



भारतीय दूरसंचार विनियामक प्राधिकरण
TELECOM REGULATORY AUTHORITY OF INDIA
भारत सरकार/Government of India



महानगर दूरसंचार भवन, जवाहर लाल नेहरू मार्ग,
Mahanagar Doorsanchar Bhawan, Jawahar Lal Nehru Marg
(पुराना मिनटो रोड) नई दिल्ली/(Old Minto Road), New Delhi-110002

फैक्स/Fax : +91-11-23213294, ईपीबीएक्स नं०/ EPBX No. : +91-11-23664145

No.102-2/2014-NSL-II (Vol.II)

Dated the 23rd March 2016

To
The Secretary,
Department of Telecommunications,
Sanchar Bhawan, 20, Ashoka Road,
New Delhi.

Subject: Response of the Authority on issues referred back by DoT on TRAI's Recommendations dated 22nd July 2014 on "Improving Telecom Services in Andaman & Nicobar Islands and Lakshadweep"

Reference: (i) DoT's letter No.11-07/2015-Policy (Pt.) dated 8th February 2016
(ii) DoT's letter No.30-174-4/2014-BB-USOF dated 9th March 2016

DoT, through its letter 11-07/2015-Policy (Pt.) dated 8th February 2016 and 30-174-4/2014-BB-USOF dated 9th March 2016, forwarded copy of the Detailed Cost Estimates of (a) augmentation of satellite bandwidth in Lakshadweep and (b) and augmentation of Intra-Island OFC network in Andaman & Nicobar Islands respectively. DoT requested the Authority to give its views regarding the technical requirements and the detailed cost estimates in light of the Detailed Project Report (DPR) Prepared by BSNL.

2. After examining the issues comprehensively, the Authority has finalized its response to DoT, which is enclosed as **Annexure**. The response has also been uploaded on TRAI's website.

This letter issues with the approval of the Authority.

Encl: As above


(Sudhir Gupta)
Secretary

Response of the Authority on issues referred back by DoT on TRAI's Recommendations dated 22nd July 2014 on "Improving Telecom Services in Andaman & Nicobar Islands and Lakshadweep"

Background

1. Through its reference dated 7th January 2014, Department of Telecommunications (DoT) requested TRAI to provide its recommendations under section 11(1)(a)(iv) of the TRAI Act on a Comprehensive Telecom Plan for Andaman and Nicobar Islands (ANI) and Lakshadweep after making a gap analysis and investment required for providing quality telecommunication services in these islands. The Authority sent its recommendations on 'Improving Telecom Services in Andaman & Nicobar Islands (ANI) and Lakshadweep' on 22nd July 2014.
2. DoT, through its letter dated 8th February 2016 (**Appendix-I**), intimated that in accordance with the TRAI recommendations, Telecom Commission accorded 'in principle' approval for Comprehensive Development Plan for A&N Island and Lakshadweep in its meeting held on 07th November 2014 and the work of augmentation of satellite bandwidth was awarded to BSNL on nomination basis. DoT also forwarded the copy of the Detailed Cost Estimates for augmentation of satellite ground segment in Lakshadweep prepared by BSNL. As per the Cost Estimates, estimated project capital cost for satellite bandwidth augmentation in Lakshadweep is Rs. 46.53 crore against TRAI recommended cost of Rs. 18.05 crore. DoT has stated that the Detailed Project Report (DPR) was vetted by a Technical Group under Member (Technology), DoT on technical requirements and detailed cost estimates. The Technical Group recommended that the estimated project cost of Rs. 46.53 crore indicated by BSNL in the DPR, seemed to be reasonable, however, the actual cost of the project shall be discovered after floating of the tender. DoT has requested TRAI to give

its views regarding the technical requirements and detailed cost estimates for augmentation of satellite systems in Lakshadweep in light of the DPR submitted by BSNL.

3. Through another letter dated 09th March 2016 (**Appendix-II**), DoT forwarded the copy of Project Estimate for the work of augmentation of Intra-Island OFC network in Andaman & Nicobar Islands. In the Project Estimate, prepared by BSNL, the estimated project cost has been indicated as Rs. 38.06 crore as against TRAI recommended cost of Rs. 20 crore. In light of the DPR submitted by BSNL, DoT requested TRAI to give its views regarding the technical requirements and detailed cost estimates for augmentation of Intra-Island OFC network in ANI.

Response of the Authority

4. As affirmed in the recommendations, the Andaman and Nicobar Islands (ANI) and Lakshadweep are of immense strategic importance to India. The geographical configuration and the location of the ANI chain in the Bay of Bengal and Lakshadweep in the Arabian Sea safeguards India's eastern and western seaboard respectively. Both these group of islands are strategically vital from the point of security of the country as both ANI and Lakshadweep are closer to foreign countries than the Indian mainland. At the southern end of ANI, Indira Point is just 165 kms from Indonesia. In North, these islands are just 40 kms away from Myanmar. In the East, Thailand is only 500 kms away from ANI. In contrast, distance of ANI from the mainland (Chennai/Kolkata) is more than 1200 Km. Similarly, Minicoy Island of Lakshadweep is situated at about 130 km from the northern-most island of Maldives. In comparison, it is at a distance of 398 km from Kochi, the nearest mainland port. Therefore, reliable telecommunication connectivity between these islands from the mainland is vital. Moreover, absence of a strong and reliable communication network with the mainland has been acutely felt at the time of natural disasters and calamities.

5. These islands are lagging far behind in telecom infrastructure development as compared to other parts of the country. The Authority noticed that lack of sufficient connectivity/bandwidth from these islands to the mainland as well intra-island connectivity/bandwidth is the main bottleneck in providing services such as 3G/broadband. It is a major constraint in providing data services, which is a pre-requisite for providing quality healthcare, education and banking to masses and for inclusive growth of society in general. Data services are not available even at some of the District Headquarters (DHQs). Therefore, provisioning of sufficient bandwidth for broadband and e-governance services in line with the NTP-2012 objective of 'Broadband on Demand' was the main objective outlined by the Authority while preparing the comprehensive telecom plan. The Authority also focused on the augmentation of 2G and 3G network in the towns/villages and improvement of mobile network coverage. In short, the Authority had put forth the following objectives while formulating the telecom plan for these islands and in assessing the investment required-
- Sufficient bandwidth for broadband and e-governance services.
 - 2G services in all towns/villages with population of 100 or more.
 - 3G services in all DHQs/SDHQs and towns.
 - Augmentation of 2G and 3G network in the towns/villages to improve coverage and traffic carrying capacity
 - Extending mobile coverage to entire National Highways
6. The 'Digital India' programme is a flagship programme of the Government of India with a vision to transform India into a digitally empowered society and knowledge economy. Once the remotest of the Indian villagers are digitally connected through broadband and high speed internet, delivery of electronic government services to every citizen, targeted social benefits, and financial inclusion can be achieved in reality. One of the key areas on which the vision of Digital India is centred is "digital infrastructure as a utility to every citizen". A key component under this vision is high speed internet as a core utility to facilitate online delivery of various services.

7. The Authority noted that presently, telecom connectivity to these islands is provided only through satellite medium. There is a practical limitation on the quantum of bandwidth that can be provided in foreseeable future through satellite owing to the high satellite bandwidth charges and limited footprint of Indian satellites on these islands. Therefore, to provide sufficient bandwidth for broadband and e-governance services and ensuring equitable and inclusive development, the Authority has recommended a two-pronged strategy; one aimed at providing a long-term solution through submarine cable connectivity and the other aimed at providing immediate and short-term solution through augmentation of the satellite bandwidth. Accordingly, in its recommendations the Authority has recommended that:

- Connectivity to six major islands of ANI viz. Port Blair, Havelock, Little Andaman, Car Nicobar, Kamorta and Great Nicobar from Chennai through submarine cable must be established at the earliest possible in a single phase.
- In addition to the above planned connectivity through Chennai, connectivity of ANI should also be made from Kolkata through a submarine cable. This will ensure redundancy in the submarine to ANI. Additionally, connectivity from Kolkata can be used to route traffic from the entire North-Eastern region of the country and to provide connectivity to South Asian Association for Regional Cooperation (SAARC) nations such as Nepal, Bhutan and Bangladesh. The submarine cable connecting Chennai-Portblair-Kolkata can be named as 'SAARC' cable.
- Keeping in view the strategic importance of Lakshadweep, a secure and reliable connectivity should be established through a submarine cable. This cable (approximately 936 Km long) will connect Kochi/Cochin with Kavaratti, Agatti, Andrott, Kalpini, Amini and Minicoy islands.
- Since execution of the laying submarine cable will take 18-24 months after its approval, augmentation of satellite bandwidth should be carried out as an immediate and short-term solution.

Additional satellite bandwidth should be made available for telecom connectivity of ANI and Lakshadweep to cater to immediate and short-term requirements.

8. With its relatively small population of around 3.80 lakh in ANI and around 64,000 in Lakshadweep (as per Census 2011) spread across many islands, providing telecom facilities in all the islands is not a viable commercial proposition for the telecom service providers. High satellite costs have undermined the viability of commercial telecom operations in these islands. In the recommendations, the Authority underlined that since providing telecom facilities in Union Territories of ANI and Lakshadweep is not a viable commercial proposition for the telecom service providers, it is necessary for the Government to step-in and utilize the Universal Services Obligation Fund (USOF) for augmentation and development of telecom infrastructure and connectivity in these islands on a priority basis.
9. In its back-references dated 08th February 2016 and 09th March 2016, DoT has not spelt-out clearly whether it has approved the recommended Comprehensive Telecom Plan for ANI and Lakshadweep in its entirety. In these correspondences, DoT has talked about only detailed Cost Estimates of (a) augmentation of satellite bandwidth in Lakshadweep and (b) and augmentation of Intra-Island OFC network in Andaman & Nicobar Islands covering 3 main islands viz. North Andaman, Middle Andaman and South Andaman prepared by BSNL.
10. As requested by DoT in its reference dated 7th January 2014, the Authority carried out a gap analysis and made an estimation of investment required for providing quality telecommunication services in ANI and Lakshadweep islands. In the comprehensive telecom plan, prepared by the Authority for Improving Telecom Services in these islands, the Authority had recommended a capital investment of Rs. **1773 crore** approx. for ANI and **Rs. 505 crore** approx for Lakshadweep. The Authority had recommended that, apart from one-

time capital investment, the DoT/UT administration should compensate the telecom operation on yearly basis as viability gap funding. It had recommended **Rs. 130 crore** (Rs. 104 crore for ANI and Rs. 26 crore for Lakshadweep) on annual basis for five years. The recommendations were based on the Authority's assessment of the gap between the presently available telecom infrastructure and the infrastructure required to provide sufficient bandwidth with redundancy in the routes with mainland as well as intra-island routes, to connect almost entire population residing in these islands with 2G services, 3G services and for extending 2G mobile coverage in entire National Highways. The estimation of the investment was done on the basis of costs data inputs provided by the Telecom Service Providers (TSPs) including M/s BSNL and based on certain valid assumptions.

11. Regarding estimation of expenditure on Satellite Connectivity, it was clearly brought out by the Authority in Para 3.17 of the Recommendations that-

*“..... actual fund requirement may vary as it depends upon various factors such as whether the existing satellite bandwidth and the additional bandwidth are made available from the satellite at same of different orbits, whether the additional bandwidth is in the C-Band or other bands, existing infrastructure available at each earth station, its remaining usable life etc. These can be ascertained only while making the detailed project report (DPR). **(Emphasis supplied)**”*

12. The factors such as suitability of using the existing infrastructure and their residual life will also affect the cost of augmentation of intra-island OFC systems connecting its three major islands. It should also be considered that it has been almost 20 months since the recommendations were made in July 2014 and costs and need for replacement of infrastructure may vary with time. As mentioned earlier, the estimation of the investment required was done by the Authority on the basis of costs data inputs provided by the Telecom

Service Providers (TSPs) including M/s BSNL and based on certain valid assumptions. The Authority does not have any other source to examine the item-wise costs mentioned in the DPR. Moreover, preparing or vetting Detailed Project Report is not a function of TRAI. It is for DoT to take a decision on the matter.

13. Decision about the BoQ (Bill of Quantity) based on factors such as the availability and suitability of existing telecom infrastructure, their residual life etc and the detailed cost implications can be taken by DoT keeping in view that the broad objectives outlined by the Authority in its recommendations on the Comprehensive Telecom Plan of ANI and Lakshadweep for improving telecom services are fulfilled, even if the estimated costs of the project(s) is somewhat more than the costs estimated by the Authority.
14. In view of the above, the Authority in its response would like to reemphasize that:
 - a. Providing sufficient bandwidth is the key element of the Comprehensive Telecom Plan of ANI and Lakshadweep. Providing connectivity through submarine cables is a primary and integral part of the Authority's recommendations dated 22nd July 2014. As laying of submarine cable is a resource intensive and time-consuming task, augmentation of satellite bandwidth should be carried out as an immediate and short-term solution.
 - b. Since providing telecom facilities in Union Territories of ANI and Lakshadweep is not a viable commercial proposition for the telecom service providers, it is necessary for the Government to step-in and utilize the Universal Services Obligation Fund (USOF) for augmentation and development of telecom infrastructure and connectivity in these islands on a priority basis.
 - c. DoT has not spelt-out clearly whether it has approved the recommended Comprehensive Telecom Plan for ANI and Lakshadweep in its entirety. Keeping in view the strategic

importance of these islands, entire Telecom Plan for ANI and Lakshadweep, must be implemented without any further delay.

- d. Decision about the BoQ (Bill of Quantity) based on factors such as the availability and suitability of existing telecom infrastructure, their residual life etc and the detailed cost implications can be taken by DoT keeping in view that the broad objectives outlined by the Authority in its recommendations on the Comprehensive Telecom Plan of ANI and Lakshadweep are fulfilled even if the estimated costs of the project(s) is somewhat more than the costs estimated by the Authority.

F. No.11-07/2015-Policy (Pt.)
Government of India
Ministry of Communications & IT
Department of Telecommunications
Policy Cell, Sanchar Bhawan, New Delhi

Dated: 08.02.2016

The Secretary
Telecom Regulatory Authority of India (TRAI)
Mahanagar Doorsanchar Bhawan
J.L. Nehru Marg (Old Minto Road)
New Delhi

**Subject: Recommendations on improving telecom services in Andaman
& Nicobar Islands and Lakshadweep**

TRAI submitted its recommendations under Section 11(1)(a)(iv) of the TRAI Act on Comprehensive Telecom Development Plan for Andaman & Nicobar Islands & Lakshadweep Islands after making a gap analysis and investment required for implementing the same vide D.O. No. 102-2/2014-NSL-II dated 22.07.2014 from Secretary TRAI addressed to Secretary DoT.

2. As per para 4.13 and 4.22 of the aforesaid recommendations, TRAI recommended that an expenditure of Rs. 18.05 Crore may be incurred towards CAPEX for augmentation of satellite bandwidth for providing reliable and quality telecom services in Lakshadweep Islands.

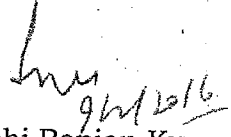
3. In accordance with the TRAI recommendations, Telecom Commission accorded "in principle" approval for Comprehensive Development Plan for A&N Island and Lakshadweep in its meeting held on 07.11.2014 and the work of augmentation of satellite bandwidth systems was awarded to BSNL on nomination basis.

4. The Detailed Project Report (DPR) submitted by BSNL for augmentation of satellite ground segment in Lakshadweep was vetted by a Technical Group under Member (Technology) DoT regarding technical requirements and detailed cost estimates. The Technical Group recommended that the estimated project cost of Rs. 46.53 Crore indicated by BSNL (against TRAI recommended cost of Rs. 18.05 Crores) seemed to be reasonable; however, the actual cost of the project shall be discovered after floating of the tender for the proposed equipment (Copy enclosed). A copy of the detailed justification regarding ground segment equipments/ structure i.e. Satellite Antenna, HPA/SSPA, WAN/RAN Optimizer, IP Router/Switch,

EMS etc increase in cost escalation given by BSNL vide letter dated 06.11.2015 is also enclosed herewith.

5. In view of the above, TRAI is requested to give its views regarding the technical requirements and detailed cost estimates for augmentation of satellite systems in Lakshadweep Islands in light of the DPR submitted by BSNL.

Encl: As above


(Shashi Ranjan Kumar)
Joint Secretary (T)
Telephone No. 23036881

F. No. 30-174-4/2014-BB-USOF
Government of India
Ministry of Communications & IT
Department of Telecommunications
Sanchar Bhawan, New Delhi

Dated: 09.03.2016

The Secretary
Telecom Regulatory Authority of India (TRAI)
Mahanagar Doorsanchar Bhawan
J.L. Nehru Marg (Old Minto Road)
New Delhi

Subject: TRAI Recommendations on improving telecom services under Comprehensive Telecom Development Plan for Andaman & Nicobar Islands & Lakshadweep Islands

TRAI submitted its recommendations under Section 11(1)(a)(iv) of the TRAI Act on Comprehensive Telecom Development Plan for Andaman & Nicobar Islands & Lakshadweep Islands after making a gap analysis and investment required for implementing the same vide D.O. No. 102-2/2014-NSL-II dated 22.07.2014 from Secretary TRAI addressed to Secretary DoT.

2. As per para 3.22 and 3.36 of the aforesaid recommendations, TRAI recommended that an expenditure investment of Rs. 20 Crore may be incurred towards CAPEX for augmentation of Intra-Island OFC network for providing reliable and quality telecom services in Andaman & Nicobar Islands.
3. In accordance with the TRAI recommendations, Telecom Commission accorded "in principle" approval for Comprehensive Development Plan for A&N Island and Lakshadweep in its meeting held on 07.11.2014 and the work of augmentation of Intra-Island OFC network in Andaman & Nicobar Islands was awarded to BSNL on nomination basis.
4. As per the DPR submitted by BSNL, the estimated project cost has been indicated as Rs. 38.06 Crore by BSNL (against TRAI recommended cost of Rs. 20 Crore). However, the actual cost of the project shall be discovered after floating of the tender for the proposed equipment. A comparison of cost indicated by BSNL and TRAI recommendations in respect of OFC cable and equipment is enclosed herewith.
5. In view of the above, TRAI is requested to give its views regarding the technical requirements and detailed cost estimates for augmentation of Intra-Island OFC network in Andaman & Nicobar Islands in light of the DPR submitted by BSNL.

Encl: As above

Shashi Ranjan Kumar
Joint Secretary (T)
Telephone No. 23036881

Project Estimate for Inra Island OFC Augmentation (Port Blair - Diglipur DWDM link)

Summary of estimated expenditure (in Rs.)

Sl.No.	COMPONENTS	AMOUNT (Rs.) as per DPR 18.09.2015	TRAI Recommendations	Difference (BSNL Final DPR & TRAI)	Reasons of variation
1	Building and Environmental works	17,60,000	0	17,60,000	No provision made by TRAI under this head
2	Battery, Power Plant and Engine	96,80,000		96,80,000	No provision made by TRAI under this head
3	Apparatus and Plant (OFC Equipment)	687,52,455	500,00,000	187,52,455	No provision made by TRAI for spares for OFC equipment, Testers/ Analysers and EMS
4	Optical Fibre Cable	2649,14,027	1500,00,000	1149,14,027	Cost of OFC as per BSNL DPR is about Rs. 7 Lakh per Km as against Rs. 5 Lakh per Km by TRAI. Increased Cable length (BSNL: 331 Km, TRAI: 300 Km) & provision for 35 Km spare cable by BSNL. No provision made by TRAI for testers (OTDR) and splicing machines. No provision for towers for crossing creek by TRAI
5	Direction and execution	355,10,648	0	355,10,648	No provision made by TRAI for Equipment installation/ Project Management and Support and Training/Documentation
		3806,17,130	2000,00,000	1806,17,130	