A COMMUNICATION POLICY FOR THE 21st CENTURY
Unleashing the Information Communication Revolution:

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1 INTRODUCTION

A communication cum information revolution has swept the developed countries in the last few decades. This revolution has extended into many of the emerging markets over the last decades or so. With minor exceptions, this revolution has bypassed India so far.[1] Information and the knowledge that flows from analysis of such information will be the key to economic development and growth in the next century. Telecommunication, as part of a broader concept of Communication, must become the handmaiden (or perhaps even a servant) of the Information Revolution.

1.1 Globalization

The greatest potential benefit of Globalization is access to information and knowledge. The frontiers of knowledge are diffuse, but almost by definition most of the frontier areas are in the developed world. Urban and Rural (directly or through the Urban areas) India must have access to this knowledge. This knowledge can be accessed through multiple means of communication, including telecommunication.

The second potential benefit is that India could become an Information/Data Processing Service Provider to the World. These services include human and computer mediated processing as well as combinations of the two. They also potentially cover many different fields of professional endeavor

The full benefits of globalization can only become available if a communication revolution is unleashed. The only way to do this is to reduce costs to the minimum through intense across the board competition within and across all means of communication.

[1] The major exception is the extension of PCOs into rural areas.

1.2 National Market

One of the theoretical advantages that a large country like India possesses is a large domestic market in which economies of scale can have full play. Controls on trade and monopolies in transport and telecommunication have ensured that this remains merely a pipe dream. Efficient distribution of goods & services across the country requires efficient & cost competitive pricing of telecom. Telecommunication is also a substitute for transport as the information collection role of transport can be minimized if information flows are efficient and cost effective. The creation of a National market as well as National integration requires that the large implicit taxation of internal communication (STD) be eliminated expeditiously.

1.3 Opportunity

The relative lag in Indian Infrastructure development compared to other emerging markets can be turned into a tremendous opportunity. As the sunk cost of old technology is relatively low; we can leapfrog many steps and aim straight for the frontiers of current technology.

2 TECHNOLOGICAL REVOLUTION

The basis of the information revolution is the technological revolution in Telecommunications, computers and electronic media. Technology advances have made possible the unbundling of telecom services, so that the natural monopoly elements can be dealt with separately. Even the remaining 'natural monopoly' segments such as the 'last mile' link between the telephone exchange and the customer is turning into an oligopoly in the face of technological (WLL) and other innovations. There has been a convergence of technologies relating to different areas of communications such as Telephone, Telegraph, Radio,

TV, Internet and Data networks. Multimedia is rapidly becoming a reality, and a digital revolution is in the offing.

Even electricity wires are usable for simultaneously carrying information. This must also be kept in mind in framing a new communication law.

Telecommunication policy must not only be modernized, but an integrated and internally consistent communication policy framework is needed which will last well into the 21st century.

The rest of the paper outlines some of the critical elements of such a radical new communication policy.

3 MONOPOLY TO COMPETITION

The Telegraph act gives the government a monopoly over telecommunication. This monopoly should be eliminated and replaced by a requirement that government must promote competition in telecommunication. All that the government needs is the power to regulate the development of communications. Provisions for regulated competition must replace the 'monopoly' clauses in the Telegraph Act. The act must also allow for delegation of regulatory powers to a Communications Regulatory Authority of India (CRAI).

The '**Market Based Approach**,' which has been accepted an implemented in the case of Goods during the last decade of the twentieth century, must be fully and firmly extended to Infrastructure. **This approach has four essential aspects of relevance to Communications. Investment de-licensing and free entry, Rational Pricing of natural resource, Regulation of quasi 'natural monopoly' elements and Tax & Subsidy for Social objectives.** These four aspects need to be unbundled and addressed separately

3.1 Free Entry & Investment

An essential difference between communist or socialist planning and a market economy is with regard to Entry and Investment. The former operates on the basis that the government planner knows best how and where and how much investment is needed, and this is controlled through investment licensing. In contrast a fundamental tenet of the market economy is that entrepreneurs and investors must be encouraged to invest as much as they desire. Some of them will inevitably fail, but the gains to the public & society from competition and innovation will over the long run *more than* compensate for any short-term effects of individual failure. This principle must be applied in the new Communication policy, by providing for free entry into all areas of telecommunication, on the same lines as that already announced for Internet service provision. There is no need to control and restrict investment into any area of telecommunications as a matter of policy.

3.1.1 Under-served Areas

It is sometimes argued that, there will be certain geographical areas in which no private party will want to invest in the setting up of the 'last mile' link or basic local network, while there will be other areas in which there may be too many companies wanting to invest. In a market based system any such social problem of under-investment can and should be addressed primarily through a system of taxes and subsidies (discussed further below). Social issues do not justify investment licensing as they are more efficiently and productively dealt with by other means.

3.1.2 Policy

Policy formulation would remain with the government. Though in principle this includes licensing policy, with a prior decision to abolish investment licensing this becomes redundant. Foreign equity proportions

and other elements of Foreign investment policy would also continue to be specified by the government. Policy does not, however, include 'pricing', as this is basic function of regulation.

3.2 Natural Resource: Radio Spectrum

The main natural resource in the field of communications is the em spectrum, particularly the radio frequency segment of this spectrum. The ownership of any natural resource including the em spectrum vests with the people as a whole. This ownership right is normally exercised through the government. The government as the trustee owner of the spectrum will retain the full authority to lease or rent out parts of this spectrum through a permit (often referred to as a license) subject to the standard touchstone of national and public interest.

3.2.1 Free Resource

There will generally be two types of situations with respect to the spectrum: One in which there is unused spectrum available for a given geographical area. In this case there is no scarcity value and the market price of the resource is virtually zero. The policy should therefore allow any one to use the spectrum without paying any price for its use. There is, however, an 'option value' based on the fact that at some point in the future the spectrum may get crowded and have to be rationed. Thus the period of such free usage must by limited either to an annual renewable basis or up to the time that the spectrum demand in that area increases to equal supply. This would be done through an authorization letter.[2] A nominal fee could still be charged, but its sole objective should be to cover the cost of monitoring and managing the spectrum.

[2] This would be indicated in the letter authorising spectrum use.

3.2.2 Resource Rent

The other situation is one in which the demand for the spectrum exceeds the supply in any geographical area. The spectrum then has a scarcity value, which must be estimated and priced. Theoretically this is best done through a spectrum auction. The experience of countries such as Australia and USA in this matter can be of use in designing an appropriate auction. A provision must be made in the new communication act for auctioning of the spectrum in a manner that fosters competition and efficient usage.

3.2.3 Auction system

The choice of auction system depends on the information revelation and risk sharing aspects. For instance a 'second price auction' will take care of the problem of the 'winners curse' that has been observed in the case of recent 'first price' spectrum auctions. The auction variable can be a fixed annual payment, a profit share (or Resource Rent tax) or a revenue share. Each has its advantage and disadvantage. Though the fixed annual fee method makes the least demands on monitoring ability, it has the disadvantage of reducing the bidders and bid amounts if capital markets are not perfect. The revenue share is as easy to monitor as an annual fee and eliminates the problem resulting from underdeveloped capital markets, but distorts incentive toward options with low cost-revenue ratio. The new communication law need not specify the precise nature of the auction, as this matter can be addressed subsequently under the rules and procedures for spectrum management.

3.2.4 Spectrum policy

Operationally, it would be necessary to periodically analyze and determine which parts of the spectrum are likely to have an excess demand. These parts would be notified and auctioned. In any given

geographical area in which the spectrum supply far exceeds demand, a spectrum use authorization letter would be given freely, on the same pattern as the ISP license. In making these judgements about net excess demand for spectrum, technological change, which allows larger amount of information to be transmitted over the same bandwidth, must always be kept in mind. It is not unlikely, that in the near future new technology may in fact expand the number of channels of data, voice or video that can be supported by the spectrum by a factor of 10 or more. This will make it possible to free spectrum usage even in the most favored markets.

3.3 Network Regulation

The necessity for a regulatory system arises from the fact that parts of the communication system still resemble or approximate a natural monopoly. One area that is traditionally classified as a natural monopoly is the fixed line network. Rapid technological innovation is, however, changing the situation from day to day. Among the technological developments is that Telephone, Cable, Telegraph and digital data networks can either already be used interchangeably or will soon reach that state. This requires that the new communication law cover all types of communication networks so that they can be regulated in an integrated way. In the not too distant future, competition from wireless technologies may eliminate the natural monopoly nature of these networks and reduce the need for network regulation. The new law must therefore be framed in such a way as to allow deregulation of even the fixed line networks as and when it becomes fully subject to reasonable price competition.

The regulatory system, including the regulatory authority and its powers, must be designed keeping in view the two elements outlined in the previous two sections. The most important natural monopoly segment at the current time is the basic fixed wire local network, which

links the exchange to the retail customers. With the emergence of cable TV and wireless technologies, this 'natural monopoly' position is already changing in the metros, though it may not do so as rapidly in semi-urban and rural areas. To a lesser extent, any fixed line network linking exchanges in one city or in different parts of the country has some characteristics of natural monopoly. Here too the possibility of satellite linkage and wireless technologies, the monopoly element is considerable diluted. Nevertheless there is a need for a strong independent regulatory authority to regulate all such networks, the prices charged by them, the conditions of supply and interconnection & access.

3.3.1 Regulatory Authority

A communications regulatory authority of India (CRAI) would be set up under an integrated communications law, which would replace the Telegraph Act. The CRAI would have complete authority over all physical channels of communication (including TV & Radio broadcast facilities), all providers of 'non-public' communication services. In this context 'public' communications means public broadcasts through TV, radio and other media. A separate Media council could regulate Media and broadcasting content. The CRAI would cover all other matters except the following:

a) Spectrum permits and particularly any disputes between the permit holder and the government on payment terms and conditions for the same.

b) National security aspects of communications.

Government would retain the power to issue directions to the CRAI and/or the service providers in matters affecting National Security, though they could be delegated to the CRAI.

A strong and Independent Regulatory Authority should be an essential element of the new communication act. Any operator licenses required for technical and monitoring reasons would be fully under the Regulatory Authority. The CRAI would be responsible for all the operational details to be embodied in these operator licenses and the issue of and monitoring of these licenses.[3]

The rules for interconnection between different fixed networks owned by different service providers would be made and monitored by the CRAI. They would similarly be responsible for any rules for inter-communication between networks not based on fixed lines. All interconnection charges and fees would be cost based (either based on long term marginal cost or on opportunity cost as applicable).

A major function of the regulatory authority would remain one of mediating and approving the pricing of natural monopoly and oligopolistic elements of communication service. It should in principle stop doing so for any service where competitive forces have gained strength and are sufficient to play this role.

3.3.2 Universal Access

One important element of regulation, which has been somewhat neglected in India, is access to the modern fixed line network on a common carrier principle. The new communication law must make this access mandatory on the basis of transparent pricing and fair rules of access.[4] This is essential for ensuring competitive (as against regulatory) restraint on user/consumer prices. The existing monopoly supplier will have to be forced to provide interconnection to its fixed network in non-

[3] The implicit model used in the Insurance Regulatory act could be used for this purpose.
[4] I.e. excluding the tiny sector, low quality, cable network strung out across poles and houses.

discriminatory manner at fair prices. This helps in replicating or mimicking competition in a system with 'natural monopoly' segments.

One simple but powerful method is to require that any company setting up or owning the fixed network must provide all communication services through a separate company. There would be no bar, however, to the former being a wholly owned subsidiary of the latter or vice versa. This helps in proper costing of the natural monopoly network, and makes it easier to ensure fair pricing and non-discriminatory access.

This will also simplify regulation of the media, as the TV and Radio broadcast facilities would have to be owned by a separate company, and only these would come under the regulatory authority of CRAI. The content companies could, however, set up such a facility company as a wholly owned subsidiary.

3.4 Social Tax-Subsidy

Two areas where a case can currently be made for an implicit or explicit subsidy are Rural connectivity and Urban connectivity for poor households consisting of old, sick, handicapped or very young individuals (Universal Service Provision). As rural society is relatively close-knit, easy access to a PCO within the village generally provides sufficient connectivity. Given urban alienation a personal telephone connection may be relatively more necessary in urban areas.

3.4.1 Cost Based Pricing

In either case the best way to meet social concerns is through a cross-tax subsidy scheme, which taxes International calls to subsidize basic local connectivity. The Regulatory Authority can build such a cross tax-subsidy, into the pricing of these two types of services. In other word international calls can be implicitly taxed by keeping prices above long

run marginal cost, and the funds used to subsidize a basic telephone connection (individual residential plus rural exchange). The subsidy would be given through below cost pricing of the basic telephone connection.

A mechanism would have to be created, for transfer payments from service providers who are implicit net tax collectors to those who are net subsidy providers. This can be in the form a self-regulatory organization of service providers, overseen by the CRAI. The earnings from the Spectrum permits issued in regions of excess demand for spectrum could also be put in this fund.

3.4.2 Internet Telephony

The quality of Internet telephony is currently quite poor compared to the normal telephony. This situation is however, expected to change rapidly over the next few years. There have been some estimates that Internet telephony may reduce the cost of connectivity to a quarter of existing costs. If even half of this promise is realized, the cross-tax subsidy system outlined above will become redundant. We can then move straight to a competitive, fully cost based system of pricing, with the regulator focussing on ensuring that service providers play by the rules of the game.

3.4.3 Government Revenues

As in the case of other goods and services, government must be at liberty to bring communication services within the ambit of a VAT type tax or a service tax. It is not the purpose of licensing to generate revenues for the government. Revenue generation has to be done through an efficient and equitable tax system. Any tax on communication has to fit within the context of the overall structure of indirect taxes.

4 DE-CONTROL

Leaving aside the two areas of the fixed line network and the em communication spectrum, all other aspects of the provision of communication services can be decontrolled.[5] Entry and exit into the communication industry must become free so as to promote competition and any licensing would be purely for monitoring or regulatory purposes.[6] In other words any public or private company could either use or rent out its existing facilities for provision of any communication service. Companies could also lease or set up any other facility except a new fixed line network for this purpose. Any one with a Spectrum permit would be free to provide any service. The historical and increasingly artificial division between basic, cellular and data would be removed

4.1 Technical Licensing

The setting up of a modern new fixed line network for any purpose (including cable TV) would require a license under the communication act (for the time being).[7] The policy would provide that the license could be given on a first cum basis for all geographical areas where no such network exists at present. The first cum first serve criteria would however remain subject to any prudential or technical regulations specified by the regulator. Thus for instance, if private developers construct new residential or industrial townships in future, any communication service provider could apply for a network license for these townships under the new act. If there is more than one applicant, some auction system, such as (maximum) prices may have to be used.

[5] Government would retain power to give directions for the purpose of preserving National Security.
[6] Any limits on foreign equity share can in principle be specified in the foreign investment policy.
[7] In principle, broadcast media content could be regulated under a separate act, just as film media content is.

4.2 DOT and MTNL

DOT or MTNL could be issued one spectrum permit for any area in which it has the commercial plans for cellular service provision. The terms and conditions should, however be the same as those for other permit-holders in the same region. DOT or its successor companies would also have to get a network or other operator license required by the regulatory authority.

As recommended years ago by the Athreya committee, the DOT must be converted into one or more corporations at the earliest, to meet the challenges of competition. A level playing field must be provided for new entrants to take on the former monopoly, by hiving-off of the 'natural monopoly' network of DOT into one or more (regional or circle based) subsidiary companies.

4.3 Private Entry

Telecom circles in which there are no basic or cellular licensees besides DOT can be de-controlled from 1.4.99, without waiting for a new communication policy to be formally approved and notified. A similar procedure can be adopted for circles with licensees who have not started operation by the due date. For the circles with functioning Basic or Cellular licensees, a solution will have to be found.

4.4 Fees

A communication-information revolution requires a complete transformation of approach; from one which views telecommunication as a monopoly for extracting rents for the government, to one which sees it as a revolutionary instrument for transforming India through empowerment of its citizens. With full cost pricing of all telecom services and explicit social subsidies where needed, there is no economic rationale for any license fees. This is because in the new system rents from owning the fixed line network are eliminated through compulsory

access to competitors. Only an entry fee could be required for meeting the cost of running the regulatory system.

5 TRANSITION

For circles with functioning Basic or Cellular licensees, a transitional clause can be put into the new act to sort out the problem bedeviling them. The problem has arisen because of high initial bids by inexperienced companies, which have turned out to be totally unviable under actual conditions. Reduction of license fees committed by these licensees who won the bidding would be unfair to those who were more realistic, put in lower bids and lost. It would also create a moral hazard problem for the future. This has to be balanced against the fact that an unchanged policy would delay investment, the provision of new services and the introduction of competition.

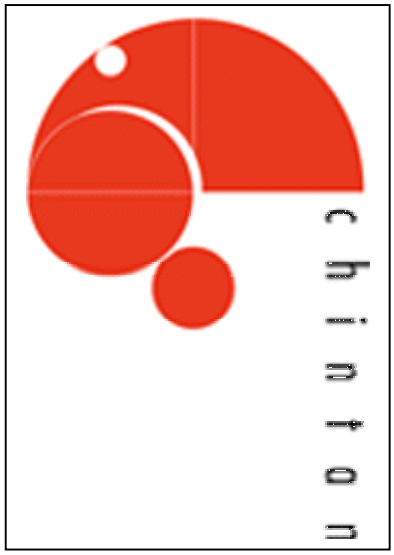
One solution is to introduce a clause in the new act, which allows the government to cancel all licenses issued under the old policy, and restart everything under the new policy. This will mean that all service providers that have already set-up a fixed line network will be given (almost automatically) a license to run that network. They will however be subject to the new rules on universal access. Under the new policy, these licenses would be free and not subject to any license fee.[8] With entry de-controlled, those who lost the bids under the old policy would be free to enter as service providers. They would also be free to use the fixed line network of the existing providers as per the new rules on access. This will level the playing field and remove most discrimination between those who won and those who lost the bidding for licenses.

[8] An alternative is to impose a revenue share type of fee for a fixed number of years on all existing providers who have built up a fixed line network.

If there were excess demand for any part of the spectrum there would have to be an auction with bidding for the resource rent price to be paid to government. This is likely to happen for the four major metros and perhaps a few other large cities.

6 CONCLUSION

The Internet and Information Technology policies have followed each other in quick succession. The major missing element is a modern and progressive telecom policy. The time may be ripe for a revolutionary new Communication policy, which can make India into an Information technology power within the next two decades. A communications policy attuned to the 21st century can transform the country by unleashing a Communication-Information revolution.



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