

International Infrastructure: Neglected at Our Peril

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This paper describes the constellation of factors affecting infrastructure investments and utility operations. Independent regulatory commissions exercise most direct control over two factors: governance (agency design and processes) and regulatory policies (or incentives). Other factors are generally outside the regulatory domain but may influence or be influenced by regulatory governance and policies. These other factors include institutional conditions, national experience, perceptions of risk, and industry conditions—as they affect the structure, behavior, and performance of utilities. In addition, corporate governance determines the way private and public suppliers provide information and respond to incentives. Ultimately, the legitimacy and credibility of the regulatory system depends on how closely infrastructure performance matches realistic national objectives. Weak performance does not bode well for global security in the future.

Infrastructure provides a foundation for nation building. Without adequate telecommunications, energy, or water, a society will find it difficult to achieve social stability and promote economic development. One could argue that the issue boils down to one of “money”. When asked why he robbed banks, a notorious gangster is alleged to have said, “Because that’s where the money is.” I could imagine asking the manager of a multibillion dollar pension investment fund why she did not include in her portfolio infrastructure projects in emerging markets. The likely response would be, “Because that’s not where the money is.”

We might consider where investments in these sectors *are* apparently profitable as we move into the new millennium. Multinationals are investing billions to create designer brands of bottled water (using “filtered” piped water from local cities). Meanwhile, much of the world’s population is without clean water. Corporations chase after the newest innovations to bring high bandwidth to homes, so consumers can obtain movies on demand and be connected via telecommunications devices that fit into shirt pockets. At the same time, access to telecommunications in emerging markets remains low. Citizens in developed countries battle over whether and where to site new electricity generation and transmission facilities (while energy conservation programs remain on the backburner). And the rest of the world is in desperate need of clean energy.

During the next decade, is it possible to re-direct investments into infrastructure projects that lay a foundation for moving billions of people out of poverty? If there were a simple answer for this question, this article would be quite short. In point of fact, there is no “answer” to the problem of development. Such a complex problem is not solved, only *managed*. Over the past decade, political leaders in emerging markets have begun to address these sectoral issues in a serious, but often unsuccessful, manner.² Historically, for many countries, politicians promised to expand infrastructure access, utilities pretended to supply good service, and consumers pretended to pay for it. Allegedly to promote access, politicians set prices that were below cost. National budgets hemorrhaged due to subsidies and other reasons, leading many government Ministries to look for other ways to promote infrastructure expansion, including private participation. Regulatory institutions represented one new element in the socio-economic environment. However, continued slow progress in reform means that hundreds of millions of people will still experience standards of living that would crush most of us were we to switch identities with the poorest of the poor.

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² William Savedoff and Pablo Spiller eds. *Spilled Water: Institutional Commitment in the Provision of Water Services*, Washington, D.C. Inter-American Development Bank, 1999.

A number of factors influence infrastructure performance—many of which are beyond the control of sector policy-makers. In some countries, creation of independent regulatory commissions has improved investor confidence in new infrastructure initiatives. This article examines the forces that shape regulatory policies affecting investment in and operation of infrastructure firms. In addition, it identifies initiatives developed countries can adopt to help new regulatory regimes implement sound policies.

Investment Delayed is Service Denied

Many of the steps towards improved infrastructure involve altering institutional conditions in the nations themselves. Such changes cannot be imposed from the outside, but must be the result of political leaders' educating citizens about the long-term consequences of continuing with the status quo. Political disorder and ineptitude will continue to delay initiatives in some countries. However, many others are in the process of doing the hard work of building governmental institutions that can provide stable frameworks for those making decisions within these sectors. With well-designed policies, we can expect privately and publicly owned firms to expand infrastructure investment and operate these systems more efficiently than in the past.

According to a recent World Bank study,³ in the last decade of the twentieth century, more than 120 developing countries brought private sector participants into infrastructure industries. These countries awarded over 1,900 projects reflecting about US\$683 billion, primarily in telecommunications, with electricity being significant as well. The study notes that during this period nearly 200 sectoral regulatory commissions or agencies were created to balance the interests of investors, consumers, and other government groups (especially ministries that formerly developed policies and operated enterprises). Infrastructure policies in emerging markets are implemented by newly created regulatory commissions. Their task involves promoting credibility to investors, legitimacy for customers, and efficiency for the economy as a whole.

To create a sustainable regulatory framework, these agencies must be insulated from daily political pressures—yet remain accountable within the legal system via due process. Effective commissions implement public policy through rulings on entry, pricing, service quality, and system expansion targets. One lesson from recent experience is that these decisions should be based on information gathered through transparent processes that facilitate stakeholder participation.

Consider one emerging nation's experience with infrastructure. Entrants into the sector devoted considerable managerial attention and financial support to shaping national policy towards the industry. Political contributions to regional and national legislators lead to governments helping firms attract international investment capital. However, corporate insiders gained at the expense of shareholders by padding construction contracts (from which they benefited). The entrepreneurs obtained great wealth but the companies became debt-ridden and many finally fell into bankruptcy. Constructed using poor designs and materials, portions of new infrastructure networks had to be re-built almost immediately. Bribery and corruption characterized the industry, as field supervisors and contractors misallocated resources to their own advantage.

Where and when did these events occur? Answer: In the United States, in the last half of the 1800s. The history of the U.S. transcontinental railroad reminds us that private and public fraud is not new to the development of network industries (Bain, 1999). U.S. experience with railroad infrastructure investment provides at least three lessons for the 21st century:

- Information, accountability and incentives matter. Large projects with substantial sunk costs can result in opportunistic behavior by various stakeholder groups.

³ Gray, Philip. 2001. "Private Participation in Infrastructure: A Review of the Evidence." Washington D.C.: Private Sector Advisory Services, World Bank. In developing countries, investments in private participation infrastructure projects in the water and sewerage sector accounted for \$32.7 billion during 1990-2000, compared to \$292 billion in telecommunications and \$196.9 billion in electricity (Gray 2001).

- Entrepreneurs, equity-owners, debt-owners, governments, and input suppliers can have conflicting interests that often result in waste, theft, and significant wealth re-distribution.
- To avoid economic inefficiency and social inequity, the oversight agency must have an appropriate legal mandate, a shared set of operating principles reflecting national values, and a budget that enables the agency to perform the activities necessary to implement good incentives.⁴

While we have a track record of some regulatory successes, the U.S. has had significant lapses in the areas of regulatory design and corporate governance. The Savings and Loan scandals resulted in the losses of billions of dollars. Most recently, the California electricity crisis and the collapse of Enron and Global Crossing suggest that energy and telecommunications present significant public policy problems even in mature developed economies. We do not know the extent to which these recent failures will reduce investor interest in infrastructure in developing countries, although it seems that they will dampen enthusiasm for network projects involving long time horizons that depend on government policies. In the case of emerging markets, the costs of delayed and mismanaged investments will be significant. Investors face other opportunities—they will turn to regions of the world where the risks and rewards are more favorable.

A Framework for Designing Infrastructure Policies

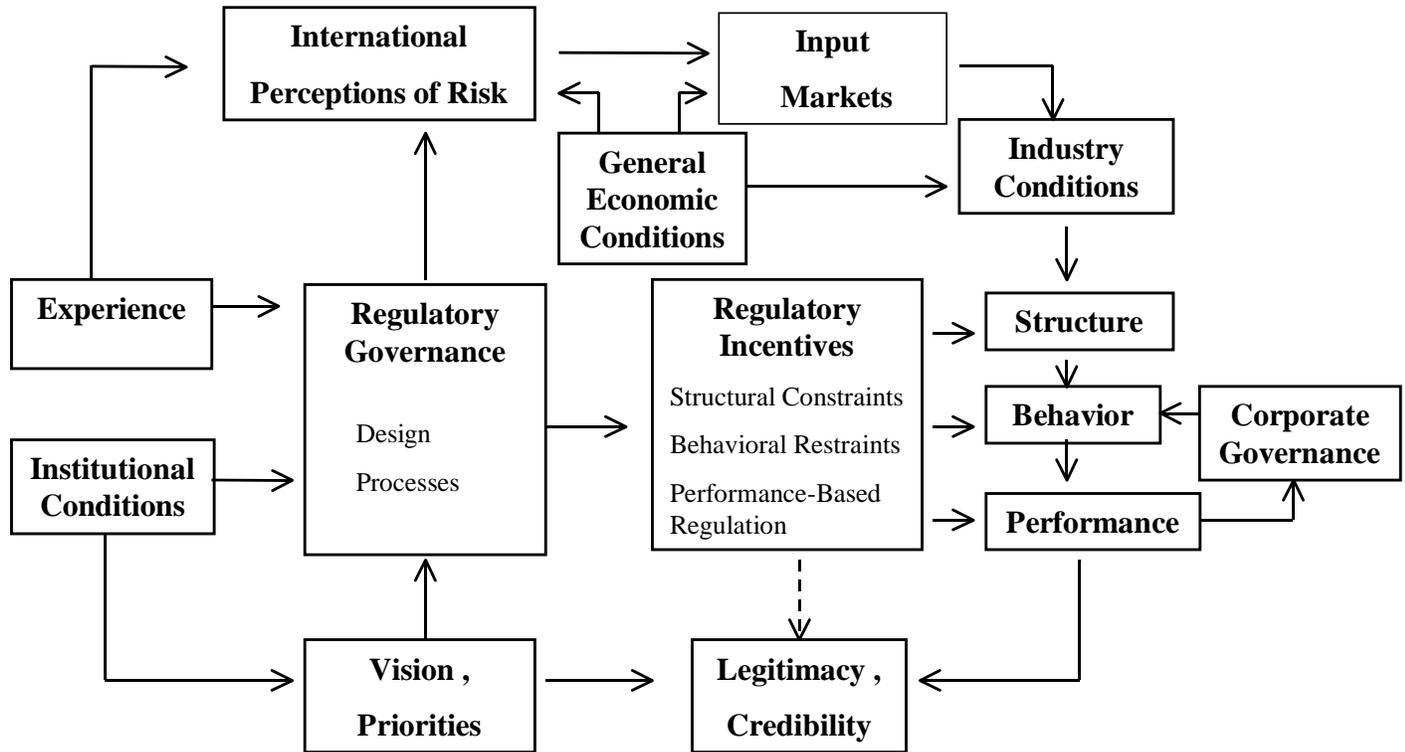
How then can a nation establish a track record that makes it a candidate for private investments? No infrastructure regulatory policy will prove to be ideal in all settings. The following factors interact to determine the economic and political sustainability of outcomes in the energy, telecommunications and water sectors:

- (1) Priorities (what citizens want from infrastructure sectors),
- (2) Institutional conditions (the starting point--the context in which regulatory commissions are created),
- (3) International experience (what we know about infrastructure performance in a cross-country and historical perspective),
- (4) International risk perceptions and general economic conditions (particularly as these affect investor attitudes),
- (5) Input markets and industry conditions (that determine the effectiveness of investment),
- (6) Regulatory governance (both the design of the agency and the processes adopted),
- (7) Incentives created by structural constraints (entry conditions and unbundling),
- (8) Incentives created by behavioral restraints (related to cost-of-service regulation or price caps, quality-of-service requirements, and mandates for system expansion),
- (9) Incentives stemming from performance-based regulation (targets and sharing plans),
- (10) Corporate governance (procedures to limit how insiders might adversely affect investor interests and sector performance),
- (11) Legitimacy and credibility (based on how well industry performance matches the social consensus associated with a shared political vision).

Figure 1 below depicts the circular dynamics of the larger decision-environment, in which government policymakers, regulators, network utilities, and public and private sector investors operate and interact.

⁴ Sanford Berg, "Sustainable Regulatory Systems: Laws, Resources, and Values," *Utilities Policy*, 9 (2000) 159-170.

Figure 1. Factors Affecting Performance and Regulatory Credibility



What Do People Want? (Visions and Priorities)

Parents want clean water and good health for their children. Workers want jobs that utilize and develop their skills. Investors want to achieve high returns and to avoid risk. Managers of infrastructure firms respond to incentives established by top executives, boards of directors, and public policy. Downstream managers seek low-cost energy and telecommunications services. Citizens desire infrastructure services that support a rising standard of living. Ultimately, political leaders sort through the claims of various stakeholders, developing policies that promote outcomes valued by their key constituencies. Unfortunately, some of these constituencies are politically powerful groups that benefit from the status quo—which means that often, only a crisis can trigger genuine reform initiatives.

The political processes in every nation decide how to achieve improved performance in key infrastructure industries. Until the 1990s, most of the world depended on government ownership for provision of water, energy, and telecommunications services. As has been noted, sector performance was often poor and funding for needed investments was not possible, given the fiscal constraints facing governments. Thus, public policies in many nations have as one objective private investment that supplants or supplements public funds for network industries. National leaders have had to consider the requirements for attracting investment and for promoting efficient operations within these highly visible and politically salient sectors.

When network industries were under government ownership, price structures often subsidized politically favored customer groups. Then, when costs exceeded revenues, vertically integrated public enterprises sought capital from the government. Declines in service quality and low penetration rates resulted when fiscal pressures limited cash transfers to electric utilities or telecommunications suppliers. In response to

this situation, private participation in the provision of infrastructure services has increased dramatically as developing countries have restructured their public enterprises. Many organizations have been *corporatized*: they remain publicly owned but are put on a commercial basis by separating their operation from government ministries or other agencies. Thus, the entities now pay dividends to the Treasury and obtain funds for investment from capital markets, government loans, or multilateral lending agencies. Once corporatized, some entities have been *privatized*: sold in part or wholly to private investors.⁵ In either case, some government oversight remains necessary.

A major objective involves constraining the exercise of market power. Portions of these network industries are natural monopolies. That is, a single supplier is the least-cost arrangement for providing a service such as electricity transmission or distribution. However, unregulated monopolies tend to set prices yielding excessive returns. In the case of public ownership, excessive returns may go to the Treasury, but are more likely to be dissipated among stakeholders (politically powerful unions and customers) since incentives for cost containment are not strong. In fact, in many countries utility prices are less than operating costs—meaning that the Treasury subsidizes infrastructure firms, often leading to inadequate funding for needed maintenance and capacity investments.

In addition, since prices greater than (or less than) incremental cost do not promote allocative efficiency (another economic objective), some form of oversight or intervention is required. Beyond concerns for efficiency, the objective of fairness needs to be addressed. In the case of private ownership, without regulatory oversight, consumers can face monopolistic prices, with the above-normal profits going to shareholders. Similarly, investors require an opportunity to obtain returns on capital commensurate with the risks. Thus, regulators implement policies to promote the achievement of objectives, including efficiency and fairness--making appropriate trade-offs where necessary..

Clearly, if the numerical targets associated with those general objectives are unrealistic, the regulatory process cannot succeed. Thus, identifying and communicating key objectives is an important task for policymakers. The vision should stretch capabilities, but not be unrealistic. If visions are not grounded in reality, rhetoric rules the day and ultimately leads to disappointment and a denial of legitimacy for regulatory commissions. In their role as educators, regulators must interact with the various stakeholders, setting realistic objectives, explaining how policies have been designed to promote the good sector performance, and monitoring the degree to which goals are achieved.

What is the Starting Point? (Institutional Conditions)

Since institutional conditions influence both the political vision and the political will behind these social and economic priorities, we turn to this key factor affecting these important sectors. These conditions include such factors as the strength and independence of a country's judicial system, the nature and stability of its political processes, the autonomy of regulatory officials and the resources at their disposal, and the nature and historic enforcement of property rights and laws that pertain to infrastructure development policy. A nation's institutional endowment affects the design of the regulatory system and the ability of regulators to pursue independent policies and make credible long-term commitments to private investors.⁶

Levy and Spiller⁷ note that institutions consist of formal and informal rules within a society. Formal rules reflect the legislative and executive branches of government. The resulting degree of social stability (cohesion) affects the effectiveness of the political system. Judicial capabilities basically determine whether a nation has a rule of law. Because contracts may not be honored, the judicial system plays a role in determining expected returns to investors. Administrative capacity affects the implementation of laws. Finally, informal norms represent those values and customs that condition day-to-day interactions. Institutional conditions are reflected in corruption, political stability (and legitimacy), respect for property

⁵ In fact, there is a continuum between public ownership and private ownership involving different degrees of private participation.

⁶ Witold Jerzy Henisz, "The Institutional Environment and Economic Growth," 12, *Economics and Politics*, 2000, 1-31.

⁷ B. Levy and P. Spiller, eds. *Regulations, Institutions and Commitment*, Cambridge, 1996.

rights, and consistency in adjudication. Levy and Spiller analyze the implications of institutional conditions for energy, telecommunications, and water sectors, looking at ways to counteract the tendency of governments to behave opportunistically toward those providing funds for infrastructure investments. Once funds are sunk into physical capital, the cash flows providing returns depend on regulatory decisions. They distinguish between two basic features of regulation: governance and incentives (policies).

What Do We Know? (International Experience)

The choice of future policy is influenced by local, national, and international experience with infrastructure regulatory policies and industry performance under past regulatory regimes (both in absolute terms and relative to the corresponding performance in other jurisdictions). Because participants in financial markets face a wide range of investment opportunities, international comparisons are particularly relevant when it comes to selecting which projects to fund. A country's own historical record generate trends or patterns that influence perceptions. These patterns affect the political will to create a sustainable (and effective) regulatory system. Project entrepreneurs consider the benefits and costs of projects in various countries or jurisdictions, with investors seeking returns and avoiding risk. Thus, managerial decision-makers are faced with the task of quantifying expected returns and risks and communicating that information both to the capital markets and to the government agencies whose policies affect risks and returns.

Because of investor reticence, many nations have entered into long-term energy supply contracts, established exclusivity periods for newly privatized telecommunications firms, or provided loan guarantees. However, when the previously subsidized, low prices were not changed prior to taking new initiatives, the resulting financial liabilities often became unsustainable. As contracts and entry barriers created pressures for revising the original arrangements, systems were perceived as dysfunctional.⁸

What Are Investors Looking for? (International Perceptions of Risk and Economic Conditions)

Global capital markets providing financial resources to infrastructure firms are impersonal. Reports on country risk appear in the *Institutional Investor*, the *Economist* and other publications. Investors examine the system of regulatory governance and the historical experience and prospects to determine how regulators are likely to deal with public pressures for excessively low prices. Thus, analysts also examine sector-specific threats and opportunities. Managers evaluate risk on the basis of historical experience and expectations regarding the future. Experiences over the past decade underscore the need to have a full understanding of the rules of the game. If potential entrants do not know how they will be treated in a new regulatory system, they are unlikely to commit to long-term investments.⁹ In addition, if forecasts of income growth do not support growing effective demand, both the financial sustainability of projects and political stability are called into question.

It is fair to say that investors are not necessarily looking for "sweet deals". Ultimately, unreasonably high returns become lightning rods for political entrepreneurs to alter the terms of contracts. Rather, suppliers of capital seek the opportunity to earn returns commensurate with risks. If the investment climate improves or managers are able to significantly reduce production costs, initial investors will earn above normal returns. Note, this is a good outcome for countries in need of capital.

Successful outcomes breed success. Bonds will be re-valued upwards to reflect the reduced risk and equity owners obtain higher residual cash flows than initially expected. Equity owners will experience increases in share values as expected future cash flows are discounted at lower rates. However, if regulators attempt to re-capture these returns on behalf of consumers, the action merely re-ignites fears that the investment climate is poor—ultimately leading to less private participation in infrastructure projects. Similarly, if prices are do not support the financial sustainability of the enterprise, the resulting withdrawal of capital and deterioration in service quality often lead to public take-over of the utility—renewing the cycle of

⁸ See Ioannis N. Kessides, *Reforming Infrastructure: Privatization, Regulation, and Competition*, World Bank and Oxford University Press, 2004.

⁹ Willis Emmons, *The Evolving Bargain: Strategic Implications of Deregulation and Privatization*. Harvard Business School Press, 2000, xii-259.

public subsidies and the politicization of infrastructure. If political pressures lead to risk-return outcomes that are perceived as unfavorable, investors will refuse to provide capital. Such developments ultimately hurt the consumers who would benefit from the additional output. Breaking that cycle represents a challenge for those concerned with improving performance in these sectors.

How Does Investment Affect Outcomes? (Input Markets, Industry Conditions, and Performance)

This factor includes a nation's employment, savings, and inflation rates, as well as the strength, stability, and diversity of its economy, its balance of trade, and the strength and stability of its capital markets. Macroeconomic conditions are clearly beyond the control of regulatory authorities, but they affect the cost of capital and prospects for demand growth. Macroeconomic risk is caused by indigenous or exogenous macroeconomic factors, such as poor crops, economic policies that cause high domestic demand, or a decline in prices for a country's exports, all of which adversely affect a country's balance of payments and thereby the availability of foreign exchange. In addition, general economic conditions affect perceptions of future prospects.

Models of economic development emphasize the role of input markets (e.g., labor) for attracting financial capital, funding the purchase of equipment, providing skilled labor, rewarding entrepreneurship, and assembling natural resources. Regarding financial capital, local participation in the provision of equity greatly reduces the political sensitivity to headlines related to corporate profits. For example, stock ownership by domestic pension funds broadens the political support for keeping regulatory commitments—as is the case in Chile. In addition, health and education policies are key determinants of the effectiveness of human capital, and poverty can be attributed, in part, to the absence of a skilled labor force.

Income growth is one of the factors driving *demand*—one of the basic industry conditions outside the control of regulators. *Supply* is determined by available technologies and input prices. *Information* is another determinant of basic conditions. Local managers have better information than regulators regarding demand patterns and the potential for cost containment. Finally, *ownership* represents another element affecting the number and size distribution of firms. Public ownership of infrastructure has generally involved territorial (and vertically integrated) monopolies, so any transition to more competitive environments must confront restructuring as well as private participation.

How Should We Design a Regulatory Commission? (Regulatory Governance)

Regulatory governance can be divided into two components: agency design and regulatory processes. The first component relates to the clarity of roles, autonomy, and accountability of the commission. Clarity of roles refers to the division of responsibility between the regulatory commission and the government ministry responsible for developing broad policies. Conflicts are likely if the roles are not clear, and this creates uncertainty regarding how policies will be implemented in the future. Similarly, if political intervention occurs regularly, we would say that the commission's autonomy is compromised. Finally, accountability is important, since the legitimacy of the commission depends on wide understanding and acceptance of the methodologies used in reaching decisions.

The second component of regulatory governance includes features of the regulatory process: participation, transparency, and predictability. Regulatory commissions are more likely to base decisions on reality if consultation with stakeholders is part of the process. Similarly, the openness of the process and access to reports on which decisions are based reduce the likelihood that arbitrary rules will be promulgated. Finally, the consistency of decisions over time gives stakeholders some confidence that rulings are based on facts and the law, not on political pressures. The regulatory process ultimately results in the application of regulatory instruments in creating incentives for suppliers.

Because the policies (or rules) that emerge from the regulatory process can change over time, the nature of the regulatory process takes on importance. In nations with no track record or minimal experience in regulatory matters, the uncertainties facing private investors will not be resolved for a number of years. That added risk results in a demand for higher returns by capital markets to compensate investors for risk when the "rules of the game" are vague or subject to revision. If it turns out that commitments are met and

outcomes are "best case" rather than "worst case", the realized returns will appear to be high. However, at the time of the investment, perceived risks were real. Given a number of such situations, results in some countries will involve worst-case outcomes. Thus, on average, investors will obtain the returns commensurate with anticipated risks. However, if regulators "claw back" those high returns but do nothing when realized returns are low, the asymmetric treatment will further raise the cost of capital. If financial markets expect a new regulatory body to behave in such a way, the initial cost of capital is higher than otherwise (reflecting the lower expected returns associated with asymmetric regulation). If suppliers of financial capital believe that the regulatory process is predictable and even-handed, funds will be available at a lower cost.

How Do Regulatory Policies Affect Performance?

Regulatory policies are established over time. Incentives that result from regulatory rulings affect three broad areas: *market structure* (related to entry and vertical integration/disintegration), *corporate behavior* (price caps, reliability mandates, service standards, network modernization requirements), and *industry performance* (sharing rules that limit upside and/or downside returns, or penalties for missing regulatory targets for network expansion). Regulators may be tempted to try to micromanage industries for which they have oversight responsibilities, but they are unlikely to have comprehensive information regarding the feasibility of new technologies, opportunities for cost containment, or demand patterns for different customer classes. Thus, "light-handed" regulation with an emphasis on incentives is replacing more detailed interventionist approaches to regulation. We will briefly the three types of regulatory invention: structural constraints, behavioral restraints, and performance-based regulations. Of course, actual policies are likely to be hybrids of these three.

Structural Constraints: Although policies concerning entry certainly affect the structure of an industry, basic conditions determine the configuration of suppliers that will provide goods and services at least cost. Economists characterize an industry structure in terms of the number and size distribution of firms, entry conditions, degree of product differentiation in the market, and extent of vertical integration. Thus, a competitive market has many firms, easy entry, homogenous output (not differentiated), and firms are generally not vertically integrated. A monopoly would be a single supplier. Historically, policy makers have viewed infrastructure providers as "natural monopolies": so they restricted entry into market segments that had high prices relative to costs on the grounds that a single firm most efficiently supplied infrastructure services. Regulators make rules regarding exclusivity periods, entry, and vertical integration/unbundling.

Behavioral Restraints: Firms make decisions about the price, quality, and variety of their outputs. In the case of infrastructure, service to rural regions is much more expensive than to more densely populated areas, but politicians have been reticent in allowing differential pricing that reflected differential costs. Of course, under-pricing rural services establishes a clear disincentive for expanding service penetration due to the negative impacts on corporate cash flows. In addition, regulators set targets for reliability or other dimensions of service quality. In other cases, consumer information may be monitored, investment siting will be reviewed, and environmental impacts taken into account.

Historically, multiple policy objectives lead to utility operators making trade-offs. When political rhetoric rather than economic reality drives decisions, the result is likely to be weak sector performance. Thus, we are seeing the separation of policy making from policy implementation and utility operation. The creation of independent regulators and the corporatization process have promoted greater transparency in the development of rules that affect operators. In addition, new regulatory institutions facilitate participation by stakeholders—including those who are not receiving infrastructure services.

Performance-Based Regulation: Ultimately, what politicians and consumers care about is that infrastructure sectors perform well, with prices in line with costs and adoption of innovations so that service is comparable to that in peer countries. Citizens are concerned about prices, service quality, access to infrastructure services, low environmental impacts, and whether firms are obtaining "excessive" profits. Given the political visibility of infrastructure firms, poor performance is likely to lead to calls for "reform".

Why Is Sector Performance Often Weak?

With the Enron debacle, the collapse of a number of international telecommunications firms, and problems with water concession contracts in some major cities, we are beginning to realize that investors (and citizens) cannot take manager-provided information for granted. Firms, whether privately or publicly owned, can be viewed as organizations characterized by decision rights, implementation responsibilities, incentive programs, and auditing/reporting systems. Investors are affected by lack of credible information, poor internal incentives, and cozy relations among subsets of stakeholders, particularly in emerging markets. Thus, the behavior and performance of firms depend on corporate governance. Regulatory policies can provide investors with some kinds of data that might otherwise be unavailable—via yardstick comparisons across firms and comprehensive reporting requirements.

We come full circle when we compare actual sector performance against the expected performance implicit in the vision and priorities associated with public policy. I have been describing a complex system where regulatory processes attempt to manage conflicts among stakeholders. When goals are achieved, policymakers, regulators, managers, and consumers are likely to be content with the outcome. A record of accomplishment yields broad-based support for the industry and for government. The absence of crisis means that stakeholders gain confidence in the regulatory system, which gains public good will that regulators may need at some point in the future.

However, outcomes are not always favorable. If the regulatory commission has promised improvements in service quality, yet reliability has deteriorated, performance does not match the promise. Politicians take up the call for “reform” when consumers are upset. There are several potential explanations for poor performance. First, the stated objective may have been unreasonable, given other constraints. For example, prices could have been frozen for political purposes, which leaves firms unwilling to make needed investments to improve service quality when the expected returns are less than the cost of capital. Second, inept managers may have wasted opportunities to improve quality. In this situation, mechanisms of corporate governance have failed to anticipate and discipline those responsible for poor performance. Third, the regulatory policies may have involved poor incentives that gave only weak signals to suppliers.

A similar analysis can be applied if the firm earns far less than its cost of capital. Financial sustainability of the firm must be a regulatory objective from the start of the process; otherwise, no funds will be forthcoming. Yet poor financial performance can arise from developments outside the control of regulators (say, an exchange rate crisis, or poor management, or unreasonably low prices that did not give the firm an opportunity to earn its cost of capital).

Whatever the reason for coming up short, stakeholders now begin playing the “Blame Game.” When prices are “too high” or service quality “too low”, the legitimacy of the regulatory system as assessed by consumers is called into question, even though the “true” reason for poor performance may not be known (or knowable). In the case of weak financial performance by the corporation, the credibility of the regulatory system as evaluated by investors is called into question. In either case, the regulatory regime’s sustainability is problematic if it loses either legitimacy or credibility. Note that economic efficiency in a sector supports both legitimacy and credibility, since value-creation associated with efficiencies can be allocated to both consumers and to investors.

Concluding Observations

I began by underscoring the importance of getting capital into infrastructure. It is said that a lot of money is tainted . . . tain’t yours, and tain’t mine. As individuals, we cannot do much to supply funds that will transform the lives of millions. However, international financial markets do have the capacity to make a difference in infrastructure—even where you and I cannot. These impersonal forces will not allocate capital to new projects in energy, telecommunications, and water unless expected returns compensate for the expected risks. The above overview of the forces affecting the performance of regulators and suppliers in emerging markets underscores the complexity of the problems facing people: regulators implementing

policy, courts determining the legality of new rules, investors evaluating the political climate in different countries, managers devising strategies for meeting regulatory initiatives, political leaders responding to (and shaping) the views of stakeholders, consumers expressing dissatisfaction with service quality, and unserved citizens feeling ignored by government and industry. The framework offers some important lessons for how governments, foundations, and multilateral organizations can promote the expansion and efficiency of infrastructure without subsidizing either local governments or companies.

1. **Avoid big projects.** Funding agencies enjoy being able to send representatives to ribbon-cutting ceremonies. However, they do not have a good track record for selecting projects and then following through on monitoring the operations of organizations. I am aware of aid programs that get money to villages, but those funds are then wasted through political favoritism and managerial ineptitude. When the projects are huge, the misallocations are magnified.
2. **Avoid diffuse projects.** The current emphasis on poverty alleviation is understandable, given the terrible inequities that threaten to tear apart nations and to trigger global unrest and terrorism. Poverty programs can improve the quality of life for people today. Nevertheless, allocating scarce resources as band-aids can mean that emerging nations do not develop mechanisms that limit the likelihood of cutting themselves. Furthermore, the designated beneficiaries may not be the ones who actually benefit from the funds.
3. **Maintain a balance between payoffs in the present and the future.** There are trade-offs between short-term poverty alleviation and long-term economic transformation. Consider an initiative that can improve the lives of one million people immediately. Given budget limitations, funding that project could mean that another project benefiting ten million people in five years is not funded. I am not prepared to advocate ignoring the immediate benefits associated with the first project—only to emphasize that initiatives that have short-term payoffs may be less risky than others, but they may also have far less impact.
4. **Develop demonstration initiatives.** Managers in large funding agencies would rather monitor one large grant than a collection of smaller ones. However, it seems that we need to identify the differential impacts of a variety of programs and to quantify the costs and benefits of these initiatives. We seem to lack confidence in the efficacy of various programs. To move forward, we need more systematic comparisons of prototype programs.¹⁰ Capacity building is the first step towards sound regulatory systems.
5. **Develop comparative performance indicators.** Collecting, analyzing, interpreting, and disseminating benchmarking information is not glamorous. However, I would argue that it represents an activity with high payoffs over the long term. When the citizens of a town that is has poor service quality learn about the excellent reliability of electricity in comparable towns around the region, they can put pressure on local managers. In the case of private participation, when investors can compare the performance of their managers with that of others, they can create better incentives for cost containment and service quality. Over time, the creation of valid comparisons can lead to consolidation (to achieve scale economies), better financial management, improved operating efficiencies, and service expansion.
6. **Support countries with solid track records.** If nations are not good prospects for private investments, should multilateral lending agencies or international aid organizations provide funding to these poorly performing countries? Nations in turmoil have problems even more fundamental than utility service, so they should not receive aid, except for capacity building and emergencies. The Parable of the Talents applies to countries as well: greater funding should go to those nations demonstrating good stewardship. To do otherwise may *seem* compassionate.

¹⁰ For example, some forms of the people-to-people interactions might prove to be more productive than others. Studies need to be conducted on the impacts of on-going professional exchanges versus one time tours. Similarly, one of the problems with in-country investment programs involving demonstration projects is that people seldom analyze them for a sufficiently long period of time. Impact evaluations obviously require some time commitment and money to do but the information gleaned from them only help in the future. Most project participants (the entrepreneur and the beneficiaries) have an incentive to leave the stones unturned—fearing what might be revealed. Systematic comparisons should be incorporated into program development. This requires funding for impact evaluations conducted over a meaningful period of time. One less project and nineteen careful project reviews is better than twenty projects, because future projects will benefit from lessons of the past.

However, significant investment assistance to mismanaged countries basically involves acquiescing to systems that operate in ways that waste resources and create more victims.

In the final analysis, the economic inequities that characterize the global system will not be erased by actions by the United Nations or the United States. They arose because the pace and pattern of economic development has differed across regions of the world. Resources, institutions, and cultural values are inherited from the past—and represent the starting point going forward. I suspect that we will spend much of this century learning the costs of hubris and greed—not just in our dealings with one another (as individuals within communities), but also as nations within the community of nations. The problems seem insurmountable, so we in wealthy nations avert our gaze, and those trapped in poverty look for ways to get our attention. Calls for justice fall on deaf ears unless we become more sensitive to the plight of billions who experience sickness, poverty, and war.

We are stewards of this planet—jointly determining *how* resources will be used, *what* will be produced, and *who* will have claims on those products. This article has focused on infrastructure sectors that, together with health and education, become platforms for economic development and social transformation. Building capacity at newly created regulatory commissions is just one factor that can tilt the arc of history towards more rapid development. There is no simple “solution” to the complicated set of issues surrounding infrastructure development. However, our foreign policy can surely do a better job of managing the problems that we observe in emerging markets. We can target opportunities and invest in programs that reduce the impact of negative factors. We cannot continue to ignore this important dimension of international affairs.