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WORKING PAPER
NO. 3

Evaluating Regulatory Decisions and Sector Outcomes in Infrastructure Industries

Results from Africa and Other Developing Countries

Jon Stern

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FOREWORD

This publication is the fruit of the collaboration and support to the **African Forum for Utility Regulators (AFUR)** by the **Public-Private Infrastructure Advisory Facility (PPIAF)**. Since the formal launch of AFUR in 2002, it has become the practice that the PPIAF along with the World Bank commission regulatory studies that are based on AFUR's Annual Conference theme. This current collection is based on papers jointly commissioned and sponsored by both PPIAF and AFUR for the 3rd Annual Conference and General Assembly of AFUR. The theme for this conference is- **Regulatory Governance: Exploring Innovative and Hybrid Models.**

The AFUR Conference took place from 15 – 16 March 2006, in the midst of other AFUR activities organized from 11 – 17 March 2006, in Windhoek, Namibia.

During the Conference, Panelists, whose presentations could be found on the AFUR website (www.afurnet.org), enriched the debates, with country and sector experiences on the issues and challenges of regulating the telecommunications, water and electricity industries. In essence, regulation in Africa remains relatively very young, and is an effective instrument, if applied correctly for advancing affordable access to quality service from the utilities by the vast majority of the continent's people, whilst ensuring that the investor gets a fair return on investments. This collection is a first in the series of publications that AFUR intends to publish. In this regard, I must extend my appreciation to the PPIAF for making this possible. In the same vein, AFUR appreciates the contributions of the consultants whose papers feature in this collection.

AFUR aims to establish and foster co-operation amongst utility regulators on the African continent in support of Africa's growth and socio-economic development. AFUR's primary focus is on issues pertaining to the regulation of infrastructure (energy, communications, water and sanitation as well as transport sectors). The participants at the 3rd AFUR Conference were Chairpersons, Commissioners, CEOs and Senior Executives of African Regulatory organizations. Also present at this conference were policy makers, development partners and utility operators, consumer groups and large consumers as well as consultants. In the quest to further develop and strengthen regulatory institutions on the continent, I hope regulators will find this collection very useful.

Smunda Mokoena

AFUR Chairperson

1.

Introduction

Over the last 15 years, more than 200 infrastructure regulatory entities have been created in many countries and on all continents. [1] During the 1980s and early 1990s, in OECD countries and Latin America, these entities were primarily responsible for the telecommunications sector. However, over the last 5–10 years, the number of regulators has greatly increased. In addition, there has been a spread of regulation to other infrastructure industries (particularly electricity, energy, and, to a lesser extent, water and transport) and to other countries, including a number of countries in Africa. For electricity, the majority of new regulators have been established since 1995 and most since 1997–98.[2] In this paper, the focus is primarily on the network infrastructure industries and, in particular, on electricity. However, almost all of the discussion is directly applicable to the other main network infrastructure industries such as natural gas, telecommunications, and the water and sewerage industry.

Of course, by no means are all infrastructure regulatory agencies independent (or autonomous) of government. In particular, many such agencies established since 1990 are ministry regulators. Some are autonomous[3] but with very limited decision-making powers; for instance, many have very limited if any powers over regulating retail prices to consumers. However, many ministry regulators now operate with powers and duties defined in a regulatory law and this seems to affect both their behavior and the performance of the infrastructure industries that they regulate.

A 2004 study of electricity regulation in 28 developing countries showed strong growth in the number of autonomous regulatory agencies (Cubbin and Stern 2004). In 1990, only 3 countries in the sample had autonomous regulatory agencies but this number increased to 13 countries in 1998 and to 17 in 2001. There were 5 African countries in the sample (Ethiopia, Kenya, Nigeria, Sudan, and Uganda). In 1998, none of them had an autonomous electricity regulator but, by 2001, three of them (Kenya, Nigeria, and Uganda) had legally autonomous regulators.

In addition, in 1998 only 5 of 14 nonautonomous (ministry) regulators in the sample had their powers and duties defined in a regulatory law—and none were in African countries. However, by 2001 only 2 regulators (in Barbados and Indonesia) were not governed by a regulatory law. All the relevant African countries in the sample had a regulatory law by 2001. The econometric work carried out with this data showed that having a regulatory law in place was the most important factor in increasing investment in electricity generation. Having a regulatory law in place was shown to be more important for a positive impact on investment rather than whether or not the regulator was autonomous. However, this was possibly because most of the recently established autonomous regulators had only had a few years in which to build up their capacity and regulatory reputation (Cubbin and Stern 2006).

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1 I am grateful for the comments of many people on the material in this paper. In particular, the paper owes a great deal to my Handbook co-authors Ashley Brown and Bernard Tenenbaum. However, I alone am responsible for the views expressed in this paper.

2 See Henisz, Zellner, and Guillen (2004) for a full listing of countries as to whether and when they established telecom and electricity regulators.

3 In what follows, the terms "independent" regulator and "autonomous" regulator are treated as synonyms.

Given the rapid recent spread of increasingly autonomous infrastructure regulatory agencies in developing countries in Africa and elsewhere, the question arises as to how effective they have been. A number of econometric studies for telecoms and electricity suggest that regulators have been effective in increasing both investment levels and efficiency. However, econometric studies have their limitations. In particular, they provide no information on *how and why* regulators have improved the performance of infrastructure industries in meeting consumer, investor, and development outcomes. The studies cannot explain the following:

- What works well and what works badly
- How infrastructure regulatory agencies can improve their performance
- The role and importance of regulatory agencies relative to industry structure, the actions of the regulated companies, and of government
- The role of infrastructure agencies in helping (or hindering) the finding of good solutions to problems and crises

The questions above are discussed in detail in the *Handbook for Evaluating Infrastructure Regulatory Systems* (Brown, Stern, and Tenenbaum 2006), hereafter referred to as the *Handbook*[4].

The *Handbook* discusses in detail the issues arising from *ex post* evaluations of infrastructure regulatory agencies, including the following:

- The type of evaluation (basic, mid-level, or in-depth)
- Who should carry it out and how
- The purpose and uses of regulatory evaluations
- Evaluation tools (including model terms of reference and questionnaires)
- An annotated bibliography and a summary of previous evaluation work in this area

In this paper, we summarize key aspects of the *Handbook* for its use in developing countries, particularly the member states of the African Forum for Utility Regulation (AFUR). We briefly discuss the purpose of and need for economic regulation of infrastructure industries, and then examine the key issues of industry evaluation. The paper continues with a short discussion of key preconditions for establishing effective infrastructure industry regulation, with particular attention to country governance and the commercialization of the industries. There is also a section on regulatory decisions (both good and bad), regulatory outcomes, and the relationship of regulatory decisions to the performance of the regulated industries. This is followed by a discussion of intermediate and transitional regulatory systems. The paper ends with some concluding remarks.

[4] The *Handbook* can now be downloaded electronically as a PDF file. It can be found at http://rru.worldbank.org/Toolkits/InfrastructureRegulation/ and also at www.worldbank.org/energy.

2.

The Purpose of and Need for Economic Regulation of Infrastructure Industries

The *Handbook* covers three main topics:

1. A full statement of the three Meta-Principles and 10 Principles for "best practice" regulatory governance, and a set of around 100 Detailed Standards derived from the principles. These principles and standards provide a benchmark for the evaluation of regulatory governance.
2. An evaluation of regulatory agencies' impact on the performance of the regulated industries and how this relates to regulatory decisions (primarily in the context of electricity).
3. An analysis of "intermediate and transitional regulators"—that is, how best to make progress with infrastructure regulation in difficult institutional environments.

In this paper, the main focus is on the second topic—evaluating regulatory outcomes and how they are affected by regulatory decisions, which is covered in detail in Chapter 5 of the *Handbook.*

However, the first and most important issue discussed in this paper is the purpose of infrastructure regulation. As is well known, infrastructure industries have some basic characteristics that require economic regulation if the industry is to meet consumers' needs *and* attract sufficient investment. This assumes that the industries are operated on a commercialized basis. As discussed in Section IV below, the situation is very different if they are operated on a non-commercial basis.

The key characteristics of infrastructure industries that, in combination, require economic regulation are as follows:

- They are *highly capital intensive* with very *long-lived assets*, which are typically *sunk assets* in the sense that they cannot be sold or reused.
- They have considerable *economies of scale*, particularly where there are monopoly networks, as in electricity and water. These features sometimes create a *natural monopoly*. (In telecoms, the monopoly network elements are rapidly decreasing, if not entirely disappearing. This is because of competition from fixed-line services, other than the local loop, and even more because of the competition from mobile services. Mobile competition is particularly important in Africa.)
- The outputs of infrastructure industries—the services they provide—*are consumed by and necessary to the welfare of all citizens* as well as being *crucial inputs for all businesses.*

These characteristics have the following consequences:

- Consumers need protection against abusive behavior by monopoly providers.

- Investors need protection against strategic behavior by governments that have a strong incentive, once investments have been installed, to keep prices no higher than operating cost levels.

In addition, governments and existing consumers have an interest in keeping current prices low. However, maintaining low prices may be at the expense of *unconnected* consumers. In developing countries, particularly in Africa, the prosperous urban populations are usually connected to energy, water, and telecom networks while the majority—often the overwhelming majority—of the poorer rural populations are not connected.

From the discussion above, we can derive the key purposes of regulation, which are summarized in the *Handbook's* three Meta-Principles of regulation:

- *Meta-Principle 1: Credibility*—Investors must have confidence that the regulatory system will honor its commitments.
- *Meta-Principle 2: Legitimacy*—Consumers must be convinced that the regulatory system will protect them from the exercise of monopoly power, whether through high prices, poor service, or both.
- *Meta-Principle 3: Transparency*—The regulatory system must operate transparently so that investors and consumers know the "rules of the game."

There are many variations in the type and form of regulatory agencies. Nevertheless, all regulators and quasi-regulatory agencies (such as concession monitoring agencies) should observe the three recommended Meta-Principles of infrastructure regulatory systems listed above.

3.

The Evaluation of Infrastructure Regulatory Agencies

In this section, we pose—and answer—two questions:

1. What do evaluations of infrastructure regulators consist of?
2. Why are they necessary?

Ex post regulatory evaluations[5] are periodic, systematic reviews of the performance of regulatory systems—rather like health checkups. They also can be thought of as *policy audits*. Policy audits have become common in OECD countries as a way of establishing how effectively governmental departments and agencies carry out their functions. In this capacity, policy audits play an increasingly important role in establishing the accountability of governmental agencies.

For regulatory agencies and similar entities, *ex post* evaluations need to cover the following:

- Issues of **regulatory governance**—such as the quality of the laws and codes under which they operate, their processes and procedures, and so forth.
- Issues of **regulatory substance**—such as the quality of industry performance as measured in industry outcomes, and the role of regulators in both good and bad outcomes.

It is important to consider how well *regulatory governance* operates in practice as well as in theory. This raises questions of the following kind:

- Does the regulatory agency always publish its decisions and other key documents? Does it give reasons for its decisions?
- Does it have open procedures that allow all stakeholders to participate in the regulatory process?
- Has it regularly published an annual report—and by the due date?
- Do regulatory commissioners and office holders complete their terms of office or have some been dismissed by governments for political reasons?
- Has the regulatory agency received secure funding sufficient to allow it to carry out its mandated functions?

Regulatory substance raises the question of the contribution of *regulatory decisions* to industry performance. This is a complex issue that will be discussed in more detail below. The key point to note here is that regulatory decisions are one of many elements that determine outcomes in regulated infrastructure industries. For instance, in the electricity sector, market structure is crucial for the performance of the industry.

When evaluating a regulatory system it is important to establish appropriate criteria. A good regulatory system achieves the following:

[5] In some countries, *ex post* evaluations are known as 'after the fact' evaluations.

- Produces a flow of good regulatory decisions
- Minimizes the number of poor or mistaken decisions
- Speedily corrects mistakes
- Does not repeat mistakes or poor decisions
- Implements lessons from "best practice" regulations in other countries

Periodic evaluation of regulatory agencies in terms of their decisions and their effect on industry performance (for example, every 3–5 years) is a key component in achieving a good regulatory system.

4.

Conditions for Effective Infrastructure Regulatory Systems

Not all countries have sufficient institutional strength to support fully independent or autonomous regulators for their infrastructure industries, even if they wished to do so. Indeed, the form, responsibilities, powers, and sustainability of independence all depend on individual countries' constitutional, legal, and political traditions. In particular, independence depends on: (i) robust and transparent governmental and legal institutions; and (ii) on the number and quality of qualified regulatory staff. These issues have been demonstrated in practice many times.[6]

The main institutional prerequisites for effective regulatory systems are as follows:

1. Legislative bodies that can enact adequate primary and secondary laws
2. A functioning court system—or an equivalent dispute-resolution or appellate process
3. Policy-making institutions (that is, ministries) with the administrative capability to make policy decisions and implement them
4. Reasonable overall quality of country governance—for example, a country score above the bottom quarter of the Kaufmann index[7]
5. Commercialized utility service industries—or at least a clear policy objective of moving in the short- to medium-term to commercialization
6. Government bodies that can prepare and bid out franchise or concession contracts in an honest and transparent way

Of these prerequisites, 4 and 5 are particularly important. Experience shows that progress towards successful infrastructure industry regulatory arrangements is much more likely to emerge in countries with: (i) adequate levels of country governance and (ii) infrastructure industries operating on a commercialized basis—*or clearly moving towards commercialization.*

Country Governance

Following Kaufmann, we define country governance as "the traditions and institutions by which authority in a country is exercised" (Kauffmann, Kraay, and Mastruzzi 2005).

For infrastructure regulation, the *rule of law* is the single most important governance indicator, including, in particular, sound law courts and the ability to enforce commercial contracts. Countries with scores on the Kaufmann Rule of Law Index below 25 percent are unlikely to be able to sustain effective regulatory arrangements, however embryonic. (See Annex 1 for a chart showing the Kaufmann Rule of Law Governance Indices for a selection of developing and transition countries in 2004.)

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6 See Levy and Spiller (1994) for a classic exposition and demonstration. See also Stern (2000).

7 The Kaufmann Country Governance Index is the most comprehensive governance index available and is published by the World Bank every two years. See http://www.worldbank.org/wbi/governance/govdatasets/index.html.

Infrastructure Industry Commercialization

Commercialized enterprises have substantial economic incentives to maximize profits by increasing revenues and by reducing costs. For state-owned enterprises, commercial incentives are typically rather weaker. At best, they may be required to meet service obligations in the most cost-effective way while covering costs, and earning a positive, real rate of return for owners of its public sector assets.

However, state-owned utilities in many African and other countries are not required to operate on a commercialized basis and depend, at least for their investment and capital costs, on explicit or implicit subsidies. In general, commercialization of state-owned infrastructure industries is by no means impossible to achieve but is significantly more difficult to sustain in state-owned industries. It is, however, much more likely to be sustained if there is substantial private involvement—particularly investment financing—either directly or through private sector bond or bank lending (as in the case of Eskom).

For a fuller discussion, see Chapter 4 of the *Handbook.*

5.

Evaluating Regulatory Decisions and Outcomes

The outputs of an infrastructure regulatory system are *regulatory decisions*—they are what regulators produce. Hence, regulatory decisions make up the *substance* of regulation. Regulatory decisions can take one of two forms:

1. *Either* a positive decision which is formally published—such as a tariff order or issuing a regulatory accounting framework for an asset base

2. *Or* a decision not to take an action—such as a decision not to pursue mandated competitive procurement of power generation

Hence, regulatory decisions refer to any action or inaction that materially affects the interests of participants in the regulated sector—consumers, producers, and investors (See Chapter 5 of the *Handbook* for a full discussion of regulatory decisions.).

For evaluation purposes, it is necessary to distinguish between "good" and "bad" regulatory decisions. This distinction can be made by considering whether the actions of any infrastructure regulator *help produce good or bad industry outcomes.*

For electricity, the relevant industry outcomes can be summarized under the following headings:

- Output and consumption
- Efficiency (technical and economic)
- Quality of supply
- Financial performance
- Capacity, investment and maintenance
- Prices
- Competition
- Social indicators

These industry outcomes may well relate to specified government goals, such as targets for rural electrification, supply interruptions, prices, subsidies, and cost recovery.

A fuller list of outcomes is set out at Annex II.

Good and Bad Regulatory Decisions

We can, from the discussion above, define good and bad regulatory decisions.

Good regulatory decisions have the following attributes:

- They protect consumers (current, potential, and future), help establish and maintain sustainable commercial operations, and help provide an efficient industry with good cost performance.

- They ensure that investors have the necessary resources for maintenance and investment expenditures, including a reasonable rate of return.
- They help achieve government policy objectives such as connection targets, fuel diversity goals, and efficiency targets (Good regulatory systems can help reveal inconsistencies in government objectives—for example, between ambitious rural access targets and prices based on the costs of supply to urban areas.)

Bad regulatory decisions are ones that worsen the position of electricity (or other infrastructure industry) consumers and investors. Decisions that make it harder to achieve government infrastructure industry targets are also bad regulatory decisions. In addition, it is useful to divide bad regulatory decisions into two categories.

Sins of Omission

These are failures to do things that regulatory entities should do, such as: investigate and understand cost structures, institute adequate quality of service indicators, and define regulatory methodologies.

Sins of Commission

These are things that regulatory entities should not do—i.e., *mistaken or inappropriate regulatory actions*. It is helpful to think of them as *unreasonable* actions or decisions. Examples include unreasonably setting inappropriate benchmarks, allowing growing divergences between costs and prices, and setting inappropriately low penalties for serious offences.

See Annex III for a full list of Sins of Omission and Sins of Commission.

Regulation and Industry Outcomes

In evaluating infrastructure industry regulators, the most important thing to remember is that *regulatory decisions are only one of the determinants of industry outcomes*. This is in contrast to *ex post* evaluations of the outputs of most public expenditure projects—for example, the impact of the construction of a new port on export and import levels.

Indeed, regulatory agencies and their decisions are often a relatively minor determinant of sector outcomes. Electricity industry outcomes are more likely to be affected by the following:

- Poorly designed market structures (as in California and Ukraine)
- Inconsistencies in government policy or government unwillingness to allow the regulatory agency to carry out its functions (as in Russia and India)
- External pressures such as macroeconomic and exchange rate crises (as in Argentina)

These and other non-regulatory factors are likely to dominate the impact of regulation. No regulatory actions can overcome flawed market design, or a government unwillingness to allow commercialized operation, or major external shocks.

However, regulatory agencies can play an important role in identifying and finding solutions in countries where regulatory systems work well and where governments allow them to operate

effectively. Hence, in the United Kingdom and elsewhere, regulatory agencies have played a major part in identifying and resolving major issues.

In the United Kingdom, Ofgem (the U.K. electricity regulator) played a major role in the 1990s in identifying and rectifying the lack of competition in the generation market, and Ofgas (the U.K. gas regulator) played a major role in identifying and rectifying the flawed privatization structure of British Gas. In the European Union, the Florence and Madrid Forums for electricity and natural gas played an important role in furthering the development of the EU single market in energy and resolving regulatory and other problems.

AFUR, the African regulators group, could well play a significant problem-solving role for infrastructure industries and countries within the AFUR membership. Similarly, in Southern Africa, the Southern Africa Development Coordination Conference (SADDC) has been developing informal collaboration between national telecom regulators for over 5 years.

In the context of evaluation, it is important for the evaluator to:

- Draw attention to these factors external to regulation
- Analyse their importance
- Appraise how well the regulatory system responded to the difficulties

For the last of these, account needs to be taken of how far the government allowed the regulatory agency to participate in the process. Unfortunately, in many cases, the regulator is pushed to one side and not allowed to be seriously involved. For instance, the Argentinean regulator was not allowed to be involved in the debt 'work-out'[8] from the 2001–2 peso crisis.

Summarizing, the evaluation of infrastructure regulatory systems should include the following items:

- Identify obviously good and bad regulatory decisions—for example, in terms of resolving key issues and improving sector performance.
- Estimate qualitatively and, where possible, quantitatively the impact of key decisions on industry outcomes.
- Review the contribution of regulation to the performance of the regulated industry and specific outcomes.
- Provide a critical analysis of regulatory performance with recommendations for improvement.
- Provide a means by which all stakeholders can recognize, learn from, and incorporate the lessons from experience. (Stakeholders, in this context, include not just domestic participants such as the regulator, government, consumer groups, companies, and investors; but also other countries, regional regulatory groups like AFUR, the World Bank, other international financial institutions (IFIs), and aid donors.

[8] In Argentina and other Latin American and Asian countries, infrastructure industry investment is often financed by debt denominated in foreign currency but with services sold in domestic currency prices. Following a major depreciation of the home currency, these debt contracts become unviable and need major renegotiation or replacement. Such renegotiations are known as a 'debt work-out' process.

Often, regulatory evaluations focus more on what went wrong rather than on what went well. In general, the evaluator should praise the good but focus on the bad. However, the objective is ***to understand and not to blame.***

6.

Intermediate and Transitional Regulatory Systems

Intermediate and transitional systems emerge when countries wish to start developing infrastructure regulation but are *unable or unwilling* to implement a full-blown independent regulator as seen of the type seen in the United States, the European Union, Australia, and in an increasing number of middle- and lower-income developing countries, including Hungary, Jamaica, South Africa, and Uganda. Intermediate and transitional systems usually arise under the following conditions:

- **Because of a lack of specialized skills in institutional settings**—as in much of Sub-Saharan Africa
- **Because of a lack of commitment**—as in India, at least until recently, and Russia
- **Because of both a lack of skills and commitment**—as in a number of countries, including many fragile and post-conflict countries such as Somalia and Afghanistan

See Chapter 4 of the *Handbook* for a fuller discussion of intermediate and transitional regulatory issues and Appendix I of the *Handbook* for a discussion of infrastructure regulatory issues in fragile states and post-conflict countries.

Intermediate and transitional regulatory systems can be divided into two categories:

1. Regulatory systems for which a government has made no formal commitment to go beyond the specified transitional arrangements—for example, electricity regulation in China and Jamaican telecoms in the 1990s
2. Regulatory systems for which a government has made a clear commitment to move beyond the transitional arrangements to a "best practice" system—for example, systems in Central and East European countries joining or committed to joining the European Union

In either case, countries may significantly develop their regulatory systems, in which case they are defined as "transitional." Systems are defined as "intermediate" if they do not develop significantly towards achieving autonomous infrastructure regulatory entities and/or agencies with non-ministry, decision-making regulators.

In evaluating intermediate and transitional regulatory systems for infrastructure industries, the key questions are as follows:

- How well is the regulatory system performing in its own right—*both* on governance properties *and* on industry outcomes?
- Does the system have the potential and the likelihood to develop towards a "best practice" regulator?
- Are there adequate incentives and pressures to prevent the industry and regulatory reform from getting stuck or unraveling?

Any *ex post* evaluation of an intermediate or transitional regulatory system should provide answers to these questions.

Issues in Intermediate and Transitional Systems

Intermediate and transitional regulatory systems make up many of the regulatory entities in Africa, Asia, and the Commonwealth of Independent States. Experience since the early 1990s shows that these countries tend to present some of the following problems:

- An unwillingness or inability to move toward commercialization with cost-recovery pricing to small consumers
- An inability or unwillingness to hand over decision-making powers to a non-ministry or non-political agency
- Weakly functioning or slowly operating law courts that create considerable uncertainty—for example, over appeals of regulatory decisions
- Uncertainty about the nature and strength of regulatory commitments
- Limited regulatory resources—particularly lack of funding and of specialized, experienced staff, such as economists, lawyers, and accountants
- Popular opposition, especially from consumers, because they believe that their interests are being ignored—for instance, consumer opposition to large increases in profits to private investors, particularly private foreign investors, even when such increases can be justified by service improvements and investment needs
- Macroeconomic crises or fears of rapid inflation, currency devaluation, and the like—and their aftermath

In response to these problems, many institutional, contractual, and external support options have been tried to help support newly established regulatory agencies over the last 10–15 years. These options include the following:

- Transitional price adjustment paths—with or without subsidy support
- Advisory regulators
- Specialist panels for arbitration, appeals, and similar types of arrangement_
- Various combinations of regulation with contractual restrictions—as in concession or privatization contracts
- Contracting out regulatory functions[9]
- High initial priority given to consumer benefits—for example, quality of service, increased access, and the protection of low-income consumers
- High levels of transparency and openness
- External guarantees and other risk-mitigation mechanisms to reduce the cost of capital for private investment
- Involvement of the regulator in post-macro-crisis debt work-out discussions

The crucial issue is whether and how far the support option is appropriate for the underlying problem. Finding matching solutions for problems is the key to generating good "regulatory fits"

[9] Tremolet (2006) shows that African and other low-income regulators appear to contract out *less* regulatory work than OECD country regulators. This is counter to what one would recommend on the basis of human resource availability.

in countries with limited regulatory capacity. The various solutions all have limitations and difficulties but all try to build up confidence in evolving arrangements.

Among the difficulties and potential solutions are the following:

- How to move successfully from initial, transitional arrangements to long-term, sustainable arrangements without temporary props—Potential solutions include the use of initial, time-limited subsidies as in the Delhi electricity concessions, or partial-risk guarantees (PRGs) as in Uganda electricity concessions
- Enabling strong advisory regulators—as in Jamaica in the mid-1990s—rather than weak advisory regulators
- Ensuring consistency between regulatory legislation and contract provisions and procedures
- Enabling contracting out and expert panels to promote rather than act as a substitute for building up regulatory capacity
- Managing the expectations of consumers, investors, and governments

The following table, taken from Chapter 4 of the *Handbook*, matches some problems with possible solutions for intermediate and transitional regulatory systems.

Table 1. Intermediate and Transitional Systems—Problems and Solutions

Problems	*Possible solutions*
Unwillingness or inability to commercialize regulated enterprise	• Explicit timetable supported by transitional subsidies with secure funding
Unwillingness or inability to transfer regulatory powers	• Strong rather than weak advisory regulator
Regulatory appeals to weak general law courts	1. Arbitration 2. Specialized appeal tribunals advised by expert panels
Uncertainty about the strength of regulatory commitments	• Regulatory and infrastructure contracts • Regulatory PRGs and similar external risk-mitigation measures
Limited regulatory resources and capacity	• Contracting out of regulatory staff functions on an advisory basis to consultants or other entities • Contracting out of regulatory decisions on a binding basis to other entities—for example, expert panels and regional regulatory bodies)
Consumer mistrust of reforms or regulation	• Openness and transparency • Emphasis on early quality of service improvements • Service expansion to unconnected customers

	• Protection of low-income customers • Open bidding for licenses or concessions
Macroeconomic crises	• Involvement of the regulator in post-crisis debt work-out discussions

Evaluating Intermediate and Transitional Regulators

Evaluating intermediate and transitional infrastructure regulatory systems is in its infancy. The *Handbook* makes a start but much more work is needed both on criteria and on methods.[10]

For evaluation purposes, the *Handbook* list of industry outcomes is highly relevant to intermediate regulatory regimes as well as independent regulatory regimes. The *Handbook* list of outcomes is reproduced as Annex II of this paper and evaluation methods for intermediate regimes are discussed in Chapter 4 of the *Handbook.*

Following the previous discussion, the evaluator of intermediate regimes needs to consider the following:

- How well the solutions adopted fit the circumstances of the industry and country
- How much the solutions improve on previous arrangements
- How far the solutions contain the potential *and* incentives to move towards "best practice" regulation

Going forward, regulatory evaluators need more experience on what mechanisms work. In particular, we need to accumulate more knowledge on what works *where, why, and how*—and what does not work, including why not. Furthermore, effective dissemination of evaluation lessons and results is crucial and regional groupings of regulators like AFUR can play a major role in this.

A better understanding is needed of how to assist the evolution of new regulatory institutions and new regulatory design models. This includes a better understanding of how to design improved support methods and mechanisms. The lessons from country evaluations are crucial for both of these aspects.

Finally, a better understanding is needed in helping to build some initial degree of regulatory support in fragile and post-conflict states with absent or barely functioning institutions. There are some helpful lessons that can be learned from Somalia, Democratic Republic of Congo, and some other similarly placed countries. This is as yet a very unexplored area. It raises extremely difficult but also very important issues which generate significant theoretical as well as practical problems. Progress in regulatory evaluation may well depend on developing a better understanding of infrastructure industry provision and institutional design in these countries.

[10] Besides Chapter 4 of the *Handbook*, see Appendix G of the *Handbook*, which includes discussions of experiences in India and the Ukraine.

7.

Concluding Comments

From the discussion in Sections V and VI above, it seems clear that good regulation does not necessarily produce good outcomes for the regulated industry but bad regulation almost always contributes to bad outcomes. Hence, there is a need for country evaluations so that we can learn from experience.

For countries beginning to construct autonomous infrastructure regulators, like many AFUR member countries, two points stand out. These are as follows:

1. Intermediate and transitional regulatory regimes typically combine contract-based arrangements with regulatory arrangements into "hybrid" regulatory models. There have been major developments over the last 5–10 years in hybrid regulatory systems, including several in Africa—for example, in Ugandan electricity.[11]

2. Although hybrid models, as well as other transitional and intermediate frameworks, look promising in helping to establish and develop effective infrastructure regulation in difficult environments, some will be more successful than others. There will inevitably be successes and failures. Hence, *ex post* evaluation will be crucial in identifying and understanding which models succeed and which fail, as well as when and why. The *Handbook,* and the evaluation tools it contains, have been designed to provide a toolkit for such evaluations.

I and my *Handbook* co-authors look forward not just to seeing the results of these evaluations but also, firstly, to seeing the lessons incorporated into regulatory policy, design, and practice; and, secondly, into further development of evaluation methodologies for regulatory institutions.

We concluded the *Handbook,* and I conclude this paper, with the following statement which is of particular relevance to AFUR member countries:

> "We would be delighted if practitioners were to find our evaluation tools useful in judging and improving the performance of infrastructure industry regulatory systems. We would be even more delighted if in 5–10 years, the methodology proposed in this *Handbook* had been field tested, built upon, and significantly improved. We have identified some specific areas where we think more work is necessary. However, we are also aware—and look forward to—future developments in evaluation methods and practice that will help improve the performance of regulatory systems in providing improved access to infrastructure services that are of better quality and that are produced more efficiently by enterprises that are commercially sustainable. A regulatory system that helps to achieve these goals can make a genuine and lasting contribution to the alleviation of poverty in developing countries."[12]

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11 See Chapter 4 of the *Handbook* and Eberhard (2006) for detailed discussion of hybrid models.

12 *Handbook,* Chapter 6, p.183 of printed edition.

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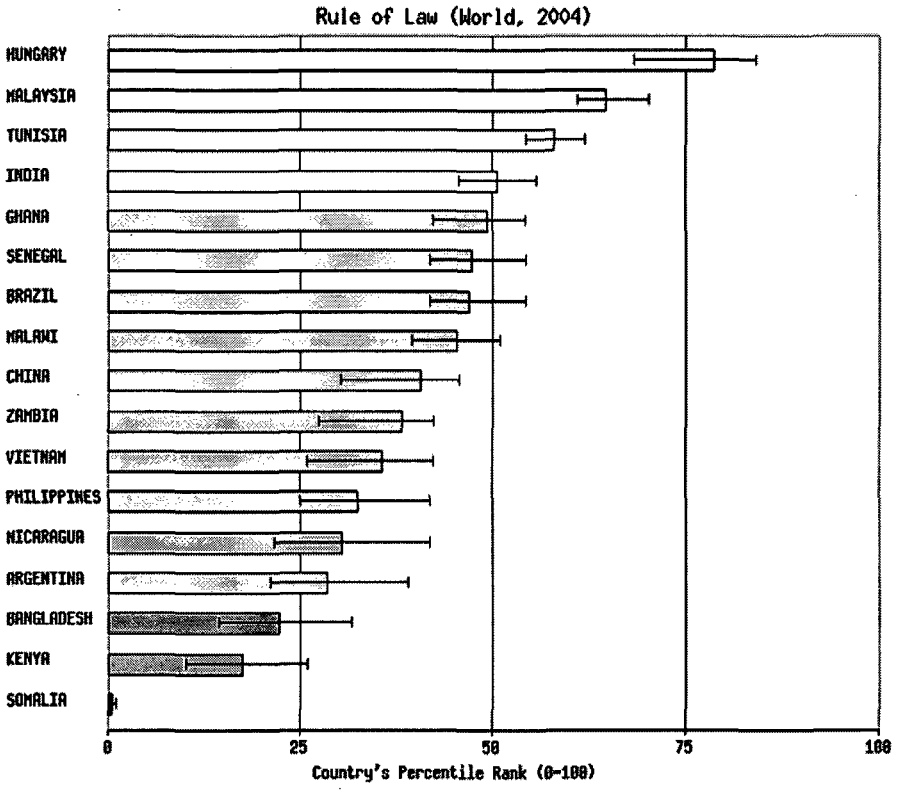
Annex I: Kaufmann Rule of Law Indices 2004



Source: D. Kaufmann, A. Kraay, and M. Mastruzzi 2005: Governance Matters IV: Governance Indicators for 1996-2004
(http://www.worldbank.org/wbi/governance/pubs/govmatters4.html)

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Annex II:

Ex Post Infrastructure Industry Regulatory Evaluations: Relevant Electricity Industry Outcomes

Regulatory decisions affect electricity industry performance on the following electricity sector 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 in production, fuel use, and consumption

(7) Competition
   a) Well-functioning bid auction markets for concessions and IPP contracts with a sufficient number of bidders
   b) Well-functioning and competitive generation and supply markets

(8) Social indicators
   a) Affordability of supply, particularly for low-income consumers
   b) Impacts on economic development

Note that these indicators can readily be modified for the evaluation of regulatory performance for other infrastructure industries such as natural gas, railways and transport, telecommunications, and water and sewerage.

Annex III:

Regulatory Sins

A Sins of Regulatory Omission

- No uniform system of regulatory accounts
- No regulatory methodologies in place
- No quality-of-service standards or seriously ineffective monitoring of regulatory standards
- No monitoring of competitive behavior or market abuse in electricity generation or telecom markets, which are intended to operate competitively
- Absence of access charges and rules for industries where there is competition over networks—primarily telecom, electricity, and natural gas, but also to a lesser extent water and railways
- Failure to adequately address consumer complaints and monitor performance
- Failure to monitor costs
- Failure to provide effective competitive tendering procedures for new capacity
- Failure to take action to raise retail tariffs that are far too low to support financial viability and justifiable levels of investment
- No clear standards for tariff setting for future tariff periods—for example, absence of clear standards for power purchase costs or distribution costs and no definition of the regulatory asset base
- No mechanism to relate payment or nonpayment of government subsidies into tariffs
- No attempt to make transparent cross-subsidies between customer classes even when supported by law
- Failure to efficiently target cross-subsidies
- Failure to deal with nonpayment issues

B Sins of Regulatory Commission

- Setting unrealistic benchmarks for efficiency or operational improvements
- Unreasonably reopening investment decisions or privatization agreements *ex post*—for example, following a change of government
- Setting prices based on the expectation that governments will deliver promised subsidies even when it is highly unlikely that governments can or will do so
- Allowing growing divergence between prices and costs
- Creating perverse incentives—for example, high returns for poor performers and socializing all efficiency gains
- No differentiation between customer classes—for example, rural and urban; grid and off-grid—in terms of quality standards
- Establishing low caps on power purchase prices that eliminate incentives to build new generation stations
- Taking emergency decisions that are damaging to long-term market development—for example, decisions on dispatch of hydro plants, on limiting exports of electricity, or fuel inputs
- Asymmetry between price caps and price floors

PPIAF Program Management Unit
c/o The World Bank
1818 H Street, NW
Washington, DC 20433 USA
Telephone: 202.458.5588
Fax: 202.522.7466
Email: ppiaf@ppiaf.org
World Wide Web: http://www.ppiaf.org