By Email/By Post

December 09th, 2015

To
Advisor (Networks, Spectrum & Licensing),
Telecom Regulatory Authority of India,
Mahanagar Doorsanchar Bhawan,
Jawaharlal Nehru Marg,
New Delhi – 110002.

Dear Sir,

Subject: Response to Telecom Regulatory Authority of India ("TRAI") Consultation paper on Implementation Model for BharatNet dated 17th November 2015.

Ref: Consultation Paper on Implementation Model for BharatNet dated 17th November 2015.

We thank TRAI for giving us an opportunity to express our views on the above captioned Consultation paper.

We are hereby enclosing our comments to the above referred consultation paper on Implementation Model for BharatNet dated 17th November 2015.

Thanking you.
Yours faithfully
For Atria Convergence Technologies Private Limited

Venkatesh Bhat
Chief Finance Officer

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

Response to Consultation paper on Implementation model for Bharat Net

We at first thank the Authority for the opportunity given to us for putting forth our comments on the implementation of Nation's pride Project "Bharat Net".

As noted in the Consultation Paper, the progress achieved by BBNL since its inception in 2011 as a Special Purpose Vehicle or the implementation of National Optic Fiber Network (NOFN) has been significantly below expectations. The project has faced the following major challenges

i) finding suitable personnel for implementation and supervision & leadership at BBNL
ii) project assumed incremental fiber creation using existing PSU owned fiber network but later discovered that significant part of the fiber laid in the past was unsuable
iii) challenges in terms of technology to be adopted that would make the implementation viable
iv) funding such an ambitious project without clarity on commercial utilisation meant challenges in view of the scarce Government Resources.

DoT constituted a committee in 2015 for recommendations on implementation strategy of NOFN which has issued its report. While TRAI has started the consultation process on the recommendations of the Report, it is our suggestion that some of the recommendations of the Report should be incorporated in TRAI's final views to DOT on the way forward particularly the following:

(i) Para 3.30 of the Report where overhead fibre cable is to be laid preferably on electricity poles, suitable arrangements for right-of-way over electricity poles will have to be arranged between the Department of Telecommunications and BBNL with State Governments and State Electricity Utilities.

(ii) Para 2.15 of the Report - Permanently lubricated ducts and optical fibre cable infrastructure are laid to last for a long time, as it is the most tedious and expensive part of any fibre network. Hence the sizing of these has to be done 'super-ambitiously' to meet future demands expected for decades. While the technology allows a single pair of fibres, supported by appropriate electronics, to carry over Terabits of traffic, in practice, more fibre cores are required due to network design and installation such as splitting and splicing, redundancy, requiring higher requirements in the middle mile and core layers.

Any choice of future oriented technology and network design will involve significant capital outlay. TRAI has rightly proposed Viability Gap Funding (VGF) as the funding principle rather than each State Government creating SPVs with funding by Central Government for the basic infrastructure. TRAI has rightly sought to examine the Report's recommendations regarding the three implementation strategies - CPSU led, State and Private led – wherein the implementation agency has no responsibility towards subsequent utilisation of the laid network and proposed BOOT Model as an additional strategy to Speed up the implementation of BharatNet.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

One of the ways in which capital total outlay can be minimised is to adopt structured overhead fiber network in large parts of network .We would like to suggest overhead fibers on erected poles as a cost effective alternative in large parts of the country and underground fiber in large cities especially in arterial and sub arterial roads. This model as opposed to a completely underground fiber network offers speed in implementation, lower costs to the operator for laying fiber and ease in maintaining the network.

The following are our responses:

Q.1 The "Report of the Committee on NOFN" has recommended three models and risks/advantages associated with these models. In your opinion what are the other challenges with these models?

We have nothing further to add on the risks/advantages of said three models listed by the said "Report of the committee on NOFN" and listed in the present consultation paper.

Q.2 Do you think that these three models along with implementation strategy as indicated in the report would be able to deliver the project within the costs and time-line as envisaged in the report? If not, please elucidate.

The **National Optical Fibre Network** (NOFN) is a project initiated in 2011 and funded by Universal Service Obligation Fund to provide broadband connectivity to over two lakh (200,000) Gram panchayats (GPs) from Block Headquarters of India at a cost of Rs.20,000 crore by using existing fibre of Central Public Sector Undertakings and laying incremental fibre to bridge the connectivity gap up to the GPs. As per the approval of Government of India, network was supposed to be commissioned in 2 years. Over three and a half years have elapsed since but the network has reached only around 5000 GPs.

BharatNet is a project of national importance to establish, by 2017, a highly scalable network infrastructure accessible on a non-discriminatory basis, to provide on demand, affordable broadband connectivity of 2 Mbps to 20 Mbps for all households and on demand capacity to all institutions, to realise the vision of Digital India, in partnership with States and the private sector. BharatNet is the enlarged and redesigned version of NOFN.

All these three Models suggested in the said Report of the Committee on NOFN such as CPSU – Led Model, State Government – Led Model and Private Sector – Led Model are all traditional/conventional models. The present three models would take longer time to deliver in time.

The suggestion of the said committee on the apportionment of work State-Wise among the three implementation models would may get into more complex structure for lack of coordination between the said three models/sectors for connectivity among them. Further the Nation's Asset i.e. Optic Fiber broadband Network connectivity would rest with several hands and the same would require complex policy structure to handle

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

revenue to be generated out of said Assets and arrangements for providing connectivity to the private telecom service providers and other service providers.

The Report of DOT has omitted to scan the paths already traversed by other countries in their efforts to increase broadband penetration.TRAI has rightly put together the implementation strategies in other countries that show significant private participation as well as ownership of such network.

Q.3 Do you think that alternate implementation strategy of BOOT model as discussed in the paper will be more suitable (in terms of cost, execution and quality of construction) for completing the project in time? If yes, please justify.

It would be most prudent to pick on the Public Private Partnership expertise and experience for reducing delivery costs for the network rollout of BharatNet. The significant efficiencies can be driven by the profit motive, integration of responsibility and exposure to competition by involving Public Private Partnership. Since the BharatNet seek to connect the District Headquarters with Blocks and further to Gram Panchayats, the utilisation of such laid fiber will be low in the first ten years and then improve over an extended period. Hence private capital either in the form of large telecom content service providers / infrastructure providers or in the form of consortium of infrastructure providers and telecom content service providers will be attracted only if a longer tenure to own and exploit is allowed for a period of 30 years and thereafter handover or operate on behalf of Government of India can be worked out. BOOT model is suitable and efficient model for the following reasons:

1. Delivery time of BharatNet is critical.
2. A significant level of responsibility and risk that is transferred from public sector to private sector.
3. Contractual arrangements are built around performance – based outcomes, rather than work specifications.
4. Long Term Contractual arrangements.
5. This model helps to reduce the capital demands on the public treasury for Bharatnet by only funding VGF and awarding contracts to those aspirants that propose the minimum VGF for a given geography.

Q.4 What are the advantages and challenges associated with the BOOT model?

<u>Advantages of BOOT model:</u>

- Extracting long-term value-for-money through appropriate risk transfer to the private sector over the life of the project.
- A source for Fund Raising from private sector and reduces capital requirement from public treasury.
- Innovation in providing better public services through improved operational efficiency with the participation of private sector technology.
- Incentivizing the private sector to deliver projects on time and within budget.
- Creating diversification in the economy.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

- Supplemental to limited public sector capacities.
- This model ensures the laid fiber are supervised and maintained by the BOOT operator for uptime – this is a significant challenge not addressed adequately under other models.

Challenges of BOOT model:

- BharatNet below district level, as on date, is not seen as high value business as seen by the private telecom service providers. As aforementioned the marketability of BharatNet will improve over the period of time.
- The private operator should be allowed given 30 years minimum period for generating returns for his investment after which an extension could be mutually agreed if necessary.
- There is a cost attached to debt – While private sector can make it easier to get finance, finance will only be available where the operating cash flows of the project company are expected to provide a return on investment. There is uncertainty on return on investment with regard to the Rural connectivity network.
- A significant challenge not addressed specifically is the right of way issue that will be faced by the private operators as they pass thru national highways, forests, defence area and local authority limits. There should be a feasibility study to forecast the commercials for a given geography (group of states) and right of way determined. As the project is based on VGF, right of way should be collected once the project is completed and till that time only an administrative charge as envisaged in Indian Telegraph Act should be collected.
    - While there is understanding between central and state governments on ROW permission but private players are facing struggle in getting permission from local authorities and gram panchayats.
    - The recommendation is to move from understanding/guidelines between central and state government to mandated law on providing ROW permissions. It is not the Industry's intention that ROW charges be waived off in deed reasonable periodic ROW payment will ensure that the local Authorities will have a stake in working with private players and central government agencies for the safety and upkeep of laid fibers.
    - ROW charges can be periodic one rather than one time charges as depending upon BharatNet revenue the ROW charges can be reviewed and revised by the state governments.
- Private sector will do what it is paid to do and no more than that – therefore incentives and performance requirements need to be clearly set out in the contract.
- The revenue model for the private operator is not clear especially where the fiber needs to be laid to connect rural areas with less population. Choice of technology needs to be debated that will reduce cost of the project. Also last mile connectivity issues need to be sorted out on which DOT's report is silent. This is not an inherent challenge of the model but needs to be defined for the model to succeed.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

- Those fiber that are not generating revenue for the private operator may not be well maintained leading to service issues to the users.

Q.5 What should be the eligibility criteria for the executing agency so that conflict of interest can be avoided?

(i) This company/executing Agency should have relevant infrastructure experience & specialised in Fiber network laying
(ii) Project will be awarded on minimum VGF bidding basis
(iii) Optimisation of the network for future bandwidth use which is expected to increase exponentially
(iv) Technology platform suggested should be flexible
(v) All the private players including the service providers in Telecommunication services may also be allowed to participate in Bidding. There can be specific interconnect regulations be prescribed by the Authority in order to avoid the conflict of Interest.

Q.6 Should there be a cap on number of States/ licensed service area to be bid by the executing agency?

Yes and it can be three to Four states/License service area. Bidding for all three or four states from one part of country should not be entertained.

Q.7 What measures are required to be taken to avoid monopolistic behaviour of executing agency?

(i) There should be multiple agencies (3 to 4) for execution in different parts of the country.
(ii) The number of cores that will be provisioned should be based on long term projections of a given geography and should be a consideration in awarding the contract.
(iii) The actual charges will vary from state to state and area to area depending on the demand for fiber, the investments that have been made for creation of Underground Fiber, and the maintenance costs being incurred by the operator.
(iv) The charges for any length of core fiber should be provided on "Non-discriminatory basis" to different users post the commissioning of the network after setting aside a minimum number of cores not less than 25% of the total cores for the use of Central and State Governments and local bodies.
(v) The Executing Agency shall reserve minimum 40% of the total Cores laid for the purpose of leasing it out to other content Service Providers apart from the cores laid for their personal use. Different users should not be charged differently in a given sector. A common web portal by Government should be managed with all the details such as number of Dark fiber available and the rates for leasing in a particular route so as to maintain the transparency in providing the same even during the laid fibers are owned by the executing agency.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

(vi) There can be specific regulations be prescribed by the Authority in order to curtail monopolisation/cartelisation as like Interconnect regulations issued in Cable & Broadcasting Sector.

Q.8 What terms and conditions should be imposed on the executing agency so that it provides bandwidth/fibre in fair, transparent and non-discriminatory manner?

An indicative price list be published by the executing agency, on the website, on which the lease of dark fiber and bandwidth can be provided to Service providers. The price list should be based on market conditions and can be varied based on areas, market, time and various other factors. There should not be any discrimination in leasing the fibers and bandwidth and charges levied for the same among one sect of Service providers. The prices charged to various players and reserved for government agencies should be monitored by TRAI through periodic reports and audits.

Q.9 What flexibility should be given to the agency in terms of selection of route of laying optical fibre, construction, topology and deployment of technology?

The Bidding should prescribe the maximum number of states that can be applied and the number of states to be applied should spread across the nation.

The Government/Public sector should also allow Structured Over Ground Aerial Network laid by using existing power lines/poles in Rural areas as the Underground Optic Fiber network is costly and time taking process to reach each and every rural areas.

Given the long-term nature of these projects and the complexity associated, it is difficult to identify all possible contingencies during project development and events and issues may arise that were not anticipated in the documents or by the parties at the time of the contract execution. In those circumstances, it should be allowed for the executing Agency to renegotiate the contract to accommodate these contingencies.

Concerns over multiple agencies demanding and protracting Right Of Way approvals should be addressed thru legislation on RoW.

Q.10 What should be the methodology of funding the project? In case of VGF, what should be the method to determine the maximum value of VGF for each State/ service area and what should be the terms and conditions for making payments?

Central Government should be the owner of the network laid on BOOT basis and hence needs to fund the VGF as per bids by interested parties. This should be funded using USOF. There should be a milestone based payments and funding will be over the period of the project.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

Q.11 What kind of fiscal incentive and disincentive be imposed on the agency for completing the project in time/early and delaying the project?

Milestone based incentives, say upto 5% of the project cost should be awarded for timely completion.

Q.12 What should be the tenure/period after which the ownership of the project should be transferred to the Government?

30 years from the date of completing the said particular project. Thereafter it may be extended for further period on mutual agreement with Government depending upon the revenue earned by the executing agency on the said laid fiber.

Q 13 Do you think that some measures are to be put in place in case the executing agency earns windfall profits? How should windfall profits be defined?

We have nothing to add.

Q.14 Whether there is a need to mandate the number of fibres to be offered as a dark fibre to other operators to ensure more than one operator is available for providing bandwidth at GP level?

The conditions in BOOT arrangement should include a clause to offer a minimum (say 8 to 16) fibers to other operators in case they need.

Q.15 What measures are required so that broadband services remain affordable to the public at large?

Ensuring more than one operator is allowed to use Bhartatnet Fiber should allow competition to prevail.

Q.16 What safeguards are to be incorporated in the agreement entered between Government and executing agencies if RoW is not being granted to the executing agency in time?

Government should frame a rule/pass necessary legislation/ ordinances for providing ROW permission at the time of awarding contract within specified period by all Agencies involved. Any delay in awarding ROW will lead to cost escalations in implementation and the executing Agency should have the right to claim cost escalation from the delaying Agency.

Q.17 The success of BOOT Model depends on participation of private entities which will encourage competition. What measures should be adopted to ensure large scale participation by them?

Mandating and enacting a Central Government Policy/law for RoW charges outside city limits across the country to enable Executing Agency to reduce the cost.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290

ROW charges for city limits can be collected after laying the entire network as License Fee from the Executing Agency from the revenue they earn out of the said Optic Fiber Network laid by them. This can be one of the contractual terms while awarding the contract to the Executing Agency.

Q.18 Please give your comments on any other related matter not covered above.

We have nothing further to add.

Registered Office : 2nd and 3rd Floor, No.1, Indian Express Building, Queens Road, Bangalore 560001.
Ph.:080-4288 4288 Fax.: 080-42884200, www.acttv.in
CIN: U72900KA2000PTC027290