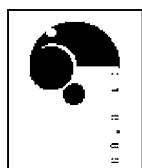


**TELECOM 2020:**  
Increasing Tele-density and Internet Access

Arvind Virmani

June 2000



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by

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Any views expressed in this paper are those of the author and should not be attributed to the organization for which he works.

## Table of Contents

	Page No.
<b>1. INTRODUCTION</b>	<b>1</b>
<b>2. AN INTEGRATED APPROACH</b>	<b>1</b>
<b>3. TAXES &amp; SUBSIDIES</b>	<b>2</b>
3.1. Taxes and Revenues	2
3.2. Subsidies	3
<b>4. POLICY FRAMEWORK</b>	<b>3</b>
4.1. Sovereign rights	3
4.2. Policy Formulation	4
4.3. Spectrum Permit	4
4.4. De-licensing and de-control	5
<b>5. INTERNET TELEPHONY</b>	<b>6</b>
5.1. Internet Backbone	7
<b>6. NATURAL MONOPLOY SEGMENTS: DTO</b>	<b>7</b>
<b>7. REGULATORY SYSTEM</b>	<b>9</b>
7.1. Prudential License/Registration	9
7.2. Regulatory Authority	10
7.3. Adjudication	10
<b>8. CONCLUSION</b>	<b>11</b>

## **1. INTRODUCTION**

As per data available with the International Telecom Union, Pakistan Vietnam and Indonesia had more main telephone lines per 100 inhabitants than India in 1999. The telephone density in the Philippines was about twice that of India while that of China was about three times that of India. Despite having a public monopoly for almost fifty years our performance in extending the telecom network compares unfavourably with international benchmarks.

Largely as a consequence of monopoly pricing of telecom services and X-inefficiency, the spread of the Internet was also quite slow, till recently. As a result till 1999, even the number of Internet users per 10,000 inhabitants at 5.1 was lower than in Pakistan (5.3), Indonesia (14.5) and the Philippines (20.6).

The low telephone density can be turned into an advantage if a radical new approach to telecommunications is adopted. The policy of extracting monopoly rents from service providers and users should be completely jettisoned. The broad approach should have two components: The public sector should focus on creating a world class broadband (internet) backbone through out the country, keeping in mind the optimistic demand projections for internet usage and software export. The private sector should be unshackled, through complete and absolute de-control, to provide Internet access and internet telephony to every nook & corner of the country at the lowest possible price.

The detailed policy framework required to catch-up with our peers like China is spelt out below.

## **2. AN INTEGRATED APPROACH**

Though the New Telecom Policy announced in 1999, represents an advance over the previous policy it embodies a conflict between two different approaches. In our view, this conflict can be resolved by the consistent and creative application of three principles. These operational principles are,

- (a) A ***Market based*** approach to investment and production (i.e. supply), which is the hall mark of economic reforms,
- (b) A ***forward looking*** approach which anticipates, rather than follows, rapid technological changes in Telecom and communication, and
- (c) The ***unbundling of licensing*** (spectrum permit, service provision and prudential/regulatory/technical).

An acceptance of these principles leads to a Telecom policy, which separates out the roles of the Ministry of Finance, Department of Telecommunication (DOT) and Telecom Regulatory Authority of India (TRAI).

### **3. TAXES & SUBSIDIES**

#### **3.1. Taxes and Revenues**

It is the purposes of Tax Policy to raise revenues in an efficient manner with the minimum of economic distortions. Though the Telecom policy should not work against this objective, revenue generation cannot be an objective of Telecom policy. The Central government has the right to levy a ***tax*** on Telecom services and such a tax must be levied to raise revenues. As and when a VAT is introduced on all goods and services, Telecom services will also be subject to this tax.

The rates of taxation are decided by the Ministry of Finance in the over all context, after due consultations with concerned departments,

regulatory agencies and representatives of trade. The same practice should be followed for Telecom services.

### **3.2. Subsidies**

Theoretically a subsidy is a negative tax. Taxes and subsidies should, in principle, be determined within the same overall policy structure. Subsidies for achieving social objectives have historically been determined jointly by the Ministry of Finance and the concerned sectoral department. In a few cases such as refinery products the tax-subsidy system has been implemented indirectly through pricing policy and delegated to the concerned sectoral department or a subsidiary agency (e.g. Oil co-ordination committee).

A similar approach could be adopted for fulfilling the universal service obligation (USO) and ensuring rural connectivity. Though in principle either the Department of Telecom (DOT) or the Telecom Regulatory Authority (TRAI) could have authority over the cross-subsidy policy, fiscal prudence and fiscal experience suggests that it would be better to delegate it fully to TRAI. TRAI already has authority over pricing, and it would be in a better position to balance the concerns of the Ministry of Finance and the Department of Telecom. The TRAI could price international calls above full cost and use the differential to create a fund, which will be used to subsidise rural connectivity and fulfilment of USO.

## **4. POLICY FRAMEWORK**

### **4.1. Sovereign rights**

The Ministry or department in-charge of the sector must exercise the Sovereign functions of government relating to any sector. Government must also have the residual power to over-rule other agencies, which can be used in exceptional circumstances.

## 4.2. Policy Formulation

Policy formulation is a universal function performed in all sectors, which must be exercised by each department. This can, however, in part and to some degree be delegated to subsidiary agencies, as is done by the Ministry of Finance for the financial sector (RBI, SEBI, IRA).

Telecom policy making must therefore clearly be the prerogative of the DOT, though the manner in which it is exercised can be refined. Policy formation must be driven by the need to promote competition as a primary tool of technical innovation, spread of the network, cost reduction and quality improvement.

## 4.3. Spectrum Permit

The second sovereign function is the exercise of ownership rights over natural resources. The most significant natural resource falling under the purview of the Telecom sector is the electro-magnetic radio frequency spectrum. The DOT must have the right to issue spectrum permits or user licenses. The new telecom policy must also have a provision for auction of the spectrum in areas where demand for spectrum exceeds supply (i.e. transparent rationing through auction price). The only auction variable used internationally so far is a fixed annual license fee. The policy should, however, leave open the possibility of using variables such as profit or revenue share, which have been used in case of oil and minerals.

***The only purpose of the spectrum fee is to effectively ration a scarce resource (not to raise revenues).*** There should, therefore, be no spectrum fee or charge in geographical areas in which the demand for spectrum is less than the available bandwidth. There should also be no restrictions on sale or sub-leasing of spectrum bandwidth within the spectrum permit period. A spectrum permit will specify the geographical area and

bandwidth that can be used and the period for which the user-permit applies. It will **not** specify the types of telecom services that can be produced or provided.

The available spectrum bandwidth should not be divided up on the basis of current technology, but should anticipate technological change, which will allow the same service to be provided with less bandwidth. As per the draft document, the bandwidth would be divided into three parts. Consideration should be given to breaking it into six (or more) packets or segments in regions where there is an excess demand for spectrum, and auctioning these simultaneously. A provider intending to use conventional technology would therefore bid for two contiguous packets and combine them.

#### **4.4. De-licensing and de-control**

A decade or so ago industry required a license to invest and produce. The amount of investment and the types & quantities of goods that could be produced were specified on the license. The time has come to abandon this practice in the telecom sector, by ***de-licensing investment in telecom and decontrolling the provision of all telecom services***. In other words the spectrum permit would be unbundled from the investment/production license and the latter would free from control.

This is not just a formalistic exercise, but also an essential instrument for promoting competition and adoption of new technology in an industry undergoing rapid technical change. This policy will make the critical difference between India becoming an IT Super Power or remaining an “emerging market” for the next two decades.

One implication of de-licensing is that government will **not** determine whether there should be one, two (duopoly), three or more

providers for basic or any other services. The new Telecom policy should *not* specify any upper limit on the number of operators. Technology and competition should determine the number of entrants and survivors. The implication of de-control is that policy created barriers between different types of Telecom services and the ban on Internet telephony would also be eliminated. Each service provider could supply all or any sub-set of telecom services.

Foreign equity limits would continue to be specified by DOT (as is done by other concerned departments). DOT will frame and implement National Security guidelines for the Telecom sector in co-operation with other departments. The implementation of these guidelines *could* if desired be delegated to TRAI.

## **5. INTERNET TELEPHONY**

The Internet can open up a world of knowledge and information to the remotest rural areas and the most oppressed communities. The existing Telegraph network, whose reach into villages is much greater than of telephones, must be made available to those who want to provide Internet access through this medium. If TRAI can insure (telephone & telegraph) network interconnection & access at marginal cost to all Internet Service Providers, the Public Internet Booth (PIB) could become as if not more ubiquitous than the PCO.

According to some observers Internet telephony costs only a third of conventional basic telephony. Though the quality of Internet telephony is currently inferior to conventional analogue telephones this is expected to change rapidly over the next few years. If costs continue to fall, Internet telephony would be ideal for providing non-subsidised service to rural areas and for fulfilling universal service obligations. Private communication service providers should simultaneously be freed

to provide Internet telephony. Once this is done there would be rapid expansion of the Internet backbone across the country.

Access to the Internet could transform the flow of scientific information on crops, fertiliser dosage, appropriate pesticide use, water harvesting, irrigation etc. and bring about a second green revolution. It could also provide a channel of communication from oppressed remote communities and individuals to human right groups in State capitals and other urban areas. The spread of Internet Telephony would provide real time information on urban price & demand conditions to farmers. If accompanied by removal of restrictions on movement of commodities, this would rapidly eliminate high trade margins and the power of traders to exploit shortages.

### **5.1. Internet Backbone**

Sale of share to the public in the Department of Telecom's network companies would generate enough resources to build a world class Internet backbone covering the entire country. Such a network must be futuristic in nature and designed to meet the optimistic forecasts of usage for both domestic purposes and export of software and IT enabled services.

## **6. NATURAL MONOPLOY SEGMENTS: DTO**

It is now widely recognised that the provision of Telecom services is inconsistent with the telecom policy functions of government outlined above, and the two must be completely separated. As proposed over a decade ago by the Athrea committee, the service provider functions should be reconstituted into one or more corporations.

Technological developments over the last two decades have made it possible to un-bundle the 'natural monopoly' segments of telecom from the rest. The three parts of the Telecom operation department enterprise,

are production of goods used in the sector, the ‘natural monopoly’ segment consisting of the telephone or telegraph line and provision of services. Each of these segments should be dealt with separately.

The production units should be sold to the people/public (‘peoplised’) so that they can be run like any other commercial company. DTO should focus on its core business by selling to the highest bidder (which could be an existing company), captive units producing equipment and parts. This will ensure full exploitation of economies of scale, while imports provide potential competition in supply. Peripheral services not related to the core infrastructure service, whose production and supply is essentially competitive, such as catering, training & medical services could also be ‘peoplised’.

The ‘natural monopoly’ segments and service provision should be converted into separate companies, which can be termed the ‘Network Company’ and the ‘Service Provider’ respectively. The key ‘natural monopoly’ segment in Telecom is the (fixed) telephone wire linking customers to the local telephone exchange (retail or ‘last mile’), and this should made into a separate ‘network company.’ This makes it easier to ensure non-discriminatory pricing & equal access to new telecom service providers. Benchmark competition can be promoted if the network is divided into a number of regional (or state/circle) network companies.

Similarly all the service provision functions of DTO can be made into one or more companies. The network-company could be a subsidiary of the main service-company or vice-e-versa. If the division is done on a regional/circle basis each regional/circle network company can be an independent subsidiary of the corresponding regional/circle service provider.

The network companies must operate on the ‘public carrier’ principle, subject to independent regulatory supervision, which ensures that all ‘service providers’ especially new entrants have equal and fair access to the ‘natural monopoly’ network at non-discriminatory prices.

There may be other feasible models for efficiently organising the non-governmental/service provider functions of DTO into corporations. The new policy should allow for (eventual) reduction of Government share holding in these companies to 26 per cent, either by government sale of its shares or by issue of new shares.

## **7. REGULATORY SYSTEM**

All regulatory functions and powers and all other matters not explicitly mentioned in 4.1, 4.2, 4.3 and 4.5 should come under the purview of TRAI.

### **7.1. Prudential License/Registration**

Even when there is no investment licensing or control on production or provision of services, a registration or license may be required for prudential/regulatory purpose. For instance, in the financial sector RBI the regulator for banks and Non-bank financial companies and SEBI the regulator for capital markets require licensing/registration for/by financial intermediaries. The Insurance Regulatory Authority will also do so for insurance companies. TRAI should have the power to issue such prudential/regulatory/technical licenses to Telecom service providers and to adjudicate on connected matters. The decision on whether some or all segments of the Telecom sector require a license or registration would be under the purview of the TRAI. They should, however, consult the DOT before taking a decision.

In practice such a prudential license may be needed only for the ‘last mile’ (retail) fixed line network, while a registration procedure may

suffice for all other Telecom service providers and various types of service provision.

## **7.2. Regulatory Authority**

TRAI should have complete regulatory authority, except for matters explicitly specified under DOT (above). This authority must be exercised within an expressed regulatory objective of promoting competition wherever possible and of balancing the interests of the investor/providers and the users where there are monopoly elements. It follows from this objective, that TRAI must focus on cost based pricing of services, improving the quality and conditions of supply and ensuring Access & Interconnectivity to the fixed wire network. All service providers must be treated equally, and this entails taking special care against the misuse of monopoly by the existing government owned provider.

## **7.3. Adjudication**

TRAI should have authority to adjudicate disputes on all matters coming within its purview e.g. disputes relating to Prudential-licensing. It would have adjudication authority with respect to spectrum-related disputes between two permit holders (including MTNL and 'India Telecom') but *not* on disputes between the issuer of the spectrum permit (DOT) and the spectrum user.

## **7.4. Fees and Charges**

The TRAI should be given the authority to levy nominal fees and charges for the purpose of maintaining itself (on the pattern of SEBI). These may be in the form of entry charges, fixed annual fees or revenue related fees and must pass the test of rationality and reasonableness. The level of such charges must be commensurate with the objectives and

functions of the regulatory authority and should not be used as a source of revenues for the telecom department or the government.

### **7.5. Cable**

Cable and other fixed line/wire networks (e.g. electricity wires), which can be used for communication purposes, should come under the purview of the TRAI. The Information & Broadcasting Ministry would continue to have authority over *public* broadcasting content even when carried over cable or other wire networks.

## **8. CONCLUSION**

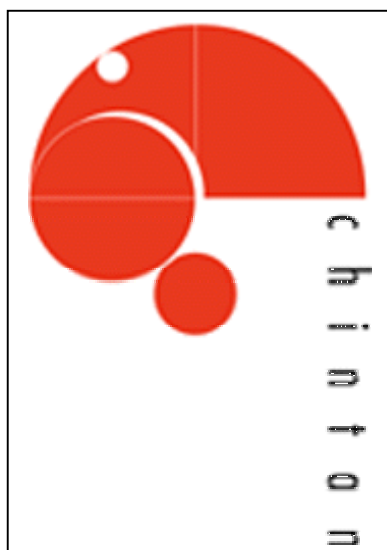
Such a competitive policy framework will within a decade spread the Internet and Internet telephony to every corner of the country. It will ensure that we catch up rapidly with our peer competitors such as China.

## CHINTAN POLICY PAPER SEREIS\*\*

Policy Paper No.	TITLE	DATE
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\*\* Copies of these papers can be obtained by sending an e-mail to [DrAVirmani@hotmail.com](mailto:DrAVirmani@hotmail.com).



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