

Characterizing the Efficiency and Effectiveness of Regulatory Institutions

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Introduction: This study briefly surveys contributions to our understanding of performance-drivers in infrastructure sectors. 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.¹ 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.²

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.³ We can expect to see these methodologies utilized by international organizations and investors as they

¹ 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.

² 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.

³ 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.

evaluate prospects in developed and developing countries. Features of these approaches are described below.

1. WRI Good Governance Indicators: Transparency, Participation, Accountability, and Capacity⁴: 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 Regulators⁵: 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. WGA World Governance Assessment--Surveying Local Stakeholders⁶: The World Governance Assessment 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,

⁴ Shantanu Dixit, Navroz K. Dubash, Crescencia Maurer, Smita Nakhooda (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

⁵ Paulo Correa, Carlos Pereira, Bernardo Mueller, and Marcus Melo (2006). *Regulatory Governance in Infrastructure Industries: Assessment and Measurement of Brazilian Regulators* (April), PPIAF-World Bank. http://www.ppiaf.org/documents/recent_publications/RegulatorygovrpaperNo3.pdf

⁶ 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

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.⁷ 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 Policies*⁸: An Inter-American Development Bank 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 Performance*⁹: 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

⁷ “Weighing Regulatory Risks,” Voice&Data, (2009), March. Also see www.lirneasia.net.

⁸ 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).

⁹ R. Maria Saleth and Ariel Dinar (1999). Evaluating Water Institutions and Water Performance,” World Bank Technical Paper No. 447. http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/1999/09/21/000094946_99090305381648/Rendered/PDF/multi_page.pdf

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 Economy*¹⁰: The UK 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 Systems*¹¹: This World Bank book by Brown, Stern, & 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

¹⁰ 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.

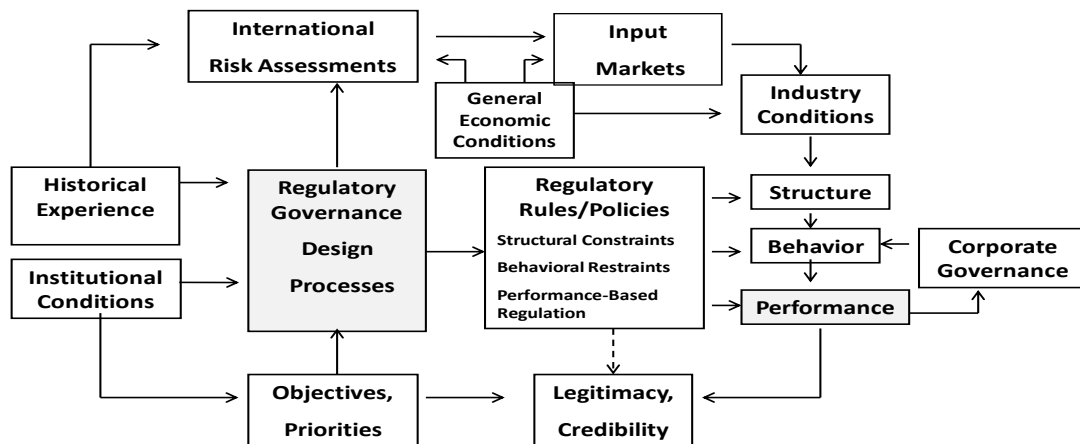
¹¹ Ashley C. Brown, Jon Stern, and Bernard Tenenbaum (2006). *Handbook for Evaluating Infrastructure Regulatory Systems*, (The World Bank: Washington D.C.) xx-397. The South East Europe Benchmarking Report at http://ec.europa.eu/energy/gas/benchmarking/doc/2/sec_2003_448_en.pdf has many features identified 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.seerecon.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.

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.¹² 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.

Factors Affecting Sector Performance: 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 unserved).¹³ 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.

Figure 1. Factors Affecting Sector Performance and Regulatory Credibility



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

¹² Andres, Luis; Jose Luis Guasch, Sebastian Lopez Azumendi (2008). “Regulatory governance and sector performance: methodology and evaluation for Electricity distribution in Latin America.” Public Policy Working Paper WPS 4494. http://econ.worldbank.org/external/default/main?pagePK=64165259&theSitePK=469372&piPK=64165421&menuPK=64166093&entityID=000158349_20080128115512

¹³ Berg, Sanford (2000) “Sustainable Regulatory Systems: Laws, Resources, and Values,” *Utilities Policy*, Vol. 9, No. 4, 159-70.

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.¹⁴ 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).

Concluding Observations: 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.¹⁵

¹⁴ 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.

¹⁵ 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

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.

APPENDIX: Integrated Evaluation for Regulatory Systems--Themes and Interview Questions

The assessment tool described below includes thirty-two open-ended questions whose topics are collected under twelve major areas (or factors). The tool could be used as an in-house self-assessment or as a survey instrument for soliciting stakeholder perspectives. Some of the questions might not elicit much information, while others could trigger observations that shed light on the factors inhibiting improvements in sector performance.

(1) Basic industry conditions

Basic conditions include production technologies, input prices (capacity, chemicals, and labor), demand patterns (and growth), and ownership patterns. When the scale economies are large relative to the market size, a natural monopoly may exist: having a single supplier can be least-cost. Such a situation leads to a market structure with a single (often vertically integrated) infrastructure firm. Common property resources (water resources and the radio spectrum) create situations that invite government intervention. Private and public ownership is another factor affecting downstream activities. Changes in basic conditions affect public policy.

(a) What are the basic industry conditions for each sector in your nation?

[The questions from the *Infrastructure Regulatory Systems* framework could be utilized for this portion of the survey.]

(b) What issues are currently most difficult to address?

[Obtaining candid responses to this question will require that the interviewer be viewed as neither hostile nor biased. If the respondent is willing to share perspectives on this question, obtaining a map of the institutional terrain—and points of concern—will be facilitated. *Drivers of Change*]

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, 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.

(2) Market structure

Market structure for infrastructure products and services can be characterized in terms of entry conditions, degree of vertical integration, and other factors. Government policies greatly influence the number and size distribution of suppliers through merger policy and the creation of franchise territories. Municipal operation characterizes some nations, while others have a single national utility (generally focusing on urban areas).

(a) Characterize the market structures of the infrastructure sectors under examination.

[Without knowledge of market conditions, the analyst has no context for evaluating a regulatory system. Technical question: *Infrastructure Regulatory Systems*]

(b) What elements are in need of reform?

[Early on, it is helpful to elicit views regarding potential limitations of current market arrangements. These can be explored further in later questions. Calls for a judgment: *Actors, Arenas and Policies*]

(c) What has kept those changes from happening?

[Even when sector performance is very poor, someone is benefiting from the current arrangements. It is important to explore who benefits from the status quo. Calls for a judgment: *Drivers of Change*]

(3) Corporate Behavior

Public policy also creates incentives involving behavioral restraints. These incentives are related to price, quality-of-service requirements, and mandates for system expansion. Sector regulators use *cost of service* (or rate of return regulation), price (and revenue) caps, and other mechanisms for constraining prices. In some cases, revenues do not even cover operating costs, which requires national subsidies or results in deferred maintenance.

(a) Characterize the approach to pricing utilized by infrastructure firms.

[Each infrastructure sector will have different cost-drivers and pricing methodologies. The question allows the interviewer to determine the extent to which a multi-sector regulator adopts different policies than a single sector regulator. Different types of concession arrangements are likely to be associated with different pressures for cost-recovery. Are there lessons for one network industry based on experience with another? *Infrastructure Regulatory Systems* has sample questions in its Short Basic Questionnaire; Part B: Electricity Industry Issues asks about pricing and service bundling.]

(b) To what extent is infrastructure network expansion an issue?

[Information on citizen access (service coverage) should be obtained. If the service is priced below cost, from where would funds for investment come? (The only sources would be taxes, cross-subsidies from other customer groups, donor agencies, and private capital.)]

(c) What are the prospects for expansion in infrastructure coverage?

[The interviewee is asked to evaluate the likelihood of network expansion in the near future. Most methodologies are retrospective in nature. However, an analyst's research will be more valuable to outsiders if infrastructure prospects are outlined, sector by sector. The question also provides another perspective on those benefiting from the status quo. Note that very poor

countries are likely to be reducing expenditures on education and health if infrastructure is given priority.]

(4) Sector Performance

Public policies affect sector performance. In the case of water, government ministries and/or regulators may mandate quality requirements and network expansion targets. Meeting targets is often encouraged through performance-based ratemaking—PBR. PBR fits into a broad category of rate-setting mechanisms that links rewards to desired results or targets by setting rates (or rate components) for a given time according to external indices rather than a utility's actual cost of service. This type of regulation gives utilities better cost-reduction incentives than cost-of-service regulation. However, for State-Owned Enterprises, the application of appropriate incentives can be developed. In developing performance standards for a PBR plan, a regulatory agency attempts to understand the utility's historic performance in order to develop an appropriate baseline for *yardstick* comparisons; determine those areas where cost savings may be realized and quality may be improved; and begin collecting information on service quality and develop measures to be used for *benchmarking* performance.

(a) What are the dimensions of performance that are most important for your nation?

[This question calls for a judgment but provides the analyst with sense of national priorities. While no individual's view on this issue should be taken as "the" answer, information on the distribution of weights can help outsiders understand the degree to which conflict is likely to arise.]

(b) How do current institutions reflect citizen participation, transparency, benchmarking, and incentives for good performance?

[A number of surveys consider these factors when evaluating good governance, although few identify incentive issues. Customer involvement might occur via Consumer Advisory Boards, NGOs, or other organizations. Is there evidence that one approach is particularly effective in educating citizens and providing feedback to service providers and regulatory agencies? Process questions can be taken from WRI *Good Governance Indicators: Transparency, Participation, Accountability, and Capacity*]

(c) What are the greatest shortcomings of current infrastructure sector performance?

[The nation may be successful in achieving high performance in some areas (efficiency, fairness, environmental stewardship). However, the remaining gaps need to be identified, since these represent tasks for the future. WRI *Good Governance Indicators* emphasizes social and environmental elements—where the latter is likely to be given less weight by political leaders with short time horizons and the former could be given excessive weight—to the detriment of financial sustainability.]

(5) Objectives and priorities

Broad economic and social objectives of citizens include freedom, equality, justice, high living standards, and technological advancement). In the context of infrastructure, political leaders attempt to discern (and shape) what citizens want from these sectors.

(a) To what extent do social values reflect a consensus or is society deeply divided? (Is there a serious political risk that a future government will overturn the infrastructure reform process?)

[This question identifies the extent of social conflict present in a nation. Without some social consensus, it is difficult to fund investments with long term impacts. Regional differences, urban-rural dissimilarities, income disparities, and other factors create tensions that delay policy implementation. In some cases, policy development is complicated by jurisdictional disputes (national, state, municipal) regarding priorities or political authority.]

(b) Who are the infrastructure reform champions in your nation? Are they your allies?

[Without prodding from political or business leaders, the press, or from NGOs, the status quo will be difficult to change. Citizen awareness of issues is partly driven by the political environment. Thus, identifying the presence of reform champions is an important element in SWOT analysis.]

(6) Institutional conditions

The institutional conditions represent the starting point for policy development. These conditions (mediated by the press and political leaders) create the context in which agencies are created and “reformed” (Levy and Spiller, 1994)¹⁶. The institutional conditions can be characterized by the extent to which there is a consensus between the legislative and executive branches of government, the judicial capabilities (and consistency in legal decisions), agency administrative capacity, informal norms, and formal rules. Informal rules are the customs that mold day to day behavior. Similarly, formal rules are illustrated by the legal framework in which organizations operate.

(a) How would you describe the institutional capacity of your nation (professional or politicized)?

[Capacity is addressed in most of the methodologies. Clearly, technical skills are necessary (but not sufficient) for a sustainable regulatory system.]

(b) To what extent does lack of an independent judiciary or the presence of corruption raise the cost of doing business and/or create a climate that rewards opportunistic behavior?

[This question addresses the sensitive issue of the roles of supporting institutional systems (the judiciary) and pervasive cultural values. Since 1995, Transparency International has published an annual Corruption Perceptions Index (CPI); the early surveys gauged public opinion, but now experts are surveyed.]

(7) Historical and International experience

History provides evidence regarding institutions and policies that have failed or been successful. Experience from other countries (or states within a nation) represent “natural experiments” regarding impacts of alternative energy policies, providing lessons for policy-makers. Thus, infrastructure performance across jurisdictions and over time provides a yardstick for determining whether performance is sub-normal.

(a) Where do you seek lessons regarding best practice?

[Few surveys seek this information, yet it is important for donor groups that are considering support for capacity building.]

(b) What laws or regulatory procedures would you like to adopt (or adapt) from other nations?

[Awareness of regulatory systems in neighboring (or other) nations indicates that the interviewee has a broad perspective.]

(8) International risk perceptions

International perceptions tend to be beyond the control of sector regulators, but they affect investor attitudes and thus, the cost of capital (reflecting required interest rates on bonds and expected returns on equity investments). One area where public policy does affect international perceptions is the

¹⁶ B. Levy and P. Spiller (1994). “The Institutional Foundations of Regulatory Commitment: A Comparative Analysis of Telecommunications Regulations,” *The Journal of Law, Economics, and Organizations*. 10 (2).

predictability of government policies and regulatory rules. Generally, risk perceptions are beyond the control of regulators.

(a) To what extent are the rules of the game continually changing, making investors less willing to commit substantial funds to projects whose cash flows depend on a stable regulatory environment?

[Risk perceptions and techniques for risk mitigation are important for those nations seeking private investment in infrastructure. The very poorest nations are not likely to have income levels that can support substantial network expansion. Realistic investment targets must be communicated to citizens. The issue of predictability is raised in a several surveys that go beyond processes to policies.]

(b) Has sovereign risk increased corporate risk or the risk of sub-sovereign entities?

[Private participation via the issuance of commercial grade bonds by municipalities represents one way to expand network coverage for some services. This is a relatively new area, but is likely to become more important, especially for the water sector.]

(9) Regulatory governance

Stepping back from how basic conditions affect the structure, behavior, and performance of an industry, we need to recognize the important role of the features characterizing the agency responsible for implementing public policy. Regulatory governance includes the legal mandate given to a government agency, resources available for policy implementation, the organizational design of the agency, and the processes adopted by the agency all affect regulatory activities.

(a) Is there clarity in terms of which agency is responsible for implementing particular policies?

[This question appears in most of the surveys.]

(b) Are there intra-governmental rivalries?

[This question seeks a little more nuanced look at the issue. Predictability is affected by inter-governmental conflicts.]

(c) Is there a performance contract that is monitored by the regulator?

[The factual question appears in several surveys. Contracts represent one way to limit regulatory discretion.]

(10) Regulatory Incentives

Policy incentives can include taxes and subsidies; incentives discourage and encourage a variety of activities. The significant policy issue involves designing incentives that promote cost-cutting, service quality, and network expansion.

(a) Which regulatory incentives have the greatest impact on the cash flows that can be obtained from operating productive assets? For example: non-revenue water and uncollected bills.

[This question attempts to elicit information about current challenges.]

(b) Does the regulator have adequate information to evaluate corporate performance? To what extent is benchmarking data available to help analysts evaluate the relative performance of infrastructure service providers?

[The extent of information asymmetry affects the types of incentive mechanisms that are feasible. The legal framework affects the ability of regulators to obtain data. State-owned enterprises can

be particularly difficult since they report to Ministries that may have different agendas than the regulator.]

(c) Does the regulator have adequate rewards and penalties to provide incentives for firms (via rate of return regulation, price caps, and hybrids)?

[Sometimes legal constraints limit the ability of the regulatory agency to design effective incentive systems. Privately-owned enterprises are usually in a better position to translate external incentives (returns) to performance-related rewards for internal purposes.]

11. Corporate governance

For best performance, activities internal to a firm should not be micro-managed by regulators. Corporate governance includes the allocation of decision rights within the firm (hierarchical vs. team decision-making) as well as incentive systems that reward good managerial performance.

(a) Have managers designed pay plans that compensate people for high levels of effort and performance?

[This factual question is not typical of other surveys, yet it provides useful information to an outside analyst.]

(b) Do performance evaluation mechanisms monitor internal reward systems?

[This question seeks information on internal incentives. This is particularly important to understand the governance of state-owned enterprises.]

(c) Are reports widely disseminated, transparent and audited?

[The issue of transparency is central to a number of methodologies that emphasize “process”, such as WRI *Good Governance Indicators*.]

(d) To what extent does the economic power of public employees, the role of unions, corruption, or political patronage limit efficiencies?

[This issue is extremely sensitive, yet it represents a challenge for state-owned (or municipally-owned) service providers. For the five nations considered in this study, the roles are significant.]

12. Legitimacy and credibility

Citizen acceptance of public policies, sector outcomes and the political processes that lead to those policies depends on how well industry performance matches shared national objectives. Without a political consensus, the legitimacy of the system is continually called into question—as policies become unpredictable. Private investment is a voluntary activity: investors will shy away from projects, companies, or nations whose returns are low relative to the risks. Public investment (through legislative budget outlays or through cash flows to municipal utilities) and donor funds are also affected by utility performance.

(a) Does lack of consensus stem from disagreement regarding “facts” (such as whether the utility is performing well)?

[Conflict resolution would depend on obtaining and disseminating information if this is the source of citizen disagreement (which gets reflected in political representation).]

(b) Does lack of consensus among stakeholders lead to conflict (providing low income citizens with access to water vs. keeping prices low for those with service)?

[The lack of consensus might reflect differences in “interests” or differences in “personal values”.]

(c) Does your organization have strategies for addressing technical issues (that uncover facts)?

[Processes that involve workshops can resolve technical issues. Several surveys include regulatory capacity indicators as important elements for good governance.]

(d) Does your organization have strategies for addressing adaptive issues (those requiring that leaders identify challenges, disclose threats, expose real conflicts, and challenge existing norms)?

[The focus on leadership is emphasized in the *Drivers of Change* methodology and in the *Actors, Arenas, and Policies* approach.]

This concludes the description of the approach we have labeled *Integrated Evaluation for Regulatory Systems*. The survey questions are not unlike those posed in a number of the seven methodologies surveyed here. The approach does permit an analyst to have a structured telephone interview or a short on-site interview. I would not argue that this approach is substantially better than the alternatives.