"PULL POLICY" FOR GROWTH OF TELECOMMUNICATIONS IN RURAL AREAS - A CASE STUDY OF INDIAN TELECOM"

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1.0 INTRODUCTION:

Telecommunications was unfortunately not perceived as one of the key infrastructures for economic development, during the formative years of the Indian economy. For a long time it was considered to be a consumption item, only fit to be consumed by the rich.

We cannot negate the fact that India has been keeping abreast with the rest of the world. Since, the first experimental telegraph line was laid in India in 1838 between Diamond Harbour and the anchorage of East India Company and Calcutta the then capital of Imperial India, for a distance of 33 kms. when Samuel Morse was laying the first telegraph lines in America. But this was not done with any socio-economic objective, but for the purposes of administration, law and order, defence, and of course for revenue collection by the 'British Raj'. The Indian Telegraph Act was formulated in 1885, and since then Indian telecom sector has been operating under its guidelines.

The legacy continued, even after independence the telecommunications continued to take a back seat as far as the Indian Planning was concerned. The sector could merely attract on an average 2.5% of the total plan outlays till the sixth five-year plan. It was only in the seventh plan that the actual percentage of total outlay was 3.9% for the telecom sector and since then it has been picking up in the subsequent plans.

'The persistent low level of investment and low priority given to telecommunications adversely affected the sector in terms of quantity, quality, and range of services'. (India Development report, 1999-2000). Even as late as 1996, the Indian telephone density was 1.3 per 100 as compared to the world average of 11.

It was in 1986 when the then Prime Minister Mr. Rajiv Gandhi said that 'India had missed the telecom revolution bus', that the mission 'Better Communications' was taken up at his behest. Also the 'Perspective Plan 1990-2000 was formulated for development of the sector. The main objectives of both were towards improving Quantity and Quality of telecom services.

In the wake of liberalisation in 1991, and the subsequent integration of the Indian economy with the world economy, the need for extensive and efficient telecom services was felt, and hence the basic and value-added telecom services were opened to private participation. Till now the entire telecom services were monopolised by the sole service provider Department of Telecommunications (DoT). Apart from the metros of Delhi and Mumbai, where the services were provided by Mahanagar Telecommunications Limited (MTNL) and the international telecom needs were catered to by Idesh Sanchar Nigam Limited (VSNL), both being government of India corporations

which came into existence in 1986. The emerging demand for extensive and efficient telecom services could not be totally met by the DoT due to paucity of resources and hence, the need for private participation was felt.

2.0 PRIVATE SECTOR ENTRY AND POLICY INITIATIVES:

Government realised the need for Private Sector participation in the Telecom industry, without which it was not possible to meet the aspirations of expanding businesses in liberalised economy.

Private sector participation can deliver many important benefits:

- Bring technical and managerial expertise to the sector
- Improve operating efficiency
- Large scale injections of capital and greater efficiency in sue of that capital
- Reduce the need for subsidies
- Increase responsiveness to consumer needs and preferences.

The involvement of private sector necessitated formulation of policy framework.
'The sustainability of infrastructure projects depends on the success of Policy Planners in implementing a strong Techno-Financial and Techno-Legal regime based on viable rates of return for private sector participation. The techno-financial and techno-legal regime should support each other, so that a conducive and sustainable environment is maintained for constant investments in the sector.' (PTI Economic Service, Special Issue, 15th August 1999, pp. 16-26).

The Policy and the Legal Framework should go hand-in-hand. As was very rightly pointed out by Justice S. S. Sodhi, that "credible regulators require credible government policy", in his keynote address at the workshop on " Telecom Policy Initiatives- The Road Ahead", at IIM, Ahmedabad (8th August 1999).

The monopoly organisations DoT, MTNL and VSNL lacked ample investment capabilities for expansion of the telecom network, but still unwillingness on their part to allow the competition in the sector. The private sector participation was not invited for encouraging competition in the sector but for sole purpose of inviting investments. This has far reaching implications, especially when the large investments made by the private investors are for sole purpose of getting high rate of returns. Therefore, the areas lacking in giving ample returns on investors' investments would be looked over, as is the case of India's rural and remote areas.

As already stated above the private participation along with the government necessitated a proper policy framework, which India did not have up till now, since we were following the guidelines set by the Indian Telegraph Act 1885. Hence India had its first National Telecom Policy in 1994. National Telecom Policy (NTP) 1994 was India's first policy statement and it seemed to be hastily concluded exercise, since the policy and guidelines for private sector entry into telecom (announced on January 1995) were made public on the eve of U.S. commerce secretary, the late Ron Brown's visit to India. Even the process of formulation of this policy substantiates the point that it was primarily for attracting private (domestic and foreign) investment.

Recognising the link between telecom investment and growth (in industrial and services sector), NTP '94 was formulated which envisaged private sector participation not as a means to introduce competition in the telecom market but to boost investment and increase Tele-density. (India- National Infrastructure Report, 1998, Asian Institute of Transport Development, pages 133-151). The NTP 1994 talked about private participation, but not how it would be involved. The document said, "With a view to supplement the effort of DoT in providing telecom services to the people, companies registered in India will be allowed to participate…"

The bidding in January 1995 was for basic service licenses in twenty circles of the country and the objective was to maximise revenues for the DoT. The entire process of licensing was riddled with difficulties, due to DoT's own actions such as changes in its tender conditions post facto, involving the DoT in legal tangles, which continue even today. After the bidding, DoT declared a cap of three circles per bidder, this might have due to the objective of preventing undue influence of any one operator, but why this condition was not mentioned in the tender is still a mystery. Hence, the operators cried foul, claiming that their bids were based on the possibility to operate on a number of circles. Another instance is of the reserve price for each circle, which was again not mentioned, in the tender document. Also there was no mention in the tender document of the fees which was payable to the DoT other than the license fee. When the DoT levied of one time levy of $ 3030 per connection, which was indeed very high for a 10,000-connection circle. The operators claimed this would upset the project viability completely.

The government for revenue maximisation did this whole exercise for itself. Hence leading to the bidders bidding their highest prices, and passing on the cost to the consumers. Thus, what resulted were the operators asking for re-negotiation after winning the contract, and opening up the gates to litigation. (Manikutty,S. Workshop on Telecom Policy Initiatives : The Road Ahead, IIM, Ahemadabad, 1999).

Hence, it would be imperative to point out here that the policy decisions should be made in accordance with the legal framework of the country, should be so synchronised that it avoids future legal battles and tangles.

Kirit Parikh (July, 1999) argues 'it might have been better if the bids had been made for the lowest prices that would be charged to the customers for a specified package of services rendered at a certain quality level. This would have forced the operators to devise low cost alternatives to an eventually lower cost to the buyer.'

Giving the license to only one BSO (Basic Service Operator) apart from the government monopolist DoT led to 'Oligopolistic Competition' situation. This policy was against the 'equality of opportunity', which led to the DoT being embroiled in legal tangles since the beginning of the deregulation of the telecom sector. Initially, the absence of any independent regulatory authority enabled the DoT to set all the rules of the game all by itself. It being licensor, policy maker and service provider all rolled into one. It enjoyed the monopoly status except in Delhi and Bombay. Competition, to some extent, could be encouraged and promoted in the sector after deregulation in all basic, cellular and other value added services. With competition, the private investments started flowing into the sector. It is although still early to calculate the benefits of deregulation in India, but cumulatively over the next 15 years, telecom services industry in India is expected to soak some Rs. 300,000 crores ($ 85 billion) investments. A fourth of this is expected to accrue to GOI as 'license fees' for allowing private providers to operate services- Rs. 75,000 crore (over $21 billion). (INDIA- National Infrastructure Report, 1998).

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. VSAT services were liberalised for providing data services to closed user groups. Licenses were issued to 14 operators in the private sector out of which only nine licensees are operational. The Government has recently announced the policy for Internet Service Provision (ISP) by private operators and has commenced licensing of the same. The Government has also announced opening up of Global Mobile Personal Communications by Satellite (GMPCS) and has issued one provisional license. (NTP'99).

3.0 RURAL TELECOM AND DEVELOPMENT:

We cannot negate the strong correlation between infrastructure and economic development, which has been proven and accepted in economies, the world over. Whereas, not so widely known is the almost direct relationship between telecom stock and economic development (GDP). According to the World Development Report 1994, "Infrastructure capacity grows step for step with economic output: a 1% increase in the stock of infrastructure is associated with a 1% increase in GDP across all countries.

A reliable telecom infrastructure encourages decentralisation of economic activity and thus does not concentrate development in urban areas only. It also makes a flexible organisational structure possible, thereby allowing for higher productivity.

At micro-level, the welfare implications of telecom investment are evident. It is the most cost-effective means of communications, especially when large distances are involved, as in rural India. Other substitute forms of communications are postal services and personal travel. The opportunity cost of not having adequate telecom capacities is substantial- typically incurred in the form of personal transport.

The importance of telecommunications in overall economic development and the role of new technology such as cellular and satellite to offer options for dramatic improvements in services, especially in remote and rural areas are well known. Even though the availability of satellite and cellular technology is there in India, but their development and deployment has made little progress in rural India. Although, Indian government recognises the importance of rural telecommunications but the efforts are much below its own targets.

Indian telecom network is ranked among the largest network in the world. (In 1994 the Indian network with 10 million lines was the 14th largest and at the then growth rate of 20% it was expected to become the 6th largest network in 2001. (GOI, 1996). In 50 years, since independence the number of telephone connections or DELs have grown more than 150 times to 1997 level of 14.5 million lines. But penetration still remains low as compared to other developing countries. The tele-density for the country as a whole was just 14 per 1000 people in 1997. The overall penetration hides a significant variation among different states and between rural and urban areas. Despite a heavy dose of rural deployment of telephones, following the NTP '94, the rural density was just 3 per 1000 people in 1997. In contrast to this urban areas have 46 telephones per 1000 people. DoT having monopoly for so many years, only 2.1 percent of India's population compared to the world average of 12.7% has a telephone. In-spite of DoT's professed commitment to rural telephony only 0.3% of the population outside the 12 largest cities has a

phone and 292000 villages still do not even have a single phone. Since independence of India in 1947, DoT has installed 20 million phones in urban areas. According to a report of International Telecommunication Union estimate about half of India's population had not made or received even one single phone call in their entire lives. Still of the 4.5 million new connections provided by DoT in 1999-2000 less than 30% were outside the 12 largest cities. The capital cost for providing a new connection is about $ 450 in a metropolis, about $ 2250 in a typical village and several times in a remote area. This cannot however be accepted as an argument for assymtric expansion of telecom in developing countries. All efforts and initiatives are therefore necessary to ensure seedy and even spread in rural and remote areas also for achieving sustained development of the economy.

The study conducted by Jain and Shastry (1999), on Koshika Telecom showed that the usage of the village cellular telephone (PCO) was low, villagers quickly accepted the technology. Hence, high-tech may be appropriate technology, if the right business models can be developed.

They suggest, service providers could think of increasing access by examining the possibility of providing multiple handsets on the same channel, to improve access for elderly, sick and women. It may however, require changes to billing software and additional hardware.

The study showed the benefits of providing cellular PCO services in rural areas could be quantified, where significant number of users could save time and money on trips outside the village, which they would have had to make in absence of the telephone. (This study corroborates other studies in different parts of the world (World Bank Infrastructure Report, 1994), where villagers have noted time reductions, trips saved, and money saved due to availability of telephone in a village). The study showed that a concern for security, protection, and possibility of emergency are the key reasons for wanting to have a telephone, even though in fact such calls were likely to be less frequent.

A major area to study could be the impact of providing telecom services on the social, cultural and economic conditions at the village level. Study could also assess the impact on, information availability, empowerment, transportation, education, health, communications, emergency handling and other welfare aspects: viz. change in modes of communication, saving in time and money due to reduced number of trips made from the village. Also impact on day to day life and work, sense of security, emergency handling.

In order to achieve a sustained rate of overall socio-economic development of the country, it is imperative that the cross sectional tele-density be improved. At the same time we need to focus on the rural-urban distribution of DoT Network, the spread of which appears to be very skewed with inadequate emphasis on rural coverage. The distribution of DELs in rural and urban areas as on 1984 was very uneven, out of the total telephones in India 89.56% were in urban areas with 1.33 telephones per 100 population. While in rural areas it was 10.44% with 0.05 telephones per 100 population. (Source: Forty Years of Telecommunications in Independent India, DoT, 1986)

Even today the number of DELs in rural areas is just above 10% of the total number in India, in-spite of three-quarters of India's population residing in rural areas (according to the 1991 census). Rural connections still

comprise of only 12% of the total telecom capacity in the country. The continuance of such a scenario would hinder decentralisation of economic activity and empowerment of rural areas.

This clearly proves that there has been no effort to reduce the rural urban skew, which remained more or less at the same level of 9:1 (9- urban, 1-rural). The NTP'94 also aimed at reducing rural urban skew and providing a more expansive and efficient telecom network, by its objective of universal coverage.

4.0 INTENTS AND CONTENTS OF NATIONAL TELECOM POLICY 1994 (NTP'94):

The major objectives of NTP '94 regarding rural telecommunications were:

"To achieve universal service covering all villages as early as possible. What is meant by the expression universal service is the provision of access to all people for certain basic telecom services at affordable and reasonable prices."

- Universal service with complete coverage of urban and rural areas
- Improved availability of telecom services
- Better service
- Availability of wide range of services at reasonable prices

To this effect NTP '94 revised the VIIIth Plan targets and set fresh targets i.e.

- Telecom lines to be available on demand by 1997
- All villages to be covered by 1997
- One Public Call Office (PCO) per 500 persons in urban areas by 1997
- Value added services matching international standards by 1997

5.0 CONTENTS TO ACTION (INACTION) – NTP'94:

To implement the NTP'94, suitable arrangements were supposed to be made to a) protect and promote the interests of the consumers, and b) ensure fair competition. In order to achieve the targets set an additional 27,000 crores were required and hence the policy concluded that private sector participation would be necessary to complement DoT's efforts.

The network expansion targets set out in NTP '94 did not fructify. The 100% village connectivity could not be met, (now been incorporated in the IXth Plan targets). The VIIIth Plan targets also were unmet, which said only 217,000 villages were to be without a phone by the end of fiscal 1996-'97, DoT had covered only about 33,000 villages by March 1995 (according to internal mid-plan appraisal of DoT).

As against the NTP 1994 target of provision of 1 PCO per 500 urban population and coverage of all (approx. 6.07 lakh) villages, DoT has achieved an urban PCO penetration of 1 PCO per 522 and has been able to

provide telephone coverage to 3.04 lakh villages by end of March 1998. While only 140,000 villages were provided with VPTs in 1994. During 1997-'98, a total of 35,750 villages were provided with telephone facilities and in the year 1998-'99 it was proposed to provide 45,000 VPTs. However, DoT has provided 8.73 million telephone lines against the eighth plan target of 7.5 million lines.' (NTP'99). On an overall basis, the tele-density has almost become 2.01 per 100 population (Jan. 1999) as against 1.3 in 1996. This substantiates the fact that DoT has been able to achieve a significant success in terms of providing PCOs and overall penetration, but completely failed on the rural front.

This happened in-spite of the fact that the DoT in the license agreement, made mandatory for the private operators to provide a minimum of 10% direct exchange lines (DELs) as VPTs (Village Public Telephone) of their total roll out. This points towards the weakness of the policy and its implementation strategy. Hence NTP"94 had the necessary INTENT but lacked in CONTENT.

6.0 TELECOM EXPANSION:

Annual additions of telephone exchanges lines compared to the expansion in villages in given below:

Annual additions	**1992-93**	**1993-94**	**1994-95**	**1995-96**	**1996-97**	**1997-98**		**1998-99**
Total villages connected by telephone		30072	33001	47659	31496	56719	42855	29953
Direct telephone exchange lines. 000's		987	1229	1769	2183	2564	3259	3790

The rate of growth in DELs has been consistently rising from 1992-93 to 1998-99. But this has not percolated to the villages. The annual additions in the number of villages connected by telephone have been erratic. It is evident from the above table that only in two years i.e. in 1994-95 and 1996-97 the growth in VPTs has been significant compared to previous years. These two years correspond to the year of introduction of NTP'94 which might have added initial enthusiasm, while in the year 1996-'97 deadline of connecting every village by telephone was expiring. It is disheartening and a cause of concern that the annual additions in the number of villages connected by VPTs has been continuously falling after 1996-97, in the year 1998-99 it is even less than it was in the year 1992-93. New telecom policy was formulated in the year 1999, which again focused on the need for affordable and universal telecom.

6.1 Fixed Line Penetration Growth In Asian Low Income Countries:

FIXED LINE WIRES					**Rate of growth in % age of Lines per 100 people**		
COUNTRY	1995 E	1996 E	1997 E	1995-'97	1995 E	1996 E	1997 E
CHINA	31,928000	38,920000	47,443800	21.9	2.6	3.2	3.8
INDIA	10,934100	12,578600	14,465400	15.0	1.2	1.3	1.5
INDONESIA	3,456,800	4,416,800	4,862,100	18.6	1.8	2.2	2.4
PAKISTAN	2,413,000	2,811,600	3,275,500	16.5	1.9	2.1	2.4
SRI LANKA	199,100	215,700	233,600	8.3	1.1	1.2	1.3
VIETNAM	478,800	518,600	561,600	8.3	0.6	0.7	0.7

Source: Datastream, Solomon Bros, Asia Pacific Telecom Analyst.

From the above table, we see that India is just behind China in terms of Fixed line wires, but as far as the percentage rate of growth of telephone lines per 100 people is concerned, India is ranked lowest after Sri Lanka and Vietnam. Even when, more than two million telephone lines are being added by DoT every year and this annual addition will increase rapidly once the basic telephone networks of the private operators get established. Even though rapid strides have been taken in telecom development, we still lag behind in terms of **Quantity, Quality and Price.** On quantity, the number of telephone connections per capita are still one sixth of that found in the countries with comparable GDP. On the Quality front, telecom facilities in India are unreliable as compared to what is easily attainable using contemporary technology. Price wise Indian telecom services are hundreds of times costlier than the fair prices. (Parikh K. S.: India Development Report 1997, Oxford University Press, 1997) But there are two areas of grave concern which need immediate attention, they are rural communication and quality of service, both of which have been featuring in NTP 1994 but could not give desired result.

7.0 NATIONAL TELECOM POLICY 1999:

7.1 Major objectives:

- Access to telecommunications is of utmost importance for achievement of the country's social and economic goals. Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the telecom policy.
- Strive to provide a balance between the provision of universal service to all uncovered areas, including the rural areas, and the provision of high-level services capable of meeting the needs of the country's economy;
- Encourage development of telecommunication facilities in remote, hilly and tribal areas of the country.
- Transform in a time bound manner, the telecommunications sector to a greater competitive environment in both urban and rural areas providing equal opportunities and level playing field for all players. (NTP'99)

In line with the above objectives, the specific targets that the NTP 1999 seeks to achieve would be:

Make available telephone on demand by the year 2002 and sustain it thereafter so as to achieve a tele-density of 7 by the year 2005 and 15 by the year 2010 Encourage development of telecom in rural areas making it more affordable by suitable tariff structure **and making rural communication mandatory for all fixed service providers.** Increase rural tele-density from the current level of 0.4 to 4 by the year 2010 and **provide reliable transmission media in all rural areas. Achieve telecom coverage of all villages in the country and provide reliable media to all exchanges by the year 2002.** (Emphasis added by the authors)

All FSP operators utilising WLL shall pay a license fee in the form of revenue share for spectrum utilisation. This percentage of revenue share shall be over and above the percentage payable for the FSP license. It is proposed that the appropriate level of entry fee and percentage of revenue share for WLL for different service areas of operation will be recommended by TRAI in a time-bound manner, keeping in view the objectives of the New Telecom Policy.

7.2 Universal Service Obligation:

The Government is committed to provide access to all people for basic telecom services at affordable and reasonable prices. The Government seeks to achieve the following universal service objectives:

Provide voice and low speed data service to the balance 0.29 million uncovered villages in the country by the year 2002. Achieve Internet access to all district head quarters by the year 2000. Achieve telephone on demand in urban and rural areas by 2002. The resources for meeting the USO would be raised through a 'universal access levy' which would be a percentage of the revenue earned by all the operators under various licences. The Government in consultation with TRAI would decide the percentage of revenue share towards universal access levy. The implementation of the USO obligation for rural / remote areas would be undertaken by all fixed service providers who shall be reimbursed from the funds from the universal access levy. Other service providers shall also be encouraged to participate in USO provision subject to technical feasibility and shall be reimbursed from the funds from the universal access levy.

7.3 Remote area telephony

According to NTP'99 rural telephony, the areas of North East, Jammu & Kashmir and other hilly areas, tribal blocks, etc. may be identified as a special thrust areas for accelerated development of telecommunications. The Ministry of Defence shall be assigned a more active role in the development of telecommunications in such remote areas as are identified for accelerated development of telecommunications.

In case of the NTP '99, the provisions of extension of the license period and the levy of the license fee according to the operators revenues are very laudable and will go a long way in achieving the national objectives of affordability and availability of telecom services in the country. But the cabinet's decision to allow private players to migrate from the existing license fee system to revenue sharing system has led to the opposition taking the government on this plank in the recent elections. The opposition also blames the government of laundering away the revenue to the tune of $. 250 million (government estimate) whereas the trade unions in DoT estimate the loss at $ 1000 million. But as Mr N. Vittal says this is all a notional loss. Justice S. S. Sodhi's remarks "Insisting upon payment of the committed license fee will not bring the committed revenue as it is all notional, because of unavailability of projects, but would certainly entail impeding expansion of the telecom sector and in some cases dragging out the government in long drawn out litigation." This makes us wonder, would the same have happened had this policy decision been taken by the executive and legislature within the spirit of legal framework of the country to avoid futile litigation.

Mr Kirit Parikh, suggests to focus on the basic three aspects of Telecom Quantity, Quality and Price, in India Development Report, 1997. This would lead to creating value for the customers and destroying profits for the service operators by introducing healthy competition in the sector. Also what is required is to improve penetration in India which is 14 per 1000 population at present. But more importantly, it is required to improve cross-sectional penetration, especially in the rural, remote and backward areas.

8.0 ISSUES LINKED WITH RURAL TLECOM EXPANSION:

After the NTP'94 was announced, DoT came out with guidelines for private sector entry into basic and cellular telecom services. The guidelines included 10% network rollout mandatory in rural areas.

Penalties to be levied if the private operator does not conform to the rollout (network expansion) plans furnished to DoT while bidding.

In-spite of these provisions, it is evident from the post NTP 94 experience that the policy of spreading telecom in rural and remote areas has not only failed to achieve the target but could not reach anywhere near to set goals.

The Government of India (Government) recognises that provision of world class Telecommunications infrastructure and information is the key to rapid economic and social development of the country. It is critical not only for the development of the Information Technology industry, but also has widespread ramifications on the entire economy. It is also anticipated that in the near future, a major part of the GDP of the country would be contributed by this sector. Accordingly, it is of vital importance to the country that there be a comprehensive and forward looking telecommunications policy which creates an enabling framework for development of this industry.

Government Policy acts as a leverage to achieve expected outcome. Only such policy can derive desired outcome, which strikes balance of convenience amongst all the players of the game. There has to inherent stake in the design of the scheme for all the players to move in the desired direction. Enforcement and sheer regulatory measures in absence of any benefit to the provider is bound to be circumvented, especially in an environment where regulation/legislation is not adequately supported by speedy legal and judiciary framework for ensuring its implementation in spirit and not only in words. Policy should therefore take into account all the issues involved and perceive them from the point of view of all the players in order to create appropriate stakes for its successful implementation.

The various issues involved in providing and spreading telecom services to the rural and remote areas are:

(i) Stakes of service provider in extending service in rural and remote areas.
(ii) Profitability of such ventures.
(iii) Effectiveness of the regulation to provide rural and remote area services as an obligation while license for operation in urban areas is given to them and machinery to implement the same in order to provide rural and remote services.
(iv) Quality and quantity of such services. Stakes of such service provider to provide and maintain quality of service.
(v) Selection and availability of appropriate technology for providing basic and value added services to remote and rural areas.
(vi) Availability of market and development of market in such areas. Cost of development of market

linked with the scope of use of communication infrastructure in initial gestation period in such areas.

(vii) Absence of sufficient market forces to demand and create telecom infrastructure in rural and remote areas.

(viii) Basic social structure of rural India which has historically visualised telecom as facility of elitist society.

(ix) Lack of political will and pressure from rural representatives to ask for telecom services in rural areas.

Existing policy framework in NTP'94 was not able to convert Government's intent into action as the contents of policy were not enough to ***pull*** investors towards rural and remote areas. In absence of adequate policy provisions and framework either the regulation of providing 10% of infrastructure in rural areas remained on paper or circumvented through various innovative and not so innovative ways.

Some of the examples are provision of basic telephony services in the Circles of Jaipur, Bhopal and Indore. Service providers in these areas have fulfilled the statutory requirement of 10% rural network by just technically covering the area on the outskirts of cities where villagers can seek and take telephonic services by paying very heavy service charges. It is evident that there is no interest of the service provider or enthusiasm to sell services in rural areas, as expansion of network in such remote places shall not ensure them sufficient revenue to sustain such services. It therefore suited them to fulfil this provision just by announcing technical availability of services. They intentionally did not do sufficient selling or marketing in rural areas. Expansion of services will mean them more investment with less return and blockage of their financial resources. Rate of return from the capital invested in urban areas was definitely higher than in adjoining rural areas.

It is evident from the following position given below that the service provider have not at all bothered about the obligation of providing Village Public Telephones (VPTs):

S.No.	Service Provider	Service started	Service subscribers		Village Public Telephones (VPT) (Committed Target)	
				VPT installed		
1.	Bharti Telenet (MP Circle)	4.6.98	88,000	16,500	12	
2.	ESSAR (Punjab Circle)	Yet to start	Yet to start	5442	Nil	
3.	Hughes Telecom (Maharashtra Circle)		Oct.98	22,000	25760	Nil
4.	Tata Teleservices (Andhra Pradesh Circle)		31.3.99	35,000	9635	Nil
5.	Reliance Telecom (Gujarat Circle)	Nov.99	700	8635	Nil	
6.	Shyam Telelinks (Rajastahn Circle)	June,2000	nil	18068	Nil	

Source : Voice and Data, Annual Issue, July 2000; Vol. 7, issue 1

The intent of spreading telecom in rural and urban areas could not attract investment from private sector. Investments therefore remained confined to the value-added services and telecom in urban areas. Absence of sufficient market forces from rural and remote areas also resulted into lack of interest from the investors towards these areas.

One of the arguments, which come forward very frequently, is that the access cost for providing telecom services in rural and remote areas is very high. Provision of subsidy to service providers or passing on the responsibility

to Government to look after un-remunerative rural and remote area and keeping only profitable urban and value added services for the private operators are not prudent. Such policy is in fact leading to asymmetric development of telecom sector and creating wider gaps amongst the rural and urban populations within the country. For sustained development healthy policy is required to be put in place which inherently provides significant leverage and drive for the service providers to enter into the rural and remote area and make that sector also profitable through innovative technology and market development. The issue of accessibility is therefore crucial. Utilisation of existing resources of Government in an integrated and co-ordinated manner is essential in the transition phase of the newly liberalised economic stage of India.

Indian Railways use underground telecom cable in their electrified area for meeting the telecom and train control needs. Indian Railways already owns 20,000 Kms of microwave, 12,000 route Kms of copper cables, 3,000 route kns of Optic Fibre Cables and 43,500 Kms of overhead wires. In the Indian Railways, there is typically a station every 8-10 kms. Total network is on over 62,000 Kms across length and breath of the country. Railways are practically present in all corners of the country. This network can be used to provide Telecommunications and Internet access from all Railway stations using existing Railway network. A solution can be built around this Railway Internet to provide 50-100 connections in the town. CorDECT, wireless in Local Loop (WILL), developed by IIT, Madras and MIDAS communications Tech Pvt. Ltd. can be used to provide 35 kbps Internet and simultaneous voice in a radius of 10 km around Base Station and which can be extended to a radius of 30 kms using Relay Base Station. The CorDect system can be configured as an in dialling PBX located at the kiosk and its voice traffic can be handed over to the local exchange. The Internet traffic is taken out by the CorDect system at the exchange using a built in Remote Access Switch, and can be directly connected to this Railway Internet backbone. It enables providing of voice as well as Internet connectivity in a short time to far reaching areas.

Indian Railway is also laying optical fibre cable extensively along railway lines. The Internet Railway network described above could be strengthened significantly by this. The equipment needed are two H-Connect at each station which would approximately cost $ 2000 per station. The cost of routers at major towns depends on the nature of Internet connectivity at the station. A typical ISDN router with two Ethernet segments costs around $ 750. A personal computer for NMS and software at each such major town may cost $ 1000. The cost therefore works out to be little over $ 2500. This may be the easiest way to provide Internet and communication network to many small towns in the country. The ISPs and other telecom service providers are likely to be quite keen to set up the networking in certain regions if sufficient inherent attractive forces are there in the policy framework.

9.0 PROPOSED POLICY:

In view of the above it is necessary to establish link between stakes in providing infrastructure in urban and rural areas. Absence of any such link shall continue to result in more urban skewed telecom development. In market driven environment pure regulatory measure to push investor to go to rural and remote areas is not going to give desired outcome. ***It has to be a pull policy rather than a push policy.***

In our view government could introduce a policy of point system. If an operator, under this scheme, is allotted a metro circle, he should be asked to provide basic services (some minimum number of lines as already

provided in the guidelines) in the rural and remote areas. This service is expected to conform to laid down basic standards of quantity (number of lines), quality of services at competitive prices.

The point system could be based on conforming to some basic standard of quantity, quality and price. As the points earned in the rural sector increase, the revenue sharing ratio of the operator would also increase in predetermined proportion. This would help them to enhance their revenue share ratio and reach their Break Even Point much earlier than before. This would also help to restrict skewed development, which is tilted towards urban and metropolitan India, and provide more sustained growth engine for Indian economy. This would also help achieve the dual objective of telecom for all at the same time creating value for customers at affordable price, and financial benefit to the service provider, hence gain to all stakeholders.

Under the proposed scheme, rural service provided by any private investor should be evaluated in various aspects and a composite index should be assigned. The composite index should be in the scale of - 10 to + 10. The composite point index (C.P.) shall be a function of Quality, Quantity, Penetration and remoteness of the area.

$$C.P. = f(q, d, p, r)$$

Where:

"q" = Quality of service assessed based on

(a) Call completion rate

(b) No. of faults per line

(c) Grievance redresal machinery and

(d) Customer satisfaction level

"d" = Total number of Direct Exchange Lines (DELs)

"p" = Penetration

(a) telephones per hundred of population

(b) Utilisation of services

"r" = Remoteness of the area ; judged based on

(a) the under development of the area

(b) Distance from the nearest telephone exchange.

The share of Revenue decided as per the terms of contract shall be reviewed every year after completion of first year of service. The revenue sharing ratio of the Service provider shall be linked and modified based on Composite Point Index obtained by the Provider based on infrastructure developed in rural/remote area and the service provided in that area during previous year. The revised revenue sharing ratio shall be calculated as per the following formula:

$$R1 = R + C.P.\% \text{ of } R$$

Where:

"R1" = Revised revenue sharing percentage of Service Provider

"R" = Initial Revenue Sharing Percentage of Service Provider.

"C.P." = Composite index in the scale of -10 to +10.

This will establish continuous linkage between revenue sharing ratio from urban service provided by the licensees and the status of rural service. Service provider will have continuos stakes in expanding and improving quality of service in rural and remote areas. Moreover this scheme will force service provider to develop demand in rural areas rather then just ensuring supply of telecom service in rural areas. Since penetration is one of the factor to calculate C.P. of service provider is will not be enough for the provider to install equipment and claim coverage but it will be in the interest of service provider to market services in rural area and create demand. Use of Telecom infrastructure will accelerate development in rural and remote area and not mere availability. Keeping this in view authors have provided linkage between C.P. and penetration and utilisation of services.

Determination of CP and revised revenue sharing ratio is proposed to be worked out by TRAI. The justification for an independent regulatory agency was originally formulated as a need for greater expertise and detailed technical expertise than could be provided through the legislative branch. Thus this role of assessing the quality, quantity, penetration achieved and the remoteness of the area where actually service is provided or not provided can best be regulated by the independent body. The body shall however be free to take help from the professional institutions and other agencies for designing and executing such instruments as may be considered necessary for working out and measuring various aspects mentioned above.

Such policy initiatives if carefully designed and executed can act as one of the important hidden leverages, which shape the industry in the long run and align national objective of sustained growth and profitability objective of the industry.

10.0 CONCLUSION:

In market driven economic environment, policies based on regulatory paradigm and mindsets, having only '***Push'*** type of provisions can not leverage the objective of expansion of telecom in rural areas. There is need to develop, design and implement a policy framework which provides necessary '***Pull'*** and attraction for service providers to enter into rural telecom network and hence contribute towards sustained growth of the country.