

**REGULATION AS AN INSTITUTION OF GOVERNANCE:
RISE OF INDEPENDENT REGULATORY
AUTHORITIES IN INDIA**

*Dissertation submitted to Jawaharlal Nehru University
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MASTER OF PHILOSOPHY

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DECLARATION

I declare that the dissertation entitled “**REGULATION AS AN INSTITUTION OF GOVERNANCE: RISE OF INDEPENDENT REGULATORY AUTHORITIES IN INDIA**” submitted by me in partial fulfilment of the requirements for the award of the degree of **MASTER OF PHILOSOPHY** of this university is my own work and has not been submitted for any other degree to this university or any other university.

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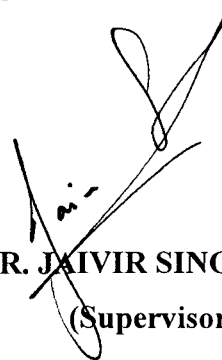
CERTIFICATION

We recommend that this dissertation may be placed before the examiners for evaluation.



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GLOSSARY OF TERMS

ATE	Appellate Tribunal for Electricity
CEA	Central Electricity Authority
CERC	Central Electricity Regulatory Commission
CMTS	Cellular Mobile Telephone Services
DoT	Department of Telecommunication
ERCs	Electricity Regulatory Commissions
FTS	Fixed Telephone Services
IRAs	Independent Regulatory Authorities
MoP	Ministry of Power
MPT	Ministry of Post and Telecommunication
MTNL	Mahanagar Telephone Nigam Ltd.
NGOs	Non Governmental Organizations
NTP	National Telecom Policy
OERC	Orissa Electricity Regulatory Commission
OSEB	Orissa State Electricity Board
PSEs	Public Sector Enterprises
QoS	Quality of Service
RCs	Regulatory Commissions
REBs	Regional Electricity Boards
SEB	State Electricity Board
SERCs	State Electricity regulatory Commissions
T & D	Transmission and Distribution
TRAI	Telecom Regulatory Authority of India
TTO	Telecommunication Tariff Order
TDSAT	Telecom Dispute Settlement Appellate Tribunal
VoIP	Voice over Internet Protocol
VSNL	Videsh Sanchar Nigam Ltd.

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Chapter 1

Introduction

Developmental theorists in the decades of 1950s and 1960s gave more emphasis to the creation of human capital and material capital for a country to grow and develop. Access to foreign capital and aid failed to bring development to many Latin American and Sub-Saharan African countries aspiring to achieve higher rates of growth. For the past few decades we witness a sudden shift toward creating right institutions to achieve development goals. Increasing emphasis is now bestowed on creating the right environment and incentive structure by creating better formal institutions of governance to achieve better utilization of resources. Governance is basically all about resolving conflict emerging out of limited resources having conflicting use. In the process of resolving conflict it creates opportunities for mutual benefit.¹

Huge edifice of government structure is created to consciously undertake development policies. Society overtime has created formal and informal institutions to resolve conflicts arising from limited resources having conflicting uses. These institutions are sometimes efficient in achieving their goals; in less developed countries, however, we find the prevalence of institutions, which inhibit growth through the creation of rent seeking regimes^{2,3}.

Infrastructure services are a crucial backbone for any economy to achieve its developmental objectives. Better and cost effective infrastructure services are important for countries to become globally competitive. It is well recognized that in India the government failed to supply these services efficiently and in a commercially sound manner. As experienced in industrialized nations in 1980s, and India in the decade of

¹ Oliver E. Williamson, (1998). “*The Institution of Governance*”, The American Economic Review, May, Vol. 88, No. 2, pp. 75-79.

² Rent seeking refers to political activity of individuals and groups to devote scarce resource to the pursuit of monopoly rights granted by governments.

³ Bardhan. Pranab, *Scarcity, Conflicts and Cooperation: Essays in Political and Institutional Economics of Development* (MIT Press, December 2004).

1990s saw development of technologies that made possible provision of these services⁴ in a more competitive set-up without compromising on the economies of scale. With privatisation and private entry in sectors, which were previously under state monopoly, and the formation of sector specific regulator, we are observing new governance structure emerging in infrastructure sector. This new governance structure is creating new incentives for various stakeholders. My objective here is to look at the governance structure and incentives created by the institutional set-up in the infrastructure sector, which are more conducive to developmental goals. The intentions of policies formulated for sectors were laudable but the implementation front saw major failure in the delivery of these services. And it is the incentives created by the governance structure that might have brought failure at the implementation front. Before proceeding to look at regulation as an institutional intervention, I will briefly touch on the understanding of institutions in economics.⁵

North (1990) looks at institutions as rules and constraints, formal and informal, which mediate interaction amongst human beings. He distinguishes institutions from organizations by equating them respectively to the rules of a game (the polity, the judiciary, laws of contract and property) and play of the game (use of markets, hybrids, firms, bureaus). This distinction between institutions and organizations are helpful to pinpoint and analyse different functions. Williamson⁶ clearly categorises institutions into four levels⁷:

1. **Informal institutions:** these institutions include religion, cultural norms and other customs which are very rigid. These changes occur very slowly over a timescale of centuries or even millennia. So we treat them as something exogenously given.

⁴ Use of the term Infrastructure services through out my dissertation refers to Telecommunication and electricity. Other services like railways, ports, civil aviations etc are not considered unless specified so.

⁵ Discussion on institutions carried out here mainly focuses on the literature of New Institutional Economics (NIE).

⁶ Oliver E. Williamson, (2000). "The New Institutional Economics: Taking Stock, Looking Ahead." *Journal of Economic Literature*. September, 38:3, pp. 595–613.

⁷ This categorization is not universally followed. Some people locate social norms at second level. There is lot of ambiguities and overlaps.

2. **Constitutional level (institutional environment):** these are formal institutions (constitutions, laws, property rights) which are slow to change. Their timescale of evolution is measured in decades.

3. **Third level (institutions of governance):** this level basically involves the choice of appropriate mode of governance for each type of transactions. These are basically organisations in North's sense. Here the choice of institution of governance reflects transaction cost minimisation⁸.

4. **Lowest level:** this contains all routine economic activities such as production, employment, market equilibrium (neo classical analysis works at this level).

We have *positive political theory*, which operates, at the constitutional level, focusing on political institutions such as the executive and the legislature, and their implications for economic performance. This kind of analysis provides lessons for the normative design of better polities. *Transaction Cost economics* located at the third level, focuses on the economic structure such as firms, regulation, bureau, etc and on transactions within and across these structures. These structures mentioned above are mainly alternatives to markets⁹ as an institution.

We can place regulatory authority at the third level where more of transaction cost economics can explain its formations. The independent regulatory authority amalgamates political-judicial-executive institution of governance and function as a 'state' in itself in a very small domain must be economising on transaction cost. But as the regulatory reforms progressed in the infrastructure sector, some of the judicial powers were bestowed to new tribunals and appellate thus formed.¹⁰ These institutions can in a meaningful way be analyzed using the transaction cost approach. A positive political approach can also be useful for analyzing the rules at the constitutional level

⁸ Transaction cost economics is at the heart of New Institutional Economics that is predominantly concerned with governance. It works through the *discriminating-alignment* hypothesis: transactions, which differ in their attributes, are aligned with governance structures, which differ in their cost and competence, so as to effect a (mainly) transaction cost economising result.

⁹ Non-market institutions are inversely related to market perfection. Market itself would be placed at the third level.

¹⁰ TDSAT in telecom and Appellate Tribunal for Electricity resolve disputes, which previously were resolved by respective regulator in the sector.

from which these institutions of governance- the regulator- derives its legitimacy and discretionary power.

In institutional economics, the analysis of regulation as an institution of governance are not just analysed in terms of transaction costs i.e., at the third level of Williamson categorization of institution. But these institutions (IRAs) are often analysed at the level of constitution as these regulatory institutions derives its legitimacy and power from constitution. The problems of regulatory design mirror the concerns of constitutional governance on a small scale. In a wider context of constitutional governance, regulatory institutions are analyzed to conclude on better design of these institutions.¹¹

The literature of New Institutional Economics has transactions cost at the heart of analysis. These costs are nothing but resources to define and enforce exchange agreements. Transaction cost minimising institutions basically aligns incentives of various parties to transactions to make it enforceable. And these incentives are very crucial determinants of the success or failure to achieve desired outcome. Various kind of transactions can be analysed through the lenses of contract, both implicit and explicit, to explain these transaction cost economising results. In the world of imperfect information and uncertainty it is impossible to write complete contract defining the behaviour of the party in all possible circumstances. In such scenario institutions plays crucial role in binding the parties to transaction for mutual benefit. In my study I would be focusing on incentives created by various kind of interventions to conclude for better design of the institution or intervention. And if the governance structure is putting better incentives for performance we can very well conclude that these institutions are transaction cost economising.

For my study I have defined regulation as formulation and enforcement of authoritative set of rules. Independent regulatory agencies can be seen as doing this task

¹¹ T C A Anant, Jaivir Singh, "Structuring Regulation: Constitutional and Legal Frame in India", Economic and political Weekly, 14 January.

of regulation. Regulation thus seen is different from other kind of state interventions that may be regulatory in nature like meeting quality standards, working environment for workers in factory, etc. where regulatory bodies are not involved in the rules formation. This definition would be clearer in distinguishing it from the functioning of courts, executives and various other alternatives to resolve a particular kind of social disorder.

Whatever may be the social disorder, we must realise that the institutional intervention that we are undertaking, consciously or unconsciously, are choice between various inefficient alternatives. The resultant outcome may be the best among all options available or just worse depending on various factors, like we have collective action problem or free riders problem, which often prevents certain efficient institutions to emerge. Institution also has to be seen as something that balances the interests or conflicts emerging out of difference in the interest. We often see existence of inefficient institutions in developing countries, which serve the interest of small group. In a world of imperfect information

Objectives of the study:

“There is only a choice among three evils: private unregulated monopoly, private monopoly regulated by the state, and government operation.”

...Milton Friedman
Capitalism and Freedom, pp 128. (1962)

Choice of institutional intervention the government is, basically, choice among various inefficient strategies available to achieve a balance in social disorder.¹² Focus of my dissertation is on explaining the emergence of these quasi-judicial bodies, in particular the power and telecom sectors in India. So the sectors are analyzed from historical perspective. This helps us in evaluating how successful these institutions have been in serving their purpose of improving the governance in the two sectors. A shift from the command economy to the market economy raises the need for independent regulatory authorities, but more than that, it is the failure of various alternatives and previous systems of governance to restore social order, which accentuates the need for

¹² Coase, Ronald H (1964): 'The Regulated Industries: Discussion', *American Economic Review*, May, pp 194-97.

these independent regulatory authorities as an alternative institution of governance. Establishing regulatory agencies is and in itself insufficient to the achievement of various socio-economic policy objectives as will be shown that ERAs though legally more empowered failed to deliver.

Throughout my dissertation my focus has been on looking at the incentives created by the different governance structure. Focusing on incentives can explain for better design of the interventions required in the two sectors to resolve disorder.

In my second chapter I am basically looking at regulation as institutional intervention to resolve various social disorder. In doing so I am looking at how theorist have looked at the term regulation with special reference to India in post-independent phase. Various reasons for regulation has also been discussed in detail to look at the logical explanation for regulation of infrastructure in India. Briefly touching on various theories of regulation, and it relevance in India.¹³ While discussing on the relevance of various theories in the Indian scenario, I have boiled down to the enforcement theory of regulation as it looks at regulation as one of many possible ways of interventions to resolve disorders. Looking at what kind of incentives are created in different kind of interventions will help us in arguing for what among all is more appropriate to resolve conflicts.

Taking the understanding of various problems for which regulation is required, I have tried to figure out the nature of problems that were present in the telecom and power sector prior formation of these Independent Regulatory Authorities in India. While analysing the nature of the problem associated with past interventions, I am drawing implications for the present IRA-regime¹⁴. The governance structure cannot be understood in isolation of the privatisation and liberalisation wave that the country is experiencing. Also when we have these IRAs coming in only after the liberalization policies, we cannot rule out the changing structure associated with liberalisation of the

¹³ Specifically to the infrastructure services

¹⁴ In social science only laboratory we have is the past to better understand present and future.

industry while analysing the governance structure. The analysis of the problems prior IRAs has been undertaken in my third chapter.

In my fourth chapter I have made an attempt to understand the governance structure in the post IRA regime. Roles and functions of the regulator have been analyzed. The success of the regulator in telecom and failure of the regulator in power sector has been analyzed by looking at the legislations governing the two sectors. In my fifth chapter I have conclude my dissertation.

Chapter 2

Understanding Regulation as an intervention

Regulation is defined as a “rule, ordinance or law by which conduct is regulated”.¹ Understanding of the term regulation among theorist varies from a narrow sense where it refers to promulgation of an authoritative set of rules, accompanied by some mechanism, typically a public agency, for monitoring and compliance with these rules, to a much broader sense where every kind of state intervention to steer the economy is seen as regulation.² Even the much broader view on regulation is taken by encompassing all the mechanisms of social control (either by government or by private entity)³.

These are in a sense formal institutions⁴ created to constrain behaviour of individual agents as consumers and producers to a greater advantage for the society. Within these formal constraints each agent tries to maximise his/her objective function. Regulations have the potential to enhance efficiency and the welfare of society, but the actual impact of these institutions, and for that matter of any institution, depends on a lot of factors⁵. There are many cases in which government intervention has resulted in less efficiency or equity than the original imperfect market. At the same time we have regulation doing well in case of environment, safety standards, etc. Although the basic arguments given for regulations are market failures and externalities, government regulation has usually been justified on economic, social and political grounds.

At the end of nineteenth and the beginning of early twentieth century, the US experienced a growth of regulatory agencies to cater to the problems unsolved by free markets. Various agencies were formed to bring about harmony in supply and demand and economic “justice”. With industrialisation in the west grew a need to have these

¹ As defined in Webster Dictionary.

² Robert Baldwin, Collin Scott & Hood. Regulation, Oxford university press. 1998.

³ This broadest definition of regulation is not taken as to be understood of the term regulation for my study.

⁴ Douglass North, 1990 “Institutions, Institutional change and Economic performance”, Cambridge University Press.

⁵ Pranab Bardhan. “Institution matters, but which one?”, in a symposium on Institutions edited by Abhijit Banerjee and Maitreesh Ghatak, *Economics of Transition*, July, 2005.

regulatory agencies to complement to the existing judiciary system to deliver justice to the working class⁶. Max Weber had perhaps correctly associated the formal legal system with the growth of capitalism⁷. But a closer look at the judicial system in nineteenth century reveals that laws in practice were biased toward the powerful capitalist and in many instances working class were denied justice. Working environment in factories often brought worker to demand for compensations after accidents. But private litigations often failed to bring justice. Under such scenario, it seems that regulating agencies putting norms and standards of safety in factories make the task of courts easy in determining the negligence and hence the whole new institutional setup just seems to be more efficient in giving justice.

In case of India, since independence to early 1990s, regulation was very much the part of the whole planning process and the mixed economy model followed, where government was assigned to undertake all major economic activities. Planning model adopted in second Five year plan gave due consideration to socialist pattern of development where state ownership to all major economic activities was seen as appropriate intervention to achieve developmental goals. A gradual process of acquisition of assets and resources was consciously undertaken to make state dominance in all sphere of economic activity.⁸ Private businesses were allowed in various sector but their operations were subject to strict government regulation. The private sector came under strict state regulation to achieve larger socio- economic goals as envisaged in the state planning. So regulation was seen as state intervention to steer the economy in the broader sense as defined by Baldwin et al. In fact, regulation in the decades prior 1990 in India is often equated to redtapism as the economy was heavily characterised to be over-regulated. While looking at the political economy of the reform process in India, Pranab Bardhan points out⁹:

⁶ Andrei Shleifer and Glaeser, Edward. (2003), "The Rise of the Regulatory State," *Journal of Economic Literature* 41:2, 401-425

⁷ Max Weber, *On Law in Economy and Society*, 1953.

⁸ Independent India in early decades saw nationalisation of various private properties like mines, banks etc, to fulfil distributive and development objectives.

⁹ Pranab Bardhan, "The Politics of economic reforms in India". In *Poverty, Agrarian Structure, and Political Economy in India*, Oxford University Press, New Delhi. 2003

“...The major failure at the overall macro-economic level was that the growth rate in national income was very slow, particularly in per capita income. A colossal and highly inefficient public sector became a drain on the resources mobilised by the government. There was rampant corruption, both political and bureaucratic; some of this corruption flowed from the regulatory structure of the economy, particularly the nightmarish maze of controls and regulations that the government imposed....”

Government approvals were needed at all stages of the production process and new investments were subject to state approval. Players and participants to economic activities had little choice in a predetermined planed and controlled economy. Indian economy was characterised by regulation defined in broader sense where state intervened in every aspect to fulfil distributive and development objectives. And understanding of the term regulation was in terms of all state interventions to achieve the socialist pattern of growth. After the adoption of liberalisation policy the Indian economy experienced deregulation, and the licensing and quotas system were removed. In such emerging scenario players and participants are bound to have more freedom and choices, which accentuated need for regulation of different kind.

“The transition of the economy from being a regulated one to a deregulated one is a momentous step. But if a deregulated economy is not to lead to cut-throat competition or predatory exploitation of the consumer, it does need some transparent, normative regulation...”¹⁰

The period of 1990s saw growth of independent regulatory agencies in India, especially in public utilities in telecom and electricity.¹¹ Now increasingly independent regulator is sought in the area of insurance, pharmaceutical, petroleum, gas and coal, railways, roads, fertilisers, and information and broadcasting. Independent regulatory authorities has its presence in financial markets much prior than in the infrastructure sectors. The growth of IRAs in India cannot be seen in isolation from the privatisation and liberalisation process that has significant bearing on the understanding of the term

¹⁰ P. K. Doraiswamy, (2005), Regulatory authorities — Role in a deregulated economy , 2005. *Business Line*, January 18.

¹¹IRAs were quite prominent in US economy to regulate private businesses. India saw growth independent regulatory authorities in infrastructure sector with the formation of Orissa Electricity Regulatory Commission to be first Regulatory Commission in 1996.

regulation in India. Understanding of regulation in this current situation can be seen to move closer to the narrower definition of regulation as ‘targeted rules’ and away from being all kind of state intervention to steer the economy. Independent regulatory institutions are special kind of regulatory set-up where both the rule formation and their enforcement mechanism are carried out under single institution. Constitutionally speaking, these institutions derive their legitimacy and discretionary power of the rule making from the central government level however, they function as a ‘state’ in their own small domain. As such the nature of regulation and its understanding among theorist is shifting more toward the narrowly defined targeted rules.

Acknowledging this shift in the way we look at regulation is crucial to evaluate the whole new regulatory set-up that has come to existence. Segregating out all other kind of state intervention as regulation will help us in explaining how these independent regulatory authorities are helpful in economising on transaction cost¹², which can be linked to their emergence.

Before proceeding further we need to look at what are the various sectors and areas, which need regulation. This could only be resolved by looking at what are the various reasons often cited for regulations. This in a way will help us in understanding the required interventions and will be helpful in explaining why things are in the way they are.

Justifications for regulation:

Justifications for regulation arise because unregulated market setups are unable to solve structural problems (market imperfections) arising in a particular situation. In economics various justifications are proposed for government interference to correct following structural problems:

¹² The transaction cost are broadly the “costs of running the economic system (Arrow, 1969)

1. Natural monopoly

Most common rationale for government regulation of a firm's prices and profits is the existence of natural monopoly. Natural monopoly leads to a market failure where economies of scale in an industry are so great that the largest firm has the least cost and hence are able to drive out other firms from the market. In these industries efficiency calls for existence of single firm i.e., one firm can supply entire market more cheaply and efficiently than would be the case if more firms exist. Typical example for this is provision of local telephone services. If several firms are in same service then it would involve wasteful duplication of facilities. Each firm would separately lay down their cables where one is sufficient. This would probably result in higher prices. But if we have unregulated monopoly, it has potential to cut down on production and charge higher prices compare to a more competitive setup. By increasing the price, monopolist faces less demand but he willingly does so because the loss in revenue due to decline in demand is less compare to gain in revenue due to higher price. Monopoly in itself may not bring efficiency. So in industries characterised by natural monopoly, it would be efficient to grant one firm a monopoly subject to government regulation of its prices and profit to induce monopolist to expand its output to a socially preferred level.

But there exists disadvantage of monopoly that it lacks sufficient incentive to lower its production cost. They have some incentive to lower cost since it adds to their profits but these incentives are not as strong it would have been in the case of competition. There is X-efficiency loss to the monopoly.¹³ Extend to which these tendencies are restricted by regulation is doubtful. Also it is not just quantity curtailment that can be used by monopolist but price discrimination can be used to appropriate consumer surplus without bringing in inefficiency. Price discrimination is possible in certain industry where arbitrage is not possible among different class of customers and monopolist has appropriate knowledge of how demand responds to price changes. Less likely the case that price discrimination can be used, more important it becomes to regulate natural monopoly because more likely it will use price increase by curtailing

¹³ H. Leibenstein, 'Allocative Efficiency vs. X-Efficiency'. *56 American Economic Review* (1966).

quantity which will bring inefficiency.¹⁴ Even if monopolist adhere to socially desirable output by practising price discrimination, it is associated with income transfer of regressive nature and hence undesirable.

Much of these arguments also depend on the elasticity of demand, which determines market power of the monopolist. If demand for natural monopolist services is elastic then monopolist has less market power. It would be in his interest not to increase the prices because it would lead to fall in revenue from significant fall in demand. In such a scenario regulation may not be desirable.

There are theorists who do not accept the natural monopoly argument for economic regulation. Demsetz argues in an article entitled “Why regulate Utilities?” argues that the problem of waste of resources due to duplication is basically as a result of lack of proper pricing of the society’s resources.¹⁵ Taking electricity as an example, he argues that the problem of duplication of laying multiple lines (if allowed) can easily be avoided if suppliers are appropriately made paid for using community resources like footpaths or streets used in laying line. And if the pricing of such properties were efficient it would automatically prevent its excess usage. So it is the lack of effective exercisable property rights for community resources rather than any inherent feature of natural monopoly that leads to inefficiency. He further argues that the problem of monopoly rents can be avoided by franchising the services to the lowest bidder prior monopoly commence its production. And periodic auctioning of these franchising rights will ensure that monopolist will be under pressure to reduce cost continually to produce at optimal level. Whatever may be the debate, but in western countries we find regulation as quite prevalent mode of industrial organisation.¹⁶

India in its pre 1991 post independence period chose to internalise the regulatory supervision of monopolies by assuming the ownership of infrastructure utilities. We

¹⁴ S. Breyer. “Typical justifications for regulation” in Regulation edited by Robert Baldwin, Collin Scott & Hood.

¹⁵ H. Demsetz, (1968): ‘Why regulate Utilities?’, Journal of Law and Economics, 11;55-65.

¹⁶ Ibid.

never had the case where private monopolies existed which required some kind of independent sector regulator, as was the case in US. But now with state moving out of the business of regulation and various section of the sector maintaining the monopolistic nature of production, regulation is desirable to protect consumer of monopoly rent.¹⁷

2. Rent control or excess profits

Economic rent is different from monopoly profit. A firm earns an economic rent if it controls a source of supply which is cheaper than the current market price and the source is not sufficient to supply entire market. Existence of these rent are not inefficient. Limited supply makes it possible that possessor of such technique or input (cheap supply source or effective manager) earns excess profit or rent. In many instance it would be fair that rent accrue to producers for their effort in the search for efficiency. But at the same time regulation of these rents becomes desirable if it accrues through no particular initiatives of their own i.e., through luck or change in general economic conditions. This argument for regulation is not for efficiency per se but for fairer income distribution.¹⁸ Government regulation is desirable to ensure windfall rents are captured for the benefit of the consumers than the producers.

3. Externalities or spillovers

Externalities develop when production or the use of product affects third parties. Positive externalities are benefits enjoyed by third parties. Negative externalities are costs borne by third parties. These benefits and costs are not tradable through market. Presence of these externalities makes the production and consumption deviate from the social optimal levels. Under such scenario regulation is desirable to mitigate the difference in true social cost and private costs by internalising these externalities.

¹⁷ Though electricity generation and distribution has seen technological change which makes competition viable, but transmission remains largely natural monopoly.

¹⁸ S. Breyer. "Typical justifications for regulation" in Regulation edited by Robert Baldwin, Collin Scott & Hood.

But we have Coasian line of argument which believes that what is required is not government intervention in the form of regulation but a well-defined property rights.¹⁹ Under assumption of zero or very low transaction cost it is possible for individuals to bargain to reach efficient allocation of resources. But as number of parties involved increases the whole bargaining process becomes costly affair and calls for government regulation to remove allocative inefficiencies. Sometimes it is argued that instead of regulation we can have liabilities rule to induce efficiency. But designing an efficient liability rule is sometime very difficult than deciding over required standards to induce efficiency through regulation.

4.Destructive Competition

Monopoly is not the only economic justification for regulating. Sometimes regulation is justified in sector/ industries where excessive competition would lead to their operations in loss for long period. Excessive competition will force some firms to closedown and eventually leading to higher prices, which may not be desirable. Problem of unsatisfied consumer demand and difficulty in industrial planning can creep in with high fluctuations in prices and quality that can be associated with destructive competition. This argument is often put forward in part to justify the creation of Interstate Commerce Commission (ICC) in US in 1887. Railroads and trucks in US were regulated to minimise competition. In 1930s excessive competition was used to justify various activities of regulatory authority. But with change in technology and demand scenario these line of arguments are not much applicable.

Now this excessive competition argument can be used in case of natural monopoly where without regulation too many firms can continue to exist for sometime which would be a waste. So proponent of regulation would argue that there should be entry barrier. But at the same time others can claim that the potential waste is justified to pick the best firm among contenders. Also the competitive battle will demonstrate whether the industry is natural monopoly or not.

¹⁹ Ronald H Coase. (1960), 'The Problem of Social Cost', *Journal of Law and Economics*,3:2,pp.1-44.

5. Problems of information

Normal assumption of competitive market that information is perfect does not hold. Real world is characterised by huge asymmetries of information. Getting information is costly affair, which makes the equilibrium outcome of many existing market inefficient. Many instances this can lead to missing markets where bad cars (lemons) basically drive out good cars²⁰ and eventually no market exists. Acquiring information is just like commodity where some has to spend resources to produce it. In many markets competition among producers make them disclose relevant information useful for consumers. Also would be the case where transactions involved are of relational nature i.e., firm manufacturing products repeatedly used by customers or where both party involved in transaction gains from long term relations. Under such scenario it is in the interest of parties involved in transaction to disclose correct information. But there exists many instances where no long term relation is desired by both party and opportunistic behaviour by a party induces inefficiency.

Regulatory intervention by government is crucial for the well functioning of markets and its development when court remedies and competitive pressure are not adequate to make true information available to consumers. This intervention becomes more crucial when customers are not capable to evaluate product qualities. Information asymmetries are important factors which calls for regulation in financial markets where disclosure of correct information is crucial not just for the development of these markets but to avoid systemic failure which can do greater harm to whole economy.

So far we have discussed some of the possible rationales given for regulation. For any particular regulation one can argue with more than one rationale. But to argue for a solution by a particular regulation requires exact knowledge of the problem (rationale). In many instances regulatory interventions have been successful but at other points they have not. Various theories have emerged over period of time to justify the nature of intervention and its actual consequences. Looking at these theories and the line of criticism, and its applicability in Indian scenario can help in proposing a framework,

²⁰ Akerlof (1970), "Market for Lemons", *Quarterly Journal of Economics*, 84. pp. 488-500.

which not just give justifications for things but will also provide framework for further analysis.

All these theories discussed below attempts justification of appropriate interventions to resolve social disorder or failure to reach optimal outcome. While all these approaches talk about efficient outcome, but the choice of interventions are choice among inefficient strategies in imperfect world. Looking at institutional intervention in this sense is helpful in looking at the independent regulatory agencies in India as these are operating in set-up where government and market continues to interact simultaneously. Work of Shliefer et al (2003) looks at these interventions not be mutually exclusive, and their framework in way is helpful in evaluating these regulator in wider context of governance structure where other institutions and players matter.

Theories of Regulation²¹:

1. Public interest theory of regulation:

This theory is associated with Pigou²², which justifies state interventions of all kind. This is not just confined to explaining regulation in the narrow sense but supports state intervention in broader sense too. As per this theory government intervention is needed to correct market failure and externalities as discussed above. There are various circumstances when market leads to optimal allocation of resources. But these requirements are seldom met in real world. So in reality our world is characterized by inefficient allocation, which calls for government intervention in the form of regulation. As in the rest part of world in twentieth century, India also adopted state ownership and regulation to resolve problems of market failure. Government intervention is based on two assumptions²³:

(a) Unhindered market often fails due to the problem of monopoly or externalities.

²¹ Much of this section is borrowed from the Shliefer (2005) work which in a very beautiful fashion present all theories of regulation and thereafter presents his theory, the enforcement theory of regulation which has evolved over time in the works of Andrei Shliefer, Edward Glaeser, Djankov, La Porta and Florencio Lopez-de-Silanes.

²² Pigou, A. (1938), *The Economics of Welfare*, London: Macmillan.

²³ Richard Posner, (1974), "Theories of Economic Regulation." *Bell Journal of Economics* 5:2, 335-358

(b) Government is benevolent and competent to take care of market failures through regulation.

For all reasons pointed out above for regulation, Public Interest theory justifies specific government regulation. According to this theory if market failure is due to natural monopoly, government resorts to control prices or profits. Shliefer talking about the relevance of public Interest theory writes²⁴:

“... It (regulator) imposes safety standards to prevent accident in case of natural monopoly, impose safety standards to prevent accident, impose quality standards for products to safeguard customers interest, regulate securities market to safeguard investors interest, regulate labour market to safeguard workers interest vis-à-vis monopsony employer, and list goes on. Problem of adverse selection and moral hazard explains for existence of certificates, license and other trading regulation. Minimum requirement on disclosure norms, quality assurance through certain requirements tends to minimize transaction cost and information problems...”

Thus, the conceptual framework of the public interest theory lies in the concept of welfare state, which always pursues certain intervention in the interest of larger public. Very fundamental problem with this theory, as pointed by many, is that it treats State as a black box²⁵ where no appropriate avenues are left for state failure. State here is treated as benevolent and competent enough to deal with all kind market failure. But to coordinate correction state need to have certain information and expertise, which if it fails, will result in government failure of similar kind. And this outcome might be worse than what would have been achieved through inefficient market.

This theory not just undermines the possibilities of government failure but also quite often exaggerates failure of markets and private orderings. It tends to over emphasize market failure and thus failing to recognize the role of competition in disciplining the participants in transaction. Even if it is the case of monopoly, which is causing inefficiency, it is quite possible that the threat of future competition and entry

²⁴ Shliefer, Andrei (2005), “Understanding regulation”, *European Financial Management*, Vol. 11, No. 4, pp. 439–451.

²⁵ T C A Anant and Jaivir Singh, (2006), “Structuring Regulation: Constitutional and Legal Frame in India”, *Economic and political Weekly*, 14 January.

puts required disciplines on their behavior to ensure optimal outcome. If this threat is not strong enough, regulation can be justified for time duration until these forces becomes strong. In fact in India, it is not just that failure of state is well recognized but some argues that role of regulators are confined to some duration until competitive forces comes into play. Sundar and Sarkar writes²⁶

“...Regulation is essentially a means of preventing worst excesses of monopoly, it is not a substitute for competition. It is a means of holding a fort until competition arrives, and is thus an interim exercise.”

Competition and private ordering are often seen among theorists as sufficient to take care of disciplinary requirement to induce optimal outcome. A vast literature in game theory on repeated games helps in explaining cooperation as outcome.

Another line of criticism comes from the proponents of legal rules and remedies²⁷ to take care of the disorder problems rather than looking at market or government intervention. Impartial courts by enforcing contracts and common law can address market failure. This line of argument basically comes from the work of Coase (1960).²⁸ So even it is the case that private ordering and competition fails to take care of market failure we can have optimal enforcement of contracts taking care of inefficiencies. Efficient liabilities rules in case of tort laws can induce optimal level of care to be taken by both injurer and victim. As long as courts are efficient in calculating the negligence and right compensations, efficiency will be achieved. But the real concern in developing economies is that these institutions are also inefficient to deliver justice or remedies. Avinash Dixit²⁹ pointing to the problem of lawlessness in developing economies cites a study report that there are 25 million cases pending before the courts in India, and even if no new cases were filed, it would take 324 years to clear the backlog. In such instance this line of criticism does not stand firms in developing economies.

Criticism on the line of state being benign and competent basically gives rise to private interest theory of regulation where political behavior is merged with economic

²⁶ Sundar and S K Sarkar, (2000), “ *Framework for Infrastructure Regulation*”, TERI Press, Delhi.

²⁷ Much of the criticism comes from Chicago school of thought.

²⁸ Ronald Coase, (1960), "The Problem of Social Cost," *Journal of Law and Economics* 3, 1-44.

²⁹ Avinash Dixit, (2004), *Lawlessness and economics: Alternative modes of Governance*, Princeton University Press

analysis to explain empirical incoherency of public interest theory in 1970s. In the public interest approach, citizen needs and protections in the face of market failures are central. But in private interest theory discussed below citizen needs are not relevant at all. Instead industries and companies actually demand regulation in order to create conditions for greater profitability.

2. Private interest theory (Capture theory³⁰)

The capture theory basically argues that regulation will eventually serve the interest of the industry it intends to regulate. Political process of regulation is typically captured by the industry. Stigler and Friedland (1962) studied the impact of regulation of electricity across various states in US. In their study they are unable to find any significant effects of regulation of electricity utilities. So evidence does not support that these had long run monopoly power and reduction in rates is possible through regulation. In the “theory of economic regulation”, Stigler argues regulation (state) can be used by industry to increase its profitability.³¹ Study of the railway and truck regulation under ICC clearly gives evidences that trucks were regulated to avoid competition with the railway. So the private interests of railway had its domination over the regulator to influence rules to its advantage. Empirical researches have demonstrated that regulation is not positively correlated with the presence of externalities or with monopolistic market structure.³² Second important conclusion of capture theory is that regulators are incompetent.

Politicians who form the government are rightly considered to be self interested individuals who maximize their utilities (function of money and votes). Though Stigler argue that producers with small organization costs are capable to win the bidding for the services of a regulatory agency.³³ We also have the work of Posner which emphasize the existence of ‘internal subsidization’ (cross subsidy) where one section of consumers are subsidized out of producer rent generated elsewhere in the regulated industry. And the

³⁰ G. J Stigler, (1971), "The Theory of Economic Regulation." *Bell Journal of Economics* 2, 3-21

³¹ *ibid.*

³² Posner, Richard, (1974), "Theories of Economic Regulation." *Bell Journal of Economics* 5:2, 335-358.

³³ *Supra* note 30.

work of Peltzman which argues that regulatory outcome basically distributes benefits across various interest groups. But one basic argument that follows from these works is that a small and organized group will tend to benefit more than broad and diffuse groups. So we observe a bias in favour of producers groups.

Criticism of capture theory comes on from excessive confidence of Chicago School in private orderings and in courts. Across the world evidences shows that courts are inefficient, politically motivated, slow and even corrupt. Problem of inefficient courts are more adverse in developing countries. Same as we have capture of regulatory authority by interest groups, we can have capture of court by the interest group, as both are government agents³⁴.

Moreover, there are strong evidences of regulation being beneficial for the development of financial markets and to public participation in them. Also regulations are successful in providing goods where quality and safety standards are better achieved. So it is not always the case that regulatory setup are always captured.

Alternative way at looking at regulation is put forward by Shliefer, Glaeser, etc which looks at regulation from efficiency perspective. Their framework looks at all possible interventions from efficiency perspective.

3. Enforcement theory of Regulation³⁵

According to this approach³⁶ social control of business is desirable to achieve certain social desirable end. So we have element of public interest theory, which goes into defining these social goals. To achieve these goals we have four distinct strategies of control - market discipline, private litigations, public enforcement through regulations and state ownerships.

³⁴ Djankov, S., La Porta, R., Lopez-de-Silanes, F. and Shliefer, A., 'Courts', Quarterly Journal of Economics, Vol. 118, no. 2, 2003, pp. 453-517.

³⁵ Andrei Shliefer, "Understanding regulation" European Financial Management, Vol. 11, No. 4, 2005, 439-451

³⁶ This approach being developed over the years by Andrei Shliefer, Edward Glaeser, Djankov, La Porta and Florencio Lopez-de-Silanes.



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These social control strategies are not mutually exclusive. They can be used in all possible combinations to achieve a particular social goal. Competition and regulation can stay together in same market. These strategies can be seen as a continuum with common intermediate strategies of social control such as private litigation to enforce public rule, which lies between pure litigations and pure regulation. As we go down along these strategies there is growing power of state. All of these strategies are imperfect and optimal institutional design involves a choice among these imperfect alternatives. In the choice of these alternatives there exists a tradeoff between disorder (ability of private agents to harm other) and dictatorship (ability of government to impose similar costs). This tradeoff is captured by the institutional possibility frontier. (Fig 1)³⁷

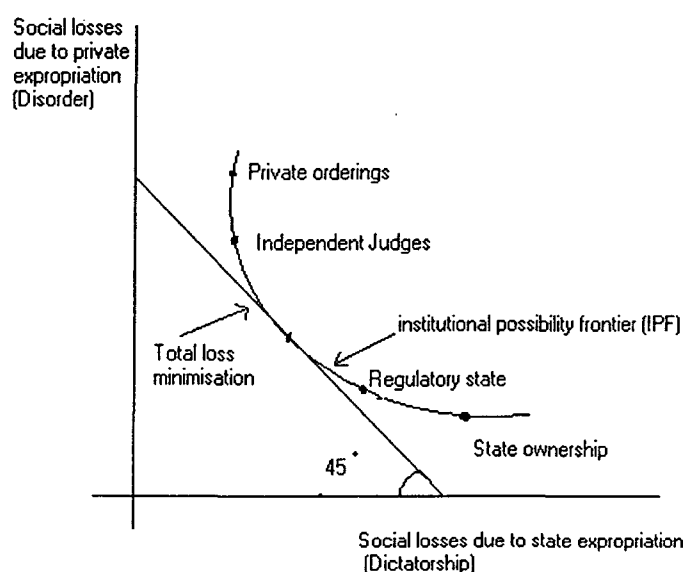


Fig. 1. Institutional possibilities.

This tradeoff between the cost of disorder and those of dictatorship basically gives logic for efficient institutions which are in existence or which may be desirable. The IPF is assumed to be convex to origin i.e. marginal increase in dictatorship produces

³⁷ Djankov, Simeon, Edward Glaeser, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer, (2003), "The New Comparative Economics," *Journal of Comparative Economics* 31, 595-619

progressively smaller reductions in disorder. The downward sloping 45 degree line holds the total social costs of dictatorship and disorder at constant. Its point of tangency with the IPF is the efficient institutional choice for a society or a sector within a society. Location of IPF is civic capital. Societies more with such capital have IPF closer to origin. While judging a particular strategy from efficiency perspective one basically looks at the reduction in disorder that is brought in by more dictatorship.

In many instances private ordering (market discipline) is sufficient to solve a problem without government intervention. Industries sometime form self regulatory associations to assure certain qualities. As long we have market discipline sufficient to control disorder, regulation and courts are unnecessary. But market discipline does not work always. Market pressure may not eliminate monopolies, may not induce optimal investment in safety at workplace, may not prevent fraud investment etc. a response to these problems would be a more shift toward dictatorship with private litigations solving the problem. If problem continues such that we have continuing disorder with judges not being impartial, one can think of moving toward more formal laws which minimizes judicial discretion and the potential subversion. We also have private enforcement of public rules where court subversion is reduced, which may be better option than pure litigation. But this raises the risk of dictatorship as these rules can be used to favour politically strong group.

Now if we look at the strategy of regulation we find that regulators have more expertise knowledge and interest in pursuing social objectives in specific area. So these can be better option over market discipline and litigation. But then again we have problem of its capture by interest group.³⁸ Regulated industries have developed a range of techniques for protecting industry rent than social welfare. So here risk of dictatorship increases. Basic implication of this theory is that regulation is needed, private ordering or courts are not sufficient to control high disorder.

³⁸ Supra note 30.

Also, there exist cases where government ownership only can eliminate disorder like prisons, military and policing. If these areas are opened for private ordering, incentives to appropriate are so strong that a very chaotic situation will emerge. But government ownership failure to control disorder is reflected in loss making PSEs. Here the incentives to perform are so weak that it leads to loss making in the PSEs.

The efficient choice of a strategy is dependent on the slope of IPF, which varies across countries and industries. Places where we have better government, greater transparency and press freedom will have steeper IPF such that small government intervention brings more reduction in disorder and less social cost. Applicability of enforcement theory is in the way it looks at the interventions (or strategies) to resolve social disorder. More importantly it does not look at any intervention in isolation or mutually exclusive. In the real world we do find existence of a mix of strategies to resolve conflicts or social disorder. Independent regulatory authorities have especial expertise of rule making, decision-making and (often) adjudicative functions, which may be inappropriate for a court or government department.

Efficiency is not the only way to look at institutional choice. The politics of institutional choice may also explain the observed inefficiency. Sometimes origin of a country's law (colonial transplantation) explains the extent and nature of social control in that country.³⁹ But looking at the institution of regulation from efficiency perspective can explain the existence of various kind of state intervention to enhance the welfare of society. This approach for that matter can also explain for the failure of various interventions by state.

³⁹ Supra note 37.

Applicability of theories in India:

We have a vast literature on regulation which points to standard theory of market failure in economic activities that accentuated the need for regulatory agencies.⁴⁰ US experienced a growth of regulatory agencies to cater to the problems unsolved by free markets, mainly the problem of natural monopoly. So it was argued that the regulator can pursue a public interest by correcting market failures in order to benefit consumers and enhance social welfare.

Other kind of literature looks at the rise of these agencies with the failure of private litigations to provide justice to the workers. Various agencies were formed to bring about harmony in supply and demand and economic “justice”. So it is argued that with industrialisation in the west, grew a need to have regulatory agencies to complement to the existing judiciary system to deliver justice to the working class.⁴¹

The decade of 70s saw a change in the way people looked at regulation with development of the capture theory of regulation. According to which a regulatory agency, though perhaps created to pursue public interest, later comes under dominant influence of -is captured by- the industry subject to regulation. In India, though it may be the case that government is undertook policies measures that benefited small group but we do not have much history of regulation which can be associated with capture by some interest group.

In India, the nature of the problem that regulation seeks to address is very different from US. We are experiencing the rise of regulatory state in certain sectors or industry where state previously had monopoly. As more private players are allowed, more competition is encouraged; we are experiencing a growth in special kind of regulatory agencies with the retreat of state from actively undertaking production. So it is

⁴⁰ The first agency, the Interstate Commerce Commission (ICC), set up in 1889 regulated trucks, buses, barges, ships, pipelines, etc. Another first-generation agency, the Federal Trade Commission (FTC), which investigates economic cartels and unfair competition, established by the Federal Trade Commission Act of 1914.

⁴¹ Supra note 6.

not the case of natural monopoly or 'private interest' that can be associated with regulation in India.

Infrastructure services in India and several other countries were provided by government- owned monopolies for several decades. These services till very recently were considered to be the case of natural monopoly, better service delivery and optimal utilization of resources was expected from the economies of scale. However, the absence of competition gave monopoly supplier the opportunity to set prices without providing matching value for money. Services were provided with little regard to quality and protection of consumer interest. Further, absence of competition led to operational inefficiencies, poor quality of services and inefficient allocation of resources.

It is very recently that technology breakthrough has made it possible to introduce competition at various levels of production and service delivery without compromising on the economies of scale. Financial crunch facing the state further accentuated the need for attracting private capital in provision of these services. And with incumbent government owned utilities continuing to have market power, need was felt to separate its policymaking power form economic decision making, to provide level playing field for all private and government incumbent. Independent regulatory institutions are theoretically better placed to balance the interest of all stakeholders, including consumers.

In the literature on regulation, justification for regulating infrastructure is based on one or combinations of following reasons:

1. To induce monopoly to charge reasonable prices for the services.
2. To induce efficient use of resources by monopoly or service providers with monopolistic powers.
3. Induce consumers to make efficient use of services offered.⁴²
4. Provide additional incentives to attract additional capital to the sector.

⁴² This becomes more important for regulators in electricity as political interferences often leads to free electricity to farmers which has adverse impact on environment, in addition to worsening financial position of the service providers.

5. Achieve income distribution goals through the level and structure of prices.

In this chapter I have made an attempt to conceptually define regulation for my study. In doing so I briefly touched on the understanding of the term in the Indian context to conclude that present understanding of the term regulation is not just about enforcement, monitoring and compliance of certain rules but also about rule formulation and adjudication of dispute. In the socialist pattern of planning followed regulation was understood to be all kind of state intervention. But with liberalisation and privatisation India is experiencing rise of Independent regulatory authorities in various sectors of the economy. So increasing we are having regulation of different kind with economy seeing deregulation with liberalisation. It becomes all more important to understand regulation to be different for all type of state intervention because these are two different strategies available to policymakers to address certain problems. Looking at regulation in this form of intervention may help in comparing different type of interventions.

Regulation is undertaken to basically resolve certain kind of disorder where other strategies of interventions are expected to fail in resolving the conflict or disorder. These interventions give rise to certain kind of incentives, which in fact takes care of the disorder. Looking at regulation in comparison to other interventions with reference to the kind of incentives that they create can be helpful in deciding appropriate interventions.

Problems and Reform Initiatives in the Infrastructure Sector

Before we move on to an analysis of the governance structure in the Telecom and Power sectors it is highly important to look at the problems and discourse of reforms undertaken in these two sectors. The nature of the problem confronting these two sectors will help us in understanding the emerging structure, particularly because these changing structures have strong implications for the governance structure in the infrastructure sector. The governance structure has to be looked at in relation to the liberalisation and privatization initiatives undertaken in India.

In India, prior to the liberalisation and reform initiatives, the governance structure was characterized by complete state ownership. Such government provision of infrastructure services cannot be seen in isolation, as it was part of the whole planning process. This pattern of ownership can be traced to the objectives for starting Public Sector Enterprises (PSEs) in India¹, which aimed to build infrastructure for economic development and promote rapid economic growth and industrialization of the country; to create employment and promote balanced regional development; to achieve self-reliance through the process of import substitution and export promotion; to generate resources to finance the development process by earning suitable returns; to prevent/reduce concentration of private economic power.

The public sector was given a strategic role in the economy. Four decades of huge investments in PSEs have created a public sector, with a commanding role in the economy. The PSEs helped create a huge industrial base, which would have been impossible given the lack of private capital. We also had the rationale of providing consumption good at subsidized rates through the public sector. So we had PSEs ranging

¹ Government of India, (1997), Disinvestment Commission Report (1).

from capital goods sector to the consumer goods- the government was literally involved in producing both machines and bread.

The government intervention in the economy were motivated by public concern as is postulated by the Public Interest Theory. So the government ownership of infrastructure services was based on the belief that only the public sector can provide the best services and private sector entry should be restricted, if not altogether prevented. However over time these PSEs came to be plagued by problems of low productivity, poor management skills, lack of technological upgradation, low R & D and low human resource development.

Performance of these PSEs can be judged by several efficiency criteria. However financial performance assumes importance because one of the purposes of creating these PSEs was to generate investible resources to finance the development process.² With the government facing financial strains reforming the public sector became important. The problem was not just that of financial efficiency but total government failure in delivering quality services at efficient price.

The basic argument put forward for the poor performance of PSEs or Public Utilities is that the agency problem is more acute in the case of public ownership. Public ownership implies an incentive structure where the interests of the managers can be contrary to the interests of the enterprise. Public sector is not guided by the profit motives but by the welfare maximizing motives. In many instances, we have value of inputs going into the calculation of the value of goods produced by the public sector. So maximizing welfare by focusing more on inputs tends to induce inefficiency. Additionally, the soft budget constraints facing the managers in PSEs makes them behave sub optimally. Problems of moral hazard are more acute in the case of public sector as compare to private sector.

² In the year 1995, out of total 241 central public sector undertakings, 130 made net profits which amounted to Rs.12, 120 crores. The losses of 109 units amounted to Rs. 4910 crores. But here it is interesting to note that 10 PSEs (6 oil companies+4 others) contributed to 2/3rds of the net profits.

According to public choice theory, the conflicting nature of the goals to be achieved by the public sector is the main culprit for the failure of these units. Whereas, a different line of argument comes from the property right theorists that the right over residual profits in these units are not clearly defined i.e., property rights are weakly defined which gives genesis to all the problems faced by these PSEs. Governments across the world are justifying privatization to achieve following objectives³:

“ To promote increased efficiency, to raise revenues for the state (and thereby to bridge fiscal deficits), to reduce government interference in the economy and promote greater private initiative, and to promote wider share ownership and the development of the capital market.”

However, this does mean that the agency problem is absent in private sectors. But better laws and corporate governance practices are helpful in reducing the agency problems. Threats of bankruptcy and takeover induce the managers in private companies to behave in the interests of the company. This kind of disciplinary mechanism is absent in government owned enterprises. The kind of benign and competent government necessary to correct market failures, as envisaged in welfare state, is absent in the actual practices of government functioning.

The failure of the government to provide infrastructure services in an efficient manner accentuates the need to unleash private forces and regulatory reforms. These problems associated with government ownership hold true for the telecom and power sectors as both the Department of telecommunication and State Electricity Boards failed to generate sufficient revenue to undertake expansion of their services, which would have helped to bridge the gap between demand and supply in both services. In the power sector, for instance, even after decade of reforms we find that operational inefficiency as captured by Peak Load Factor⁴ continues to be high in thermal power plant of both the central and state sectors (see table1 below).

³ TT Ram Mohan, Privatisation: Theory and Evidence, Economic and Political Weekly, 29 December, 2001.

⁴ Peak Load factor captures capacity usage of a plant. Maximum the percentage of capacity used higher is the peak load factor and more efficient is the plant. The low capacity utilisation of thermal power plants of the SEBs is largely due to deficiencies in management and operation, lack of proper maintenance and non-availability of coal of appropriate quality (Economic Survey, 1997)

Table1: Thermal Plant Load Factor PLF)

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05
1. SEBs	60.7	64.3	65.6	67.0	68.7	68.4	69.6
2. Central Sector	71.1	72.5	74.3	74.3	77.1	78.7	81.7
3. Private Sector	68.3	68.9	73.1	74.7	78.9	80.5	85.1
All India	64.6	67.3	69.0	69.9	72.2	72.7	74.8

Source: Compiled from various Economic Surveys

Thermal power plants under central government ownership have comparable performance with private plant ownership but performance of SEBs vis-à-vis private sector has always been poor. It can very well be seen that PLF of State Electricity Boards Plants continues to be low. Though it has improved significantly after the renovation and modernization efforts undertaken with government assistance, it continues to be lower than that of plants under private ownership. Government ownership to some extent can be blamed for these continuing operational inefficiencies.

The problems and the need for reforms will be discussed in detail in the next section. Looking at the telecom and power sector from a historical perspective to account for the reforms undertaken in 1990s and consequently the structure that evolved thereafter will help us in undertaking a meaningful evaluation of the present institutional framework of governance. The problems and the evolving structure are analyzed as they have strong consequences for the governance structure. Here I have avoided much discussion on the regulatory framework that has emerged as the part of whole reform process. This will be taken up in detail in my next chapter.

Telecom Sector

The nature of problems confronting the two sectors is quite different, inspite of the few similarities, which placed both in monopolistic mode of operation under government ownership⁵. Till mid 1980s, the government controlled all aspects of telecommunication through the Ministry of Post and Telegraph. The Department of Telecommunication (DOT) was the regulator under the Indian Telegraph act, 1885, and the Indian Wireless Telegraphic Act, 1933. These acts basically provided the government control over the development and operation of the sector.

The decades prior to the 90s saw government intervention in the sector mainly focusing on producing and purchasing network equipment, funding network expansion, and organizing public organizations to provide telecommunications services. The Seventh Plan document referring to the five-pronged strategy for the development of the sector mainly focused on network expansion using new technology.

“...the development of the Communications Sector will be characterized by a five-pronged strategy: balanced growth in net-work, rapid modernization, a quantum jump in technology, increased productivity and innovations in organizations and management.”⁶

The major part of the whole planning process focused mainly on the availability and affordability of the telecom services. The telecom sector in the decade of 1980s experienced impressive growth rates. The average annual growth rate of direct exchange lines (DELS) in India averaged 8.4 percent, which was substantially higher than that for many of the fastest growing developing and industrialized nations.⁷ But this growth was outpaced by faster growth in registered demand for telecom services, which grew at 12 percent for the decade of 1980s. Even in the period of early 1990s, which saw growth in

⁵ Large investment requirement and network externality associated with telecom services made right candidature for government ownership.

⁶ Section 9.9, Chapter 9, Seventh Five Year Plan, Planning Commission, Government of India.

⁷ This growth figure stood larger than the corresponding averages for the world at 5 %, America at 3.5%, Europe at 5.7% and Asia at 6.2 percent. The telephone density in the year 1988 in the country stood at 0.52 per hundred, was less than that in China (0.78), Iran (3.43), Brazil (5.5), Egypt (5.1), Philippines (1:01), Malaysia (7.37), Pakistan (0.7), Singapore (35.42) or Thailand (1.84). But, India stood nowhere close to developed nations in terms of teledensities.

the range of 16-22 percent the growth in the waiting list was equally impressive.⁸ The telecommunications sector was characterized by the highest proportion of unfulfilled demand among all service sectors.

The long waiting list does not reflect the actual demand and supply gap. If we look at an instance cited in footnote by Chowdary⁹:

“Faced with the prospect of intensifying competition from a private telephone (basic) company, the Telecom Andhra Pradesh (AP) of the Department of Telecoms (DOT), reduced the application deposit as a festival offer from Rs 3,000 to Rs 1,000. Within 15 days 6,50,000 new applications came, swelling the already big waiting list of 1,50,000 to 8,00,000. This shows that (a) there is a huge, hidden, unregistered demand for telephones; and (b) if the DOT 'markets' service, the demand would surface.”

So the actual gap between demand and supply is much more than what gets reflected in the waiting list based on the actual applications received at the higher going fee. It can very well be concluded that in the decades prior to 1990, the telecom sector mainly confronted the issues of affordability and availability of basic telecom services in government policies and planning. Despite huge investments through budgetary allocation, there was widespread discontentment over the high priced and poor quality telecom services delivered by the state monopoly.¹⁰

Stephen D McDowell argues that the growing dissatisfaction with the quality of telecom services and global changes associated with liberalisation, led the Government of India to appoint a high-powered committee (Sarin Committee, 1981) to look at the organization issues at MPT.¹¹ The committee recommended the bifurcation of MPT into two divisions, which materialized only in 1985-86 with the creation of MTNL and VSNL. MTNL confined itself to the provision of telecom services in metropolitan areas

⁸ Government undertook large investments in equipments to reduce the waiting list but continuously failed to reduce the gap as the demand for these services were growing at much larger pace.

⁹ T.H. Chowdary, (2000) “Demonopolising Telecom”, *Economic and Political Weekly*, February 5-11.

¹⁰ Charu Malhotra, (2001) “A chronological perspective of Telecommunications infrastructure development in India” *Indian Journal of Public Administration*, Vol XLVII, No. 3, July-Sept 2001.

¹¹ Stephen D McDowell, “Globalisation, Liberalisation and Policy Change: A Political Economy of India’s Communication Sector”, Macmillan’s Press, 1997 as cited in Charu Malhotra, (2001) “A chronological perspective of Telecommunications infrastructure development in India” *Indian Journal of Public Administration*, Vol XLVII, No. 3, July-Sept 2001.

whereas VSNL¹² operated in the area of international telecommunications. These newly created corporate entities came under the regulatory supervision of Department of Telecommunication.

The problem with these monopoly arrangements under government ownership was that they were basically government departments. And the governing principal for these departments were not profit motives or the value of the services they generated but the input costs incurred to provide such services. Political interference and bureaucratic structure that governed these departments led to the problem of availability and affordability of these services.

Though VSNL and MTNL were separated from the MPT to have decision-making autonomy and flexibility, these initiatives failed to address the problems confronting the sector. Increasingly it became apparent to the policy makers that the resources generated by the DoT would not be sufficient to meet the requirements of the sector, so opening the sector to private players was solicited with the policy changes in the decade of 1990s.

Major reforms were undertaken in the decade of 1990s with privatization and liberalization initiatives in order to attract new investment. Liberalisation of the sector started in 1991 with the opening up of the production of telecom equipment to the private sector with automatic approval of foreign equity up to 51 per cent of total equity. In the same year it was announced that all services, other than basic services, would be opened up for private investment in July 1992¹³. There was large-scale entry of and investment by private companies to produce a variety of telecom equipment: telephone cables, telephone instruments, switches, etc. Eventually by 1992 production of radio and optical fibre transmission equipment needed to interconnect cities was also opened for private

¹²A wholly Government owned corporation - was born as successor to Overseas Communications Service (OCS), a Government Department.

¹³ Value-added services (VAS) were opened for private sector participation in 1992 which include Cellular Mobile Telephones, Radio Paging, Electronic Mail, Voice mail/Audiotex services, Videotex services, Data services, Video-conferencing and Credit Card Authorisation Services. A number of private operators have since started these operations

sector. These initiatives resulted in demonopolisation of the telecom equipment section and significant reduction in the cost of these equipments. T H Chowdary writes¹⁴:

“As a result of competition in the manufacture and supply of telecom equipments, prices came down dramatically to one-third to 80 per cent of what DOT was paying to the monopoly state-owned telephone companies (ITI, HCL and HTL).”

This further establishes that inefficiencies associated with government ownership were the main culprit for preventing provision of these services at reasonable prices. Inefficiency of the whole system was internalized by government ownership of all the related industries, the consequences of which were borne by consumers paying high prices for the equipments and services.

The Government invited private sector participation in a phased manner, initially for value added services such as Paging Services and Cellular Mobile Telephone Services (CMTS) and thereafter for Fixed Telephone Services¹⁵ (FTS). Licenses were issued through a competitive bidding process for the provision of these services in state circles and cities.¹⁶ VSAT services were liberalized for providing data services to closed user groups. The period of 1990s saw the growth of some competition and whole lot of new diversified services provided by private sector.

The telecom sector in India transformed at a rapid pace with dynamism from changing technology, convergence of services and evolving structure. The market structure changed significantly with the restructuring of the government operator and entry of private operators¹⁷. The restructuring of the government operator and entry of

¹⁴ Supra note 9.

¹⁵ In January 1995, for the first time, open tenders were invited for the award of licenses for providing basic telecom services.

¹⁶ After a competitive bidding process, licenses were awarded to 8 CMTS operators in the four metros, 14 CMTS operators in 18 state circles, 6 BTS operators in 6 state circles and to paging operators in 27 cities and 18 state circles.

¹⁷ National telecom policy 1994 opened both value added services and basic telephone services for private participation. NTP restated the commitment to reform the sector by introducing competition in various telecom services.

private operators has brought in its wake a shift from monopolistic industry that provides a single product to a dynamic, multi-product, multi-operator industry.

Even after three years of operation of private players there was no independent regulatory authority in place. NTP 1994 envisaged the setting up of an autonomous regulator, which was actually formed in 1997. Often failure of implementation of NTP 1994 is associated with DoT functioning as the operator and policy implementer of the GoI. This brought in biasness in implementing policies to the benefit of the incumbents. In the presence of large-scale government operations in the sector, issues related to the non-discriminatory access to network becomes crucial. Not only the high license fees, but also the regulatory uncertainty due to DoT as the service provider and regulator, placed the new entrants at the disadvantaged end.

The genesis of TRAI lies in the bidding for the grant of basic services license and the litigation that followed the grant of the first set of cellular licenses. The Supreme Court in a judgment in 1996 while analyzing the Telecom Regulatory Authority of India Ordinance pointed out that a Telecom Regulatory Authority with appropriate power was essential for the introduction of plurality in the telecom sector¹⁸. The Judgment also stated that since the private sector was to play an important role in the development of telecom network in the coming year, the formulation of TRAI becomes even more crucial. Eventually, TRAI was set up in 1997. The entire regulatory role, which was till then vested with DoT, was taken over by TRAI.

¹⁸ Delhi Science Forum and others vs. Union of India and other (1996) Supreme Court of India company Law Journal 47:2 (April-June 1996).

BOX 1

Telecom Regulatory Authority of India (TRAI)

Telecom Regulatory Authority of India (TRAI) has begun functioning as a regulatory authority in the telecom sector from the 20th February 1997. It has been set up with a view to discharge regulatory functions, thereby providing a level playing field in the telecom sector. The functions assigned to the Authority are:

- Recommend the need and timing of introduction of a new service provider.
- Recommend the terms and conditions of license to a service provider.
- Ensure technical compatibility and effective inter-connection between different service providers.
- Regulate arrangements of sharing of revenue, derived from providing telecommunication services, between different service providers.
- Recommend revocation of license for non-compliance of terms and conditions of license.
- Protect the interests of **customers** of telecommunication services.
- Settle disputes between service providers.
- Fix rates for providing telecommunication services within and outside India.
- Monitor the quality of service providers.

Source: Economic Survey, 1997-98.

The setting up of TRAI in the telecom sector marks a major landmark for the sector. The sector desperately needed an independent regulator to provide a level playing field for private players, and more importantly to be able to take decisions independent of government interference.¹⁹ The initial years of TRAI saw rough weather as its many orders and decisions were challenged by DoT²⁰. The sector was simultaneously undergoing restructuring at the front of government operator. Restructurings of DOT started in October 1999 with the bifurcation of the Department of Telecommunication (DoT) into two departments - the Department of Telecommunications and the Department of Telecommunication services. The DoT retained its previous functions of

¹⁹ Regulatory framework and its efficacy will be analysed in detail in the next chapter.

²⁰ There exists various discrepancies between the TRAI Act, 1997 and the Indian Telegraph Act of 1885 which leads to jurisdictional conflicts between DoT and TRAI.

licensing and policy making, while Department of Telecommunication Services was entrusted with responsibilities of the operation and maintenance of the system.

The department of telecommunication Services was later corporatised in October 2000 to form a new entity-Bharat Sanchar Nigam Limited (BSNL). BSNL provides telecom services in the entire country except in Delhi and Mumbai, where the government controlled corporate entity, Mahanagar Telephone Nigam Limited (MTNL), continues to be the service provider. The telecom sector has not experienced much privatization of the incumbents as BSNL and MTNL continue to remain in government ownership.²¹

The results of liberalisation and restructuring have been impressive. Teledensity has increased from around a mere 2% in 1999 to 11.32% in December 2005, and is set to surpass 20% in the next five years exceeding the government's target by three years. This phenomenal growth in the telecom sector is significantly due to wireless technology, which made it possible to reduce the cost of these services. Now monthly growth in cellular connection (around 3 million new cell phones) is more than what used to be the annual figures for both basic and mobile services in early nineties.²² Technology changes and competition have brought the cost of telecom services significantly down. The costs of telecom services are negatively associated with this phenomenal growth in the sector.²³

Regulatory reforms were undertaken as a part of the whole restructuring process to induce policy credibility and reduce perceived risk of expropriation with the objective of attracting private capital. A conducive regulatory framework becomes crucial as in the absence of such credible institutions and commitment potential investors might avoid

²¹ The overseas carrier Videsh Sanchar Nigam Limited (VSNL) saw dilution in government ownership in April 2002 with the strategic sale of a stake of 45% to Tata and the government and employees retaining a stake of 26.13% and 1.97% respectively, represents the first and only instance of the government transferring control of a telecom undertaking to the private sector.
(<http://www.vsnl.in/aboutvsnl/history.php>)

²² number of new connections provided in 1995-96 was 21.8 lakh.

²³ Average cost of one-minute call of cell phone fell from Rs. 14.40 at the end of March 1998 to re 1.20 in 2004. (www.coai.in)

investing in the first place or may require additional premiums to account for risk, raising the cost of capital. Mere liberalisation of the sector is not sufficient to induce flow of funds into the sector. Presence of incumbent government providing services with some market power deterred private investor in the initial phase of regulations as DoT undermined the power of TRAI prior to year 2000.

Power Sector

Government of India as part of its planning strategy started ambitiously on capacity addition, and over the period of planning the size of the private sector in the power sector has become negligible.²⁴ No new power generating or distributing companies were allowed to be started under private ownership. The period of state intervention in the form of complete state ownership led to the development of the sector, which is mainly dominated by the presence of state and central government. State intervention in the sector has led to an extreme degree of vertical and horizontal integration. The Government took major decisions regarding investment, production, pricing, sales, etc. The presence of strong integration and government administration of the sector made it a single entity totally under state controls.

As on 31st May 2006, India has total installed capacity of 1,24,672 MW, of which the state sector accounted for 56.2%, the central sector for 32.4% and the private sector for mere 11.4%. So we still have dominance of state ownership in generation. Coal, oil, gas, and hydroelectric potential are the conventional sources for electricity generation in India. Thermal power plants accounted for 66.0%, hydroelectric for 25.9%, nuclear for 3.1% and renewal fuels for 5.0%.²⁵

The huge investment requirement and the nature of production involving generation, transmission and distribution along with fluctuation in demand required

²⁴ At the beginning of the first five year plan, the total installed capacity of power generating plant was 2.3 million kW of which 1.7 million kW was in electricity supply undertakings in the public (0.6) and private sectors (1.1) and 0.6 million kW in industrial establishments generating their own power (Second Five Year Plan, Government of India). And it is only post 1992, private investments in generation was encouraged.

²⁵ <http://powermin.nic.in>

better coordination,²⁶ which basically gave rise to vertical integrated public utilities. It is often argued that as electricity supply cannot be stored²⁷ it is crucial for supply to be matched with the demand. But if we look at the demand side we find low price elasticity of demand in short run and highly fluctuating. These features of supply and demand imply that markets on their own cannot function satisfactorily and is incomplete.²⁸ Markets being incomplete require regulatory supervision.

There exist various kinds of transaction systems and market structure that can solve these coordination problems.²⁹ Vertical integration is one of the many ways to resolve this problem of coordination by internalizing the regulatory supervision. Electricity earlier was a strong case of natural monopoly but with technological changes it is now possible to have large number of small producers in a competitive set-up³⁰. Traditionally, it has proven to be economical to produce electric power in “giant economy size” generating stations to cater to large population and towns.³¹

The Country power system is characterized not just by high levels of vertical integration but also by strong horizontal integration. It was the Third Plan, which envisaged that all power stations should be interconnected to form State, zonal or super-grids so that the generation capacities are pooled and used optimally. Formation of regional grids and Regional Electricity Boards strengthened the horizontal integration.³² Most of the SEBs came into existence in the early fifties as statutory, government owned and quasi-autonomous entities. Control of these Boards rested with the respective state governments. For some two and half decades they were earning positive profits. It is only after the mid-1970s that they started making losses. The reasons for their loss

²⁶ Malik, Payal. Design of power markets: Different market structures and options for India. Working Paper, NCAER, May 2004,

²⁷ Electricity as commodity cannot be stored (storing it is too costly to make it viable). Moreover, it has to be made and sent to the consumer at the moment of use, which calls for better coordination between generation, transmission and distribution.

²⁸ Supra note 26.

²⁹ Ibid.

³⁰ Technological changes have led to decline in optimal plant size (generating) from 600-800 MW to something around 100 MW. So we can have large number of generating plants to induce some competition.

³¹ Corria Philipson & H. Lee Willis, Understanding Electric Utilities and Deregulation, Marcel Dekker, Inc, New York (1999).

³² For formation of grids, the country was divided into five regions, each with a Regional Electricity Board.

making are typically identified with those of any government ownership and associated political interference. SEBs carried out their expansion in capacity from the funds received as budgetary allocation and soft loans from government financial institution. The loans received for various projects were not conditional on performance of these entities. So we had serious incentive problems in these SEBs. Political interferences led to overstaffing, bad investments, inappropriate pricing of the electricity and unsustainable subsidies. These interferences further aggravated the problem of incentives as their growth and expansion were based less on business motives and more on political considerations.

As pointed out earlier these public utilities were also created with an objective to earn appropriate return to finance their expansion; their poor financial performance was a matter of grave concern for the whole economy. As early as 1964 when these SEBs started making losses, the Venkataraman Committee³³ was set up for examining the financial working of the Electricity Boards. One of the recommendations made by the Committee was that in the first phase, the Boards should aim at revenues sufficient to cover operational and maintenance charges, contribution to the general and depreciation reserves and interest charges on the capital base. In the second phase, the Boards should aim at an overall return of 11 per cent after meeting the operation, maintenance and depreciation charges.³⁴

So it was well recognized and accepted among policy makers that these Boards should build sufficient surpluses for re-investment for further growth by improved efficiency in operation, fuller utilisation of available capacity and rationalising tariffs. Even, the Electricity (Supply) Act, 1948, requires the State Electricity Boards to review their operations from time to time with a view to becoming self-supporting but most of SEBs have failed to generate investment surplus.

³³ Fourth Five Year Plan, Power, Chapter 12, Planning Commission, Government of India.

³⁴ In terms of Section 59 of the Electricity (Supply) Act, 1948, SEBs are required to earn a minimum rate of return (ROR) of 3 per cent on their net fixed assets in service, after providing for depreciation and interest charges. This provision was to become operative from the accounting year of 1985. However the SEBs are yet to comply with this statutory stipulation. (Economic Survey, 1996-97).

The Fourth Five Year Plan Document making reference to the loss making SEBs points out that poor financial performance was primarily due to low cost recovery as the electricity generated was sold to bulk consumers below the cost of generation. The element of cross-subsidization was seriously affecting the positions of the SEBs. Irrational pricing for bulk consumers and zero prices for agrarian consumers distorted the incentives of both consumers and producers. The financial workings of most of the Electricity Boards are still not satisfactory and the nature of problem continues to be the same.

“...present financial health of the SEBs is not sound... mainly due to un-economic tariffs for agriculture, lower slabs of domestic consumption and high T&D losses, which often disguise large-scale theft, and low billing and collection efficiency.”³⁵

So the problem with SEBs continues to be the same even after some major reform initiative that the sector has witnessed. The decade of 1990s saw some major initiatives in the form of allowing private investments in the sector as a part of whole reform process where privatization was encouraged. Despite significant progress in capacity addition since Independence, the demand for electricity continues to outstrip the supply with the result that energy and peaking shortages continue to plague the economy.

Huge public investments were required to reduce this gap as the government ownership resulted in wastage of resources, which further added to the cost. But with rising deficits of state and central government, little funds were available to invest in infrastructure services. With exception of Second and Third Five Year plan, total expenditure on the electricity sector was about 15-20% of the total plan outlays, which subsequently declined. In the ninth Plan it declined to 14.49 (see Table 2 below).³⁶

³⁵ Government of India, (2002-2007), 10th Five Year Plan Planning Commission, pg. 897.

³⁶ Government of India, (2000-01), The working of State electricity Board and Electricity Department, Annual report, Power and Energy Division, Planning commission.

Table 2: Power Sector Plan Outlay and Expenditure

Plan Period	Outlays (Rs. Crore)		Col.2 as % of Col.3	Expenditure (Rs. Crore)		Col.5 as % of Col.6
	Power Sectors	All Sector		Power Sectors	All Sector	
1	2	3	4	5	6	7
Seventh Plan (1985-90)	34273.46	180000.00	19.04	37895.30	218729.60	17.33
Eighth Plan (1992-97)	79589.32	434100.00	18.33	76677.38	485457.17	15.79
Ninth Plan (1992-97)	124526.00	859200.00	14.49	NA	NA	NA
Annual Plan (1997-98)	20830.51	155904.67	13.36	19396.28	129757.30	14.95
Annual Plan (1998-99)	25741.79	185907.47	13.84	21159.02	149403.46	14.16
Annual Plan (1999-2000)	26825.00	192262.89	13.95	21327.42	160608.30	13.28
Annual Plan (2000-01) (RE)	26554.36	203359.35	13.06	22066.39	187930.90	11.74
Annual Plan (2001-02)	27842.67*	228492.86	12.19	NA	NA	NA

* Excluding Jharkhand

Source: Annual report, Power and Energy Division, Planning commission, 2000-01.

The above table shows the power sector share in total outlay of state and central governments, which has been continuously declining as the proportion of total outlay. It would be interesting to note that central power sector outlay as a proportion of total power sector outlay has remained in the range of 38-43 per cent in the 1991-2001 period. But, the share of the state sector has shown a declining trend, coming down from 27 per cent in 1991-92 to 17 per cent in 2000-01.³⁷ And this decline was mainly on account of

³⁷ Pg. 920, 10th Five Year Plan (2002-2007), Planning Commission, Government of India.

states being reluctant to undertake new generation projects in expectation of private sector investment.³⁸

Total losses of SEBs reached a staggering figure of Rs. 25,000 crore. These high losses are mostly associated with high political interference in setting user charges and inefficiencies arising out of monopolistic structure and practices. Much of the problem in the functioning of SEBs can be associated with government ownership.

The Problems confronting these SEBs is quite evident from the table 3 below. The tariff charged on electricity on an average remained below the average cost of supply. Agriculture and domestic sectors continued to be subsidized heavily. On the other hand, industrial and commercial categories partly cross subsidize the losses on account of sales to agriculture and domestic categories.

³⁸ The 10th Five year plan taking note of the low level of investment by the private sector states that, “ it would be desirable, in the short term, to step up public sector investment even as efforts continue to put the SEBs back on the rails in order to attract private sector investment.”

Table 3: Financial Performance of SEBs

No.		1996-97 (Actual)	1997-98 (Actual)	1998-99 (Actual)	1999- 2000(Actual)	2000-01 (RE)	2001-02 (AP)
1.	Cost of Supply (Paise/Kwh)	215.60	239.73	263.05	305.12	327.16	349.85
2.	Average Tariff (Paise/Kwh)	165.30	180.30	186.77	206.98	226.26	239.92
3.	% of Recovery	76.70	75.21	71.00	67.84	69.16	68.58
4.	Average Agriculture Tariff (Paise/Kwh)	21.20	20.22	21.01	22.61	35.38	41.54
5.	Commercial Losses(with subsidy) (Rs. Crore)	-4674.31	-7597.95	-10508.75	-15088.14	-17793.72	-24837.22
6.	Commercial Losses (without subsidy)	-11305.00	-13963.00	-20860.00	-26353.00	-25259.00	-33177.00
7.	Net Internal Resources (Rs. Crore)	-2090.70	-6209.00	-8954.40	-13316.30	-15620.60	-19103.90
8.	Subsidy for Domestic Consumers	4386.01	5258.43	6332.48	8121.11	10036.07	12238.51
9.	Subsidy for Agriculture Consumers	15585.20	19021.36	22473.13	24650.02	26950.00	30462.00
10.	Gross Subsidy* (Rs. Crore)	20210.75	24749.78	29261.49	33144.68	37331.05	43060.10
11.	Subvention Received (Rs. Crore)	6630.60	6364.80	10351.55	11264.53	7465.33	8339.62
12.	Uncovered Subsidy (Rs. Crore)	5805.03	9374.16	10599.95	16616.37	24118.45	28976.92
13.	Gross Subsidy Per Unit of Sales (Paise/Kwh)	75.40	87.25	98.81	110.98	118.57	126.62

* Gross Subsidy includes subsidy for domestic consumers, agricultural consumers and on interstate sales.

Source: Annual report on SEBs Planning commission, 2002.

Tenth Five Year plan document talking about the financial ill of SEB writes:

“...present financial health of the SEBs is not sound, to say the least. This is mainly due to un-economic tariffs for agriculture, lower slabs of domestic consumption and high T&D losses, which often disguise large-scale theft, and low billing and collection efficiency. This is the main roadblock to attracting the much-needed private investment and, in fact, has been one of the main reasons for the shortfall in capacity addition from private sector projects during the Ninth Plan.”³⁹

Reforms in power generation started in 1991 with the amendment of the Electricity Supply Act, 1948 whereby private investments in power generation were allowed. Private investment was invited through Memorandum of Understanding and later through competitive bidding. But because Independent Power Producers (IIPs) were not allowed to sell directly to consumers, but only to the loss making SEBs, uncertainty over receipt of future streams of income prevented private investments. Even guarantee and counter-guarantee from state and central governments prevented actual realization of private investment to fill the demand and supply gap. Even potential investors were discouraged by poor revenue stream of the sector.

Much of restructuring in the power sector were also influenced by the dictates of World Bank⁴⁰ as their loan criteria adopted in 1993 required the following⁴¹:

1. Unbundling of vertically-integrated SEBs into separate entities and their corporatisation
2. Pricing to reflect cost of supply; and better and transparent targeting of subsidies.
3. Setting up Independent regulatory authority to regulate power sector and insulate tariff setting from political interference.
4. Attract private sector participation in the sector.

The decade of the 1990s saw a large number of initiatives to lure private investment in power generation and distribution. Many policy initiatives were

³⁹ Pg. 897, 10th Five Year Plan (2002-2007), Planning Commission, Government of India.

⁴⁰ World Bank had been giving loan assistance to SEBs in the 1970s and 1980s. It is only in 1990s they started emphasizing on reforming the power sector.

⁴¹ Mahalik, S.C. “Reforms in Electricity distribution”, Indian Journal of Public Administration, Vol. L, No.2, April- June 2004.

undertaken to encourage private participation in the power sector. The government procedures for clearances of the projects were also simplified.⁴²

The idea of independent regulation was first mooted by the National Development Council's sub-committee on power. These ideas were refined and culminated in the decisions taken in the Chief Ministers conferences in 1996. The essential idea here was to use the independent regulators to distance politically elected governments from the difficult task of tariff rebalancing. Regulatory reforms started in the power sector in 1995 with OERC (Orissa Electricity Regulatory Commission) with restructuring of the OSEB into separate unbundled entities. The reform process gained momentum with the enactment of the Electricity Regulatory Commission Act with which CERC was established in 1998. The Act also had enabling provision for the establishment of SERCs.⁴³

Though the sector has seen the unbundling of many State Electricity Boards into separate entities involved in generation, distribution and transmission and their corporatisation, but the problem of huge demand and supply gap continues to plague the sector. The Power sector has seen less reforms and actual changes as it falls under concurrent list. Since power falls under the jurisdiction of both Central and state government cooperation is needed to achieve any meaningful reform of the sector. The problem of slow reforms can also be associated with the lack of political will to curtail subsidies as it is highly socio-political sensitive. Increasingly it was realized that reform needed to focus on the distribution component where revenues are generated to make the whole sector financially viable.

The Ninth plan document making reference to high T&D losses argues for privatization of distribution.

⁴² A notification was issued in September, 1996 enhancing the limit of capital expenditure of schemes requiring the concurrence of the Central Electricity Authority from Rs. 400 crore to Rs.1000 crore in the case of generating station schemes to be set up by Independent Power Producers (IPPs) selected through the process of competitive bidding.

⁴³ All state have created their separate or joint RCs either through the enabling provision of the ERC Act or through their respective state Acts.

“The continuing high T&D losses could be partly attributed to the low investments made on T&D facilities in different States and the extensive low-voltage distribution network in rural and urban areas. These factors have also contributed to the poor quality of electricity supplies in many areas. There is a strong case for privatizing distribution in order to reduce the present high level of theft and pilferages. A beginning can be made by mandatory privatisation of distribution in urban area with population of one million and above.⁴⁴

But it must be realized that privatization or corporatisation of unbundled entities in itself is not a solution to the problem. We need to develop a conducive framework for promoting competition. Primarily the 2003 Act focuses on promoting competition by delicensing generation, encouraging captive generation and mandating open access. It seeks to bring about efficiency gains and quality of supply of electricity at a competitive rate with appropriate regulatory intervention. The regulatory commissions under the Act are required to perform a wide ranging responsibilities and ensure that the regulatory processes facilitate the attainment of the objectives of maintaining a balance between the commercial viability of the sector and provision of service for all.

Even after so many years of reform we have not been able to solve the problems. Now Ministry of Power in its mission has set a goal of “Power for All” by 2012⁴⁵. The mission talks about reliability, quality, commercial viability, and optimum power cost that continues to be the problem of the sector. The regulatory strategy stated to achieve this goal is to make the sector commercially viable and at the same time we also need to protect the consumers’ interest.⁴⁶ So the issues of commercial viability still plague the sector.

⁴⁴ 9th Five Year Plan (1997-2002), Planning Commission, Government of India.

⁴⁵ Ministry of Power, http://powermin.nic.in/indian_electricity_scenario/power_for_all_target.htm

⁴⁶ *ibid.*

Conclusion

Huge sunk cost requirements and continuously declining costs has historically led to natural monopolies in these sectors. The economies of scale argument has placed these two sectors under state ownership. Moreover the absence of private capital has made the socialist state in India pursue provision of these services under state ownership. In the case of electricity, the demand side and supply side factors resulted in the provision of these services through vertical integrated SEBs and REBs. It is only with technological breakthroughs that these services can now be provided in a competitive framework without loss of economies of scale.

Both the telecom and power sector were characterized by an absence of competition, which led to operational inefficiency, poor quality of services, and inefficient allocation of resources. Problems associated with government ownership were the main cause for the loss making SEBs. The huge losses incurred by SEBs have been a continual drain on the public budget.

Both sectors lacked financial resources to reduce the demand and supply gap, so a need was felt to encourage private investment in the sector. The presence of government incumbent in telecom made it even more important to have a regulator to provide a level playing field. However, in the power sector, issues pertaining to rationalization of tariffs and its isolation from political interferences accentuated the need for an independent regulator.

So far we have seen that failure of government to raise enough resources both internally and from outside world, made it necessary to liberalize and lure private investment in both the sector. The telecom sector saw active participation from private sector. But power sector failed to actually materialize private participation as was expected when the sector was thrown open to for private investments. Much of the continuing losses of the SEBs and political interferences prevented growth of private participation in generation.

To conclude, the governance structure present in both the sector with state dominance and state ownership created adverse incentives for players both private and public to perform. Now it would be interesting to see how the regulatory framework has the potentials to align the incentives conducive for the growth of the sector. The next chapter deals with the governance structure in post IRA regime.

Chapter 4

Structure of Governance in Regulatory Regime

Introduction

All independent regulatory institutions came into existence by amending existing Acts or by introducing new legislation in parliament. In power sector in the year 1998, GoI promulgated an Electricity Regulatory Commissions (ERC) Act providing, among other things, for the establishment of the Central Electricity Regulatory Commission (CERC). This also included an enabling provision for establishment of State Electricity Regulatory Commissions (SERCs). Now it is the Electricity Act¹ of 2003, which defines the role of all institutions and all previous Acts (The Indian Electricity Act, 1910; the Electricity (Supply) Act, 1948 and the Electricity Regulatory Commission Act, 1998) governing the sector stands repealed. Similarly, in telecom sector, Telecom Regulatory Authority of India (TRAI) was set up through an Act passed in 1997. The Act was amended in the year 2000 to define clearly the role of TRAI and dispute settlement responsibilities were passed on to Telecom Dispute Settlement Appellate Tribunal thus formed.

In the post Independent regulatory phase we have existence of both new Independent Regulatory Agencies (IRAs) and various government institutions, which previously use to undertake same tasks now primarily assigned to these independent agencies. Role and functions of these agencies and government departments are defined in various Acts and legislations governing the sector. Often it is the case that these Acts fails to clearly demarcate the area or functions of these various agencies and departments leading to conflict of interest.¹

¹ Period 1997 to 1999 saw rise in litigation between TRAI and DoT which undermined the functioning of TRAI.

To understand the present system or structure of governance in the telecom and power sector, we need to reflect on the relation between independent regulatory authorities and the various government institutions. The relation between the two set of institutions and other institutions², which determines the governance structure in the sector can only be understood over the course of reform period as these institutions continuously emerged to create their respective space in a wider space of governance.

Regulation itself in the infrastructure, sector is continuously changing, as the Government is consciously undertaking regulatory reforms as a part of broader reforms governing the whole economy. In such situation the governance structure has to be seen in the context of changing structure of the industry as the nature of intervention, and issues confronting the regulators are continuously changing with the changing structure of the sector.³ It is not just the interaction among various institutions (government, regulator and other players) but the changing structures of the sectors and technology that are crucial determinants of the whole governance structure in the sector.

It is through various amendments and judgments passed in tribunals and courts that these IRAs have defined (and are still in process to define) their positions and role in the wider framework of governance. There exists global consensus that regulator must functions relating to tariff control; set and monitor standards for quality of services; resolve disputes pertaining to the sector. And policy-making should be exclusive undertaken by the government. The regulator must be seen as implementer of the policy.

These legislative changes were part of the whole reform process that was consciously undertaken to increase private investment and competition as envisaged in the government policy. And it is the government policy for the sector⁴ that basically lays down rules and general framework for all players to which all behaves in conformity. To understand the whole governance system in place we need to look the government policy

² Other institutions like Parliament, Courts/Appellate bodies, Comptroller and Auditor General (CAG), also have an important role to play in the overall regulatory framework.

³ Tariff setting may be the important task for regulator when market is not competitive but as competitive forces comes important task for regulator shifts becomes that of

⁴ National telecom policy, 1999 and National Electricity Policy 2005

and various legislations, which set the rules of the game. Not just by looking at these policies and Acts we get the understanding of the actual governance system in place, its very important to see the actual practice of these rules.

Governance in Telecom: Policies and Regulatory Laws in Telecom

The New Telecom Policy of 1994 focused mainly on making telecommunication services available and affordable to larger population.⁵ NTP 1994 was a major initiative to open the door and invite the private players to develop the telecom sector. This process was given a further boost by the telecom policy announced in 1999. The major policy reforms initiated since 1999 have resulted in the fastest ever growth of the telecom⁶ sector. In fact failure of government to achieve objectives of National telecom policy (1994) is often cited to be absence of effective and independent regulator with clear lines of jurisdiction, for implementing the telecom policy.

Due to tremendous growth in the services it was considered essential to regulate the telecommunication services by a statutory body, which should be fully empowered to control the services, in the best interest of the country as well as the service providers. TRAI thus formed with all the statutory powers, was originally invested with certain quasi-judicial authority to adjudicate and settle disputes.

TRAI was set up (originally in 1997) to protect the interest of consumers, regulate telecom tariff, adjudicate dispute between service providers, ensure compliance with licence conditions, bring about technical compatibility and inter-connection between different service providers, regulate arrangement among service providers in respect of sharing revenue, levy fees, facilitate competition, promote efficiency, provide level playing field for private and public operators.⁷ The regulatory process followed by the TRAI is very consultative where comments and participation from various

⁵ NTP 1994, Ministry of Communication's, Government of India.

⁶ Vide a notification dated 9 January 2004 of the Government of India, Broadcasting and cable services also have been brought within the definition of 'Telecommunication Services'. All telecom services have experienced significant growth after 1998.

⁷ Anjali Garg, Manisha Kalra and Rakesh kacher, "Regulatory reforms in India: effectiveness, efficiency, and impacts", TERI, 2003.

stakeholders are sought before reaching to any final order or recommendation. This marks a big change from the previous mode of governance where decision making in a non-transparent manner led to adhoc policies / interventions taken by incumbent DoT to serve its interest.

The TRAI was reconstituted with amendment to the TRAI Act in 2000 where a clear distinction was made between its advisory and regulatory role. Thereafter it is mandatory for the government to seek recommendations of TRAI on issues like the need and timing of new service providers and their terms and conditions. However these recommendations are not binding for government. Despite many differences in new TRAI (post 2000) and old TRAI (1997) the basic function of TRAI remains to create an environment conducive to the growth of telecom sector, and safeguard a customer's interest and ensure that he gets the QSS⁸ (quality of service standards) that he has contracted for. Moreover as the Act makes it mandatory for the GoI to seek recommendation,

The Telecom Regulatory Authority of India Act, 1997 was amended by the Telecom Regulatory Authority of India (Amendment) Act, 2000. The amendments were brought about to remove certain difficulties that had arisen in implementation of the Act. The desired objectives of bringing about functional clarity, strengthening the regulatory framework and the disputes settlement mechanism were attained by bringing about a clear distinction between the recommendatory and regulatory functions of Telecom Regulatory Authority of India (TRAI)⁹ by making it mandatory for Government to seek recommendations of TRAI in respect of specified matters and by the setting up of a separate dispute settlement mechanism etc. Amendment brought in clear distinction between the advisory and the regulatory role of TRAI.

⁸ The TRAI Act, 1997 empowers the telecom regulator to set a QSS and to monitor them.

⁹ Section 11 of TRAI Act, 1997 and Section 9 of the TRAI (Amendment) Act, 2000 talks about the functions of the Authority.

The Telecom Disputes Settlement & Appellate Tribunal¹⁰ has been set up to adjudicate disputes and dispose of appeals with a view to protect the interests of service providers and consumers of the telecom sector and to promote and ensure orderly growth of the telecom sector. The functions of the appellate tribunal are to adjudicate any dispute between a licensor and licensee, between two or more service providers, between a service provider and a group of consumers¹¹, and to hear and dispose of appeals against any decision or order of TRAI. Formation of appellate body further ensures accountability of TRAI as their decisions are now subject to scrutiny or appeal by affected party. Over the period of the tribunal function, it has been felt that this body is an expert and has dealt with technical issues without remanding those issues back to the regulator for reconsideration. (Sundar et al, 2005).¹²

As pointed out previously that prior 2000 Amendment of the TRAI, a whole lot of litigation erupted between the DoT and TRAI over the issues of license and its terms and conditions. TRAI do not have adjudication power now, its adjudication power over license-licensor disputes were taken with a judgment¹³ given by Delhi high court in 1998. TRAI has following important area of interventions¹⁴ which has far reaching implications for the sector:

Interconnection: is the right of a network operator to ensure that its users can make or receive calls to or from the users of another network. Large incumbents have often denied interconnection to new entrants. The existence of network externalities can be used by incumbent to severely handicap other competitors.¹⁵ Issues pertaining to interconnection become important when we have presence of large number of players other than government owned service providers. Competition can only happen if we have

¹⁰ Section 14 of the Telecom Regulatory Authority of India Act, 1997 by TRAI (Amendment) Act, 2000

¹¹ Protection of individual consumer falls under the jurisdiction of Consumer Redressal Forum or a Consumer Disputes Redressal Commission or the National Consumer Redressal Commission established under section 9 of the Consumer Protection Act, 1986 (Section 14 (B) of TRAI Act 2000).

¹² Compendium of Order in electricity and telecom sector, edited by S. Sundar, M P Rammohan, Satnam Singh Kalra, (2005), TERI Press. Delhi.

¹³ The case was Union of India vs. Telecom Regulatory Authority of India in Delhi High Court.

¹⁴ Supra note 12.

¹⁵ Pablo T Spiller and Gardilli, G. Carlo (1997), "The Frontier of Telecommunication Deregulation: Small Countries Leading the Pack", *The Journal of Economic Perspectives*, Vol. 11, No.4, Autumn, pp. 127-138

equitable and non-discriminatory interconnection between service providers¹⁶. In 1997 TRAI came up with consultation paper on interconnection and after wide consultation with all stakeholders, it issued the Telecommunications Interconnections (Charges and Revenue Sharing) Regulation in the year 1999. It mandates interconnection on a non-discriminating basis. The levy of the interconnection charges is based on incremental costs. Service providers are free to negotiate interconnection agreements. TRAI intervenes only when no agreement is reached within a time frame. The regulator's early orders on interconnections were challenged on the ground of jurisdiction and the appeals were upheld. Following which the section 11 of the Act was amended to include following¹⁷:

“notwithstanding anything contained in the terms and conditions of the license granted before the commencement of the Telecom Regulatory Authority (Amendment) Ordinance,2000, fix the terms and conditions of inter-connectivity between the service providers”

It is only after the amendment of the TRAI Act, interconnection fell in the jurisdiction of the authority.

Quality of Service: The TRAI Act mandates the authority to lay down the standards of quality of service to be provided by the service providers and ensure the quality of service and conduct the periodical survey of such service provided by the service providers so as to protect interest of the consumers of telecommunication services.¹⁸ TRAI issued regulation in 2000 regarding QoS benchmarks for the basic and mobile cellular services. Similar benchmarks are prescribed for other telecommunication services¹⁹ in the sector. Though TRAI cannot penalize these service providers for their failure to achieve these benchmarks but the frequent publications of the performance of the service providers on these benchmarks creates consumer awareness, and also incentives for service providers to improve as these information goes in public domain.²⁰

¹⁶ Once the right to interconnection has been established, telecom services in small area do not constitute a natural monopoly.

¹⁷ Subsection (b) of section 11, TRAI Amendment Ordinance, 2000.

¹⁸ Clause (v), subsection b of section 11 of the TRAI Act 2000.

¹⁹ Internet access and VoIP-based international long distance call.

²⁰ Competition has brought prices down significantly but in terms of QoS performance has been dismal.

Recently it was reported in a newspaper that mobile network congestion levels in large number of cities were 20 times higher than the stipulated quality of service norms²¹ due to the inefficient interconnect system between private mobile operator and state-owned BSNL. In a situation where services of all providers get affected, self-disciplinary mechanism are weak to induce improvement in the services. In such situation imposing penalties can be more appropriate, but TRAI do not have such power, as is the case with CERC.

Consumer Protection: TRAI issued regulation regarding publication and reporting of tariff, which requires all service providers to publish and make available to all subscriber detail information regarding tariffs, billing cycle, alternative tariff package, mode of payments, etc. This becomes important for consumers to carry out informed choice of the service. TRAI also have registered NGOs and consumer organisation with it, which continuously interact with TRAI to take forward the concerns of consumers.

Tariff rationalization: Again through a very consultative process,²² TRAI issued Telecommunication Tariff Order in March 1999. TTO 99 made an attempt to bring tariffs closer to tariff, reduce cross subsidisation of by long distance and international calls. Tariffs fell significantly for long distance and international calls, but there was increase in rentals and local charges. Tariff rationalisation and rebalancing was necessary to prepare the market for competition.

Methodology of specifying tariffs for various services imparted flexibility as service providers were allowed to provide any “alternative tariff package” other than “standard tariff package” specified by the TRAI. This was a kind of incentive based pricing as to attract any additional consumer alternative package has to be more lucrative

²¹ Mobile network congestion set to worsen, Business Line, October 5, 2005.

²² Two consultation papers were release in 1997 regarding tariff rebalancing and rationalisation. All stakeholders were consulted and several Open house discussions were held before the issue of TTO in March 1999.

to the consumer. Thus inducing a fall in prices²³. Mobile rental charges were increase and call charges were reduced to persuade its usage.²⁴

TTO 1999 evoked considerable protest from consumer groups, even from DoT on the ground that that it would adversely affect the lower users and subscribers. This came even after the consultative approach used by TRAI in the formulation of TTO, highlighting that regulator need support from political executive to be effective.

At the heart of all this process of decision making in the sector is the associated transparency and public participation that has emerged²⁵ in the post regulatory form of governance. In the pre IRA regime of governance, activities like tariffs were set in closed doors. No rationales or justifications were provided for the decisions. Information in the public domain was too low. The decisions were supposedly taken in the interest of 'public' but no public involvement was there in decision-making. In fact, there did not existed any platforms where public can raise their concerns and preferences. In the post IRA-regime we find a whole lot of information coming in the domain of public. Its not just about general public but other stakeholders like the service providers have also found a platform to raise their concerns. Service providers now also have some say in the decision-making process.

It would be interesting to look at the performance of state owned BSNL over the period of reforms. The problem confronting the telecom sector prior reforms were mainly the huge demand and supply gap, and the poor quality of the services. The data on phone faults of BSNL and MTNL shows that the faults have declined significantly

²³ Kathuria, Rajat, (2004), "*Telecom Liberalisation: A Case Study of India's Experience with regulation*", paper presented in Annual conference on Regulation at Center for the Study of Law and Governance, JNU, New Delhi.

²⁴ monthly rental were increased from Rs. 156 to Rs. 600 and maximum call charges were reduced from peak of Rs. 16.80 per minute to Rs. 6 per minute.

²⁵ Anjali Garg, Manisha Kalra and Rakesh kacher,(2003), "Regulatory reforms in India: effectiveness, efficiency, and impacts", TERI, 2003

after the year 2000²⁶(See Table 4 below). This reflects significant improvement in incentives to curtail costs among public enterprise in a competitive market structure.

Table 4: Phone Faults (BSNL and MTNL) in India (1990-1991 to 2005-2006)

(Per 100 Stations Per Month)	
Year	Phone Faults
1990-91	18.5
1991-92	19
1992-93	18.2
1993-94	18.3
1994-95	17.6
1995-96	15.8
1996-97	17.2
1997-98	17.4
1998-99	16.4
1999-00	15.5
2000-01	13.8
2001-02	12.5
2002-03	10.5
2003-04	9.4
2004-05	7.7
2005-06 (Upto Dec., 05)	7.5

Primary Source: Department of Telecommunications, Ministry of Communications & Information Technology Govt. of India.

Secondary Source: <http://www.indiastat.com>

Though it is difficult to establish the causality running from better regulatory framework to the growth of the sector. But we can conclude that the present system has better incentives to induce the service providers to perform. Technology is a very crucial factor in the development of the sector. Though it may be the case that market structure is oligopolistic in a circle but with convergence of technology and services, the sector is increasingly facing competition as the boundaries between different services are blurring. With effective competition getting high we expect that incentives to innovate and reduce costs are strong in the sector. Interplay of these various forces has brought the prices of telecom services significantly down.

²⁶ Decline is small (approx 3.6% on average) in the period prior the year 2000 but post 2000 it is declining at on average 13% per year.

Governance in power Sector:

In power sector, at the very constitutional level, it is the Electricity Act, 2003, which defines the rule of game for all players in the sector. The Act in a comprehensive manner attempts to spell out the reforms and desired changes required in the sector. The Act in a certain way contributes to macro policy²⁷ for the sector, which provides basic framework in which independent regulatory agencies by undertaking micro policies conducive with the macro framework. The Act along with the National Electricity Plan and tariff policy determines the framework for within which the CERC functions. Section 79(2)(4) of the Act clearly writes:

"In the discharge of its functions the Central Commission shall be guided by the National Electricity Plan and Tariff Policy published under Section 3".

The Act seeks to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity. In a very macro perspective it attempts to provide framework for taking measures conducive to development of electricity industry, promoting competition, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff ensuring transparent policies regarding subsidies, promotion of efficient and environmentally benign policies, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal.

In the power sector, it is the Ministry of Power²⁸ responsible for perspective planning, policy formulation, processing of projects for investment decision, monitoring of the implementation of power projects, training and manpower development and the administration and enactment of legislation in regard to thermal, hydro power generation, transmission and distribution.

²⁷ Brown Ashley, "Regulator, policy-maker, and the making of policy: who does what and when do they do it?", International Journal of Regulation and Governance, 3(1):1-11, June 2003.

²⁸ <http://powermin.nic.in/>

The Ministry of Power is responsible for the administration of the Electricity Act, 2003, the Energy Conservation Act, 2001 and to undertake such amendments to these Acts, as may be necessary from time to time, in conformity with the Government's policy objectives. National electricity policy, 2005, is one of the key instruments for providing policy guidance to the Electricity Regulatory Commissions in discharge of their functions. The macro policy formed for the sector defines the framework within which the regulators continuously undertakes micro decision/policies, which governs the sector. Central Electricity Regulatory Commission is a statutory body constituted under the provision of the erstwhile Electricity Regulatory Commissions Act, 1998 and continued under Electricity Act, 2003. The main functions of the CERC are to regulate the tariff of generating companies owned or controlled by the Central Government, to regulate the tariff of generating companies other than those owned or controlled by the Central Government, if such generating companies enter into or otherwise have a composite scheme for generation and sale of electricity in more than one State, to regulate the inter-State transmission of energy including tariff of the transmission utilities, to grant licences for inter-State transmission and trading and to advise the Central Government in formulation of National Electricity Policy and Tariff Policy.

Other players in the power sector affecting the governance:

The orders or regulation of TRAI are subject to scrutiny or appeal in TDSAT or higher courts. On similar line power sector saw its Appellate Tribunal in the year 2004. Appellate Tribunal for Electricity²⁹ is a statutory body constituted for the purpose of hearing cases against the orders of the Regulatory Commissions and the Adjudicating officer. By virtue of Section 110 of The Electricity Act, 2003, an Appellate Tribunal for Electricity having jurisdiction through out India has been set up to hear appeals or original petitions against the orders of the Adjudicating officer or The Central Regulatory Commission or State Regulatory Commission or Joint Commission constituted respectively under Section 76(i) or 82 or 83 of the Act under the Act of 2003. The Tribunal is conferred with original jurisdiction to hear petitions under Section

²⁹ This Tribunal has been established by the Ministry of Power, Govt. of India w.e.f. 7th April, 2004 notified vide S.O. 478 (E).

121 of the Act and issue directions to all Commissions for the performance of its statutory functions.

As we have CERC at centre, we have SERC to undertake similar task in states. Main responsibilities of the SERC are to determine the tariff for generation, supply, transmission and wheeling of electricity, whole sale, bulk or retail sale within the State; to issue licences for intra-State transmission, distribution and trading; to promote co-generation and generation of electricity from renewal sources of energy etc. In addition to above listed statutory bodies affecting governance structure in power sector, we also have Central transmission Utility (CTU)³⁰ and State Transmission Utility (STU) to plan, coordinate and undertake transmission of electricity inter-state and intra-state respectively.

The Electricity Act, 2003, governs the relations between above all institutions or statutory bodies. Electricity regulators have been in place at the centre and the states for varying periods from two to six years and have been given powers to regulate tariffs, transmission, and certain private investments. The Electricity Act of 2003 envisions the presence of private investors in generation, transmission and distribution, with open access to transmission networks encouraging the growth of trading in electricity.

It would be interesting here to refer to the formulation of Discussion paper on tariff policy, where Ministry of Power was in process of preparing with assistance of CRISIL. The preliminary Discussion paper on tariff policy posted on the website of MoP has raised concern from CERC because the procedure for preparation of the policy were not adhered³¹ as is given in section 3 of the Electricity Act. Section 3 of the Act states:

3.(1) The Central Government shall, from time to time, prepare the National Electricity Policy and tariff policy, in consultation with the State Governments and the Authority for development of the power system based on optimal utilization of resources such as coal, natural gas, nuclear substances or materials, hydro and renewable sources of energy.

³⁰ Power Grid Corporation of India Limited is Central Transmission Utility.

³¹ CERC letter to MoP on the concerned matter. Can be downloadable from http://cercind.gov.in/060803/tariff_policy.pdf

So the Act does not mandates any other consultation by the central government. In fact the Act mandates that CERC shall advise the Government on the Tariff Policy, by laying down in section 79 (2):

“ 79(2) The Central Commission shall advise the Central Government on all or any of the following matters, namely:
(i) formulation of National Electricity Policy and tariff policy;”

The Discussion paper was prepared in consultation with CRISIL and CEA³². The provision in the electricity Act mandates that not just CERC but also the State Governments should be consulted in the formulation of the tariff policy for the whole sector. This instance of the central government not adhering to the Act governing the power sector raises serious concern for governance mechanism. This instance of the government not consulting the State Government and CERC reflects the lack of consultative process followed in the electricity sector. A consensus with and among the States is crucial for the successful implementation of the tariff policy

Problem with the power sector is that it is subjected to much political interferences and when it comes to implementation of the law or tariff order issued by regulatory commissions finds itself in the position of under-delegation where executives do not give due consideration to its order or responsibilities. Doraiswamy (2005) while analysing the appropriate role of IRAs in a deregulated economy points out it is very crucial for the RCs to be successful that all understands the clear role of the regulator.³³

“The agitation by the Left parties against the decisions of the Andhra Pradesh Electricity Regulatory Commission (APEREC) some time ago, leading to a law and order problem, is a case in point.

³² Central Electricity Authority is a statutory body constituted by the Central Government under the erstwhile Electricity (Supply) Act, 1948 and continued under the Electricity Act, 2003. The Authority has the responsibility of formulating the National Electricity Plan in accordance with the National Electricity Policy, once in five years. CEA remains the main technical advisor of the Government, the Regulatory Commissions. It is also required to specify inter-alia the technical standards and safety requirements for construction, operation and maintenance of electrical standards and electrical lines.

³³ P. K. Doraiswamy. Regulatory authorities — Role in a deregulated economy , Jan 18, 2005. Business Line.

In that case, the Leader of the Opposition in the AP Assembly not only alleged that the World Bank was dictating terms to the State Government and the APERC but went to the extent of suggesting that a telephone call from the Chief Minister to the APERC Chairman was all that was necessary to roll back the hike in the rates!”³⁴

This instance substantiates the fact that for regulator to be successful it needs to have executives in its side. Just mere creation of the regulation, desired result won't arrive. As was the case with TRAI in 1999 with its TTO even after much consultation involved in its process, DoT and the line-ministry raised concern over its implementation. Compare to telecom sector, power sector is more politically sensitive. And its being in the concurrent list makes it even more difficult case for effective regulation to operationalize.

We have SERC formed in all most all states of the country. Each SERC have issued their Tariff Order. Various litigations have upheld power of SERC to issue tariff order. Though the performance of SEBs continues to be bad and is further worsening,³⁵ at the regulatory front we are seeing some good changes. The role, function and scope of powers of regulatory commissions are well established and there is general agreement that the commissions are expert bodies in dealing with the factual and technical details³⁶ pertaining to the sector (Sundar et al, 2005). With effort form regulatory commission, innovative features have been introduced in tariff structure like time of the day tariff, seasonal tariff etc. And it has increasingly been observed that tariff thus determined by and large not been appealed against. So while the sector has seen some move to rationalise the tariffs, there is still a very high level of cross subsidisation, particularly with regard to agricultural consumers. Also these SERCs face the problem of data availability of SEBs regarding costs and other aspects of cost.

³⁴ Ibid.

³⁵ Rate of return on Asset deteriorated from –12.7%in the year 1991-92 to –32% in the year 2004-05.

³⁶ Supreme Court in the order of the case between WBERC vs CESC in 2002 upheld that WBERC is the expert group to decide the tariff order. This judgement made the determination of tariff more a subject of regulatory commission.

We have several instances where the government has acted in a way to enhance the legitimacy of the ERCs. However, there are many instances where the State government have undermined the working of the ERCs. Daljit Singh (2005) cites an instance where MPSEB (Madhya Pradesh State Electricity Board) revised the tariff and implemented it without the approval of the MPERC. A case against MPERC was filed in High Court when it stayed the implementation of the tariff. The Court stayed the order of MPERC and allowed the tariff revision to go in effect with final hearing pending of the case. Subsequently, the MP government legalised the tariff revision through legislation. There exists a whole lot of instances where the state government has undermined the effectiveness of the regulator. As pointed out earlier also that for regulator to be successful it needs to get support of executives. This lack of support may be due to absence of the sense of ownership towards the reform process as these reforms have been imposed by the Central government on the states.³⁷

The regulatory regime has not been successful in changing the scenario of the power sector with continuing loss-making SEBs. The main purpose of these regulatory agencies was to rationalise the tariffs, on which it has failed. No doubt that like telecom sector, the power sector has also observed increase in transparency with the public hearing process. In fact, CERC is obliged to ensure transparency in exercise of its powers and discharge of its function. The nature of the decision making process in the power sector is mainly quasi-judicial in all its proceedings. But CERC has adopted a consultative process in discharge of its functions with respect to issue of concern to public like Tariffs and Grid Code, by issuing consultative papers inviting public comments and suggestions in establishing its regulation. Further, CERC proceedings and records are open to public.

CERC and SERC have the power of a civil court, with powers to penalize contraveners of its order/directions. Section 94 and 95 of the Electricity Act says

³⁷ Daljit Singh, (2005), "*Regulation of the Indian Power Sector: Lessons of the Other Sectors*". In *Administrative Reform* edited by Amita Singh, Sage Publication.

“94. (1) The Appropriate Commission shall, for the purposes of any inquiry or proceedings under this Act, have the same powers as are vested in a civil court under the Code of Civil Procedure, 1908 in respect of the following matters, namely: -

- (a) summoning and enforcing the attendance of any person and examining him on oath;
- (b) discovery and production of any document or other material object producible as evidence;
- (c) receiving evidence on affidavits;
- (d) requisitioning of any public record;
- (e) issuing commission for the examination of witnesses;
- (f) reviewing its decisions, directions and orders;...

95. All proceedings before the Appropriate Commission shall be deemed to be judicial proceedings within the meaning of sections 193 and 228 of the Indian Penal Code and the Appropriate Commission shall be deemed to be a civil court for the purposes of sections 345 and 346 of the Code of Criminal Procedure, 1973.”³⁸

ERCs have more power than their counter part TRAI in telecom. TRAI merely has advisory role, which are non-binding as they are open to appeal.³⁹ But CERC orders under CERC ACT 1998 stood as final and binding, but now they are open to appeal in CEA. When it comes to establishing legality of its orders, TRAI seems to be finding difficulty in convincing the tribunal TDSAT. As on September 2005, 10 major cases were filed against the TRAI in last four years and TDSAT has ruled in TRAI favour only twice. However, TRAI during the same period has issued over 40 tariff orders and 60 directives. So number of dispute now seems to be minuscule. This can be associated with the consultative process involved in TRAI.

Impact of regulation on power:

The power sector continues to be plagued by the problem of commercial unviability. One of the biggest achievements of the regulatory regime on the power sector has been the recognition of the actual level of T & D losses in the state.⁴⁰ This improved

³⁸ The Electricity Act (2003) Gazette of India, 26th May.

³⁹ When it comes to establishing legality of its orders, TRAI seems to be finding difficulty in convincing the tribunal TDSAT. As on September 2005, 10 major cases were filed against the TRAI in last four years and TDSAT has ruled in TRAI favour only twice.

⁴⁰ Anjali Garg, Manisha Kalra and Rakesh Kacher, (2003), “Regulatory reforms in India: effectiveness, efficiency, and impacts”, TERI, New Delhi.

information has led to increased pressure on the SEBs to reduce losses and improve efficiency. With the coming up of ERCs, we are observing increase in transparency and openness in the decision making process. The public hearing process and consultative process involved in the regulatory process has led to greater awareness. There has been increase in the quality of information in the public domain. The quality of information and transparency is exerting pressure on public utilities to perform better.

However, there is improvement in the governance mechanism of the sector with more transparency and public participation, the better incentives thus created are not sufficiently strong enough to overcome the uncertainty and risk that is associated with loss making SEBs and political interferences. In fact, if we look at the plan target figures for the power sector in Ninth and Tenth Five Year plan, we find that the share of Central sector has increased to 56% (from 30% in Ninth plan), share of private sector decreased to 17% (from 43% in Ninth plan) and that of state share has remained unchanged at 27% in Tenth plan. This reflects government acceptance of the fact that it has failed to create conducive environment through regulatory change to induce private investment in the sector.

Conclusion:

The new regulatory regime of governance have brought in transparency and increased public participation in the governance. Increase public awareness and information in the public domain has the potential to strengthen the incentives of various players to perform. As there is strengthening of incentives across the board, the transaction costs associated with all kind of transactions in the sector is decreasing. The present mode of governance is economising on the transaction cost. But continuing political interference in power sector and deteriorating financial health of SEBs creates strong disincentives that are counterbalancing the improvement in incentives that is associated with the regulatory regime of governance.

The analysis of the legal framework of the TRAI and CERC shows that Electricity Act governing the power sector gives ERAs more authority as they function

as civil court with power to fine defaulters. TRAI has mere advocacy role, which are not mandatory for government to follow. So the discretionary power of these two regulatory agencies as derived from their respective regulation does not explain for the poor performance of ERAs.

Chapter 5

Conclusion

Governance is basically all about resolving conflict emerging out of limited resources having conflicting use. In the process of resolving conflict, governance creates opportunities for mutual benefit. In our society we consciously or unconsciously creates institutions that helps us in performing the governance. Various institutions and the related mechanism of governance are often helpful in creating benefits to all. In large instances prevalence of certain inefficient institutions creates value or benefits only to small section of population at the cost of larger group. We in present world continuously face choice of strategies, which have strong implications for the governance mechanism and its effectiveness. Market as an institution is often seen as the most efficient institution to resolve certain kind of conflicts. But in many transactions where sunk cost is huge and capital cannot be redeployable, we need regulation or government ownership to resolve conflicts.

Governance mechanism in the infrastructure sector has two dimensions – technical and developmental – which determines appropriate institutional governance mechanism. The dominance of state ownership in the power sector can be traced back to the socialist pattern of intervention that the state undertook in the planning period. Huge investment requirement and lack of private capital forthcoming along with the socialist guiding principal to avoid concentration of power in the hand of private sector led to creation of highly vertical and horizontal integrated power system owned by the state. Another important aspect of this mechanism of governance in the power sector has to be seen from the technology perspective.

In the power sector the huge investment requirement and the nature of production involving generation, transmission and distribution along with fluctuation in demand required better coordination, which gave rise to vertical integrated public utilities. As electricity supply cannot be stored it becomes crucial that supply is matched with the

demand. But if we look at the demand side we find low price elasticity of demand in short run and highly fluctuating. These features of supply and demand imply that markets on their own cannot function satisfactorily and is incomplete. Markets being incomplete require regulatory supervision.

Huge investment requirement and associated network externality made the provision of telecommunication services a case of natural monopoly, which came under public ownership in India. Technological breakthrough and consequent significant reduction in cost made delivery of these services on competitive basis. It is the complete state ownership and absence of competition in telecom and power sector that led to operational inefficiency, poor quality of services, and inefficient allocation of resources. Though DoT and its undertaking corporation were not loss making, but these organisations failed to raise sufficient revenue to reduce the demand-supply gap.

The establishment of regulator in telecom sector was not on the reform agenda of the government when the sector was opened to private players. Presence of large incumbent government with a comparatively large network created the problem of interconnection, which prevented private investment, to flow in the sector as was expected. So need was felt that a telecom regulator was essential to provide level playing field to the sector.

However, in the power sector problems associated with government ownership were too adverse to cause loss making in SEBs. The huge losses incurred by SEBs have been a continual drain on the public budget. The governance mode associated with state ownership created weak incentives to innovate and reduce cost. Agency problem associated with public ownership turn these public utilities into loss making. In both the sector it was increasingly felt that private participation was needed to reduce the demand and supply gap.

Both the sector saw the growth of regulator to induce confidence in private investors. However, the growth of IRAs in power sector can be traced in the reforms

dictates of World Bank as it had huge conditional lending to various SEBs. Moreover, government increasingly felt that the sector needed to isolate its tariff formulation from political interferences. Though tariff rationalization has been important function of the regulator in telecom sector, its genesis is greatly associated with providing level playing field to private participants in telecom services.

It was the failure of government to raise enough resources - both internally and from outside world – which necessitates liberalizing and luring private investment in both the sector. The telecom sector saw active participation from private sector. But power sector failed to actually materialize expected private participation when the sector was thrown open to for private investments. Much of the continuing losses of the SEBs and political interferences prevented growth of private participation in the sector. The state dominated and state-controlled governance structure in both the sector created adverse incentives for both the private and public players to perform.

The governance structure created in the post regulatory regime has significantly improved the transparency and public participation in the governance mechanism. Better information and awareness among all stakeholders is creating better incentives for all participants to perform. Despite these improvement in these incentives problem continues with power sector. Analysis of the legal framework and laws governing the sector shows that CERC are legally more powerful to carry out its function as civil court. But when it comes to the implementation of these laws, various states have made contempt of these laws. So the failure of ERAs can be associated not with the legislation but the practice of laws in actuality.

So we can conclude that a shift from the command economy to the market economy raises the need for independent regulatory authorities, but more than that, it is the failure of the previous systems of governance to restore social order, which accentuates the need for these independent regulatory authorities as an alternative institution of governance. Establishing regulatory agencies is and in itself insufficient to the achievement of various socio-economic policy objectives as can be seen from the experiences of regulators in power sector, though legally more empowered failed to deliver.

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