

SAMEER KOCHHAR  
Secretary General

15<sup>th</sup> December 2015

**Mr Ram Sewak Sharma**  
**Chairman**

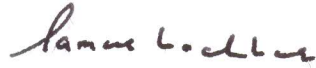
Telecom Regulatory Authority of India (TRAI)  
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New Delhi - 110002

**Dear Mr Sharma,**

Apropos our discussion, please find enclosed CAII inputs on the Report of the Committee on NOFN for your kind perusal.

Thanking you,

Yours sincerely,

  
**Sameer Kochhar**

*Mr Sewak*  
*Adv (CNS/CAI)*  
*Pw Adv (NSL/ST)*  
*18/12*  
*RE*

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*JH-W (copy)*  
*23/12*

सचिव, ट्राई 1626  
डायरी सं. 17-12-15  
दिनांक

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डायरी सं. 18/12/15  
दिनांक

*JK/0 II*  
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दिनांक 18/12/15

## Key Recommendations on the Report of the Committee on NOFN

1. The model of execution recommended for such a large project, based on the past experience, as also the reasons for delay which have occurred in this erstwhile NOFN project, is enumerated, as follows:
  - a. The complete NOFN Project being very large should be split into eight to ten packages wherein the total GPs are equitably distributed.
  - b. The execution of each package should be based on a Hybrid EPC-cum-BOOT model wherein the OFC execution is done under open tendering, while the equipment implementation under a BOOT model based on lowest VGF.
  - c. The ownership of assets needs to be with the Central Government to ensure end-to-end quality of service, interoperability as well as security through centralised NOCs.
  - d. A 48 core OFC be laid wherein up to 18 fibres be reserved for NOFN use, six fibres be allocated to each state for their internal use while 24 fibres be left with the Central Government for future expansion/emergencies.
  - e. ROW being the most critical factor responsible for time and cost overrun must be ensured as a “Plug and Play” model wherein it is made available on day one to the execution agencies from all Central and State agencies by means of a Presidential Order.
  - f. To take care of long-term sustainability and fast obsolescence of technology a 15 years AMC should be built into the project at the time of bidding itself. This will ensure that the “skin of the executing agency is in the game” and would result in a good quality network.
2. The eligibility criteria for the executing agency should be made as stringent as possible with both penalties and incentives to ensure that time overruns are eliminated. The NFS (BSNL) project is a good example for the same.
3. The tendering process should have two parts internally, EPC for execution of OFC along with a lowest VGF based BOOT for the equipment including a 15 year AMC to take care of maintenance as well as upgrades due to obsolescence. Now-a-days one technology is able to sustain not more than 3 years.
4. In case the ROI is beyond 24% then there should be a sharing of the additional revenue between the Government and executing agency.

## Issues for Consultation

1. *The “Report of the Committee on NOFN” has recommended three models and risks/advantages associated with these models. what are the other challenges with these models?*

Other challenges with these models:

A) CPSU-led:

- a. CPSUs themselves have a slow and unwieldy approval & implementation process, which may delay the execution even further.

B) State-led:

- a. The name of the project is National Optical Fibre Network and will become a fragmented Network in case controlled State wise.  
b. Disadvantage is the variance in each state’s priority and unless all are equally committed the network execution will not be equitable.  
c. Similarly O&M at similar SLAs in all states could be an issue.

C) Private Sector-led (EPC/ consortia):

- a. This is the most suitable option for a large project taking a que from NFS project of the BSNL/Defence.  
b. To make it a success, the lead bidder should have stringent selection criteria and should be applied to regions/packages (seven to ten for the entire project). Hence, requisite fibre laying experience is of utmost importance as OFC laying is going to be the slowest & most tedious part of the NOFN project. Therefore, the region/package should comprise of multiple states. Smaller size of package would lead to management issues as well as it may suffer from the state focus syndrome.

2. *Will these three models of implementation strategy as indicated in the report deliver the project within the costs and time-line as envisaged in the report?*

Observation: No.

- a. Cost is a factor of the bidding process, size of the package and on the model that is finally adopted.  
b. Both CPSU and State would lead to smaller large number of tenders and hence the risk of failure is large by law of averages. Also smaller tenders consolidated overall will be costlier than fewer large tenders for larger regions packages.  
c. Another critical issue in both time and cost control is the ease of getting ROW. The best option would be to grant the same centrally through a Presidential Order covering all central and state agencies on day one of issue of the supply orders.

3. *Is the alternate implementation strategy of BOOT model as discussed in the paper more suitable (in terms of cost, execution and quality of construction) for completing the project in time?*

Observation: No. As the strength of the network is to a large extent dependant on the quality of fibre execution. BOOT model would be successful for equipment stage onward.

4. *What are the challenges associated with the BOOT model?*

Observation: Challenges of a BOOT model:

- a. Government not involved in day to day implementation would lead to problems as all clearances are required from government agencies. Also execution quality of the OFC may suffer.
- b. Investment are large while the ROI would be low. Even VGF taken for the complete project (OFC & Equipment together) would have a challenge being too large. BOOT models are normally successful when the ROI is high as compared to the quantum of CAPEX. VFG may reduced the upfront CAPEX requirement however if it is the criteria for selection of the bidder then the bidders may try to lower it artificially which increases the risk of failure. Hence a lower risk Hybrid model of EPC (for OFC execution) & BOOT (for equipment) is recommended.

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

Observation: The eligibility criteria should be based on the model of NFS BSNL tender, which is quite stringent and takes care of requisite experience as also conflict of interest for the execution of OFC (being the critical and heaviest component). Balance the Hybrid EPC/ (consortia) cum BOOT model (for equipment) would take care of the network end to end.

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

Observation: Yes, there should be a cap and it should ensure a reasonable size not as small as a state and not too large that there are only two or four regions in the country. Ideally, it should be eight to ten regions across the country.

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

Observation: Monopolistic behavior of executing agency could be avoided or controlled by controls in the tender to ensure not only penalties for slow progress (in case reasons are attributable solely to the executing agency) but also foreclosure clause beyond that. This is also one of the reasons, why the CPSU and State-led model are not suitable as such clauses are difficult to implement.

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

Observation: It will be centrally controlled for bandwidth while 18 fibres be reserved for NOFN use, six fibres for states and 24 reserve for Central Government for future expansion/emergencies. Provisioning of bandwidth/fibre in a fair manner could be ensured in case there are sufficient control mechanisms for fibre use as well as bandwidth, built into the architecture and design of the NOCs and Network elements. A fine example of the same is available in the NFS project. These can be extended as fibre & bandwidth usage would be transparently available even for the users/customers to view through a control website of BSNL/Government.

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?*

Observation: As follows:

- a. The execution agency should be given full flexibility in the route selection in case it conforms to the overall Network topology and design (formation of rings) incase multiple routes exist between two points on the topology.
- b. No flexibility should be given on change of topology (except on case to case that too on pre-approvals).
- c. No flexibility should also be given on technology as the network capability and design features as also compatibility would get affected.

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?*

Observation: The hybrid EPC cum BOOT model is recommended and VGF should be applicable for the quantum of equipment/sites covered.

11. *What kind of fiscal incentive and disincentive should apply on the agency for completing the project in time/early and delaying the project?*

Observation: As follows:

- a. A built in AMC for 15 years will ensure quality and speed through penalties and incentives.
- b. Incentive and disincentive should be based on speed and quality of execution. NFS Project is a reasonable example for penalties however it should be extrapolated for incentives as well.

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

Observation: The ownership should remain with the Central Government throughout.

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?*

Observation: In case the ROI is beyond 24% then there should be a sharing of the additional revenue between the Government and executing agency.

14. *Is 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?*

Observation: No. All operators will build in protection of bandwidth within own networks, as there would be a stringent SLA for the end-users. The same could be examined on a case-to-case basis in difficult areas. Also this would lead to operators making a case to hog dark-fibre by generating a false demand.

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

Observation: Break the monopoly of the consortiums having/owning international gateways so that bulk bandwidth cost is lowered. This can be done by the government/PSU's like PGCIL/Railtel/BSNL etc. building and owning at least one international gateway as a consortia or alone.

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

Observation: ROW is a no go and major cost escalating factor for any agency. It is also a cause for rampage corruption and exploitation of executing agencies as well as a major delaying factor.

As mentioned in Answer 2 (iii) above, ROW must be ensured by the Government upfront, if timely rollout is to be ensured. A Presidential Order is the need of the hour covering all Central & State agencies.

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?*

Observation: Make it lucrative by ensuring a Hybrid EPC cum BOOT model as suggested above.