

CIRC Working Paper

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The State of Broadband in India: A Call for Regulatory Neutrality

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DECEMBER 2014

CUTS Institute for Regulation & Competition

Suggested Citation:

Gulati, Archana G. 2014. The State of Broadband in India: A Call for Regulatory Neutrality, *CIRC Working Paper No. 10*. New Delhi: CUTS Institute for Regulation & Competition.

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Published By:

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Abstract

The Telecom Regulatory Authority of India has commenced a consultation process on the issue of what needs to be done to deliver broadband quickly. In spite of repeated consultations and recommendations relating to broadband and the launch in 2012 of an ambitious Universal Service Obligation Fund (USOF) sponsored project to put in place a national optic fibre network, India continues have dismally inadequate supply of broadband services, especially in rural areas where it is practically negligible. The abnormally low ratio of wirelines to wireless connections is a major part of this problem. The numbers of wire lines in India are declining in spite of considerable support from the state towards wire line infrastructure which continues to be largely in the hands of the incumbents. A major part of this support flows from the USOF. This paper tries to examine the problem of poor broadband penetration in India specifically from the perspective of regulatory neutrality and postulates that rectifying regulation by bringing in a focus on competitive and technological neutrality is a major part of what needs to be done.

I. Background

A reading of the recent Telecom Regulatory Authority of India (“TRAI” or the “Regulator”) consultation paper titled “Delivering Broadband Quickly: What do We Need to Do?”¹ (“Consultation Paper”) indicates that our understanding of what needs to be done continues to be stuck in a rut. Much of the document is dedicated to description of available technologies with limited references to costing and pricing. The repetition of references to a 2010 World Bank study on impact of a 10% increase in broadband penetration by way of 1.38% enhancement in GDP, the need for village level entrepreneurs, rural kiosks and vernacular content and last but not least e-Choupal as an example of a demand side, rural internet initiative in successive broadband related papers is perhaps indicative of lack of fresh insight or inspiration. As reported in the media, the present TRAI Chairperson has rightly pointed out that the private sector should have been involved in the national optical fibre network (NOFN) which was initiated in 2011-12.

However, this realisation is three years late and the opportunity cost of not connecting millions of Indians would be evident from GDP foregone as per the abovementioned statistical correlation. The issues delineated for stakeholder consultation give the impression that the solution lies in controlling or influencing technological choices or costs thereof. In a liberalised sector, healthy competition accompanied by efficient regulation would mean that market dynamics guide appropriate technological choices, without government intervention. When regulatory interventions go beyond what is necessary to correct market failure, they create and exacerbate market distortions doing more harm than good.

The Consultation Paper has made a fleeting reference to the European Commission’s state aid rules including inter alia their focus on *ex ante* analysis of the appropriateness of the government interfering in markets and the dangers of crowding out private investment. This is admittedly a first for TRAI, but the significance of the same by way of lessons for Indian broadband regulation or planning remains unanalysed in the consultation paper. The same applies to the description of

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http://www.trai.gov.in/Content/ConDis/10731_0.aspx

national broadband plans of other nations. There are valuable regulatory lessons in the approach of developed nations which remain unexplored. While the paper has fleetingly mentioned public sector monopoly in this segment, it has not related the same to poor and falling wire line penetration in our country. (In a nation of 1.2 billion persons, we have less than 30 million wirelines and less than 15 million wired broadband connections.) Nor has it mentioned the abysmal state of rural broadband penetration which persists in being negligible in spite of billions of rupees of funding to the incumbent in support of its wire line services by way of access deficit charges (“ADC”)² and universal service funding. The relationship between competitive service provision and innovation, quality and long term growth in telecommunications is too well known to ignore and unless efforts are made to correct underlying regulatory problems and consequential market distortions, we may not be able to move forward.

II. Broadband Penetration and the Regulation of USOF

Sadly, one of the most market friendly initiatives of the Indian Government by way of setting up of a Universal Service Obligation Fund (USOF) has also fallen prey to the same lack of understanding. The Universal Service Support Policy of the Government of India was introduced in 2002 in pursuance of the New Telecom Policy, 1999. It is implemented through the USOF which came into effect through the Indian Telegraph (Amendment) Act, 2003. USOF’s activities are guided by the

² In an ADC regime, other operators pay subsidies to finance the total local access deficit incurred by the incumbent in providing local services that are priced below cost. ADCs have been criticized for being inefficient and potentially anti-competitive. In India, ADCs were paid by mobile and unified access operators to fixed line operators between 2004 and 2008 and were rationalised and reduced over a period of time. TRAI finally phased out the ADC regime in October 2008.

Indian Telegraph (Amendment) Rules 2004. Rural telephony and broadband access are high on the agenda of the Indian Government. In the context of Information and Communication Technology (ICT) as a tool for rural empowerment, the Government has set targets of seventy percent rural tele-density by 2017 and hundred percent by 2020 and intends to expand broadband coverage by connecting every village *panchayat*³. The Government has committed to provision of affordable broadband in rural and remote areas through a combination of technologies and to provide appropriate incentives for rural roll out. Most of the 14 points related to strategies for broadband, rural telephony and universal service obligation in the New Telecom Policy, 2012 are related exclusively to broadband penetration. In spite of its importance in relation to broadband, there is a call from private operators’ associations to either close down this Fund, or at least to drastically reduce its size⁴. The reasons for their disenchantment and USOF’s relative lack of success lie in telecom regulation. This paper focuses on this limited aspect which nevertheless has a direct bearing on broadband penetration in our country.

Universal Service in telecommunications essentially implies that no region or population segment should be deprived of the multifarious benefits of being connected through telecommunications on grounds of commercial non-viability. The idea behind USFs is that in market segments where in spite of liberalisation and efficient regulation, penetration lags behind on economic considerations, USF subsidy is given to willing market players (universal service providers or “USPs”) to cover what we may call the viability gap and hence encourage them to

³ Village level local self-government office

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http://articles.economictimes.indiatimes.com/2014-11-20/news/56304122_1_usof-universal-service-obligation-fund-levy

provide services in commercially unviable areas. USF subsidised facilities are owned by USPs rather than by the government. Thus the USF is a valuable tool allowing minimalistic, targeted interventions to achieve greater penetration of broadband in a competition friendly manner⁵. Similarly, when markets fail, other means of public funding or state aid for broadband, apart from subsidies from USOF may be necessary in public interest⁶. However, while funding infrastructure or service roll outs through means such as USFs or public funding, it is important to avoid or minimise market distortions that would disturb the level playing field, impede competition and innovation and hence the growth of the concerned market segment. Thus, the long-term consequences of universal service interventions on allocative and dynamic efficiency must be kept in mind apart from the immediate/short-term gains achieved by way of additional infrastructure or connections. This concept is equally relevant to public funding in any other liberalised sector of the economy where both public and private entities compete. This would include for example, electricity, postal services and aviation services apart from telecommunications.

A very important aspect of preventing market distortion is ensuring technological neutrality and competitive neutrality. The former would imply defining deliverables to be achieved through USF subsidy, while leaving specific technology choices and configurations to the USPs' wisdom. The latter implies that no entity operating in a market should be subject to undue competitive advantages or disadvantages. It is widely acknowledged that while Government as regulator is supposed to

⁵ *Telecommunications Regulation Handbook 2000*, Edited by Hank Intven, McCarthy Tetrault, Infodev, Module 6 (pp-6-1 to 6-23)

⁶ Gulati AG, *Management in Government*, Vol. 41, No. 4, January-March 2010

ensure a level playing field, governments as owners of public enterprises may face difficulties in balancing conflicting commercial and non-commercial interests and commitments associated with such enterprises including public service and the need to maximise returns from the business activities of these entities etc. However, regulatory neutrality which encompasses both technological and competitive neutrality is a *sine qua non* for economic efficiency or welfare maximisation.

The design of universal service interventions would depend *inter alia* upon the regulatory framework in place to govern the use of universal service funds and public funds. Developing countries are known to face challenges as far as implementing regulation is concerned. In a developing country the design of regulation must take into account the capability and maturity of the institutions that are charged with the responsibility of ensuring the efficient implementation of regulation and enforcement thereof. This institutional weakness is often compounded by the prevalence of information asymmetries. From the data available on the USOF website⁷, it would appear that USOF's present regulatory structure may have failed to prevent potentially harmful, anti-competitive interventions and their negative impact on the rural telecommunications sector. USOF had disbursed Rs 17,580 crore of subsidy up to January 31, 2014. However, in spite of the fact that rural fixed line telephony and broadband based schemes taken together accounted for about 95% of this amount, our rural tele-density of about 43% is made up almost entirely of private sector wireless connections. Rural wire line tele-density is less than one percent and broadband penetration continues to be negligible. In sum, it is the competition in the wireless segment and not USOF interventions that have really driven the

⁷ www.usof.gov.in

growth accomplished so far in rural voice penetration. USOF has not succeeded in increasing data connections in rural India and as we shall see from the discussion that follows, its interventions may well have

exacerbated the monopoly situation in the rural wire line segment with the concomitant negative impact on quality, innovation and growth. The status of USOF disbursements is given in the Table 1 below.

Table 1: Share of Public-Private Sector in USOF Disbursements, January 31, 2014

(Rs. In Crores)						
Sl. No	Category	Public Sector Share	Percentage of Subsidy	Private Sector Share	Percentage of Subsidy	Total Subsidy Amount
1	Public Access (Fixed Line)	2564.05	97.73%	59.50	2.27%	2623.55
2	Household/ Access (Fixed Line)	11939.22	87.33%	1732.88	12.67%	13672.10
3	Wire line Broad Band	313.84	100.00%	0	0	313.84
4	Mobile Infrastructure	240.83	63.95%	135.78	36.05%	376.61
5	OFC Schemes	589.77	100.00%	0	0	589.77
6	Value Added Services	0	0.00%	4.95	100%	4.95
Total		15647.71	89.0044378	1933.11	10.9955622	17580.82

Note: Excluding subsidy to Bharat Broadband Network Ltd. All PSU subsidy has gone to BSNL making its share 85.65%

Source: USOF Website

The incumbent operator BSNL's monopoly in the rural wire line and optic fibre segment has meant that majority of USOF support (focused disproportionately on fixed lines) has been given to BSNL on nomination basis in relaxation of USOF rules. Even where tenders are floated for services based on these networks, it is easy for BSNL to qualify or compete uncontested on account of this dominance. The other technologies mentioned in the TRAI paper would perhaps have been used by USPs, had scheme design been technologically neutral. The relationship between the choice of technologies and design of USF interventions and the incumbent's clout is a matter of interest which has been commented upon in academic literature. Thus it has been said that, 'Global experience' with subsidy auctions has revealed that 'the subsidies required are generally less than incumbents had previously

led policy makers to believe'.⁸ 'The role of the incumbent in the design of these [subsidy] auctions,' and problems thereof in the case of USOF [India] has been similar.⁹ It has also been commented that the outcome of a single operator receiving subsidy across national markets also constitutes an "impossible" barrier to entry for other firms.¹⁰ As far back as 2007, an OECD Economic Survey had suggested the need for unbundling BSNL's fixed line network and ensuring that USOF funding is technology neutral. The former was tried unsuccessfully through TRAI's

⁸ Scott Wallsten, 'Reverse Auctions and Universal Telecommunications Service: Lessons from Global experience, April 2008, *Technology Policy Institute*, pp255-274, www.law.indiana.edu/fclj/pubs/v61/no2/9-WALLSTENFINAL.pdf (p-381)

⁹ *ibid*, p-382

¹⁰ R.G Noll & S.J Wallsten, 'An Assessment of Indian Telecommunications Reform' in Stanford Centre for International Development, Working Paper No. 435

recommendations in 2004. The latter requires an improved regulatory approach.

In its recommendations on 'Accelerating Growth of Internet and Broadband Penetration' dated April 29, 2004, TRAI had in fact suggested that the incumbent operators who own the lion's share of the wire line network should unbundle their local loops and provide non-discriminatory access to encourage competition and rapid growth of broadband. The model proposed by the Regulator took into careful consideration the experience of unbundling in the UK and the USA¹¹. This recommendation was not implemented and it may safely be presumed that there was strong resistance from BSNL and MTNL as noted in the body of the document. TRAI later reiterated its recommendations in this regard to DoT¹². However, presumably in the face of stiff resistance, it dropped this issue and in its 'Recommendations On Growth of Broadband' dated January 2, 2008 while again lamenting the poor utilisation of this national asset, TRAI merely suggested that the incumbents should adopt a franchisee model to make the most of their assets to meet the country's broadband targets.¹³ This too was not implemented. The surprising lack of effort on the part of the incumbent itself to invest in or capitalise on its wire line network could find answer in the fact that this unprofitable sunk cost has

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<http://www.trai.gov.in/WriteReadData/trai/upload/Recommendations/21/Recommendations%20on%20Internet%20and%20Broadband%202004-04-29%20FINAL.pdf>

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www.trai.gov.in/trai/upload/PressReleases/42/pr3nov05.pdf

¹³ TRAI's 'Recommendations on Growth of Telecom services in rural India ,The Way Forward, 'October 3, 2005 at <http://www.trai.gov.in/trai/upload/recommendations/6/recom3oct05.pdf> & Recommendations On Growth of Broadband dated January 2nd, 2008 at <http://www.trai.gov.in/trai/upload/PressReleases/525/recom2jan08.pdf>

historically been the basis for the quantum of subsidy flowing to it by way of first ADC and then later USOF subsidy, based on TRAI recommendations.¹⁴¹⁵ It may be of interest to note that the study of this regulatory problem of lack of incentive to make appropriate long run investment by subsidy/state aid receiving incumbents in high fixed cost sectors like telecommunications and electricity is one of the many contributions of Jean Tirole, this year's Nobel prize winning economist.¹⁶ All told, the regulator and the government failed to introduce competition in this area and the dominance of BSNL in this segment became a given for USOF putting it in a bind wherein it appears economically unacceptable to fund alternative infrastructure creation. Sharing in access was not mandated and duplicating this network through schemes to introduce competing wire line networks would involve huge outlays.¹⁷

It is interesting also to contemplate what may have happened if local loop unbundling had been mandatorily implemented and other service providers had been allowed to lease rural wire line infrastructure from the incumbent. This may have led to a healthier

¹⁴ Subsequent to phasing out of ADC

¹⁵ Scott Wallsten, 'Reverse Auctions and Universal Telecommunications Service: Lessons from Global experience, April 2008, *Technology Policy Institute*, pp255-274, at www.law.indiana.edu/fclj/pubs/v61/no2/9-WALLSTENFINAL.pdf (p-381)

¹⁶ 'Scientific Background on the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2014

Jean Tirole: market power and regulation,' compiled by the Economic Sciences Prize Committee of the Royal Swedish Academy of Sciences, October 13, 2014.

¹⁷ For a more detailed discussion on the issue of competitive neutrality in public funding & impact on wire line penetration in India please see Gulati, Archana G. 2013. Why India Needs a Robust Competition Policy Framework? CIRC Working Paper No. 05. New Delhi: CUTS Institute for Regulation and Competition.

expansion of wire line telephony and DSL¹⁸ based broadband services in rural areas. What appears to be a policy decision against the incumbent's business interests may have actually helped it to realise much greater revenues from leasing infrastructure to more aggressive and market savvy private players. It is plausible that this would have led to further investment by the incumbent towards expansion and quality improvement of rural wire line exchanges. Perhaps this could have eventually encouraged private sector investment in similar infrastructure. It is a widely acknowledged phenomenon that initially upon introduction of competition, new telecom players need to minimise risky and heavy investment by renting facilities from incumbents and after markets are sufficiently mature, they tend towards investments in the creation of underlying infrastructure. Thus, in telecommunications, service competition often precedes infrastructure competition and the best way to ensure sustainable growth, is for government intervention to recognise and assist this process.¹⁹ This ladder of investment approach was however not explored seriously by regulators in India. In this background, USOF schemes at least in the landline space may have had an adverse impact by sustaining the incumbent's monopoly position. This lack of competition coupled with late auctions of 3G²⁰ spectrum and its overall under supply, has contributed to the slow growth of broadband, particularly in rural India.

The USOF website reveals that roll out of deliverables in schemes where BSNL is the

Universal Service Provider (USP) has been delayed consistently. For e.g., against a target of approx. 8.8 lakh broadband connections and 28,000 broadband kiosks by 2014, under the Wireline Broadband Scheme, BSNL had provided only about 4.3 lakh broadband connections and less than 11,000 kiosks by January 2014²¹. Despite its poor track record, BSNL was chosen as one of the three PSUs to partner in the National Optic Fibre Network Project through the creation Bharat Broadband Network Limited (BBNL). The brief examination of the manner in which USOF has designed past schemes carried out in the succeeding paragraphs, would further highlight problems in the area of regulatory neutrality.

Broadband access can be delivered through a host of technologies including wireless and wireline. Though USOF had plans to launch a wireless broadband scheme since 2007, the delay in auction of 3G/BWA spectrum forced it to put them on hold. In the meanwhile, in 2009 a wire line broadband agreement was signed with BSNL. At that juncture, BSNL had more than 99% of rural wire lines. The eligibility conditions of the USOF Expression of Interest that stated that 'the applicant shall have outdoor copper cable network from their existing serving exchange in the rural and remote areas with back-haul & backbone connectivity on OFC.'²² This obviously did not leave much scope for private participation. The only interested, eligible operator HFCL²³ did not agree to subsidy rates offered. The scheme invited protest from the Internet Service Providers Association of India ("ISPAI")²⁴ who went to court over the issue of

¹⁸ Digital Subscriber Loop

¹⁹ Archana.G.Gulati, 'Universal Service Policy in India: Theory and Practice', *Management in Government*, Vol. 41, No. 4, January-March 2010, http://papers.ssrn.com/sol3/cf_dev/AbsByAuth.cfm?per_id=1239033

²⁰ 3G is third generation mobile telecommunications technology that supports high speed broadband access.

²¹ http://www.usof.gov.in/usof-cms/usof_Implementation_status.htm

²² http://www.usof.gov.in/usof-cms/GagendaPdf/Advertisement_for_Invitation_of_EoI_02.2.09_.pdf

²³ Hindustan Futuristic Communications Ltd.

²⁴ <http://www.ispai.in/ispai-view/submissionview.php?submissionId=38>

level playing field but lost *inter alia* on account of not meeting eligibility conditions. The fairness of the eligibility criteria was however not questioned. AUSPI²⁵ and COAI²⁶ too protested this scheme as being anti-competitive²⁷. This serves as a prime example of the prevailing lack of ex-ante legal scrutiny from the competition perspective and the inadequacy of generic ex-post legal remedies (as opposed to scrutiny by a competition regulator).

Subsequent to DoT's successful 3G spectrum auction in 2010, USOF started planning seriously for a Rural Wireless Broadband Scheme for which the draft tender document was placed on the USOF website²⁸. In this draft scheme too BSNL was chosen as one of the service providers by default purportedly as it was already being supported by the government for rolling out wireless broadband services for Department of Information Technology's Common Service Centre (e-Government) initiative.²⁹ TRAI's comments on this scheme at the time would suggest that it apparently saw the scheme as a substitute to NOFN (as a mechanism to provide rural broadband services) and hence discouraged it.³⁰ USOF had in turn rightly clarified that the two initiatives would 'complement and supplement each other' with wireless broadband providing 'last mile

connectivity' and OFC providing 'backhaul.' The Regulator also criticized the scheme for supporting only two operators per service area and interestingly for apparently promoting 3G and Broadband wireless access as technology choices. USOF countered that the given the present under developed state of rural broadband markets supporting two operators is sufficient to seed the market and that its scheme is technology neutral.³¹ TRAI's argument is quite odd in that it had itself recommended that USOF should support wireless broadband once 3G auctions are completed and had (after careful consideration of market size and need for competition) recommended that two operators be supported per service area.³² TRAI did not however raise the issue of BSNL being the nominated operator in this scheme. The matter has been left to be protested against vociferously by industry associations including COAI, AUSPI and ISPAI. ISPAI protested the non-eligibility of category C Internet Service Providers who can serve only specific Secondary Switching Areas as per their license and alleged abuse of dominance by BSNL (with help of DoT). Industry commentators had criticised the scheme on account of restrictive and anti-competitive eligibility criteria such as exclusion of holders of pure Infrastructure Provider (IP-I) Licenses and for favouring BSNL which has again been criticised for not sharing its assets (created with public funds) with other service providers. An 'obvious conflict of interest' had

²⁵ Association of Unified Telecom Service Providers

²⁶ Cellular Operators Association of India

²⁷ <http://www.financialexpress.com/news/uso-fund-to-create-anticompetition-in-telecom-sector-feel-operators/415119/>

²⁸ [http://www.usof.gov.in/usof-cms/tender/Draft_Tender_Document_Rural_Wireless_BB_Website_21\[1\].4.2011.pdf](http://www.usof.gov.in/usof-cms/tender/Draft_Tender_Document_Rural_Wireless_BB_Website_21[1].4.2011.pdf)

²⁹ Again a cascading and incremental approach to public funding

³⁰ Thomas K, Telecom Department Regulator differ on USO Fund usage, Business Line, June 17,2011, <http://www.thehindubusinessline.com/industry-and-economy/info-tech/telecom-department-regulator-differ-on-uso-fund-usage/article2110528.ece>

³¹ Supra note 114 and TK Thomas, 'Telecom department , regulator differ on USO usage,' Business Line, June 17,2011

³² TRAI's 'Recommendations on Growth of Telecom services in rural India ,The Way Forward,' October 3, 2005 at <http://www.trai.gov.in/trai/upload/recommendations/6/recom3oct05.pdf> & Recommendations On Growth of Broadband dated January 2nd, 2008 at <http://www.trai.gov.in/trai/upload/PressReleases/525/recom2jan08.pdf>

been cited as USOF's 'parent' (DoT) also 'owns' BSNL³³.

USOF Rules³⁴ demand bidding for schemes barring a few clearly defined exceptions. Yet a number of USOF schemes have involved ministerial relaxation of the rules to allow subsidy support to BSNL without bidding. Such flexibility may be useful when the situation is unavoidable as in case of USOF's wire line broadband scheme,³⁵ but its frequent exercise suggests the need for greater caution and this in turn demands a more exacting set of legal guidelines enforcing competitive neutrality. Quite contrarily, the Regulator in its March 19, 2009 recommendations had stated that 'USOF should follow a bidding process only where it is necessary.'³⁶

III. NOFN as a Case in Point

The Consultation Paper has made a mention of USOF's regional OFC projects. These were initiated to provide OFC based high capacity backhaul from district to block level in Assam and other North Eastern states. Though the USPs are PSUs in this case too, their selection was based on bidding rather than nomination. In fact, the USOF's tenders for shared intra-district OFC connectivity (connecting block and district HQs) represented a giant leap forward in the direction of sharing of infrastructure (in this case OFC bandwidth) on non-discriminatory open-access basis. The approach to scheme design in the first round of bidding for Assam was however once again incremental and to that extent favoured the

incumbent. Thus the tender document stated that, *'The USOF approach is to utilize spare fibre and multiplex capacity where available in the network [bidder's own or other operator's] as well as to utilize existing premises (instead of spending on new buildings/ shelters, etc. everywhere on the planned routes and upgrade the existing capacity as required, install new OFC routes to SDHQ³⁷ still not having OFC connectivity. In this approach, the duplication of physical resources including laying of optical fibre cables in parallel to already laid OFC is avoided as far as possible. It is in the Bidder's own interest to make all possible efforts to utilize the existing network(s) and avoid unproductive duplication of existing OFC-based telecom infrastructure.'*³⁸

Understandably, given the predominance of BSNL's existing OFC network, the scheme did not generate much interest in terms of the number of bids received. Given the scheme design, the subsidy would not cover the cost of laying a parallel OFC network or leasing capacity from other players. However subsequently, with some change in scheme design and enhancement of subsidy benchmarks to accommodate the cost of renting bandwidth from other operators, Railtel won the bid for the other North Eastern states even though it lacked BSNL's advantage of ownership of existing OFC networks.³⁹ There is a strong possibility that it has relied on back-end agreements for renting existing OFC from private operators rather than laying fresh cable to achieve its obligations in a cost effective manner.⁴⁰ The

³³ Mahesh Uppal, 'Biased towards BSNL', Financial Express, 18 May 2011

³⁴ http://www.usof.gov.in/usof-cms/usof_home_contd.htm

³⁵ Though the merits of a technology specific scheme are debatable

³⁶ No explanation of what 'where necessary' implies is available, <http://www.trai.gov.in/WriteReadData/trai/uploads/Recommendations/113/recom19mar09.pdf>, pp 19-24

³⁷ Sub District Headquarters

³⁸ http://www.usof.gov.in/usof-cms/GagendaPdf/ofc/OFC_Tender_Doc_Assam_final_30.10.09.pdf

³⁹ http://www.usof.gov.in/usof-cms/usof_OFN_NE_I.html

⁴⁰ This follows logically from the fact that it does not already have a large OFC presence but the

above model with further tweaking of scheme design to ensure competitive neutrality, could have been successfully replicated for block to village level OFC roll outs, tendered on a state wide basis.⁴¹ Adequate subsidies on reverse bidding basis could have attracted private capital in many (if not all) bidding units (states/telecom circles) and this could have been a more market friendly method (than NOFN/BBNL) of providing high capacity backhaul to support rural broadband; one that would allow multiple players to provide shared infrastructure on open access basis. This assumes importance also from the view point that gaps in backhaul capacity exist primarily at the village to block level and thus, there is no special justification for a single entity to own or operate this network

NOFN's poor progress has been documented in media reports and the Consultation Paper. To its credit TRAI whose 2010 'Recommendations on National Broadband Plan'⁴² culminated in the idea of NOFN, had come out strongly against BSNL's proposed role in NOFN. In its communication to DoT dated May 4, 2011, TRAI had stated that that BSNL's roles in NOFN would be in conflict with its role as a service provider customer of NOFN bandwidth. Concerns of 'BSNL costs being offloaded on to NOFN', non-level playing field vis-à-vis other service providers and of 'anti-competitive behaviour' in

scheme design now allowed it to lease cable from others as the subsidy now covered cost of such leasing.

⁴¹ Had a similar approach been followed, it was not necessary to depend on incumbents to carry out NOFN. Other players could partly lay and partly lease to provide seamless high capacity shared, open access OFC backhaul. Further bidding on say, state-wide basis could have avoided a monopoly situation.

⁴²

http://www.trai.gov.in/Content/ConDis/133_11.aspx

'network management' had been raised.⁴³ During the deliberations on creation of NOFN, the issue of the long term impact of state owned rural OFC networks was given some but perhaps not enough attention by the Government. While dwelling on which model to adopt three options were considered, (a) funding existing operators to expand their data networks to rural India (USOF model as discussed above), (b) creating a government supported special purpose vehicle to roll out this initiative and (c) subsidising BSNL to build this infrastructure. The USOF model of reverse bidding with the lowest bidder setting up an open access network under contract was rejected *inter alia* as being tedious and long drawn as it involves subsidy benchmarking.⁴⁴ Instead, the Public Sector SPV route was chosen. However, the impact of this decision on private sector involvement in rural OFC, network redundancy and competition remained unexamined. Such an assessment is unfortunately not mandated by extant regulation. The result of the choices made three years ago, is out there for us to see. NOFN through BBNL has not made even a dent in the targeted roll out (2.5 lakh village *panchayats* by 2014) and what's worse is the reported doubling of estimated costs from Rs 20,000 crore to more than Rs 40,000 crore. Clearly, the benefits of involving a large number of market players in laying of the nation's OFC backhaul far outweigh the effort involved in tendering individual bidding units.

⁴³

http://www.trai.gov.in/WriteReadData/trai/upload/Recommendations/135/Reply_DOT_Broadband_modified.pdf

⁴⁴ Other reasons included ironically the slow roll out of previous USOF schemes and duplication of infrastructure (Source: news reports such as <http://www.jagranjosh.com/current-affairs/dot-cleared-national-optical-fibre-network-nofn-for-broadband-connectivity-1311593279-1> and Analysis Mason, 'Deployment Models & Required Investments for Developing Rural Broadband Infrastructure in India,' report for CII, December 2010

IV. Final Remarks and Way Forward

Public funding in a developing nation has to be undertaken with particular care on account of the opportunity cost of allocating scarce resources. Subsidy schemes are designed to minimise costs and avoid duplicating expensive infrastructure. This could explain BSNL's nomination in the Wireline Broadband scheme, its winning the bid in the Assam OFC scheme and its role in the forthcoming NOFN. While this approach makes apparent sense in terms of short term financial prudence, its impact on the long term growth of the sector is unlikely to be positive given that it stifles competition and all its concomitant benefits. From a bureaucratic perspective, relying on public ownership or funding the incumbent is also perhaps more attractive in the short run in terms of relatively less time and effort estimated to commence roll outs (as against tendering/auction), even if we were to assume that public sector could and would deliver. However, the long term impact of monopoly ownership of even open access networks (on competition and accompanying aspects such as innovation/customer service/technological neutrality) merit consideration. If nothing else, our experience with monopoly in wire lines should have cautioned us. USOF had almost got it right with its regional OFC schemes, but it needs to be rescued from over specification of technology and incumbent-centric scheme design through regulation which insists *inter alia* on competitive neutrality. Thus, rather than doing away with USOF as is the demand of the aggrieved private sector, a relook at its regulatory structure and a focus on competitive neutrality would be the order of the day and that along with a similar emphasis on the part of TRAI would constitute a major part of what needs to be done if we are to bring broadband to the masses.

ABOUT CIRC

CUTS Institute for Regulation & Competition (CIRC) was established in 2008 by CUTS International (www.cuts-international.org). With the mission to *be a Centre of Excellence on Regulatory and Competition Issues*, CIRC primarily focuses on economic regulation in infrastructure sectors, and competition policy and law with an objective of reaching out to the target audience in India and other developing countries in Asia and Africa. Its crucial role in research and capacity building in the area of competition policy and law and regulatory reforms has created an intellectual knowledge base. This rich experience of working on regulatory issues and competition policy and law has resulted in many national and international publications which has enriched a more informed discourse on public policies and greatly benefited different stakeholders in the society. Since its inception, CIRC has been undertaking several trainings, seminars and public lectures on competition policy and law in India and abroad. It also organises international symposia on the political economy of competition and regulation in the developing world and India.

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