to guiding, negotiating, regulating and monitoring infrastructure frameworks.

The results of the survey show that the preferred training programmes are seminars and conferences and on the job training workshops, while e-learning courses and consultant-pairing seem to be less popular. Regulators indicated the following skills, shortcomings and training needs in the survey.

Table II.7. Other Incentives Provided for Recruitment and Retaining of Staff

Prestige	Being nominated as a civil servant
Working environment	Enabling environment, convivial environment, flexible working arrangements, job security, challenging environment
Support for studies	Specialized training, paying Ph.D. and master's programs, study aid
Support for housing	Housing allowance, soft loans, repaying water charges consumption,
Other types of support (financial)	Fuel allowance, bonuses, pension funds, pension allowances, life insurance, transport allowance
Non financial support	Paternal leave, parking

Figure II.20. Methods used for staff development (%)

4. Financial and Other Resources

What are the regulator's sources of revenue and are these sufficient to fulfill regulatory tasks?

Financial resources are key to establishing effective and efficient regulatory frameworks in infrastructure services, particularly in sectors affected by changing technologies and characterized by sunk costs and where regular investment for maintenance is required (i.e. energy and transportation). Budget sufficiency and reliable sources of funding are key elements to establishing regulatory credibility and ensuring universal access.

The survey results indicate that, in most cases, the revenue comes from the Government. However, there are differences per sector with respect to the sources of funding. For instance, the competition authorities generally rely only on Government funding and most of the funding for the transport sectors also comes

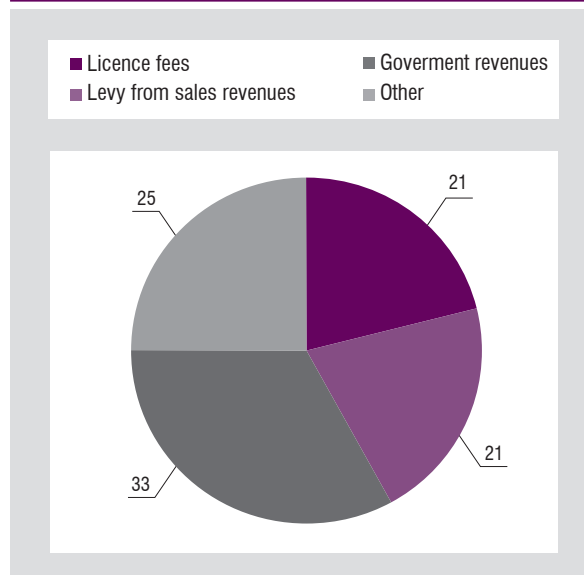
from Government sources. In the case of energy, most of the revenue comes from sales and in the case of telecommunications from license fees.

Regarding whether financial resources were sufficient to fulfil regulatory tasks, most of the responding regulatory agencies in developed and developing countries answered yes (respectively 72 and 66 per cent), while only 33 per cent of LDC respondents answered this was the case. The question as to why agencies believed they were underfunded received the following responses:

- The industry/sector requires extensive technical expertise and constant updating of technologies.
- High cost of ensuring universal access to essential services.
- Dependence on foreign aid which is sometimes insufficient.
- License fees/services fees are not sufficient to cover agencies expenditures.

Table II.8. Skills Shortcomings and Training Needs

Area	Specific needs
Design of policies	Strategic planning, risk modeling, market analysis and regulatory impact analysis
Regulatory oversight, monitoring performance and assessment of regulatory systems	- Regulatory finance, drafting laws, auditing, renegotiation of concession contracts - Competition analysis and promotion, including unbundling and significant market power
Handling consumer complaints	Developing empathy capabilities
Regular updating of skills in connection in highly technical issues	Regulation in the Internet and telecommunications sectors
Air transportation specifics	Air safety, training for flight operations, aeronautical cartography, flight transit
Other	Communication skills, teamwork, language, crisis management

Figure II.21. Sources of revenue (average, as % of total revenue)

- Having to confront unforeseen expenses due to a particular circumstance.

Is the regulator adequately equipped to complete regulatory tasks and what equipment or technology does it lack the most?

With respect to equipment, most regulatory agencies in developed (62 per cent) and half of the agencies in developing countries (52 per cent) indicated they believed they were adequately equipped to fulfil their regulatory tasks. The majority of LDC respondents (72

per cent) on the other hand, believed they were only “somewhat well” equipped to perform their tasks.

Most of the responses (from agencies who consider that they are not adequately equipped) point out that the lack of software was the most pressing need among other options. When answering “Other” respondents clarified that this related *inter alia* to video conferencing equipment, testing laboratory for communication equipments, testing device for Electromagnetic Radiation (EMR), radio frequency monitoring equipments, software for billing and Human Resource management, monitoring equipment, security equipment, and specialist quality testing equipment.

5. Various Forms of Cooperation

Does the regulator cooperate with other countries, under what form and how would it rate its experience to date?

Cooperation (including inter-governmental and public-private cooperation, as well as cooperation at bilateral, regional and international levels) offers opportunities with respect to regulation, such as:

- developing harmonized regulatory regimes;
- transferring technical skills, knowledge and best practices; and
- pooling regional resources, to increase the effectiveness of regulatory institutions and reduce costs.

It is also possible for regulators to coordinate in a very formal way, e.g. by developing a joint manual on regulatory accounting, common practices on service

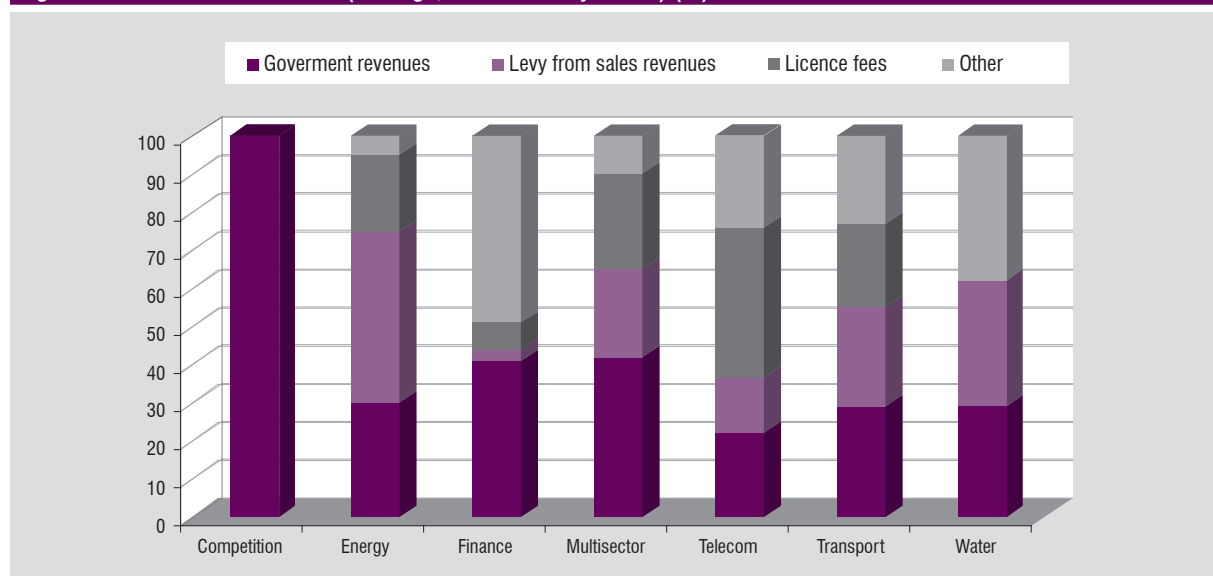
Figure II.22. Sources of revenue (Average, Breakdown by sector) (%)

Figure II.23. Evaluation of Whether the Agency's Financial Resources are Sufficient to Fulfill Regulatory Tasks (%)

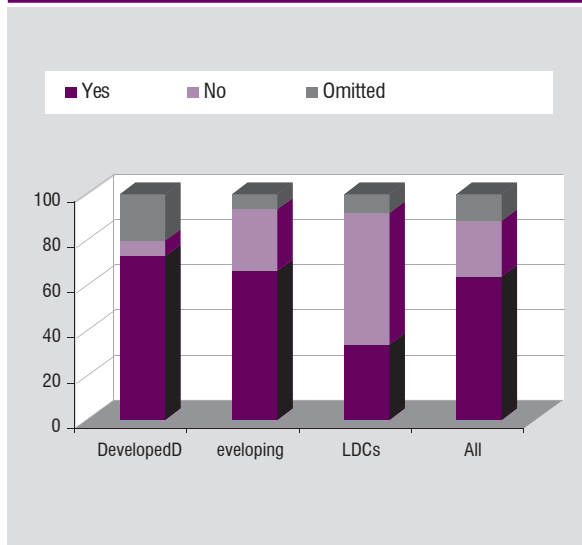


Figure II.25. Equipment or Technology that the Regulatory Agency is Lacking

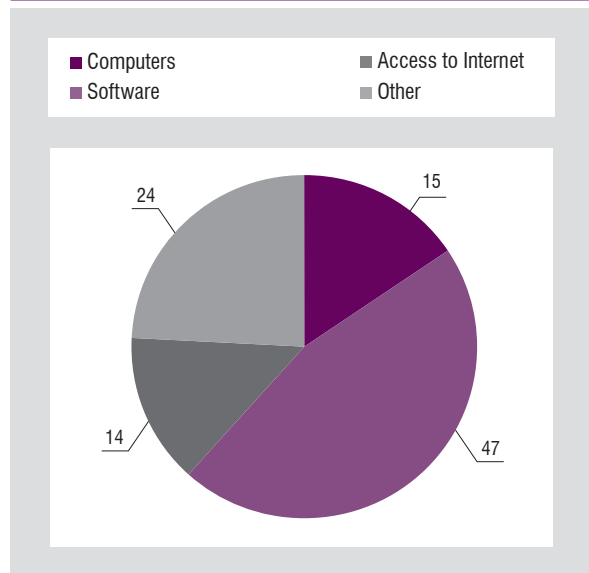
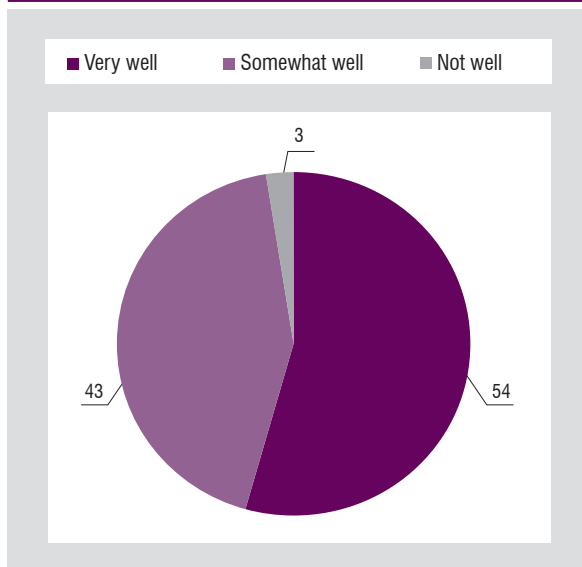


Figure II.24. Evaluation of whether the Regulatory Agency is Equipped to Fulfill Regulatory



quality information, common filing and reporting requirements, and other matters. This reduces the work burden on individual regulatory agencies and personnel. That type of formal cooperation might be very useful for regulators in developing countries. It might also lead to more meaningful interaction between regulators than is customary (e.g. interactions during conferences). Another means of interaction, which has recently been tested, is a peer review process where a team of regulators from a group of countries, visit a regulatory agency and evaluate its

performance, processes, structure, and issues. While the process is too new to be able to fully assess its effectiveness, the concept holds promise.¹⁹

In developing countries, international regulatory and trade cooperation play an important role in support of national efforts to create effective, efficient and workable infrastructure framework, as it can address cross border externalities and overcoming regulatory and institutional constraint at the national level.

The results of the survey show that cooperation is present in all sectors analyzed and very widespread. 100 per cent of all respondents representing competition authorities, telecommunications and water regulators said they were cooperating with other countries. Over 80 per cent of regulators from the energy and finance sectors as well as multi-sector regulators also indicated that they cooperate with other countries as do 71 per cent of transport regulators. Furthermore, this widespread cooperation exists irrespective of development status.

According to the survey results, the most common form of cooperation is information exchanges, followed by participation in international associations and participation in regional expert panels. Other forms of cooperation that the regulatory agencies included: cooperation related to human resources (internships, training, secondments) and regional guidelines to develop regulation.

Half of the regulatory agencies (51 per cent) believed their experience of cooperating with other countries was "good", while 39 per cent believed it was "excellent". None of the respondents rated their experience as poor.

The questionnaire sought insights mainly with respect to cooperation between regulatory agencies from different countries. However, other forms of cooperation are relevant and include: cooperation between service providers from different countries leading to the development of cross-border infrastructure networks or infrastructure sharing as well as regulatory cooperation between authorities and service providers and other stakeholders (e.g. self-regulation and co-regulation).

Conclusions

The 85 completed questionnaires provided UNCTAD with provided very useful insights on key institutional and regulatory issues affecting infrastructure services sectors as well as more specific challenges and constraints faced by sector regulators and competition authorities in terms of their staffing and staff development initiatives, financial resources and the forms of cooperation that they engage in.

Figure II.26. Cooperation with Other Countries (Breakdown by sector) (%)

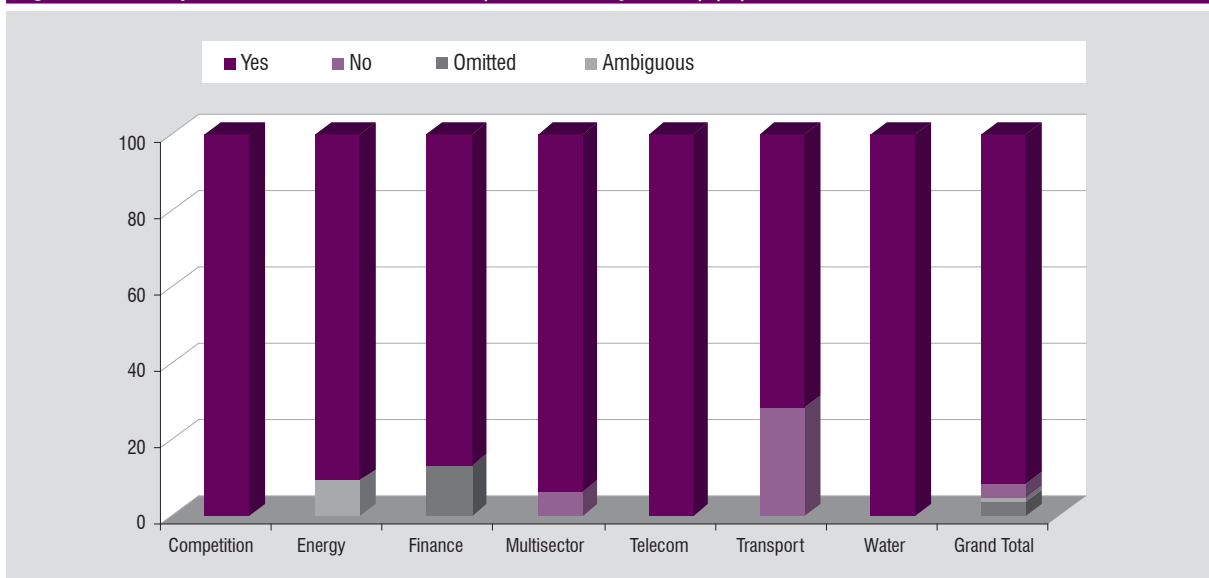


Figure II.27. Forms of Cooperation (%)

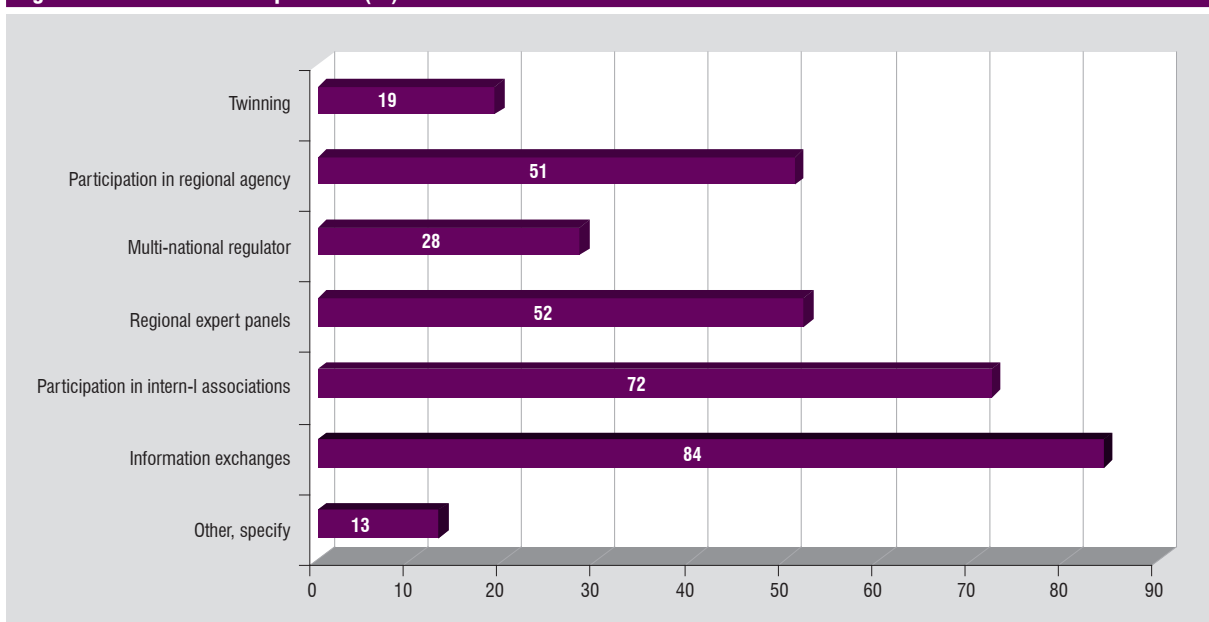
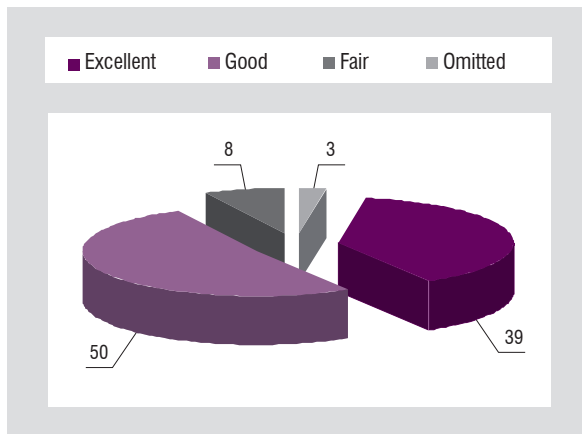


Figure II.28. Rating of the Cooperation with Other Countries (%)



The results of the survey indicate that in many cases the challenges faced by regulatory agencies are similar, irrespective of their development status. However, in several cases LDC respondents answered in a manner that was significantly different from their developed and developing counterparts. This was the case for example, when it comes to staffing needs, particularly in the professional category, equipment needs and financial constraints. This points to the necessity

for LDC-specific support and programmes that promote the development and further strengthening of regulatory and institutional frameworks.

As concerns an evaluation of the survey itself number of other difficulties that appeared from the analysis of responses received (e.g. the need to clarify the terminology used by providing definitions at the end of the survey, the need for more “closed” questions as opposed to asking the respondents to provide an independent or “open” response, the need to provide more guidance to the respondents²⁰ and possibly the need for a section of the questionnaire that can be answered by all and sector-specific section when the issues discussed are not relevant for all sectors or not comparable across regulators). UNCTAD suggests that the survey become a regular feature of the next sessions of the Multi-Year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension. This would allow for some fine-tuning of the questionnaire and the opportunity to focus on specific issues that will have come out of the discussions of the second session of the expert meeting, to be held from 17-19 March 2010. This would also provide a unique opportunity to assess the extent to which the ongoing economic and financial crisis but also the climate change challenges will impact on countries regulatory and institutional frameworks.

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ANNEX II.1

QUESTIONNAIRE FOR INFRASTRUCTURE SERVICES REGULATORS

The United Nations Conference on Trade and Development (UNCTAD) has designed this survey to collect and eventually disseminate data on regulatory agencies in accordance with the recommendations of the Multi-Year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension, which held its first session in Geneva 17-19 March 2009. The goal of this survey is to take stock of the regulatory environment in key Infrastructural Services (IS) in order to ascertain regulatory and institutional best-practices, and challenges faced by regulators in developed, developing and least developed countries.

This survey is composed of VI sections and 47 questions. Please answer each question to the best of your knowledge. Responses will be treated in a confidential manner and will not be attributed to individual persons and/or organizations.

PLEASE COMPLETE AND RETURN THE SURVEY BEFORE END OF OCTOBER 2009.

Name of respondent:

Your position or title:

Name of the agency/ministry:

Country:

I. REGULATOR

1. Are you:

- a. An independent regulatory agency
- b. An independent advisory agency reporting to a ministry
- c. A regulatory department within a ministry
- d. Other (please specify)

2. When was the agency created?

3. Does the agency/ministry derive its legal authority to carry out economic regulation from:

- a. Constitution.....
- b. Law/statute
- c. Government decree.....
- d. Contract.....
- e. Combination of the above (please explain)
- f. Other (please explain)

4. How would you rate your level of autonomy?

- a. Completely autonomous
- b. Somewhat autonomous
- c. Not autonomous

5. How would you rate the importance of autonomy as a prerequisite for an efficient regulator?

- a. Very important
- b. Somewhat important
- c. Unimportant
- d. Other (please explain)

6. What sectors are you directly involved in?

- a. Energy/electricity
- b. Telecommunications
- c. Water
- d. Financial
 - i. Banking
 - ii. Insurance
- e. Transport
- f. Competition
- g. Other (please list)

7. What sectors are you indirectly involved in (please check all that apply)?

- a. Energy/electricity
- b. Telecommunications
- c. Water
- d. Financial
 - i. Banking
 - ii. Insurance
- e. Transport
- f. Competition
- g. Accounting
- h. Other (please list)

8. Does a separate competition authority exist in the country?

- a. No
- b. Yes

9. If the competition authority exists do you collaborate with it on issues specific to your sector (e.g. anticompetitive safeguards)?

- a. No
- b. Yes
- i. What mechanisms, if any, are in place to avoid overlapping functions and ensure effective collaboration?

10. What pricing method is used by your organization?

- a. Rate of return
- b. Price cap

11. What main challenges do you face with price regulation?

- a. Insufficient data availability
- b. Unforeseen changes to market conditions
- c. Negative reactions by investors
- d. Negative reactions by consumers
- e. Other (please list)

12. Do you have a specific universal access policy for your sector?

- a. No
- b. Yes

13. If yes to question 12, how are universal access goals achieved?

- a. Universal service obligations for some suppliers
- b. Universal service obligations for all suppliers
- c. Tax and other incentives to suppliers
- d. Subsidies to consumers.....
- e. Universal service fund
- f. Other (please list)

14. If you use universal service fund, how would you rate your experience with this mechanism?

- a. Excellent
- b. Good.....
- c. Fair
- d. Poor
- Please comment:.....

15. Are foreign operators allowed to provide services in your country?

- a. No
- b. Yes

16. If foreign operators are present in the country, are they allowed to bring in their management and expert personnel from abroad on a temporary basis?

- a. No
- b. Yes

17. Are you involved with consultations regarding bilateral, regional or international trade negotiations or in other trade -related work with the ministry in charge of trade agreement (e.g. Foreign Affairs or Ministry of Trade)?

- a. No
- b. Yes
- i. In what capacity?

II. STAFF**1. How is the regulatory agency managed?**

- a. Director general/President/Chairman
- b. Multimember body (Board/Commissioners)
- c. Other (please explain)

2. How is the head or board of the agency selected?

- a. Presidential appointment
- b. Cabinet appointment
- c. Parliament appointment
- d. Prime Minister appointment
- e. Departmental minister appointment
- f. Other (please explain)

3. Are regulatory agency heads' terms:

- a. Fixed (please specify maximum length of term)
- b. Indefinite (please specify at whose discretion)

- i. President
- ii. Cabinet
- iii. Parliament
- iv. Prime Minister
- v. Department Minister
- vi. Other (please explain).....

4. If terms are fixed, are they the same term as the period between elections or different from the period between elections?

- a. Same
- b. Different
- c. Other (please explain)

5. Under the law, who has the power to remove regulatory agency heads?

- a. President
- b. Cabinet
- c. Parliament
- d. Prime Minister
- e. Department Minister
- f. Other (please explain)

6. If their terms are fixed, are regulatory agency heads subject to dismissal before the end of their term?

- a. No
- b. Yes
 - i. For any reason.....
 - ii. For specific reasons (please list some examples below).....

7. What percentage of your staff have you employed for:

- a. Less than two years %
- b. Two to four years %
- c. More than five years %

8. What is the number of TOTAL staff employed in your agency?

9. How many of each of the following specialties are there among your agency's staff?

- a. Economists
- b. Lawyers
- c. Accountants.....
- d. Technicians
- e. Engineers
- f. Advisors
- g. Administrative.....
- h. Other (please list)

10. Is the TOTAL number of staff in your agency sufficient to fulfil the agency's responsibilities?

- a. Yes
- b. No (please explain)

- 11. Is the number of high-level professional staff in your agency sufficient to fulfil the agency's responsibilities?**
- a. Yes
- b. No (how does this limit the performance of the agency?)
- 12. What is the ideal number of high-level professional staff that you would like to have?**
- 13. In what fields of specialization are you lacking high-level professional staff? (please list all that apply)**
- 14. What is your proportion of permanent to temporary staff?**
- a. Permanent
- b. Temporary
- 15. Have you relied on the services of private consultants in the past?**
- a. Yes
- b. No
- 16. If you have used the services of private consultants, are these consultants:**
- a. National consultants
- b. Foreign consultants
- 17. Which functions did/do you outsource to private consultants?**
- a. Drafting new regulation
- b. Technical support
- c. Advisory services
- d. Expert panels
- e. Performance auditing
- f. Preparation of public consultation documents
- g. Dispute resolution
- h. Other (please specify)
- 18. How would you rate your experience with their services?**
- a. Excellent
- b. Good
- c. Fair
- d. Poor
- 19. If you do not currently rely on private consultants, do you plan to do so in the future?**
- a. Yes
- b. No
- 20. What types of incentives do you provide for new recruits (please check all that apply)?**
- a. Health insurance
- b. Competitive pay with private sector
- c. Sign-on bonus
- d. Vacation time
- e. Other (please list in detail)
-

III. STAFF DEVELOPMENT

1. How do you ensure staff development (please check all that apply)?

- a. No staff development
- b. Seminars/conferences
- c. On-the-job training.....
- d. Workshops.....
- e. Consultant pairing
- f. High level university courses (e.g. M.A. or higher).....
- g. E-courses
- h. Training abroad (please indicate where)
- i. Other (please explain).....

2. What form of training/skills do you mostly lack (please list all that apply)?.....

3. If you are not currently engaged in staff development activities, what are your constraints? (please list all that apply).....

IV. FINANCIAL RESOURCES

1. What percentage of revenue do you get from the following sources?

- a. License fees %
- b. Levy from sales revenues %
- c. Government revenues %
- d. Other (please list) %

2. Are your financial resources sufficient to fulfil your regulatory tasks?

- a. Yes
- b. No (please explain)

3. What is your estimated ratio of employee to customer?

V. EQUIPMENT

1. How adequately are you equipped to fulfil your regulatory tasks?

- a. Very well.....
- b. Somewhat well
- c. Not well

2. What type of equipment or technology do you mostly lack?

- a. Computers.....
- b. Software
- c. Access to Internet
- d. Other (please list all that apply).....

VI. INTERGOVERNMENTAL AND PUBLIC-PRIVATE BILATERAL, REGIONAL AND INTERNATIONAL COOPERATION

1. Do you cooperate with other countries?

- a. No
- b. Yes
- i. If Yes please list which countries
- ii. If Yes please list what form of cooperation:
- a. Twinning
- b. Participation in regional agency
- c. Multinational regulator
- d. Regional expert panels
- e. Participation in international associations
- f. Information exchanges
- g. Other (please specify)

2. How well would you rate your experience with other countries?

- a. Excellent
- b. Good
- c. Fair
- d. Poor



PART TWO:
KEY REGULATORY AND INSTITUTIONAL
ISSUES IN INFRASTRUCTURE SERVICES

2

III. THE REGULATORY AND INSTITUTIONAL DIMENSION OF INFRASTRUCTURE SERVICES

*Jon Stern*²¹

Introduction and Scope of Paper

This introductory section consists of a short historical overview to provide a context within which the chapter discusses the purpose and framework of infrastructure regulatory industries (“utilities”) such as telecommunications, electricity, natural gas, water and sewerage, postal services railways and other transport industries.²²

*Historical Context*²³

Since 1980, there has been an enormous change in the methods of operation of infrastructure industries. For most of the twentieth century, in Europe, in Australasia and in most developing countries, infrastructure industries were publicly owned. They typically operated as full vertical and horizontal monopolies within their defined national, provincial, regional or local area. In Western Europe and some other countries, from the 1950s, these industries were operated on an increasingly commercial basis, but subsidies and cross-subsidies were widespread and much if not all investment was financed by public revenues, including government tax revenue rather than from private sector lending. Among developing countries, with few exceptions, public ownership was the norm and commercialization was very limited indeed.

Since 1980, commercialization of the operations of these industries, and private finance of their investment have become much more prevalent across the world. This is true not only of Western Europe and Australasia, but also of the countries of Central and Eastern Europe and the Former Soviet Union, in Latin America, in China and other Asian countries and increasingly in Africa. Sometimes this process has been via full privatization (particularly in telecommunications) but, in many countries, the State (or regional/local Government) has retained partial ownership or has kept ultimate ownership (via the use of national or local concession contracts). This latter pattern has been relatively common in electricity and natural gas distribution and even more so in water and sewerage.

These post-1980 developments are not, however, something new. When infrastructure industries emerged in the nineteenth century (the railways and later town gas and electricity), they and their networks were usually developed by private sector operators, frequently operating under something like a 20–25 year concession contract. This was true of both United Kingdom and French railways – as well as electricity

and town gas – and this model persisted until 1939 in these countries and others before giving way to nationalization after 1945. The United States was the major exception to this pattern where private provision persisted without a break from the nineteenth to the twenty-first century but, notably, including commercialized municipally-owned companies and some critical public facilities such as the huge 1930s hydroelectric dams.

The divergence between North America and other countries arose for a number of reasons. However, one of the most important was that the United States in particular successfully evolved a set of economic regulatory institutions that (a) protected consumers against monopoly abuse by the infrastructure companies and kept costs and prices aligned; and (b) protected investors, providing them with a secure platform on the basis of which they could roll out services across the country and earn a sufficient and secure enough rate of return to support private bond and equity finance. The United Kingdom, France and other countries that were strong enough to do this failed to create such institutions before 1914 – particularly to provide regulatory institutions that would be sufficiently robust in the circumstances of the major economic crises and dislocations during and after the two world wars.

In developing countries, the development of infrastructure industries was very modest until 1945. After 1945, the State-owned monopoly model became the norm. This was the case more particularly in Asian and African countries, including because this model was common in both the United Kingdom and France, with whom the newly independent States retained strong economic ties and aid relationships. In addition, more or less explicitly socialist planning models provided the dominant development method from the 1940s into the 1960s and 1970s.

The new wave of commercialization and privatization of infrastructure industries in the 1980s started in Australia, Chile and other countries as well as in the United Kingdom. It began in telecommunications – where it has been most successful – but has since been extended relatively successfully to electricity and natural gas. This process has almost always been accompanied by the development of new regulatory institutions to protect both consumers and investors. Most often, as in the United Kingdom, this has been via independent sector-specific regulatory agencies. These are now mandatory for the European Union member States in telecommunications as well as for electricity and natural gas. In other countries, it has been through specialist chambers in competition agencies – as in Australia and Germany, although both of these have now set up separate regulatory agencies, as has

New Zealand, which was the one early infrastructure reformer to try to do without explicit sectoral regulators for telecommunications and energy. New Zealand initially opted for an economy-wide competition law rather than sector-specific regulators. This approach was not necessarily a success. For example, by the late 1990s, there was widespread dissatisfaction with the light-handed approach to telecommunications regulation, due to lengthy disputes, and uncertainty over interconnection prices. New Zealand has since introduced a number of sector regulators.

This reform pattern has spread rapidly from the late 1980s to developing countries so that, since 1995, almost all United Nations member States have some kind of regulatory agency for telecommunications and most also have one for electricity/energy. This is closely associated with the much increased role of private finance of infrastructure, which has been the most powerful force for regulatory reform. Even though (apart from telecommunications) privatization of infrastructure industries or facilities has become less important than it was 10 years ago (possibly because the most obvious reforms have been undertaken now), private finance of infrastructure industry investment has remained important, not least because Governments around the world have found more urgent calls on scarce tax revenues than infrastructure industry investment. Private finance also plays a role via concessions and private-public partnerships (PPPs) and that has meant a continued, indeed growing, role for economic regulatory agencies.

Regulatory agencies exist in some countries for railways, water and postal services, but in far fewer countries. This is, to a considerable extent, because the commercialization and liberalization process has been more difficult in these industries and, in many developed countries, restructuring on these lines has been slow. Hence, even among European Union member States, public ownership remains widespread and, more importantly, private investment in these industries is much less prevalent. In addition, for various reasons, both direct subsidies and cross-subsidies still play an important role in these industries in virtually all countries. This is even more the case in developing countries.

The performance of the new commercialized model for infrastructure industries and of the new regulatory agencies has been relatively good in developed countries such as European Union (EU) countries (including the new Central European member States) and in Australia. However, it has been much more mixed in developing countries, particularly for the energy sector. This is true for many successes but also some moderate and some serious failures.

One major lesson learned over the last 20 years is that infrastructure regulatory institutions – like other economic institutions – must be carefully tailored to the needs and capacities of the countries in which they are intended to operate.²⁴ Hence, it makes little or no sense to expect a United States or United Kingdom regulatory model to be readily transferable to a small, low-income African country, nor does it make sense to transfer a regulatory model that depends heavily on within-country commercial courts to a post-conflict country or one with poor quality legal institutions. The design of appropriate institutions for developing countries with capacity and/or other limitations on regulatory institutional design will be a major theme in what follows in the rest of this paper.

Scope of the Paper

This paper is intended to provide general guidance to assist developing and transition economies in identifying and establishing regulatory institutional frameworks (RIFs), which will contribute to supporting their domestic services capacity and efficiency, competitiveness and export capacity, and help ensure the provision of essential services.

To meet this objective, section 1 of the paper discusses issues such as the key features of infrastructure industries and why regulation is needed. It also discusses the appropriate role of regulation as commercialization, liberalization and unbundling are taken further.

Section 1 covers the role of regulation in State-owned infrastructure companies as well as in mixed-ownership and privately-owned companies, but, it will focus only on the economic regulation of essentially commercialized enterprises. These are defined as enterprises “with significant amounts of private involvement (or at least private financing of investment) in some or all elements.” (Brown et al. (2006): 90)²⁵ Consequently, the discussion in chapter 2 – and in this paper as a whole – excludes discussion of RIFs for unincorporated State-owned enterprise operating under the control of a line ministry or similar. They are excluded because separate/independent economic regulation is irrelevant in these circumstances, since the determination of prices, quality standards and investment (i.e. the core issues covered by economic regulation) are effectively handled via bilateral discussions between the infrastructure company and the relevant government entity (e.g. line ministry, presidential office or party secretariat).

Section 2 covers the role of RIFs and regulatory agencies. This includes discussions of the objectives and functions of regulation as well as an introduction to the key issues of regulatory substance. It sets out

what can usefully be said in general terms concerning the core substance of infrastructure regulation which, of course, varies considerably, between infrastructure industries and countries. The main focus is on how regulation can best be used to increase the efficiency of the infrastructure service suppliers and the volume (and efficiency) of investment.

Section 3 discusses regulatory governance, including issues as to what makes for good governance and the relevant criteria for the evaluation of regulatory governance. It also covers examples of good and bad regulatory governance and evidence on the impact of good and bad regulatory governance on infrastructure industry performance. This chapter also covers resource availability for regulatory agencies, particularly the availability of scarce specialist human resources in developing countries.

Section 4 covers the main types of regulatory entity. The discussion includes material on appropriate intermediate and transitional regulatory arrangements for countries with weaker legal and other institutions.

Section 5 makes some short concluding comments and also makes some suggestions as to further work in this area.

The discussion in the rest of the paper focuses very heavily on telecommunications and energy (electricity and natural gas). This is because (a) the bulk of the available discussion and evidence on regulatory design and effectiveness concerns these industries; and (b) because these industries produce outputs that are traded internationally. Telecommunications services are included in the General Agreement on Trade and Services (GATS) and both electricity and natural gas are widely traded. In consequence, regulation and energy prices are international trade issues that have generated controversy within the World Trade Organization (WTO) (e.g. in the discussions over Russian Federation entry to WTO). The same is not true for railways or water – where, in any event, there are few regulators – so there will be little explicit discussion of these industries. However, it is worth noting that there have been several major legal cases concerning governmental regulatory obligations over foreign investment in water. These have arisen from disputes over bilateral investment treaty (BIT) agreements brought before the International Centre for the Settlement of Investment Disputes (ICSID). Examples include cases involving the water industries of Bolivia and the United Republic of Tanzania.

Airports and ports (and sometimes roads) are usually considered as infrastructure elements. However, they are primarily infrastructure “facilities” rather than infrastructure “industries”. In addition, there are very few explicit RIFs for them and their “regulatory”

organization raises very different issues since not only do they compete with one another, but there is no explicit physical monopoly network element, as there is for the utilities discussed above. However, the discussion of regulatory institutions and governance in section 3 should be relevant for all regulatory entities, including concession contract monitoring and enforcement agencies, and similar institutions that are often important for overseeing airports, ports and toll roads.

1. Infrastructure Industries and the Need for Economic Regulation

The main infrastructure industries are:

- Electricity;
- Natural gas;
- Telecommunications;
- Railways;
- Water and sewerage; and
- Postal services.

These industries share one common feature: they all supply their services via a physical network.²⁶ Electricity wires, gas pipelines, railway tracks, water and sewerage pipe systems provide national and/or local monopoly facilities that are essential for linking producers with consumers. Historically, this was also true for telecommunications and postal services. For postal services and – to a lesser extent – fixed-line telecommunications, this is still very largely true, but the monopoly element is on the local delivery into the factory/office/dwelling rather than higher up the supply chain (the local loop).

The dependence of these industries on a natural monopoly network means that consumers are potentially subject to monopoly exploitation, which justifies the need for economic regulation – at least of the monopolistic network element, if not the whole industry. This applies to all the industries above other than telecommunications.

For telecommunications, we are now seeing increased network competition within fixed-line services, as well as fixed-line competition with mobile and fixed radio telephony and substantial competition within mobile and fixed radio. There are still crucial network access bottlenecks in telecommunications, but the growth of network competition – in developing as well as developed countries – means that telecommunications regulation is increasingly becoming ever closer to standard competition (antitrust) policy. It is for this reason that telecommunications companies are rarely classed as “utilities”.

Besides these infrastructure *industries*, there are also various infrastructure *facilities*. These include:

- Roads (particularly toll roads);
- Canals; and
- Airports and ports.

Within each category, there is competition. For instance, ports and airports compete with one another both within and between countries. The transport modes also compete with one another. In addition, although there may be a “virtual” network of ports, airports and roads, there is nothing comparable to the industry networks for electricity, natural gas or water and sewerage. Further, they do not necessarily (or usually) employ significant numbers of post-construction staff. Hence, they are not typically subject to economic regulation of the same kind, although they may be subject to quasi-regulatory oversight e.g. by a concession contract monitoring and enforcement agency when built and operated under concession contracts or similar.

The following section discusses economic regulation for the infrastructure *industries* listed above.

1.1. The Need for Economic Regulation of Infrastructure Industries

As explained above, the need for economic regulation derives mainly from the fact that the infrastructure industries are critically dependent on a monopolistic network either centrally (e.g. at the national level) and/or at the local delivery level. Hence, economic regulation, although it is primarily concerned with consumer protection, is very different from other forms of consumer protection. Essentially, it is a form of specialist competition policy unlike most other consumer and citizen protection that is delivered via regulation. The latter group includes food and drug safety legislation, environmental regulation, health and safety regulation, financial services regulation, health and social service regulation, etc.

Many of the non-infrastructure-related elements cover all industries (e.g. health and safety and environmental standards). Others include only some industries but do not involve protection against monopoly as a major concern (e.g. financial regulation and food and drug safety regulation). It is sometimes the case that some elements of these other forms of regulation are the responsibility of an infrastructure industry economic regulator. In the United Kingdom, health and safety issues for the railways are handled by the Office of Rail Regulation, the economic regulator, and similarly for United Kingdom airports. However, at least in countries with sufficient specialist staff, the non-economic elements of infrastructure industry regulation are handled by other and quite separate

regulatory entities, such as the United Kingdom Environment Agency and the Health and Safety Executive.

One crucial difference – as we will explain further below – is that, for economic regulation, a critical function is to support investment in general and, in particular, to ensure that there is sufficient investment in the network and other elements to ensure continued universal access at a defined quality. Hence, for a commercialized infrastructure industry, economic regulation needs to ensure that investors earn a sufficient rate of return on their installed capital to finance and remunerate an ongoing and sustained physical investment programme. This is necessary to protect *future* consumers. There is no equivalent to this in the other forms of regulation.

The argument above does, of course, depend on the infrastructure industry(ies) in question being wholly or very largely commercialized. A relevant set of commercialization criteria are set out in box III.1.

These criteria are typically met for almost all countries in telecommunications and for many (but by no means all) countries’ electricity and natural gas industries. They are, however, met a lot less often for railways (particularly passenger railways) and postal services, and even less for water and sewerage, where unsubsidized private financing of investment at market rates is the exception rather than the norm. This has major implications for the regulation of these industries, as we will discuss later.

Although the existence of a monopolistic network is the key reason why infrastructure industries are subject to *ex ante* (“before the fact”) economic regulated and others are not, there are some other reasons why they are regulated:

- (a) They are highly capital intensive and the capital installed is very long-lived e.g. 25–50 years or more;
- (b) The capital is very largely comprised of sunk assets i.e. capital equipment that cannot be moved or used elsewhere and which have little or no second-hand value²⁷;
- (c) The industries are characterized by considerable economies of scale and density (particularly in the network elements) and economies of scope; and
- (d) The outputs of these industries provide critical inputs for all industrial uses and for all households.

The first three of these mean that, for most infrastructure industries, the market can only support one commercially viable supplier – at least for the network element. Consequently, the network is a *natural monopoly*. No country has competing electricity transmission or distribution grids, or competing grids for natural gas and water

Box III.1. Commercialization Criteria for Publicly Owned Utility Service Industries and Enterprises

- The relevant company or enterprise should:
- Have corporatized status and not operate as a government department;
- Be governed by a board with a significant number of non-executive board members who should not be government officials;
- Be in full compliance with internationally accepted accounting standards, including its own balance sheet;
- Pay taxes at the same rate as other companies or enterprises;
- Borrow at market-based interest rates;
- Earn a commercial rate of return on capital or equity;
- Have the autonomy to borrow within limits set by the board and regulator;
- Have the autonomy to procure equipment consultancy, and other services;
- Have the autonomy to hire and fire staff;
- Adopt commercial salaries and employment conditions (including total level of employees); and
- Raise financing from capital market sources rather than from low-cost government fiscal sources.

Source: Brown et al. (2006): 61.

– but, for telecommunications, network competition is becoming more important, although whether this will survive the arrival of Next Generation Network fibre-based networks is an interesting question.

Point (d) above means that there are major political as well as economic sensitivities concerning the quantity, quality and – especially – the price of infrastructure industry outputs. Affordability, particularly to households and peasant farmers, is a major policy concern. This can be a powerful constraint on whether or not countries find it acceptable to adopt economically efficient prices that also provide a rate of return on capital sufficient for continued privately financed investment.

In addition, to ensure adequate supply, EU members and other developed country Governments have developed *universal service* obligations and developing countries have developed *universal access* obligations.²⁸ These obligations may be financed by explicit government subsidy or by cross-subsidies between different types of users (e.g. urban to rural consumers). They are often, however, financed by a below commercial rate of return on assets – this is particularly prevalent with public ownership. Hence, unless financed by separate rural electrification/telecommunications or similar programmes, these universal service objectives can again cause problems or prevent achieving economically efficient prices that also provide a rate of return on capital sufficient for continued privately financed investment.

These arguments demonstrate that there can be complex, difficult and politically sensitive tradeoffs between (a) economic efficiency, (b) affordability (c) health or other externalities and (d) universal service requirements. These tradeoffs become more difficult where large numbers of *existing* connected

consumers pay a very low and uneconomic price for the service. This last is frequent for urban household electricity and – even more so – for water consumers and (where they are connected) for peasant farmers. This makes it much more difficult to extend developing country electricity and water network services from higher income urban dwellers to lower income rural communities. Partly in consequence, developing country rural consumers typically pay more for their electricity and water service unless granted explicit subsidies or implicit cross-subsidies. (This is particularly notable for electricity consumers connected to local stand-alone grids rather than the national grid.)

Reconciling these different claims can be very difficult indeed, unless sufficient tax-finance subsidy is available. Where developing and transition country regulators exist, they are typically placed in the extremely difficult position of having to try to find some workable accommodation between the various interests. Sometimes they are able to find workable solutions to these problems, but in many cases they are not capable to do so or the Government does not grant them the autonomy to do so.

The varying needs for economic regulation of different infrastructure industries are set out in the table III.1.

The relatively low need for regulation in telecommunications arises from (a) its rapid rate of growth of technical progress and of desirable new products (typically faster than national income growth); and (b) the low level of externalities – universal access can readily be achieved by mobile phones, which, in developing countries are increasingly becoming universal access payphones. The first point means that capital is much less “sunk” and it will typically have a life determined by economic obsolescence rather

than by its physical wearing out. In addition, the capital stock has a high proportion of computerized digital switches rather than major physical constructions. Given these issues, telecommunications regulation, although it requires careful access rules and pricing, is much less demanding or price/quality constrained than for other industries – particularly for mobile telephony.

Water and sewerage is at the other extreme. Demand growth and technical progress are slow (typically slower than national income, particularly in countries where access to water mains and sewerage is high) and there are few new products. The capital stock is of major new physical facilities (reservoirs, pipe systems, aqueducts, water processing plants, etc.) that have very long lives – in some cases over 100 years. In addition, there are major externality issues, e.g. the role of water for public health, firefighting, etc. Hence, the demand for regulation is high and it can be very difficult indeed to reconcile the competing policy objectives, let alone to do so in a way that allows prices which can support privately financed investment.

Railways (at least passenger railways) are closer to water in its requirements for considerable amounts of different types of regulation that may be in conflict with one another. Urban commuter railways are another area where there are important environmental externalities but existing consumers typically pay a price below economic cost.

Electricity is an intermediate case and natural gas is also an intermediate case, but closer to telecommunications in its requirements for regulation. Electricity demand growth is typically around the same as national income (unless there is a substantial amount of excess demand arising from shortages of capacity) and technical progress is relatively slow. Assets – particularly network assets – are relatively long-lived and sunk but much less than in water or railways – generating stations typically have lives of around 25 years. In addition, electricity requires complex and virtually instantaneous balancing of

physical flows across networks at constant voltage and frequency, which imposes difficult technical and other requirements that need to be integrated into the regulatory framework. Externalities are moderate, although more significant in cold countries. This, however, is changing with an increased focus on climate change. Consequently, electricity requires more regulation and this can become complex when vertically and horizontally integrated electricity companies are unbundled so that competition is created in generation and wholesale (and some retail) supply/sales.

1.2. Regulation in Monopoly and Unbundled Infrastructure Industries

In the past, infrastructure industries were considered as natural monopolies and not just the core physical network elements. Hence, 50 years ago, we had:

- in telecommunications, AT&T (the Bell system) in the United States, British Telecom and equivalent national companies in France, Germany, Italy and around the world;
- in electricity, EDF in France and the CEGB in the United Kingdom, plus vertically integrated state/province level companies in the United States and similar around the world;
- in natural gas, British Gas and Gaz de France, etc; and
- in railways, British Rail and Deutsche Bahn, etc.

In some cases (e.g. German electricity and gas), the vertical integration was by long-term supply contract to municipalities rather than by industry structure, but it was still effectively a vertical monopoly with the downstream supply part being secured by long-term franchise contract with local authorities.

In the mid-twentieth century, the vertically integrated model was frequently associated with State ownership although not in the United States and much less in Germany. In developing countries, State ownership was the norm, as the infrastructure industries began seriously to expand their coverage after 1945.

Table III.1. Infrastructure industries and need for regulation industry

Infrastructure industries and need for regulation-Industry	Rate of demand growth	Rate of growth of technical progress	Potential for competition (including competition in products and competition between networks)	Degree to which assets are sunk	Externalities (including social benefits and relative costs of achieving them)	Overall importance of effective regulation
Electricity	Low	Low	Medium	High	High	****
Natural Gas	Medium	Low	Medium	High	Medium	***
Telecoms	High	Very High	High	Medium	Low	**
Water and Sewerage	Low	Low	Very Low	Very High	Very High	*****
Railways	Very Low	Low	Low	Very High	Medium	*****

Regulation in Vertically Integrated Systems

In all countries and systems, there are some infrastructure regulatory requirements.

For monopoly industries, someone has to approve/authorize changes in:

- Prices,
- Quality;
- Investment; and
- Efficiency/cost reduction targets.

However, these are achieved in very different ways in non-commercialized State systems from commercialized systems and between vertically integrated and unbundled companies.

With monopoly State-owned systems, agreement is reached by bilateral bargaining between the company and line ministries (or other executive parts of the Government). *Regulation* is intimately bound up with telecommunications/energy/transport *policy* – and with other government policy objectives (e.g. anti-inflation policy, equity policies, development policy, etc). For water, the equivalent is control by the local authority (as in France) and this model was important in energy in the United Kingdom until at least 1914 – and still has some role in Germany, Scandinavia and elsewhere.

In the system with State ownership outlined above, there is little need or room for an independent regulatory agency, as policy and regulation are wrapped up together. The key objective is meeting the Government's policy goals and consumer welfare plays little or any role – as illustrated by the waiting list of months if not years for household telephone connections in non-commercialized telecommunications systems. This is the system that prevailed in an extreme form in the pre-1989 regimes in Central and Eastern Europe (CEE) and in the Soviet Union.

In Western Europe, there was some movement away from it, as State-owned enterprises were required to operate in a more commercial manner and to earn a positive real rate of return that, became increasingly similar from the mid-1960s, to a commercial rate of return. However, even in the United Kingdom, the breakthrough to having an explicit and independent regulator only arrived with privatization in the 1980s, firstly with telecommunications (a vertically integrated company but with initially limited network competition). This was followed in the United Kingdom by natural gas (a vertically integrated company until 1995) and then with water (a set of vertically integrated regional companies), electricity and railways (both vertically unbundled but with some competition from the start in

non-network elements). In both telecommunications and energy, similar paths were followed by other EU States and then by CEE accession countries, which were required to adopt these reforms as a condition of joining the EU.

However, in the United Kingdom and other European countries, as well as in developing countries, the arrival of explicit regulatory agencies for telecommunications and energy was very largely a product of opening up to private investment and/or private finance of investment, either directly or by allowing competitive entry by other EU member State enterprises. Hence, we see the emergence of independent regulatory agencies in previously State-owned infrastructure monopolies from the late 1980s and through the 1990s.

In this model, policy and regulation are separated with the setting of policy goals assigned to a ministry and regulation implemented by the regulatory agency. However, it needs to be recognized that the boundary between policy and regulation is not fixed and varies considerably both (a) between countries; and (b) within countries over time, and between Governments. Nevertheless, the introduction of a genuinely autonomous or independent regulator does mean that other considerations in infrastructure investment and pricing are given a lot more weight relative to government policy objectives (e.g. consumer welfare and investment profitability). Of course, benevolent Governments place some weight on consumer welfare, even with monopolistic State ownership. However, how far this translates into good outcomes for consumers varies considerably and the consumer benefits are inevitably less direct than in a commercialized, market-based system, whether with public or private ownership.

There are regulatory agencies with State-owned facilities and they may be important *provided that* the industry has been commercialized.²⁹ However, regulation of state-owned companies is inherently more difficult because:

- Commercial incentives are inherently weaker than for privately owned or financed companies. This leads to higher costs, lower efficiency as well as excess investment volume and costs.
- State-owned companies tend to control their Government/ministry rather than vice versa. This is because companies have much more knowledge of their business than does the supposed controlling entity (as well as considerable political power).

The examples discussed above relate monopoly with State ownership and private ownership with competition. However, the United States provides an example of private ownership with monopoly – but

with a powerful role for regulation. In the United States, telecommunications services were provided almost entirely by the Bell System until its mandatory breakup in 1984. Similarly, electricity services were supplied by often weakly interconnected state-level monopoly electricity systems. In both cases, regulation was the condition for allowing the monopolies to operate, with federal and state-level regulation (the latter by multi-sector State commissions).

The key point about how and why effective regulation developed in the United States was that, from around 1900, electricity, water and tram companies were able to negotiate embryonic cost-of-service regulation by their local municipality in return for a monopoly franchise. Hence, in contrast to the position of the United Kingdom or France, where franchisee rights were heavily protected, United States franchise contracts often made *explicit* provision for renegotiation in response to changes in circumstances, subject to arbitration or reference to an independent committee. These independent committees could take the responsibility for monitoring service quality, either by arbitration or by regulatory review. The municipal committees gradually evolved into State public utility commissions with substantial power to extract concessions from the utility as a condition of maintaining their franchise without competitive entry. From around 1920, these arrangements were gradually codified and, in the 1930s, brought under federal regulatory agency supervision.³⁰

The resulting United States regulatory compact led to companies having to charge prices that are (a) based on “just and reasonable costs” and (b) offer the opportunity to obtain a fair rate of return after recovery of investment and operating costs. This position was established by the 1944 Supreme Court ruling in the *Hope Natural Gas Company* case. A fair rate of return is defined, from a 1923 water sector judgement, as the rate of return that investors can earn in other sectors, after adjusting for differences in risk, etc. These rulings plus vertically integrated monopoly or semi-monopoly provision led to the development of classic cost-of-service regulation.

Cost-of-service regulation is conceptually very straightforward but requires large numbers of middle-skilled people to record and analyze the expenditure and cost data. However, it has increasingly been criticized for encouraging excessive investment and for providing weak incentives for efficiency improvements. In the United States, the major introduction of competition in telecommunications and, to a lesser extent, in electricity and natural gas (along with the criticisms above), has led to “pure” cost-of-service regulation being very largely replaced by forward-looking price cap- or revenue-based

regulation. However, costs and their control still play an important role.

The United States cost-of-service model provided a strong basis for rolling out infrastructure services across the country to all states and all consumers – and for doing this on a very largely commercialized basis, with private investment dominant. The key point was that the cost of service regulation provided the underpinnings for bond issues by companies and others. The regulatory guarantees implied low risks and thereby kept low the debt interest requirements from the bonds. This, in turn, meant a low cost of capital to be recovered from costs.

In any privately financed regulatory system, consumer welfare considerations play an important role. Furthermore, the United States concept of “just and reasonable costs” implies cost and investment supervision to ensure that service providers can only receive revenues from consumer tariffs in respect of reasonably incurred costs, as judged by independent regulatory agencies. This developed under the monopoly provider environment and represents a major difference from the state-financed model, where Government’s policy objectives dominate.

In general, the problems of regulating vertically integrated private (or privately financed) utilities must address the following:

- (a) Managers have incentives to restrict supply, reduce quality, not to increase efficiency and to charge prices much greater than costs.

A standard solution: service obligations to connect and supply customers within a certain distance of networks.

- (b) Governments have an incentive not to allow companies to earn a reasonable rate of return on their investments, e.g. by refusing to allow cost-justified price increases.

A standard solution: investment plans approved and price rises agreed by regulator or according to formula laid down in contract.

Regulation in Unbundled Infrastructure Systems

Technological progress has allowed the unbundling of monopoly infrastructure industries. In particular, this has been fostered by the development of computers and sophisticated information and communication technology systems. Hence, previously vertically integrated industries can be vertically separated into their different elements and, in addition, vertical unbundling allows the introduction of competition into upstream production and downstream supply elements.

The clearest example is in electricity, where the most fully unbundled industries involve:

- A number of competing generating companies (plus, typically, imported generation);
- A single monopoly transmission company, owned and operated separately from both generation and supply/sales companies;
- A system operator (often part of the transmission company if the latter operates under full ownership separation);
- One or more monopoly distribution companies operating low voltage networks;
- Several competing wholesale supply/sales companies; and
- A number of competing retail supply/sales companies.

In an electricity system of this type, there would also typically be a trading exchange, forward and derivatives markets, electricity traders, etc.

There are relatively few fully unbundled systems of this type in the world. The England and Wales system is the best known example, but Scandinavian electricity markets, some Australian ones and some United States states (e.g. Texas) represent others. Over the last few years, the EU has been moving increasingly towards this type of model, but France and Germany have been resisting full ownership unbundling of transmission.

Fully unbundled markets such as the one above require sophisticated market and other arrangements, and a large enough market to support genuine competition in both generation and supply. Hence, fully unbundled electricity systems only exist in:

- relatively large electricity systems (e.g. the England and Wales system and Australia); and/or
- highly interconnected smaller systems (e.g. the United States and, increasingly, the EU).

Consequently, the degree of competition – and unbundling – is typically much lower in developing countries. The largest countries (e.g. Brazil and the Russian Federation) have been moving in this direction and Chile has long been a pioneer but for most developing and (non-EU) transition countries, unbundling is typically limited to:

- Limited generation competition based on costs rather than market bidding – mainly in middle income and larger countries, particularly in Latin America;
- Wholesale competition by generators to sell to integrated distribution and retail supply companies;
- Generator competition to supply large industrial

consumers, again mainly in middle income and larger countries; and

- Limited generation competition in relatively vertically integrated generation and transmission single buyer companies via power purchase agreements (PPAs) (common in Asia and increasingly in Africa).³¹

There may also be some competition *for* the market e.g. contracting for generating capacity via independent power producers (IPPs), frequently to supplement generation supplied by the incumbent national power company.

Similar unbundling patterns can be found for natural gas and, occasionally, in railways but not in water, but even more focused on the highest income and largest countries.

In telecommunications, there are more competing companies. Mobile telecommunications and Internet service providers are typically highly competitive in both developed and developing economies. For fixed line services, there has been less vertical separation than in electricity and gas but now, at least in the United Kingdom and some other countries of the EU, there has been growing interest. In the United Kingdom, “functional separation” (i.e. business and management separation but not ownership separation) has been adopted by the company BT and local loop unbundling is a major EU policy. In the United States and Canada, competition in telecommunications is expected to develop vertically via facilities competition based on fibre, cable television, fixed radio, etc., rather than by unbundling. In developing countries, there is less fixed line competition (and much less in Africa and most of Asia) but it is growing e.g. via leased lines, VSAT (Very Small Aperture Terminal), etc.

The common feature of the electricity and telecommunications systems discussed above is that competition policy issues increasingly dominate over the classic regulatory functions concerning investment in networks and its financing, plus the costs and prices of network services. The classic regulatory functions have been retained for the network – where there is a monopoly network or there are monopoly bottlenecks – but even there, the role of competition policy is much more important than it was 25 years ago, e.g. as regards access rights and prices. For upstream and downstream services in unbundled systems, competition policy provides the main framework and this area has become progressively more important; competition policy has also become more important where there are competing networks. Indeed, telecommunications regulation in developed countries is almost entirely applied competition policy, and EU telecommunications regulation directives are firmly based on EU competition policy rules.

For electricity and gas, the more competition-related aspects of regulation include:

- market power and potential abuses in generation markets;
- market power and potential abuses in wholesale and retail supply/sales markets;
- vertical linkages allowing the leverage of market power from one market to another (e.g. from supply markets into generation); and
- the role of transmission bottlenecks or constraints on market outcomes.

Access rules and access pricing are crucial issues for all partially or wholly unbundled infrastructure industries. For telecommunications, this means access by companies to other companies' networks. Regulators play a major role in developing access rules and prices, particularly in the early stages of unbundling and competition. For electricity and gas, this means third-party access where the EU now has mandatory *regulated* third party access to transmission/transport and distribution systems. For telecommunications, this means fixed network access rules and prices, termination charges, roaming charges, etc.

As yet, these are issues primarily for richer developed countries – who typically have established competition (antitrust) agencies. However, they are becoming progressively more important in the larger middle income developing countries (e.g. Mexican telecommunications) and where countries are setting up multinational electricity or similar markets.

Even with very limited unbundling, competition issues are still important for regulation, e.g. in the Asian Independent Power Provider (IPP) electricity model. Indeed, some of the hardest entities to regulate are combined transmission and generation national power companies but with competing IPPs. Similar issues can arise with competition where nationally competitive integrated telecommunications companies can exercise very substantial market power. Controlling the market power of the incumbent is the main problem. It is even harder if, as is often the case, the incumbent was previously the national or regional/provincial/State monopoly supplier.

2. Infrastructure Regulation: The Objectives and Functions of Infrastructure Regulation and the Substance of Regulation

This chapter first discusses the objectives and functions of economic regulation of infrastructure industries and then turns to discussing the main governance issues that affect the design of regulatory agencies.

2.1. The Objectives and Functions of Economic Regulation

The key objective of economic regulation of infrastructure industries is to ensure the continuous supply, over the long-term, of specified infrastructure services of defined quality at the minimum necessary cost (and prices) to the population and industry of the country.

Note that consumers' welfare is paramount in this objective but meeting that does not mean the lowest possible price to *current* consumers. Economic regulation has to protect the interests of *future* consumers as well as *current* consumers (as in the United Kingdom Utilities Act 2000). Hence, setting the "*minimum necessary*" costs and prices implies the need for investors to earn a reasonable, risk-adjusted rate of return on their investments. This last is necessary to achieve *continuous* supply of the service in question and to maintain quality standards over the long term.

Consequently, investors must be allowed a return over operating costs to allow for:

- maintenance costs of the existing networks,
- renewal and expansion investment,
- depreciation, and
- the reasonable expectation of a post-investment, post-depreciation normal, risk-adjusted rate of return on capital.

The prices that include the elements above are *long-run marginal cost*-based prices which are significantly higher than operating costs or *short-run marginal cost*-based prices.

Unless they are allowed to prices at this level, *commercialized* infrastructure companies will *either* (a) be unable to maintain and renew the network and industry; *or* (b) the Government will have to finance some or all of investment. At the limit, public ownership and non-commercial operation operates as the fall-back solution. A classic example of the first case is the pre-1990s history of the Jamaican telecommunications industry.³² On (b) as for the second case, issues of affordability and the position of current consumers frequently prevent Governments and regulators from pursuing the objective above. If that happens, it is not possible to reach the balance between investors and consumers outlined above.

The key functions of economic regulation are the regulation of:

- prices/rates of return on assets,
- quality of service, and
- development plans/investment (at least regulating

the investment plans in monopoly network elements).

In addition, as discussed in section 1 above, economic regulation also needs to covers anticompetitive behaviour, economic purchase obligations, dispute resolution, etc. In addition, for unbundled utilities or where competition is present, regulation of network access and pricing are crucial elements.

2.2. Core Regulatory Substance

Regulatory substance (or regulatory content) is the “what” of regulation. The definition of regulatory substance is how regulatory objectives and functions are transformed into functioning entities making substantive decisions.

It should be noted that the list below is a general list of headings and that no detail is presented on the individual items. This is deliberate since the content of what is regulated varies considerably *both* between infrastructure industries *and* between countries.³³ In particular, the list will vary substantially depending on whether and how far the industry has been commercialized, liberalized and privatized. The headings and other lower-level items will also vary by legal system, by whether or not the relevant companies are publicly, privately or mutually owned, and by whether or not there are concession contracts.

It should be remembered that regulation follows – and is determined by – industry and market structure. Hence, it is only by careful and detailed consideration of specific country and industry regulatory frameworks (laws, concession contracts, guidelines, codes, etc.) that one can make the list more precise in any meaningful or useful way. Nevertheless, subject to the caveats above, most infrastructure industry regulatory frameworks typically involve many or all the following:³⁴

- tariff levels (particularly for network tariffs and final price tariffs for household and other small consumers);
- tariff structures (e.g. the balance between fixed charges and volumetric charges and between different groups of consumers);

- automatic and non-automatic cost pass-through mechanisms (e.g. fuel cost adjustments in electricity);
- quality of service standards;
- handling of consumer complaints and general dispute resolution;
- investment or connection obligations and reviews (e.g. network investment requirements, rural electrification and telephone rollout programmes);
- network access conditions for new and existing customers;
- competition issues (e.g. in telecommunications and in wholesale and retail markets in energy and transport), including both market abuse and merger issues;
- accounting systems (particularly regulatory accounts);
- periodic reporting requirements (accounts, annual reports, consultations, etc.); and
- social obligations (e.g. specifying service obligations for consumers with special needs).

In addition, regulators are often involved in granting licences/franchises either with decision-making powers and/or advising government ministries. They are also frequently involved in competitive tenders, e.g. specifying tendering rules and approving specific tenders, as well as acting as appeals bodies in cases of tendering disputes.

More generally, regulators have major monitoring and enforcement responsibilities. The monitoring responsibilities include all regulated aspects of the relevant infrastructure industry. Making these operational and effective is crucial for a well-functioning regulatory entity.

Annex III.2 sets out a non-exhaustive list of other responsibilities, some or all of which can often be found in regulatory frameworks.

3. Regulatory Governance

This chapter discusses regulatory governance issues. It starts with a discussion of the principles of good

Box III.2. Affordability, Capital Costs and Pricing in Infrastructure Industries

For water and sewerage (and, to a lesser extent, railways and postal services), Governments in most countries are unable and/or unwilling to charge prices that fully cover capital costs that include a normal rate of return so that direct or indirect public subsidy is required. Direct public finance of water and sewerage is common (e.g. via French-style affermage/lease contracts or management contracts). In Central and Eastern Europe and many developing countries, indirect public support was – or still is – achieved by the State providing investment funds, but the Government does not require a normal rate of return on assets or any dividends. This is then used to maintain prices to households and/or small farmers that do no more than cover short-term operating costs.

regulatory governance, and then discusses the impact of good (and bad) regulatory governance on infrastructure industry outcomes. It concludes with a discussion of human and financial resource requirements for infrastructure regulation.

3.1. Principles of Good Infrastructure Regulatory Governance

The fullest statement of these is in Brown et al. (2006). In what follows, we largely follow this handbook.

The handbook sets out three “meta-principles” of infrastructure industry regulation. These are intended to apply to all regulatory or similar agencies, including concession contract monitoring and enforcement agencies. They are also applicable for all intermediate, transitional and partially or wholly autonomous regulatory entities. The three meta-principles are:

- investors must have confidence that the regulatory system will honour its commitments,
- consumers must be convinced that the regulatory system will protect them from the exercise of monopoly power, i.e. excesses from high prices, poor service or both, and
- the regulatory system must operate transparently so that investors and consumers know the “rules of the game” (or the “terms of the deal.”).

From this, one can derive principles of good infrastructure regulation. The handbook suggests 10 principles. These are:

- independence;
- accountability;
- transparency/public participation;
- predictability;
- clarity of roles;
- completeness and clarity of rules;
- proportionality;
- requisite powers;
- appropriate institutional characteristics; and
- integrity and ethical behaviour.

Another relevant criterion often mentioned is adequate human and financial resources to carry out regulatory tasks. (We will discuss this later in this chapter.)

From the 10 principles above, the handbook derives a set of regulatory standards. The headings for these standards are as follows:

- Legal Framework;
- Legal Powers;
- Property and Contract Rights;
- Clarity of Roles in Regulation and Policy;
- Clarity and Comprehension of Regulatory Decisions;

- Predictability and Flexibility;
- Consumer Rights;
- Proportionality;
- Financing of Regulatory Agencies;
- Regulatory Independence;
- Regulatory Accountability;
- Regulatory Processes and Transparency;
- Public Participation;
- Appellate Review of Regulatory Decisions; and
- Ethics.

The purpose of the regulatory standards is to provide the basis against which the quality of regulatory governance can be appraised. For each of the standards listed above, there are a number of elements. A full listing of these is set out in chapter 3 and appendix A of Brown et al. (2006).

Of course, these criteria and standards can be met in various ways and the types of regulatory arrangements and institution by which they are handled can and will vary considerably according to local circumstances. In terms of the *means* by which the principles and standards are met, it is emphatically the case that we are not in a world of “one size fits all”. Nevertheless, the arguments are extremely powerful for using a single set of “best practice” principles and standards. These provide unambiguously the most useful benchmark for appraising the governance quality different institutional settings found across countries.³⁵

3.2. The Impact of Good and Bad Regulatory Governance

Good regulatory governance is not only desirable in its own right but, more importantly, it contributes to good quality regulatory decisions. There is now abundant – and growing – evidence that better quality regulatory governance contributes to better outcomes for infrastructure industries.

Good regulatory governance and practice produce a flow of good quality decisions with few poor/bad ones. In addition, with good governance, regulatory mistakes more likely to be quickly discovered and rectified and, in particular, regulatory agencies are much less likely to repeat bad decisions on same topic. Finally, regulators with good governance are more likely to implement lessons from best practice regulation in other countries.

These conjectures have been confirmed in a number of case studies, in particular for telecommunications and electricity. There is increasing evidence that good quality regulatory governance associated with higher efficiency and investment in developing country telecommunications and electricity industries. This evidence is surveyed and reported in Stern and

Box III.3. Principles of Good Practice Regulation

The 10 principles listed above draw on an extensive range of previous similar lists, e.g. by Warrick Smith and by Stern and Holder (1999). The latter has six principles, three of "formal accountability" (i.e. de jure legal requirements) and three relating to "informal accountability" (i.e. de facto regulatory practice).

The six principles are:

Formal accountability

1. Clarity of Roles and Objectives:

- Between Ministry, regulator, regulated company and consumers;
- Preferably specified in a primary law:

2. Autonomy:

- Autonomy from political intervention and company capture;
- Appointment & dismissal criteria, funding rules, responsibility to legislature not a specific Minister/Ministry;

3. Legal Accountability:

- Clear specified procedural rules;
- Proper appeals/reconsideration processes.

Informal accountability

4. Participation:

- Opportunity for all relevant parties of contribution to regulatory discussions and influencing decisions before they are made;

5. Transparency:

- Publication of decisions with reasons;
- Publication of methodologies, procedural rules, etc.;

6. Predictability:

- Consistency in decision-making, continuity in approach;
- Evolution so no sudden break in "rules of the game".

The 10 handbook principles include the six above but also add more on procedural aspects of regulation. A critical point for any regulatory framework is that it should be established in a primary law, enacted by the legislature.

Cubbin (2005), along with the results from a number of econometric studies.³⁶

In terms of appraising the impact of regulatory governance on outcomes, the key point is to consider whether the *decisions* of regulatory agencies helped improve (or hindered) the achievement of good industry outcomes. Brown et al. (2006) identify the following as the main relevant outcome indicators:

- (a) output and consumption levels and growth rates,
- (b) efficiency/productivity levels and growth rates,
- (c) quality of supply level and improvement rates,
- (d) financial performance of companies in infrastructure industry,
- (e) adequate levels of capacity, investment and maintenance expenditure,
- (f) effective price signals and price levels for consumers and producers, and

(g) degree of competition.

Items (a)–(c) are *final* outputs. Items (d)–(g) are *intermediate* outputs. A fuller and more detailed list of outputs, including subheadings, is set out in annex III.1.

One essential point to note is that the quality of regulation (and regulatory governance) is only one element in delivering good economic outcomes. Other issues (e.g. industry and market structure) are at least as important. Using this framework provides the basis for public evaluations of regulatory systems. In particular, it provides the basis for single-country, structured case studies, supplemented by benchmarking if available, that will help inform why as well as whether regulatory institutions have helped or hindered the development of infrastructure industries.³⁷

Impact of Governance Quality on Regulatory Outcomes: Evidence from Panel Data Econometric Models

There is now over 10 years of experience with using econometric models to establish the impact of infrastructure regulation on (a) telecommunications and (b) electricity industry outcomes. This literature focuses primarily on developing countries and will be summarized in what follows.

These econometric studies do not provide information on *how* regulation is carried out, but they do provide strong cross-country evidence on the impact of regulatory governance and what aspects seem to be of most importance. As noted above, although there has been some work on this for developed countries, the main focus has been on developing countries and, in particular, on the impact of the quality of regulatory governance on investment and on efficiency (e.g. labour productivity growth).³⁸

The new standard best practice econometric procedure is to take a panel data set (e.g. around 20 countries with 10–20 years of data for each) and to estimate an econometric model for physical investment (and separately for efficiency) in telecommunications or electricity that allows for both observable and unobservable country-specific effects.³⁹ The models also include terms for regulatory quality, industry liberalization and competition, as well as country governance characteristics and other relevant control variables (e.g. income growth, urbanization rates, relative prices, etc). Variants of this model have been estimated for telecommunications (fixed and mobile), and electricity (generation and distribution).

The power of this method arises from the fact that countries in the sample established infrastructure regulatory agencies at different dates. The same applies to liberalization and privatization (where relevant). Also, there are a few countries which have not established a telecommunications or electricity/energy regulator by the end of the observation period. Combining these factors provides considerable power to the panel data economic techniques, which means that comparisons can effectively be made across countries over time periods as well as within countries over lengthy periods.

Initially, the research agenda focused on whether or not the *existence* of an independent regulatory agency significantly improved investment and efficiency outcomes. However, over the last five years or so, the research has focused more on whether the quality of regulatory governance, as measured by a number of indicators, significantly improves performance. Unfortunately, as the number of indicators increases, the harder it is to establish which

are the most important, as the quality of governance across indicators is typically very similar for any individual country (i.e. strong – or weak – on most or all governance variables). Hence, indicators are usually grouped together e.g. in one or more indices.

Of the first generation of telecommunications studies, Stern and Cubbin (2005) point to Gutierrez (2003) as a particularly strong paper on fixed-line telecommunications in developing countries. He employs a 12-element regulatory governance index for a set of Latin American and Caribbean countries. More recently, Gasmi et al. (2006) and Maiorano and Stern (2007) have extended the analysis to mobile telecommunications as well as fixed line. All of these papers describe the quality of regulatory governance by the *formal, legal* aspects of regulation. However, a forthcoming paper by Montoya and Trillas (2009) also provides evidence on *de facto* practical aspects of the quality of telecommunications regulatory governance (viz. the security of tenure of regulatory of commissioners).

In general, this literature suggests positive effects of the quality of regulatory governance on telecommunications industry outcomes. Montoya and Trillas (2009) also show that adding data on the degree to which legal requirements are actually met in practice strengthens the estimates of the effect of good regulatory governance on industry outcomes. In their model, better performance on *de facto* governance significantly improves the association between regulatory quality and investment. The results on the tenure of regulatory commissioners (or similar), is very consistent both with case study work on regulatory governance and with research on the effectiveness of independent central banks. It is particularly important as to whether regulatory commissioners remain in post following a change of Government.

Competition from liberalization and privatization are usually (but not always) strongly associated with better investment and/or efficiency and there is also some evidence of positive interaction effects between regulation and competition/privatization (i.e. examples where better regulation reinforces the positive benefits of competition and/or privatization – and vice versa).

For electricity, Cubbin and Stern (2006) have carried out a similar analysis on 28 developing countries using panel data to explain the determinants of investment in generation. They find strong evidence of positive effects of regulation – particularly once regulatory agencies have been operational for three to five years or more. Their study suggests that whether or not the regulatory framework has been established by a primary law is the single most important governance characteristic. More recently, Andres et al. (2008) find

strong impacts of regulation on the performance of electricity distribution and retail supply companies in Latin America and the Caribbean. Many of these involve private investment via concession contracts.

Andres et al. (2008) is an important, state-of-the-art paper and it is worth summarizing its results here:

- Private sector participation (mainly by concession contracts) was strongly associated with improved performance on virtually all of the performance indicators;⁴⁰
- The existence of a regulatory agency was strongly associated with further improved performance on virtually all of the performance indicators;
- The longer the time that the regulator had been in place, the more performance appeared to improve; and
- Increases in the autonomy and effectiveness as measured by the various (detailed) components of regulatory governance were also strongly associated with improvements in performance.

In addition, they show that some elements of regulatory governance appear to be more effective at affecting different aspects of performance than others.

The authors conclude by pointing out (a) that regulators improved performance for these utilities, whatever their ownership – including the (small numbers of) State-owned electricity distribution utilities; and (b) that "... the highest achievements are reached with the combination of private sector participation regulated through a regulatory agency that exhibits good governance." (Andres et al. (2008):25.)

Andres et al. (2008) supports earlier work on Latin American and Caribbean infrastructure concession contracts by Guasch, Laffont and Straub, which shows that concession contracts in water and transport (mainly toll roads) are less susceptible to major renegotiation if there is a pre-existing regulatory entity.⁴¹ This effect applies both to company-initiated and Government-initiated concession contract renegotiations.

One major issue that affects the quality of the results outlined above is that regulatory agencies do not operate in a vacuum nor are they introduced randomly. Governments with a strong legal tradition and a history of generally good country governance are more likely to introduce good quality regulatory institutions than others – and vice versa for countries with poor country governance and/or major problems with institutionalized corruption. However, it is also the case that some countries introduce regulatory institutions for infrastructure because it helps satisfy loan conditions for assistance from the World Bank and other multilateral or bilateral development agencies.

These factors give rise to what econometricians call an "endogeneity" problem. In other words, the modeling has to take seriously the issue that the existence of an infrastructure regulatory agency – and its governance quality – are systematically related to *country* governance and other factors in the model to be estimated. This issue has been much explored e.g. by Gutierrez (2003) as well as Maiorano and Stern (2007) for telecommunications and by Cubbin and Stern (2006) for electricity generation. They find that endogeneity problems do exist, but that estimating the models taking account of the potential endogeneity makes relatively little difference to the results, which continue to show positive impacts of the quality of regulatory governance on industry outcomes.⁴²

Of course, econometric evidence has limitations. In particular, it does not explain *how and why* the results occur and there may well be concerns about whether the results demonstrate causal impacts or non-causal statistical associations. Nevertheless, the use of panel data should reduce this risk and the results are very consistent between continents, industries and researchers. However, perhaps the strongest argument for placing weight on the results of the studies discussed above is that they are highly consistent with the results obtained in case studies of infrastructure industry reform and regulation, as well as other research that is less dependent on high-powered statistical methods.⁴³ Case studies and similar investigations are very interesting but cannot provide strong generalized arguments. The econometric evidence discussed above provides strong generalized corroboration of the results from case studies.

3.3. Human and Financial Resource Issues

Availability of human and financial resources both raise major concerns about the potential *supply* of regulatory services. In practice, human resource issues seem to be much more of an issue. This section will discuss human resource issues at some length before making a few comments on financial resources.

Human Resource Issues and Regulatory Quality

The problem of human resources for effective infrastructure regulation in developing countries is one that has been much discussed. The key problem is to ensure that there are sufficient numbers of *professionally qualified specialist* regulatory staff, including accountants, economists and lawyers.

Stern (2000) discussed this in the context of small and low income countries, with the specific example of Botswana, which established a telecommunications regulator (the Botswana Telecommunications

Authority) under a good quality statute. The BTA had only 22 staff members, of which less than one half were regulatory professionals. Botswana, in spite of having a high level of per capita income for sub-Saharan Africa, is only a very small country with a population of under 2 million people. Hence, its annual supply of graduates in 1997 was under 2,000 and the number of new graduates in law, commercial studies and social sciences was 864. Even allowing for Botswanans graduating elsewhere, this was a very small base on which to staff the governmental organizations and major companies as well as to find a reasonable number of high-level staff for the BTA and other regulatory entities. In Botswana, as in many other countries with small numbers of qualified professionals, the question arises as to whether and how far these scarce professionals should be employed in infrastructure regulatory agencies rather than in ministries or other government institutions – or in companies.

Stern (2000) also provided some initial statistics on the numbers of regulatory staff in a variety of developing countries. For telecommunications, staff numbers seemed reasonable – 50–100 or more, except in Colombia and Jamaica (both of which in 1999 had under 30 permanent staff). However, for electricity/energy regulators, the available data showed that none of the non-ministry African regulatory agencies had more than 25 staff members in total, and several had fewer than 10. Of course, many were very young regulators, but it is difficult to see how any regulatory agency could be effective with this number of staff members – and with rather fewer regulatory professionals.

This analysis was taken a lot further in Domah et al. (2002), which reported data on professional staff as well as on total staff.⁴⁴ The study, which focused on electricity/energy regulators, again found very small sizes of regulatory staff – particularly regulatory professionals – in African countries. However, they also found quite well-staffed regulators in middle-income countries in Asia and Latin America.

Absolute staff numbers was not found to be the main factor in the determining whether staffing was adequate. The key point was the high level of fixed costs given that developing countries have a very much lower level of electrification. These high fixed costs imply that to be an effective regulatory agency, there is a need for at least 20 or more qualified professional staff.

The problem is that the number of regulatory staff and professional staff per number of connections (or customers) is much higher in developing countries, particularly for electricity (and water). This is due to

the much lower number of connections per million population than in developed countries. In Africa, several countries have electrification rates of 10 per cent or lower (e.g. Malawi and Uganda) and others both in Africa and among the poorer Asian economies have electrification rates of 10–20 per cent (e.g. Cambodia and Zambia).⁴⁵ For such countries, any regulatory agency, however low-geared to the actual number of customers and companies, will inevitably look heavily staffed relative to its developed country counterpart. Where connection rates are high, those fixed costs can readily be justified. However, when connection rates are low, the high fixed costs imply that to have an effective regulatory agency means that the scarce specialist staff cannot be used elsewhere – and that can be hard to justify in small, low-income developing countries.

It is this last that gives rise to the observed high fixed costs and leads policymakers to explore alternative options to regulation by the local agency. These alternatives include contracting out some regulatory tasks (and much of the detail of regulation) to consultants or regulatory swaps with neighbouring countries that reduce the regulatory burden. Other alternatives are:

- multisector regulators (covering telecommunications, energy, water, etc),
- multinational regulators, and
- multinational regulatory collaboration.

Some observers have taken a radical stance, arguing for non-discretionary regulation with much greater reliance on expatriate regulatory experts or expert panels. Another radical option is greatly increased use of contracts relative to regulatory processes, sometimes with binding arbitration either in-country or externally. These radical options potentially offer the possibility of greatly reducing or even perhaps eliminating the need for a separate autonomous regulatory agency. However, they have the obvious disadvantage that they *substitute* for domestic regulatory capabilities rather than *enhancing* them as is done by the less radical options listed above.

Considerable and useful progress seems to have been made by contracting out of regulatory tasks and regulatory swaps (either by twinning or with neighbouring countries in regional groups, such as the Southern Africa Development Community (SADC)). However, multi-sector regulators seem not to have been successful except in a few small countries such as Jamaica. Multinational regulators face an acute problem of perceived regulatory legitimacy. This is still a major problem within the European Union, so the idea of a single and both effective and accepted Mekong River or Southern Africa regulator seems

extraordinarily unlikely. There have been attempts at doing this in the Caribbean (e.g. for small Caribbean islands over telecommunications regulation), but they have made very little real, practical progress. Multinational ad hoc and informal regulatory cooperation seems to be much more successful.

Another option that has grown considerably in popularity is the use of “hybrid” regulatory models, which combine aspects of concession contracts with regulation. The contract terms are typically relatively fixed for the first few years, so that the need for extensive regulatory oversight builds up relatively slowly and countries have time to build up specialist regulatory professional staff resources. Eberhard (2007) has particularly argued for greater use of the “hybrid” model in Africa for this reason, as well as for the use of some of the other options listed above.⁴⁶

Pollitt and Stern (2009) confirm that many of the African electricity regulators (and a few of the Caribbean and Central American regulators) still seem to be very short on staff, particularly professional staff. This is even more so for Indian state-level electricity regulators. However, the size of the African electricity regulators has grown, so that for the few countries with regulatory staff data both for 2001 and 2005–07, all had grown in size and, in the later period, only two regulators (Namibia and Uganda) had fewer than 20 staff members. Conversely, some of the Latin American electricity regulators are very large. Twelve national regulators had over 100-men staff and two had over 250-men staff – and several of these (including both Argentina and Brazil) had provincial level regulators as well as national ones.

This new evidence leads to focusing more on how to cover the fixed staffing costs of regulation, particularly in countries with low levels of electricity connection. (This is much less of an issue for telecommunications where mobile connection rates are typically 25–35 per cent, even in India and sub-Saharan Africa, implying usage rates of over 50 per cent).

In addition, Pollitt and Stern (2009) point out that no international agency currently seems to collect data on staff or professional staff numbers on a regular or systematic basis. There are many good reasons why this should be done. It may well be a task that UNCTAD would be well placed to carry out. As such, it would provide the base data for establishing what educational, training and exchange programmes were necessary to help developing countries establish a sufficient human resource base for effective infrastructure regulation.

Finally, one would expect UNCTAD to have a major role in facilitating the development of specialist human resources for effective infrastructure regulation, particularly in small and low income countries.

Citing Tremolet and Shah (2005), Eberhard (2007) reports that, in a recent global survey of regulators, the most frequently reported constraint was the lack of specialized skills in regulation. Thirty per cent of survey respondents cited insufficient training as a significant constraint and 61 per cent reported serious deficiencies in the regulatory training that had been received. The conclusions of the Tremolet and Shah (2005) survey cited by Eberhard were that “quality human resources are scarcer than money” and quotes regulators as saying “we lack good people.”⁴⁷ (Eberhard (2007):7)

Financial Resource Availability

The discussion above has focused on human resources. Financial resources should be much less of an issue. This is (a) because the financial costs of regulation rarely if ever amount to more than 1 per cent of consumer revenues; and (b) because it does not require either tax revenue or foreign exchange to cover these costs.

The key issue is whether or not infrastructure regulators are funded out of either a licence fee or levy from sales revenues, or government revenues. The latter is far inferior and almost always causes complaints of insufficient funding.⁴⁸

Funding from government revenues is, however, primarily a mechanism by which Governments that are wary about regulatory independence can retain control over the regulator and exert pressure on it. Cubbins and Stern (2005) show that poor quality governance as represented by central government funding rather than licence fee/levy funding is significantly associated with lower investment in electricity generation. This finding, i.e. that government funding of regulatory agencies results in inferior infrastructure industry outcomes, has been substantiated in other econometric analyses as well as in several case studies.

4. The Main Types of Infrastructure Regulator

This chapter discusses the main types of infrastructure regulatory agency, their characteristics and the circumstances for which they are most appropriate.

Regulators essentially differ in the degree of independence or autonomy that they have. However, this raises the question as to independence from *what* or *whom*. Most of the discussion of this issue primarily relates to independence from the Government (or at least from government ministries). There is, though, a prior issue, namely independence from the incumbent infrastructure supply company.

This is now much less of an issue than it used to be. However, it has not become trivial. In India until 1997, the incumbent fixed-line long-distance telephone company was also the regulator, particularly regarding

new entrants into telecommunications. Similarly in the United Kingdom, until privatization in 1990, electricity companies wishing to enter the generation market had to get regulatory permission from the incumbent vertically integrated transmission and generation company. Not surprisingly, no company actually succeeded in obtaining that permission to enter the market.

This paper assumes that regulation has been fully separated from infrastructure company operations (as required by the First EU Electricity and Gas Directives of 1996) and focus on the degree of autonomy from Government and government ministries.

It is not obligatory to carry out infrastructure regulation via a regulatory agency, even for countries that operate commercialized infrastructure industries. It is possible to try and do without explicit regulation altogether and rely just on competition law and the threat of regulatory intervention – as New Zealand and Germany did until recently, but both of these countries now have explicit sectoral regulators for electricity/energy and for telecommunications.

It is also possible to regulate by contract, e.g. via a concession contract with regulatory aspects specified in the contract and disputes, modifications, etc., handled by the standard commercial courts.⁴⁹ However, this is now becoming increasingly unusual – particularly for telecommunications and electricity – and this has also not been a successful option, as shown by the poor record in Latin America and the Caribbean of concession contracts without pre-existing regulatory agencies.

Leaving these options aside, the main alternative regulators for infrastructure industry are:

- a minister/ministry,
- a ministry plus a non-ministry advisory body,
- an independent regulatory agency;
- an agency *and* contract, and
- a competition agency or similar.

Under *regulation by ministry*, the minister (e.g. of industry) takes and announces regulatory decisions (usually after discussion and agreement with the Minister of Finance, Prime Minister, President, etc). This option is typically associated with State-owned monopoly incumbents. It does not provide any of the key attributes of regulation to support private investment. This model has considerably declined in importance over the last 10–15 years (at least in telecommunications and electricity/energy) given the decline in the number of countries providing these services via State-owned industries. However, it remains more frequent, even in the EU, for railways

and postal services where private investment is less prevalent.

Some countries have *separate regulatory departments/divisions* within ministries. However, even for those, regulatory independence is still only notional and private investors (especially foreign investors) place little or no weight on it when making investment decisions. For telecommunications and electricity/energy, it remains an option that is still used in some African and Asian countries, particularly where state direction of these industries remains dominant.

Under regulation by *ministry plus advisory body*, the minister (e.g. the Minister of Industry) takes and announces regulatory decisions/after discussion and agreement with colleagues following advice from external regulatory agency. This is often advocated and used as transitional step to independent decision-making regulator. However, it is very difficult for a new advisory agency to establish its regulatory reputation and credibility. It is also essential for advice to be published, but this is rarely done.

Most advisory regulators have *not* been upgraded into autonomous decision-making regulators, although the Jamaican Office of Utility Regulation is one that has done this very successfully. Noticeably, this was an advisory agency whose annual advice on the regulatory determination of the telecommunications concession was published. Other successful examples of upgrading from advisory to decision-making regulators are the Central European countries that have joined the EU over the last decade. In their case, it seems that meeting EU membership requirements were crucial for them to make the transition. However, in general, the advisory regulator option does not offer a stable long-term solution for Governments that wish to introduce private investment into infrastructure other than at the margin.

Regulation by independent regulatory agency is still the standard model for commercialized utilities. Independent telecommunications and/or electricity/energy regulators have been established within the last 10–15 years in over 200 countries, including most Latin American countries, Central and East Europe and the Russian Federation, many Indian states, Pakistan, South Africa, and Uganda, Zambia, and other African countries. However, the model is much less widely used for other infrastructure industries.

It takes at least three to five years for regulatory agencies to establish a sufficient reputation to induce larger inflows of private investment at a lower cost of capital.⁵⁰ Consequently, many recently established regulators still have to establish their role and reputation. Overall, the reform model based on independent regulators seems to work well in North

America, the EU and similar countries. There have, however, been many problems in developing countries, even middle-income Latin American countries, which will be discussed in more detail below. In addition, it has been more successful in telecommunications than electricity, and far less successful in water and transport industries.

Note that there are independent regulators of (majority or totally) State-owned infrastructure industries and that regulation can improve their performance. However, this is far more likely when the State-owned company is more commercialized.

Regulation by an agency and contract (the hybrid model of regulation) seems to be growing in importance, particularly in Africa. It also seems more relevant for electricity/energy and water than for telecommunications (viz. the long-standing French water concession model). In this model, the regulatory agency's decisions are often set down or limited by clauses in the privatization or concession contract for the first few years (e.g. five to seven years).

This model is most useful if the regulatory office is newly established, if it has few staff or if it has major political tasks, e.g. in raising prices to economic cost levels. However, the contract may need outside backing (e.g. international arbitration, regulatory risk or similar guarantees). In addition, the model only works provided that the underlying contract is commercially sustainable. In those circumstances, this approach can reduce regulatory risks and help provide early gains to consumers. However, there remains the problem of how and when to make the transition to a more discretionary system. This can be a major problem, as shown in the Delhi electricity distribution reforms. Examples where this approach has been used with success are in Romanian and Ugandan electricity distribution.

Regulation by concession contract and independent concession contract agency is a longer-term version of the transitional hybrid model of regulation above. It raises some of the same issues but, in addition, there is also the problem of keeping full alignment between regulatory methodologies, decisions, etc., and those in the original contract. The two can easily drift apart, which can then cause significant difficulties.

The final model is regulation by a competition agency. This has been used with some success for federal level infrastructure regulation in Australia, but for energy, this has now been separated out into the Australian Energy Regulator. In some other Organization for Economic Cooperation and Development (OECD) countries, infrastructure regulators are specialist parts of competition agencies, but they still operate as ex ante regulators, as was the case in Australian energy,

rather than relying on ex post competition policy remedies (as Germany and New Zealand did). Relying just on ex post competition policy has not proved to be a sustainable regulatory model.

For developing countries, relying on a competition agency is rarely likely to be an option, as there are a lot fewer States with competition agencies than with infrastructure regulators. In any event, this model is one where the difference relative to independent regulation is primarily one of style rather than of substance.

The standard model for regulation in developing countries remains the independent regulatory agency model, although the hybrid (regulator plus contract) model has become more important in recent years, particularly for younger and small regulators, as in several sub-Saharan African countries. The hybrid regulatory model seems to have much to offer, particularly in countries with limited institutional capacity and/or human resource problems, or where prices need to rise considerably to cover economic costs.

The rise of the hybrid model among developed countries is in significant part a response to the difficulties that many developing countries have had in trying to implement the full independent regulatory agency model. These include:

- The weakness or absence of effective civil society organizations and effective consumer voice leaves a big hole in the regulatory process, which means that regulatory capture by companies is more likely. (See the 2003 Prayas Report on State-level electricity regulation for a good example.);
- The difficulties in establishing effective regulation in countries with low-quality law enforcement (from either slow or unreliable courts) and in countries with high levels of institutionalized corruption;
- The difficulties in ensuring regulatory commitment by successive Governments, particularly if changes in Government also represent effective changes in political regime.⁵¹
- This has been a relatively minor problem in telecommunications (especially mobile telephony), but more important in electricity and very important in water and transport;
- In many developing countries, particularly in small countries, there is only a limited number of well-qualified specialist staff. To some extent, this can be alleviated by the use of regional cooperation agreements (as in Southern Africa, the Caribbean, and Central and Eastern Europe);
- Inability and unwillingness in many developing country Governments to "let go" and give real decision-making power to regulatory agencies,

particularly when there are major crises;

- Significant difficulties in achieving transparency of regulation (particularly in Asia), even though such transparency is crucial for establishing the reputation and credibility of infrastructure regulators;
- Difficulties in containing regulatory discretion and avoiding idiosyncratic behaviour of newly-established regulators, particularly where ministries and policymaking resources and experience are relatively weak (as in CEE countries in the 1990s and in many African countries);
- Difficulty to enforce in some countries contracts and international arbitration decisions, particularly when foreign investors are involved.

The list above sets out some of the main difficulties that have arisen. However, there are many success stories in the development of effective infrastructure regulation, most obviously in telecommunications, but also in electricity/energy. In addition, these and similar problems have all been experienced in the past in almost all rich developed countries, including the United States and the United Kingdom.

Introducing effective and credible infrastructure regulatory frameworks is difficult in political and legal as well as in economic terms. It also requires considerable amounts of very specialized human resources and a lot of learning time.

The main issue for developing countries is how to develop regulatory frameworks that foster a virtuous circle of continuing improvement and learning.

5. Concluding Comments and Recommendations for Further Work

Concluding Comments

It should be clear from the arguments of the paper that there is no “blueprint” for best practices (or even good practices) infrastructure regulation. Effective infrastructure regulatory frameworks vary not only by industry, but by country. For any country, they are best established by building on existing and past arrangements in that country for that sector (formal and informal), or at least in similar sectors. To that can be added mechanisms from other countries, provided that they are adapted as necessary to fit the specific circumstances and requirements of that country and sector.

It should be remembered that some of the worst examples of poorly functioning regulation have occurred where countries have tried – or been pushed – to adopt regulatory frameworks based on examples from elsewhere. Examples of this include Philippines infrastructure regulation (largely based on

United States models that have worked badly in the circumstances of the Philippines) and the post-1990 reforms of the Ukraine electricity industry (which were largely – and ambitiously – based on the 1980s’ United Kingdom electricity reforms and privatization).⁵²

The key point, particularly for countries with limited regulatory capacity, is to find good regulatory fits, and that means finding matching solutions for problems that are effective in the specific local context. For countries starting with interim or transitional regulatory frameworks, there are many hurdles to overcome. There are many potential solutions, but most of the solutions have their own limitations and difficulties.⁵³ Among the main difficulties that arise are:

- moving successfully from initial transitional arrangements (e.g. on subsidies and regulatory risk guarantees) to a sustainable long-term basis;
- achieving “strong” rather than ineffective “weak” advisory regulators;
- ensuring consistency between regulatory legislation and contract provisions and procedures;
- enabling contracting out processes and expert panels to promote and complement rather than act as a substitute for building up regulatory capacity; and
- managing the expectations of consumers, investors and Governments.

There are a number of good examples of the long-term development of effective infrastructure regulatory frameworks and agencies in developing countries. It is of course possible, and highly desirable to learn from these examples, but it is not possible to transfer such models directly, and it is even less sensible to try and transfer OECD country models directly. Examples of good practice worth further consideration include (in alphabetical order):

- Botswana Telecoms: a high quality regulator in a very small country;
- Chilean Water: a rare developing country example of successful water commercialization and regulation;
- Jamaica: the Office of Utilities Regulation, which (particularly for telecommunications) is a rare example of an advisory regulator that has successfully graduated into an effective decision making regulator; and
- Ugandan Electricity: an interesting example of the use of the hybrid regulatory model.

Some of the main reasons for their success are set out in box III.4.

Recommendations for Future Work

The major areas where further work would be required are:

- advice in the design and operation of infrastructure regulation and institutions and interface between regulatory/institutional issues, development and trade
- impact of foreign direct investment into infrastructure industries and regulation;
- dissemination of different approaches to the substance of regulation and how it varies by industry, by market and industry structure, by legal framework, etc.; and
- improving human capacity-building, and developing regulatory training programmes, information exchanges and twinning arrangements with regulators and infrastructure suppliers in other countries.

Box III.4. Key Points in the Success to Date of the Infrastructure Industry in Botswana, Chile, Jamaica and Uganda

a) Botswana telecoms

- Strong and consistent support from the Government and the courts for property rights and their enforcement;
- A strong and sustained commitment to telecom commercialization and liberalization by the Botswanan Government;
- A high quality regulatory law;
- Strong and effective leadership at the Botswana Telecommunications Authority and a commitment to best practice; and
- The involvement with and support from TRASA (The Telecommunication Regulators' Association of Southern Africa);

(b) Chilean water

- Strong and consistent support from successive Governments and the courts for property rights and their enforcement;
- A culture of non-political professionalism in both the water regulatory agency and the water companies;
- The creation of effective commercialized regional water companies;
- A spread of water services to all groups and areas matched by strong enforcement of bill payment; and
- The use of subsidies carefully targeted on low income households;

(c) Jamaican telecoms

- Strong political leadership and central government support both for the development of a strong, commercialized telecom sector and for the OUR;
- A good quality Telecommunications Act implemented with the assistance effective technical and financial support from aid donors;
- Strong leadership and continuity from OUR directors-general and senior staff, and a high level of professionalism;
- Effective use of the GATS agreement to help push forward reform, fixed-line liberalization and competition; and
- The involvement of and support from the Organization of Caribbean Utility Regulators;

(d) Ugandan electricity

- The recognition of the need and sustained support for the commercialization of and the use of private investment in the Ugandan electricity industry;
- The careful use of a combination of concession contracts with economic regulation for Ugandan electricity distribution;
- A well-led, competent and independent electricity regulatory agency operating under a well-designed law, allowing a reasonable degree of regulatory flexibility where necessary;
- The use of the regulatory framework and the electricity distribution concession, along with the Ugandan Rural Electrification Fund, to increase electrification rates; and
- The use of World Bank Partial (regulatory) Risk Guarantees to support the concession contract and the regulator for the first seven years of the distribution concession.

ANNEX III.1

INFRASTRUCTURE INDUSTRY OUTCOMES

Regulatory decisions help affect industry performance on the following infrastructure industry outcomes:

1. Output and consumption
 - (a) Household and business access levels
 - (b) Consumption levels and growth rates per head and per unit of GDP
 - (c) Levels of unsatisfied demand
 2. Efficiency
 - (a) Productivity levels and growth rates
 - (b) Cost levels and changes
 - (c) Capacity availability and utilization, losses (technical and commercial)
 3. Quality of supply
 - (a) Continuity of supply
 - (b) Quality of supply and customer service
 4. Financial performance
 - (a) Financial surpluses and losses, achieved rates of return
 - (b) Measures of indebtedness and interest burden
 5. Capacity, investment and maintenance
 - (a) Capacity levels and margins
 - (b) Levels of investment and share of private and foreign investment
 - (c) Levels of maintenance expenditure
 6. Prices
 - (a) Relationship of prices to full economic costs (including a reasonable rate of return on assets)
 - (b) Explicitness, transparency and efficiency of subsidies and cross-subsidies
 - (c) Tariff design that promotes technical and economic efficiency
 7. Competition
 - (a) Well-functioning bid and auction markets e.g. for new capacity
 - (b) Well functioning supply competition markets
 8. Social Indicators
 - (a) Affordability of supply – particularly for low income consumers
 - (b) Impacts on economic development
-

ANNEX III.2

INFRASTRUCTURE RESPONSIBILITIES

The following is a non-exhaustive list of regulatory responsibilities assigned to infrastructure industry regulators.⁵⁴ The relative importance of these issues and how they are handled varies a lot between infrastructure industries (e.g. monopoly network issues are much more important in electricity, railways and water, while competition issues are much more important in telecommunications). They also vary considerably by country (e.g. according to the degree of development and sophistication of market and institutional arrangements):

- Defining and publishing regulatory methodologies as well as keeping them updated;
- Monitoring costs, including defining benchmarks (and benchmark comparison procedures) for costs;
- Setting a cost of capital that reflects the risks and rewards necessary for the particular infrastructure industry (or industry segment) in the particular country;
- Setting and monitoring benchmarks for efficiency and operational improvements;
- Establishing effective procedural rules that allow for genuine participation by all relevant parties and which also provide appropriate appeals rights;
- Maintaining privatization/concession agreements, investment decisions and price reviews, unless there are strong and justifiable reasons for modifying them;
- Preventing growing divergences between costs and prices for regulated consumers;
- Advising Governments on regulatory and regulated industry issues;
- Including stated government policies into regulatory decisions – provided that Governments act in accordance with stated policies (e.g. promised subsidies are actually paid); and
- Public statements on matters affecting the regulation of the industry, e.g. to the legislature, to regulatory and policy specialists and to the wider public.

Further details on these and how they vary by country and industry will need to be developed by UNCTAD in subsequent papers and discussions.

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IV. THE REGULATORY AND INSTITUTIONAL DIMENSION OF INFRASTRUCTURE SERVICES⁵⁵

Ian Alexander⁵⁶

Introduction

A key message around the world for the last two decades has been the reform of infrastructure and transport sectors. Governments of various hues have adopted reform measures for a range of reasons. These include the fact that unreformed sectors are:

- Inefficient in terms of cost – either because of poor productivity, inefficient mix of labour and capital (possibly owing to political pressures on employment levels or because of a lack of access to capital) etc;
- Often perceived to provide a poor quality of service – partly because of the inefficiency and partly because prices are relatively low and the service is seen as a “right” provided by the state rather than a service being paid for by consumers; and
- Unresponsive to consumer needs – again, partly because of the poor quality of service issue and perceptions of a right rather than a service but also because the companies are operating in a more technical rather than commercial way. Consequently service options and the investment necessary to deliver these are unlikely to be forthcoming.

Further, the provision of appropriate services, especially for the capital intensive infrastructure and transport sectors, places a strain on government budgets which means that capital constraints limit what can actually be delivered. The capital constraints arise because Governments have competing demands, from education, health etc, on their limited resources.

Unreformed sectors can become a drain on the economy and adversely affects consumers. Further, the coping costs that industry has to bear to ensure that access to appropriate service levels, such as continuous non-fluctuating power supplies, makes industry uncompetitive. Consequently the push for reform has been linked to addressing these concerns and allowing the infrastructure and transport sectors to facilitate growth rather than hindering it. The remainder of this paper discusses what is meant by reform and provides examples of key concepts.

1. Reform

What is actually meant by reform? There are four key elements of reform:

- Ownership – specifically the roles of the public and private sectors;

- Structure – the choices about the way in which an industry is organized on a vertical and horizontal basis;
- Governance – the roles that various government departments and agencies take; and
- Pricing – the basis on which prices for consuming the service are set.

Each is addressed in turn.

1.1. Ownership

There are two key aspects to the choice about ownership:

- the corporatization and commercialisation of the public sector operator; and
- the possible role for the private sector.

Of these, the first aspect is a clear pre-requisite for reform. Any SOE providing infrastructure and transport services ought to be corporatized. This means that it should be a separate legal entity to the Government – a stand-alone company which exists in its own right separate to the line ministry. This first step should then be accompanied by a move to make the operations commercially viable, i.e. the company should be able to charge prices that cover costs and which allow the company to be sustainable for the future.⁵⁷

Having moved the public sector operator towards a sustainable basis of operations should private sector involvement then be sought? This depends on several factors, including whether:

- The reforms will be honoured by future Governments or whether there is a risk that the steps to make the sector commercial will in the future be diluted, so leading again to the inefficient operations that necessitated reform;
- Access to private external finance is required, say to support a major expansion of service provision (and whether there are constraints on the public sector enterprises from borrowing directly from the private sector); and/or
- Existing management are expected to respond to incentives to provide improved services in the future.

If there are concerns about any of the above issues then some form of private sector participation is likely to be necessary to make the reforms effective. Examples of private involvement and the trends over the past couple of decades are provided in annex IV.1.

While private involvement is important it should be accepted that:

- The reality in many developing and transitional economies is that the likely degree of private involvement in the short- to medium-term may be

limited and consequently making public sector enterprises work better is a factor that has to be considered; and

- Even in countries that have championed reforms like the United Kingdom, Australia and New Zealand there are still services provided by state owned enterprises. For example, water services in Scotland and Northern Ireland are provided by state owned companies while the rail network operator is a form of state owned enterprise.⁵⁸ Other countries with significant state ownership include Ireland, South Africa, the United States of America, etc.

So, while the private sector can, and should, play an important role in infrastructure and transport service provision there is likely to be a role for the public sector at least for the foreseeable future.

1.2. Structure

Choices about the structure of an industry are key to creating an environment in which competition can be facilitated. Competition is important since it is expected to deliver the lowest long-term sustainable cost, best responsiveness to customers and the greatest innovation in service provision. Much has been learned in the last 20 years about the way in which industry structure should be approached and includes decisions about:

- the vertical structure of an industry – how much separation should exist between the various stages of an industry supply chain (for example, in electricity can generation, transmission, distribution and retail/supply or, in the water industry, can water supply, treatment, distribution and retail/supply be seen as separate?); and
- the horizontal structure of an industry – how many companies should be providing services within any one element of the supply chain and should they have overlapping service areas etc?

At the heart of this set of questions is the issue of natural monopoly. Until fairly recently most infrastructure and transport industries were seen as natural monopolies and so often provided by a single company (whether nationally or locally). That view is now changing and greater competition has been introduced into several of the sectors while further consideration of competition in the remaining sectors is underway in some places.

What is a natural monopoly? Technically it is the situation where the marginal cost of production falls as output increases (effectively the impact of economies of scale) but where the minimum efficient size is greater than the demand in the economy (either locally or nationally). So, the lowest cost in an economy occurs when there is just one company

providing the service. This, however, creates the risk that the company will exploit its position hence the solution of state ownership. Of course, natural monopolies can exist for other reasons. For instance, barriers may be created that are either legal or social/environmental which make an industry into a natural monopoly, but these are self-imposed ones.⁵⁹ The existence of natural monopolies can also be affected by technological change making periodic reappraisal important.

The thinking over the past couple of decades has focused on gaining a better understanding of where a natural monopoly actually exists and where within an industry greater competition can be encouraged. When we discuss competition there are effectively three forms of competition envisaged (there is a fourth but this is a form of regulation, it is included below for completeness):

- head-to-head competition – when multiple companies can offer the same consumer the same service or product – also known as product market competition;
- contestability – this is the situation where competition does not exist but it could exist and this makes the company providing the service act as though there is competition – also known as hit-and-run competition;
- competition for the market – while it is not possible to have direct head-to-head competition it is possible to have periodic competition for the right to provide the service, i.e. time limited franchises for service provision are being competed for; and
- benchmarking – this is the use of cost information from similar companies to set prices for the service provider (this is a standard regulatory tool).

Significant amounts of head-to-head competition have been seen in the electricity (generation and retail), gas (retail) and telecommunications industries while competition for the market has been used in many of the other segments of the infrastructure and transport sectors.

The choice of industry structure has important implications for the need for economic conduct regulation (the regulation of prices, quality, access etc). For example:

- The greater the degree of competition that is introduced the less the need for conduct regulation; and
- When competition for the market exists it may be possible for the regulator to just take a role with respect to process, i.e. was the competition for the market adequately “competitive”.

Linked to the latter point, however, is the problem of a key trade-off. If the private sector is being asked to invest into a service then it will need sufficient time to recover the investment, normally longer than five years is needed. Yet, if a longer term involvement happens it is necessary to have some form of regulation since prices are bound to need to respond to changing circumstances. Consequently some form of conduct regulation is necessary, although the precise form can differ – options are discussed in a later section of this paper.

1.3. Governance

While it is important to focus on the industry structure and other aspects of reform there are important governance aspects which need to be addressed at the same time. This includes the need to establish:

- an appropriate legal framework (which can include aspects of private participation); and
- institutional arrangements suited for the newly reformed structure.

Focusing on the latter point captures some of the “conflicts” that Government can face. In an unreformed sector a single government department can be responsible for four different aspects of a sector, namely:

- ownership;
- operation;
- policy; and
- regulation.

This multiplicity of activity is something that can hinder reform and consequently institutional arrangements are needed to minimize the conflicts, even when private participation has happened. A reformed sector could look like:

- the line ministry responsible for the sector is just responsible for policy;
- a separate ministry or executive is responsible for the shareholding;
- a separate corporate entity provides the service; and
- a separate agency is responsible for the economic regulation.

This sort of institutional set-up removes the direct conflicts of interest and should establish a framework that allows stable sector operation.

1.4. Pricing

A final area of reform is that of pricing. Prices play an important role with respect to:

- signaling the level of consumption that should occur; and
- consequently driving the level of investment.

Investment will, however, occur only if prices are sufficiently high to cover the costs associated with them. Further, if prices are set too low (or high) then consumption will be either too great (or too low) meaning that allocative inefficiency is taking place and the incorrect level of resources in the economy are being utilized for the provision of that service.

Setting prices at a cost reflective level should lead to the economically right outcome – allocative efficiency should be achieved. Further, the signals that this sends should lead to dynamic efficiency. But what is meant by cost reflectivity? While in principle the idea that prices should reflect costs is a simple one, the real issue is how should those costs be established?

Many infrastructure and transport companies meet their operating costs but do not necessarily cover:

- Depreciation on existing assets; and
- Return on existing assets.

Depreciation is a charge for the consumption of an asset, if a service is provided today then future consumers access to services are constrained. Consequently it is appropriate for consumers to pay depreciation as a reflection of the service they are receiving.

More controversial can be the inclusion of a return on assets, i.e. profits. From an economic perspective normal profits are a cost, they represent the opportunity cost of funds invested into the business – whether it is debt or equity or a mixture of both. As such it is again important that an estimate of normal profits be included in the prices charged for services.

Key to both the depreciation and profits charges are the issue of how assets are valued. This is a far from straight-forward issue and consequently one where often there is no right or wrong answer. In many countries the primary concern is ensuring that new investment is adequately remunerated and some form of payment for existing assets established. While this is not fully cost reflective it will lead to a financially sustainable company in the long-run.

As noted earlier, reform does not mean that subsidies should not be paid. Clearly helping the disadvantaged elements of a society is a key concern for Government and infrastructure and transport services can be an important part of this. What reform normally leads to is a clearer understanding of where subsidies are needed and a more transparent situation. Subsidies should be considered with respect to access to the service and consumption, although the latter may be more controversial.

2. Regulation

Economic conduct regulation is a vital element of the reform agenda and focuses both on:

- The institutional arrangements for regulation; and
- The substance of price, quality, access etc arrangements.

2.1. Institutional issues

From the early 1990s onwards there has been a push for the establishment of independent regulatory agencies where independence is taken to mean:

- No formal link with a line ministry;
- A separate source of funds; and
- An ability to hire staff on non-civil service terms and conditions.

This creates a situation where the conflict of interest arising from the Government being the policy maker, owner and regulator noted above is addressed. It has been proposed, and employed, in situations where both private sector and public sector operators exist (not necessarily at the same time). However, establishing effective independence can be difficult – a theme addressed elsewhere in the UNCTAD conference. As such, innovative alternatives (or complements) are being considered (see below).

Other key institutional issues need to be addressed. These include the relationship between the economic sector regulator and:

- competition agencies – an overlap can exist for both mergers and acquisitions type issues as well as traditional competition issues when competition has been introduced, say in retail services; and
- environmental agencies – key costs for the infrastructure and transport services arisen from environmental decisions, such as the level of treatment required for sewage or climate change adaptation and mitigation.

There may not be a single right answer for the institutional arrangements between various agencies but it is important to:

- ensure transparency;
- minimize overlaps of jurisdiction; and
- ensure that an agency has the final decision making powers.

2.2. Substance

The substance of regulation relates to key conduct issues, i.e. what prices can be charged, what level of quality of service has to be provided and on what terms and conditions is access to a network provided?

There are various ways in which these issues can be addressed and the detail goes beyond what is possible in this note. However, it is important to establish a framework that:

- have clear and measurable objectives;
- create incentives for cost minimization;
- ensure that necessary investment is undertaken; and
- focus on effective monitoring.

The choice/design of a specific regime will depend on the precise objectives and circumstances that exist at the time of a decision. However, having chosen a specific regime that does not mean that future decisions have to continue with that regime. If the conditions have changed and a change in regime can be justified then it should be changed.

2.3. Innovative Solutions

Regulatory capacity and credibility is a problem throughout the world. Various solutions are being sought, all of which try to address the underlying problem of wanting a regulatory regime that gives certainty to investors while ensuring that sufficient flexibility exists to address issues as they arise. This section considers four ways in which this problem has been addressed.

- **Expert panel** – in addition to having a standing regulatory agency a small expert panel is used to determine, or support the determination of key regulatory decisions. Examples include Bucharest water and the Indonesian water sector. This can effectively become an appeals process alongside a traditional regulatory agency.
- **Contract** – a contract is established which sets out the regulatory decisions so meaning that all a regulator has to do is monitor the implementation of the contract. This only works for discrete investments where it is possible to be precise about the future – say with an Independent Power Producer or some form of bulk water treatment through a BOT.
- **Reduced discretion rules** – building on the idea of regulation by contract but not with a writing of precise decisions into the contract processes for determining the decisions. If these processes are sufficiently tight then companies will have a high degree of certainty about what decisions will be taken, so they will be very predictable. While no actual set of reduced discretion rules have been used, there are examples being developed in countries like New Zealand through their Input Methodologies.

- **Outsourcing** – this approach takes the expert panel one step further and removes the need for the regulatory agency. An expert panel/consultancy firm undertakes the role of the regulatory agency with respect to making determinations. Less extreme versions may outsource just some of the regulatory activities, or specific questions, to third parties.

These various approaches provide possible solutions to some of the regulatory problems identified in this

note and in others during the conference.

Conclusion

This note has briefly summarized some of the key reform and restructuring issues that countries have to face. It is an overview and a starting point, each of which needs to be addressed in more detail. The note also touches on some of the innovative solutions to regulation that are being developed around the world.

ANNEX IV.1 EXPERIENCE OF PRIVATE SECTOR PARTICIPATION

Recent trends in private sector participation, based on the World Bank PPI database, are set out below.

Figure IV.1. Total investment commitments in low and middle income countries: 1990 to 2007

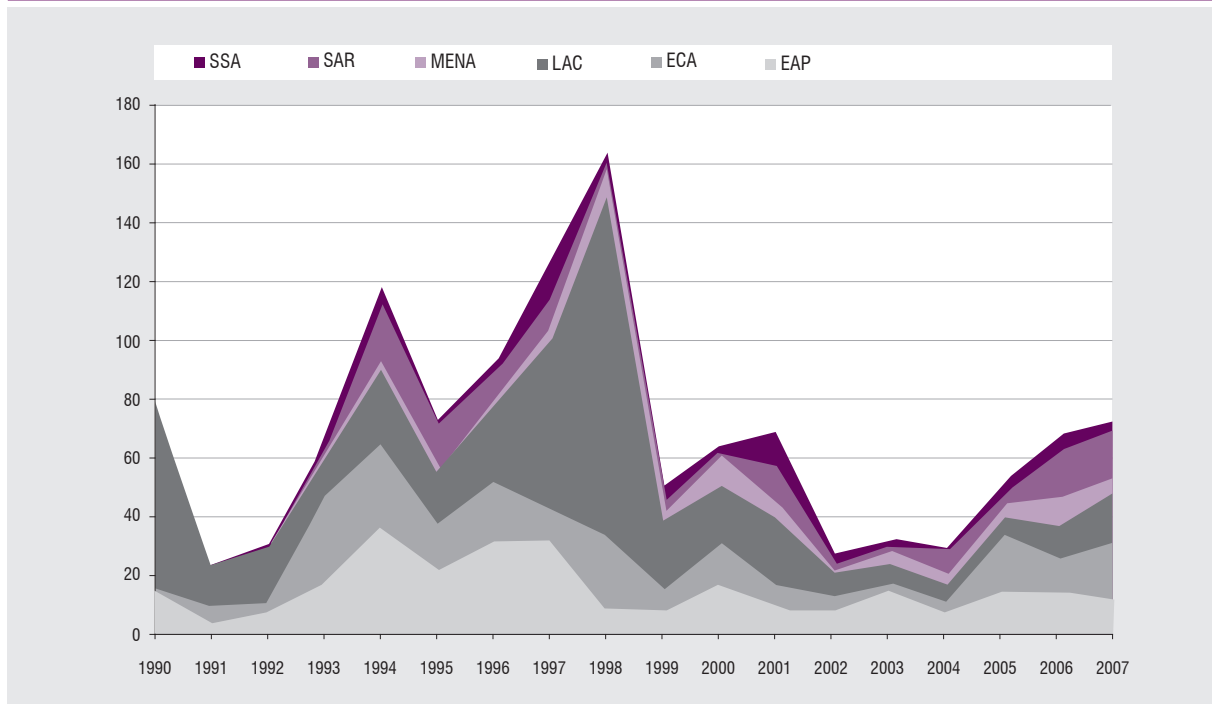


Figure IV.2. Number of projects reaching financial closure in low and middle income countries: 1990 to 2007

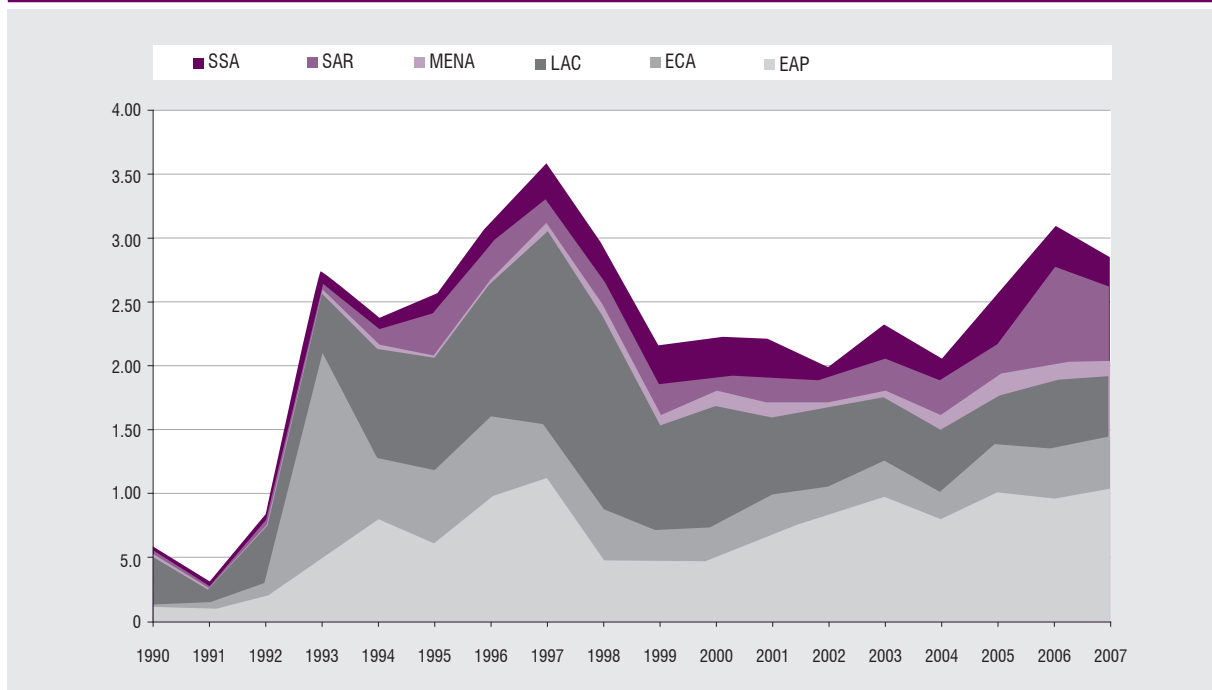


Figure IV.3. Geographic spread of transactions

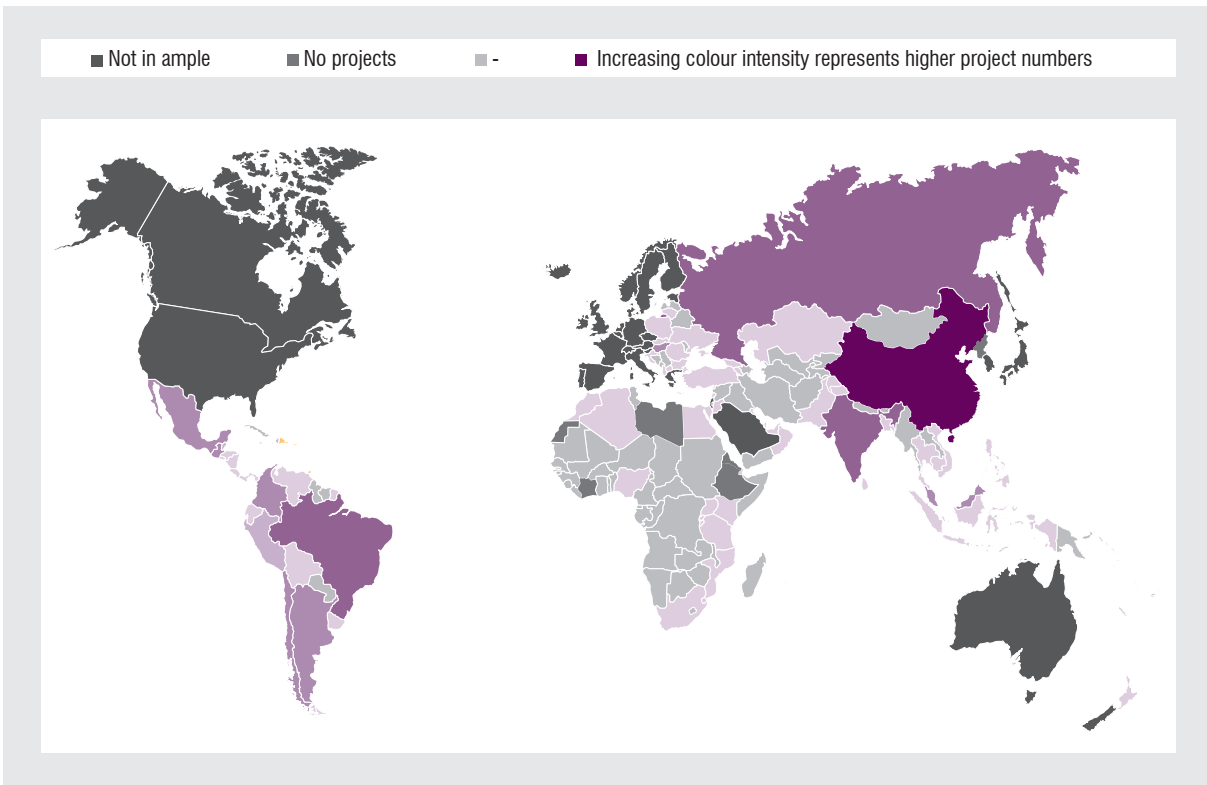
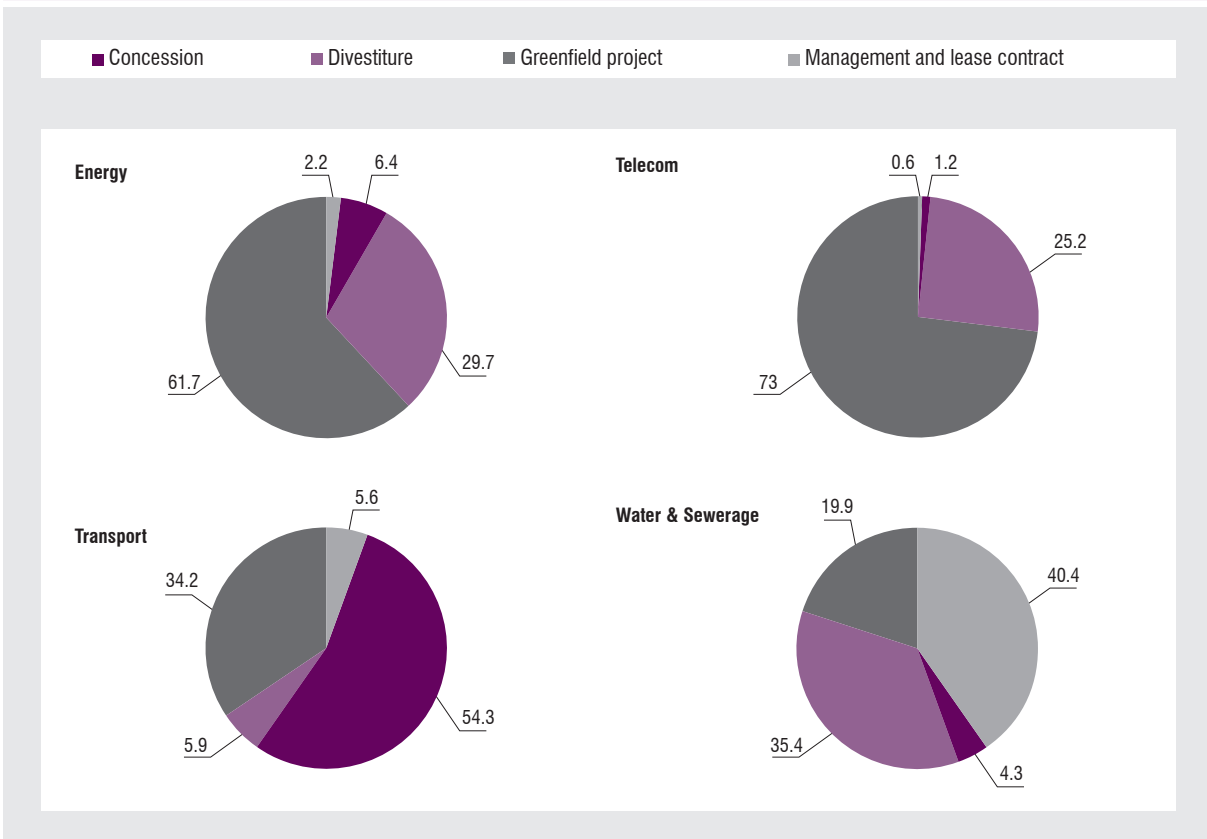


Figure IV.4. Sectoral spread and form of involvement (%)



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V. INFRASTRUCTURE: THE REGULATORY AND INSTITUTIONAL DIMENSIONS

*Ashley Brown*⁶⁰

1. Characteristics and Institutional Framework of Infrastructure Services

Infrastructure services are generally thought to be those that are basic to the economic and social well being of society including energy, particularly electricity and combustible fuels, water and sanitation, telecommunications, and transportation. Because these industries are so closely tied to societal well being, they are often viewed as something more than simply economic activities similar to other lines of business. Rather, in addition to being a business, they are viewed as being charged with the “public interest.” In addition, much of infrastructure has, for much of its history, been characterized, either in whole, or in part, by monopoly characteristics. As a result, of both its social and economic characteristics, Governments have always sought to exercise significant control over these basic industries. That control has traditionally been exercised by either outright ownership or through the exercise of regulatory oversight, and, in some cases, by both.

For a variety of reasons, state ownership has been common in infrastructure in many parts of the world. The reasons for this have varied, but they include ideology, the need to making certain that public policy objectives are achieved in core areas of the economy, monopoly characteristics, and, particularly in developing countries, and the inability of parties other than the state to attract capital sufficient to build out infrastructure. In addition, the fact that so much of infrastructure had monopoly characteristics led many policy makers to view infrastructure as quite different from those business sectors where private, usually competitive commercial activity seemed appropriate. Because so much of infrastructure was state owned, there was not a widespread perception of need for separate regulatory institutions. The prevailing, although not universal wisdom was that state ownership eliminated any need to control profit maximization because state owned institutions would be held politically accountable, and that appropriate economic incentives were unnecessary for non-profit institutions. While control over state owned infrastructure varied from direct governmental oversight to quasi independent, commercially oriented governance, independent regulatory oversight beyond that was largely absent.⁶¹

The predominance of state ownership in infrastructure began to change in the 1980s and 90s. The reasons for these changes varied a bit from country to country, but

generally resulted from Governments trying to relieve heavy debt burdens, inability to manage effectively, labor problems, ideological views, pressure from multi-lateral and unilateral lenders and aid organizations, the need and desire to access broader capital markets, a need to shift governmental resources to pressing social needs, efforts to install more effective management and greater productivity in operations, and, perhaps, the notion that privatization will reduce politicization in infrastructure policy and decision-making. In addition, and not unimportantly, it was widely perceived that certain infrastructure services, heretofore regarded as natural monopolies, were, in fact, no longer natural monopolies and were ripe for conversion to fully or partially competitive markets. Most notable as an industry ripe for competition, was telecommunications, where the technology, especially wireless and internet, made reliance on a single, land-based, monopoly anachronistic and unsustainable. In other infrastructure industries, aspects of monopoly were no longer necessary. Other examples of this might include generation in electricity, the commodity itself in natural gas, and perhaps rolling stock in railroads. Thus, as a matter of policy, the existence of, or potential for, competitive markets, made privatization and the introduction of competition a logical step. While one can debate whether privatization, in and of itself, accomplished all of the objectives listed above, or was appropriate for the circumstances, there is no doubt that many countries privatized, or, at least, allowed for the entry of private capital, into infrastructure sectors that had, heretofore, been the exclusive domain of the state.⁶²

The trend toward privatization, and/or allowing the entry of private capital, must be understood in the context of the nature of infrastructure services. Most, if not all, of these industries have been viewed over time as natural monopolies at one point or another. While some of them have clearly emerged from monopoly status,⁶³ most of them either remain monopolies or have essential bottleneck facilities that retain monopoly characteristics while other parts of the sector may have become competitive. An example of this is in electricity where the wires part of the business (i.e. transmission and distribution) is widely viewed as monopolistic while generation and supply are viewed as competitive, or, at least, potentially competitive. Because of the two key elements, the essential nature of the service provided, and the lack of competitive options for consumers, privatization does not equate to open markets. A system of regulation is required. While state ownership of infrastructure may function without an independent regulatory overlay because of the political accountability of the stewards of the service and assets, private providers of essential services, particularly monopolies, lack such political

constraints.⁶⁴ Profit maximization may well breed efficiency in a competitive market, but in a monopoly context, profit maximization is highly problematic from a variety of perspectives. Accordingly, a regulatory regime must be put into place to assure that there is no abuse of monopoly power, that incentives are put in place for private service providers that reasonably align the otherwise conflicting interests of both consumers and investors. There are, as the discussion that follows makes clear, a variety of options that countries confront as they construct their infrastructure regulatory regime.⁶⁵

It is also quite important to put infrastructure regulation in full context. Generally speaking, economists prefer to allow markets to operate unconstrained by intervention from the state. That, it is often argued, will produce the most efficient result for society. To do so, however, requires that the markets suffer from no significant flaws, such as lack of competition, serious asymmetries of information, or major bottlenecks. There is also the additional question of how important the economic activity is to society to be considered in regard to whether state intervention into the market is warranted. In regard to essential infrastructure on which societies rely, however, the importance of the products being sold is affected with the public interests and market failures will inevitably require the state to intervene to compensate for those failures. That does not mean that markets should not be permitted to operate, but only that it is important for those markets to operate without any significant failures.⁶⁶ Once it is determined that there is a significant market failure in an essential infrastructure market, then the questions are how that regulation is best carried out, at what cost, how to tailor it to be in proportion to the nature of the market failing, and toward what purpose. In addition, there is the question of how these decisions are taken, who takes them, and how they are implemented.

Before delving into regulatory issues, it is important to set the context in which reforms have been initiated in infrastructure services.

2. Context for Restructuring Infrastructure Services Sectors

Private investment is sought out in infrastructure in developing countries, as noted, for a variety of reasons. They generally fall into four categories, or combinations of those categories. The first category is the result of factors internal to the infrastructure sectors affected, such as an inability to effectively manage assets because of labor difficulties, corruption, or human resource limitations. The second category is where attracting private capital is motivated by economic or resource factors completely external to the infrastructure sector, such as dealing with an

economic crisis, or simply seeking relief from crushing levels of debt, reaching the state's limits in terms of borrowing the amounts of money required to keep up with increasing demands for services, or perhaps even a need to divert resources to other pressing social needs. Third is where the motivation is simply pressure from creditors or foreign aid donors who make privatization a pre-condition for making loans or extending. Finally, there are cases where governments simply take an ideological position to forego state ownership and promote private investment in the belief that such moves serve the best interests of the country. The motivation is quite important as a measure of gauging a country's commitment to providing an appropriate environment for attracting and retaining private investment. Perhaps, even more importantly, it heavily influences the method in which privatization is carried out.

While it seems intuitive that the more a Government is committed to the success of attracting private capital to a nation's infrastructure, the more likely it is that the political will exists to make the effort successful. While it may be intuitively true that privatization compelled from outside the country is less likely to succeed in the long run than if there is strong domestic support for the effort, there is no clear evidence that privatization failed simply because of resentment of outside pressures, such as from the International Monetary Fund (IMF) or the World Bank.⁶⁷ On the other hand, political commitment to privatization or attracting private capital is no assurance of success either. The problem is because Governments have an inherent conflict of interest in privatizing. The conflict is between selling state owned assets for the maximum price and creating circumstances for the long term optimization of the sector. Absent effective management, those two, perfectly legitimate, objectives, are at odds with one another. It is also important to note that Governments privatizing infrastructure services for the first time, have another obstacle with which to contend, namely risk adversity among prospective investors who find no precedents for assessing the risks posed by the offers being made. To overcome these concerns, Governments often try to "sweeten" the initial concessions being offered in order to gain investor confidence. There is some history that these deals turn out to be too "sweet" to be sustainable over the long run.⁶⁸ Three examples, drawn from Brazil, Argentina, and Zambia, illustrate these problems.

Before discussing the three examples, it is important to set the context beyond privatization. Privatization is just one component of restructuring an infrastructure sector. Indeed, it is not even an indispensable element of restructuring.⁶⁹ Perhaps more important in restructuring is to design and make the rules for the

new market model, and to formulate the regulatory regime. The failure to complete, or, at least to embark, on those two efforts is an almost certain guarantee of creating enormous difficulties in privatization.⁷⁰ It seems intuitively obvious that both the host country and the private investors putting their capital at risk would be well served by knowing at least the contours of the regulatory and market environment before large sums of capital are committed. As will be demonstrated by the Argentine and Brazilian examples, the difference between setting that context before trying to deploy private capital and leaving it for a later date is enormous.

The Brazilian and Argentine examples are excellent studies in contrasting ways of carrying out privatization.⁷¹ Prior to privatization in the early 1990s, the Argentine power sector had suffered from significant under investment, and was somewhat physically deteriorated and low in efficiency and productivity. It was widely believed that the strategic injection of capital and installation of new management would yield very significant productivity gains in generation, transmission, and distribution. In Brazil, the pre-privatization condition was quite different. While many, although not all, distribution entities, suffered from lack of investment, the transmission and generation sectors were generally regarded as well maintained and reasonably efficient.⁷² It is also worth noting that the generation sector in Brazil at the time privatization was begun, was about 90-95 per cent hydro, while Argentina was roughly 50 per cent hydro and 50 per cent thermal.

In Argentina, privatization was viewed in the context of a total restructuring of the sector. Prior to undertaking privatization, the Argentine authorities determined that they wanted to create a viably competitive generation sector, to establish price cap regulation for the distribution companies which provided powerful incentives for increasing productivity, and to develop a transmission network that enabled that vision. In connection with that vision, they intended to sell off the state assets in the sector to private investors, most of them foreign. In order to establish the optimal circumstances, considerable efforts were expended in order to learn from mistakes elsewhere in creating viably competitive electricity markets in order to avoid repeating them. Competition in generation was essential because they envisioned minimalist regulation, primarily anti-trust regulations, for generation. Needless to say, they wanted to attract significant revenues from selling the state's property. That desire, however, was tempered by their intention to assure that the electric market was sustainable and enduring. In short, profit maximization from the sale of assets was not the objective. The desire to

capture revenues for the state was tempered by the wish to for an optimal market, post-privatization. As a result, the three basic components of reform, market design, establishment of independent regulation, and privatization were carried out somewhat contemporaneously during the early 1990s.⁷³

Brazil, during the period 1995 to 1999, in notable contrast to its southern neighbor, turned over privatization efforts in the power sector not to energy officials, but, rather, to BNDES, the national Government's development bank. The first task to be undertaken was the privatization of the distribution companies. There were two reasons for this decision. The first was purely financial. Most of the distributors were owned by state Governments which were deeply indebted to the national Government. By turning over those assets to BNDES for privatization, the revenues received could serve double duty, repayment of state debt to the national Government, and to enable the national Government to ease some of its very significant debt burden. BNDES then spent considerable effort talking to potential foreign and domestic private investors to see how they could package the distribution company sales in ways that would be most attractive to them.⁷⁴ Rather than replicating the earlier Argentine effort to contemporaneously design a new market and to implement a regulatory system, those decisions were deferred. At least part of the reason for deferring those decisions was that fear of competition or anxiety about regulation would reduce the amount of money investors were willing to spend to buy the distribution assets. There was a side effort to engage key figures in the power sector in strategic discussions about market design and regulation, but that effort, unlike what happened in Argentina where all of the activity related to restructuring the sector was integrated, took place in almost complete isolation from the privatization efforts. Indeed, even though promises were made to privatize generation at some unspecified time in the future, serious efforts to carry that out never fully evolved.⁷⁵ The result was that the Government did, in fact, sell distribution assets for prices far in excess of the established minimum price, but that the seeds of sector failure were planted.⁷⁶

Whereas the Argentine market functioned quite well until the entire economy collapsed several years later (2000-2002), the Brazilian market plunged into service reliability problems and then severe shortage. The service reliability problems, manifested in the blackout of 1999, resulted from incentives provided in one of the earliest privatization, that of Rio Light. The price caps regime not only had no X factor to assure a sharing of productivity gains between consumers and investors, but was accompanied by a complete absence of regulation of the quality of service until

Box V.1. Rio de Janeiro Blackout: Following Incentives

The blackout, which lasted more than a week, was, technically speaking, the result of equipment failure in the midst of a sustained heat wave. The equipment had deteriorated, but the staff of Rio Light had been skilled in keeping it in operation. At the time of the blackout, however, most of those experienced workers had been let go, and the new, lower paid, less experienced, team in place, lacked the skill and knowledge to keep the old equipment functioning or get in back on line in reasonable time. The private owners of Rio Light had made no investment at all in improvement of the equipment they knew to be defective. The company said that they were still studying the situation to see what investments needed to be made in what priority. Many observers, however, believed that the company was simply “following the money,” namely following the incentives to cut costs to benefit the bottom line, rather than increasing productivity.

Agência Nacional de Energia Elétrica (ANEEL) subsequently came into existence.⁷⁷ The result was that the company was not rewarded for increasing productivity, but rather for merely cutting costs, a rather simple task that was accomplished by not investing in infrastructure, already deteriorated at the time of privatization, and then laying off or moving into early retirement, the skilled and experienced workers who knew how to make the system to work. The two week blackout of Rio de Janeiro, Brazil's second biggest city, in 1999, occurred just as ANEEL began its operation.⁷⁸ The Chairman and his secretary had been in place barely a week when they were notified of the blackout. To make matters even more complicated, when ANEEL did take action, the companies contended that it had no jurisdiction because their concession pre-dated the law creating ANEEL, and because their concession said nothing about quality of service standards. The regulatory agency, not surprisingly, had a rough birth. Its credibility was not enhanced by the shortage which occurred just a few years later, the causes of which were multiple, but significant among them was the complete failure to design a market scheme within which there were incentives for building thermal generation. Thus, one dimensional focus on privatization proved costly.⁷⁹

In Zambia, there were two state owned electric companies. The larger one was ZESCO, the vertically integrated, state owned utility. The other was a distribution company, Copper Belt Energy, that was owned by the nationalized copper mining operation and served the heavy load centers in the country's Copper belt region. In search of revenues for the treasury, during 1991-1996, Zambia decided to privatize Copper Belt Energy. In order to make the sale more attractive, the Government hit upon the idea of having ZESCO assume the supply risk for Copper Belt Energy's customers rather than assign that risk to the entity serving the customer - as is typical with electric utilities. Further skewing the incentives, the concession indicated that in circumstance where the customer paid less than his full bill, Copper Belt Energy had first call on the money paid before ZESCO was to be compensated. The arrangement, much like that of privatizing distributors in Brazil, was

perfectly suited for attracting significant amounts of money to bidding for the concession, but when the copper mines fell behind on their electric payments, Copper Belt Energy was largely held harmless, while ZESCO, the state owned company responsible for serving the bulk of the country's electric consumers, was pushed into a deeper financial abyss. The ERB, Zambia's energy regulator was with the dilemma of a company that was largely precluded from recovering its costs, yet which was obligated to serve most of the country's demand for electricity. Once again, one dimensional privatization rendered the regulatory task extraordinarily difficult.

The point to derive from these experiences is that regulators are inherently creatures of the environment within which they must operate. When the privatization occurs in a balanced, nuanced way, keeping in mind the multiple objectives of such an effort, regulators will be able to operate in a smoother, more stable environment, than when they are handed the residual damage from deeply flawed privatization efforts. It is also worth noting that there are other contextual issues regarding privatization that further define the regulatory challenge. Governments, in order to build political support for privatizing state assets sometimes overstate the expectations for productivity and service quality gains. Sometimes, as in the case of Argentina, significant gains are attainable.⁸⁰

In cases such as Brazil, that is not at all clear. In fact, there is something of a debate among experts about whether it is best to build up assets prior to privatization in order to attract a higher purchase price, or, rather, to sell the asset “as is” and let the investor value it appropriately, and then go about making improvements as it sees fit. Finally, there is the question of clearly defining what is expected of the private investor (e.g. expansion of service, quality of service, safety, etc), so that the investor, Government, consumers, and regulators all have similar expectations. As is obvious, it is critical that the incentives provided to the investors be consistent with the attainment of those expectations, as well as congruent with the policy objectives of the state and its regulators.

Box V.2. Universal Access to Services

The effort to provide universal access to service is an important example of how privatization may provide incentives or disincentives for the attainment of universal access. An excellent example occurred in the Brazilian State of Bahia in the mid 1990's, when the state electric distribution company, COELBA, was privatized. There were serious issues as to how to extend service into the vast, relatively under served, interior of the state. The Governor was given three choices in that regard as they related to privatization. The first was establishing dates certain for universal service as part of a statewide monopoly concession, a requirement that would allow prospective investors to internalize those costs into their bids. The second option was to grant a concession only where service then existed and then put unserved areas out to separate bid, thereby injecting a bit of competition into the equation. The third option was to provide a state wide monopoly concession with no service extension requirements, unless funds were made available to the company by third parties, such as the state. The Governor chose the third option for the obvious reason, that it would attract the biggest prices from bidders. Nevertheless, just a few months after Iberdrola, a private Spanish utility, acquired the concession with no obligation, absent state funding, to expand service availability, the company found itself heavily criticized for not providing a service, the concession explicitly did not require.

While the example relates to universal service in the context of privatization, the provision of universal service is an extraordinarily important part of infrastructure regulation in developing economies, with or without privatization. Market penetration rates for electric service in developing countries, particularly in rural areas, can be very low. In some sub-Saharan African countries the rate is in single digits. The attainment of universal service is both a policy and regulatory issue. The options for achieving it range from, as in the Bahian example, internalizing it into privatization, creating governmental subsidies from the state treasury within rates to attain it, devising cross subsidies to finance it, and variations of each. Each approach has disadvantages. Internalizing it into privatization might be efficient, but is, as the example points out, it may not be appealing to governments or politicians who are looking to maximize revenues from the sale of assets. Governmental subsidies are reasonable in the economic sense that they allow for a wide spreading of the costs, but have the downside putting even greater pressure on governments to spend money from treasuries that are already bare and often deeply in debt. Cross subsidies have the advantage that they are relatively easy to put into effect and that they are "hidden taxes" that impose less political costs to the government. They are problematic, however, in the sense that they often become too burdensome, as in India, where rural subsidies are widely regarded as poorly targeted, extremely costly, and distorting of price signals to customers. They are often politically contentious, as in Namibia, where efforts to impose cross subsidies from urban to rural customers ran into protests from the country's cities.

There are also efforts to universalize electric service through micro grids. In Cambodia, for example, many villages have local entrepreneurs who provide local service of electricity to villagers, but who are not connected to a national grid. There are numerous efforts in many countries to utilize renewable resources, such as solar, wind, bio-mass, or small hydro, to create micro-grid service. Universalization of service is a major issue in developing economies, and regulators in those countries are likely to be called upon to play a major role in accomplishing it.

3. Regulation: Juridical, Institutional, and Substantive Aspects⁸¹

Regulatory regimes in both design and operation must be understood in at least three dimensions, the legal construct, the processes, as well as institutional and governance framework, and arrangements, and its substance, in terms of rules and pricing. Stated in somewhat different terms, these are the questions of Who? How? and What? of regulation. There are a number of models in each of these dimensions, as are explained below.

3.1. Juridical Models

There are essentially two quite different juridical models for regulation. They are generally known as "regulation by rule"⁸² and "regulation by contract." While each of these models has a variety of variations, including some hybrid models combining elements of

both, they are the two dominant models in use today.

Regulation by rule, which originated in the United States, and which is still in use there, as well as other jurisdictions, is a regime wherein the regulators is delegated enumerated powers from the Government, and is empowered to exercise them unilaterally (i.e. without the formal consent of the regulated entities). In contrast, under regulation by contract, which is used in a majority of jurisdictions with formal infrastructure regulation, concessions are granted to licensed entities to do business under specified circumstances and conditions, and those rules remain in effect, like any contract, until such time as they expire by their terms, of the parties to the arrangement mutually agree to alter the terms. The degree of difference between the two juridical contexts may be slight, or may be quite significant depending on the explicitness of the terms of the concession documents.

Box V.3. Granting Concessions: A Governmental or Regulatory Function

There is a debate over who should grant concessions. Some argue that the regulator should not grant concessions because it would then have a stake in how subsequent performance by the licensees is assessed. Furthering that argument is the idea that if the concession is granted as part of a privatization scheme, the government, as custodian of the asset, should determine to whom it should be assigned and under what terms and conditions. Proponents of the government being the concession granting entity also argue that the terms and conditions of a concession to an infrastructure provider are broad statements of public policy which only a government, and not a specialized regulator, can perform. Those who believe that the regulator should grant concessions contend that the process would be less politicized and less subject to manipulations, that regulator will have to enforce the concession, so it makes sense for them to grant it also, and finally that the regulator is better equipped professionally to handle the concession granting process.

The basis of concession regulation is that a concession is granted to a licensee, often a private company, but perhaps a state owned enterprise, to engage in a particular business activity.⁸³ The concession sets out the terms under which the concessionaire will do business. Typically, although not always, concessions might include such terms and conditions as the price paid for the concession, pricing methodology, provisions setting out when and how tariffs might be changed, monopoly or non-monopoly status, service expectations, degree of regulatory discretion to which the company is subject, definition of territory to be served, length of concession, capital investment expectations, potential liabilities and other risk exposures, and a host of other requirements. From a legal perspective the concession is a contract between the Government and the regulated company, the terms and conditions of which can only be altered by mutual consent. Concessions are usually granted by the Government and enforced by the regulator, but, in some jurisdictions, the regulator does both. It is important to note, however, that the degree of explicitness in concessions is critically important, because the terms and conditions are legally binding and limit subsequent regulatory discretion.⁸⁴ For that reason, investors often prefer contract based regulation because they are in a better position to know what regulatory risks they are likely to encounter. Left to their own devices, presumably, many regulators would prefer to have more discretion than that afforded by contract regulation. For Governments, the selection of which method is deployed is often the result of ascertaining which method will allow privatization to proceed most smoothly, and, perhaps, most profitably. It may also be the result of the country's legal system.⁸⁵

Regulation by rule also includes the granting of concessions to companies, but the terms of those concessions are often little more than a mere license to do business. The substantive conditions under which a concessionaire must do business, such as pricing, service rules, subjectivity to competition, liability and other risk exposures tariff changes, etc. are left to the discretion of legislative and regulatory

authorities, who possess the power to change any or all of the rules at their discretion, without having to obtain the consent of the regulated entity. Typically, however, that discretion is limited in a number of significant ways. Those limitations typically include prohibitions on the arbitrary taking of property, requirements that pre-existing contracts be honored and contractual; rights of parties be respected, including but not limited to arbitrary diminution of the value of property, requirements that all rule changes be applied prospectively and not retrospectively, prohibition against unreasonable barriers to recovery of costs prudently incurred in providing acceptable levels of service, prohibitions against changing rules without some form of consultation with those affected, as well as other statutory or constitutional limits of the exercise of state regulatory power.⁸⁶ Thus, while the regulatory risks for a concessionaire may seem far greater than they might be under contract regulation, depending on the limits imposed on the exercise of regulatory discretion, that may or may not be the case. It is important to note that the limits of regulatory discretion in a regulation by rule regime may be heavily dependent on the existence of a strong legal system which includes competent, independent judicial oversight or review. In the absence of such a strong legal system, nominal constraints on the exercise of regulatory discretion may be more illusory than real. For that reason in particular, investors often find contract regulation preferable to discretionary regulation in less developed countries. That being said, however, it may also be that the seeming certainty of contract regulation may be less than meets the eye. It is useful to consider a couple of examples to illustrate the issue.

Perhaps the best example of instability in the supposedly certain regime of contract regulation was found, ironically, in the United Kingdom, hardly an immature or uncertain legal or political environment. The rules in England and Wales for the distribution companies (regional electricity companies (RECs)) after their privatization, was that they were subject to RPI – X price cap regulation, the details of which will be further explored later in this paper. That meant, in

practical terms, that the tariffs would be set for a period of five years, subject only to annual adjustments to reflect both inflation and the attainment of an assumed level of productivity gain. Those rates were premised on assumptions about costs and opportunities for productivity that turned out to be significantly off the mark. The result was that when new investors began exploring the possible acquisition of various RECs the rates of return being earned were disclosed. Those rates were quite high and led to considerable consumer backlash. All of this played out against the backdrop of elections as well as allegation of “excessive” profits being earned by the RECs proved to be a considerable embarrassment for the Government.⁸⁷ The problem was that the regulatory contract in place explicitly prohibited any tariff changes, other than the automatic RPI-X annual adjustment, during the five year life of the tariffs in effect. The question for the regulator was to fully honour the concession contract terms and risk the political unraveling of the pricing methodology and perhaps even more of the enacted reforms, or to break the contract and rescue the overall paradigm. Given that choice, the contract was broken and high earning RECs were compelled to reduce their tariffs to more “acceptable” levels. For contract regulation to be fully sustainable, it needs to “right” at the outset. In the case of distribution tariffs, the initial tariffs were not guided by a full understanding of the underlying costs and potential gains in productivity. That failure to be correct at the start, almost inevitable given human frailties, has enormous potential, as the example demonstrates of making contract regulation less certain than the theory would make it appear.

Another example of uncertainty with supposedly certain contract regulation occurred in Brazil at the expiration of the initial terms for distribution tariffs in Brazil.⁸⁸ The problem in Brazil emanated not, as in England, from a less than full appreciation of the costs, but, rather from another common contract problem, namely an incomplete document that fails to set out all of the relevant terms. At the time of initial distribution company privatization, the concessions being offered to bidders set out, among other things, a tariff methodology for the initial tariff period, but were silent as to what would happen at the expiration of that period.⁸⁹ They were also silent in regard to the regulatory regime within which the concessionaires would be doing business. Thus, when the initial tariff period expired, ANEEL, the regulatory agency, lacked any legal or policy guidance as to how to set tariffs for the next period of time. Particularly vexing for the regulators was the fact that concessions did not even give any basis for the ascertaining the rate base, which would serve as the cost foundation for tariffs. The companies, not surprisingly, contended that the rate base should be based on the purchase price they

paid for the assets. They contended that that was what the Government had promised them at the outset. The problem was that nothing in the concession, or, for that matter, in Brazilian law, supported that contention, and the regulatory agency itself, did not exist at the time, so it was clearly not a party to any such understanding. Moreover, regulators had alternatives for establishing a cost basis, such as reconstruction costs, original construction costs minus depreciation, or application of some benchmark set of costs. When ANEEL did not use the purchase price, the private owners of the distribution companies protested to the Government that the regulatory compact had been broken. While there were divided views in the Government ultimately no action was taken to undermine what the regulators had done.

Ultimately, on reconsideration, and with considerable consultation with both the Government and The World Bank, ANEEL put in place a benchmark based foundation for establishing costs, which, along with a series of other, somewhat unrelated reforms implemented by the Government, salvaged the complaints of the distributors. The problem, however, of the incomplete contract, points out the fact that the initial terms of a concession not only need to be based on full information, but must also be complete and comprehensive if it is to achieve the level of sustainability and certainty for which many risk adverse investors look.

Regulation by rule, almost by definition has within it a number of serious regulatory risks. The mere fact that Government or regulators can change rules without the consent of the regulated might make many investors fearful, despite the limitations on that discretionary authority noted above. The fact that such changes can occur at either a regulatory or political level, of course, does little to quell those anxieties. The fact that regulation by rule is primarily used in the United States, with its strong, independent judiciary, and well established legal system, does little to provide confidence to investors in jurisdictions with weaker legal systems and less independent judicial institutions. On the other hand, the flexibility afforded regulators and legislators in a regulation by rule regime can allow for changes such as occurred in the English system without posing a threat to the entire fabric of the regulatory arrangements. Investors, for example, who are inflexible in the face of economic or other crises that demand deviations from regulatory norms in a regulation by contract regime, can, in many instances, lead to more problems for investors than rule changes unilaterally made by regulators in the face of very trying circumstances.

While drawing a clear dichotomy between “regulation by rule” and “contract regulation” is useful as an

Box V.4. A Government's Dilemma: To Interfere or Not Interfere

It is not entirely clear what action the Government could have taken without clearly intruding onto the independence of the regulator. The Government faced a serious dilemma in terms of signals to investors. On one hand, it did not want them complaining about unfavorable rate treatment that other private investors would be discouraged from investing in the power sector. On the other hand any political interference with supposedly independent regulation would also be likely to discourage investors by demonstrating the government's ability to politically manipulate tariffs. While political intervention in this circumstance might be beneficial to private investors, with the new left wing Government about to take power, investors might simply see the risk of political intervention over the long term as substantially increasing regulatory risks.

analytical or pedagogical tool, as made clear by the tariff disputes in Brazil and by the fact that concessions do actually exist in the United States, the reality is that almost no system is conceptually "pure." Contract regulation is only as constricting as the concession language requires it to be. In Zambia, for example, nominally a "contract regulation" regime, some of the original temporary concessions in electricity were little more than a vesting of the right to do business for those entities to whom they were granted. That lack of substance in concession documents, left a great deal of discretion in the hands of the regulator. Indeed, it somewhat resembled the juridical model for regulation in the United States, despite the fact that it was nominally a contract model. Thus, while few, if any countries, other than the United States and perhaps Canada, are explicitly "regulation by rule" jurisdictions, in many "contract regulation" jurisdictions, the concession documents are sufficiently vague as to create a de facto hybrid regime that is partly "rule" and partly "contract". Finally, it is common in many "contract" regimes to incorporate certain rules, quality of service or safety standards, for example, into the concessions, so if the regulator changes those rules, it also, in effect, changes the concession.

3.2. Regulatory Governance: Institutions and Processes

Institutional arrangements and decision-making processes, alone, do not guarantee a fully successful regulatory system, but defects in each can assure a seriously flawed system. Whatever the structures and processes are, they need to be fully credible, legitimate, and transparent to be successful and gain widespread acceptance. Credibility means that investors, both prospective and actual, must have confidence that commitments will be honored and that they will be dealt with fairly. Legitimacy requires that consumers are satisfied that the regulatory system will protect them from abuse, including unreasonably high prices and unacceptable levels of service quality. Finally, the system must operate in a fully transparent way that allows all interested parties to see an open, honest, fully informed, intellectually respectable

decision-making process that affords interested parties a meaningful opportunity to participate.⁹⁰

Institutions

There is a range of institutional arrangements for regulatory agencies, ranging from none at all, to fully independent, free standing agencies, with a variety of options between those two poles. The two basic models, however, are those of the independent regulators and the public service concession model.⁹¹ They provide the best context for discussing institutional arrangements.

The independent regulatory model is largely derived from the Anglo-American experience, although it is probably now the most widespread model in use. The regulators have significant financial, administrative, and decision-making independence. While their powers are limited to those delegated to them by legislators, or by terms of concessions,⁹² within that area of competence, they have considerable discretion. Typically, although not always, the regulatory agency is headed not by an individual, but, rather by a multi-member Board which makes its decisions based on majority rule. The Board members (often called Commissioners) are typically appointed⁹³ for fixed, and staggered terms⁹⁴ to protect them against political interference, and cannot be removed from office without showing full cause of doing so.⁹⁵ The agencies are generally, although not always, funded by fees assessed against regulated companies and then passed on to consumers, in order to provide independent funding free of ordinary governmental appropriations. In most such agencies have the power to make decisions in their area of delegated powers without having to obtain consent from any other governmental agency.⁹⁶

The theory of independent regulatory agencies is that they are insulated from short term political pressures and can, therefore, take both a longer term view in decision-making, but can also make tough decisions without fear of political repercussions. They are also charged with maintaining the relevant professional expertise to make decisions on a highly professional

Box V.5. Resource Adequacy for Regulatory Agencies

Many regulatory agencies suffer from being under-resourced. This has been problematic from the standpoint of attracting and retaining competent staff, but it has also led to inability to engage consulting expertise, and acquire needed equipment, particularly in information technology. There are many examples of these problems. In Guatemala, for example, the electricity regulator's budget was such that about 25% of the total was consumed by the salaries of three commissioners alone, not because they were over paid, but because the budget was so small. In Brazil, ANEEL's budget, nominally under the law, .5% of sector revenues, has not been able to actually receive all of the funds legally allotted to it, because the government has routinely retained as much as 60% of the funds to use for other government priorities. In Zambia, the energy regulator was not, in its early years, able to collect the .49% of electric revenues to which it was legally entitled, from Zesco, the country's largest utility, which simply failed to pay its assessments. Zambia's ERB was also in charge of providing for rural solar systems through a special funding mechanism. Unfortunately, for many years, the funds collected were retained by the Treasury for other government priorities. Many other regulatory agencies have been forced to rely largely on donors and lenders to support their work efforts either because sustainable funding was not provided for, or because the funds were diverted to other purposes by the Government. Thus, stability in funding regulatory agencies is not an insignificant issue in many developing countries.

basis. To maintain that technical competence, agencies have often experienced difficulties in recruiting and retaining competent staff members. The problem can be quite severe because agencies often are required to adhere to civil service compensation rules, which are, particularly at senior levels, significantly below the salaries and benefits paid by regulated companies with whom the agencies have to compete for talent. The result has been attrition rates for senior staff at ANEEL, in Brazil, for example, as high as 20-25 per cent per year. The Russian electricity regulator has suffered from similar attrition rates as well. Some countries, Zambia, for example, and Brazil, in recent years at some agencies, have been able to pay staff at levels that are competitive with regulated company compensation packages. The issue of retaining staff is not only a question of maintaining competence, but also one of ethical and credibility dimensions. If the regulatory agency staff are planning career paths that mean they acquire expertise and experience in their early years at the regulatory agency and then move to more highly rewarded positions at regulated companies, then staff's motivation in decision-making can easily be called into question, perhaps leading to cynicism among the public in regard to the agency's credibility, and, in the case of a staff member trying to curry favor with a regulated company, raising very serious ethical issues as well.⁹⁷

In regard to independent regulatory agencies, there are two very common controversies, one concerning its mission versus that of line ministries in the same sector (e.g. telecommunications regulator versus Communications Ministry), and the, other, as to how to hold the agency accountable. In regard to the first controversy, it would appear to be an inevitable result of shifts in bureaucratic responsibilities. Line ministries, which, prior to the creation of regulatory

agencies, had full authority in the sector, including proprietor of the state assets in the sector, policy maker, regulator, and administrator of government programs, have lost some of those powers. Certainly, regulatory powers, as well as policy making matters subsidiary to regulation, have been shifted to the regulator. In some countries, the change was done without controversy, particularly where Ministers were instrumental in making the changes. In others, there have been bureaucratic controversies and maneuvering.

Two disputes, in Colombia and Zambia, are particularly instructive. In Colombia, the Government created Comisión de Regulación de Energía y Gas (CREG) to be the regulator in both gas and electricity. In doing so, it apparently struck some sort of political compromise by mandating that CREG's Board be composed of four independent members and three Ministers, which, in and of itself not only raised questions about agency independence, but also created something of an impasse at the Board level. What became particularly problematic was when the four independent Board members began to set policy regarding international trade in natural gas, a responsibility claimed by the Energy Ministry. The result was a confused set of affairs in regard to the natural gas market, and, ultimately, led to changes in personnel at CREG. In Zambia, when the telecommunications regulator was created, there was an odd provision in the law that permitted the Minister to remove Commissioners at the regulatory agency and make regulatory decisions until such time as a sufficient number of Commissioners were back in place, which had, among other powers, the authority to grant licenses to new entrants in the industry. The Minister proceeded, for reasons not fully explained, to remove Commissioners from office at a time when applications were pending for licenses to engage in the

cellular telephone business, grant the licenses himself, and then reappoint the Commissioners to office. In both of these cases, the laws allowed for sufficient ambiguity, or open manipulation, so as to fully blur the distinction between what regulators do and what Ministries do. Beyond mere bureaucratic turf wars, the role of regulators is not always easily understood because regulatory agencies perform functions that had not, prior to their creation, been seen as discreet tasks. Moreover, the idea of independent agencies that are part of the state but not, *per se*, part of the Government, gives rise to confusion and concern. As a result, the powers of the regulator are almost always a subject of controversy.

The second, almost universal, controversy is defining the meaning and limits of independence. In the words of a prominent, former member of the Brazilian Chamber of Deputies, "Independence, why, from whom, and for what?"⁹⁸ summarize the controversy. Because regulators typically exercise executive, legislative, and judicial, powers. As such, they do not fit neatly into any single branch of Government, thus, they are more difficult to hold accountable than other agencies of the state. Two countries, the United Republic of Tanzania and Peru, tried to settle the accountability issue by requiring performance contracts between the Government and the regulators.⁹⁹ Attempts to impose such contracts, as in Brazil, have so far failed because they could potentially compromise agency independence. Nonetheless, regulatory agencies are frequently subject to parliamentary inquiries and enactments, legal actions challenging agency actions, and often intense public scrutiny. While some of these actions result from substantive disagreements, others stem from misunderstanding and confusion about the role of the regulator. While it is tempting to suggest that such controversies will subside, once the regulatory agencies have had sufficient time to establish themselves, it is important to point out that even in the United States, with its more than 100 years of history of independent regulation, these issues continue to be debated. Indeed, the question of who should set which policies is always a source of contention between regulators and legislators, as is the scope of judicial review of regulatory decisions. While it is clear that regulator must comply with the laws under which they operate, there is another question about whether legislators and courts ought to defer to the technical expertise of regulatory agencies, or forge ahead with decision they may be empowered to make, but perhaps less well informed upon.

Part of the reason for the controversy about independent regulators stems from fears that a truly independent agency cannot be held accountable. The question is often posed: "Who regulates the

regulator?" To assure accountability, regulators are, as noted above, subject to governmental or parliamentary inquiries, is certainly a frequent target of public criticism and debate, are subject to having their powers altered by the Government,¹⁰⁰ and are, as will be discussed below, subject to having their decisions reviewed by an appellate process. In addition, some have suggested that before regulators take major policy decisions that are within their powers, they should be subject to a form of "cost-benefit" analysis before being permitted to go forward. The idea has some currency in the Europe and the United States, although there is less discussion of it in developing countries. Proponents of the idea argue that it would assure that regulators act proportionately (i.e. regulate proportionately to the actual need for intervention in the market), would temper what some perceive as a propensity by regulators to regulate rather than let markets operate with minimal interventions, and would assure that overall cost of regulation to society be no more than needed. Opponents of requiring that such a study be undertaken contend that it would politicize regulation, that it would inject broad ideological debates into the relatively discreet forum in infrastructure debate, and that regulators themselves, are always conducting such analyses in a transparent and participatory fashion. Opponents also argue that requiring such reviews would reduce flexibility to respond to dynamic circumstances, and could, rather than reduce the costs of regulations, actually add to them.

Standing in contrast to the independent regulator model, is the public service concession model, largely drawn from the French experience in water and sanitation¹⁰¹, although variations of it can be found in British rail and subway regulation, as well as in some public-private partnership arrangements.¹⁰² The system was derived from the fact that French municipalities are barred by law from privatizing water and sanitation facilities they own. As a result, authorities lease the assets they own to concessionaires to whom they delegate the public service obligation.¹⁰³ The details are fully captured in the concession contract. In effect, it is regulation by contract without a regulator, because there is no regulatory body to oversee the arrangement. The contract can take two different forms, a concession contract where the operator has both operational and investment responsibilities, or alternatively, an *affermage* contract where the operator has operational but no investment responsibility. The concession document serves two purposes, one assigning operational (and perhaps investment) rights, and secondly to impose regulatory obligations.¹⁰⁴ In assigning operational responsibilities and imposing regulatory obligation, the Government is acting as the *de facto* regulator. In fact, the third major

characteristic of the public concession model, is that there is no regulatory agency at all. There is merely a legally binding contract that is legally enforceable by the courts. The arrangements may also be governed by an extraneous body of law, which in France, include the right to obtain tariff adjustments for adverse governmental actions (*fait du prince*), hardship (*imprevision*), and unanticipated constraints (*sujétions imprevises*). In France, the *Conseil d'Etat* has also assumed a bit of the regulatory role by taking on the responsibility of resolving disputes between the regulated company and its customers (i.e. municipalities), and by pronouncing on some tariff provisions.¹⁰⁵

The Independent Regulator and Public Concession have some fundamental differences in philosophy, although the differences may not, in practical terms, be so huge in practice. Two of those differences merit specific mention.

The Independent Regulator model tries to “depoliticize” economic regulation, by removing line government agencies, such as ministries, from the business of regulating. In contrast, the Public Concession model appears to start with the presumption that the notion that the notion of an independent regulator is naïve and impractical. Government, it might be contended, simply cannot and should not be removed from the business of specifying public service obligations. Instead, the PC model precisely spells out in some detail the obligations of the Government and the concessionaire and adds to that a dispute resolution mechanism that affords both parties some level of assurance that commitments will be carried out.

The second key difference in the two models is that the Public Concession model assumes that, while public service obligations might be delegated to a manager, Government cannot escape ultimate responsibility for it. The IR model makes no such assumption. It merely lays out public service obligations, but is decidedly agnostic on whether the ultimate responsibility is with the Government or can be vested in a private company with appropriate incentives to carry out public service obligations. That being said, one critical role of the regulator in the IR model is to make sure that private companies rendering public service do, in fact meet their obligations. The methods for assuring that they do so include carefully designing company incentives so that they are aligned with the public interest, by making and enforcing rules regarding quality of service and other critical matters and other such matters, and by providing a forum for consideration of consumer complaints.¹⁰⁶

Transitional Regulatory Arrangements

Although the Independent Regulator and Public Concession models are widely accepted as mature models of regulation,¹⁰⁷ it is often argued that it is unrealistic to expect that it can be adopted immediately in all countries and at all times. Transitional regulatory systems (with and without commitments for further reform) are likely to be needed for three reasons.¹⁰⁸ First, a country may be unable to implement the independent regulator model because it lacks capacity or commitment, or both. Second, the full independent regulator model may simply be too risky a first step in creating a new regulatory system (that is, it is a “big jump”). Third, some aspects of the ideal model may be incompatible with established and accepted legal or cultural norms in a country. When one or more of these conditions exist, they are often manifested through the following:

- unwillingness or inability to move toward commercialization with cost-reflective prices to small consumers,
- unwillingness or inability to transfer regulatory decision-making powers,
- weak and slowly operating law courts and regulatory appeals,
- uncertainty about the nature and strength of regulatory commitments,
- limited regulatory capability, and
- popular concerns that consumer interests are being ignored relative to investors’ profitability.

In addition, all these weaknesses tend to worsen when there is a macroeconomic crisis.¹⁰⁹

Capacity-Building and Performance

The ability to build regulatory capacity is an essential element to making regulation effective. The World Bank, regional development banks, and various donor countries have devoted resources, or made conditionalities for loans or grants, that developing countries retain the services of consulting experts to work with and to train regulators. Specific training programs have evolved, such as the one at the University of Florida’s Public Utilities Research Center (PURC) program, to do intensive regulatory staff capacity building. Regional regulatory associations, such as Brazil’s association of public services regulators (Brazilian Association of Regulatory Agencies, which includes both state and federal regulators), the African Forum of Utility Regulators (AFUR) in Africa, Energy Regulators Regional Association (ERRA) in Eastern Europe, and South Asian Forum for Infrastructure Regulation (SAFIR) in South Asia have evolved to provide both training and meaningful networking opportunities for

regulators.¹¹⁰ Some universities in developing countries, such as the University of Cape Town in South Africa, Universidade Salvador (UNIFACS) in Brazil, and others have established regulatory studies programs to try to build an intellectual infrastructure to support regulation within countries that have embryonic regulatory systems. In addition, United States Agency for International Development (USAID) has established formal partnerships between regulatory agencies in developing countries and state and federal regulatory agencies in the United States. There are, of course, frequent meetings of regulators in various regions of the world and there are some world forums devoted to exchanges among regulators, mostly on a sector specific basis (e.g. telecommunications, water, and energy).

All of these programs are useful, but it is fair to say that, with a few exceptions, most of them are not fully sustainable on their own. Moreover, there is a common critique that neither multi-lateral lenders nor donor agencies have devoted sufficient effort to do the job effectively. It is important, therefore, for countries with functioning regulatory systems, or even contemplating them, to fully support the requisite intellectual infrastructure that will not only assist in the building human resource capacity, but will also enrich the debate, as well as the parties to the debate, on regulatory matters, provide an intellectual discipline to regulatory arguments and decision-making, and to make arbitrariness or even dishonesty in regulatory matters more transparent. An appropriate intellectual environment will also act as an antidote to "regulatory capture." "Capture" defines a situation where the only key actors in the regulatory arena, the regulators and the regulated, become so intertwined that they begin to think alike, a stultifying situation. Antidotes to "capture" include the involvement of more parties into the arena, the injection of new ideas into debates, and the offering of perspectives from "outside of the box." Thus it would be advantageous for Governments as well as donors and lenders to support the creation and maintenance of such organizations and programs. The same is also true, of course, in maintaining strong contacts between and among regulators in various jurisdictions encountering similar issues and problems. Agencies rarely have the financial resources to engage in these activities themselves, so external support is essential.

While there are, as noted, regional organizations and networks of regulators, it may also be possible for regulators to coordinate in more formal ways as well. Within NARUC, the association of state regulators in the United States, for example, regulators from multiple jurisdictions, work together to develop a joint manual on regulatory accounting, common

practices on service quality information, common filing and reporting requirements, and other matters. That avoids the need for each agency to "reinvent the wheel," and can reduce the work burden on individual regulatory agencies and personnel. That type of formal cooperation might be very useful for regulators in developing countries. It might also lead to more meaningful interaction between regulators than is customary in the formal or network interactions to be had at the conferences they might attend. Another means of interaction that has begun in southern Africa is a peer review process where a team of regulators from other countries, visit a regulatory agency and evaluate their performance, processes, structure, and issues. While the process is too new to be able to fully assess its effectiveness, the concept holds promise.

Similarly, another approach recommended is to periodically retain the services of outside consultants (from both inside and outside the country) to provide an independent assessment of regulatory systems. The idea would be to assess not only performance of regulatory agencies, but of the entire regulatory system, including the relevant laws, processes, resources, governmental actions, institutional arrangements, substantive provisions such as ratemaking and tariffs, market rules, and other issues. Such assessments have been carried out in Brazil, Jamaica, and the Russian Federation, and are being contemplated elsewhere.¹¹¹

In assessing regulatory performance, it is important to, as noted, look not only at what the regulators themselves have done, but what the system enables them to do or not to do (e.g. laws, legal power, political interference), as well as how they conduct their business. It is important to keep reviews in the perspective of how regulators did with what they were given, and how they might do better if they were enabled to do so. It is critically important to keep in mind what regulators control and what they cannot control. Similarly, in evaluating substantive results, it is important to know that while bad regulatory actions or inaction can have negative consequences, good regulatory actions do not guarantee positive results. Argentina, as noted above, is a classic example of a reasonably well functioning regulatory system being unable to prevent bad outcomes in the regulated sector that resulted from macro-economic collapse.

Processes

The processes that are followed to make regulatory decisions are critically important for a variety of reasons. The first is that the process is vital to making regulation legitimate and credible. The more transparent the process, the less likely it is that investors and consumers will come to take a

cynical view of regulators and their work. Secondly, a thorough open process will increase the likelihood that regulatory decisions will be fully informed. Finally, a fully transparent decision-making process should provide a disciplinary framework that increases the probability that intellectual rigor, technical competence, and integrity will be characteristic of the decisions made.

It is also important to note the types of decisions that regulators are called upon to make. The specific processes may vary depending on whether the agency is being asked to exercise its legislative, executive, or judicial functions. Legislative decisions would include all matters that are generally applicable to society on a prospective basis, and include making rules (e.g. quality of service, market structure), setting tariffs, and establishing policies within the agency's scope of authority. Executive functions include enforcement of rules and decisions, administrative tasks, public outreach and education, and personnel decisions of various types. Judicial powers would include adjudicating disputes between parties on matters within the agency's jurisdiction and handling consumer complaints. It is important that agencies (or the law) establish the rules for processing each of these types of decisions in advance of having to make decisions, so all affected parties have a full opportunity to participate and advocate for their interests before the agency.

The general criteria for such a process were laid out, by Brown, Stern and Tenenbaum (2006) follows:¹¹²

1. Except for defined emergency circumstances, no decision should be taken by a regulatory agency until the following have occurred:
 - a. proper legal notice has been given notifying all parties that a matter is under formal consideration;
 - b. the public notice should identify the matter being considered, the initiator of the action being contemplated¹¹³, and a full schedule for the consideration of the matters;
 - c. all parties who wish to do so have been afforded a meaningful opportunity to provide input to the agency;
2. In cases of emergencies, actions may be taken, but interested parties should be afforded a fair opportunity to participate *ex post* in any review of the matter. The criteria for defining an emergency should be stated in law.
3. No decision should be taken by a regulatory agency without it being set down in a publicly available written document. The document should include:

- a. a clear statement of the decision;
 - b. a description and analysis of all evidence taken into consideration;
 - c. a summary of the views offered by participants to the proceeding;
 - d. a full discussion of the underlying rationale for the decision.
4. All regulatory agencies should have clearly defined, published procedures under which they take, announce and publish regulatory decisions and their justification. Multi-member regulatory agencies normally take their decisions **either**:
 - (i) **by majority voting**
 If a multi-member regulatory agency decides to use a formal voting process for making decisions, the result of the vote should be made publicly available at or soon after the date of the decision.
 When a formal voting process is used, the following procedures should be followed:
 - a. all decisions should be taken at a meeting at which or following which the votes of all members should be made public;
 - b. board members voting "no" should have the option to file formal opinions expressing the rationale for their vote;
 - c. board members who concur in the result, but do so for different reasons set forth in the decision, should have the option to file concurring opinions expressing the rationale for their decision.
 - (ii) **by consensual, non-voting methods**
 If the regulatory agency decides to use a consensus approach for decision-making, the following procedures should be followed:
 - a. A record of the discussion should be made, reflecting the range of opinions expressed, supporting and dissenting;
 - b. A summary of the discussion should be made publicly available along with or soon after the publication of the regulatory decision and its justification;
 - c. Board members should have the right to state their views concerning the decision publicly and on an attributable basis.
 5. All documents in the possession of a regulatory agency, particularly those being relied upon in making decisions should be presumed to be available for public inspection, unless the regulator rules otherwise (e.g., on the grounds of commercial confidentiality).¹¹⁴

- a. No document should be treated as confidential unless the regulator finds that the document (or some part of it) falls specifically into a category that the law or binding articulated policy deems legitimately confidential (e.g. personnel matters, verifiable trade secrets, draft decisions not yet finalized or documents related to pending litigation). Confidentiality issues, it must be noted, only involves the question of how the regulator treats the document. Claims of confidentiality do not constitute grounds for a party to withhold a document from the regulator.
 - b. The primary law (or, failing that, the regulatory agency) should publish in advance its criteria for judging whether documents (or some parts) will be treated by them as confidential and also establish systems for handling and storing confidential material.
6. The procedure the agency will follow in making decisions should be set out in clearly defined rules and made publicly available.

There must be ample opportunity for all affected parties who wish to participate meaningfully (i.e. in a time and form that will reach the regulators in such fashion that they could take it into account before rendering a decision) in regulatory proceedings to do so. Regulatory agencies, should take all reasonable steps to facilitate and encourage public participation.

The degree to which regulators carry out their work consistent with these principles varies widely from one jurisdiction to another, but, ironically, whereas the independent regulatory model is sometimes described as "Anglo-American", the two virtual poles on processes are the United States and United Kingdom. The United States model follows a highly judicialized, decision-making process. All evidence submitted to the regulators for their consideration in making a decision is put into a formal, fully public,¹¹⁵ record. All information in possession of any party is subject to discovery rights by other, often adverse parties prior to public hearings. All witnesses offering information are subject to cross examination by representatives of other parties which decide, as is their right, to formally participate in regulatory proceedings, have the right to declare themselves as formal parties and fully participate. Moreover, the regulators, themselves, are constrained to base their decisions entirely upon information that is in the formal record before them.¹¹⁶ In addition to the trial-like, adversary hearings that are a fixture of United States style regulation, there are also open hearings where all members of the public, regardless of whether they formally intervened in a matters, are afforded

the right to provide their input to the regulators. The United Kingdom model,¹¹⁷ is considerably less formal than in the United States Regulatory proceedings are public, in the sense that anyone can provide written or other input to the regulators, but public hearings are less common, judicial formats are not used, and public hearings, while possible, are not required. In addition, regulators are not nearly constrained in the United Kingdom as they are in the United States in terms of where they derive their information and with whom they are permitted to converse. The result is that the United Kingdom system is easier and has fewer transactions costs than the U.S. system, but is not nearly as transparent as the American system.

The process in developing countries is, for the most part, similar to the United States in the sense that public participation is generally sought out, and in that there is a bias toward greater transparency. On the other hand, few, if any countries replicate the judicialized decision-making model of the United States, with its very heavy transaction costs. Some regulatory agencies, such as ANEEL in Brazil, make very effective use of the internet and achieve a high level of transparency through a combination of its website and frequent public hearings. One common shortcoming of regulatory processes in developing countries is the lack of systematic and sustained input from consumer groups. While both the United States and United Kingdom have specific provisions for consumer representation¹¹⁸ most developing countries lack the resources to provide adequate consumer representation.¹¹⁹ That lack of representation can pose a credibility problem for the regulatory process. In terms of the regulated companies, the ability to meaningfully access the regulatory process does not appear to be lacking. Ultimately, the decision-making process needs to be compatible with locally acceptable norms, and, where international investment, is being sought, with commonly accepted international norms as well.

The final process consideration is the nature of appellate review of agency decisions. In the Brown, Stern, Tenenbaum (2006),¹²⁰ recommend the appellate process as follows:

- All appeals from a regulatory agency decision should be directed to a single, independent appellate forum, the decision of which would, in the absence of a constitutional issue, be final.
- The appellate forum should either be a specifically designated court or a specialized appellate tribunal with the authority to review the decisions of one or more infrastructure regulatory agency(ies). In either case, the forum should possess relevant expertise in regulatory matters.

- The regulatory agency must provide parties with an opportunity to seek rehearing or *de novo* review by the agency itself, or, if called for by law, by some other duly designated body (e.g., a competition agency). The time deadlines for filing an appeal should be suspended during the rehearing application and/or process.
- Any party who believes he/she is adversely affected by an agency decision should have the right to take an appeal from that decision within a reasonable period of time after that decision has been taken (e.g. 30 days). That right, however, should only belong to a party who formally participated in the agency proceedings on the matter in question, and who raised that issue in the regulatory proceeding (including any rehearing process).
- No interested party should be able to put forward new issues or new evidence on appeal which was not first raised in the proceedings at the regulatory agency (including any rehearing).
- Regulatory agency decisions should be affirmed on appeal unless the agency acted unlawfully or exceeded its lawful authority, failed to follow the required process(es) in making its decision, or made decisions that were clearly flawed in the light of evidence presented at the appeal.
- The decision of the regulatory agency should remain in effect for the duration of the appeal, unless the agency or the appeals tribunal decides otherwise. Such a delay should not be granted without a demonstration of irreparable harm to the appellant and a likelihood that the appeal will succeed.
- If the appellate forum reverses or changes the decision of the regulatory agency, the preferable course is for the matter to be sent back to the regulatory agency to conclude a remedy consistent with the decision of the appellate forum.

The appellate process, at a minimum, is largely designed to accomplish three things, assure that the regulator adheres to and does not exceed its legal authority and powers¹²¹, to protect against arbitrary exercise of its powers,¹²² and to assure that all required legal processes were followed. Sometimes, as noted below, the scope of appellate bodies is broader than those three criteria. There are basically three types of appellate processes, judicial or quasi-judicial, governmental, and arbitration. They are sometimes exclusively one of those forms, but in some cases they are not mutually exclusive. In addition, there is the question of the scope and criteria for appellate review.

In regard to the scope and criteria for review, there are a number of options, ranging from a full scale *de novo* proceeding,¹²³ to a limited review that

accords some deference to the regulatory agency and looks only to see if the agency acted unlawfully or exceeded its lawful authority, failed to follow the required process(es) in making its decision, or made decisions that were clearly flawed in the light of evidence presented at the appeal. The criteria are important because where the appellate criteria are broad (e.g. *de novo*), then the appellate process is, in effect, a second layer of regulation. One could view that as increasing transaction costs and uncertainty, or might, alternatively, see that as a safeguard against unreasonable regulatory decisions. The more limited review criteria, conversely, probably provide for a greater level of certainty, while providing parties with protections against the potentiality of unfairness, or legal or factual error by the regulator. Generally speaking, regulators themselves, prefer the more limited review, not only for the obvious reason that it is more protective of regulatory discretion, but, more importantly, because it provides for more certainty, discourages “frivolous” appeals, allows for regulation to evolve in a more steady and stable framework based on experience and precedent,¹²⁴ and that it accords greater deference to the expertise that resides at the agency. Investors and other parties are of mixed opinions about the scope of appeal, usually varying dependent on views of the regulators, on the judicial system, and on the general political environment.

The judicial or quasi-judicial model for appeals is the most common model.¹²⁵ It has the advantage of being an established form of adjudicating matters and the rules are generally known. Courts are, in theory, of course, independent and non-political. It also has the advantage, in many but not all countries, of being a known and respected institution whose decisions have an established aura of credibility or acceptance. Courts also tend to be relatively transparent, or at least, in comparison with more political institutions. The general problem with the judicial model is that it relies on lawyers with general and not regulatory or sector specific knowledge. As a result, as has happened in the United States, they tend to impose a level of rigidity to the decision-making process that may not always be beneficial. On a less general basis, of course, in many countries courts may be slow, inefficient, not independent, political, and, in some cases, perhaps even corrupt. Thus, whether courts are the best appellate bodies may depend on some country specific factors.

The second alternative form of appeal is to the Government. This is always the case where the regulator, as in Mozambique, possesses only advisory powers. This form of appeal, of course, has the benefit of political accountability, but has the disadvantage of directly injecting political considerations into

the regulatory decision-making. While the public concession model assumes politics pervades such decisions, the independent regulation model tries to depoliticize regulation, to the extent possible, and, therefore, sending appeals to the Government would seem to run contrary to that objective. Where some of the regulated assets are still state owned, of course, a government hearing appeals will have an inherent conflict of interest as both the proprietor of regulated assets and the appellate adjudicator of disputes impacting those same assets. In some cases such as the United Kingdom and Argentina, appeals go first to the Government and then to the courts.¹²⁶

The arbitration model of appeals is one that has been proposed in places where there is a desire to remove regulatory decisions even further from politics, and where there are concerns that the judiciary is ill equipped, either for competence or behavioral reasons. The proposal is generally to establish an arbitration body, often international, to hear appeals from regulatory decisions. One can easily understand why an investor would find comfort in such a process, particularly in the context of uncertain politics and judicial inadequacies. The problem, however, is that, unlike commercial disputes between two business entities (whether state owned or private), regulation involves the exercise of political sovereignty, not merely commercial activity, so that it is almost impossible politically for a Government to cede some of its sovereign powers to an international or any other non-state tribunal. Even if it were to do, there would also be the very real difficulties of enforcing any decisions that would be made. For that reason the arbitration model is rarely, if ever, deployed.

3.3. Market Structure and Ratemaking

There are two essential elements to the economics of regulation, market structure and ratemaking methodology. Market structure provides the overall framework of rules governing the behavior of market participants and the degree to which that behavior is subject to the discipline of rules and/or competition. Thus, it is reasonable to look at market structure issues first and then examine ratemaking methodology.

Market Structure

The traditional market structure of infrastructure industries, as already noted, is vertically integrated monopolies. That structure has already broken down in telecommunications, driven largely by wireless technology that permitted bypass of bottleneck, landline wire networks. In electricity, while transmission and distribution remain monopolies, generation has become, to varying degrees from one country to another, either competitive, or at least subject to

market mechanisms in lieu of full regulation. In natural gas, commodity sales of gas, and to a lesser degree, storage and pipeline aspects of the business, have been open to competition in various forms. Transport, has in some respects, been open to market pressure independent of regulation. Perhaps only in water and sanitation, have monopolies remained largely intact. The issue for policy makers and regulators, in most cases is determining whether to promote market forces, and, if so, how to do so. In many cases, it is not policy makers in the lead, but rather, a case of them having to adjust to new circumstances that have led to the evolution of competition even without policy makers intending for that to happen. That was almost certainly the case with telecommunications, and, to some degree in electricity and transport in several countries. Typically, such new circumstances are the result of technology change, uneconomic charges built into monopoly tariffs (e.g. cross subsidies), inefficiencies in the operations of incumbent utilities, or some other “chink in the armor” of monopolies, such as the ability of large customers to move their businesses to other locations where infrastructure services are less expensive.

In many countries, however, it is the prevailing policy to promote competition where viable. There are many reasons for this. They include the notion that competitive markets will increase productivity and efficiency more than regulation, that competitive markets tend to be more transparent and less easy to manipulate than regulation, and that market forces will generate more development and growth than regulated markets. One can debate the accuracy of those views, but they are commonly held, and developing countries find themselves under considerable pressure from lenders and donors, to open up their markets, including those in infrastructure, to the extent that it is feasible. The accuracy of the notions has been challenged by recent regulatory failures and therefore put new emphasis on the role of Government and regulation.

Regardless of the origin of competitive markets in infrastructure, policies, either pro-active or reactive, have to be put into place to deal with new market realities. The options for poorer countries in that regard, are, for a variety of reasons, fewer than they are for wealthy countries, except, perhaps in telecommunications, where the cellular revolution and the internet have created options for less developed countries that, heretofore, not existed. That developed in part because the bottleneck, landlines, was successfully bypassed by wireless communications. That has yet to happen on that kind of scale in other infrastructure industries.¹²⁷ Developing countries tend to have less dense populations, consumption levels usually do not reach levels where innovative

Box V.6. Southern Africa Power Pool: Opportunities and Challenges in Interconnected International Markets

In Southern Africa, the SAPP (Southern Africa Power Pool) has evolved into a significant factor in the region's electricity markets, but its full evolution into a fully competitive bulk power market is clearly stymied by concerns related to ESKOM, South Africa's electric utility. Eskom's size dwarfs that of all other companies in the region. This raises concerns regarding energy security, potential for monopolistic control and pricing implications. Those concerns have not been mitigated by the problems with reliability of supply within South Africa, which led to fears of energy being less available in the region, as ESKOM pulled back to serve its country's own domestic needs. To put the issue fully in context, it is worth noting that ESKOM's generating capacity exceeds that of all of the rest of the entire continent of Africa.

markets are attractive to customers, and where consumers possess the incentive and/or capabilities to take full advantage of what might be offered in a fully competitive market. Nevertheless, regulators and infrastructure policy makers need to provide a framework that allows for innovations and which puts investors on notice of how the markets may evolve. In that regard, it is probably best to use electricity as an example.

While fully competitive electricity markets, with multiple suppliers competing to serve end use consumers, with multiple generators competing to dispatch on a real time basis with real time locational prices for the burden each generator imposes on the grid, and with customers bidding in demand reduction to compete with supply, economic realities in parts of North America and Europe, does not seem to be in the offing in sub-Saharan Africa, for example, but some forms of competition certainly are possible. Competition to provide off-grid service in rural areas (e.g. using renewable solar, wind, biomass, and/or small hydro generation) and competitive bidding to secure new generation are certainly options which can be, and are being, deployed. Similarly, although fully competitive markets may not be fully viable in many developing countries today because the economies of scale and scope are missing from small economies, there are significant efforts underway in West Africa, Southern and parts of East Africa, Central Asia, as well as in Central America, to build interconnections for both reliability purposes and for the longer term possibility of more robustly competitive electricity markets. Regulatory and development policies that promote the development of these interconnections are evolving, although they are immensely complicated by issues of national sovereignty and security, market power concerns.

Many countries are trying to attract new generation investment and are seeking to use competitive bidding to do so. One of the problems prospective bidders have is the solvency of the potential purchasers for the output of the plants they build. Countries such as Nigeria, for example, are offering sovereign guarantees to new generators to assure investors that contractual

obligations to pay will be fully backed up if purchasers default in their payments. Brazil, when it implemented reforms after the supply crisis of 2001, effectively pooled all the distributors into a single buyer modality to provide generators with the comfort of knowing that they were not exposed to the risk of non-payment in the event of an insolvent purchaser. Another problem of prospective bidders is the demand for long-term contracts, especially in illiquid markets. Regulators are often called upon to approve such contracts,¹²⁸ putting them in the awkward position of committing ratepayer money to long term arrangements that may or may not turn out to be economic over time.¹²⁹

Another aspect of electricity markets in developing countries is the "free customer." Large industrial customers, such as mines or energy intensive industries such as aluminum producers are often given the freedom to procure their own energy supply independent of the local distributor.¹³⁰ There are several reasons for this. From the customer's point of view, there is a real benefit to making their own contractual arrangements for energy supply and not be fully reliant on the vicissitudes of local utilities, whose service may not be reliable, and whose tariffs may be loaded up with taxes and cross-subsidies. For the local utility, the obligation to serve load where one or two customers constitute a large percent of overall demand, is a risky business. They will be required to invest significant amounts of money, which they may be hard pressed to raise, to serve customers whose demand curves is often quite volatile, especially if large customers are selling their products into volatile global markets. Demand might be quite high one year and decline steeply the next. Nonetheless, the utility has to build sufficient capacity to serve that customer at the time of its peak demand. From the standpoint of economic development, allowing large customers to procure their own supply of energy is often very attractive to prospective investors in mines or large industrial plants because it allows them to tailor energy supply arrangements specifically for their own needs without undue regard to many other external matters. Finally, for policy makers, large customers can provide a reliable revenue source that will attract investment in generation that might not otherwise

be made. Indeed, in terms of revenue streams that assure sufficient supply of electricity, apart from local distribution companies, whose financial condition in developing countries is often insolvent or close to it, large industrial customers are the only alternative, absent sovereign guarantees, to attract investment.

Finally, in regard to market circumstances, it is important to note some critical characteristics of market circumstances in electricity in developing countries. The first is that most residential consumption is very low intensity, especially among the poor. It usually consists of lighting, radio or television, and perhaps some kind of refrigeration, and little else. Market penetration in electricity is very low in some countries, especially in sub-Saharan Africa, where, in a few countries, the percent of households with access to electric power is at single or low double digit percentage rate.¹³¹ There are high levels of “non-technical” losses, a euphemism used to describe non-payment or theft, some of which is due to inability to pay, but much of which is due to inability or unwillingness to collect.¹³² Finally, in most developing countries, where there is so much low intensity use of electricity, programs to promote efficiency tend to be few and, where they do exist, tend to be inadequately funded.

In summary, the market context for infrastructure in developing countries can be quite challenging from a variety of perspectives. Developing regulatory regimes in such circumstances is not a trivial problem.

Ratemaking

As noted in the previous section, attracting capital to basic infrastructure is dependent on developing revenue streams capable adequate to compensate for the investment. That flow of money is, of course, the result of customer payments. How those payment obligations are formulated is through the ratemaking process. For the “free customers”, described in the previous section, markets largely determine the prices paid for basic infrastructure. That is also the case in such areas as cell phones, when there is a sufficient level of competition allow the free market to determine the price. For customers subject to markets with monopoly constraints, however, it is the regulators who set the prices through the methodologies they follow.

For basic infrastructure services, there are three basic methodologies that can be used, rate of return, price caps, and revenue caps. While the method of price caps is the method predominantly used in developing countries, it is useful to examine all three, because each highlights areas of concern for regulators.

There are some commonalities to each methodology that should be noted. They all depend on clear accounting rules that define how revenues and expenses should be categorized. They are all premised on some notion of costs, although how exactly those costs are actually determined may vary. All of them also establish an overall revenue requirement that company needs to conduct its business in a sustainable fashion and then allocates the responsibility to pay to customers proportionate to what its costs to serve them.¹³³ The tariffs actually formulated can take a variety of different formulations.¹³⁴ Each methodology determines what a company’s overall revenue requirements are and then endeavors to establish tariffs that provide the company with a reasonable opportunity, assuming reasonably efficient performance.¹³⁵ In addition, tariffs under all three methodologies often contain a variety of taxes and cross subsidies that are, in defect, “hidden taxes.”¹³⁶ All of the methodologies require some degree of periodic regulatory review, the initiation of which can be automatic (i.e. by terms of law or concession), by the company, by customer complaint, or by the regulators themselves.

Rate of return regulation (ROR) is probably the methodology that has been in longest use. It is still the predominant form of electric and water regulation in the United States Its basic formulation is: $(\text{Capital Investment} - \text{Depreciation}) \times \text{ROR} + \text{Expenses}$. Regulated companies recover their capital investment in the form of annualized depreciation payments over the life of the capital asset. Each year they are also allowed to recover an authorized rate of return for the remaining asset base (i.e. that portion yet to be depreciated). In addition, companies are authorized to recover their operating expenses. It is important to note that operating costs are recovered on a cost There are important caveats on what costs, capital or operating, companies can recover from their customers, namely that those costs be prudently incurred,¹³⁷ and that their recovery is not precluded by law.¹³⁸ The rate of return that is established by the regulators is based on the cost of debt plus an allowed return on equity based on a variety of factors including company performance and investor expectations. Typically, regulators will require companies to have a capital structure that is appropriately balanced between debt and equity.¹³⁹ All of these determinations are made in the course, of rate cases, which are fact intensive examinations of the companies’ finances and performance.

Price caps (PC) developed as an alternative to rate of return. Critics of the latter argued that rate of return regulation provides incentives to utilities to over-invest in capital assets since the return on capital assets, and not productivity gains, offer the only opportunity

to earn a profit,¹⁴⁰ and that ROR rewarded poor performing companies by pegging ROR to investor expectations.¹⁴¹ Another criticism of ROR that PC was designed to alleviate, is that the transaction costs, in terms of rate cases, are quite heavy and the regulatory burden should be reduced.¹⁴² The formula for PC is: Cost Basis adjusted by (RPI-X). The cost basis may actual costs, in which case, the PC depends of periodic rate cases (whenever the concession or law, whichever is applicable, requires the formula to be reviewed), or it may be a benchmark or hypothetical set of costs.¹⁴³ The costs are then used to formulate tariffs that go into effect for a period of years.¹⁴⁴ The rates are frozen for the stated period, subject only to annual adjustments to effect inflation or some other index (RPI). In most cases, the RPI is adjusted by the X factor, an expected increase in productivity. The X factor is meant to divide productivity gains between the company and its customers. Every year a certain amount of productivity gain is assumed and returned to customers. If the company fails to achieve those gains, then it loses that portion of the RPI adjustment, but, if it attains productivity gains in excess of the X factor, it keeps the money.¹⁴⁵ PC, unlike ROR, which analyzes all costs, and to the extent that they are deemed prudent, allows them to be recovered, internalizes all costs into the formula and they are not adjusted to reflect variations in different cost components. Some costs, the control of which is beyond the control of the company, are allowed to be recovered through a separate mechanism. Typically those costs might reflect currency fluctuations, fuel costs, increased taxes, or changes in environmental or safety regulation. PC is the most commonly used tariff methodology in developing countries because it works well where it is difficult to ascertain precise cost levels, and because many investors believe it to be less subject to regulatory or political “tampering.” Because of its subjectivity, its requiring that regulators be correct at the outset,¹⁴⁶ and relative inflexibility, it is not without its risks to both consumers and investors. The other risk, as was shown in the Brazilian privatization discussion above, is that regulators will fail to scrutinize service quality. Doing so is essential if one is to distinguish between cost cutting and productivity gains.

The final methodology but the one least utilized,¹⁴⁷ is beginning to gain some traction because of environmental and energy efficiency concerns. It is revenue cap regulation (RC). It resembles price cap except that, rather than capping the price per unit of consumption, it caps the overall revenue a company may collect. For example, in both ROR and PC regulation, the more energy a company sells, the more money it makes. The result is that companies have no incentive to assist their customers to consume energy

or water more efficiently. In fact, the more customers conserve or consume inefficiently, the more sales and profits the regulated companies make. Thus, while energy and water efficiency and conservation are in the public interest for both environmental and overall efficiency reasons, the incentives for regulated companies in water energy are designed to discourage companies from helping customers to conserve. RC regulation is designed to align the interest of the regulated companies with the public interest in end use efficiency. By capping revenues and not prices per unit of consumption, regulated companies become financially indifferent to their overall sales volume and can find it just as profitable to promote conservation and efficiency as it is to sell energy or water.¹⁴⁸ The focus is on what the customer uses energy or water for, as opposed to buying the commodity itself.¹⁴⁹ To the extent that a company's sales are reduced and revenue requirements are not met, the company's rates are adjusted to permit them to attain the revenue needs. The potential problem with RC is that it is not always easy to ascertain if the revenue requirements were not attained because of efficiency gains, or because of other factors. As a result, critics of RC argue that many costs are being socialized, even those that ought not be socialized, like weak management performance, economic downturns, or abnormal weather patterns. In the context of developing countries, it is also sometimes contended that the potential efficiency gains from end users are insufficient to warrant the transaction costs of adopting the RC methodology. On the other hand, of course, it can well be argued that poorer countries are the ones who can least afford to be wasteful in their consumption of energy.

The question of which methodology is optimal for deployment in any country is dependent on a variety of questions. Rate of return regulation, for example, is probably the most rigorous in its examination of facts such as cost structure. That requires considerable discipline and thoroughness in the regulatory approach, and might be advisable for new regulators. On the other hand, if the accounting or accounting standards have been lax, it may well be impossible to achieve an acceptable level of precision. That may well lead to erroneous results and stimulate fears of arbitrariness among investors or prospective investors. Price caps tend to be a little less rigorous (although in theory they need not be so) and offer investors the perception of greater stability over time. As noted, however, that stability may be more apparent than real, and if the calculations are too wide of the mark, they could lead to more instability than anticipated. Revenue caps promote efficiency and conservation, but involve a level of regulatory uncertainty in terms of how adjustments are made that make many investors

and consumers a bit skeptical. Nonetheless, the exercise of selecting the appropriate methodology is an excellent one to ferret out issues early and to allow for a full airing of all relevant factors.

Conclusion

Developing appropriate institutions, processes, and resources to adequately regulate the provision of infrastructure services is a critical task. We now have a vast amount of experience to draw upon to analyze what has worked and what has not worked, to understand the scope of opportunities and the potential pitfalls. It would be very useful for a reputable international body to establish some basic criteria for assessing infrastructure regulation, to set appropriate standards and norms in regulation, and to assist countries in developing the capacity to fully implement effective regulation. The task is an important one, and as touched upon in the body of this report, a multi-dimensional one. If regulation is to be successfully deployed and implemented, it cannot be done "on the cheap," so the effort will require the dedication of sufficient resources to accomplish the task. There are also some broad lessons that have been learned from those jurisdictions that have attempted to reform critical infrastructure services. These lessons would include the following:

- It is vital to manage the inherent conflict of interest that Government has in privatizing state assets between maximizing the sale price and long range sector optimization.
- Privatization is best accomplished after the establishment of the market rules and the regulatory regime.

- Pricing for infrastructure services should be reflective of costs, but also provide incentives for efficiency in supply of service and the use of the service provided.
- Transparency and public participation is essential for the credibility and effectiveness of the regulatory process.
- The independence of regulatory agencies to make decisions in their areas of jurisdiction significantly enhances the transparency and credibility of the process.
- A regulatory regime, to be sustainable and credible over time, has to find the appropriate balance between predictability and flexibility.
- Market intervention by regulators should be designed to compensate for market failures and to replicate what a competitive market would have produced had there been no market failure.
- Where viable, regulators should promote competition and competitive mechanisms as a means for achieving economically efficient outcomes.
- Where regulated companies are required to serve certain social objectives (e.g. universal service, service quality standards), those objectives should be clearly articulated and understood.

While these lessons are not comprehensive in their scope, they are certainly sufficient to provide guidance for countries embarking on reformation of basic infrastructure sectors of their economy.

VI. BUILDING LEGAL FRAMEWORK TO SUPPORT PUBLIC-PRIVATE PARTNERSHIPS AT REGIONAL, NATIONAL AND MUNICIPAL LEVELS¹⁵⁰

*Sanford Berg*¹⁵¹

Promoting Public-Private Partnerships requires the creation of trust among a number of stakeholders. Private investors will emphasize: “Trust but verify.” Political leaders will focus on the “long term opportunities” in the sector. The private sector has been successful in expanding telecommunications networks—partly because potential demanders are vocal in their desire for new services and because prices are not anchored by past practices. Electricity has a mixed record, as investors have bought assets and made greenfield investments in many nations. Water is probably the most difficult sector for private investment, given public attitudes towards privatization.¹⁵²

In some situations, management contracts have served as mechanisms for introducing change. Other forms of private participation are also feasible. For example, investment funds could come from the issuance of bonds—which represents a promising source of capital. However, no private investor will view an infrastructure firm as an attractive investment without an up-to-date asset registry, audited income statements and balance sheets, and years of data on operating performance. Currently, those requirements are lacking for many firms. So the best source of external funds is closed unless, and until, nations mandate the collection and publication of financial and operating statistics.

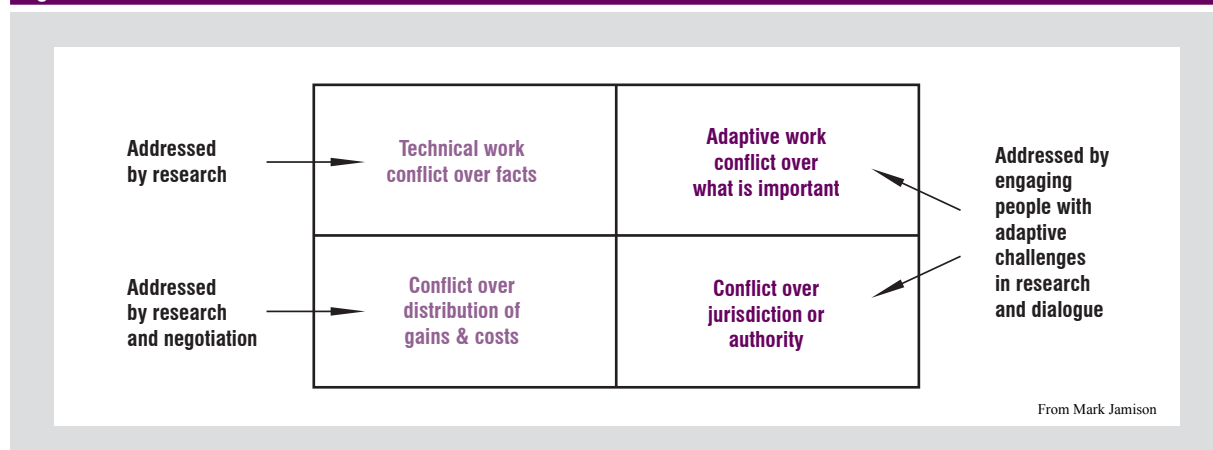
Strategies for promoting public-private partnerships start with improved institutional frameworks, involving

internal governance (appropriate incentives), external oversight (“independent” regulation), and political commitment (sound policy framework). Based on their studies of water utilities in a number of Latin American countries, Savedoff and Spiller (1999) once strongly recommended (1) corporatization of utilities (treating them as enterprises and not as government agencies), (2) disaggregation of utilities and the promotion of competition, (3) regulatory frameworks that limited government discretion, and (4) privatization (emphasizing domestic ownership). Whether all those strategies are feasible today is questionable. This chapter will place much greater emphasis on the role of information and benchmarking. Even for a consolidated system, there is no reason not to report data by region. For example, Uganda has a single state-owned (aggregated) enterprise, but the National Water and Sewerage Corporation publishes benchmarking information on each municipality and utilizes yardstick comparisons to establish performance targets and to reward managers (Mughisa, Berg, and Muhairwe (2007).

In addition, information can establish a foundation for resolving differences of opinion about actual and potential performance (in terms of network expansion, prices, and returns). The promotion of public-private partnerships requires that conflicts be identified and resolved in a timely fashion. If the arrangements are not acceptable to both political leaders and to private investors (or if disagreements are merely swept under the rug), the situation will not be sustainable.

It is possible to identify four potential sources of conflict in the design and implementation of infrastructure policies: factual (cognitive) conflicts (based on technical disagreements regarding the analysis and interpretation of performance data), interest conflicts

Figure VI.1. Conflict resolution matrix



(where different groups—utilities, customers, unserved citizens, regions, and unions—benefit or lose, depending on the decision), values conflicts (involving ideological differences or differential preferences for sector outcomes), and authority conflicts (reflecting jurisdictional disputes over who has the last word). Identifying and resolving these conflicts is central to the development of public-private partnerships. If joint initiatives are perceived as socializing the losses and privatizing the profits, then stakeholders are unlikely to support the arrangements. Stakeholders must have a clear understanding of facts, procedures, objectives, and responsibilities.

One can argue that resolving the four conflicts involves two types of work: technical and adaptive. Figure VI.1 indicates how the four types of conflict are addressed by different types of activities.

The following points underscore how better information can play a role in promoting public-private partnerships that improve infrastructure performance:

1. Research: What Are the Facts?

It is said that everyone is entitled to their own opinions, but not their own facts. Data collection is essential if one is to document relative utility performance, reward those who are on the efficiency frontier, and identify those who are far inside the frontier. Investors focus on the likelihood that funds will be used productively, providing returns to capital. International donors should apply similar standards to avoid wasting scarce capital and to provide incentives for utilities to move towards best practice. However, without facts, investors and donors are in no position to supply funds for infrastructure initiatives. Furthermore, national development banks have other uses for funds as well—in education, hospitals, and roads. Without evidence of good performance in infrastructure, other claims on scarce government resources are likely to be more compelling.

- **Public Information:** Making information available (public) improves performance. Customers' awareness of baselines and trends improves their understanding of what is feasible and can put citizen pressure on utility regulators and managers. Service delayed is service denied.
- **Managerial Information:** Small companies and entities need support to obtain and to use data for benchmarking purposes. Such data is first and foremost a managerial requirement—managers can only manage what they measure. Records document what has happened in the past which provides a baseline for future developments.
- **Performance Benchmarking:** Benchmarking is part of tariff review; it can be used as a yardstick

for comparing the performance of similar utilities. In addition, it helps potential investors and donors analyze the financial sustainability of service providers.

- **Data Timeliness and Accuracy:** Data quality is central to any benchmarking process: decision-makers need to be included in the process to promote both accountability and sound business practices.

2. Research and Negotiation: How Should Benefits and Costs Be Allocated?

Even though stakeholders have different interests, all segments of society share a concern for the sustainability of the sector over time.

- **Data Definitions and Business Plans:** Information helps both the operator and the regulator – working as a team is recommended: this process need not be adversarial. Clear definitions and a logical structure for data collection and verification are key factors for successful programs. Transparency is fundamental for achieving citizen confidence in the system.
- **Performance Improvements and Incentives:** Infrastructure presents win-win possibilities for various stakeholders. As better information becomes a by-product of operations, the process leads to improved performance. Analysis of performance indicators helps managers save resources by identifying possible problems in the production process: efforts can be directed in a more focused manner. Reward superior cost-containment with higher returns.
- **Comprehensive Performance Evaluation:** Benchmarking infrastructure sectors at a country level yields rankings that provide policy-makers with a factual basis for analyzing, evaluating, and rewarding service providers' performance. Benchmarking needs to become comprehensive; it should cover social information as well as firm financial and operational data. Social information goes beyond production processes to include coverage, access for the poor, water resource sustainability, and related issues.

3. Adaptive Work: What Is Important? (Values)

People in government ministries, utilities, regulatory agencies, NGOs, and with other affiliations place different emphasis on the pace and pattern of network expansion and improved quality of service; however, there is no doubt that it is important to maintain dialogues within nations so stakeholders can understand the concerns of one another.

- **Establishing Priorities:** Identification and prioritization of goals in a benchmarking process

is crucial: if improvements in sector performance cannot be documented, the system loses legitimacy in the eyes of citizens. Furthermore, targets need to be realistic and specific, so decision-makers can be held accountable for sector performance.

- **Believing Is Seeing:** Our preconceptions shape (and even determine) our perceptions. Getting fundamental values out in the open can help stakeholders see areas for collaboration and consensus. Being grounded in the reality of business plans, best practice, and financial constraints can help stakeholders understand what must be given up to achieve particular objectives.
- **Cumulative Improvements:** Benchmarking is a valuable tool for the operator; it is an incremental process involving steps that strengthen organizational capabilities. Once basic information has been processed, the experience yields improvements in procedures as managers better understand information flows and performance outcomes in segments of the utility. Clear and timely information helps managers identify emerging problems—reducing delayed responses.
- **Urban/Rural Initiatives:** For managers, urban systems have the cost advantages of density; for elected officials, large cities have political clout, as public protests are easier to organize. Small towns and rural areas are often neglected. Benchmarking should include rural areas to bring awareness to policy-makers regarding resource allocation within the sector.

4. Adaptive Work: Who Has Jurisdiction?

Currently, the jurisdictional overlaps and gaps are significant in many regions. Capacity to collect and analyze data is weak. Authority conflicts distract agencies and managers from doing their jobs: harming sector performance.

- **Data Frameworks:** Companies need comprehensive information systems in order to improve data quality and provide timely information. Such systems need not involve highly advanced information technologies that integrate Geographical Information Systems with real-time measurement of system performance. Rather, careful reporting of basic data to a centralized data library provides a good starting point.
- **Information Is Power:** Those currently controlling access to information must be convinced of the benefits of a centralized (and accessible) database that helps avoid duplication. A changed organizational culture is as important as developing technical capabilities. The latter can be accomplished via training programs; however, these are necessary,

but not sufficient, for performance improvements.

- **Clarify Jurisdictional Responsibilities:** The starting point is having clearly defined authority. In addition, political leaders, managers, and other stakeholders must commit themselves to enhancing infrastructure performance.

An important use of benchmarking comparisons involves linking managerial incentives more directly to performance. This step is important for state-owned enterprises, since incentives are central to improved performance. Some scholars (e.g., Shuttleworth, 2005; Cubbin, 2005) are skeptical of applying efficiency scores due to the sensitivity of results to model specification, sample size, and outliers. However, caution does not preclude the thoughtful application of appropriate models.

Benchmarking serves as a catalyst for (1) collecting data to mitigate information asymmetries (for regulation), (2) identifying sector trends and performance outliers (for documenting the impacts of investments and policies), and (3) designing incentive-based managerial compensation plans (as part of the internal reforms required for cost containment and quality improvements). It is likely that far more waste has occurred due to poor management practices (and weak incentives) in developing countries than to the misapplication of infrastructure benchmarking techniques. Nevertheless, benchmarking is no panacea: some groups like the status quo. Information contributes towards the identification of those benefiting from the “low level equilibrium.” Those beneficiaries fight change.

Based on the observations presented here, legal frameworks for promoting public-private partnerships should:

- **Facilitate fact-finding:** require data reporting by operators (promoting transparency and reducing information asymmetries);
- **Ensure institutional capacity:** provide authorities with the resources to attract and retain professional staff who can effectively interact with all stakeholders;
- **Identify and prioritize performance objectives:** ensure that those setting policy are clear about their goals and that they are held accountable for promises made regarding related initiatives.
- **Define the roles and responsibilities of different agencies:** promote clarity and accountability in the institutional division of labor.

Attention to these four features enables the legal framework for regulating infrastructure to reduce conflict, thus contributing to a more stable and predictable policy environment.

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VII. BUILDING LEGAL FRAMEWORKS TO SUPPORT PUBLIC-PRIVATE PARTNERSHIPS AT REGIONAL, NATIONAL AND MUNICIPAL LEVELS¹⁵³

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Introduction

Facing budgetary constraints and recognizing their inability to provide infrastructure services efficiently, Governments in many countries have been rapidly adopting neo-liberal approaches and a market-based economy. This has led to radical changes in the characteristics and the respective roles of the state and the private sector. Coping with the new market economy requires Governments to reduce the size of the public sector and give a greater role to a more dynamic private sector under public-private partnership schemes.

Public-private partnerships (PPPs) are arrangements between Government and private sector entities for the purpose of providing public infrastructure, community facilities and related services. These partnership arrangements can provide a broad umbrella to shelter and protect the public interest while bringing investment potential and added value from the private sector. Although the concept of PPPs is becoming increasingly common as a means of delivering infrastructure services, the level of private sector involvement is not yet sufficient in developing countries. More importantly, a well-defined regulatory framework for partnerships is more an idea than a reality at present. What most public and private organizations have found instead is that the implementation of a regulatory framework in their partnerships has apparently created a number of prevailing issues that are in need of clarification.

The purpose of this paper is to discuss essential features of regulatory and legal frameworks required to support public and private sectors to deliver infrastructure services at a multi-level setting. More thought will be given to identifying issues and challenges facing national and municipal Governments, including bilateral or multilateral financial agencies in the area of infrastructure provision and finance.

1. Essential Features of Regulatory and Legal Frameworks to Support Private Participation in Infrastructure Services

The infrastructures mainly needed by the developing countries to support their economic activities are those related to transportation, energy, water, and most recently, telecommunications. However, high capital investment costs and lack of technology can

impede infrastructure development. Many developing countries cannot afford such development without affecting other economic activities. Considerable attention has been paid to enforce regulations for promotion of private involvement in public infrastructure services, with a view to encouraging private firms to participate and thereby mobilize private capital into public work projects. Improvement of programme performance, cost efficiencies, better service provisions, and appropriate allocation of risks and accountabilities have also been identified as factors opening avenues for public-private partnership in designing, constructing, operating, maintaining and financing infrastructure development through management and lease contracts, concessions and divestitures. There are some enabling factors of regulation that are essential for private investment in infrastructure services. These include the setting of a regulatory framework and institutions at the outset; sound regulations to protect private sector investment; contractual safeguards against potentially disputable matters; and governance and accountability frameworks.

1.1. Institutional and Regulatory Setting

Regulation is a key element to maintain a competitive market discipline on public infrastructure services. While many Governments in developing countries have already signed their first demonstration PPP contracts, most have not yet designed the legal and regulatory framework for monitoring the performance of private contractors and for ensuring contractual compliance. Experience in these countries confirms the importance of putting a sound regulatory framework in place before implementing public-private partnership programmes (IP3, 2000). A regulatory system should be established as soon as possible to define clear rules for financial performance, to render practical experience to the staff responsible for their implementation, and to provide assurance to the private sector that the regulatory system includes protection from expropriation, arbitration of commercial disputes, and respect for contract agreements. In turn, the regulatory system will increase benefits to the Government by achieving better and more informed decision making, improved performance, and by raising efficiency and accountability (The World Bank, 1994).

1.2. Investment Protection

Investor security is critically important. Regulation is also useful in protecting the interests of private investors by preventing direct or indirect expropriation of investment capital. For example, regulation in public-private partnerships can act as a buffer against political interference from governmental bodies in

pricing decisions. This buffer function is particularly important, as government objectives for political or social reasons may act as a disincentive to investment and, indeed, may not even be in the consumer interest (The World Bank, 1994). In developing countries with limited histories of private participation, investors with doubts about the safety of investments will either require very high returns or not invest. The only way for these countries to be successful in attracting private capital is to establish a regulatory regime that reduces this risk and protects private sector investment.

1.3. Contractual Safeguard

The financial and other resources of private and state enterprises are always limited. Projects developed as public-private partnerships are mostly based on risk sharing and a security package of interrelated contracts between the two parties (IP3, 2000). Consequently, many developing and emerging market economies require effective models on how best to design and establish legal frameworks for contract compliance and performance monitoring for public-private partnerships. On the one hand, the private sector needs a great deal of certainty and protection against unforeseeable changes, as the costs of poorly designed, drafted and negotiated agreements are tremendous and can jeopardize entire public-private partnership programmes. The establishment of a transparent and sound regulatory framework is a necessary precursor to private sector participation in a PPP. On the other hand, Governments need regulation to ensure that essential partnerships operate efficiently and optimize the resources available to them in line with broader policy objectives, ranging from social policy to a policy for environmental protection (The World Bank, 1994). However, over regulation and contractual safeguards can restrain economic growth and hinder the private sector's ability to remain competitive in the market (Lundqvist, 1988).

1.4. Governance and Accountability Framework

Private investors will be kept away and will seek a more hospitable place to invest if regulation is unlimited in scope, unclear in operation, inclined toward micro-management, and lacking good governance. The regulatory regime must be limited, transparent, fair and consistent, and the Government must always keep its promises. Private investors are cautious not only of expropriation but also of many small regulatory actions that together constitute incremental expropriation, taking away the private partner's option of legitimate recovery of costs and of profits proportional to the risks undertaken. Private investors must be convinced that the Government, as a prudent partner, will commit to good governance to protect private investments and will not use regulation

as a direct or indirect mechanism for "administration expropriation." Even if public-private partnerships appear to reduce costs, they cannot be defined as a success, if their regulation results in the need for more government oversight and expensive monitoring (Sparer, 1999).

PPPs also involve sharing or transferring a measure of responsibility and control for operations. This may cause shifts in accountability arrangements, creating new responsibility hierarchies and reporting requirements for public sector managers. While Governments have been largely preoccupied with political accountability through the electoral process, PPPs open new channels of accountability. In arrangements where the Government still retains ultimate or partial accountability, government partners must ensure the respective accountability of their partners through the use of sound formal agreements (Pongsiri, 2002).

There are also new accountability demands on the private participants in a partnership, as they are required to disclose information about partnership related activities, including expenditures to their partners and the public. Problems that arise as a result of shifts in accountabilities can be avoided, if appropriate arrangements are put in place toward clear governing regulations. According to the government's viewpoint, a well-defined regulatory framework is essential, if the private partners ideologically and financially oppose seeing themselves as having additional accountabilities to the public interest (Hassan, 1996; Colton et. al., 1997).

2. Regulatory and Legal Considerations at a Multi-Level PPP Setting

PPP infrastructure development can take place at a regional level on a large scale, such as a cross country tunnel construction or on a small scale such as city waste water treatment. PPPs bring multiple benefits to the stakeholders involved. However, there are operational, political and financial risks that are borne by national and local Governments and the private companies involved in PPPs. Therefore, bilateral or multilateral agencies, national Governments, and local authorities need to ensure that a regulatory and legal framework shall be made available to permit, facilitate and secure private investment in public work projects. There are some issues and challenges at a multi-level PPP setting that need to be addressed at the outset to provide sustainable participation by the private sector.

2.1. Overlapping Regulation and Unclear Roles at Municipal PPPs

Municipal PPPs are a commercial transaction between

a municipality and a private party whereby the private organization performs a municipal function for or on behalf of the municipality. The private sector, acquiring managerial work or using municipal property for its own commercial purposes, assumes substantial financial, technical and operational risk, and receives a financial benefit in respect of the project. Several PPP projects have clearly demonstrated how effective combinations of private and public financing and enterprise can significantly strengthen municipal service provision and improve the well-being of people in urban, rural cities and towns. Some other benefits to a municipality are transfers of technology, employment benefits, and capacity building.

Municipal authorities are important in the creation or enhancement of this enabling environment for PPPs in cities and towns. In many countries these authorities have significant governmental autonomy under Private Participation in Public Infrastructure Development Acts or similar regulations. They can enter into PPP contracts without needing consent from the central Government, as long as the costs of the contract can be covered by the municipal budget. Effective decentralization is therefore a precondition for PPP development at the municipal level. This means that local authorities must have their own resources and taxation authority, and the ability to formulate, negotiate, award, implement, supervise, and monitor PPP projects.

Although municipal officials in general do not have the power to influence positive changes in the country's investment climate, they still need adequate clarity on their roles and authority levels, not just to sign contracts, but also to undertake all the other tasks related to maintaining the partnership. These would include financial, legal, and other areas of public administration. However, in some countries, there is confusion and inconsistencies in the regulatory frameworks of national Government that inhibit municipal government actions to attract capital investment. One of the biggest challenges facing municipalities is the legacy of complex and interlinked regulation that often involves inherent confusion and duplication. For example, in South Africa, municipal infrastructure development projects are governed by the Municipal Systems Act (MSA) whereas municipal PPPs are regulated by the Municipal Finance Management Act (MFMA). Both the MSA and the MFMA require project feasibility studies to be undertaken before a municipality can proceed with a PPP (Levinsohn and Reardon, 2007). Although the studies required by each Act are similar, there are discrepancies that can cause confusion. A municipality is faced with the challenge of having to satisfy the requirements of both Acts, which is often perceived to

be a difficult task. Consequently, some municipalities and the private sector tend to avoid using PPPs as a model for infrastructure development in the local government sphere because of the cumbersome, complicated, time consuming and inter-related regulatory frameworks required to implement a PPP. In order to accelerate service delivery, municipalities and the private sector decide to shift to other alternative models such as conventional procurement and turnkey methods which do not constitute a formal PPP.

In Thailand, the frameworks underpinning the PPP activities are derived from the Act on Private Participation in State Undertaking B.E. 2535 (1992). However, the institutional regulatory framework for infrastructure provision and management is a fragmented hierarchy where many different bodies across several sectors have assumed the various responsibilities of regulation (Valentine, 2008). Certain PPP projects at a municipal level are covered by their own regulations because the 1992 Act does not prescribe the methodology for project valuation or procurement methods. It also does not provide a methodology to share the risks and burdens with the private sector when projects are not commercially viable. The regulation thus becomes less effective and lends itself to frequent clarification and interpretation on several aspects (Susangarn, 2007).

Many countries have adopted special arbitration mechanisms at a municipal level to solve technical, contractual and labour disputes. The arbitration panels can include members of the public and the private sectors with supporting guidelines for conflict resolution. This would minimize difficulties and tensions that sometimes arise. If there are no special arbitration mechanisms, municipal authorities themselves need to perform the roles of various regulatory authorities, including judicial bodies, when disputes arise. In some contracts involving international partners, there can be special clauses for court jurisdiction which can be outside of the host country. This is sometimes favoured by foreign investors, who are unfamiliar with or distrusting of local judicial objectivity and processes. As such, municipal officials need to understand the implications of these clauses in potential contracts and agreements.

2.2. Comprehensive and Consistent Regulatory Framework at National PPPs

At national level, there must be legal, regulatory and administrative processes that uphold and respect foreign investors. A comprehensive and consistent framework of PPP regulation is very important as it provides a reference point for the main actors in the partnership. There is also a real need for consistency in national PPP policies over the long term regardless

of changes that may occur in political regime.

In Thailand, all PPP projects are governed under the Act on Private Participation in State Undertaking B.E. 2535 (1992). The Act was intended to provide appropriate scrutiny process for large PPP projects to ensure that the projects are viable and contracts are carried out through proper procedure. It was designed at the time of enactment to prevent corruption in granting the rights to private investors for operation or use of state properties, rather than to delineate the necessary components of sound regulatory and institutional framework for PPP projects. As a result, the 1992 Act has provided the governmental authorities with inadequate contents and an unclear governing framework (Susangarn, 2007). There is a need for an Amendment to provide a broader definition of the PPP concept and a more streamlined process for implementation of PPP projects.

A central feature of PPPs is the contractual arrangement. These contracts are often highly technical, cumbersome, and have significant legal, financial and technical implications. The regulatory framework enforced by the central Government thus requires a comprehensive guideline for procurement, regulation of prices, conditions of arbitration, including the handling of labour disputes. Other related contractual issues that may have an impact on the contracting private parties at national level are exchange rates, ability to transfer profits, taxation, labour laws and insurance. In some countries, the level of decentralization provides the municipal officials adequate authority over the PPP without sufficient understanding. Confusion on authority, functions and decision making within the local Government and among several relevant national government agencies can make the design, procurement and implementation of PPP projects difficult.

It is necessary for the central Government to enforce a clear regulation on when and how municipal or local Governments need consultation with existing regulatory authorities at national level, and how the central Government should take part in contractual matters such as the issues related to pricing and dispute resolution. A good example is South Africa, which has a national framework of laws, regulation and administrative processes guiding municipal Governments on the use of PPPs (i.e. South African National Treasury's PPP Manual 2004), or Germany that has a Unit for the coordination of PPP design and management in the country. The primary goal of the PPP Coordination Unit is to establish a regulatory framework for public authorities (at the national and municipal level) related to the application of a range of PPP instruments to implement national and municipal development strategies; deliver support for PPP

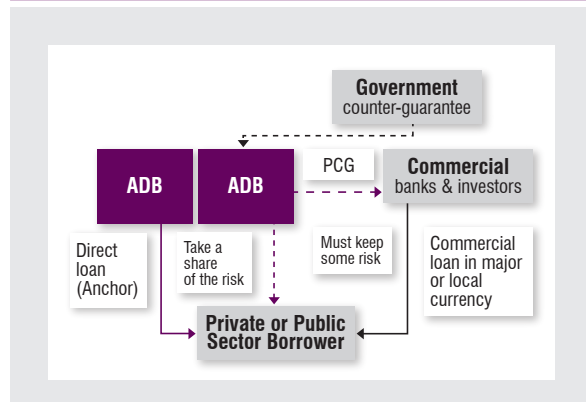
projects market development; and provide consulting services to local authorities.

With the national PPP regulation and Coordination Unit in place, there is still a need for the central Government to support capacity development for local authorities to manage the PPP process and have a better understanding of the nature of PPP agreements. Governments in South Africa and Germany as well as many others countries maintain websites that clearly demonstrate national frameworks to guide PPP development. Other initiatives include central and municipal Government created associations and institutions in and outside of the state to discuss, evaluate and in some cases promote a more active participation of the private sector. It is most advantageous to combine the PPP experience at the central Government with municipal Government knowledge of the needs and priorities of its constituency. When borrowing is involved, central Government should be consulted as subsequent future liabilities concern the whole nation.

2.3. Investment Protection to Assist PPP Implementation at Regional PPPs

At regional level, development of private sector involvement in infrastructure is crucial to the sustained economic growth and reduction of poverty. While there are potentially important economic and social benefits, PPPs mostly involve significant levels of capital investment with payback periods covering many years or decades. The financial risks are a major concern to potential private partners. Developed countries rarely find it necessary to provide government guarantees for infrastructure projects. This is also the case for several developing countries that have undertaken regulatory reforms. For example, there is considerable private investment without government guarantees in Argentina's power industry, which has been restructured and privatized, as well as in Chile's telecommunications, power, and gas sectors (Thobani, 1999). However, recent reviews of impediments to successful PPPs in developing countries indicate that there is still a real need for financial guarantees to ensure credibility and financial sustainability for the partners (Matsukawa et. al, 2003). Private companies often seek high levels of financing from bilateral or multilateral financial agencies such as international financial institutions (IFI) or regional development banks and anticipate an adequate guarantee from those credible organizations. In the Asia and Pacific region, the Asian Development Bank (ADB) has been strengthening its role in mobilizing private resources for infrastructure development in countries where infrastructure demands are immense and the public sector by itself cannot bridge the financing and efficiency gaps.

Figure VII.1. ADB's Partial Credit Guarantee (ADB, 2009a)

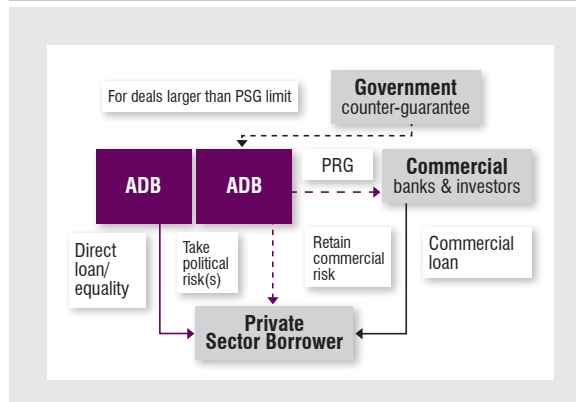


Lessons learnt from past privatization transactions between public and private sectors revealed that infrastructure projects in developing countries are usually flawed or inevitably required to be renegotiated over the entire life cycle of the project. This is because some sovereign risks and project risks are enormous and government guarantees cannot be relied upon by the private sector. To overcome this unsound practice, the ADB has provided the Partial Credit Guarantee (PCG) covering both commercial and project risks and the Political Risk Guarantee (PRG) to cover specifically defined sovereign or political risks.

Due to different country credibility and commercial risks, the lenders may not be willing to provide an uncovered loan for the PPP project. The Partial Credit Guarantee (PCG) scheme provided by the ADB as shown in figure VII.1 can bridge the gap between the needs of the borrower and the constraints of the commercial lenders by covering some key project risks (ADB, 2009a). One of the PPP projects under PCG is the Power Sector Restructuring Programme in the Philippines. With the PCG, the Power Sector Assets and Liabilities Management (PSALM) Corporation was able to borrow at significantly more favourable terms to meet the cash flow requirements during the initial stage of privatization.

The Political Risk Guarantee (PRG) scheme as illustrated in figure VII.2 is well suited to cases in which commercial lenders are prepared to take on the commercial risks of a project, but require assistance from the ADB in mitigating sovereign or political risks (ADB, 2009b). These include any combination of breach of contract such as unilateral cancellation by a host Government or default on a specific payment obligation such as under a power purchase or fuel supply agreement (Pongsiri, 2003); confiscation, expropriation and nationalization; currency inconvertibility; and political violence. The prime example of PPP projects under PRG

Figure VII.2. ADB's Political Risk Guarantee (ADB, 2009b)



arrangement is construction of the combined cycle power station at Phu My in Viet Nam. This was the first PRG in which the ADB acted as guarantor of the borrower, Mekong Energy Company Limited (MECO), against breach of contract, confiscation, expropriation and nationalization; currency inconvertibility and non-transferability and political violence.

With the PCG and PRG in place, the host Government and the project lenders can take comfort in ADB's guarantee and also have the ADB's involvement to ensure and support the technical and financial viability of the project.

Conclusion

Partnership enhances the strengths of both the public and private sectors in pursuing public infrastructure service delivery. However, the public sector in developing countries still maintains an obligation to act in the public interest in the delivery of public goods, whilst private firms also expect more governmental binding agreements and regulations to prevent administration expropriation and to secure long-run maximization of profits. As a result, PPPs are still subject to extensive and complicated bodies of legal doctrine and to legal enforcement mechanisms.

Most developing countries still need to have the regulatory and surveillance machinery in place at multi-level settings to ensure effectiveness, fairness and openness of their PPP schemes. They have embraced the PPP concept at the national level as a key strategy in overcoming some of the infrastructure backlog at municipal levels. For some countries, decentralization of PPP implementation may lead to confusion and inconsistencies in the frameworks of national Government that inhibit municipal authority action and private sector interest. From the perspective of international investors, countries perceived to have inconsistent regulatory and legal frameworks are considered unattractive to capital investment. The regulatory framework needs to be consistent and

harmonized in order to reduce confusion resulting from interpretation of sub-national Governments that can affect PPP transactions.

In case of political instability and government credibility at risk, the only way a PPP will be financially feasible is with external guarantees. These can come from the international financial institutions and bilateral or multilateral agencies interested in supporting PPP projects in order to promote regional growth and achieve the reduction of unemployment and poverty.

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VIII. THE INTERFACES BETWEEN COMPETITION AUTHORITIES, COMPETITION REGULATIONS AND OTHER REGULATORY FRAMEWORKS AND INSTITUTIONS IN INFRASTRUCTURE

Tresna Soemardi¹⁵⁵

Introduction

The economic crisis in 1997/1998 led to a paradigm shift in Indonesia's national economic policies: from those with a dominant role of central Government as the motor of economic development, to those with a fair market economic system with greater role of business actors. In such a context, the Government's role shifted from an economic player and regulator to a mere regulator. Through clear and articulate distribution of roles between business actors as economic players and the Government as the regulator, it was expected that the economy would develop swiftly.

The regulator is expected to be able to develop a business climate that always encourages fair competition, which in turn would result in competitive business actors in each economic sector.

In the infrastructure sector more specifically, the Minister of State for National Development Planning (Head of National Development Planning Agency) presented, at the time of the crisis, the strategic initiatives for Indonesia's development acceleration set forth in three policies relating to: i) the general policy environment (that gives assurance through a guaranty system on uncertainty); ii) entry policies (consisting of reduction in regulatory constraints and facilitation of fair business competition), and iii) pricing policies (about pricing that can be accounted for procedurally and institutionally).

Due to its limited budget, the Government is no longer able to fully finance the development of infrastructures such as highways, bridges, drinking water networks, oil and natural gas processing, as well as port affairs. This creates the need for an alternative financing mechanism to be applied through Government-Private Investor Cooperation or Kerjasama Pemerintah-Swasta (KPS). Such a policy choice is also influenced by the trend whereby infrastructures are no longer considered as public goods, but as economic goods instead. Therefore, the KPS method is the most advantageous method of cooperation.

The policy stipulates that almost all business entities may cooperate with the Government, whether they be private firms, State-Owned Enterprises, Regional-Owned Enterprises, or cooperatives. The involvement of private investors can be applied through two

approaches, i.e. concession by means of public bid and license by means of licensing bid in cases where infrastructures and services are impossible or difficult to unbundle.

1. Competition for the Market

Government procurement shall be conducted by means of an open and transparent bidding process which incorporates practices that seek to both deter and detect fraudulent and anti-competitive conduct. The procurement process shall be conducted through several phases, including preparation of procurement; execution of procurement; determination of the winner; and formulation of agreements. The types of infrastructure projects where there may be cooperation with private investors cover several strategic sectors such as:

- transportation (ports of sea, river, or lake, airports, railways, and railway stations);
- roads (toll roads and toll bridges);
- irrigation (undistilled water carrying canals);
- drinking water (undistilled water taking installation, transmission network, distribution network, drinking water processing installation);
- wastewater (wastewater processing installation, collecting network and main network) as well as facilities for garbage (transportation and garbage dump);
- telecommunication (telecommunication network);
- electric power (plants, transmission, and distribution of electric power); and
- oil and natural gas (processing, storage, transportation, transmission, or distribution of oil and natural gas).

Cooperation in all of the above sectors shall take place in accordance with the sector laws and regulations.

In maintaining a reasonable price, the Government takes two different approaches, i.e. a simplified procedure in tariff fixing and the reinforcement/establishment of a regulatory board. A simplified procedure in tariff fixing is conducted by means of rationalization and depoliticization of pricing for infrastructure sectors. Pricing is based on fair business competition (including price regulation for monopolized infrastructure sector), certainty for private sector related to tariff policy for various sectors is encouraged, tariff recovery is promoted through an comprehensive tariff plan, and awareness is raised among the public so that they would understand the real costs for services and what occurs at peak as well as off-peak conditions (e.g. electric power). A regulatory board is also reinforced/established to monitor the process of fair tariff fixing, thereby

allowing for the transfer of certain functions of the ministry. Examples include the establishment of the Toll Road Regulatory Board (BPJT) and the Indonesian Telecommunication Regulatory Board (BRTI). These regulatory boards are responsible for monitoring and assuring that certain tariffs fulfill the aspiration of the public as well as of investors.

Regulation can also take place at practical level, through a technical department with duties to administer public service functions. In this case, the regulatory duties and functions are usually conducted by an office of the Directorate General. However, for several sectors such as telecommunication, drinking water, toll roads, and oil and natural gas, the functions of a regulator if separated from the function of the Government. In general, such separation is intended to improve the regulator's performance and improve the quality of service to the service using community. When this is the case, separation of the scope of duties and functions among policy makers, regulators, and service operators is expressly stipulated.

2. Competition Policy and Sectoral Policies

As an agency that enforces the mandate of Law No. 5/1999, KPPU is obligated to ensure the creation of a fair and favorable competition climate for business in Indonesia. To that end, KPPU, in the period from 2000 to 2005 laid down five main programs, i.e. law enforcement development, competition policy development, communication development, institutional development, and information system development. In the period from 2006 to 2011, those five programs will remain, but the emphasis is more on two important functions of KPPU, namely to enforce the law of competition and to give recommendations to the Government related to policies that potentially contradict Law No. 5/1999. The function of law enforcement is intended to eliminate various constraints on competition in the form of unfair business conducts. The process of giving recommendations and suggestions to the Government would encourage the process of regulatory reform towards effective competition policies throughout the economy. So far, both in the law enforcement process and in the analysis of Government's policy, policies have been frequently found to be the sources of various unfair competition practices in several sectors. Based on this finding, competition policies will become one of KPPU's main priorities in the future. Through reform regulatory programs, efforts will be made to ensure that the principles of fair competition are internalized in every policy of the Government.

In connection with these efforts, KPPU has played a key role in undertaking regulatory assessments of various policies issued by the Government or

regulatory agencies in the perspective of business competition. The results of these assessment are then submitted to the Government or the regulatory agency concerned through the process of policy advocacy and harmonization. It is in this case that most of KPPU's programs are synergized with the Government's programs.

In the last several years, regulatory assessments have focused on the sectors that have a public service component such as telecommunication, energy, health, and transportation. These priority sectors are determined in order to optimize KPPU's role in stimulating the emergence of efficient economy which in turn will promote public welfare.

Based on KPPU's observations, policies which are not in harmony with Law No. 5 of 1999 are categorized in three groups: policies that result in business actors who have dominant positions, policies that may facilitate cartels among business actors that are explicitly in contradiction to Law No. 5 of 1999, and policies that restrict competition in the market.

As a result of the first category of policies, Government policies tend to create entry barriers to competitive business actors. As a result, some business entities will abuse their dominant positions. One example of the policies leading to a cartel among business actors is the partnership program in chicken breeding industry that resulted in agreements with an anti-competitive effect. Likewise, the DSM Terang Program of the Ministry of Energy and Mineral Resources facilitated the development of exclusive agreements among business actors. The effects of such agreements are anti-competitive behavior of business actors who create entry barriers and restrictions to partners who are not in the agreements. Finally, Government's intervention in the market can restrict competition in the market as in the case of trading systems or regulations that limit the number of players involved. Seen from the perspective of competition, this is a setback in that it prevents the operation of market mechanisms that can provide many benefits to the society. A market with free competition is believed to be highly advantageous and Government has a role in its realization. In certain cases, however, competition can be successful outside of any Government intervention.

Through those two main activities, it is expected that KPPU can provide contribution to the national economic development, by minimizing restraints on competition in the form of restraints on businesses' innovation as well as on the effectiveness of the business world itself, whether in the form of private or government restraints. KPPU's efforts to encourage the reform of policies in public service sectors, infrastructures, and

in the review of the agricultural commodity trading system will be in line with the Government's program to enhance the role of the private sector in the national economy. Moreover, the harmonization process of competition policies conducted by KPPU is expected to be able to strengthen the functions of regulation and monitoring conducted by both the Government and sectoral regulatory boards.

A fair business competition climate will assure the achievement of efficiency and effectiveness in the economy. It is also through fair business competition that there will be equal business opportunities among big, medium, and small business actors. Finally, fair business competition will enhance domestic industrial competitiveness, thereby enabling firms to compete in domestic as well as international markets. Therefore, it can be concluded that the enforcement of competition law and the implementation of effective competition policies will guard the implementation of proper market economy, which should enhance the welfare of the Indonesian people.

3. Issues of Business Competition Agency in Sectoral Regulation; A Case Example in Telecommunication

The telecommunication regulator in Indonesia (the Indonesian Telecommunication Regulatory Board (BRTI)) was established through a Decree of the Minister of Transportation No. 31/2003 which was signed on July 11, 2003. The Law No. 36/1999 marked the to an open market for telecommunication. The reasons for sector-specific regulation in such a market are several. Firstly, investment requirements can be so big that there is only one business actor that can provide telecommunication services with a cost lower than those provided by two or more business actors. Secondly, there are network externalities in this sector because the value of networks increases with the increasing number of users, so that a network with many users is more valuable than several small and unconnected networks. Thirdly, a cross subsidy among the provided services could be needed to ensure that users of certain basic telecommunication services can communicate at affordable prices. For example, local connection can be maintained relatively cheap compared to direct-dial long-distance call (SLJJ) and international direct-dial call (SLI). Lastly, sector-specific regulation may be relevant for sovereignty, safety, or national interest purposes and the provision of services should be safeguarded by the Government.

The shifting from a monopolistic system to a competitive one can take various forms, in which the Government's role in the sector changes. The first option is to make the Government a direct provider

of telecommunication services. The second is for Government to reduce its ownership in the incumbent company and give the opportunity to other parties to jointly own the shares, where the company remains the holder of monopolistic rights. The third option is for Government to open the market to competition to reduce monopolistic rights or even eliminate them so that there will be more than one business actor in the telecommunication sector. In this case, the Government retains ownership of a part of shares in the company. In the third option, the Government begins to reinforce its role as the regulator and reduce its role as an operator. The fourth option is that the Government eliminates its ownership totally and lets private parties compete in the telecommunication market. In this context, the Government functions solely as the regulator. The change in the role of Government requires monitoring or intervention by a competition agency or the Government.

The intervention includes among others:

- Elimination of various entry barriers in various segments of telecommunication services, such as the obligation for vertical separation of cross-ownership;
- Fair interconnection among operators, both among dominant players and new business actors;
- Non-discrimination, particularly in the use of limited resources such as spectrum and telephone numbers.
- Choice given to customers to change operators, thereby creating an equal level playing field among operators and minimizing switching costs.
- Surveillance and assessment of mergers and acquisitions likely to have an anti-competitive effect.

In order to ensure the creation of fair competition in the sector, the competition agency enters into a formal cooperation in the form of memorandum of understanding with the Ministry of Communication and Informatics as well as with the sectoral board under it, i.e. the Indonesian Telecommunication Regulatory Board (BRTI). Cooperation is realized through various joint activities and meetings to discuss the issue of competition in telecommunications, exchange of data and information for law enforcement, and the planned formulation of manual for fair competition in telecommunication sector.

The manual is intended to give guidance that can be a reference for primary stakeholders including the Government, the regulator, the business community (telecommunications services providers) as well as legal community, and the society in general, in anticipating and understanding every policy and enforcement of business competition principles

in the sector stipulated by the Government, the regulator and/or competent institutions. The manual is also expected to provide explanations to telecommunication providers on the application of Law Number 5 of 1999 concerning Prohibition against Monopolistic Practices and Unfair Business Competition in telecommunication sector, as mandated by the provision of Article 10 of Law Number 36 of 1999 concerning Telecommunication.

The manual specifically explains the implementation of three basic principles of competition in the telecommunications sector, i.e. non-discrimination, non-restrictive agreements, and non-abusive practices.

4. Enforcement of Business Competition Law in Infrastructure Sector

With regard to the enforcement of law on business competition, the majority of competition cases related to the infrastructure sector are violations against Article 22 of Law No. 5 of 1999 concerning tender conspiracy. The objects of conspiracy are various, among others are the development of roads and bridges, improvement of roads, utility network facilities, supply of fresh water, development of the Government's means and infrastructures, up to the development of flood control projects. There are several competition cases related to the development of infrastructures in the field of pharmaceuticals/hospital affairs and education, but they are limited to the construction of hospital and school buildings. The competition cases related to the development of roads and bridges are the most common cases. However, almost all cases are violations against Article 22 of Law No. 5 of 1999.

Besides the development and improvement of roads and bridges, other competition cases are related to electrical power or development of electrical networks. Up to 2009, KPPU had handled 5 (five) competition cases related to electric sector, all of which were violations against Article 22 of Law No. 5 of 1999 concerning tender conspiracy. The violation was conducted by various business actors, among others state-owned enterprises, associations, private parties, and tender committees. Over time, the violations have not been limited to conspiracy in tender, but also take the form of pricing cartels and discriminatory practices.

The cases related to infrastructure handled by KPPU throughout 2000 – 2009 consisted of: 13 (thirteen) cases in development of building and public means and infrastructures, three cases in flood and wave control development, six (six) cases in electric power, eight cases in fresh water development and supply, 14 (fourteen) cases related to development/improvement of roads and bridges, and one (1) case related to the supply of infrastructures in general.

Therefore, since 2000 up to 2009, KPPU handled 207 competition cases. At least 45 of them (22 per cent) were the competition cases related to infrastructures. Meanwhile, in January and February 2010, KPPU is handling 13 (thirteen) cases related to the infrastructure sector. The majority of cases are related to the procurement of goods and services in the development of office buildings and development/improvement of roads and bridges. Some of them are airports, seaports, dams, and irrigation networks. Throughout the year of 2010, the cases handled by KPPU will probably be dominated by those related to development/improvement of roads and bridges.

IX. COJURISDICTIONAL ASPECTS BETWEEN SECTOR REGULATORS AND COMPETITION AUTHORITIES

*James Hodge*¹⁵⁶

As more and more countries contemplate putting in place Antitrust laws, they need to address the real and difficult issue of the jurisdictional boundaries between the new competition authorities and existing or future sector regulators. This becomes a feature of the institutional design primarily because of the introduction of competition into regulated sectors and the need to manage that competition. Which jurisdictional model is chosen and how practical jurisdictional issues are actually resolved are important considerations.

1. Context

It is commonly argued that sector regulators and competition authorities are very different institutions, not only in terms of mandate but also in terms of institutional design and culture.

- **Competition authorities:** The primary mandate of a competition authority is typically to consider *ex-ante* whether merger activity will result in a substantial lessening of competition and to act *ex-post* against anti-competitive behaviour including horizontal and vertical agreements as well as the abuse of a dominant position. A competition authority will also have authority across the economy and therefore not necessarily have a depth of (technical and economic) knowledge of a particular sector. This broad coverage is manageable because the philosophy is that competitive forces in most sectors are generally sufficient to achieve economic efficiency and there is only the need to intervene *intermittently* in markets whenever they find that a company's behaviour (or a merger) threatens the operation of these forces. This is sometimes referred to as *ex-post* regulation¹⁵⁷. In addition, when competition authorities do intervene they tend to focus on structural remedies, i.e. those remedies that don't require them to engage in on-going monitoring and enforcement. Fines for the violation of these rules are also typically large to discourage such behaviour where it is not easily monitored.
- **Sector regulators:** In contrast, sector regulators are typically empowered to engage in *ex-ante* regulation of the specified sectors where there exists a monopoly supplier or near-monopoly situation. In effect the legislature has already decided that a firm in a particular sector has considerable market power and that this firm will engage in conduct that will reduce economic efficiency. The sector regulator therefore serves as a substitute for market forces,

in that it involves stipulating a fairly complete set of prices and accompanying commitments regarding supply and quality of service. Such *ex-ante* regulation specifically entails price and entry regulation, but also the implementation of *ex-ante* behavioural restraints designed to obviate the need for *ex-post* oversight. Sector regulators tasks therefore include issuing licences, imposing appropriate behavioural conditions on licensees, establishing technical and quality standards, setting and approving tariff changes and resolving disputes concerning the violation of licence or tariff conditions. They are not adverse to behavioural remedies because of the institutional design that makes them capable of ongoing monitoring and enforcement. Fines for the violation of licence conditions are typically small because they are quickly identified and rectified.

However, the mandate of sector regulators across many countries (and specific regulated sectors) is now typically extended to supporting new entry under the pretext of ultimately replacing the constraint of regulation on the behaviour of the monopoly firm with that of competition. Therefore whilst these are very different institutions with quite different *modus operandi*, they now quite often share a common objective around the introduction and protection of competition into a regulated sector. Of primary concern is usually the potential for incumbent regulated firms to hinder entry and expansion through abusing their overwhelmingly dominant position. However, the impact on the nascent competition arising from consolidation amongst entrants and collusive practices also loom large for both institutions.

2. Cojurisdictional Models

A sector regulator has a mandate restricted to the sector itself whilst the competition authority typically has a mandate for the entire economy. The debate about the appropriate jurisdictional model can therefore be adequately summed up as deciding what the reach of the competition authority will be into regulated sectors rather than the other way around.

There are a number of regulatory tasks that sector regulators engage in that the competition authorities have neither the institutional competency nor empowering legislation to engage on. For these tasks, there is a clear exclusive allocation to the sector regulators and broad agreement amongst analysts for this allocation.

- **Technical regulation** would seem to naturally fall under the purview of the sector regulators. The competition authority structure and culture is ill-suited to the on-going and often engineering intensive regulation of standards (where the competition authorities currently do not employ

people with these types of technical skills).

- **Licensing of entry** requires on-going processes for considering and granting license applications. This task for the most part is quite different to the core work of the competition authorities which is to evaluate cases brought before it and make findings on the merits.
- **Price determination** in the sense of on-going price regulation is a role that the sector regulators have been set up to perform and one that they are better placed to do than the competition authorities¹⁵⁸.
- **Monitoring and enforcement of ex-ante behavioural regulation:** In the same manner in which the competition authorities are not institutionally designed to engage in price regulation, so too are they not designed for on-going monitoring and enforcement activities.

However, for the regulatory tasks that encroaches on the institutional competency and empowering legislation of the competition authorities there needs to be serious consideration of the jurisdictional model adopted. These include merger control, abuse of dominance and horizontal and vertical agreements. Three types of models are evident across jurisdictions.

- **No jurisdiction for the competition authority:** An approach adopted by a number of jurisdictions is that the competition authority has no authority to act in respect of firms in regulated sectors. As competition is introduced into the regulated sector, the sector regulator starts to monitor the competition and behaviour of firms to protect against an abuse of dominance or collusion.
- **Distinct jurisdiction for the competition authority over issues in their mandate:** A quite distinct model is a clear separation of the roles with competition authorities *holding* sole jurisdiction over competition law matters including the adjudication of mergers on competition grounds and the enforcement of ex-post competition law restraints on anti-competitive behaviour. Sector regulators would have sole jurisdiction for price regulation, licensing, and the imposition and enforcement of ex-ante behavioural regulation as contained in licence conditions, legislation or regulations (incl. the determination of market definition and market power that forms the basis for such regulation). They may also have the power to adjudicate a merger on regulatory rules other than competition grounds where such non-competition grounds exist (such as cross-media ownership rules for example). It is necessary under this model to provide clear rules for the division of regulatory competency in order to avoid forum-shopping, double jeopardy and issues falling through the cracks.

- **Hybrid models of shared jurisdiction:** Delegating the competition act to the sector regulator. It would seem the only other broad alternative model is to permit an overlap in the key area of ex-post regulation of competition matters – i.e. permitting the sector regulators some jurisdiction over competition law matters in a shared or sole manner. Such a model is practiced in the United Kingdom which enables the sector regulator to hear competition disputes and even conduct the merger analysis. In the United Kingdom case, the model is one where only one of the two institutions take the case forward but the two institutions jointly decide which institution takes it forward. However, it can be designed in a manner in which the sector regulator always takes the case forward. Either way, the key design aspect to this model is that forum shopping is avoided and consistency is achieved through the implementation of a single act and a single course of appeal.

Important considerations in selecting a particular jurisdictional model and designing it include the prevention of forum shopping, double jeopardy and matters falling between the cracks.

- **Prevention of forum shopping:** Probably as important as correctly assigning different regulatory tasks to the relevant regulator is the creation of a degree of certainty over jurisdiction in order to prevent forum-shopping. This occurs where complainants or respondents seek out the forum most likely to be sympathetic to their cause, or alternatively less or more likely to impose fines and/or remedies depending on their particular interest. Whilst forum-shopping can occur where there is jurisdictional uncertainty, it can also occur where there is joint competency but different regulators have different procedures, economic tests or approaches.
- **Prevention of matters falling through the cracks:** It is also important that there is certainty such that matters are dealt with seriously by at least one institution and that particular matters do not fall between the cracks such that neither regulator has jurisdiction or neither take the matter seriously in light of believing the other will.
- **Avoidance of double jeopardy:** It is also important to avoid double jeopardy whereby a respondent is punished twice for the same offence. The important consideration here is that they cannot be *punished* twice which differs from being investigated twice. Specifically, it would seem that prior punishment for the offence can be factored into any future decision on punishment and so duplication of an investigation over the same behaviour is in itself not problematic. In addition, it might be that the same

anti-competitive offence is dealt with differently by the different regulators and double jeopardy does not arise. For instance, a competition authority might impose a fine for a specific anti-competitive conduct and the sector regulator may investigate the same conduct and conclude that an ex-ante behavioural regulation is appropriate (i.e. not imposing a fine).

In addition, whichever model is selected it is also useful for the different regulators to interact with each other in their respective roles such that the accuracy of decisions by both regulators improves. This could occur through a) the competition authorities benefiting from the specialist sectoral knowledge of the sector regulators, b) the sector regulators benefiting from the competitive analysis techniques of the competition authorities in designing the entry of competition and appropriate ex-ante behavioural rules, and c) providing consistency in terms of market definition and market power determinations.

3. Political and Practical Aspects

Whilst there may be relative clarity in respect of the theoretical aspects of co-jurisdiction, the practical process of designing and implementing co-jurisdiction involves a number of political and practical difficulties that may confront the process.

Successful co-jurisdiction ultimately requires political agreement at a cabinet level because it involves competing jurisdiction and philosophies across ministries.

- **Competing philosophies:** A scope for conflict between ministries emerges as a result of the competing philosophies that frequently exist between competition authorities and sector regulators. Arguably in most jurisdictions competition law is primarily or exclusively concerned with economic efficiency. It is rare to find competition authorities being provided with scope to include broader public interest considerations in their decision-making. In contrast, sector regulators typically oversee infrastructure services that are also important social services provided by Government, including communication, transport, energy and water. As a social service, sector regulators usually have a strong mandate to include broader public interest – in particular universal service – in their decision-making. The implication is that competition authorities and sector regulators may come to quite different decisions when presented with the same facts. Sector regulators are likely to have less faith in market forces delivering on these social mandates than competition authorities. The decision on the extent of jurisdiction of the competition law is therefore also one of the overarching philosophy adopted by Government. Extending the jurisdiction

of the competition authorities may by implication represent a move towards a default policy in favour of market forces.

- **Competing jurisdiction:** Typically sector-specific legislation and the oversight of regulators as agents of Government will be the responsibility of a ministry dedicated to that sector. Communications ministries will oversee communications legislation and the communications regulator. Competition authorities, as economy-wide initiatives, would typically fall within the responsibility of a ministry of economic affairs or trade and industry. Cooperation across ministries is required in order to align legislation. This is especially the case where sector regulation already exists before the introduction of competition law. There is also scope for conflict as sector ministries fail to appreciate the potential interference of competition authorities in sectors they oversee, especially if there are very different philosophies between the two. This goodwill between ministries is also necessary to operationalize aspects of the co-jurisdiction, in particular to avoid forum shopping and exchange information between the two regulators.

Successful co-jurisdiction also requires careful attention to the operational details of such co-jurisdiction if some of the potential pitfalls such as forum shopping are to be avoided. Such pitfalls may not be present where exclusive jurisdiction is exercised by the sector regulator as there is no need for the two regulators to cooperate and there is no scope for regulated entities to play the forum shopping game. Some of the practical aspects that typically emerge in debating the scope of co-jurisdiction may include questions such as:

- Should the competition authorities be able to find that existing regulations fall foul of the competition law? For instance, could regulated prices be deemed excessive or condoned price discrimination be deemed problematic?
- Should the competition authorities take up cases where the sector regulator is currently engaged in rule-making on that particular issue?
- How and when should the respective regulators work together on an issue? Is there a legal basis for sharing confidential information received from firms?

In a co-jurisdiction regime there will always be grey areas where it is not clear that the particular behaviour does in fact fall under a regulatory rule or not, and what the appropriate forum may be for resolving a dispute. At the very least there may be an incentive for the complainant or respondent to assert a grey area in order to forum-shop or delay proceedings. In

such cases it is necessary to have a forum whereby a formal decision is made as to who will take up the dispute. Precisely because these are grey areas, the formal resolution requires a clear rule base as to the procedure for how such a decision is reached and the range of factors to consider in making such a decision. This may be a ministerial decision or an operational memorandum of understanding between the two regulators.

Conclusion

The two global trends of introducing economy-wide antitrust legislation and nurturing entrants into

regulated public utilities creates a need to directly address the issue surrounding the jurisdiction of the competition law to regulated sectors. A number of different models exist from which to select, revolving essentially around the extension of the jurisdiction of the competition authority. In selecting amongst the different jurisdictional models, countries need to understand the implications of each model in terms of competing philosophies and scope for inter-ministerial conflict. Further, operationalizing a co-jurisdictional model also requires a focus to overcoming the real practical difficulties of facilitating interaction between the two regulators.



PART THREE:
BUILDING INSTITUTIONAL CAPACITIES FOR
INFRASTRUCTURE SERVICES REGULATION

3

X. CHARACTERIZING THE EFFICIENCY AND EFFECTIVENESS OF REGULATORY INSTITUTIONS

*Sandford Berg*¹⁵⁹

Introduction

One task facing analysts and policy-makers involves evaluating the impacts of particular features of regulatory institutions. Here, particular attention is given to methodologies for evaluating regulatory agencies, since regulatory governance is one of the key factors influencing sector outcomes.¹⁶⁰ There is strong evidence that regulatory institutions matter, as studies find positive links. For Example, Gutierrez (2003) shows that better regulatory systems (as characterized in an index) affect cost containment and telecommunications network deployment.¹⁶¹

A key issue is how to characterize a good regulatory regime. Many studies have utilized elements of regulatory processes or sources of agency legitimacy (decrees or legislation) as indicators of regulatory effectiveness. However, one could argue that the high performance of a sector is perhaps the best indicator of sound regulation. Of course, limited funding for the agency, lack of legal authority to obtain benchmarking data, or political interference could also explain poor sector performance—even if regulatory processes are otherwise sound. Also, poor management or union constraints could harm cost containment. So we cannot judge the regulator solely on the basis of *sector performance*—the entire regulatory system needs to be accounted for. Nevertheless, an undue emphasis on process should be avoided as well.

A number of methodologies have been utilized in characterizing regulatory systems. Seven are summarized below to illustrate the range of approaches and to direct attention to the fact that (independent) external groups are already evaluating agencies that implement national infrastructure policies. Extensive rankings of agencies have been prepared for states in both Brazil and India focusing on regulatory processes, for example. Another group surveyed high level decision-makers to obtain perceptions of about regulatory and policy risk associated with Asia Pacific telecommunications. A number of groups have proposed regulatory assessment instruments that provide comparisons of legal systems and associated clarity of regulatory authority, regulatory autonomy, capacity-building, tariff design, financial sustainability of the agency, and regulatory strategies towards key stakeholders.¹⁶² We can expect to see these methodologies utilized by international organizations and investors as they evaluate prospects in developed and developing countries. Features of these approaches are described below.

1. WRI Good Governance Indicators: Transparency, Participation, Accountability and Capacity¹⁶³

This initiative, funded by the World Resources Institute, establishes a set of sixteen policy indicators and fifteen regulatory indicators, focusing on social and environmental implications of processes. A complete listing is provided later in this report. There are four to eight elements driving each indicator. For example, the “Effective functioning of the legislative committee” indicator is evaluated in terms of eight elements: (1) disclosure of interests, (2) active committee, (3) reasoned reports, (4) proactive committee, (5) public consultations, (6) transparency of submissions to committee, (7) transparency of committee reports, and (8) reporting by executive. The emphasis on process is understandable, but the level of detail required for data collection seems excessive. Developed to evaluate Indian electricity regulatory commissions (and then extended to several nations), the framework provides a thorough set of indicators. However, assessing decisions and sector performance would seem to be crucial if one were to gauge the actual effectiveness of regulation. The WRI approach by itself could be viewed as elevating form over substance.

2. Regulatory Governance: Autonomy, Decision-Making, Decision Tools, Accountability—Assessment and Measurement of Brazilian Regulators¹⁶⁴

With support from the World Bank and PPIAF, a team of Brazilian researchers developed an assessment tool that was then applied to twenty-one regulatory agencies in that nation. Agencies were ranked based on agency design and regulatory processes. The tool evaluated four main categories (where the number of questions is shown in parentheses): I. Autonomy (26); II. Decision-making (22); III. Decision tools (27); and IV. Accountability/Control (21). There are a total of 96 questions, but indicators are also based on subsets: a regulatory governance index (83), a more parsimonious index (43) and a de facto index (28). The entire set is very comprehensive. For example, IV-21 in the Accountability category asks the time it takes for the agency to make a decision: the interviewer seeks maximum, minimum, mean, and mode (within four categories): up to one month, one to six, six to twelve, more than twelve months. Similarly, Autonomy asks about ministerial interference (I-5 and I-7), the jobs directors held prior to appointments (I-21) and their post-term jobs (I-24). In the Decision-making area, the survey asks who makes ten different types of decisions (II-2), where different weights are given to the seven authorities listed. Thus, the survey is very comprehensive, providing a vast amount of information

on processes. This assessment tool resembles the WRI approach. Determining the weights to be given the myriad of factors is a difficult task.

3. World Governance Assessment – Surveying Local Stakeholders¹⁶⁵

The World Governance Assessment (WGA) started at the United Nations University in 1999 and has been operating as a project at the Overseas Development Institute in London since 2004: sixteen countries are evaluated in their large study, focusing on six principles in six areas. A book, reports results from a questionnaire that utilizes 41 questions and is divided into 7 parts. The project involves a country reporter who interviews leaders from ten stakeholder groups: Government, Parliament Civil Service, Business Media, Religious Organizations, the Legal and judicial field, Institutions of higher education, Non-governmental Organizations, and International Organizations. As such, the compilations represent comprehensive evaluations of the policy process. There is no focus on performance: the research “examines rules rather than results.” The six principles, reflecting universal values inspired by the Universal Declaration of Human Rights, are (1) participation, (2) fairness, (3) decency, (4) accountability, (5) transparency, and (6) efficiency. The Team created proxy indicators for these concepts. Field tested twice, the instrument continues to evolve. Thus, the framework is particularly useful for characterizing the divergent perspectives of different stakeholder groups, focusing on political morality rather than economic efficiency.

Another application of stakeholder surveys involves the evaluation of Asia Pacific telecommunications regulatory agencies. The *Telecom Regulatory Environment* (TRE) Survey covers eight Asian economies (India, Pakistan, Bangladesh, Sri Lanka, Maldives, Thailand, Indonesia, and the Philippines). Surveys are given to senior level decision-makers who have a high level of knowledge about the regulatory and policy environment in their nations (e.g. CEOs and CFOs). Agencies are then given scores based on these stakeholder perceptions about seven dimensions of regulatory reform affecting conditions in mobile, fixed, and broadband (each assessed separately): market entry, access to scarce resources (such as spectrum), interconnection, tariff regulations, anti-competitive practices, universal service obligations, and quality of services. LIRNEasia (a non-profit research organization that conducts the surveys) reports that the organization obtained 416 responses from senior level stakeholders for the 2008 expanded questionnaire.¹⁶⁶ The responses (based on a Likert scale of 1 to 5, with 5 being highly satisfactory) enable analysts to track perceived regulatory risk in this sector over time and

across countries. The information should be useful to those considering making investments in these countries. Similar information-gathering processes are likely to arise in other regions and other sectors, as market participants seek comprehensive, quantitative indicators of the regulatory environment.

4. Actors, Arenas and Policies¹⁶⁷

An Inter-American Development Bank (IADB) project examines the political economy of factors affecting sector productivity. While the study applies to any sector, the framework offers valuable perspectives on performance. This approach to evaluating the performance of economic institutions focuses on “stories” that emerge from different perspectives. The research team proposes to gather information from participants representing key socioeconomic interests, using structured. Their multi-dimensional matrix includes (1) Political Actors (key socioeconomic interests), (2) Mechanisms utilized by socioeconomic actors in their political demands (including campaign contributions and media campaigns), (3) Venues: arenas of the policymaking process, (including political institutions), and (4) Policy domains (policy areas—time frames, institutions, and historical context). The framework will be utilized by the IADB for a project on “The Political Economy of Productivity.” The focus is on developing an understanding of the political economy environment which affects both regulatory processes and sector performance.

5. Institutional Assessment: Sector Laws, Policies, Administration and Performance¹⁶⁸

A World Bank-funded study of the water sector by Saleth and Dinar contains a comprehensive questionnaire to be administered to country experts, specialists, and policymakers. The questions are general enough to be applied to other infrastructure sectors. The purpose of the instrument was to obtain a cross section of information on national characteristics. The questions ask about Water Law, Water Policy, and Water Administration. The resulting indicators are then used to link institutions to actual sector performance. Here, performance is taken to be multidimensional: physical performance (supply and demand), operational performance (ease of making sector allocations and production efficiency), and financial performance (cost recovery and pricing efficiency). The approach underscores the importance of moving beyond issues of accountability, transparency, and inter-agency conflict resolution to outcomes. Policies are based on the law, and the administration/implementation of those policies determines sector performance. The framework yielded a database that was used

in subsequent empirical research. The approach illustrates the value of evaluating an entire regulatory system rather than focusing only on processes utilized by a sector regulator. It also demonstrates that qualitative information can be incorporated into econometric studies. Thus, it provides a useful basis for subsequent policy analyses.

6. Drivers of Change: Sector Governance and Political Economy¹⁶⁹

The United Kingdom Department for International Development funded the Overseas Development Institute to develop a framework for evaluating how donor groups can evaluate (and improve) governance in the water sector. The methodology applies to other infrastructure sectors as well. The project adopted an interdisciplinary approach to governance: emphasizing the changing role of Government, the impacts of institutional complexity, and relationships among different levels of Government, key actors, and civil society. The Drivers of Change approach asks six questions. Besides considering process issues, the framework identifies sector drivers of change. It also acknowledges the importance of incentives in determining sector outcomes: (1) Who determines who gets what, where, and how? (2) What are the incentives that influence these actors? (3) What are the external factors that interact with these incentives? (4) How do these change over time? Key issues include government effectiveness, financial management, transparency, engagement of civil society, and pro-poor policies. Thus, the framework emphasizes the “big picture.”

7. Infrastructure Regulatory Systems¹⁷⁰

This World Bank book by Brown, Stern, and Tenenbaum (BST) is the “gold standard” for assessing the effectiveness of infrastructure regulatory systems. The volume provides a comprehensive listing of critical standards, carefully defines terms, and provides numerous links to the literature. Three types of evaluations are included in the volume’s appendices. The increasing level of detail provides insights into institutional design, the regulatory process, market structure, and other features of the electricity industry. The questions could be adapted to address issues in other infrastructure sectors as well. The purpose of the assessment tool is to extract background information and to highlight areas of concern. The approach incorporates regulatory governance/process indicators into the survey; however, the surveys include a number of questions about market structure as well. Furthermore, the volume emphasizes the importance regulatory decisions. Rules and incentives affect actual infrastructure performance. The emphasis on both

substance and *process* gives the framework a balance that is lacking in some other survey instruments. It is good to know the role of citizen participation or the clarity of regulatory responsibilities. However, if the analysis gives minimal attention to actual sector performance, the implications for reform are limited.

In addition, more comprehensive studies can investigate links between components of the index and sector performance.¹⁷¹ The authors develop a regulatory experience index that reflects the gradual impact of effective regulatory governance over time. Based on their econometric modeling effort, the authors conclude that the index has a strong positive impact on electricity distribution company performance. We can expect more comprehensive studies in the future, given the growing availability of time series data on regulatory governance and sector performance.

Conclusions

As we have seen, some approaches emphasize governance based on the design of regulatory institutions, some focus on the process (especially on transparency and citizen participation), and others highlight how incentives link to sector performance. Figure 1 from Berg (2000) identifies factors affecting infrastructure performance and citizen perceptions—especially (a) the legitimacy of regulatory institutions from the standpoint of investors, multilateral banks, and donors, and (b) the credibility of the agency in the eye of citizens (both those receiving service and those as yet un-served).¹⁷² The article outlined how organizational resources, the legal mandate, and core agency values affected decisions that determine structure, behavior and performance in regulated industries. The figure illustrates the factors influencing sector performance. Actual performance, in conjunction with national priorities (promised performance) affects the legitimacy and credibility of the regulatory system. Note the many factors other than regulatory governance (agency design and processes) that affect sector performance.

The framework depicted in the figure facilitates the identification of links between industry conditions (including economies of scale and scope), market structure (including vertical integration), institutional constraints, regulatory policies, and sector performance. Quantitative analyses of trends are facilitated when decisions can be placed in their legal and institutional context. Given the range of methodologies available to policy analysts, we can expect national regulatory systems to be benchmarked more systematically as the financial community, international donor agencies, and citizen groups expand their work in this area.¹⁷³ The number of surveys and quantitative studies seems to grow

exponentially. The Brown, Stern, and Tenenbaum (BST) framework is particularly useful for characterizing the elements of the regulatory system that are more easily quantifiable: the skeleton of the system. Stories (or narratives) are also needed to gauge the muscle that overlays the skeleton and of the health of the body's organs. Thus, each of the methodologies outlined above sheds light on processes (and often, on performance).

Sustainable sector outcomes generally reflect the "Five Cs" of a sound regulatory system. These are strategies for engaging the public and policymakers:

- **Coherence:** Establish the tariffs according to the required output and levels of service quality; seek mechanisms for promoting access by low-income consumers. Reality-based business plans are crucial for long term financial sustainability of infrastructure service providers.
- **Creativity:** Support incentives for cost-containment and new technologies for sector providers. Social tariffs and subsidies are required to facilitate universal access to low-income consumers. The non-served groups also need to be reached with innovative solutions as operators expand access to services.
- **Communication:** Serve as a catalyst for bringing together different infrastructure stakeholders. Proactive regulators can reduce social conflicts in these sectors. Agencies have to consider all stakeholders and their key concerns when making decisions. For example, consumers are the first (not the last) to be consulted in network expansion decisions. Regulators need to be able to communicate strategically, without being perceived as stepping into the political arena.
- **Collaboration:** Promote interactions with related agencies and organizations; for example, for water this would include water resource managers, social service organizations, public health agencies, and environmental groups. Furthermore, collaborations with agencies in other countries can strengthen regulatory capacity, as lessons and data are shared.
- **Credibility:** Seek transparency and consistency in the regulatory process, since cash flow will be driven by future decisions. The new agency's credibility depends heavily on data collection and analysis. Regulators need to document past trends, define baselines, and identify reasonable targets—based on current best practice.

These principles are neither new nor original, but when they are ignored by those developing and implementing policy, the results can be damaging.

For example, predictability and transparency are two elements lacking in many regulatory jurisdictions. Regulators need to be consistent in both process and in the substance of decisions. Transparency implies clear rules and functions that give operators confidence in the professionalism of those providing oversight. The public is seldom fully aware of current infrastructure policies and rules. Best practice regulatory institutions need to take a more active role in educating the public and in communicating sector developments to all stakeholders. It is said that "the fewer the facts, the stronger the opinion." One way to reduce the divisive role of rhetoric is to introduce information about the costs and benefits of different policy options. If the regulatory process is transparent, stakeholders (including political leaders) will better understand regulatory decisions. Furthermore, regulatory incentives can have different impacts on public and private utilities.¹⁷⁴

Brown, Stern, and Tenenbaum (2006) emphasize three meta-principles: *Credibility*, *Legitimacy*, and *Transparency*. In addition, the authors implicitly recognize *Efficiency* as a fourth meta-principle. After all, if policy can create a positive-sum game, then it is easier to get buy-in from stakeholders. After all, increased efficiency in the sector means that more resources can be devoted to poverty alleviation without creating new fiscal burdens. While far more politicians have run on a platform of fairness than on efficiency, the latter deserves to be highlighted in evaluations of regulatory performance.

Ultimately, the credibility and legitimacy of a government agency depend on the acceptance and understanding of the regulatory process by the consumers and other stakeholders. The population that is expecting to receive services is directly affected by tariffs and quality of service. The impact of infrastructure reform depends on national circumstances, income distribution and growth, and the legal system. Legitimacy, and some degree of social acceptance, will only be achieved on a record of accomplishments. Staff expertise, learning from regulatory experiences elsewhere, and the use of regulatory instruments like benchmarking are the basis for the future infrastructure improvements and poverty reduction in emerging markets.

XI. REFORM OF UTILITIES REGULATION IN JAMAICA: 1997-2010, A SYNOPSIS

Andsord Hewitt¹⁷⁵

Introduction

This report seeks to provide a brief summary of the progress of reform in Jamaica's utilities sector after more than a decade of independent regulation by a multi-sector regulator. It also outlines the legal and institutional framework for utilities regulation in Jamaica and focuses on the modus operandi of the Office of Utilities Regulation (OUR) in discharging its responsibilities. The importance of capacity building and multi-lateral and bilateral collaboration is also discussed. Further it explores the reasons for Jamaica's choice of the multi-sector model. The report also provides brief synopses of regulatory initiatives in telecommunications and electricity as examples of the progress of reform, highlighting achievements and important areas of focus for the present and future. It concludes by underscoring some of the shortcomings the OUR has identified in its operations and the initiatives that are being taken to overcome them.

1. Reform of Jamaica's Utilities

In theory, reform of public utilities tends to follow a linear path involving public ownership, privatization, regulation and competition. The progress of reform in a country's utilities sectors is therefore typically measured by focusing on the extent and presence of these indicators. By these measures, Jamaica boasts mixed performance in terms of three of its major utilities – telecommunication, electricity and water and sewerage.

In telecommunication or to be more current (the information and communication sector), on the face

of it, reform has run its full course. It started with privatization in the last half of the 1980s followed by the introduction of competition and provision for independent regulation at the end of the 1990s and continues with current efforts to foster convergence and to facilitate market driven regulation.

Progress has also been made in the electricity sector, though admittedly less spectacular. Independent regulation was introduced in 1997 even while the sector was dominated by a state owned monopoly. Privatization took place in 2001 with provision for the introduction of competition limited to the generation side of the market as of March 2003. The sector is subject to incentive based regulation and there is currently a push to ensure that there is diversity and competition in the provision of generation capacity.

The water and sewerage sector is still dominated by state ownership and is still largely a monopoly. Even here, however, some reform has taken place. The National Water Commission (the public owned monopoly) is subject to independent regulation and is required to charge cost based rates, improve service to customers and show increasing levels of efficiency. Since 2002 the Government has also encouraged the provision of water and sewerage services by private providers who are issued with licences to serve specific areas. Some seven (7) such providers are already established and providing service at rates approved by the regulator.

The matrix below provides a synopsis of the status of reform of Jamaica's major utilities.

2. Legal and Institutional Arrangements for Regulating Jamaica's Utilities

The legal framework for utilities regulation comprises a mix of instruments. The Office of Utilities Regulation

Table XI.1. Status of Regulatory Reform in Jamaica Utilities Sector

Sector	Legal Instrument	Market Structure	Regulator	Rate Mechanism
Telecom	OUR Act 1995 Telecom Act 2000 FTC Act 1993 Licences	Fully liberalised	OUR FTC	Price Caps
Electricity	OUR Act, 1995 AllIsland Electricity Licence 2001	Generation liberalized All other elements monopoly	OUR	Price Caps
Water	OUR Act	Largely monopoly Limited private entry	OUR	Price Cap

Source : OUR.

Act 1995 (as amended) constitutes the umbrella legislation and as such is applicable to prescribed activities such as telecommunications, electricity and water and sewerage. This is supported by specific sector legislation, as in the case of telecommunications (the Telecommunications Act 2000 as amended) or instrument such as is the case in electricity (the All Island Electric Licence 2001). Regulation of the water sector is largely undertaken under the aegis of the OUR Act 1995 as amended. The dominant utility in the sector is also governed by the legislation by which it was constituted (the National Water Commission Act) and the regulations pursuant to it.

The OUR is tasked with the major responsibility for regulation of Jamaica's utility sector. The OUR has operated as multi-sector regulatory agency for well over a decade. The agency has responsibility for regulating water and sewerage, electricity, telecommunications, and transportation by road, land, and ferry. The OUR became operational in 1997. Its remit is set out in the Office of Utilities Regulation Act of 1995 (as amended) and the statutes and regulatory instruments specific to each regulated sector.

In addition to the OUR, there are other agencies charged with performing regulatory functions in Jamaica's utility sectors. The Fair Trading Commission (the competition or antitrust authority) for example, has oversight of competition issues throughout the entire economy except where its jurisdiction is expressly ousted. In telecommunications the Fair Trading Commission (FTC) is given expressed and concurrent jurisdiction with the OUR. In some instances the OUR is required to consult with the FTC and in others it is obliged to refer matters that are of competitive significance. Significantly the FTC's jurisdiction is expressly ousted in the electricity sector.

There is no expressed provision for the application of the FTC's authority in the water and sewerage sector but it is presumed that its general remit over competition matters would apply.

There is also a Spectrum Management Authority which operates as an agent of the Minister responsible for telecommunications for the purposes of allocating licensing and for planning and monitoring of spectrum. The Consumer Affairs Commission (CAC) also plays a part in ensuring that consumers of utility services are able to receive redress for perceived breaches.

Decisions of the OUR on telecommunications may be appealed to the Telecommunications Appeals Tribunal (TAT). Similarly there is also an Electricity Appeals Tribunal that hears appeal on electricity decisions relating to the monopoly service provider. Both tribunals are chaired by retired high court justices. The OUR decisions are also subject to judicial review and

regulated entities have not been reticent in initiating court actions although to date the OUR has had a 100% success record in such reviews.

3. Modus Operandi of the OUR

3.1. Organization Structure

The OUR is headed by a Director General and Deputy Directors General who together constitute the Office. The Office employs a technical and administrative staff to undertake the work required for the OUR to discharge its mandate. The technical personnel undertake the investigative and analytical work relating to the various utilities and provide the Office with the advice that it needs to make decisions.

The OUR Act sets out the means and terms on which the principal officers (Director General and Deputy Directors General), are to be appointed. The Director General is appointed by the Governor General on the recommendation of the Prime Minister. The Deputy Directors General is appointed by the Prime Minister on the recommendation of the responsible Minister. Members of the Office may be appointed for no less than three years and up to a maximum of seven years with eligibility for reappointments at the end of each term.

3.2. Independence

The OUR falls within the category of so called independent regulatory institutions. Although the notion of independence is sometimes hard to define, in the context of the OUR it is perhaps best illustrated in terms of the extent of autonomy that it enjoys in its decision making, the source of its funding, the lack of direct control by the political executive and the extent of its authority to exercise regulatory control over the providers of utility services.

Although the OUR is subject to the authority of the Executive to issue policy directives of a general nature, it is not part of the executive arm of the Government, subject to the day to day direction from Ministers. Its duties and functions are clearly delineated in the OUR Act and the sector specific legislation or instrument under which it exercises authority. In this regard, decisions taken by the OUR in fulfilling its regulatory duties are not subject to reversal by the political directorate. In keeping with the principles of natural justice however, there are provisions for appeal to both the courts and tribunals.

The extent of the OUR's independence was affirmed in a recent judgment by the Judicial Committee of the United Kingdom Privy Council (Jamaica highest court of appeal).¹⁷⁶ That matter essentially concerned an attempt by the then Minister responsible for

telecommunication, under the guise of giving general direction, to instruct the OUR to refrain from making a decision relating to mobile call termination rates. The OUR resisted the Ministerial Directive and one of the parties affected by the decision took the matter to court, asserting that the OUR was obliged to obey a lawful order by the Minister. At first instance the court ruled against the OUR and the matter was taken on appeal to the Jamaica Court of Appeal where the decision of the lower court was overruled. The matter then went for determination to the United Kingdom Privy Council which unanimously ruled in favour of the OUR's position. The authority for the OUR to act independent of the political directorate has therefore been upheld by Jamaica's highest court.

3.3. Funding

The OUR does not receive a subvention from the consolidated fund (treasury) to meet its budgetary requirement. Instead, its budget is funded by an annual levy on the various entities it regulates. The authority to make this levy is enshrined in law and the OUR can enforce payments through the courts. The levy payable by each regulated utility is determined by the OUR's estimate of the total annual cost of regulating each sector, and levied on the basis of applying weights derived from reported regulatory revenues.. Significantly the OUR's budget is subject to parliamentary scrutiny and as part of its transparency and accountability mechanism, the annual budget is also subject to public consultation and review by stakeholders. The OUR adopts this approach as part of its effort to ensure that it cannot be legitimately accused of failing to operate in a transparent manner or of lack of accountability.

3.4. Transparency

The OUR Act specifically requires the OUR to conduct its affairs transparently and to provide written explanation for each decision. A critical medium by which this is achieved is by the practice of engaging in public consultations. The OUR as a matter of policy and practice issues public consultation documents setting out its preliminary position on issues and soliciting the inputs of interested parties. It also publishes its decisions in written forms and by postings on its website and providing annual reports to parliament (an obligation under the OUR Act). This approach is vital because it ensures that the OUR fulfils its transparency obligation while maintaining the institution's legitimacy in the eyes of the Jamaican public. This process of public consultation also provides the OUR with the opportunity to elicit valuable advice from different interest groups. All documents produced by the OUR as part of its consultation process are published on its website at www.our.org.jm.

4. Capacity-Building and Multilateral and Bilateral Cooperation

A great deal of emphasis is placed on training and capacity building within the OUR. This is particularly important as the learning curve in utilities regulation is elongated. Typically approximately 7-10 per cent of the total budget is devoted to training and capacity building. New recruits are exposed to an intense mix of short term local and overseas training in all areas of utilities regulation. Additionally there is a deliberate effort to ensure that staff work closely with consultants who are engaged by the OUR so that there can be effective knowledge transfer. Indeed, a training component is generally built into each consultancy arrangement. There are also in-house sessions for knowledge transfer where those who have benefited from training opportunities are required to train other staff members.

The OUR has also benefited from the presence of visiting experts within the organization for an extended periods. During the early years of the OUR's operations, a telecommunications regulation expert from what was then the United Kingdom Office of Telecommunication (OFTEL) was seconded to work with the office for a two year period under a programme of assistance financed by the United Kingdom development assistance agency (DIFID). A former employee of the Canadian Radio-Television & Telecommunication Commission (CRTC) also served a two year stint at the OUR. This was facilitated through a Canadian International Development Agency (CIDA) funded facility. In addition to these the OUR has received capacity building assistance from a number of multilateral agencies notably the World Bank, United Nation Development Programme (UNDP), Inter-American Development Bank (IADB) and United States Trade and Development Agency(USTDA).

There is also close collaboration between the OUR and a number of regional and international organization as part of its recognition of the benefit of sharing experiences and information. It therefore participates in the various forums of the International Telecommunications Union (ITU), the World Energy Forum (WEF), and maintains close contact with such North American regulatory association as the National Association of Regulatory Utilities Commission (NARUC) as an Associate Member and the Federal Energy Regulatory Commission (FERC). Indeed the current Director General of the OUR is a member of a two NARUC committees, Gas and International Relations. OUR is also a member of the Commonwealth Telecommunications Organization (CTO) and an active participant in its multilateral cooperation venture, Programme for Development

and Training (PDT). At the regional level the OUR is a founding member of the Organization of Caribbean Utilities Regulators (OOCUR) and also participates in the activities of the Caribbean Telecommunications Union (CTU).

Participation in the CTO's PDT programme, the CTU and OOCUR has provided specific opportunities for co-operation on training and capacity building particularly through the hosting of regional programmes, sharing of information and conduct of peer reviews. A notable new initiative that is underway is that the OUR has agreed to host a regional database for OOCUR.

During the course of its operation the Office has also participated in programmes of exchange and mutual cooperation through exchange programmes with external counterparts. It has for example, participated in exchange programmes with both the Missouri and the Rhode Island State Public Utilities Commissions. A twinning arrangement between Jamaica and the United Republic of Tanzania is also far advanced and regionally there is a signed agreement between Jamaica and Guyana for sharing of information and expertise.

5. Jamaica's Choice of a Multi-Sector Model

The OUR operates a multi-sector model where a core staff consisting of: financial analysts, economists, engineers, consumer analysts, project officers, lawyers, information technologists, and public education specialists are deployed in large part, agnostically across all regulated sectors. The choice of the multi-sector model by Jamaica reflects a number of considerations.

Intuitively and in practice, the multi-sector model is more cost effective in terms of shared resources. At its most obvious, this is evident in the avoidance of duplication of fixed costs and or the rationalization of joint costs such as, office space, machinery, furniture, administrative and support staff, managerial staff and cross sector specialists. Clearly these are unavoidable costs that would be incurred for each regulator that is established and it can be argued that the existence of the OUR as a multi-sector agency eliminates the duplication and single impact as the case may be, of such costs. This is particularly important for a developing country such as Jamaica with limited fiscal resources.

To provide some practical personnel examples, the OUR since its operation has employed one Director of Regulation and Policy who directs a team of professional economists, financial analysts and engineers to carry out the mandate of the Office across all the regulated sectors. Notably as well, since its inception the OUR has been served by no

more than three attorneys at any one time who are expected to have developed expertise across all the regulated sectors. Since research suggests that this is pretty much in line with the typical complement for a single sector regulator of comparable staff size, the cost savings are obvious. It is also the case that within the OUR, other critical functions such as Secretary to the Office and Manager of Regulatory Affairs are also shared across sectors resulting in significantly lower unit cost than would have obtained for a single sector regulator.

The scope for cross training and cross sector allocation of staff has also been a boon for the OUR as this has allowed it to operate with a minimum set of core professionals. This is possible because it is anticipated (and this has in fact been the case) that the regulated sector do not all require the OUR's attention with the same level of intensity at any given time. This has therefore afforded the option to encourage some level of specialization in respect of a particular sector but also the freedom to deploy staff according to work requirement in other sectors. The advantage of this has been that while it has to be ensured that there is a large enough staff to treat with peak load regulatory requirement (or allow for outsourcing) the OUR does not have to be concerned that a lull in regulatory activities in one sector will lead to under utilization of staff.

The multi-sector structure has also proven beneficial in making the best use of training opportunities. A number of the training courses offered to regulators (Public Utilities Resource Centre (PURC), Institute for Public Private Partnership (IP3), NARUC cuts across the various regulated utilities. Invariably, sector specific utilities regulators attending such courses will experience some downtime, but the OUR's staff has no such difficulties.

The multi-sector model also facilitates the leveraging of experience, research and expertise from one regulated sector to another. For example, much of the experience gained in telecommunications has been applied in the regulation of the other sectors. The experience gained from the development of incentive-based regulation in telecommunications is proving particularly useful in the development of similar mechanisms for electricity. A similar observation can be made with respect to the derivation of cost of capital. The Office had employed consultants to derive cost of capital for the telecommunications sector at the beginning of liberalization. Following on the knowledge transfer from working with the consultant on this project, the OUR's specialists have gone on to modify the model to repeatedly determine cost of capitals for application in both the electricity and water sectors. The principle also applies in

respect of the advantage to the OUR of applying a similar methodology across sectors for such activities as public consultation and education.

The reality of a limited skill pool from which to draw especially in the context of the highly specialized requirements of utilities regulation and the constraints of developing country was and is a critical consideration in Jamaica's choice and retention of the multi-sector model. The OUR's experience so far is that it is often difficult to find the specific expertise required to discharge its mandate. It is logical to assume that this problem would be compounded by the presence of disparate sector specific regulators.

The advantage of having diversity in funding is another area in which the multi-sector model has afforded the OUR an advantage and provides support for its retention. At various points in its thirteen-year history, one regulated entity or another has attempted to hold the OUR to ransom by withholding the payment of regulatory fees ostensibly because of disaffection with a ruling. In the medium to long-term, such actions are clearly not sustainable as the OUR can resort either to court actions to recover its costs or in the extreme to make recommendations for licence cancellation. It is arguable however that were it the case, that it was operating as a single sector regulator in an industry with one or a few large regulated entities, the short term disruptions to its cash flows occasioned by such actions would at the least threaten its stability.

The argument has also been proffered and merit consideration that the so called 'embeddedness' of the OUR in terms of the spread of its influence across ministries and regulated sector makes the agency far less susceptible to being captured and been driven by the agenda of any one Minister. Put another way, it is argued that considerations about the effect upon other sectors and the implications for the responsibilities of colleague's ministers may serve to restrain the extent to which an individual minister may be allowed to pursue a personal agenda with respect to the operation of the regulator.

6. Specific Sector Initiatives

The work carried out by the OUR can be catalogued under two broad headings, economic regulation of utilities and consumer protection. Economic regulation runs the gamut from providing advice on licensing and drafting regulation, to reviewing and approving tariffs. Consumer protection is provided indirectly via good economic regulation but the OUR is also required to provide explicit consumer protection particular with regard to safety and quality of service. This is accomplished through its Consumer and Public Affairs (CPA) Division which inter alia:

receives and investigates appeals by consumers against utilities, recommends and prescribes quality of service rules, establish guaranteed standards and compensation levels for breaches, prescribes procedures for addressing complaints and monitors the performance of utilities with regard to consumer complaints. Performance monitoring records are made available to the public as a matter of routine.

6.1. Telecommunications

Since its establishment, The Office has done seminal work in the regulation of the telecommunications sector. The OUR provided critical analyses in telecommunication from 1997-2000 on rate reviews submitted annually by Cable and Wireless Jamaica (up to then a monopoly) under a rate of return regime. Up to that point the Minister responsible for Telecommunications was vested with the legal authority to approve tariffs.

In 2000, the telecommunications sector was liberalized and the OUR's authority to regulate telecommunications was reaffirmed with the passing of the Telecommunication Act 2000. Since then the agency has successfully presided over a three-year phased liberalization process which concluded in March 2003. Among the major achievements have been:

- successful management of competitive entry into a range of telecommunications service markets including mobile, fixed telephony, provision of broadband services and the provision of a range of data services (Tables XI. 2 and XI.3 with indicative data on the kind of growth and expansion that has taken place);
- implementation of a price cap regime for the incumbent provider;
- attainment of over 100 per cent teledensity in term of voice call;
- the establishment of a regime for interconnection that has provided the basis for the successfully entry and expanded access cited above;
- expanded broadband build out and access;

Table XI.2. Mobile Subscriber and Penetration Rates (2005-2009)

Year	Subscribers	Penetration %
2005	1,981,464	74.5
2006	2,274,650	85.1
2007	2,691,104	100.6
2008	2,723,323	101.2
2009**	2,820,442	104.7

Source : OUR/Providers

Table XI.3. Mobile & Internet Subscribers

Year	Mobile		Internet	
	Prepaid	Postpaid	Narrowband	Broadband
2009	2,734,418	86,024	2,427	104,677

Source : OUR/Providers

- lower real charges for telecommunication services (Figures XI.1 and XI.2¹⁷⁷);
- ongoing roll out of new technology and modern services
- diversification of international routes with significant increase in available international fiber capacity.

Having regards to all of the above, the OUR was able to express the view in its 2010/2011 Corporate Plan that with: the drive to expand and modernize networks, introduce new services, adopt emerging technologies, employment of a variety of innovative marketing strategies, significant roll out of 3G networks and the offering of converged services, Jamaica can boast that it has a cutting edge national telecommunications infrastructure that should be a catalyst for increased investment. Even so however there are still a number of regulatory issues to be addressed.

Notably among these is the objective of ensuring ubiquitous broadband access as it has been concluded that this should be the new frontier for universal service now that the problem of voice access has been addressed. Closely aligned with this objective is that the Government of Jamaica is also embarking on a policy aimed at establishing Jamaica as a telecommunications hub on the international digital highway.

There is also a range of competition issues to be addressed as there are indications that deadlocks regarding terms of interconnection and disputes regarding access to certain limited (bottleneck) facilities may be slowing down the roll out of some services notably Wireless Broadband. Additionally in recent years there has been a virtual mushrooming of suits and counter suits among investors in the telecommunications sector, a situation that has created some degree of uncertainty.

Among the initiatives underway to address some of the problems cited above is the promulgation of a new policy that takes account of the convergence of networks and services, promotes time bound decision making and emphasizes the use of regulatory instruments that rely more heavily on competition and market incentives to deliver benefits to the public. This policy is expected to be approved during this year and the attendant legislative changes are expected to be

embodied in a new Act, designated the Information and Communication Technology Act.

6.2. Electricity

The OUR's regulatory responsibility in the electricity sector encompasses; approval of retail rates for the Jamaica Public Service Company (JPS) which has monopoly over transmission and distribution and is also a participant in the generation market; management of the procurement process for new and replacement capacity, establishing the rules for the sale of energy and capacity by Independent Power Providers (IPP's) to JPS, ensuring efficient dispatch, monitoring service quality and ensuring compliance with terms and conditions of licenses.

The OUR has so far presided over the implementation of three price cap regimes for JPS, the most recent of which was effected in October 2009. The price cap arrangements have sought to provide JPS with incentives to minimize costs to consumers and to secure real improvement in service standards. Notable features of the regime that came into effect in October 2009 were: approval of an average tariff increase of 3% for electricity, concomitant increases in a number of efficiency targets in a bid to ensure lower real costs and better quality of service to customers. The tariff also made express provision for the JPS to undertake a loss reduction programme and to make its facilities more conducive to demand management by consumers. To this end, specific funding was made available for the implementation of smart meters as a step toward the establishment of a smart grid.

It is accepted that the existing statutory framework for the electricity sector provides very limited room for the OUR to employ competition as a means of securing real improvement in terms of lower prices and the delivery of service to consumers at the transmission and distribution level. Even so however, there is considerable scope for cost reduction by ensuring least cost competitive entry into the generation market and ensuring that such gains are passed on to consumers. In this regard the current emphasis for the OUR in the electricity sector is geared towards promoting:

- easy, transparent and fair process for entry to the generation market;
- combining evolving lower cost technologies with lower costs fuels;
- transparent and fair dispatch;
- clear separation of costs and arms length dealings by the integrated generation, transmission and distribution company.

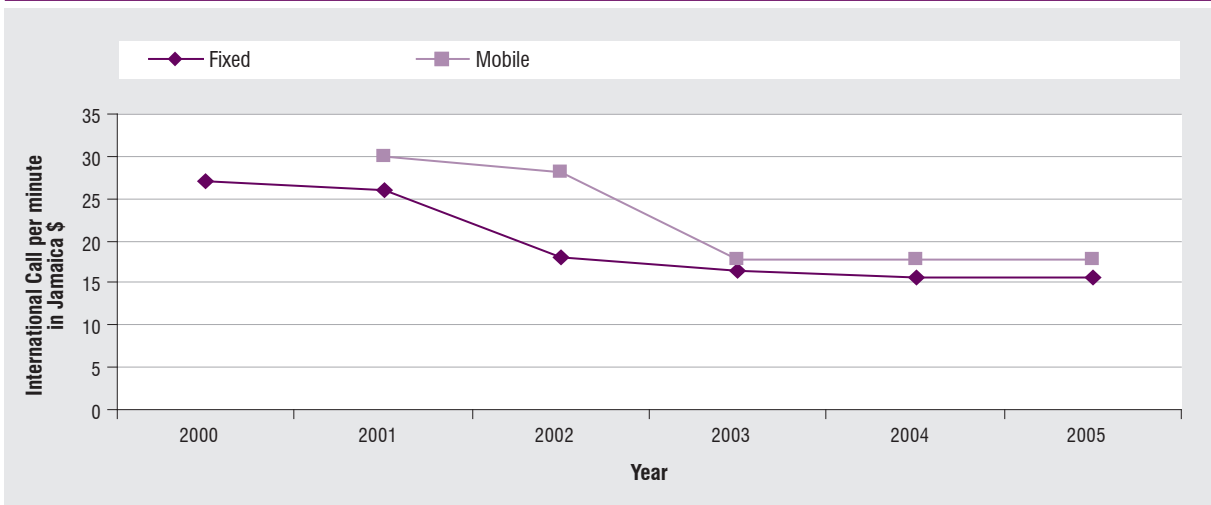
The OUR considers that careful attention to the above combined with strict monitoring of the incumbent JPS

under the hybrid price cap model are likely to deliver increasing benefits for consumers over the medium to long term.

7. Difficulties, Challenges and Proposed Resolutions

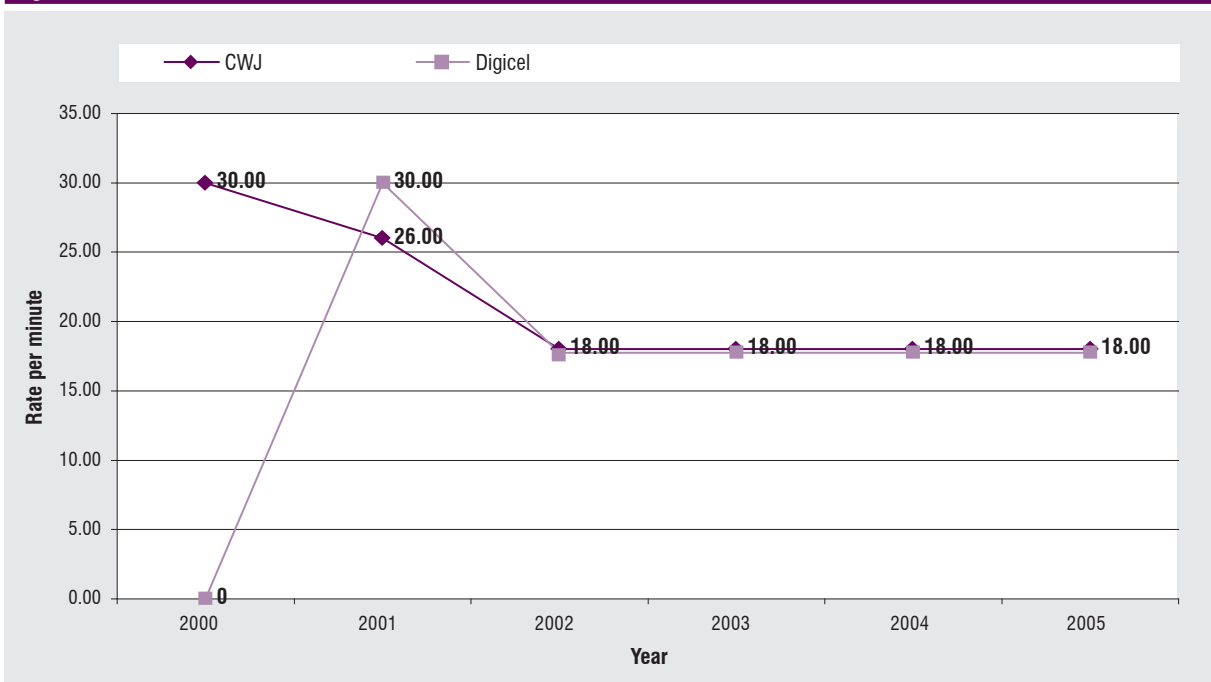
In an internal diagnostic exercise undertaken in 2009 the OUR concluded that despite its achievements, there was still a number of factors operating as hindrances to its effective operation and that these could pose threats to its sustainability. Some of these

Figure XI.1. International calling rates (J\$ per minute)



Source: Office of Utilities Regulation.

Figure XI.2. International calls to United States



issues and the steps that have been taken to address them are summarized below.

7.1. Weaknesses in Regulatory Framework

While the OUR regulatory framework may have been quite appropriate at the onset of liberalization the review indicated that it is now suffering from a number of weaknesses and is the subject of gaming by a number of licensees. The absence of a graduated scale of sanctions to apply to non-conforming entities was highlighted as a case in point. The upshot of this was that a number of the utilities were simply ignoring directives from the OUR or resorting to delaying tactics.

As part of its efforts to address the above the OUR is currently seeking an overhaul of the OUR Act to strengthen its authority and to close loopholes that have become obvious with experience. The proposed revision of the OUR Act contains recommendations to allow the OUR increased authority to issue orders to regulate entities and to intervene in disputes between utilities where such a dispute is likely to lead to service disruptions.

7.2. Absence of Comprehensive Integrated Database

It was concluded that the absence of a comprehensive relational database placed considerable limit on the OUR's ability to effectively and efficiently discharge its regulatory mandate, a vital part of which is to monitor the efficiency and performance of regulated utilities on a timely basis. The OUR had a fragmented information system which was conducive to loss of critical information and inconsistencies in data segments. In this regard it was determined that an appropriate relational database engine and related applications was a critical requirement. That initiative is currently under way and is expected to be completed well before the end of this year.

7.3. Uncompetitive Compensation Packages

The diagnostic exercise found that although the OUR was required to carry out highly specialized tasks which requires it to retain key staff with technical skills that are superior to or equal with those that reside within the utilities that it regulates, compensation packages were uncompetitive compared with equivalent agencies in a bench mark survey. This

was the case because the OUR was being treated as part of the traditional civil service and as such was subject to public sector compensation strictures. As a consequence the agency was suffering from staff attrition and was at risk of further staff losses. The institution was also experiencing difficulties in attracting experienced middle level or senior staff and as a result has had to opt for young professionals. Such recruits were then exposed to an excellent training program to improve their competencies but would leave as soon as certain levels of competencies were attained.

Consequent on the presentation of the above findings and persistent submissions, the Government has indicated that it is favourably disposed to allowing the OUR greater flexibility in its compensation packages. Such a policy if followed through should allow some leeway for addressing the imbalances and afford the OUR the opportunity to establish and retain a core of critical regulatory professionals.

Conclusion

The reform of utilities in Jamaica pretty much tracks developments in other places. As would be expected the telecommunication sector has been most dynamic. There is still significant scope for reform in the electricity sector although the decision to retain monopoly on transmission and distribution (logical as it may have been given certain natural constraint) imposes a limit on options. Even so OUR is finding that vigilance at ensuring competitive entry at the generation level and close monitoring surveillance of the operations of the integrated transmission and distribution monopoly and insistence on constant service improvement still hold the potential to deliver a boon for consumers.

From all appearances the multi-sector model has worked well for Jamaica bolstered by the agency's emphasis on capacity building and collaboration. Evident gains have also been secured in both the telecommunications and the electricity sectors. Even so however the OUR's own analysis indicates shortcomings, some of which are outside its control. The OUR is attending to the matters within its control and has received assurances from the Executive that the other deficiencies will be addressed in short order.

XII. DEVELOPING REGULATORY CAPACITY IN THE CARIBBEAN

Rita Persaud-Kong¹⁷⁸

Introduction

It is well recognized that there is no 'one size fits all' approach to developing capacity as Regulators would have different needs over time and this impacts on development at the national and regional level.

This paper therefore considers developing utility regulatory capacity in the Caribbean at national level, each Regulator's institutional and legal framework, organizational and human resource development, governance and at the regional level, harmonized regulators with regional advisory board and organization of regulators focusing on research, training and sharing of information.

1. Developing Capacity

From the numerous definitions given to the term 'developing capacity' the more comprehensive or holistic approach is preferred.¹⁷⁹ Developing capacity is the total organized effort to ensure that the Regulator fulfills its mandate efficiently, effectively and sustainably at the following levels:

- Institutional and Legal Framework, the law which enables the Regulator to carry out its functions and achieve its objectives;
- Organizational development, the establishment of management structures, operating and regulatory processes and procedures both internally and externally and
- Human resource development, the process of recruitment, individual education, training and access to information which would enable them to effectively perform.

2. Capacity at National Level

The challenge in utility regulation is how to attract investments, secure a balance of market power that ensures quality service at reasonable price and ensure reasonable return to investors.

The issue is consumer fear of potential market power abuse by investors and investors fear that Governments would use their regulatory powers to prevent them from recovering on their investments.

Caribbean countries in addressing these issues have established Regulators as corporate body by Act of Parliament (enabling Act).

Multi-Sector Regulators

In the Caribbean the Multi-sector Regulators are:

- Anguilla Public Utilities Commission (PUC) established by legislation as a body corporate.
- Bahamas Public Utilities Commission (PUC) established by legislation as a body corporate.
- Barbados Fair Trading Commission (FTC) established by legislation as a body corporate.
- Belize Public Utilities Commission (PUC) established by legislation as a body corporate.
- Jamaica Office of Utilities Regulation (OUR) established by legislation as a body corporate and
- Guyana Public Utilities Commission (PUC) established by legislation as a body corporate.¹⁸⁰

There is sector specific legislation for telecommunication/ICT in respect of all the Multi-sector regulators.

Duopoly and Single Sector Regulators

The Trinidad and Tobago Regulated Industries Commission (RIC) is established by legislation as a body corporate for the regulation of Electricity and Water.

The Telecommunications Authority of Trinidad and Tobago (TATT) is established by legislation as a body corporate for the regulation of Telecommunications/ICT.

The Independent Regulatory Commission (IRC) of Dominica is established by legislation as a body corporate for the regulation of Electricity.¹⁸¹

Institutional Framework & Regulators Functions

The Regulators must act independently in accordance with the provisions of the enabling Act. Failure to comply with the statutory provisions of the enabling Act and exceeding the powers granted could result in Judicial Review by the Courts of the Regulator's action.

Since every action of the Regulator can potentially be an action for Judicial Review or Appeal, the Regulators must develop processes, procedures, instruments and regulations necessary to carry out their functions by interpreting the enabling Acts and Regulations, by understanding the parameters of their powers, functions, role and responsibilities, and by conducting hearings, consultations and making decisions.

Provisions of the Enabling Act

These enabling Acts typically provide for the Regulator's Function, Role and Responsibility, Human Resource Structure and Development, Funding,

Financial & Accounting policy and reporting, Hearings and Consultation, Decisions, Determinations, Orders and Regulations, Monitor, Enforcements, Offences and Penalties, Appeals and ADR mechanisms.

Function, Role and Responsibility

Typically the functions of the Regulator are Rate and Tariff setting, Establishing Quality of Service Standards, Research and Reviews, Conduct Study of Efficiency, Grant Licences and Authorizations, Resolve Complaints, Encourage Competition, Monitor & Enforce Compliance, Conduct Hearings and Consultation and in the case of Telecommunications such additional functions relating to Spectrum Management, Interconnection, Numbering and Universal Service.

Develop Processes and Procedures

Developing Capacity requires a multi disciplinary analysis and approach which links several components in the development of the Processes, Procedures and Instruments necessary for the Regulator to carry out its mandate. Regulators in the Caribbean are in various stages of development and implementation of such Processes and Procedures in respect of their functions and responsibilities where some Regulators are more developed and other Regulators are at an initial stage of development. For example the OUR of Jamaica is in existence for ten year and has developed Processes, Procedures, Instruments, and Regulations while the IRC of Dominica was established two years ago and is now developing.

Decision-Making

Most decisions of the Regulator are based on an understanding of complex issues and even a decision to do nothing and to take no action is a decision.

The Regulator's decision in the Caribbean is arrived at through a process which must give the Stakeholders a right to be heard whether through a formal hearing process or through consultation¹⁸² as required by the enabling Acts.

Governance

Effective capacity building therefore would ensure good regulatory governance and conversely good governance in the area of utility regulation is assured where an appropriate capacity building model is in place. Good governance is generally considered in terms of clarity of function, autonomy, transparency, accountability, predictability and credibility.

Clarity

Since the Regulator's function, role and responsibility in the Caribbean are mandated by Statute, clear and unambiguous enabling Acts and an understanding in respect thereof are imperative to ensure good governance. For example in the Appeal case¹⁸³ between the OUR, the Minister, Digicel and Cable and Wireless where the Minister directed the OUR not to fix rates for interconnection or retail charges by any new mobile competitor and the OUR disregarded the directive and issued a Determination Notice on Interconnect Price Setting.

In an action by Digicel the Supreme Court of Jamaica ruled that the OUR acted *Ultra Vires* its statutory mandate and that its Determination was void and of no effect. The OUR then applied for Judicial Review of the Minister's Directive and the Supreme Court again ruled that the Minister acted within his powers and that the OUR breached the directive by the Minister.

The OUR Appealed and the Court of Appeal of Jamaica in overruling the Supreme Court held that the Ministerial direction of policy cannot override the enabling Acts namely the Office of Utilities Regulation Act and the Telecommunications Act which specifically directed the OUR to protect customers, promote fair competition and to fix rates, charges or price cap in respect of mobile interconnection and retail charges in the mobile cellular market.

The Minister's Direction was therefore *Ultra Vires* and of no effect since it sought to preclude the OUR from carrying out its Statutory duties. The several issues relating to governance and clarity of the enabling Acts informed discussions and the sharing of information and expertise at the OOCUR 2006 Seminar.¹⁸⁴

Autonomy

The degree of Independence of the Regulator in the performance of its functions free from political interference, the source of funding and remuneration of staff whether dependent on the approval of Government and the appointment and removal of the Regulator by Government are all issues which could affect the independence of the Regulator and could hinder good governance.

In the Caribbean the enabling Acts have provided for the Regulator's:

- Qualification to be in economics, finance, engineering, law, business human resource management and public administration
- Appointment for fixed term of office varying from 3-5 years, fixed reasons for removal
- Funding ranges from regulated fees from utility providers, government funding, licence and

authorization fees, fines and penalties.

Transparency

Regulators in the Caribbean have an obligation by their enabling Acts to be transparent, to consult, provide information, to explain and justify processes, methodologies, procedures and regulatory decisions to stakeholders.

The hearing process and the consultation process ensure that stakeholders and all relevant parties are able to contribute effectively to the regulatory process.

For example the RIC in conducting the electricity rate review in Trinidad and Tobago demonstrated its commitment to transparency in the consultation process as could be seen from the documented efforts to reach all stakeholders and to hear, consider and share all the views obtained.¹⁸⁵

Accountability

Areas of accountability are the Appeals and Judicial Review mechanisms and the submission of annual report to Parliament. The Regulators in the Caribbean comply on an annual basis with the statutory provisions for filing annual reports. The enabling Acts provides for appeals and Judicial Review in the Caribbean.

Predictability

The stakeholders need to have confidence that the Regulator would act consistently, that there are no surprises and that the “rules of the game” would not suddenly change. In the Caribbean, the Regulator’s enabling Act, Regulations and established processes and procedures allow for predictability of the Regulator’s actions.

Creditability

Additionally the enabling Acts in the Caribbean support the development of credible regulators by providing for the prevention of conflict of interest and for keeping information confidential.

Challenges

Some challenges to developing capacity on the national level are:

- the scarcity of utility regulation expertise in the region,
- utility regulators salaries and benefits are closely linked to relatively low state enterprise salaries and could only attract new graduates, and
- since utility regulation is a multi disciplinary task, the national Regulators spend training budget annually training staff in every aspect of utility regulation with the view of retaining these staff.

National Regulators have therefore the legal and institutional framework including the ability to provide good governance structures which would attract investments and encourage competition in the Caribbean.

National Regulators in developing capacity consistently access training through regional and international organizations and in particular through their support of the Organisation of Caribbean Utility Regulators.

3. Capacity at Regional Level

*Harmonization*¹⁸⁶

The dictionary defines harmonization as bringing things together or into harmony or to make things compatible.

Benefits of Harmonization

Some of the reasons advanced for harmonization are competition, transparency, efficiency, regulatory certainty and balance of the interests of individual member states with that of the region, information sharing and commitment for decisive action.

Challenges to Harmonization

Some of the challenges to harmonization are varied legal and regulatory frameworks, varied stages of liberalization and development and politically independent state with independent legal and judicial systems.

The Eastern Caribbean Telecommunications Authority (ECTEL) is an example of a harmonized utility regulatory system

ECTEL and Harmonization

Five countries of the Organization of the Eastern Caribbean States (OECS) Dominica, Grenada, St. Kitts & Nevis, St. Lucia and St. Vincent & The Grenadines (the Contracting States) in 2000 established by Treaty ECTEL to facilitate the harmonization of the Telecommunications regulatory regime of these countries.

The Contracting States undertook to put in their respective jurisdiction a Telecommunications regulatory body to be known as the National Telecommunications Regulatory Commission (NTRC) which would coordinate and liaise with ECTEL.

Each contracting state has enacted Telecommunications Act and established NTRCs based on the ECTEL model legislation and the NTRC is under the general direction and control of the Minister.

ECTEL is the regulatory advisory body to the NTRCs on almost all matters of Telecommunications regulations

and ECTEL and the NTRC liaise and work together to effect harmonized and efficient Telecommunications regulation for the member states.

ECTEL harmonized regulatory framework is therefore 'two-tiered'.

At the National Level each of the NTRC must liaise and consult with the ECTEL Directorate and the NTRC must act independently on all regulatory matters.

At the Regional Level each of the OECS independent states have ceded some of its sovereignty to ECTEL. ECTEL structure comprise of the Council of Ministers who formulate policy, the Board of Directors who implement policy and the Secretariat which administer the Treaty on a day to day basis.

It follows that under the ECTEL model, there is need for capacity building both at the National Level and the Regional level.

Caribbean Single Market and Economy (CSME) & Competition

The revised Treaty of Chaguaramas established the Caribbean Community (CARICOM) including CSME and Article 171 also established the Community Competition Commission.

Four countries Barbados, Jamaica, Guyana and Trinidad and Tobago have put in place competition legislation and established National Competition Commissions.

All these National Competition Commissions have similar institutional frameworks, functions and powers.

Each of these competition legislation provides for the Competition Commission to cooperate with their counterpart in member CARICOM state to investigate anti-competitive behavior and for appeal to the Community Competition Commission.

Organisation of Caribbean Utility Regulators (OOCUR)

OOCUR was established as a non-profit organization on 26th July 2002 by an agreement among its members.

Purpose and Objectives

The purpose and objectives of OOCUR are to assist in the improvement of utility regulation, to foster transparent and stable utility regulation through autonomous and independent regulators in member countries, to undertake research, training & development, to facilitate understanding of regulation issues and sharing of information and experience.

Structure

OOCUR structure comprise of the General Assembly, all the members who meet annually and formulate policy, the Executive Council whose members are elected annually from OOCUR membership and who implement policy and the Secretariat responsible for implementation of the annual work plan and day to day operations.

Membership

OOCUR is funded mainly through membership contributions.

Full Membership of OOCUR is open to regulatory bodies with responsibilities in telecommunications, electricity, natural gas, water and transportation sectors in the Caribbean.

Associate Membership of OOCUR is open to Non-Caribbean utility regulators and association of utility regulators.

Present members are:

- Eastern Caribbean Telecommunications Authority (ECTEL) (OECS)
- Fair Trading Commission (FTC) (Barbados)
- Office of Utilities Regulation (OUR) (Jamaica)
- Independent Regulatory Commission (IRC) Dominica
- Public Utilities Commission (PUC) (Anguilla)
- Public Utilities Commission (PUC) (Bahamas)
- Public Utilities Commission (PUC) (Belize)
- Public Utilities Commission (PUC) (Guyana)
- Regulated Industries Commission (RIC) (Trinidad & Tobago)
- Virgin Islands Public Services Commission (VIPSC) (United States Virgin Islands)
- Developing Capacity

OOCUR is a fledging organization and since inception it has developed a capacity to engage in 'self-learning by planting solid roots'.

Conferences

The first root is its well established Annual Conferences where we provide an opportunity for utility regulatory stakeholders to exchange ideas, share information and experience on the wide range of regulatory topics presented and generally to network and to foster greater understanding of issues and problems facing Regulators in the Caribbean.

Workshops & Seminars

The second root also well established is its Workshops and Seminars focused mainly on practical training for professional staff of the utility regulators.¹⁸⁷

Research & Training

The third root is developing the research capability which is so important in particular to the Regulator's price setting function and in the conduct of surveys, studies, evaluations and benchmarking. Developing Capacity in utility regulation is a continuing exercise more so because of the high rate of mobility of trained staff and the increasing cost for international training.

As a result the OOCUR General Assembly mandated that a feasibility study be conducted on the establishment and sustained operation of a proposed Caribbean Regulatory Research Centre (CRRC).

CRRC is intended to further deepen the collective regional capacity for utility regulation, an indigenous 'think tank' which would provide the opportunity for reflection and distance in terms of a space in which practitioners, researchers and academics could interface, share experiences and distil lessons learned for the future development and training of utility regulation in the region.¹⁸⁸ The CRRC study was completed in 2008 and the establishment of CRRC is in its planning stage.

Challenges

Some of the challenges are:

- Building the membership base to widen the sharing of information and to increase funding,
- Accessing regional/international aid funding for the establishing of CRRC and
- Facilitating members to ensure that the 'status quo' of being independent is maintained.

Conclusion

In the Caribbean, ECTEL has shown that harmonization is possible and necessary in the development of small markets. The importance of a framework for developing capacity of the Regulator whether harmonized or not, on the national level and the regional level, cannot be overemphasized. In particular, the framework should be developed and become a mainstream activity if the Regulator is to perform efficiently and effectively in a sustained manner.

Frameworks for developing capacity are in place on a national and regional level in the Caribbean with continuing efforts by OOCUR on the regional level to establish a regulatory research centre.

XIII. CAPACITY-BUILDING THROUGH TRAINING AND REGULATORY NETWORKING

Sandford V. Berg¹⁸⁹

Introduction

Training promotes professionalism and provides a technical foundation for sound regulatory decisions. Networks of regulatory agencies provide forums for promoting best practice. These associations facilitate sharing data and best-practice techniques, developing studies, providing training, distributing regulatory materials, and organizing meetings.

Regional networks of regulatory agencies have emerged as important players on the international scene: “These government networks are key features of world order in the 21st century. But they are under-appreciated, under-supported, and under-used to address the central problems of global governance.” (Slaughter, 2004: 159) Recent studies have identified the mix of organizational features characterizing these new networks: they are voluntary, consensus driven, generally lacking in formal treaty status, and (often) focus on technical issues where cross-nation learning (and tracking) is important.

One of the key features of inter-agency collaboration is the promotion of training. Education promotes professionalism. Although there are no easy solutions to regulatory problems, the application of core principles and methodologies promotes consistency in decision-making. By communicating a vision of sector performance, different stakeholder groups can appreciate how the regulatory commission is trying to balance a set of important objectives. Most observers would conclude that sustainable regulation requires technical skills, communication, and a clear vision.

In addition, training promotes renewal. Regulation is a potentially draining profession, drawing upon a number of disciplines include the law, finance,

accounting, economics, and management. Infrastructure issues are likely to be both political and technical in nature. Talented people find themselves fighting fires with obsolete fire-fighting equipment. Where can newly established agencies find the resources needed to develop fire-fighting equipment? Based on the author’s experience, agencies can identify local universities that have the capacity to offer regulation as a specialty: recruit their students, work with faculty, and create workshops that can energize the operations of regulatory organizations.

1. Context

Between 1990 and 2005, more than 200 regulatory commissions were created around the world (Brown, et al. 2006, p. xi). Thus, the growth of national regulatory commissions is well documented. The growth of regional regulatory networks that provide regional public goods related to infrastructure is less well documented. Regional regulatory networks are comprised of representatives from national regulatory bodies who have agreed to form an association or organization that facilitates collaborative activities. Since 1990, at least 19 associations have been formed to provide a variety of products: data for benchmarking, handbooks on regulatory best-practice, studies (including lessons regarding impacts of different policies), capacity-building for professional staff, materials for educating stakeholders, and sponsored meetings. Table XIII.1 lists some of these organizations by region. Information on founding dates is available in Berg-Horrall (2008).

Other types of organizations populate the field of regional collaborative groups. The networks can be divided into global, regional, and national in character; these can be further characterized having informal (networks and voluntary associations) and formal (agency-based or ministerial) features (as with the Eastern Caribbean Telecommunications Authority, ECTEL). In addition, some formal organizations are treaty-based or embedded in the United Nations,

Table XIII.1. Regulatory Organizations and Related Associations

	Global	Africa	Latin America	North America	Caribbean	Asia and Pacific	Europe	Island Nations
All Sectors	IFUR GRN	AFUR	—	CAMPUT NARUC	OOCUR	EAPIRF SAFIR	—	ACCC
Energy	IEA	RERA	OLADE ARIAE		—	—		—
Telecom	ITU	TRASA ARICEA WATRA	CITEL Regulatel		ECTEL	SATRC		—
Water	WWC IWA	WUP	ADERASA	AWWA	—	SEAWUN		—

International Telecommunications Union, European Union, Organization of American States and other international institutions.

2. Motivations

A number of motivations behind networking are noted below. In general, these organizations produce and share knowledge about infrastructure regulation; the basis is often physical links and the need for coordination, policy harmonization within regions, seed money for institution-building, and global vs. regional initiatives.

Physical Links and Coordination: The integration and modernization of a region's infrastructure (including energy, telecommunications, water/sanitation, and transport sectors) are often promoted as essential for sustainable economic and social development. Complementing physical networks are the networks of regulators which facilitate the sharing of information and experience among organizations facing similar challenges. Collaboration across national boundaries can improve regulatory strategies for establishing credibility and legitimacy for new governmental agencies responsible for monitoring infrastructure suppliers and implementing public policy. Prior to the creation of separate regulatory agencies, these tasks tended to be performed in a nontransparent way by government ministries. The same ministries often were responsible for the state-owned enterprises providing infrastructure services. Splitting regulatory agencies off from ministries was supposed to insulate those implementing policy from daily political pressures.

Policy Harmonization within Regions: The emergence of some regional regulatory networks has been stimulated by the need to close jurisdictional gaps by creating entities capable of coordinating national and regional actions and/or supplying advice to ministerial-level entities. Harmonization becomes the task for regional agencies.

External Seed Money for Institution-Building: For many associations from emerging nations, outside funding served as a key catalyst for establishing the organization—funding the creation of Web pages, travel for meetings, and organizational support. Of course, without local recognition of gains, the organizations would have been doomed to failure. Clearly, leaders of “infant” and “youthful” regulatory commissions saw benefits from more formal forums for information-sharing.

Global vs. Regional Interests: Some global institutions promote networking. The International Telecommunications Union (ITU, now with a UN affiliation) emerged to address specific industry issues and has branched out into other areas. Telegraph and

transoceanic messaging served as the catalyst for the ITU's creation in 1865. New technologies, the shift to privatization, and market liberalization have brought a new set of issues to the fore, so a revived ITU serves as a forum for Governments to reach consensus on policy harmonization. Some of the regional networks in telecommunications have their start in the ITU.

Almost all the regions of the world now have regulatory forums of one type or another. In some regions, many national regulators are multi-sector—leading to the creation of entities that promote interactions across all sectors (AFUR, OOCUR, EAPIRF, and SAFIR). Sector-specific regulatory networks tend to characterize some regions. For example, Latin America does not have a network of all regulators cutting across sectors, nor does Europe.

3. Outputs of Regulatory Networks

The primary outputs are discussed below:

- Events and meetings serve provide gathering-points for sharing ideas. Non-contributors can be excluded and congestion effects can arise to the extent that having a very large number of participants reduces candor and/or opportunities to raise questions. Although meetings can be supplied on a commercial basis, an event sponsored and organized by a network of regulators fills a unique niche in the array of events available to regulatory professionals.
- Data for benchmarking consist of cross sectional data that are used for comparisons—over time and across utilities. With information about what other utilities have been able to achieve with comparable inputs, the regulator is in a position to better establish targets, create incentives, and defend decisions. Access to benchmarking data reduces the information asymmetries characterizing typical regulatory situations. Of course, national regulators can exclude others for accessing the information (an excludable public good), but that runs counter to transparency and citizen participation in the process—reducing the legitimacy of the regulatory process. Developing templates for reports (and data definitions) does require collaboration or acceptance of formats developed by others.
- Public pronouncements made by regional regulatory networks are unlikely to be highly controversial, given the weakest-link technology. Nevertheless, such statements represent shared views on important issues, identify objectives (if not overall priorities), and provide guidelines for strengthening regulatory procedures. Public pronouncements are official statements, notices, or announcements that are recognized by authorities as providing principles that affect how regulators address issues

- Materials for stakeholders enable national regulatory commissions to educate and influence those affected by regulatory decisions. Establishing legitimacy for citizens and credibility for investors and ministries requires that agencies document procedures and methodologies. Such material represents another output that could be provided by external parties, including consultants funded by donor countries and multinational organizations. However, documents that are handed down by “outsiders” may not address the unique legal and other institutional features facing nations in a region. The World Bank has been very active in funding the development of such resources.¹⁹⁰
- Capacity-building for professional staff could be viewed as a good provided in a competitive market (Rufin, 2004). Capacity-building technologies exhibit significant sunk costs and scale economies in the production of relevant materials and classes. Congestion effects might be of minor importance. Thus, while pure market mechanisms might yield relatively efficient outcomes for some types of classes for professionals, there is a case for cost-effective delivery of specialized training via cooperative programs across nations. For example, the Organization of Caribbean Utility Regulators (OOCUR) has put on advanced training courses for regulators in the region in collaboration with the Public Utility Research Center (PURC). The Energy Regulators Regional Association (ERRA) has developed links with (Hungary’s Central European University (Regional Center for Energy Policy Research) to assist with training. LIRNE.NET (Learning Initiatives for Reforms on Network Economies) involves collaboration among eight organizations, sharing resources and engaging in capacity-building. The African Forum for Utility Regulators (AFUR) has worked with the University of Cape Town’s Graduate School of Business Management Program in Infrastructure Reform and Regulation for developing and delivering training. In South America, the Universidad Argentina de la Empresa (UADE) offers a post-graduate program in regulation; UADE collaborates with regulators in the region; in addition, the Universidad Austral (Buenos Aires) offers a post-graduate course in regulatory legislation. ADERASA, in collaboration with UADE, is developing an E-learning Program in Economic Regulation, available not only for its own members but for all stakeholders, including regulators for other sectors and utility staff (www.campusvirtual.aderasa.org). Similarly, the Florence School of Regulation (with EU funding) responded to training demands within the EU. Thus, universities have important roles, given their teaching capabilities and interest in translating principles into practice.¹⁹¹ Also, consulting firms provide training and certification programs.
- Best practice laws, procedures, and rules that address institutional and policy issues on a regional or global level are useful to particular regions and countries depending mainly on how valuable or applicable general solutions can fit specific regional situations. Current responsibilities of regulatory institutions involve a set of tasks ranging from awarding licenses or concessions, administering rules included in licenses such as tariff levels and adjustments, resolving disputes among the different stakeholders (especially incumbents and entrants—in terms of interconnections and access to bottleneck facilities), monitoring firms’ compliance with regulatory guidelines, and prosecuting and penalizing firms for noncompliance. The value of model laws will depend on how well they can be tailored to fit national contexts. The relevance and applicability of a model law determine the value of the output, but the use of less compatible information with particular institutional features could also contribute valuable information or guidance that helps to form the basis for action in accordance with the better-shot aggregation technology.
- Regulatory network news represents another product that is similar to events and training. Recent developments can be distilled and disseminated across countries. Professionals gain experience by contributing summaries of national developments—helping counterparts in other nations understand the implications of new rulings. Although information on new books, videos, and other educational material can be supplied competitively, regulator networks can screen, evaluate, synthesize, and promote the use of different types of material. Such evaluations are basically public goods—where the information might be shared informally (excludability possible) or through open Web sites.
- Technical studies regarding impacts of different policies provide lessons for particular regions or for all nations. Rufin (2004) identifies research as one of the valuable regional public goods in his review of infrastructure issues. Analysts provide technical studies that can assist regulators in reforming the design of regulatory institutions, processes, and incentives. Studies are often funded by (and sometimes conducted by) donor nations and international organizations. Studies prepared under research contracts or consulting projects are often made available on sponsoring organization Web sites. Since there is no general recipe for best practice regulation, studies that incorporate the national (legal) and other institutional constraints can lead to insights for regulatory commissions

facing similar circumstances.

Working together in regions has relatively low costs and provides opportunities for participation by those with technical skills. The “life-expectancy” of a typical commissioner might be less than four years; professional staff can benefit from capacity-building and the sharing of experiences. Thus, regional networks are able to balance clout of regulatory leaders with the continuity of personnel.

4. Questions for Consideration

Establishing a research agenda is idiosyncratic, and thus problematic; however, the following questions might serve as starting points:

- *What are the motives of the founding leaders of regional networks?* The self-interest of networking bureaucrats warrants greater attention. Are those officials who are most active in regional networking seeking greater visibility? Given the tendency for relatively short terms of sector commissioners, do the working professionals at the agencies provide initiative and continuity or are the regulatory leaders the ones most committed to networking, given their interest in gaining information quickly so they can be effective during their short tenures? Of related interest is the role of outsiders (academics, consulting firms, and operating companies) in the evolution of these networks.
- *What are the optimal funding sources and mechanisms for regulatory networks?* The case for further funding depends on incremental benefits exceeding incremental costs. Given the importance of stable, predictable, and transparent regulatory systems for infrastructure investment, performance improvements in just a few nations would justify the investments in regional data exchanges and sharing best practice techniques. However, that begs the question of whether the World Bank, regional development banks, or national aid agencies are best suited for funding and monitoring regional networks. One advantage of having multiple centers of initiative is that approaches suitable for particular regions will be developed—ultimately leading to transfer of best practice across networks.
- *What are the ultimate objectives of those providing seed money for these new organizations?* The motivations behind funding organizations raise some interesting and important issues. While the networks may be producing valuable outputs, the intentions of the actors involved in funding and advising the networks probably go beyond the efficient supply of services. For example, one likely objective for the World Bank’s and USAID’s early support for regulatory networks was improving the investment climate for private participation in infrastructure—which certainly can contribute to growth, but involved tilting multilateral and other funding away from state-owned enterprises.
- *Does embedding these networking organizations within larger institutions improve their performance?* Having an international umbrella organization (UN, EU, or OAS) might provide a funding source and expand the network’s influence. Alternatively, the associated bureaucracy might lead to less innovative activities by the organization. Another model is having sector umbrella organizations like the International Telecommunications Union, International Energy Agency, and World Water Council take initiative for supporting regional or global regulatory networks. The World Bank’s initial effort to create an International Forum for Utility Regulators (IFUR) did not “take off”, perhaps due to the perceived benefits from regional initiatives. With USAID funding, NARUC created a Global Regulatory Network (<http://www.globalregulatorynetwork.org/links.cfm>) in 2002.
- *Is there an optimal region (or number) for networking?* It is unlikely that there is a unique (and simple) partitioning of nations, given cultural heterogeneity in some regions (West Africa), different political traditions and stages of development, and degree of shared interests (or tensions). Nevertheless, it is worthwhile to consider whether particular circumstances are especially conducive to productive networking activities.
- *What are the impacts of networking?* A major area for future research involves determining whether the benefits (in improved national regulations and enhanced sector performance) have justified the investments in these new institutions to date. If the payoffs have been high, the World Bank and the regional development banks should consider devoting more resources to networking organizations that strengthen capacity at national regulatory commissions. [e.g. NARUC evaluated ERRA (Voll and Skootsky, 2004)].
- *What types of training programs have been most effective?* A number of organizations offer educational opportunities. Evaluating them and funding agencies for capacity-building raise some difficult questions that are worth considering.

Good infrastructure regulation has an indirect demonstration effect within each nation, illustrating how transparency, citizen participation, and staff professionalism promote legitimacy and public confidence. In addition, there is a direct effect on infrastructure: the promotion of network expansion, cost containment, and improved service quality. If a few nations have benefited from the outputs of regulatory networks, the initial seed money has been worth it.

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ENDNOTES

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- 2 US ITC (2010).
- 3 Report of the Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension on its first session, held at the Palais des Nations, Geneva, from 17 to 19 March 2009, TD/B/C.I/MEM.3/3.
- 4 Tremolet, Sophie, and Niraj Shah (2005), "Wanted! Good Regulators for Good Regulation: An Evaluation of Human and Financial Resource Constrains for Utility Regulation", Report by Environmental Resources Management and Tremolet Consulting for the World Bank, Washington, D.C.
- 5 Kirkpatrick, Colin, David Parker and Catarina Figeira-Eheodorakopoulou (2005), "Infrastructure Regulation and Poverty Reduction in Developing Countries: A Review of the Evidence and a Research Agenda", Centre on Regulation and Competition, Working Paper Series, Paper No. 116.
- 6 Tremolet, Sophie, Padmesh Shukla, and Courtenay Venton (2004), "Contracting Out Utility Regulatory Functions", Report by Environmental Resources Management for the World Bank, Washington, D.C.
- 7 Survey conducted in the context of the UNCTAD Multi-year expert meeting on services, development and trade: the regulatory and institutional dimension. The Report on the UNCTAD Survey of Infrastructure Services Regulators is available at <http://www.unctad.org/>
- 8 Rodrik, Dani (2001), *The Global Governance of Trade: As if Development Really Mattered*.
- 9 Report of the Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension on its first session, held at the Palais des Nations, Geneva, from 17 to 19 March 2009, TD/B/C.I/MEM.3/3, TD/B/C.I/MEM.3/3/Corr.1, 16 April 2009.
- 10 We are grateful for comments on the draft survey by Mr. Jon Stern, Research Director, Centre for Competition and Regulatory Policy, City University London.
- 11 Report of the Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension on its first session, held at the Palais des Nations, Geneva, from 17 to 19 March 2009, TD/B/C.I/MEM.3/3.
- 12 Brown, Ashley C., Jon Stern, and Bernard Tenenbaum with Defne Gencer (2006), *Handbook for Evaluating Infrastructure Regulatory Systems*, Washington D.C., The International Bank for Reconstruction and Development/The World Bank.
- 13 UNCTAD (2009), Report of the Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension on its first session, Held at the Palais des Nations, Geneva, from 17 to 19 March 2009, TD/B/C.I/MEM.3/3.
- 14 Controllable costs are those that the operator can influence and, conversely, non-controllable costs are those that the operator cannot influence.
- 15 Body of Knowledge on Infrastructure Regulation, <http://www.regulationbodyofknowledge.org/> (The Body of Knowledge (BoK) on Infrastructure Regulation website was created by the Public Utility Research Center (PURC) at the University of Florida under a contract with the Public-Private Infrastructure Advisory Facility (PPIAF) and the World Bank (Infrastructure Economics and Finance Department). PURC manages the BoK website (Site) under a contract with PPIAF and the World Bank).
- 16 Brown, Ashley C. (2010), *Infrastructure: the Regulatory and Institutional Dimensions*, paper submitted to the 2nd session of the UNCTAD Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension, to be held in the Palais des Nations, Geneva, from 17 to 19 March 2010.
- 17 Report of the Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension on its first session, TD/B/C.I/MEM.3/3.
- 18 Brown (2010), *op. cit.*
- 19 Brown (2010), *op. cit.*
- 20 For example, indicating if "no to question 1.8 please go to question 2.5".
- 21 Jon Stern is Research Director of the Centre for Competition and Regulatory Policy at City University, London.
- 22 Utilities (or public utilities) are conventionally defined as electricity, natural gas, water and sewage, sometimes also including telecommunications, transport and postal services. This list is the same as that for infrastructure industries. In this paper, I treat the terms utilities and infrastructure industries as synonymous.

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- ²³ There are many histories of the development of infrastructure industries and their regulation. This account draws heavily on Stern (2003).
- ²⁴ See Rodrik (2004) for a very well-focused discussion of the balance between generic purposes and local country features in the design of economic institutions. This paper adopts that general perspective.
- ²⁵ For a good general discussion of State ownership, utility reform and regulation, see Gomez-Ibanez (2007) who also analyses the reasons for the relative failure of State-owned enterprises reform in developing countries from the 1960s onwards.
- ²⁶ Note that oil and oil products are not in this list, since they can be transported in a number of ways and are not in any way dependent on a monopoly pipeline network. Postal services, like telecommunications, do not have a unique central network, but in practice postal service-delivered letters and small parcels do have a customer-end local delivery monopoly.
- ²⁷ Airport runways are classic sunk assets whereas aircraft are not since, if an airline runs into financial difficulties, the aeroplanes can be sold off, repainted and used by another airline. The opposite is the case for airport runways.
- ²⁸ Universal service obligations require mandatory provision of the service to all households and businesses (e.g. mandatory electricity supply if within a certain distance of a distribution network, a five/six days per week postal collection and delivery service). Universal access obligations require all households and businesses to have an accessible service within their local area, whether through individual or collective access. For further discussion, see UNCTAD 2006 Expert Meeting Report TD/B/COM.1/EM.30.3.
- ²⁹ Norwegian electricity distribution provides a good example of an efficient (locally) publicly owned system that operates in a strongly commercialized way and is very consumer-responsive. However, such examples are rare.
- ³⁰ For a description of the evolution of United States municipal regulation see Newbery (1999): 23. For a detailed discussion based on a case study of nineteenth and early twentieth century Chicago town gas see Troesken (1997).
- ³¹ PPAs are long-term contracts for generation e.g. for 25 years. They are frequently (but by no means always) associated with IPPs (independent power producers). In a PPA, the generation company sells bulk power on a contract to one or more offtake purchasers (e.g. the incumbent power company, retail supply companies or large industrial consumers).
- ³² See Levy and Spiller (1994).
- ³³ This is the logical counterpart of taking a view that regulatory institutions will vary with circumstances – a rejection of the “one-size-fits-all” approach to institutional design.
- ³⁴ This list is reproduced from Brown et al. (2006), which refers to electricity (see Brown et al.:20) An equivalent list for other infrastructure industries would add or delete headings.
- ³⁵ This issue is discussed at length in Brown et al. (2006), particularly in chapter 3. See, in particular, p.54, which emphasizes the advantages of a single governance benchmark and the consistency of a single benchmark with multiple forms of infrastructure regulatory institution as well as industry ownership and market structure. This is the same approach as taken in the Kaufmann et al. country governance indicator measures.
- ³⁶ For water and sewerage, Shirley (ed.) (2002) reports a number of carefully structured comparative case studies while Ehrhardt et al. (2007) provide lessons from more recent studies. See also Foster (2005). Unlike telecommunications and electricity there are a lot more regulatory and reform failures than successes.
- ³⁷ For further details, see Brown et al. (2006), especially chapters 2, 5 and 6. See also Stern (2007).
- ³⁸ Efficiency, and the growth thereof, as regulatory objectives since they very largely determine costs and prices. The higher the levels of productivity and its growth, the lower the costs. For operating costs, this means (other things being equal) lower prices to consumers; for capital efficiency, it also means lower financial and/or physical investment requirements to meet demand and/or to meet service rollout targets.
- ³⁹ Unobservable fixed effects are estimated via fixed effects or similar econometric techniques. They should capture important elements of variations in country governance and its reputation – in practice as well as on paper.
- ⁴⁰ The performance indicators used were residential connection rates per employee, distribution losses, coverage rate, energy sold per connection, duration and frequency of interruptions, Opex per connection and per megawatt hour sold (i.e. average tariff), average industrial and average industry tariff and the utilities’ cost recovery rates.
- ⁴¹ This work is summarized in Guasch and Straub (2006).
- ⁴² More recently, Gasmi and Recuero Virto (2008) explore endogeneity issues in more detail for telecommunications, taking account of mobile fixed-line interactions. They do not find the positive effects of regulation as in their 2006 paper. It remains to be seen whether these results are replicated in further work.
- ⁴³ See Stern and Cubbin (2005) for further discussion.
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- ⁴⁴ Although data were collected and reported, it was not possible to check on how far the definition of “professional” was comparable across countries. It is likely that the definition of a “professional” employee is very different between low- and high-income countries.
- ⁴⁵ See Human Development Report 2007–08.
- ⁴⁶ See Eberhard (2007) for a good and full discussion.
- ⁴⁷ Eberhard (2007), p. 7.
- ⁴⁸ See Energy Group Prayas Report (2003) for a discussion of this in the context of Indian state electricity regulators.
- ⁴⁹ Note that here and in what follows, independent regulatory entities are defined to include concession contract monitoring and enforcement agencies that operate independently of the Governments.
- ⁵⁰ This is because the regulator has established a reputation for fair dealing between consumers, investors and Governments, which reduces risk perceptions of investors in long-lived, sunk assets.
- ⁵¹ This is because there are strong temptations to renege on initial agreements if large consumer price rises are needed to cover economic costs.
- ⁵² For a discussion of regulatory governance experience of the 1990s in the Philippines and other Asian countries, see Stern and Holder (1999). For a discussion of the first wave of Ukraine electricity reforms in the 1990s, see Lovei (1998).
- ⁵³ See Brown et al (2006) Chapter 4 and, in particular, see table 4.2, p.143.
- ⁵⁴ The list is derived from Brown et al. (2006)
- ⁵⁵ TD/B/C.I/MEM.3/CRP.1, 25 February 2009.
- ⁵⁶ Ian Alexander is a Director/Partner of Cambridge Economic Policy Associates and can be contacted at ian.alexander@cepa.co.uk. This paper is based on the presentation made at the UNCTAD meeting in March 2009 in Geneva, Switzerland.
- ⁵⁷ This obviously does not exclude subsidies but these should be transparent and targeted. Subsidy design is a separate and important issue.
- ⁵⁸ In the water case there is significant private involvement through BOT type provisions but the basic service provider is state owned.
- ⁵⁹ The water sector is a good example of this. The broader benefits of appropriate water and sewerage treatment go well beyond what you can expect the direct consumers to pay for and consequently a competitive approach could lead to insufficient service provision from the wider economies perspective. This sector high-lights the problems of externalities and the problems associated with charging for them.
- ⁶⁰ Professor Ashley Brown is the Executive Director of the Harvard Electricity Policy Group at Harvard University.
- ⁶¹ An interesting exception to this was in Costa Rica, which established an independent regulatory agency to oversee the state owned electric and telecommunications company in the 1920s. While that company is generally regarded as a reasonably successful parastatal enterprise, it is impossible to determine with any degree of certitude what role the regulatory regime played in that perceived success. It is also fair to note that there are other widely regarded parastatal success stories that occurred where independent regulation was non-existent. Examples would certainly include CEMIG and COPEL in Brazil, as well as EPM in Colombia.
- ⁶² The use of the term, “privatization,” in this introductory section is meant to apply to a broad array of options that include, but are not necessarily limited to full privatization of assets. The term also encompasses private-public partnerships, privatization of management but not assets, leasing arrangements, and perhaps other institutional arrangements that allow for the deployment of private capital and/or resources.
- ⁶³ While it is beyond the scope of this paper, it should be noted that there is considerable debate among economists as to what constitutes a competitive, or potentially competitive, market. This debate has significance in regard to what form of regulation, if any, is applicable to the sector and the players within it. Some discussion of the regulatory implications will follow later in the paper, but the specifics of the debate over what constitutes a competitive market, for policy making purposes, is a subject of more than a little controversy among economists.
- ⁶⁴ There are many examples of independent regulation being deployed to regulate state owned infrastructure companies, as well as privately owned ones. Electricity regulators in India, Brazil, Zambia, Mozambique, South Africa, Ukraine, Russia, Israel, Nigeria, Argentina, the United Republic of Tanzania, Mexico, and the United States, for example, exercise such powers. The problem with regulating state owned companies, which are, after all, not for profit, is that it is very difficult to design and implement appropriate incentives for them, since they are less bottom line motivated and often the beneficiaries of government subsidies that dilute economic and financial signals sent by the regulators.
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- ⁶⁵ For the interested reader summaries of country-specific mid-level and in-depth regulatory evaluations which present principal findings and principal recommendations of each evaluation can be found in *Evaluating Infrastructure Regulatory Systems*, by Ashley C. Brown, Jon Stern, and Bernard Tenenbaum, with Defne Gencer (The World Bank, 2006).
- ⁶⁶ In some cases, such as a “natural monopoly,” there is a complete absence of meaningful competition, so regulation in that circumstance is generally regarded as being necessary.
- ⁶⁷ Where pressure governments to privatize, there is more likely to be passive resistance to the pressure than outright sabotage of the process. An example occurred in Zambia in the 1990’s where the IMF insisted on a loan condition requiring that the country’s two major hydro power plants, Kafue Gorge and Kariba, be severed from Zambia Electricity Supply Corporation Limited (ZESCO), the state owned utility and turned into competitive enterprises. The Zambians accepted the conditionality, but never actually did what the IMF demanded. Ultimately, several years later, the futility of that conditionality was acknowledged and removed. Many close observers, including the author of this paper, regarded the condition as an excess of ideological zeal by the IMF given that the two plants provided over 95% of the country’s electricity and would thus constitute a duopoly that would not constitute a competitive market. There was, however, another part of the electric distribution system that was privatized, but it will be discussed further below.
- ⁶⁸ This pattern is sometimes called the “Dance of the Virgins” between governments trying to privatize for the first time and investors looking to invest for the first time in a particular country’s infrastructure. This pattern of “sweet” deals and governments later “rolling back” some of the “goodies” has been repeated many times. The price cap for regional electricity companies (RECs), discussed elsewhere in the paper is a classic illustration, as is the Brazilian distribution tariff controversy, also discussed herein. Another notable example was in the Australian state of Victoria, where the state government substantially altered the tariff regime for distribution.
- ⁶⁹ Norway is an excellent example of a country which restructured its power sector during the 1990s from a monopoly to a competitive model. Similarly, in many countries, private investors were sought out to build power plants, but existing plants and wires companies were not privatized. In telecommunications, there are many examples of countries which allowed private capital into the market (e.g. in cellular communications) without privatizing existing landline carriers.
- ⁷⁰ In addition to the problems enumerated below in the Brazilian case, there are the prime 1990s examples of the Dabhol Plant in India and the PLN dealings with Edison Mission Energy in Indonesia. In both cases, Governments, or their proxies, attempted to bring in private generators with out creating a regulatory or market context to provide the requisite level of discipline over the transaction. The transactions turned out, not surprisingly, to be very costly failures.
- ⁷¹ The comparison here is of the initial privatization and market restructuring. Most observers regarded Argentina as a model of how to get it right, while the Brazilian effort did not have the expected consequences. The initial successes and failure are ironic because the Argentine model has, as is noted in a subsequent footnote, largely collapsed, while the Brazilian model went through significant reforms and has emerged in workable form. The subsequent failure in Argentina, however, was not at all due to a failure in privatization, regulation, or market design. Rather, it was the result of macro-economic breakdown. Indeed, Argentina stands as the embodiment of a critical fact to keep in mind in regard to the role of regulation. While bad regulation will likely assure bad results, good regulation cannot assure good results. There are too many other variables that can trump even the best regulation. Clearly, macro-economic disaster is a prime example.
- ⁷² In both countries, most, although not all generation and transmission was owned by entities controlled by the national government, while most, although not all of the distribution assets were owned by state governments in Brazil and provincial governments in Argentina. In Brazil, there were a few privately owned entities as well in the power sector. It is also perhaps worth noting that the process of nationalizing the power sector had only been completed in the 1970s, so the privatization was occurring within 20 or so years of the state having acquired control of the sector.
- ⁷³ It is also worth noting that similar reforms were being carried out at the same time in the natural gas sector, so that a competitive natural gas market would come into existence to facilitate the operations of thermal plants in a competitive generation market.
- ⁷⁴ Among the measures added to make the distribution companies more attractive to private investors were to not include any X factor to the annual retail price index (RPI) adjustment, to not reference future regulation in the concession documents, and to offer BNDES financing. The omission of the X factor is particularly important because X is the minimal productivity gain expectation imposed on the regulated company which is automatically assumed to occur, the benefits of which are passed back to consumers. Any gain in excess of X go to the company’s bottom line, while productivity gains below X amount to a loss for the company’ (There is a more detailed discussion of X factors below in the Ratemaking Section discussion of price cap regulation). The latter
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was particularly interesting because it meant that “privatization” was being largely financed by a state owned bank and so called “investors” were not being required to inject a great deal of their own capital. Some cynical observers came to view the so called privatization as an accounting exercise that left the state holding the same ultimate risks that it had borne as the owner of the assets. It should also be noted that, in regard to the X factor, some of those who made the decision not to impose one, contended that requiring a company to share some of its own productivity gains with its customers amounted to confiscation of some of what the company had earned.

⁷⁵ Many observers believed that of the five large hydro generating companies, only one in the south of the country was capable of privatization. The largest, Itaipu, on the border with Paraguay, had to remain state owned under the terms of international treaty obligations. The second biggest, Chesf, was primarily composed of dams on the Rio Sao Francisco, most of which were multi purpose for electricity, transport, and most importantly in the arid Northeast of Brazil, for irrigation. The other two generators presented other significant obstacles to their privatization. As it turned out, only the southern generator was privatized.

⁷⁶ It is also worth noting that, unlike in Argentina where the natural gas market was concurrently restructured, in Brazil, which had the objective of developing thermal generation to offset the risk of drought in its predominantly hydro generating fleet, restructuring natural gas was deferred, and never fully implemented. To be fair, at the time Brazil had far fewer known natural gas reserves than Argentina, and the state owned gas monopoly in Brazil, Petrobras, carried more political clout in its country than did its Argentine counterpart, YPF.

⁷⁷ For a full discussion of X factors please see Footnote 54 as well as discussion of price caps in section on ratemaking below.

⁷⁸ The blackout was not only at Rio Light, but also at the other electric utility in the State of Rio de Janeiro, CERJ. The latter’s incentives, while not identical to Light in all details, were substantially similar.

⁷⁹ It is important to note the postscript to both countries’ experiences. In Argentina, the macro-economic collapse of 2001-2002 led to the government interfering with energy contracts and largely pre-empting the regulators’ independent powers to set tariffs. The Government’s motives, of course, were to reduce inflationary pressures and to maintain affordability of rates for the large number of households suffering severe economic stress. The steps taken by the Government, however, turned out to be more than emergency measures, but, have become permanent features of the country’s energy markets. In Brazil, Government also pre-empted to deal with the crisis by appointing a special committee to manage the crisis. As the crisis eased, however, the electric regulators slowly regained their authority and the Committee was disbanded. When the new Government came to power, however, longer term post shortage reforms, beyond mere crisis management had yet to be implemented, so the new Government, over the course of its first year in office, completely restructured the market. ANEEL was able to regain most of the decision making powers it had seen pre-empted during the crisis.

⁸⁰ In large part, perhaps, the attainability of significant productivity gains is dependent on the degree of deterioration in assets prior to selling them to a private investor. The worse the pre-privatization condition, the easier efficiency gains are to achieve. That proved to be the case in Argentina, but in Brazil, where some of the assets being privatized were in relatively good condition, many consumers perceived no real gains, and, perhaps because of the crises discussed, many believed, correctly or not, that productivity actually declined as a result of privatization.

⁸¹ The discussion of the models will be at a fairly general, conceptual level, but Appendix A will set out, in summary form, case study evaluations of regulatory regimes in various countries that have, within the last decade or two, implemented new infrastructure regulatory regimes.

⁸² “Regulation by rule” is often referred to as “discretionary regulation.” The two terms are synonymous and may be used interchangeably.

⁸³ Concessions are often referred to as licenses or franchises. The terms are synonymous and may be used interchangeably.

⁸⁴ In this case, regulatory discretion is meant in the broadest sense. It is not limited to what regulators themselves do, but also what the government might do in regard to laws applicable to regulation.

⁸⁵ In Ukraine, for example, concessions are not necessarily a contract between the state and the regulated entity, but rather a means by which the government, not the regulators, can impose changes.

⁸⁶ Apart from legal constraints that may limit regulatory discretion, political reality also serves to limit the exercise of regulatory powers. Concessionaires, both public and private, as well as the unions representing their workers, often exercise considerable political clout and employ effective lobbying techniques to protect their positions and advance their interests. Thus, those wishing to exercise regulatory discretion may often find themselves politically constrained even before they reach their legal limits.

⁸⁷ While the regulator was independent of the Government and presumably outside of politics, no regulator can be entirely deaf to politics. That was particularly the case here because the Government was held accountable not merely for the prices, but for having enacted the entire reform package of which the REC prices were one result.

The regulator, Professor Stephen Littlechild, a very well respected and prominent economist, was one of the chief proponents, intellectually at least, of those very reforms, so his sensitivity was quite understandable.

- ⁸⁸ Many distributors were privatized prior to the enactment of the relevant regulatory statutes, including the creation of ANEEL, the electric regulatory agency. Many suspect that the curious timing was also the result of efforts to maximize prices from sale of the distributors by not arousing any fears of regulatory risks from prospective bidders. The chronology of privatizing first and then worrying about regulation and market design, is now widely regarded as having been a major mistake, not only by policy makers, but also by investors whose due diligence efforts failed to include a demand to know “up front” what the regulatory system and market design would be.
- ⁸⁹ Interestingly, that methodology did not include, as the English did, an X factor. The theory was that all productivity gains would inure to the benefit of the investors whose management had achieved it. In fact, it was part of an effort by the Government to maximize the revenues to be paid for the asset by making the concession as favourable to the investors as possible. Some of the other flaws in the concession documents may also be explained by the same motivation. The initial terms for the tariffs in the concession varied from 5 to 7 years, by company.
- ⁹⁰ For a full and complete description of institutional and process arrangements, see: *Evaluating Infrastructure Regulatory Systems*, by Ashley C. Brown, Jon Stern, and Bernard Tenenbaum, with Defne Gencer (The World Bank, 2006).
- ⁹¹ It is important to note that independent regulatory bodies can be deployed in both of the juridical models discussed, contract or regulation by rule, but the public concession institutional model can only exist in the context of contract regulation.
- ⁹² In the United States, the substance of regulation is found primarily in the law, whereas, in the United Kingdom, the substance is generally found in concession documents.
- ⁹³ The appointing authorities vary from country to country. In the United States federal regulatory appointments are made by the President. In the states, most are appointed by Governors, although they are elected directly in eleven states. In most Latin American and African countries, the appointments are by the President, although Cabinets and/or sector Ministers often have a great deal of influence in selecting regulators in that same sector. In some countries, Parliamentary approval is also required for appointees.
- ⁹⁴ Staggering of terms (e.g. if there are 5 Commissioners each serving 5 year terms, then absent a vacancy, only one term comes open each year) serves two important purposes. It affords institutional memory for purposes on continuity and sense of precedence. Secondly, it prevents a change in government from immediately compelling dramatic changes in regulation, thus making the system more stable and predictable.
- ⁹⁵ Outside of Africa, regulatory Commissioners generally serve on a full time basis. In Africa, for reasons that are not entirely clear, there is a pattern of Commissioners serving on a part time basis only.
- ⁹⁶ Some so-called independent regulatory agencies lack the power to make decisions and are only empowered to make recommendations to a Minister or other governmental agency. An example of that is Concelho Nacional de Electricidade (CNELEC), Mozambique’s electricity regulator. It might be characterized as a “strong advisory” regulator because it makes its decisions on what to recommend independent of any other agency and then makes its recommendation in a very public way, so that if a decision is taken contrary to the CNELEC recommended outcome, the Government will likely be called upon to explain its rationale. There are some other regulatory bodies which might be characterized as “weak advisory” agencies because they are either parts of ministries, or are only empowered to provide confidential advice to Ministers or the Government.
- ⁹⁷ The ethical rules vary considerably from jurisdiction to jurisdiction. In some countries, Commissioners, and perhaps staff, are prohibited from moving immediately from the regulatory agency to a regulated company. Typically, although not universally, there are rules against conflicts of interest, required financial disclosures, and not surprisingly, rules governing the receipt of gratuities and other favours.
- ⁹⁸ Miguel Rosetto, former member of the Brazilian Chamber of Deputies from Rio Grande do Sul.
- ⁹⁹ The performance contract in Peru is confined to administrative matters and does not pertain to substantive issues.
- ¹⁰⁰ Generally, changes in regulatory agency powers, or in regard to policies regulators are legally compelled to follow, are prospective only and have no retroactive effect. That is to assure that lawful regulatory decisions are not undone in a political process, while at the same time recognizing that the setting of public policy governing regulation is an inherently political matter.
- ¹⁰¹ Interestingly, the French are not using this model for electric regulation, where they have created an independent regulator to oversee issues of grid access and bulk power market disputes, with a performance contract for EDF, the huge state owned electric utility.
- ¹⁰² The public concession model also finds favour with economists and business people who fear that formal regulatory bodies will inevitably over-regulate.
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- ¹⁰³ There were efforts in the United Republic of Tanzania to replicate the public concession model for the water company of Dar es Salaam and Tanzania Electric Supply Company Limited (TANESCO), the state owned electric utility. Both arrangements have proven to be less than successful for both the Government and the concessionaires. Equatorial Guinea also tried a similar model for electricity, but it failed as well. They are contemplating the possibility of doing so again, as there is some thinking that the arrangement was not inherently flawed and that the problems simply stemmed from the selection of a weak concessionaire. Lesotho and Uganda are also using the concession arrangement in regard to electric distribution. Francophone Africa likely has examples of using this model as well.
- ¹⁰⁴ These two functions, assigning operational rights and imposing regulatory responsibilities, can be done, as is common in France, in a single document, or could be set out in separate documents, as is done in Turkey, Uganda, and Lesotho.
- ¹⁰⁵ Curiously, it is sometimes contended the independent regulatory model is a common law phenomenon while the public concession model is a civil law construct. There is, for example, a decision of the Colombian Supreme Court that suggests that to be the case. That common perception, however, is contradicted by the facts. Many civil law countries in Europe, Latin America, and Africa have fully functional independent infrastructure regulatory agencies, while one can find examples of the public concession model being deployed in such common law countries as Uganda, Lesotho, the United Republic of Tanzania, and even the United Kingdom.
- ¹⁰⁶ Much of this discussion is drawn from Brown, Stern, Tenenbaum, *supra*.
- ¹⁰⁷ It should be noted that the independent regulatory model, in one form or another, is, by far, the predominant model in place today. That being said, however, many countries deploy the model in ways that resemble aspects of the public concession model.
- ¹⁰⁸ "Transitional" regulatory regimes may be defined as a system set up to regulate infrastructure that is something short of fully independent regulation, but is a step removed from overt governmental control. Examples would be a regulatory agency which is part of a ministry, or a regulatory agency that is independent of the government, but possesses only advisory powers. Transitional regimes often result from a government's uncertainty regarding commitments to independent regulation, or from lack of confidence in the institutional arrangements or human resources required to implement a fully functional regulatory regime.
- ¹⁰⁹ Brown, Stern, Tenenbaum, *supra*.
- ¹¹⁰ There are, of course, counterpart organizations in developed countries such as National Association of Regulatory Utility Commissioners (NARUC) in the United States and European Energy Regulators (EER) in the European Union.
- ¹¹¹ See Brown, Stern, Tenenbaum, *supra*. The book also provides suggestions for Terms of Reference for three different levels of assessments.
- ¹¹² Brown, Stern, Tenenbaum, *supra*, has an extensive discussion of regulatory processes that are designed to provide guidance for appropriate standards in each of the types of decision-making discussed herein.
- ¹¹³ The initiator, in some regulatory models might be a specific party. In other models, the initiator might not be a party but, rather, the fulfilment of a legal or contractual requirement by the regulatory agency.
- ¹¹⁴ The requirement for public availability of documents need not, and perhaps should not apply to internal documents drafted by regulatory agency personnel for purposes of making specific decisions. Thus, for example, early drafts of decisions being circulated internally within the agency for comment, edits, etc., need not be made publicly available.
- ¹¹⁵ There are narrow, statutory exceptions in regard to what must be made public, but those are generally limited to confidential personnel matters, pending litigation, genuine trade secrets, security matters, and sensitive information, the premature disclosure of which might affect stock prices in a misleading way. There is, in most but not all jurisdictions, a general bias that information provided to regulators for their consideration in making decisions is public. It is also important to note that even if information is deemed to be non-public, that determination goes to how the information is used by regulators and is never grounds to deny regulators information they need to make decisions, or to deny access to that information by other parties in regulatory proceedings in which that information is being considered.
- ¹¹⁶ In regard to what they can and cannot consider, regulators are, to a large extent, obliged to use the principles set forth in the Rules of Evidence applicable in the courts. Ex parte communications, such as informal, off the record, conversations, between regulators and regulated entities on pending matters in the United States are strictly forbidden, and, in some cases, may be subject to criminal prosecution.
- ¹¹⁷ The United Kingdom model is also the one generally utilized in Australia as well.
- ¹¹⁸ The United States and United Kingdom models on consumer involvement differ substantially. In the United States,
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several states have either government agencies whose mission it is to advocate for small consumers, or have mechanisms for funding NGOs to engage in such activities. In the United Kingdom, each distributor has to provide for a Consumer Council to hear consumer concerns and complaints

¹¹⁹ Contrary to small consumer, large users of infrastructure services, such as industrial companies, are frequently well organized to represent themselves in regulatory proceedings. In many Latin American and African countries, apart from the regulated entities, themselves, they are the most active participants in regulatory proceedings.

¹²⁰ *supra*.

¹²¹ Adhering to legal authority includes both following the law and adhering to the terms and conditions set out in relevant concessions.

¹²² Arbitrariness would include acting without cause, decisions which are contrary to or unsupported by the evidence, or actions which are simply unreasonable.

¹²³ De novo proceedings essentially require a repeat of the proceedings at the appellate level with all issues raised on appeal open for another review.

¹²⁴ Precedents, of course, in a common law systems, can be legally binding, or, at a minimum, establish an effective framework for decisions. In civil law systems, precedents generally do not bind future decision makers, but they are sometimes quite influential. As an aside, and in specific regard to regulators, as opposed to appellate bodies, parties often complain, justifiably or not, that the decisions of today's regulators do not bind future agency decision makers. The complaints are often aired regardless of whether the agency operates in a common law or civil law system.

¹²⁵ Quasi judicial appeals refer to appeals taken to bodies that are not necessarily a part of the judicial system, but, which, nevertheless, are formal legal bodies with judicial-like decision-making powers. One example is the special appellate tribunal that has been established in Tanzanian regulatory statutes to hear appeals from EWURA and SUMATRA, the country's two infrastructure regulators. Another example is found in the United Kingdom, where appeals from the infrastructure sector regulators go to the Competition Commission, another regulatory agency with somewhat broader powers than the sector regulators.

¹²⁶ In the United Kingdom, as noted previously, the first level of appeal is to the Competition Commission and then to the government and, finally, to the courts.

¹²⁷ Non-connected micro-grids, distributed generation, and perhaps even batteries or other storage technology in electricity hold some potential for bypassing land line bottlenecks as well, but, as of the time of writing this paper, such possibilities lack anywhere near the scale that has been reached in the telecoms revolution.

¹²⁸ It is a source of some controversy as to exactly how long a buyer has to agree to make payments in order for the seller to be able to attract sufficient capital to build a generating plant. While a generator might want a life of plant commitment (i.e. approximately 40 years), buyers and their regulators are understandably loath to commit themselves for such a long period of time. It is not clear just how long bankers and other financiers will require guaranteed revenue stream in order to advance the capital. The more liquid a market, the less time is likely to be demanded, because there will inevitably be other potential buyers. In illiquid markets, particularly single buyer markets, where alternative buyers are not an option, sellers are likely to demand contracts of longer duration.

¹²⁹ While, of course, regulators themselves are not committed to make payments, they have the power to commit consumers to having to make them.

¹³⁰ An example of such an arrangement is the MOZAL Aluminum plant in Mozambique, which purchases its own electricity supply, mostly from Eskom across the border in South Africa, completely independent of EDM, the state owned electric utility monopoly. MOZAL's demand for electricity is hugely out of proportion to the country's overall demand.

¹³¹ It is important to note that the social externalities associated with many infrastructure services are much more compelling than they may be in other industries. Access to electricity, for example, is more than an economic issue, it directly affects health, ability of children to do school assignments, quality of life, especially for homemakers, and other very important social conditions. Water and sanitation pose similar issues. In Lusaka, Zambia, for example, one of the poorest sections of the city sits atop a large aquifer. Many residents of that neighbourhood are unable to pay for water sewage service, but cutting them off risks polluting the aquifer, so the external cost of disconnection may exceed the internalized cost of allowing them to obtain service without paying. It is a difficult dilemma.

¹³² This phenomenon is not unique to electricity. Water companies experience similar problems. The difficulties in collection are due to many factors including violence, lack of political will, inability to locate the source of the theft, and a variety of reasons for not wanting to disconnect service, some of them related to very legitimate externality concerns. There are a variety of mechanisms being tried to address such concerns, including pre-paid cards (similar to Sim cards for cell phones), creating peer pressure for payments, prosecutions for theft, and other mechanisms.

- ¹³³ Costs are theoretically assigned to customers by the actual costs incurred to serve them. Because that is extraordinarily difficult to do on a customer specific basis, it is customarily done on the basis of customer class, typically including, at a minimum, residential, commercial, and industrial classes.
- ¹³⁴ Tariffs, for example, often have two parts, one to reflect fixed costs, such as capital investment and back office equipment, and the other reflecting variable costs such as fuel in electricity, or chemicals for treating water in the case of water companies. There are also frequently special purpose tariffs, often used, for example, to serve the need of low income customers.
- ¹³⁵ It is important to note that none of these methodologies guarantee that a company will meet its revenue requirement. The methodologies, when properly administered, should strike the appropriate balance between not erecting arbitrary barriers to regulated companies being able to achieve their revenue requirements and providing appropriate incentives for management to perform competently and efficiently.
- ¹³⁶ The "hidden taxes" can be very significant components of the customer's bill. In Brazil, for example, they sometime compose more than 50% of what the customer is obliged to pay. They include not only taxes, but also cross subsidies to finance such activities as providing subsidies to help pay for the cost of diesel fuel to run generators in remote towns and villages of the Amazon Basin.
- ¹³⁷ Prudence is usually defined as being reasonable business decisions that are consistent with good industry practice. Typical prudence disallowances might include cost overruns caused by poor management, supplies procured at above market prices because of inappropriate purchasing practices, or acquisition or retention of assets not needed to serve the company's customers. Utilities often describe prudence reviews as "second guessing" or "micro-management" by regulators. Regulators, quite naturally view prudence reviews as an important element of consumer protection.
- ¹³⁸ Typical of costs whose recovery is precluded by law are lobbying and political expenditures, charitable contributions, and costs incurred which are not necessary to serve customers.
- ¹³⁹ The debt equity ratio required is usually in a range of 60/40 to 40/60, and is premised on trying to establish the proper balance between the cost of attracting capital and the appropriate exposure to risk.
- ¹⁴⁰ This criticism is accurate in a technical sense. In practice, however, because of the timing of rate cases, productivity gains sometimes go directly to the company's bottom line, as well.
- ¹⁴¹ This criticism is correct, to the extent that regulators set higher RORs for less well managed companies in order to entice investment in companies whose management was viewed in a lesser light by investors. Conversely, lower returns were required of well run companies because investors had more confidence in the company. The flaw in the criticism is that poorly run companies were more likely to have a reduced asset base on which to earn a return, and to have costs that cannot be recovered. because of a higher probability of prudence disallowances.
- ¹⁴² ROR does, indeed, have significant regulatory costs, but it is not always clear that PC reduces them, or, if it does so, at what cost in terms of the flow of needed information.
- ¹⁴³ Benchmark or hypothetical costs are usually based on some notion of a model distribution company cost structure. They are often used where it is impossible to ascertain the actual costs, usually because of inadequacies in accounting records, or where, they are part of an incentive scheme to improve productivity. Choosing what benchmarks or hypothetical costs to employ is a complicated and usually controversial matter.
- ¹⁴⁴ Five years is typical, but there are examples of shorter and longer periods of time being used.
- ¹⁴⁵ As noted in the discussion of privatization in Brazil, above, X factors are sometimes not adopted in order to "sweeten" incentives for investors.
- ¹⁴⁶ The example cited above in regard to distribution tariffs in the United Kingdom, and the regulator's failure to fully understanding the cost structure of the regulated companies, is an example of the risks inherent in a failure to grasp all relevant information at the outset of the rates.
- ¹⁴⁷ At present, it is being utilized in electricity in Norway and in some United States states, most notably California.
- ¹⁴⁸ In California, in fact, the regulations in place may make it more profitable to get customers to conserve and to be more efficient in their use of energy than they would be if they simply encouraged customer to consume more.
- ¹⁴⁹ An example in electricity is that customers do not want to buy electricity as a commodity, but want to enjoy what electricity can provide, such as lighting. If customer can receive the same lighting quality with less electricity because he/she uses more efficient bulbs, they are just as content, and perhaps more so, because they are saving money and energy.
- ¹⁵⁰ Adapted from Berg (2008) which was presented at a Conference sponsored by CIDOB, Barcelona, Spain.
- ¹⁵¹ Distinguished Service Professor, Economics/PURC Dir. of Water Studies, (University of Florida). Contact the author at sberg@ufl.edu
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- ¹⁵² Urban water has been described by Savedoff and Spiller (1999) as a low level equilibrium: revenues may not cover operating costs; in addition, investments primarily occur when the national development bank or Water Ministry or donor agencies make funds available. However, the investments are not maintained, leading to leaks. Service is poor, leading to non-payment (high number of non-collected bills). Essentially, in many nations, consumers pretend to pay for the service (where prices are held low) and producers pretend to supply the service (where quality is low and network expansion is slow). No financially sustainable business plan exists. Public support erodes, and under-performing water utility managers are not replaced.
- ¹⁵³ This article was first presented at the Multi-Year Expert Meeting on Services, Development and Trade: The Regulatory and Institutional Dimension, held at UNCTAD, Geneva, Switzerland, 17-19 March 2009.
- ¹⁵⁴ Centre on Regulation and Competition (CRC) University of Manchester, England. The views expressed herein are those of the author and do not necessarily reflect the views of the CRC.
- ¹⁵⁵ Chairman, Commission for the Supervision of Business Competition (KPPU), Indonesia
- ¹⁵⁶ Head, Competition and Regulatory Economics Practice, Genesis Analytics.
- ¹⁵⁷ It is also referred to as fire-alarm regulation insofar as an event - such as a merger notification or complaint - triggers action rather than ongoing monitoring.
- ¹⁵⁸ This was eloquently put in a recent ruling by the South African Competition Tribunal "the theory and practice of competition law and economics is dominated by an equally unambiguous maxim that asserts that the task of a competition regulator does not extend to the determination and fixing of prices. The reluctance of competition practitioners to assume a price regulating function does not only derive from the truly massive technical difficulties entailed in determining the 'right' or, for that matter, the 'wrong' price, but from the founding principle underpinning the world view of the practice of competition law and economics that holds that price determination is best left to the interplay of independent actors engaging with each other in the market place." Case 13/CR/Feb04 "Harmony Gold Mining Limited Durban Roodepoort Deep Limited and Mittal Steel South Africa Limited Macsteel International Holdings BV.
- ¹⁵⁹ Distinguished Service Professor, University of Florida, PURC.
- ¹⁶⁰ Presented at the UNCTAD Multi-year Expert Meeting on Services, Development and Trade: the Regulatory and Institutional Dimension, Geneva, March 2009. This write-up is based on a PPIAF project and other research conducted in conjunction with the PURC/World Bank International Training Program on Utility Regulation and Strategy. For a more comprehensive survey of studies, see Estache, Antonio, Sergio Perelman and Lourdes Trujillo (2007). "Infrastructure Reform in Developing Economies: Evidence from a Survey of Economic Performance Measures," in *Performance Measurement and Regulation of Network Utilities*, edited by Coelli T., and Lawrence, D., Edward Elgar Publishers, Northampton MA. The study contains six pages of references and comprehensive summaries of over fifty studies.
- ¹⁶¹ Gutierrez, Luis H. 2003. "The Effect of Endogenous Regulation on Telecommunications Expansion and Efficiency in Latin America." *Journal of Regulatory Economics*, 23(3):257-86.
- ¹⁶² New surveys and assessment tools keep emerging. With a budget of over \$3 million, the new Africa Infrastructure Country Diagnostic (www.infrastructureafrica.org) will conduct studies and collect data on infrastructure in East and Southern Africa—from Egypt to the Republic of South Africa. Also, see *Getting Africa on Track to Meet the MDGs on Water and Sanitation: A Status Overview of Sixteen African Countries*, December 2006 (African Development Bank, EU Water Initiative, Water and Sanitation Program, UNDP). The report includes a quantitative and qualitative assessment of overall (water) sector and subsector sustainability, including institutional and financial sustainability for rural/small town WS and sanitation and urban WS and sanitation. For a study focusing on customers, drawing upon data from around the world, see "The Role of Consumer Organizations in Electricity Sector Policies and Issues: Results of Global Survey," NARUC, 2006.
- ¹⁶³ Shantanu Dixit, Navroz K. Dubash, Crescencia Maurer, Smita Nakhoda (2007). *The Electricity Governance Toolkit: Benchmarking Best Practice and Promoting Accountability in the Electricity Sector*, June, World Resources Institute, National Institute of Public Finance and Policy, and Payas-Pune http://electricitygovernance.wri.org/files/EGI%20Toolkit%202007_0.pdf
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- ¹⁶⁵ Goran Hyden, Kenneth Mease, Marta Foresti and Verena Fritz (2008). *Governance Assessments for Local Stakeholders: What the World Governance Assessment Offers*, Overseas Development Institute Working Paper 287, p. 3. http://www.odi.org.uk/publications/working_papers/WP287.pdf
- ¹⁶⁶ "Weighing Regulatory Risks," *Voice&Data*, (2009), March. Also see www.lirneasia.net.
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- ¹⁶⁷ Maria Victoria Murillo, Carlos Scartascini, and Mariano Tammasi (2008). "The Political Economy of Productivity: Actors, Arenas, and Policies: A Framework of Analysis," Inter-American Development Bank Research Department Working Paper # 640 (June).
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- ¹⁶⁹ Janelle Plummer and Tom Slaymaker (2007). "Rethinking Governance in Water Services," Overseas Development Institute, Working Paper 284, October; http://www.odi.org.uk/publications/working_papers/WP284.pdf See Improving Governance and Fighting Corruption in the Electricity Sector: A Sourcebook, World Bank: Energy Sector Board. Chapter 12 identifies a number of frameworks for evaluating governance.
- ¹⁷⁰ Ashley C. Brown, Jon Stern, and Bernard Tenenbaum (2006). Handbook for Evaluating Infrastructure Regulatory Systems, (The World Bank: Washington D.C.) xx-397. The South East Europe Benchmarking Report at http://ec.europa.eu/energy/gas/benchmarking/doc/2/sec_2003_448_en.pdf has many features identified in the Brown, Stern & Tenenbaum framework. It contains both regulatory process elements and sector performance elements. A questionnaire developed by Pierce Atwood is available at <http://www.seecon.org/infrastructure/sectors/energy/documents/benchmarking/questionnaire.pdf>. Also see Improving Governance and Fighting Corruption in the Electricity Sector: A Sourcebook, World Bank: Energy Sector Board. Chapter 12 identifies a number of frameworks for evaluating governance. For factors affecting transparency, see Regulatory Transparency: International Assessment and Emerging Lessons: A Final Report for the World Bank, from NERA Economic Consulting, June 6, 2005.
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- ¹⁷³ Nation-specific evaluations are beginning to appear. See Gustavo Gomez and Amy Mahan (2007), "An Institutional and Practical Evaluation of URSEC---Uruguay's Communication Regulator—and its Relationship with Citizens", WDR Dialogue Discussion Paper 0706 at www.relateonline.org.
- ¹⁷⁴ In a study of electricity distribution firms in the Ukraine, the author (along with two other researchers) found that privately-owned utilities appeared to inflate their costs of service (given the cost-plus nature of regulation adopted there) but they also significantly reduced technical and commercial losses (theft) relative to state-owned enterprises (again in response to incentives to do so). The results suggest that care must be taken when evaluating utility performance; regulatory rules can have different impacts on utilities with different types of ownership: Berg, Sanford, Chen Lin and Valeriy Tsaplin (2005), "Regulation of State-Owned and Privatized Utilities: Ukraine Electricity Distribution Company Performance," Journal of Regulatory Economics, Vol. 28, No. 3, pp. 259-287. Also see Burns, P, Jenkins, C., Mikkers, M., and Reichmann, C. (2007), "The Role of the Policy Framework for the Effectiveness of Benchmarking in Regulatory Proceedings," in Coelli and Lawrence, *op. cit.*
- ¹⁷⁵ LLB Attorney-at-Law, Secretary General, Organisation of Caribbean Utility Regulators (OOCUR).
- ¹⁷⁶ Privy Council appeal No 0079 of 2009 Mossell (Jamaica) Limited (T/A Digicel) v Office of Utilities Regulation, *et al.*
- ¹⁷⁷ The rates as shown remain current as the levels have been essentially constant since 2006.
- ¹⁷⁸ LLB Attorney-at-Law, Secretary General, Organisation of Caribbean Utility Regulators (OOCUR).
- ¹⁷⁹ "Model for Utility Regulatory Capacity building in the Caribbean" by Rita Persaud-Kong Secretary General, presented at OOCUR 2nd Workshop in Belize on 21-22 March 2005 on the topic "Utility Regulatory Institutional Development and Capacity Building".
- ¹⁸⁰ Public Utilities Commission Act (2004) of the Laws of Anguilla; Public Utilities Commission Act (1993) of the Laws of Bahamas; Fair Trading Commission Act (2000) of the Laws of Barbados; Public Utilities Commission Act (1999) of the Laws of Belize; Public Utilities Commission Act (1999) of the Laws of Guyana; Office of Utilities Regulations Act (2000) of the Laws of Jamaica.
- ¹⁸¹ The Regulated Industries Commission Act (1998) of the Laws of Trinidad and Tobago; The Telecommunications Act (2001) of the Laws of Trinidad and Tobago; The Electricity Act 2006 of the Laws of Dominica.
- ¹⁸² "Fundamentals of Consultation" by Rita Persaud-Kong, Secretary General OOCUR presented at 3rd Workshop was held on May 29-31, 2005 Barbados on the topic "Utility Regulatory Communications, Consumer Participation & the Consultation Process."

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- ¹⁸³ Civil Appeal Nos. 4 & 5 of 2004 between the Office of Utilities Regulation (OUR), the Minister of Industry, Commerce and Technology (the Minister, the Attorney General, Mossel (Jamaica) Limited (Digicel) and Cable and Wireless limited and Centennial Jamaica Limited.
- ¹⁸⁴ OOCUR's Seminar held in Guyana on June 28-29, 2006 on "Judicial Review of Utility Regulatory Actions and Decisions in the Caribbean."
- ¹⁸⁵ "Final Determination (Rates and Miscellaneous charges) Regulation of Electricity Transmission and Distribution June 1, 2006 - May 31, 2011" www.ric.org
- ¹⁸⁶ "Towards Harmonization of Telecommunications Legislation in the Caribbean" (presented at the 6th OOCUR Annual Conference in Belize in November 2008) by Rita Persaud-Kong, Attorney- at- Law, Secretary General of OOCUR.
- ¹⁸⁷ www.oocur.org for events.
- ¹⁸⁸ www.oocur.org for the full report.
- ¹⁸⁹ Distinguished Service Professor, Economics (University of Florida). Contact the author at sberg@ufl.edu. This paper extracts and extends material from Berg and Horrall (2008). See www.purc.ufl.edu
- ¹⁹⁰ The World Bank has manuals and handbooks on price controls, infrastructure efficiency measurement, and other topics. In addition, the World Bank funded the Body of Knowledge on Utility Regulation <http://www.regulationbodyofknowledge.org/>
- ¹⁹¹ For example, since 1997 (twice per year), the University of Florida's Public Utility Research Center has delivered the two-week PURC/World Bank International Training Program on Utility Regulation and Strategy; the program has reached over 2,000 participants from 139 nations. www.purc.ufl.edu. See Berg (2009).
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