

Regulatory Framework for Infrastructure

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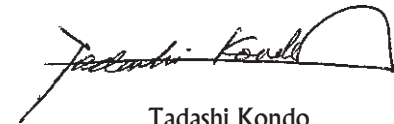
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Foreword

The India Resident Mission (INRM) Policy Brief Series is sponsored by the Asian Development Bank (ADB) and is designed as a forum to disseminate findings from policy research work undertaken on the Indian economy. The series is primarily based on papers prepared under the Technical Assistance (TA) 'Policy Research Networking to Strengthen Policy Reforms in India'. The main purpose of the TA was to provide assistance for developing policy research networking capacity, in order to build support for, and consolidate the reform process. The INRM Policy Briefs provide a nontechnical account of important policy issues confronting India.



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Introduction

Independent regulation has emerged in the last two decades as a fourth branch of government. This movement has been propelled by the privatization of state-owned resources worldwide, particularly in infrastructure sectors. Countries have instituted or contemplated 'new-style' independent regulatory authorities (IRA) to catalyze the movement toward private sector involvement through competition or privatization. Over forty countries have set up regulators in the last decade.

Independent regulatory agencies have been set up in India for electricity and telecommunications in the last seven years. A semi-autonomous tariff regulator was established for ports in 1997. Establishing regulators in petroleum, natural gas, aviation, and rail industries is also being considered. In parallel, India has also established the Competition Commission of India (CCI) under the Competition Act, 2002, for regulation of industry in general. The overlap between the central and sectoral regulators is as yet unexplored. Thus, the Indian regulatory landscape is complex and formative.

Regulation of infrastructure industries entails managing a mix of monopolies and markets, and guiding industry transformation and investment while protecting consumer interests. In these initial years of regulatory experience, the general perception is that regulatory agencies have had little positive influence on sectoral growth and development.

The causes are complex and sector-specific but include lack of regulator independence, credibility, enforcement authority, and accountability. Future economic development will depend on improving regulatory efficacy, especially with independent regulators being contemplated in other vital industries.

Two aspects of independent regulation are reviewed here: institutional efficacy, including primarily autonomy, capacity, and accountability; and the mode of regulation, or the regulator's functional scope. The recommendations are, by and large, concerned with regulatory process, including member/staff selection, rulemaking, and appeals but also consider the role of the executive and legislative intervention therein. Issues of structure are also addressed: Should regulators be independent or tied to ministries? Should there be sector-specific or broader, central regulators?

Role of Regulation

Regulation broadly defines mechanisms of government intervention in industry. Typically, regulation entails intervention in price, entry, market structure, procurement, and quality. Regulation has always implied the existence, usually exclusively, of private ownership in the regulated industries, and is primarily meant to mitigate market failure. Many infrastructure sectors will continue to be monopolies—electricity distribution, roads, and ports. Sectors that have scope for price-based competition—electricity generation, telecom, oil, and gas—have incumbents with dominant positions. Market abuse in both cases is possible, and requires regulation. Since incumbents are state owned and have clout in ministries, the regulators need to be independent from the politicians/bureaucracy.

IRAs spread worldwide along with privatization and liberalization of infrastructure industries in complex circumstances. These reforms could be attributed to disenchantment with public sector ownership as also due to conditionalities associated with World Bank/International Monetary Fund (IMF) lending. In India this came about in the aftermath of the fiscal crisis of 1990-91. Initially, the private sector was invited into power, telecom, roads, and other sectors through executive policy—tax and duty incentives, special purpose vehicles, and memoranda of understanding (MoUs). In the late 1990s IRAs were established in telecom, electricity, and ports, though the Tariff Authority for Major

Ports (TAMP) is really a semi-autonomous regulator. IRAs may have been a rational choice by host governments to signal their commitment to privatization, as also to insulate private entrants from the interests of predominating state-owned incumbents—examples in India being Bharat Sanchar Nigam Limited (BSNL) and state electricity boards (SEBs). IRAs may also have been part of the reform framework pushed by lending institutions to protect private investors from the risk of asset expropriation by government through tariff setting.

Interest group politics and 'producer protection' has been part of the Indian regulatory experience. In Orissa the experiment included retail price increases for nine years, with little benefit to consumers. Thus, looking forward, with the extent of capture possible, regulation in India must balance risk allocation between private investors and consumers. Regulators also need to strongly consider distributive impacts of growth on consumers, particularly urban vs. rural. Urban teledensity in India stands at 18 per 100 persons, and rural teledensity at less than 2 per 100.

Another challenge for regulation in India beyond managing private investment is that for the next five to ten years the state-level regulatory system will be concerned largely with regulating state-owned utilities. Electricity restructuring has been limited to unbundling and corporatization in some states. Also, the largest telecom operator BSNL is likely to remain in government hands in the foreseeable future. In nonservice infrastructure, most road and port assets will continue to be held by governments. This poses a unique set of additional challenges for regulatory efficacy.

The political structure in an industry with an independent regulator has two principal-agent relationships—between government and the regulator, and between the regulator and regulated entity (as manifested through license enforcement). The government is multi-principal, with several ministries having a stake and influence over sectoral policy. For example, in the power sector aside from the power ministry, the ministry of finance has an interest in the financial burden created by SEBs. For state-owned public sector enterprises (PSEs) the regulated entity exercises significant control as one of the many principals in government (due to the close link between power ministries and heads of PSEs, who are bureaucrats, see Figure 1).

This gives the government greater incentive to monitor and control the regulator, not to force it to comply with its mandate but to protect

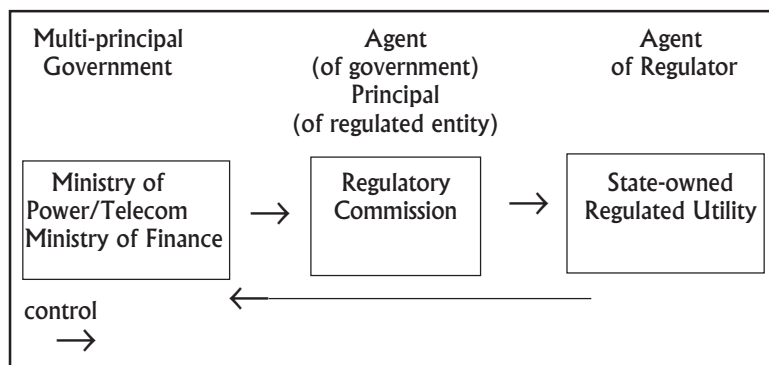


Figure 1. Regulatory structure in state-dominated sectors

or influence state-owned utilities. This creates a conflict of interest within government. While government as a whole may seek to institute IRAs, provide commitments to the private sector, and relinquish tariff-setting powers to the IRA, the authority concerned (Ministry of Power, Department of Telecommunications (DOT), etc.) resists such efforts to protect its turf. This conflict—where law and policy may express an intent but loopholes allow them to be subverted—recurs in all sectors.

Recent Developments in Regulation

Electricity

The first electricity regulator was set up in Orissa in 1996, to facilitate the privatization of distribution. Thereafter, the CERC was set up to regulate interstate commerce and centrally owned generation pursuant to the Electricity Regulatory Commissions Act, 1998 (ERC 98). Subsequently, states have been slow to set up state electricity regulatory commissions (SERCs) to regulate intra-state distribution and supply. Sixteen (out of twenty-eight) states have set up SERCs, five of them pursuant to ERC 98 and the rest pursuant to state reform legislation. Not all these can be considered fully functional SERCs, for several reasons. First, many state governments have exercised their discretionary right to grant specific powers (under Section 22.2 of ERC 98). Some have not granted any (Himachal Pradesh) and several have delegated a subset of these powers (Maharashtra, West Bengal).

In the established SERCs commitment to the regulatory function has been limited—as reflected in the large number of vacancies (twenty-two reported in thirteen SERCs, more than half for longer than three months), limited staff growth (on an average, eight to ten posts) and short tenure (average of two to three years). About half the members are retired from civil service or the utility and almost all are from government agencies. Two-thirds of the staff are from regulated utilities, most of them hired temporarily. This indicates that the regulators are perceived as extensions of bureaucracy. Overall, SERCs have failed to measurably improve sector performance, have not gained the kind of respectability their counterparts in developed countries have, or public trust in safeguarding public interest.

As discussed later, ministries intervene actively in regulatory affairs, often to invalidate their actions. State-owned utilities perceive them as meddling. In one case (West Bengal), a High Court's judgment extended into substantive aspects of the SERC's orders and even questioned the value of involving consumers in the regulatory process. Although the Supreme Court overturned this judgment, this case highlights even the judiciary's disregard for regulators' independence.

A clear indication of the political commitment to strengthening these institutions, however, is the Electricity Act, which has replaced ERC 98 and all other legislation pertaining to the sector. The formation and functions of regulatory bodies have largely remained the same in the Electricity Act as in ERC 98. A notable change is that government's discretionary delegation of powers to regulators has been discarded. SERCs' key functions include tariff setting, license issuance and enforcement, quality of service monitoring, power purchase and resource planning, performance monitoring, market development, and investment regulation.

The Electricity Act has retained the 'old-style' regulator, the Central Electricity Authority (CEA), with the role of resource planning and technical standard setting and development. Advisory Committees to advise the SERCs, to be constituted from a broad range of stakeholders, have also been provided for.

Telecom

Since independence the provision of telecommunication services had been the DOT's preserve. Given DOT's limited success in network expansion and introduction of new services the government, possibly

with the prodding of multilateral agencies, contemplated a limited role for the private sector in telecommunications in the National Telecommunications Policy, 1994. When the government invited bids for mobile telephony the private sector responded with exuberance, and bid disproportionately high amounts for licenses. Around the same time the TRAI, constituted through the Telecom Regulatory Authority of India Act, 1997, came out with its first telecom tariff order in a bid to rebalance telecom tariffs. As in other countries, local calling rates and rentals were being cross-subsidized by long-distance and international calls. The government had opened the local fixed-line segment to private operators but they would have had little chance of success while the DOT kept prices in the segment artificially low. The DOT challenged the TRAI's ruling, claiming that tariffs were a matter of policy and policymaking was the DOT's preserve. The government then issued a policy directive to the TRAI to put the tariff rebalancing on hold.

Problems regarding dispute resolution, defaults on license fees, and tardy progress in teledensity growth made the government take a fresh look at the sector. Its new policy document, the New Telecom Policy, 1999 (NTP 99), clarified the TRAI's powers and role. It also paved the way for the introduction of competition into the long-distance and international segments. It removed dispute resolution from the TRAI's ambit, creating the Telecom Disputes and Settlement Appellate Tribunal (TDSAT) for this specific function. On a number of issues, including licensing, the TRAI would have a recommendatory role. In the aftermath of NTP 99 the DOT was bifurcated into operating and policymaking wings. The former was eventually corporatized to form BSNL. The long-distance operator, Videsh Sanchar Nigam Limited (VSNL), was privatized and sold to the Tatas.

The telecommunications sector recovered after the introduction of revenue sharing and mobile services have now overtaken fixed-line services. The sector continues to witness running battles between the TRAI, DOT, and private operators; in most, the TRAI has come out second best. The focus of regulation has now expanded from telephony to a broad range of services, including internet, broadband, and voice over internet protocol (VOIP). The government recently instituted unified licensing. The Communication Convergence Bill, awaiting parliamentary approval, proposes a single regulator—Communications Commission—for communication and broadcasting services.

On the whole, telecommunications liberalization has achieved considerable success, mostly in urban and semi-urban areas. The key challenges for regulation moving forward are to harness technological change and opportunities, ensure sustainable competition, and extend the reach of technological opportunities and market into rural areas.

Other Infrastructure Sectors

Independent regulators are envisaged for airports, oil and natural gas, and possibly railways. Independent regulation, however, is primarily meant to mitigate the risk of private producers. An independent-style regulator may be a partial answer to such risks, but the setting up of proper legal frameworks and building the necessary competence is no mean task. It is worthwhile to explore other feasible institutional structures to achieve the goals of risk mitigation and protection of public interest.

Regulatory developments in these sectors include setting up the TAMP. An airport regulatory authority has been recommended by the Ministry of Civil Aviation and a Petroleum Regulatory Board by the Petroleum Regulatory Board Bill (2002) to regulate the oil sector and natural gas pipelines. A railway tariff regulator is being discussed. There is no indication of independent regulation in roads or water and sanitation.

Critique of Regulatory Efficacy

Regulatory Autonomy and Capture

Given government's continued dominance in infrastructure, are independent regulators really workable? Even though ERC 98, and now the Electricity Act, empower regulators with substantial scope and decision-making authority, several loopholes undermine their authority. Populist political interference (e.g. free power to farmers) is one problem. State ministries' desire to protect and control the incumbent utilities adds a new dimension to capture possibilities, that by the government.

Since state-owned utilities provide several benefits to bureaucrats, the reality pits the regulator directly against the government in influencing management decisions of the utilities. State governments have often encouraged utilities to defy regulator rules and sometimes litigated against regulatory orders. Regulators are often reluctant to penalize state-owned enterprises for noncompliance. When they do, their effectiveness is

limited, since financial penalties mean little to state-owned utilities. Although state governments in recent years have ostensibly imposed hard budget constraints, mostly they make good utilities' shortfalls.

Capture by government also occurs through regulatory appointments. Third, all regulatory commissions are funded through a consolidated budget, which gives the government control in staffing and growth.

Thus, government capture of the SERC occurs from above (legal mandate or policy directives), below (by the utility, through information asymmetry or noncompliance), and within (by government-appointed members and staff).

Capture with Privatization. A common perception is that privatization of state-owned utilities is a necessary, and perhaps only, method to distance the regulator from government intervention. The creation of a concession agreement or license to facilitate privatization, and in some cases legislative action, offers a somewhat clean slate in defining the relationship between the regulator and the privatized utility. However, the private entity can exploit this flexibility to distance itself from the regulator as well, benefiting from the regulator's susceptibility to government influence. Specifying in the privatization contract or legislation the terms of private sector operation minimizes the regulator's role. Indeed, negotiating behind closed doors itself makes the regulators vulnerable to capture by private interests, tilting risk allocation in favor of investors and against consumers or government. Capture is also possible with information asymmetry in cost-plus regulation, where regulators depend unduly on regulated entities for information in rulemaking for private entities.

Capture in Telecom. Regulator's capture by the private sector was witnessed in the advent of Reliance Infocomm in basic services and its 'backdoor' entry into the mobility market.

In telecommunications government's possession of licensing powers reduces the TRAI's autonomy. The TRAI seems powerless to redress issues about interconnection problems that most private operators complain about. The method of selection of TRAI chairperson and members could also be more impartial and objective.

With licensing powers and the power to issue policy directives to the TRAI, the DOT in effect regulates the TRAI. As such, it can even pursue policies conflicting with TRAI's positions to favor the incumbents.

Looking forward, the Convergence Bill, making it mandatory for the commission to follow government's policy directives, also ensures an avenue for DOT's influence.

The DOT itself is susceptible to private operators' lobbying, given its opaque decision-making.

Informal Processes

Three categories of capture mechanisms are seen: (a) exploitation or misuse of policy directives; (b) informal, opaque 'behind-the-scene' processes that subvert procedure; and (c) flagrant flouting of procedure and law.

Exploitation or Misuse of Policy Directives. Policy directives to guide regulatory function are often necessary, partly to plug loopholes and clarify ambiguities in the law, but also to ensure effective and consistent application of the law across states. But the legal provisions for policy guidance in the Indian Electricity Act are discretionary, not specific. Also, these are binding on regulators and not judicable. The Electricity Act states that Commissions will be guided by government policy (Sections 61, 66, 79, 86). This gives the ministry wide latitude to override regulatory decisions.

These provisions are often used to issue nonpolicy directives. Since policy directives are legally binding, regulators may have to implement policies that contradict their legal mandate. State governments promising free power, for example, directly contradicts the regulators' mandate to bring tariffs toward the cost of supply. No legal recourse exists for this loophole.

'Behind-the-Scene' Processes that Subvert Procedure. Interactions between regulators and vested interests outside the scope of procedure and law are hidden from the public domain. For instance, ministries often appoint members of their choice, though the law (both ERC 98 and the Electricity Act) lays down a selection process involving an appointed Selection Committee. Informal lobbying is another example of this. These informal processes rather than reasoned decision-making determine outcomes. The regulator becomes a vehicle to legitimize rather than to challenge interest-group politics.

In telecom, the operations and procedures of DOT, which retains the power to issue licenses and policy directives, are opaque to scrutiny.

Flouting of Procedure and Law. State governments have often unilaterally altered SEB tariffs or rolled back regulatory tariff orders, sometimes through legislation. Similarly, governments have negotiated power purchase agreements with independent power producers on their own. Even government agencies have disregarded their obligations as electricity consumers in Uttar Pradesh and Delhi.

Improving Regulatory Efficacy

Reduce Capture Through Improved Member Selection Processes. The Electricity Act requires the constitution of a Selection Committee, which is to provide two nominations for every vacancy. However, bureaucrats dominate the committee. The committee's membership should be broadened. The selection process should require a recorded, public justification of member recommendations or rejections.

For TRAI and the proposed Communications Commission, which currently have no formal procedure for the selection of chairman and members, a similar methodology could be followed, with a selection committee comprising members from telecom associations, consumer rights associations, and the government.

Alter Scope of Policy Directives. The prevalent all-encompassing discretionary claim to 'public interest' to issue directives must be taken away from government. The scope for governmental policy guidance must be restricted to macro-level principles in specific areas, such as subsidy administration. Any clarification of law must be in the legislative domain, through rules, not in the form of nonjudicable executive policies. Both these will require legislative amendments.

Make Regulators Financially Independent. Regulators typically will not confront the ministry, due in part to bonhomie and also due to their financial dependence on the ministry. Regulatory agencies should not be funded through a consolidated budget but should recover costs through a consumer fee. For example, the budget of the Karnataka Electricity Regulatory Commission is currently around Rs. 3 crore. A cess of 1 paisa per unit (less than 0.5% of average tariff) would raise Rs. 16 crore per annum. The Electricity Act permits this. TRAI also has mooted independent funding. Most international regulators recover most of their costs from a cess.

Improve Enforceability of Regulatory Actions. Acts of noncompliance, though judicable are not sufficiently punishable. Imposing penalties directly on officeholders rather than on the SEB would encourage accountability. Regulators can assert their authority through summons of utility personnel and proactive searches and seizures in instances of information withholding. The TRAI also faced enforceability issues against BSNL regarding interconnection. Private operators have consistently defaulted on rollout obligations despite financial penalties. For deficiency of service they face no penalties. For rollout obligations either more stringent penalties are required or alternative incentive-based mechanisms need to be developed. For quality of service standards need to be enforced and made judicable.

Improving Transparency and Accountability

Placing regulatory commissions within the jurisdiction of the Contempt of Court Act should directly mitigate the incentive for capture through opacity and lack of accountability. SERCs are quasi-judicial bodies equivalent to civil courts; they adjudicate on matters of equal import as those taken up by the highest courts in the land. Increasing scrutiny of their spurious decisions would squeeze room for their occurrence. Transparency would provide the information necessary to identify irregularities. Accountability would provide effective mechanisms to contest and overturn these decisions.

Shortcomings exist both in law and its implementation. The letter of the law (General Clauses Act 1897) provides for transparency in rulemaking. Regulators have to write orders and place them in the public domain and also invite public comment, which they may consider in their final ruling. Also, their decisions can be appealed in court. Few SERCs, however, proactively make information public. Nor do they respond to comments. Many consultations occur behind closed doors and are not recorded.

In the US, all comments in response to draft rules are published as a rulemaking record. Any order can be overturned (and the regulator sued) for being 'arbitrary and capricious', if it is unresponsive to this record. Some aspects of the US rulemaking process are worth imbibing, such as publishing a rulemaking record, allowing longer periods for comment, and making public all proceedings.

Accountability of Regulators

Accountability currently rests on an appeals process. Four states permit appeal only on points of law. In most states orders can be appealed at the High Court on procedural, legal, and substantive grounds. Commissions entertain appeal petitions usually only on the basis of new information or clear error. In addition, regulators have to file annual reports before Parliament or the state legislature. Regulatory orders also face legislative review, subject to modification or annulment.

In practice, few SERCs regularly file annual reports. Filed reports are cryptic. But most importantly, the SERCs have not proactively asserted their authority. As discussed elsewhere, this is often due to their lack of capacity, enforcement authority, or reluctance to challenge government interference.

The government should establish rules or issue policy directives that detail the reporting requirements. To make these enforceable, periodic review of annual reports and orders is essential. However, the Electricity Act does not impose any penalties or permit overturning noncomplying orders. In the least, repeated noncompliance should constitute grounds for penalties incorporated in law. Public exposure of noncompliance will put some pressure on regulators. Procedural checks and balances must also be incorporated into rulemaking, to minimize the scope for litigation. There is also strong support in academic literature for rigorous regulatory procedure, as means to reduce capture and limit regulatory discretion. When interest groups drive regulatory decisions, there is a tendency to subvert procedure to expedite decisions and escape scrutiny. An emphasis on transparent procedural rigor could enhance regulatory efficacy.

Public Participation in Rulemaking

In the US, all formal rulemaking (e.g. ratemaking) is participatory, involving hearings and scrutiny of regulated utility filings by any interested party. In the UK consultative model full information disclosure of regulators' rulemaking process is not obligatory, but a statutory consumer organization, EnergyWatch, represents the consumers' interests and disseminates information on regulatory matters.

In India's watered-down version of the UK regulatory system, rulemaking is consultative but relatively ad hoc, with no formal consumer

representation. A few SERCs have consumer divisions to handle consumer grievances and education. Independent consumer representatives have made minimal intervention in the regulatory process (Karnataka, Andhra Pradesh, Maharashtra). The efficacy of public intervention rests on two critical prerequisites: information and capacity. Although SERCs are required to publish whatever data they rely on for rulemaking—including data submitted by utilities, consultation reports, etc.—this is only on paper. SERCs need to be much more proactive in releasing such information, with user-friendly websites, well-organized libraries, and information management systems. SERCs also need to undertake regulator training programs in all areas of the power sector, but particularly in their rulemaking activities. Procedures for information maintenance, disclosure of rulemaking process, reporting procedures, outreach and training, and member selection need to be codified into judicable procedures.

Institutional Capacity

An independent regulator is expected to make rules, administer them, and adjudicate disputes. Immune to lobbyists' influence, it is expected to act in public interest, actively engage virtually all sector stakeholders in decision-making, and effectively interpret and carry out a mandate based on a broad set of principles. Regulators need internal expertise and capacity to carry out such a daunting mandate.

An SERC's average budget is about Rs. 3 crore and that of CERC is Rs. 6 crore. In comparison, the US FERC budget is \$120 million (Rs. 600 crore). The consumer base of a typical SERC is equivalent to that of the UK or South Africa. The UK Office of Gas and Electricity Markets (OFGEM) budget is \$50 million (Rs. 250 crore) and that of South Africa is \$8.5 million (Rs. 42 crore). Also, SERCs typically have 20–30 total staff; the US and UK regulators have hundreds.

Regulatory Scope and Function

We now look at the regulator's functional role in infrastructure sectors, including tariff regulation, developing markets where appropriate, protecting consumer interests through quality of service standards, contract design and negotiation processes, and land acquisition.

Regulation of Competitive Markets

Electricity Markets. India is in gradual transition toward competitive electricity markets. The movement is currently focused on capacity expansion. Retail competition has been deregulated (for large customers) but not the wholesale market. The contemplated future market structure is a coordinated bilateral market with a regional system operator that oversees system reliability and security. Recent proposals contemplate a gradually increasing obligation for new power plants to sell their capacity on a merchant basis.

Typically, two functions are necessary for any new market to emerge: market design and development; and market power mitigation. The Electricity Act already has slated market design and development as a task of the regulatory commissions, which they have begun. Appropriately, the CERC has focused on bulk supply market design, while SERCs are tasked with implementing the rules for retail open access. The CERC alone must develop the appropriate market structure, including retail market development and implementation. Although states would retain the scope to implement retail access, retail markets must be designed along with bulk supply markets, since they are closely related, and would benefit from consistent and uniform application across the country.

Towards evaluating the pace of competitive market development, CERC must undertake a broad-based consultative process. Consultation papers on markets contain inadequate assessment of the risks, options, and prerequisites for market development.

Telecom Markets. In a nascent telecom market, the primary concern in market development is the incumbent's dominant position. In the last five years, BSNL's monopoly over most of India's customer base required significant regulatory intervention into interconnection issues as well as subsidies. Today, the wireless consumer base has grown to equal BSNL's 45 million fixed-line connections, with continued growth of up to 100% a year. Thus, the telecom market has developed much farther than electricity market. There is a fairly healthy market in mobile telephony. In basic services—local, long-distance and international—however, the market continues to be dominated by the Mahanagar Telephone Nigam Limited (MTNL), BSNL, and VSNL, even though Reliance Infocomm, Tata Teleservices, and Bharti are making their presence felt.

Two issues are pertinent to market development. The abuse of dominance by the incumbent BSNL in providing interconnection has been discussed before. The second issue is the spate of mergers that the sector has witnessed, which raises competition policy issues. The DOT has set guidelines for mergers after seeking TRAI's recommendations. The CCI has its own rules for combinations. These may be in conflict, and cause excessive and confusing litigation. Market power issues are best left with TRAI. Similarly, the authority in charge of market development ought to have the authority to award licenses, TRAI in this case. This would achieve a degree of consistency in the sector, as suggested for the new Communications Commission. It will also ensure that market developments are deliberated and promulgated through a transparent regulatory process.

A tribunal to settle disputes in telecommunications is unusual but not unique to India. The TDSAT, set up to speed up dispute resolution in telecom, has arbitrated a number of cases, though the speed of its deliberations could pick up momentum. The TDSAT operates as a special court and not as an alternative dispute resolution (ADR) body. It would have been preferable to subsume dispute resolution within the TRAI, but then the chairperson of TRAI would have to be a judicial person. Therefore, it may be best to leave the TDSAT as it is with some effort being made to speed up decisions through ADRs. It should also harmonize its operations with the TRAI.

Market Power Monitoring

CERC should anticipate market power as it develops competitive markets, even if such a market is restricted to 'managed competition' for new capacity. This includes determining what constitutes market power abuse, whether and how it should be monitored, and what mitigation and remedial measures should be adopted. For example, the CERC needs to take an integrated view of vertical market power across natural gas and electricity markets. Vertical integration can create opportunities for predatory pricing in areas with limited fuel options. Reliance on an appeals process is unsuitable for policing electricity markets.

Monitoring market power will become important in telecommunications with the advent of convergence between communication technologies. Market players might attempt to stretch their dominance in certain segments to more competitive segments. Too strict an

interpretation of noncompetitive behavior might lead to increased costs and tardy introduction of new services. The regulator will have to undertake sophisticated analysis of dominance within specific services and across services. The regulator will also have to be alert to possible geographic abuse of market power.

Centralized vs. Sectoral Market Monitoring. The CCI has broad jurisdiction over industry. In the event, does the market-monitoring cell belong in the CERC (sector-specific) or the CCI (centralized) or should it be shared between them? This issue has already arisen in telecom. The sectoral regulator as market monitor makes better sense since it is the agency responsible for market design and development. Designing and implementing market monitoring mechanisms follows directly from these.

Since both the Competition Act and Electricity Act de facto have jurisdiction over the electricity market, there is jurisdictional overlap between the CCI and CERC. Complaints may be brought to either regulator, each of whom could apply different principles and approaches, based on their respective mandates. The orders of one can be appealed by the other, further delaying resolution.

In telecommunications the need for a sectoral regulator for monitoring market dominance is as important. Rapid technological change makes the telecom market particularly turbulent. Introduction of new services can profoundly affect market structure. The telecom market monitor therefore needs to be aware of technological developments and proactive in its decisions. The CCI is unlikely to have the requisite expertise. Building up a telecom-specific capacity within it is also likely to be costly. Thus, it is imperative that market monitoring in electricity and telecommunications markets is legally clarified to be in the domain of CERC and TRAI respectively.

Regulation of Electricity Distribution Monopolies

Challenges for regulation in electricity distribution monopolies have been mostly observed at the state level. There are three areas of concern: (a) the trend towards privatization with contract terms stipulated in legislation; (b) the trend towards multi-year, performance-based tariffs; and (c) quality of service.

Seeking Balanced Risk Allocation. The risks associated with regulation by contract/legislation are evident in the Delhi model and the proposed

Karnataka design. Measures designed to safeguard investor returns and shield them from associated risks may induce investors to overcapitalize or increase operating costs, more so if regulator scrutiny is absent or minimal. Until tariff setting is freed from the unpredictability of government intervention, market risk mitigation through assured returns or price would need to continue. However, privatization design needs to build in better safeguards for cost discipline and performance improvement. For this, regulatory approval of capital expenditure and operating costs is essential.

Multi-year Tariffs and Utility Performance. Most reform related to performance improvement and tariff setting has focused on technical loss reduction and utility financial performance. The current trend has been to implement some form of multi-year tariff principles, along with performance-based price regulation (along the lines of retail price index minus X (RPI-X) in the UK). This is appropriate but the challenges are in implementation. Generally, the efficacy of performance-based regulation rests on two factors: the quality of performance targets and their enforceability. A good performance target encourages utilities to invest in system improvement but is realistic enough to be implemented. Enforceability implies that utilities need to take these targets seriously. This requires not only effective monitoring of utilities' performance but also realistic penalties for failure.

To develop appropriate (quality) performance targets, regulators should consider developing and using benchmarks. Regulators have begun to see realistic trends of loss reduction since ERC 98, which can be a starting point for developing loss reduction trajectories. A critical prerequisite will be a transparent subsidy scheme. Unless utilities financials are clearly separated from subsidies, efforts to force operating efficiency improvements will be handicapped.

Quality of Service. Across all infrastructure sectors, with some exceptions in telecom, both private and state-owned entities have little incentive to improve quality of service. Indeed, reduction in quality of service may be desirable (to improve returns for private entities, and to reduce workload for SEBs). Theory suggests two main incentives for quality provision: competition and reputation. In monopoly industries competition is absent. As regards reputation, most state-owned entities care little since they have little accountability. For this reason, quality of service must

be regulated. Reasonable standards, effective monitoring, and enforceable penalties can alone force utilities to improve quality of service.

Rural Telephony—Policy or Regulation?

BSNL remains the primary vehicle for rural expansion, and has been the only market player to bid for the funds of the Universal Service Fund (USF) that was earmarked for commercial bidders to invest in rural areas, while private operators have defaulted on their rollout obligations with impunity.

The viability of wireless expansion has increased, and several technology developers cite the policy framework rather than technical or commercial viability as the constraints on wireless penetration in rural areas. How technology should be exploited for rural needs therefore needs immediate political attention. Also, what role, if any, should the regulator play? The issue is more about the process than who should be the regulator. DOT has traditionally formulated rural telephony policy but shields its deliberations from the public sphere. The TRAI has a more transparent process but has so far been busy simply keeping up with the market. The government needs to show commitment toward this policy goal, and appoint a committee and solicit input from academia, industry, and the public.

Regulatory Scope and Function in Other Sectors

Ports, airports, oil and gas, roads, railways, water and sanitation, all have elements of natural monopolies. There is a need to distance these processes from the sector ministries but independent regulation may not be suitable. Nevertheless, in utility sectors where competitive markets have been developing and where the risk of dominance by incumbent utilities will continue, such independent regulation is necessary. That is why electricity, telecom, oil, and natural gas should continue with independent regulation. Further, sectors with strong interdependencies (electricity, gas, and oil) must have a fair degree of communication, if not formal mechanisms of collaboration.

Supra-Regulator for Infrastructure Projects

In monopoly sectors where regulation is typically by contract (roads, airports, and port services), the burden of establishing effective indepen-

dent regulators in each sector may outweigh the benefits, especially given India's limited experience with regulatory governance. A compromise solution might be to set up a single 'supra-regulator' for all infrastructure projects to oversee common functions, such as land acquisition, contract design and implementation, and quality standards. This supra-regulator would have representatives from all sectors concerned and other stakeholders who would collectively regulate, thereby reducing the potential for manipulation by any individual ministry. Its functional scope should be limited and well defined to include broad guidelines and standard processes, but need not include judicial powers. It would oversee land acquisition for greenfield road, airport, and ports projects. It would also develop a common template for service contracts, to apply to airport-related services, port services, and potentially tolling agreements for road projects. Finally, it could also serve as a procedural check on compliance with other environmental regulations, which are often subverted to accelerate projects. Sectoral 'old-style' regulators may then undertake sector-specific oversight of operational issues.