50

STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2017-18)

SIXTEENTH LOK SABHA

MINISTRY OF COMMUNICATIONS (DEPARTMENT OF TELECOMMUNICATIONS)

PROGRESS OF IMPLEMENTATION OF BHARATNET

FIFTIETH REPORT

LOK SABHA SECRETARIAT
NEW DELHI

August, 2018/ Shravana, 1940 (Saka)

FIFTIETH REPORT

STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2017-18)

(SIXTEENTH LOK SABHA)

MINISTRY OF COMMUNICATIONS (DEPARTMENT OF TELECOMMUNICATIONS)

PROGRESS OF IMPLEMENTATION OF BHARATNET

Presented to Lok Sabha on 07.08.2018

Laid in Rajya Sabha on 07.08.2018

LOK SABHA SECRETARIAT

NEW DELHI

August, 2018/ Shravana, 1940 (Saka)

CONTENTS

COMPOSITION OF THE STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2017-18)

Shri Anurag Singh Thakur - Chairperson

Lok Sabha

2. Shri Lal Krishna Advani
3. Shri Prasun Banerjee
4. Shri Harishchandra alias Harish Dwivedi
5. Dr. Sunil Baliram Gaikwad
6. Shri Hemant Tukaram Godse
7. Dr. Anupam Hazra
8. Smt. Hema Malini
9. Dr. J. Jayavardhan
10. Shri P. Karunakaran
11. Shri Virender Kashyap
12. Shri Harinder Singh Khalsa
13. Dr. K.C. Patel
14. Shri Raosaheb Danve Patil
15. Smt. R. Vanaroja
16. Shri Paresh Rawal
17. Dr. Bharatiben D. Shyal
18. Shri Abhishek Singh
19. Shri D.K. Suresh
20. Shri Ramdas C. Tadas
21. Shri Nagendra Pratap Singh Patel#

Rajya Sabha

22. Shri Raj Babbar
23. Dr. Subhash Chandra
24. Shri Suresh Gopi
25. Shri K.G. Kenye
26. Shri Santiuse Kujur
27. Smt. Kahkashan Perween
28. Dr. K.V.P. Ramachandra Rao
29. Dr. Vinay P. Sahasrabuddhe
30. Shri Beni Prasad Verma
31. **VACANT***

Secretariat

1. Shri R. C. Tiwari - Joint Secretary
2. Shri Y.M. Kandpal - Director
3. Dr. Sagarika Dash - Additional Director
4. Shri Shangreiso Zimik - Under Secretary

Committee constituted w.e.f. 1st September, 2017 *vide* Bulletin Part-II Para No. 5829 dated 26th September, 2017

*****Shri Sachin Ramesh Tendulkar, M.P. retired from Rajya Sabha w.e.f. 26-04-2018.

#Nominated to the Committee w.e.f. 27.04.2018 *vide* Bulletin Part-II No.6866.

Abbreviation

BBNL	Bharat Broadband Network Limited
BHQs	Block Headquarters
BSNL	Bharat Sanchar Nigam Limited
CPSUs	Central Public Sector Undertakings
DHQs	District Headquarters
DoT	Department of Telecommunications
DPR	Detailed Progress Report
FPOI	Fibre Point of Interconnect
FTTH	Fibre to The Home
GPON	Gigabit Passive Optical Network
GPs	Gram Panchayats
ICT	Information and Communication Technologies
ISPs	Internet Service Providers
IT RoW Rules	Indian Telegraph Right of Way Rules
ITU	International Telecommunication Union
MeitY	Ministry of Electronics & Information Technology
MoU	Memorandum of Understanding
MSOs	Multi Service Operators
MTNL	Mahanagar Telephone Nigam Limited
NFS	Network for Spectrum
NOFN	National Optical Fibre Network
OFC	Optical Fibre Cable
OSPs	Other Service Providers
PGCIL	Power Grid Corporation of India Limited
POI	Point of Interconnect
PPP	Public Private Partnership
PSUs	Public Sector Undertakings
RailTel	RailTel Corporation of India Limited
SAGY	Saansad Adarsh Gram Yojana
SLIC	State level implementation Committee
SoR	Schedule of Rates
SPV	Special Purpose Vehicle
TC	Telecom Commission
TCIL	Telecommunications Consultants India Limited
TRAI	Telecom Regulatory Authority of India
TSPs	Telecom Service Providers
TSPs	Telecom Service Providers
USOF	Universal Service Obligation Fund
UTs	Union Territories
VGF	Viability Gap Funding

INTRODUCTION

I, the Chairperson, Standing Committee on Information Technology (2017-18), having been authorized by the Committee to present the Report on their behalf present the Fiftieth Report on 'Progress of implementation of BharatNet' relating to the Ministry of Communications (Department of Telecommunications).

2. The Standing Committee on Information Technology (2015-16) selected this subject for detailed examination and report to the Parliament. The examination of the subject could not be completed during the term of the Committee (2015-16) and (2016-17). In view of the importance of the subject and considering the need for wider consultation, the Standing Committee on Information Technology (2017-18) re-selected the subject for further examination and to complete the unfinished task.

3. During the course of examination of the subject, the Committee took evidence of the representatives of executing CPSUs, such as Bharat Sanchar Nigam Limited (BSNL), PowerGrid Corporation of India Limited (PGCIL) and RailTel Corporation of India Limited (RCIL). The Committee also took evidence of the representatives of the nodal Department *i.e.* the Ministry of Communications (Department of Telecommunications) and Bharat Broadband Network Limited (BBNL), Special Purpose Vehicle (SPV) created for the project.

4. The Committee at their sitting held on 3rd August, 2018 considered and adopted the Report. The Committee wish to express their thanks to the representatives of the Department of Telecommunications, Bharat Broadband Network Limited (BBNL), Bharat Sanchar Nigam Limited (BSNL), PowerGrid Corporation of India Limited (PGCIL) and RailTel Corporation of India Limited (RCIL) for appearing before the Committee and furnishing written information/views, which were of great help to the Committee in arriving at conclusions.

5. The Committee also place on record their appreciation for the invaluable assistance rendered by the officials of Lok Sabha Secretariat attached to the Committee.

6. For facility of reference and convenience the Observations/Recommendations of the Committee have been printed in bold in Part-II of the Report.

New Delhi;
03 August, 2018
12 Shravana,1940 (Saka)

Shri Anurag Singh Thakur
Chairperson
Standing Committee on
Information Technology

Part-I

Narration Analysis

I. Introduction

BharatNet is a project to create network to connect all the Gram Panchayats (approx. 2.5 lakh GPs) by broadband. This project is under implementation and the infrastructure created will be a national asset, accessible on a non-discriminatory basis to the Service Providers. The project aims to provide affordable broadband services to citizens and institutions in rural and remote areas, towards realization of the vision of 'Digital India'.

2. The project (then called National Optical Fibre Network) was approved by the Cabinet on 25.10.2011 to provide broadband connectivity by laying Optical Fibre Cable (OFC) to all Gram Panchayats in two years.

3. The Phase I of the Project was approved by Telecom Commission (TC) for an amount of Rs 11,148 crore to connect 1,00,000 GPs by underground OFC through three CPSUs; BSNL, RailTel & PGCIL on 10.09.2013 and implementation of this project was initiated. In the light of Digital India, NOFN Committee was setup by DOT in January 2015 to make recommendations on scope, strategy to implement and technology of NOFN.

4. For attaining the vision of Digital India, BharatNet is being implemented in a phased manner for providing Broadband connectivity to all Gram Panchayats (approx. 2,50,000) in the country. The project covers laying of incremental fibre for connecting to the existing BSNL Fibre, and the only media to be used for broadband connection was underground OFC. The access providers/service providers like mobile operators, Internet Service Providers (ISPs), cable TV operators, content providers can

launch various services in rural areas. Various applications for e-health, e-education, e-governance etc. will be provided.

II. Conceptualization of the Project

5. When asked about the details of conceptualization and the objectives of the project, the Department have stated that as per a Report of International Telecommunication Union (ITU), broadband is a tool for improving the lives of the people by providing affordable and equitable access to information and knowledge. As per a study by ITU, 10% increase in broadband penetration accounts for 1.38 percentage increase in the per capita GDP growth in developing economies. For individuals, broadband has direct impact on their day to day lifestyle. It can contribute towards increased trade and employment avenues through adoption of Information and Communication Technologies (ICT) applications such as e-Commerce, e-Banking, e-Governance, e-Education and Tele-medicine etc., which require high speed Internet connectivity. Urban areas have better broadband infrastructure as compared to rural and remote areas because of the challenges and high costs involved in extending the infrastructure to rural and remote places.

6. The lack of adequate broadband infrastructure in India has also been studied and TRAI issued its recommendations on 8th December 2010 in "National Broadband Report by the Broadband Commission: "The State of Broadband 2015: Broadband as a foundation for sustainable development"; September 2015 Plan". One of its important recommendations is to establish a "National Broadband Network" in two phases, with funding from the USO Fund. The network was to be an open access optical fiber network connecting all habitation with population of 500 and above.

7. It had also been observed that the existing core Optical Fiber Cable Network already deployed by one or more service providers covers State/District/Block headquarter but does not extend to most of the Panchayats. Hence, project of connecting GPs from Block had been conceptualized. The Project is still under

construction phase. It is expected that once the project is completed, the objectives of the Project will be fulfilled.

8. Further, Hon'ble President of India emphasized the importance of providing broadband connectivity up to Panchayats. Panchayats are the constitutionally mandated 3rd tier of Government and key institutions for local self-governance in the rural areas. Coverage of Panchayats with Broadband internet Connectivity has a great potential for empowering rural masses by giving them access to information, public services including those of education, health, and financial inclusion.

9. When asked about the advantages of optical fibre compared to wire lines, wireless, FTTH, etc. in terms of cost and efficiency, the Department informed that greater bandwidth, scalability, better reliability, etc. are the major advantages of optical fibre. Further, Per mega bit cost of OFC is cheaper than other media where requirement of high band width is there. OFC is the only media available for the situations where, the requirement of large bandwidth is there. After successful pan India launch of 4G by different companies, where requirement to connect Node Bs with high bandwidth is most important, need to connect these locations with OFC is becoming all the more important. Organizations and businesses are anticipating enormous growth in connectivity over the next 5 years with the advent of 5G wireless, enhanced cloud services, the Internet of Things, smart cities etc. To support this future demand, OFC connectivity would be a pre requisite.

10. Regarding overall impact of BharatNet on telecom services, the Department have informed that BharatNet is expected to facilitate and enable delivery of various voice and data service e.g. mobile telephony, 4G/LTE, broadband etc in rural areas thereby enabling the digital eco-system at village level. Average broadband speed in the rural India will improve drastically with the successful implementation of this project.

III. Status of OFC Connectivity in the country

11. On the status of OFC laid by various agencies including the Private Companies in the country, the Department have stated that as per Report of a Committee of DoT on "Fibre Pooling" dated 25th Sept 2015, a total of around 12,00,000 route Kilometer of OFC network was available in the country and 5943 Blocks out of total 6442 (i.e. 92 %) were having OFC connectivity provided by various TSPs. At present, around 395 Blocks of North Eastern states, Himachal Pradesh, Uttarakhand, J&K and Jharkhand are not having OFC connectivity. As far as laying of OFC to Blocks and Gram Panchayats by TSPs is concerned, they provide Connectivity through Optical Fibre or other technology as per their commercial needs.

IV. Implementation of the Project

12. A Special Purpose Vehicle (SPV) viz. Bharat Broadband Network Limited (BBNL) was established on 25.02.2012 with the objective to create, operate, maintain and manage BharatNet infrastructure. BBNL is getting the project executed through three CPSUs viz. BSNL, RailTel and Powergrid.

13. The project is being implemented in a phased manner. Under the Phase-I, which is under implementation since 2014 with a target to connect 1 lakh Gram Panchayats, the network is being created by utilizing the existing fibres of BSNL and laying incremental fibre to connect the Gram Panchayats. GPON technology is being used to connect the Gram Panchayats to their respective Blocks.

14. The respective shares of States/UTs of 3 CPSUs under Phase-I are as under:-

CPSU	Name of State where Work allotted	Number of GPs
BSNL	Assam, Bihar, Chhattisgarh, Haryana, J&K, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Panjab, Rajasthan, Uttar Pradesh, Uttarakhand, West Bengal , Chandigarh, Andaman Nicobar islands, Lakshadweep, Dadra & Nagar Haveli	84287

PGCIL	Odisha, Telangana, Jharkhand, Himachal Pradesh	7196
Railtel	Arunachal Pradesh, Mizoram, Meghalaya, Manipur, Tripura, Nagaland, Pondicherry, Gujarat	8678

V. Implementation of Phase-I: Issues and Problems

15. BharatNet being a mega project with lot of intricacies, the initial target had to be revised as the project could take off only after July, 2014. The revised targets for completion of Phase-I was March, 2017 however, the same had been completed in December, 2017.

16. The Department have informed that the following issues/problems were faced in Phase-I of implementation:-

i. Project is of a mega nature widely dispersed across the country and to reach fibre to the unreached areas, which are rural and remote. Survey work to ascertain the total length of incremental OFC to be laid has been significantly completed and this has been a fairly time consuming process for the 3 participating CPSUs (BSNL, RailTel & PGCIL)
ii. Supply constraints with a given set of suppliers to meet the vast demands of material requirement of large NOFN project.
iii. Constraints in timely availability of labour and contractors for trenching and cable laying in different parts of the country given the high volume of work of NOFN at rates within reasonable limits of estimated rates.

17. The Department also provided the following reasons for the delay of the project in the initial years:-

i. Delay in the initial commencement of project due to field survey of GPs to assess the cable route and length, and pilot testing of the technology model.
ii. Implementation of the project only through three Central Public Sector Undertakings (CPSUs) namely, Bharat Sanchar Nigam Limited (BSNL), RailTel and Power Grid Corporation of India Limited (PGCIL).
iii. Connectivity to GPs only by laying underground OFC.
iv. Poor quality of BSNL fibre between Block and Fibre Point of Interconnect (FPOI) being used to connect GPs.
v. Centralised procedure of procurement and sourcing of equipment through Bharat Broadband Network Limited (BBNL).

vi. Default by the L1 supplier of Gigabit Passive Optical Network (GPON) equipment

vii. Challenges faced in awarding contractors because of various reasons viz. difficult areas (Hilly/Rocky/Left Wing Extremism), limited no of Trenching & laying contractors, Schedule of Rates (SoR) of BSNL, high rates quoted by contractors.

18. Elaborating on the problems and measures taken to address the issues, the Secretary, Department of Telecommunications (DoT) stated in evidence as under:-

> "The problems which plagued the project initially were that there was a huge problem of supply and procurement of electronic equipment, there were issues of coordination between the executing agencies as well as the nodal agencies which is the BBNL and there were issues of capacity. This being a huge project of laying of about 6.5 lakh kms. of optical fibre, it is, by far, the biggest project of this kind in the world, the next biggest being the broadband network in Australia which is laying OFC of about 2 lakh kms. in 10 years. So, the initial target was not only ambitious, but there was inadequate planning and design which affected the project from 2011 to 2014….xxx…… in fact all the major problems – that retarded this project have been sorted out. The issue of availability of GPON electronic equipment, because of there being a single supplier chosen to provide equipment for all the Panchayats in the country and its inability to do that, has been sorted out by getting alternative suppliers through a new tender and contracts have been executed on them."

19. On the issue of availability of adequate equipment, the Secretary stated as under:-

> "This problem has been sorted out. Now, three vendors, the ITI, L & T and Tejas would be supplying. In addition, BSNL and other central PSUs have been given the authority to procure independently by decentralising the procurement. So, we should have multiple sources of supply and this problem of equipment not being available should not hinder the progress of this project anywhere in the country."

VI. Report of the Committee constituted to review the strategy and approach on NOFN

20. In January 2015, Government of India constituted a Committee to review the strategy and approach towards speedy implementation of National Optical Fibre Network. The Committee held discussions with the implementing CPSUs, BBNL and other stake holders to understand the challenges and problems faced by them in

implementation. This Committee identified the following issues, which were impacting the speed and performance of the project:-

i. The NOFN design is based on linear topology from Block to GP extending from the network of BSNL. 24 fibre optical cables under NOFN is connected to a single pair fibre of BSNL at the Point of Interconnect (POI). Therefore, the remaining 22 fibre strands would remain unutilized and a single cut in the fibre between Block and POI would disconnect services to a number of GPs.
ii. The health of BSNL fibre from Block to the Point of Interconnect (POI) with NOFN fibre is uncertain. Thereby, the attenuation loss may hinder reliable service provision.
iii. NOFN provides 100 Mbps capacity at every Gram Panchayat irrespective of differing requirement and connectivity only through optical fibre regardless of geographical difficulty.
iv. Laying of fibre to some GPs as envisaged under NOFN may be extremely expensive and it might be easier and economical to provide broadband through other technological means such as Radio/Satellite.
v. Poor project execution and management and reliance on limited agencies for network roll out.
vi. Inadequate capacity within BBNL to manage and monitor the project of such a complex nature.
vii. The near absence of any inter-linkage with the providers of the content and services is sure to lead to a situation where even if the network were established, its utilization would be extremely low, hindering the vision of Digital India.

21. The Department have also informed that the following challenges and issues are being faced in implementation of NOFN project:-

i. the existing design is based on linear topology from Block to GP which may not be able to provide the reliability acceptable to service providers and users of bandwidth;
ii. delays have been reported by some implementing CPSUs due to traceability of existing fibre and then ascertaining its availability and quality;
iii. too many points of interconnections at Block level are a hindrance for effective utilization of the network; and
iv. the framework for integration of NOFN with other Government networks like NIC/NKN/SWAN etc. for effective service delivery has not been provided, etc.

22. The NOFN Committee also suggested the way forward towards implementation of the Project, which included the following:-

i. Fresh optical fibre (48/96 core) should be laid in ring topology between District Headquarters (DHQs) and Block Headquarters (BHQs).
ii. Far flung GPs (over a distance of 7.5 km from BHQ) and having less than 500 households should be connected through radio network and very low household GPs having less than 150 households at a distance of greater than l0 km from BHQ by satellite.
iii. Government Institutions at the District/Block/GP should be provided horizontal connectivity.
iv. District level Data Centres be provided.
v. Degrees of freedom be given to the States adopting the State-led Implementation model.
vi. Telecom Service Provider/ Internet Service Provider could provide services at villages by setting up Community Wi-Fi setup. A business model should be put together for provision of services by Service Providers.
vii. Project may be renamed as BharatNet; "it shall be a project of national importance to establish a highly scalable network infrastructure accessible on a non-discriminatory basis, to provide affordable broadband connectivity"

VII. Approval of Revised Strategy by Telecom Commission

23. To address the above issues identified by the Committee, a revised strategy was planned which *inter-alia* included:-

i. Decentralised decision making and decentralized procurement of equipment.
ii. Strengthening of Monitoring Mechanism.
iii. Optimal mix of OFC (underground & aerial), Radio and Satellite to connect GPs.
iv. Associating States in implementation of Project.
v. Providing value to Stakeholders from the Network: to Citizens, Central Government and State Government, Service Providers.
vi. Strengthening of SPV (BBNL/USOF).

24. Accordingly, a Note was placed before the Telecom Commission. The Telecom Commission, on 30.04.2016, approved that First phase of BharatNet is being implemented from 2014. During this phase connectivity to 1,00,000 GPs spread over 2,727 Blocks at a cost of Rs. 11,148 crore is to be provided. The Phase - I is to be completed by March 2017.

25. In the last quarter of 2015 -16 it became evident that there was difficulty in even tendering out work in 1,00,000 GPs, since there were Blocks (unit of implementation of BharatNet is Block) where the tendering could not be done on account of inadequate participation of bidders, high tender rates, difficult terrain etc. To address this problem workfront in Phase - I was increased by Telecom Commission in its meeting on April 30, 2016, approved increase of workfront from 1,00,000 GPs to 1,25,000 GPs so that the OFC laying work is completed in 1,00,000 GPs by March, 2017.

VIII. Achievements made under Phase-I of the Project

26. On the achievements made by 3 CPSUs *i.e.* BSNL, PGCIL and RailTel under Phase-I, the Department have stated in a written reply that the target of completing 1 Lakh GPs had been achieved on 28th Dec 2017. However, the work is under progress for completion of work of additional workfront. As on 1st May 2017, the overall status was as under:

CPSUs	**Scope**	**OFC laid**	**(percentage w.r.t. Phase-I Targets including additional workfront)**	**Service Ready**
	GPs	GPs	GPs	GPs
BSNL	101684	98186	96.56	96054
RailTel	10782	8424	78.13	5869
PGCIL	10440	8746	83.77	7176
Total	**122906**	**115356**	**93.85**	**109099**

27. The Department further submitted that as of December 2017, the Phase-I of BharatNet has been completed as over 1 lakh GPs have been connected on OFC. As on 11.03.2018, a total of 1,04,548 Gram Panchayats have been made Service Ready for providing broadband connectivity by laying 2,67,394 km Optical Fibre Cable (OFC), and therefore, the target of Phase-I to provide connectivity to 1 lakh GPs has been

achieved. The State/UT-wise achievement of targets under Phase-I is provided at **Annexure-I.**

28. Asked about the reasons for poor achievements of the targets especially in States like J&K, Himachal Pradesh, Uttarakhand and North Eastern States, representative of the Department of Telecommunications during the sitting stated as under:-

> "Sir, you stated about poor progress of work in the North-East, J&K and Himachal Pradesh. The phase-I model of implementation was through laying underground OFC – all these areas are such – and the work was taken up after the survey was done by the three agencies to whom the work was allotted – BSNL, PGCIL and RailTel. Since most of the locations could not be connected by underground OFC, the number of gram panchayats selected in J&K in phase-I was 388 only whereas gram panchayats all over the State are in excess of 500. In Himachal Pradesh, the phase-I was only for 252 gram panchayats. It is only on account of the fact that the underground OFC could not be laid in most of the areas that the work was confined only to these areas and accordingly, the progress was made."

29. On the measures taken to address the above constraints, he further stated as under:-

> Keeping these kinds of constraints in view, the alternate media for providing connectivity to gram panchayats was identified, which is aerial OFC, satellite and radio."

30. On being asked as to whether adequate steps have been taken to address all the above issues in Phase-II, the Department have informed that Phase-II is also planned on linear topology. However, BharatNet Phase III would be in the nature of upgradation of network to meet the future requirements. The phase III is not covered in the Cabinet note approved on 19.07.2017 and will be taken up at a later stage. Following changes in the implementing strategy have been made in Phase-II *vis-a-vis* phase-I:-

S. No.	Item	Phase I	Phase II
1.	No. of GPs	1,00,000 (workfront increased to 1,25,000 GPs by TC on 30.04.2017)	1,50,000
2.	Implementing Agencies	Three CPSUs	BBNL, States and States' agencies, CPSUs and Private Sector
3.	Media	Underground OFC	Underground OFC, Aerial OFC on existing electricity poles and Radio & Satellite
4.	BSNL's poor quality fibre	Replacement of poor quality fibre	Fresh OFC from Block to GP
5.	No. of Fibre	24	48 & above (Underground), 24 & above (Aerial)
6.	Last Mile Architecture	Yes* (Last Mile Architecture at all the GPs, including Phase I GPs in the recent cabinet approval)	Yes, for all 2.5 lakh GPs. Wi-Fi hotspots for GPs
7.	Horizontal connectivity to GP Institutions	No	Yes. Funding to be provided by respective States and/ or Government Departments
8.	Management and Utilization Responsibility	BBNL	Implementation Agency

*****Provision have been made in the recent cabinet approval.

31. When asked about the condition of existing fibre of 3 CPSUs especially of BSNL and adequate safeguards taken to ensure full utilization of all 24 fibre laid under Phase-I, the Department have stated that provision of replacement of lossy fiber have been made, and the optical fiber is being replaced by new fiber where ever existing fiber of BSNL is not in usable condition. Utilization of all 24 fiber may not be possible at present as only incremental cable is laid. However, in future, if the incremental cable is extended to block, full utilization of all 24 Cable would be possible. 48F Cable is being laid in Phase-II. Cable is being laid from Block to GP. Also provision of 6 fibers, where

ever possible, at each GP has been made in order to fulfill requirement of dark fibers leasing.

IX. Wi-Fi connectivity in Gram Panchayats

32. BharatNet project is being implemented to provide broadband services in all the Gram Panchayats in the country. For attaining the vision of Digital India, as part of the project, the last mile connectivity for delivering broadband services is envisaged through various initiatives.

33. On 19.07.2017, the Union Cabinet approved a modified implementation strategy for BharatNet under which, the Last mile connectivity, through Wi-Fi or any other suitable broadband technology, is to be provided to cover all the GPs (approx. 2.5 lakh) in the country. The Last mile connectivity for all GPs is to be provided through Viability Gap Funding (VGF) in Public Private Partnership (PPP) mode by BBNL by floating a tender for its implementation. The service provision in this project is proposed through Service Providers by providing non-discriminatory access to BharatNet network. Service Providers will be free to select a suitable access network technology. The strategy to provide last mile connectivity has been approved by the Telecom Commission on 08.09.2017. Bharat Broadband Network Limited (BBNL) has floated a tender for selecting the implementing agencies for implementing and operating the project.

34. Moreover, the work of provisioning of Wi-Fi Services at 25,000 Gram Panchayats (GPs) in Uttar Pradesh and all the 3,243 GPs in Himachal Pradesh has been assigned to CSC-SPV an organisation under Ministry of Electronics & Information Technology (MeitY). Wi-Fi Services at all the 10,000 Gram Panchayats (GPs) in Rajasthan have been approved to be provided through Government of Rajasthan/RISL (PSU of State Government), which has already floated the tender. Further, at 5298 GPs which are planned to be covered on Satellite media, Wi-Fi Services will also be provided by the agency which is implementing satellite connectivity to the GPs.

35. According to the Cabinet approval, the horizontal connectivity to Government institutions like banks, hospitals, post offices, police stations, schools at the GP level is to be funded by the States and the Service Provisioning Departments of Government of India.

36. In addition, the following steps have also been taken for service delivery using Wi-Fi:-

(i) Setting up of 25,000 Wi-Fi Hotspots using infrastructure of BSNL at rural telephone exchanges.

(ii) Setting up of 5000 Wi-Fi Choupals by CSC-SPV.

37. Public Wi-Fi hotspots are being set up by BSNL at its 25,000 Telephone Exchanges in rural areas at an estimated cost of Rs. 943 crore, funded by USOF. Wi-Fi hotspots have been installed and service delivery has commenced in 2429 exchanges. "Wi-Fi Choupals" are to be set up in 5,000 GPs by CSC-SPV under MeitY at a total CAPEX of Rs. 100 crore, funded by USOF. As on 31.12.2017, Wi-Fi Choupals have been setup/ installed in 5145 GPs and service delivery has commenced in 1833 GPs catering to 65408 subscribers in the country.

38. The Department have further stated last mile connectivity was not in the scope of BharatNet in the initially approved Cabinet note. The provision of last mile connectivity has been approved by the cabinet recently in July, 2017 only. BBNL has floated tender for selection of Agencies for provisioning of the same in Dec, 2017 and the same is under process.

39. On the method for funding of this project, the Department have informed that project of setting of Wi-Fi Choupals is being funded by USOF through viability gap funding. For initial 5000 GPs, CSC SPV has been given a funding of Rs. 2 lakh per GP towards CAPAX of Wi-Fi infrastructure only. The OPEX has to be borne by CSC SPV itself.

Further, CSC SPV has been awarded the work to set Wi-Fi Choupal in 25000 GPs in UP and 3243 GPs in HP. The CAPAX funding by USOF for these GPs has been decided at Rs. 1.6 lakh per GP or the market discovered rates through BBNL's tender, whichever is less.

X. Progress of Implementation of Phase-II: Revised Strategy

40. To address the shortcomings in the initial plan, on 19.07.2017, the Union Cabinet approved a modified strategy for implementing BharatNet in three Phases:

Phase-I – 1,00,000 GPs under implementation. Being executed by 3CPSEs viz. BSNL, RailTel and PGCIL.

Phase-II – The remaining 1,50,000 GPs (approx.) are targeted to be implemented by March 2019.

Phase-III – To upgrade the network to meet the future requirements.

41. The salient features of the modified strategy for Phase-II which is under way is as follows:

i) The implementation is to be done through States, Private Sector and CPSUs.

ii) Optimal mix of media (OFC, Radio and satellite) to be used to connect GPs.

iii) Laying of fresh fibre from Block to GP (in Phase I incremental fibre from FPOI is being laid). The use of new fibre from Block to GPs would make the network more stable and also the quality of the service will be better.

iv) Dark fibre to be available at the GP level for leasing out to Service Providers.

v) Operation and maintenance of the network for the lifetime of the project.

vi) Last mile connectivity, through Wi-Fi or any other suitable broadband technology, is to be provided to cover all the approx. 2,50,000 GPs in the country

42. The Committee have been informed that since 100 per cent GPs have been covered under Phase-I of BharatNet in the States/UTs of Kerala, Karnataka, Chandigarh

and Puducherry, there is no proposal for any further work in these States/UTs under Phase-II. Phase-III is yet to be planned.

43. On the progress of Phase-II, it is stated that work has already commenced. The tenders have been floated in 8 States under State-led model, 2 States under Private sector-led model and 10 States under CPSU led model. Status of BharatNet Phase-II is provided at Annexure-II.

XI. Status of utilization of funds under Phase-I and Phase-II

44. The Union Cabinet has approved the project at a total estimated cost of Rs. 42,068 Crore (exclusive of GST, octroi and local taxes) which includes Rs. 11,148 Crore for Phase-I and Rs. 30,920 Crore for Phase-II and other activities, to be funded from USOF. Detailed allocation of funds are as under:-

Item	Rupees in Crores
Phase 1	11,148
Lossy Fiber Replacement	2,016
Phase 2	18,792
O&M	6,046
Wi-Fi	4,066
Total	42,068

45. The Department have informed that a sum of Rs. 10,286 crore which is 92% of Rs. 11,148 crore has been utilized under the BharatNet Phase-I.

46. When the Committee asked whether the fund allocated is sufficient for achieving the target, the Department have informed that the Cabinet has approved the funds for Rs. 30,920 crore for Phase-II. This amount is an estimated cost and may increase during the tender process and approval of the Cabinet/TC for additional requirement of funds, if required, would be sought in due course.

47. The Committee enquired about the issues impeding the progress of implementation of the project under Phase-II. To this, the Department have stated that BharatNet Phase-II is under tendering stage in most of the states, no issues impeding the progress as of now.

XII. Alternate method of financing

48. The Committee to review the strategy and approach on NOFN had made an assessment of the length of OFC that would have to be laid under this network, by laying the OFC in Ring Topology as well as the total cost of the project. This Committee was of the view that to connect GPs in Ring Topology the total length of 17,11,000 km of OFC would have to be laid and the total investment to implement the Project according to the features proposed by the Committee would be around Rs. 72,778 crore.

49. The Committee on innovative methods of financing, in its Report of 14.10.2015 has suggested that USOF might provide substantial funding for the project. Additional requirement of funds can be met through the following methods of financing:-

(i) **Issue of Bonds :** Issue of long term tax free bonds secured by one or more of the mechanisms like secured against assets of the issuing company or future cash flows guaranteed by Government through "letter of comfort" or equivalent Sovereign Guarantee**.**

(ii) **Vendor Financing/ Deferred Payments:** Approximately 40% of the expenditure on BharatNet is on materials like OFC/PLB pipes and electronic equipments. The BBNL/State SPVs at the time of the floating of the tender may include relevant clauses for deferred payments to the vendors. Assuming deferred payments to the extent of 20% of the amount due, expenditure of up to Rs 4000 crores could be managed in phases. However, the consequent interest liability would have to be carefully assessed before going in for this option.

(iii) **Official Development Assistance/Assistance from External Agencies:** Finance for the BharatNet project can also be arranged by raising soft loans from multilateral/bilateral agencies like Japan International Cooperation Agency (JICA)/Asian Development Bank (ADB)/AgenceFrancaise De Development (AFD)/World Bank etc. with sovereign guarantee from the Government of India.

This option can be considered, if it is not possible to raise funds within the country at an acceptable interest rate.

50. Since the project is to be implemented at a huge cost, the Committee enquired whether the project can be continued to be funded from USOF. To this query, the Department in a written note have stated that on completion of OFC laying work, the project would also start providing revenue. As regards Phase-III, it is mentioned that this Phase is yet to be formulated. As per the Cabinet approval dated 19.07.2017, this Phase is to meet the future requirements. Regarding continuous funding of the project from USOF, it is indicated that on completion of OFC laying work, the project would also start providing revenue.

51. On the issue of funding the project, the representative of the Department further stated as under:-

> "We are comfortable with the funding from USOF. We would not be requiring additional money other than USOF for this project. In fact, I may inform your kind self that we have also funded many other projects from the USOF funds and the availability of funds for each of these projects have been tied up."

52. The Committee also enquired about the rights vested to USOF as a funding agency for overseeing and monitoring of the project, to which the Department informed that right to monitor and inspect the network has been vested with USOF in the agreement.

XIII. State Participation in the project

53. The Department have informed that 8 States namely Chhattisgarh, Gujarat, Jharkhand, Andhra Pradesh, Maharashtra, Tamil Nadu, Odisha and Telangana have been approved for implementation under State Led Model, along with quantum of funding, by Telecom Commission. MoUs have been signed with the States. These States have initiated the implementation process. Implementation under State-led model comprises around 61,500 GPs at a cost of Rs. 9590.34 crore. Further, the RFP template

prepared by DoT has been shared with the States for structuring their RFP for selection of implementing agency. All States except Tamil Nadu have floated the RFP.

54. With regard to the status of implementation of the State led model, DPRs of all the States have been approved by Telecom Commission. 10% mobilization advance (Rs. 877.57 crore) has been also been provided to all the States.

55. Considering that non-involvement of States has resulted in slow progress besides the risk of infrastructure not being fully utilized under Phase-I, the Committee enquired as to what extent, involvement of States will give fillip to the implementation of the project and result in better utilization of infrastructure. To this the Department have informed that in the Phase I of BharatNet, States did not have any discernable association in implementation of BharatNet. It was seen that there was lack of ownership on the part of States in the project, which has also been stated in the report of NOFN Committee. States are major stakeholders since States have a significant role in provision of services, some of the States also have their existing networks for delivery of e-governance services to citizens and have the necessary ecosystem for adoption and facilitation of BharatNet in place. Such States with capacity to design and implement BharatNet Phase II have been approved to be the implementing agencies for BharatNet. Further, Quadripartite MOU will be signed with states of HP and Uttarakhand in which provision of sharing of their infrastructure of electricity distribution lines is being made. Moreover, the responsibility of using BharatNet infrastructure would also be given to the States.

56. Highlighting the role assigned to the States, the representative of the Department stated as under:-

> "In the States, first of all, the decision-making has also been decentralised. All the operational decisions are to be taken by the State-Level Implementation Committee headed by the Chief Secretary. This is the kind of facilitation which the States are doing. For instance, in Maharashtra, the Cabinet has approved a

modality where for BharatNet no permissions regarding RoW would be required. They will provide free RoW but there would be no paperwork required or paper to be submitted to local bodies wherever BharatNet is there. That is going to further enhance the speed of work. The States are assigning targets to the districts. I have attended meetings of SLICs chaired by the Chief Secretaries. By assigning the task to the District Collector to directly decide the States are moving according to the schedule."

57. When asked about the role envisaged for the States in planning, implementation, maintenance and utilization of BharatNet, the Department informed that the State will undertake the responsibility of execution of underground, overhead laying of OFC and radio. The State plan would also include proposals for the utilization and implementation of last mile architecture. Responsibility of network management, operations and maintenance would also be with the State or agency selected by the State, preferably for the lifetime of the Project. The agency implementing the project would be preferred to provide management, operation and maintenance of network for the lifetime of the project.

58. The Committee enquired about the impact of active participation of States on the ownership, control and management of BharatNet Project and the extent of control of Centre on the project in such States. To this query, the Department have stated that Assets created under BharatNet are national assets and the States involved in implementation, operation and maintenance under state model, have overall ownership of project. Even in implementation, State Level Implementation Committee (SLIC) under Chief Secretary has been set up with DoT/ USOF/ BBNL/ BSNL as members to decide on implementation issues. MoUs have also been signed between USOF, BBNL, State, and State Implementing Agency which cover all aspects in a comprehensive manner.

59. On the possibility of conflict of interest arising between the Centre and the States, the Department have informed that the MoUs, which have already been signed,

comprehensively address all the issues and no such possibility of conflict of interest, arising between the Centre and the States, is anticipated.

XIV. CPSU Led Model Under Phase-I and II

60. The Department further informed that 10 States covering 56,105 GPs are being implemented under CPSU-led model. Out of these 10 States, 8 States viz. Assam, Haryana, Madhya Pradesh, Rajasthan, Uttar Pradesh, West Bengal, Jammu & Kashmir and Sikkim are being implemented by BSNL and implementation process has been started. 2 States viz. Himachal Pradesh and Uttarakhand being implemented by PGCIL and DPR for Himachal Pradesh prepared by them.

61. On the present status of progress, the Department have informed that for the Scope of 45,454 GPs, NIT have been floated for 41,403 GPs and Work Orders have been issued for 9717 GPs as on 1st May 2018. However, BSNL will connect remote 1407 GPs via Satellite. PGCIL has floated RFP for Phase –II for HP and Uttarakhand States and the same are to be opened shortly.

62. Asked as to whether adequate funds have been made available to the executing PSUs, the Department have informed that Rs.2302 Crore have been disbursed to BSNL. (632 Cr. + 1670 Cr. additional funding). Rs.2,64,86,450 for Survey work in Uttarakhand have been disbursed to PGCIL. There is no fund constraint at present.

63. On the difficulties encountered by CPSUs in implementing Phase-II of BharatNet and measures taken to achieve the target, the Department stated that BharatNet Phase-II is under tendering stage in most of the states. No difficulties in implementing phase-II of BharatNet have been observed as of now.

XV. Performance of CPSUs

(i) Power Grid Corporation of India Limited

64. Under Phase-I, Power Grid's scope of work comprise of Survey, Supply of Duct and Trenching & Laying of Incremental OFC Network. BBNL's scope of work comprise of Supply of OFC & accessories, Procurement of Gigabit Passive Optical Networks (GPON) Equipment & Accessories and Arrangement of Space & Power Supply at Gram Panchayat, RoW from NHAI, Forest and Railways etc.

65. BBNL *vide* letter dated 07.09.12 had allocated 4 States (erstwhile Andhra Pradesh (AP), Jharkhand, Odisha & Himachal Pradesh (HP)) for laying Incremental Fiber & thereby covering 35,791 GPs to Power Grid - Himachal Pradesh (HP)(3,241 GPs), Andhra Pradesh (AP)/Telangana (21,852 GPs), Jharkhand(4,464 GPs) and Odisha (6,234 GPs) .

66. This was revised and final scope of works comprised of 10,440 Nos. GPs (initial scope 7196 GPs) involving 28,589 Km route length - Himachal Pradesh (HP) (252 GPs), Telangana (1,942 GPs), Jharkhand (2,713 GPs), Odisha (3,860 GPs) and Andhra Pradesh (AP)(1,673 GPs).

a) Present status of PowerGrid's scope of work of phase-I

67. Out of the final scope of works comprising of 10,440 Nos. GPs and 28,589 Km route length, present status/progress of works is as under:

(a)	No. of GPs where duct laying completed	:	8984 (i.e. 86%)
(b)	No. of GPs where incremental fiber laid	:	8270 (i.e. 79%)
(c)	No. of GPs with end-to-end connectivity	:	7242 (i.e. 69%)

68. When asked about the main reasons for not achieving the Phase-I targets by Power Grid, the Department informed that PGCIL is implementing the Project (Phase-I) in 4 States namely Andhra Pradesh (AP), Telangana, Jharkhand and Odisha. In Odisha

and Jharkhand, the progress of the project was better than AP and Telangana. The problems in AP and Telangana have been due to large scale development works going on and in Telangana, this has resulted in OFC cuts and State plan to implement OFC project on top of electricity poles. FPOI identification by BSNL has also been a reason for delay in PGCIL States. Now, the problems have been resolved.

b) <u>Scope of Work of Phase-II</u>

69. Scope of work comprise of 8700 Nos. GPs i.e. Himachal Pradesh (HP) (2994 GPs) and Uttarakhand (5706 GPs). The Department have informed that draft MOU have also been submitted by Power Grid to BBNL on 01.01.2018. When asked about the status of finalization of MoU submitted by PGCIL to BBNL, the Department informed that Draft quadripartite MoU has been prepared and the same has been sent to PGCIL and the respective States for their comments. The comments from State Governments are yet to be received.

70. In Himachal Pradesh, DPR has been submitted by Power Grid on 22.01.2018 and the same has been approved by the Telecom Commission on 01.05.2018. POWERGRID already initiated tendering process. In case of Uttarakhand, survey works had been awarded and in progress. POWERGRID is taking up tendering and award process, pending DPR finalization.

71. When asked about the helps required by PGCIL from the States, the Department informed that PGCIL is implementing the Project in States in coordination with State Governments, regular meetings with State authorities are being organized for this purpose. Draft quadripartite MOU has been prepared and has been sent to the respective States for their comments. The comments from State Governments are yet to be received.

72. Speaking on the issue, the representative of the Department had stated as under:-

> "Both the States have agreed to give right of way……..We are taking in respect of the overhead in respect of Himachal and Uttarakhand."

73. Keeping in view that the targets under Phase-I are yet to be completed, the Committee enquired whether Power Grid will be able to achieve the target under Phase-II. To this query, the Department have replied that with the change in strategy in Phase-II, it is expected that PGCIL would be able to achieve the targets in time. In Phase-II it has been decided to go with Aerial OFC in the States being executed by PGCIL. PGCIL is going with EPC model i.e. selection of an implementing agency would be done who will execute the project on turnkey basis.

(ii) <u>RailTel Corporation of India Ltd.</u>

74. The Department have informed that an MoU was signed between RailTel & BBNL on 07.12.2012 and Agreement was signed on 23.05.2013. As per the Agreement, 36047 Gram Panchayats have been assigned to RailTel in 11 States & UTs i.e. Gujarat, Dadar & Nagar Haveli, Daman & Diu, Tamilnadu, Puduchery, Tripura, Meghalaya, Mizoram, Arunachal Pradesh, Nagaland & Manipur. After phasing of the project, initially 1 Lakh GPs were to be connected in Phase-I. RailTel scope was to connect 8265 GPs in Gujarat, NE-I (Tripura, Meghalaya, Mizoram), NE-II (Arunanchal Pradesh, Nagaland, Manipur) & Puduchery. Now under revised 1.25 GPs, RailTel's share is of 10782 GPs (8.6%) in Gujarat, Dadar & Nagar Haveli, Daman & Diu, NE-I (Tripura, Meghalaya, Mizoram), NE-II (Arunanchal Pradesh, Nagaland, Manipur) & Puduchery.

75. Some of the responsibilities assigned to RailTel are to conduct Survey, Supply of Duct, OFC supply for additional work front, Duct and OFC laying, Interconnection with existing OFC, supervision of installation, testing of GPON and Handing over.

76. Asked about the achievements made, the Department have informed that against the target of providing connectivity to 10782 GPs, 317 Blocks, 33057 RKM (including 7127 additional RKM due to lossy existing fibers initially planned) all contracts have been awarded and Work has been started in all the Blocks. 22135 Kms of Duct has been laid covering 9341 GPs, OFC laid in 8203 GPs for a total length of 19607 Kms , End-to-End GPs: 6459 GPs ,Service Ready GPs: 5493 GPs, Service open GPs: 3157 GPs and NOFN work in Puduchery has been completed.

77. The Department further informed the Committee that out of 6411 GPs in Gujarat, Duct laying in 5925 GPs, OFC blowing in 5583 GPs and E2E in 4860 GPs have been completed as on date. There is hardly any scope left for laying additional Duct due to RoW issues, non workable sites due to local constraints and change to overhead due to non feasible underground routes. RoW permissions are one of the continuing constraints even at this juncture of the project. Another major constraint is due to non feasible FPOIs by BSNL calling for fresh additional laying of backbone fiber of 3308 RKM in Gujarat affecting otherwise ready approx 2500 GPs as per original survey. Out of 3308 RKM, 881 RKM of additional laying is required due to last minute declaration of FPOIs as non feasible as late as 12th Feb 2018 affecting more than 550 GPs as otherwise kept ready. GPs litting is affected due to major OFC damages on the routes remain unmonitored for long periods due to delay in supply of GPON and visibility in NMS. Estimates for rectification of these damaged OFC routes are with BBNL for approval. Taking over of NOFN network of Gujarat by BSNL is being delayed, which otherwise is needed to be taken over by BSNL, *vide* BBNL letter dated 8th March, 2018. Each day of delay in taking over maintenance by BSNL is causing further damage to the lit GPs. With no payment for either O&M or for planned maintenance of large scale damaged routes because of developmental works in the state being made to RailTel, this inaction is going to affect the meeting of targets.

78. When asked about the measures taken for providing connectivity to the remaining GPs in Gujarat, the Department informed that there are 1475 GPs pending for end to end connectivity. There were about 1100 ROW cases affecting work of about 3700 GPs. The ROW cases have been pursued with concerned ROW agencies such as NHAI, Oil & Gas agencies, Railways, Forest etc. and permissions of 1060 cases are received as on date. The pending 40 cases are in final stage of approval. There are cases which got delayed due to contractual issues, which are being dealt by RCIL.

79. There are cases which are pending due to BSNL FPOI reasons which are taken up closely with concerned BSNL SSAs and are being resolved for End to End connectivity. 2364 Km (2120 GPs) additional laying was to be planned where BSNL declared lossy /fully loaded cables in October/December 2016 and another 881 Km (affecting 515 GPs) in January/February 2018 for which RCIL have been asked to lay cables and complete E2E connectivity. So far, 1434 Km (for 1475 GPs) work has been completed.

80. The Department informed the Committee that the process of signing the Operations and Maintenance (O&M) Agreement with BSNL was started long back. Repeated discussions/meetings were held between BBNL, BSNL USOF and DOT to finalizing the commercial and financial/technical terms and conditions. The time taken was due to reaching a common agreeable terms and conditions on all issues. After the approval of DOT, the Agreement was signed on 04-10-2017. Even though the Agreement was signed on 4th October 2017, there was understanding between BSNL and BBNL for carrying out O&M in the States where BSNL is the Implementing Agency. The payment of O&M shall be made to BSNL by BBNL from the date of A/T of OFC and thus BSNL shall rectify all the faults appeared irrespective of date of its occurrence. 3 States, where RailTel/PGCIL are the Implementing Agencies, have also been given to BSNL for O&M. BSNL has already taken over the network for O&M in the following 21 States/UT as per the Agreement signed between BBNL and BSNL on 04-10-2017. The States are *viz.* Assam, Bihar, Chhatisgarh, Haryana, J&K, Karnataka, Kerala, Madhya

Pradesh, Maharashtra, Punjab, Rajasthan, UP (East), UP(west), Uttarakhand, West Bengal, Sikkim, A&N, Chandigarh, Lakshadweep, Gujarat and Odisha.

81. RailTel further informed the Committee that 7000 GPs will be provided E2E/service ready by March, 2018 (5100 GPs in Gujarat/UTs and 1900 GPs in NE) and the remaining GPs in Gujarat/UTs by June, 2018 and remaining GPs in NE in 12 working seasons.

a) <u>Performance of RailTel in North East</u>

82. In North East, out of 4273 GPs, Duct laying in 3318 GPs, OFC blowing in 2522 GPs & E2E in 1498 GPs has been completed. After several efforts by RailTel and brainstorming sessions at Guwahati on 16th & 17thJan, 2018, BBNL has given approval of laying appx. 4000 Kms additional Incremental Line (IL) on 12.02.2018. RailTel is now doing survey, estimate preparation and floating of tenders etc. for laying additional IL which may stand switched to OPGW as per new scheme proposed post Aizwal deliberations. This has left no room for RailTel to contribute major E2E/service ready GPs from North East States.

83. The practical limitations of North East of massive damages to laid cables in the wide scale road infrastructure work in progress, frequent landslides, hilly terrain, less than 5 months working season per year with heavy monsoon and the frequent blockades and bandhs have delayed the work significantly. This has rightly realized in the extensive "State, DoT, BSNL, and RailTel" brain storming interaction from 1st to 4th March, 2018 at Aizawl in Mizoram under the leadership of Special Secretary DoT. With the rightly realized need of shifting to OPGW on SEB feasible power lines and remaining on ADSS on SEB and new required poles, RailTel now awaits a formal go ahead from DoT to fast track a new ray of hope for the North East of a strong and reliable communication network.

84. Considering the massive problems, the Committee enquired as to whether any changes need to be brought in implementation strategy to fast track the project in North-East. To this, the Department have stated in a written reply that BharatNet is a project for provision of high speed broadband connectivity by March 2019 which was approved by the Cabinet in July 2017 and connectivity is to be provided through optimal media mix of fibre, radio and satellite. The North East Region suffers from certain basic challenges which have impacted the timely implementation of the OFC laying projects. It is pertinent to note that apart from BharatNet project, project for augmentation of optical fibre between district headquarters and block headquarters was also awarded to RailTel in January 2012.The performance of RailTel both in the OFC augmentation project and the BharatNet project in these six States of NE has been extremely poor.

85. Therefore, under BharatNet a more comprehensive model of implementation is needed for NE Region which not only would provide broadband connectivity in timely manner but would also provide reliable OFC network. Therefore, the proposed strategy is providing connectivity by satellite media to be completed within timeline assigned by the Cabinet. Since satellite connectivity entails lesser maintenance effort and cost, is more reliable with less down time, is speedier to install and easier to monitor & configure from a central gateway station. Moreover, the satellite connectivity at GPs is not dependent on the network in Blocks/Districts as it is directly connected to the gateway at a central location. This shall address the inadequacy of connectivity at DHQ/BHQ especially in NER.

86. The optical fibre cable availability is needed for the network of future. Under BharatNet the connectivity is limited from GP to Block only. However, the backhaul from Block to District and further is also required to be augmented and strengthened in NER. As mentioned earlier OFC continues to be a weak link and laying it is time consuming effort in North East. Accordingly, as per the decision of Telecom

Commission, TCIL has been entrusted to carry out the study and prepare a Project Report to address these inadequacies in the NE region so as to ensure building up reliable high speed network right up to the GPs.

87. RailTel has not been assigned any work in Phase-II based on its dismal performance in Phase-I.

XVI. Private Sector participation in the project

88. Under Private Sector Model, tender for selection of Implementation Agency in two States covering about 7500 GPs viz. Punjab & Bihar has been floated on 15th December, 2017. When enquired about the status of the tender floated, the Department have informed that financial bids have been opened and are under evaluation and APOs are likely to be issued shortly.

89. The Committee also enquired about the plans of the Department to increase private sector participation in the project. In this regard, the Department have stated that Private sector is participating to implement BharatNet Phase-II in a big way since tenders have been floated, for execution of BharatNet on turnkey basis in all State models except Tamil Nadu (Odisha, Maharashtra, Andhra Pradesh, Telangana, Chhattisgarh, Jharkhand, Gujarat), private sector led model (in Punjab and Bihar), CPSU model (by PGCIL in HP and Uttarakhand and by BSNL for many blocks in other States). Private sector has participated in all these EPC tenders.

90. Asked as to in what way, private sector participation in the implementation of the project will help in better achievement of the targets, the Department informed that as under EPC model of implementation, Survey of route, Network design, procurement of material, laying of fiber, installation of equipment and integration of all the elements are done by one turnkey contractor only. Co-ordination among different suppliers and executors is smooth and done by turnkey Contractor. Hence, delay in the

project due to failure of one tender/vendor do not happen. On the other hand, when different tenders are done for different components, such as survey, procurement of material, laying of fiber and installation of equipment, failure of one vendor in the chain causes delay in the project.

91. The Department have informed that in Phase-II the implementation is being taken up mainly under EPC model through CPSUs, based on the experience of Phase-I, but the result of the strategy is not yet known.

XVII. Status of implementation of TRAI recommendations

92. On the status of implementation of recommendations given by TRAI, the Department informed that the recommendations have been suitably incorporated into the approved modified strategy as under:-

(i) The infrastructure created under the project is to be national asset which is in line with the TRAI recommendation.

(ii) TRAI recommendation of providing access to all service providers in a non-discriminatory and transparent manner is one of the most important features of the approved strategy of the scheme.

(iii) The agency implementing the project would also be responsible for network management, operations and maintenance, preferably for the lifetime of the Project and it is in line with TRAI recommendation.

(iv) Further, tendering at States/LSA or packages is being done in a competitive open and transparent manner as recommended by TRAI.

(v) As part of the BharatNet project, Minimum dedicated 6-dark fibres are to be provided at a GP which is in line with the TRAI recommendation to deploy large amounts of dark fibre in order to ensure that the network remains future proof and easy to upgrade.

(vi) State led model has also been adopted for project implementation, which is in line with the TRAI recommendation of involvement of State Governments for success of the project.

(vii) For resolving ROW issue, MoUs have been signed with the State Governments and DoT has also come out with an RoW policy namely “Indian Telegraph RoW

Rules, 2016" for getting clearance expeditiously, and the same has also been recommended by TRAI.

XVIII. Connectivity through satellite

93. The Department have informed that 6407 GPs are planned to be connected by Satellite media so as to provide broadband connectivity. Out of these, 4938 GPs are in NER, 885 GPs are in Jammu & Kashmir and 584 GPs are in rest of the country. 1407 GPs will be provided with broadband connectivity through satellite by June, 2018 by BSNL; while the rest being completed by December, 2018 through a bidding process. BBNL had floated tender for 5000 GPs.

94. When enquired about the achievements made and difficulties encountered, the Committee have been informed that in Phase-I, satellite connectivity was taken up only in one GP whereas in Phase-II, more than 6000 GPs are planned to be connected on satellite, for which tender to select the implementing agency has been floated by BBNL. For providing satellite connectivity, one constraint is the availability of satellite bandwidth with the Antriksh for large scale deployment of satellite in far-flung and remote areas.

95. Elaborating on the cost involved for providing connectivity through satellite, Secretary, DoT, stated as under:-

> "The capital cost of satellite is very little. But the recurring cost is prohibitive. We provide satellite connectivity on a very small bandwidth to Andaman and Nicobar and it costs us something like Rs.300 crore for that small population to be able to pay for bandwidth. It is typically because of the monopoly of ISRO. In India, satellite communication is 300 times more expensive than in the US. So, satellite is prohibitive. We are going for it only in areas where it is not technically feasible to do any other thing."

96. On the issue of availability of sufficient bandwidth, the representative of the Department also stated as under:-

> "We want higher bandwidth for which the USOF and the Bharatnet can make the payment. But the bandwidth is not available. They are going to put two satellites in the orbit this year. With that more bandwidth would be available. But right now, there is a crunch of bandwidth with ISRO in these difficult areas, particularly in Jammu and Kashmir and North-East. So, the issue with the ISRO is availability of bandwidth and the cost is very high. It is higher if we compare it with the international rates."

97. On being asked whether providing connectivity through satellite will be sustainable in the long run, the Department have stated that with the availability of more BW in 2-3 years of time frame specially through High Throughput satellites in Ka-Ku band and Ka-ka band from DOS/ISRO sufficient capacity shall be available. ISRO is planning to launch series of satellites in near future to make available the enhanced satellite bandwidth.

XIX. Utilization of BharatNet Network by State/U.Ts

98. When asked about the status of utilization of BharatNet network by States/UTs, the Department informed that focus is now on the utilization of the network. 8332 FTTH connections have been provided and State Wide Area Networks (SWAN) network is being integrated with BharatNet. In Kerala, Karnataka, Puducherry, Gujarat, Uttarakhand, Chandigarh & Rajasthan, it is being done. The Telecom Service Providers (TSPs) have shown interest in utilisation of BharatNet network and they are setting up their infrastructure at around 70,000 locations at GPs.

99. Since the project has been completely implemented in States/UTs like Kerala, Karnataka, Chandigarh and Puducherry, the Committee enquired about the status of utilization of the BharatNet Infrastructure in these States/UTs. To this, the Department furnished the utilization status as on 07.05.2018 as under:-

States/UTs	FTTH connections	Wi-Fi Hotspots	NII Pilots /SWAN	Fibre Km
Kerala	1155	547	234 GPs	143
Karnataka	4716	1341	258	0
Chandigarh	0	11	11	0
Puducherry	16	74	48	0

100. The Government Services are being made available through extension of SWAN under Pilots (National Information Infrastructure Pilots) in 234 GPs in Thiruvananthapuram (Kerala), 258 GPs in Mysore (Karnataka), 11 GPs in Chandigarh and 48 GPs in Puducherry**.** BharatNet provides connectivity on standard interfaces which can be used by Service providers and Government agencies like NIC/NKN/SWAN for service delivery. All the provisioning is done centrally through the Network Operating Centre.

101. Considering the fact that BharatNet project is the 'backbone of Digital India', the Committee enquired the extent to which BharatNet project has been successful in fulfilling the goals of Digital India. To this, the Department have stated thatBharatNet provides the connectivity network on which various e-services will ride and hence, it is the first pillar of Digital India in rural areas. Moreover, BharatNet Phase-II has made provision for service delivery in all 2.5 lakh GPs through Wi-Fi infrastructure as access to high speed Internet is a pre-requisite for achieving the objectives of Digital India. However, as BharatNet is a middle mile network from Block to GP, achievement of the objectives of Digital India requires active participation of all the stake-holders in the eco-system including the Services Providers, State Governments, end-users for which factors like demand, availability of end-user devices at affordable price, digital literacy etc are have very important role to play.

XX. Utilization of Networks by TSPs

102. To trigger the ecosystem and promote BharatNet utilization, special Tariff for bandwidth and dark fibre for utilizing the network for service delivery has been formulated and applied. Further, to enable the Service Providers to test their equipment on the BharatNet, free trials (i.e. 10 trials per Service Provider) are also being tested by TSP and being facilitated by BBNL. As on date, Airtel, Reliance Jio, Idea and Vodafone are conducting trials.

103. As a result, TSPs are setting up their infrastructure at GPs and they have committed to utilise around 63,000 locations at GPs, for example, Airtel, Reliance Jio, Vodafone and Idea at about 30,500, 30,000, 2000 and 1000 GPs respectively, primarily for their 4G/ LTE services. Towards this end, they have made advance payment as well.

104. When asked about the total revenue earned so far utilizing the BharatNet infrastructure, the Department have informed that an amount of Rs. 9,07,98,296/- has been earned so far from the utilisation of BharatNet infrastructure. An advance payment of Rs. 17, 85, 99,780/- has been made by TSPs viz. Reliance Jio, Airtel, Vodafone & Idea for utilization of BharatNet. However, the actual revenue earned from TSPs will depend on their requirement of bandwidth and dark fibre which will vary from place to place and will be known as and when the same is requested by them from BBNL. As on date, Airtel has applied for bandwidth connectivity at 295 GPs for which the annual revenue is Rs 5,13,89,000.

105. On the possibility of TSPs utilizing the BharatNet connectivity at more locations and the efforts made for TSPs to roll out their services through BharatNet at more locations, the Department have stated that utilisation of BharatNet by TSPs depends on factors like demands in rural areas, their presence at Block level, availability of connectivity from District to Block, availability of end-user devices at affordable price, digital literacy etc. Further, TSPs have shown interest in BharatNet mainly for their

4G/LTE services. For which they are preferring dark fibres. Hence, to facilitate them, about 16000 locations have been shared with them where BBNL's dark fibre is available from Block to GPs in Phase-I itself. BharatNet Phase-II has already envisaged making available 6 dark fibres per GP. The Tariff for BharatNet connectivity has been kept way below the current market prices to promote utilisation by TSPs. Besides, field level surveys by TSPs are being facilitated with the help of BSNL. Reliance Jio is studying feasibility at about 30,000 locations while Airtel is doing so for about 10,000 locations. As on date Airtel has applied for Block to GP connectivity at 295 GPs and the same is under provisioning. As on 02.02.2018, BSNL has provided 8329 FTTH connections in GPs across various States and installed Wi-Fi Hotspots in 1198 GPs. BSNL has also offered special concessional plans of Rs 699/-, 999/- and 1499/- at to Government agencies/ institutions at GPs.

XXI. Utilization of BharatNet Infrastructure by BSNL

106. The Department have informed that BSNL and BBNL have a revenue sharing Agreement under which revenue earned by BSNL from FTTH connections provisioned using BharatNet is shared in 70: 30 between BSNL and BBNL respectively. The final figures for revenue are awaited from BSNL as the settlement process is underway.

107. On being asked about the present status of utilization of BharatNet infrastructure by BSNL and the measures taken by BSNL to increase utilization of BharatNet, it is stated that at present BSNL is using BharatNet infrastructure for providing 8558 FTTH connections and 1658 Wi- Fi connections. BSNL is also using 146.83 Fibre km in five states for delivering its services.

108. Approximately 1,15,504 users of BSNL are utilizing the services on BharatNet. BSNL intends to utilize BharatNet by extending FTTH, Broadband, Wi-Fi Hotspots, Dark Fibre and Bandwidth to the customers/TSPs/ISPs/MSOs/OSPs This is to state that, the subsidized rates for providing FTTH connections to the Govt. Institutions

has already been communicated to all the BSNL circles. SSA heads of all the Circles are already directed to contact their respective District Collectors/ District Magistrates and apprise them about the provisioning of services over BharatNet for effective implementation of this Digital India initiative of the Government of India.

109. On being asked about the measures taken for effective utilization of BharatNet infrastructure by BSNL to improve their services and increase the revenue earnings, the Department informed that since BharatNet utilizes the existing fibre of BSNL, a revenue sharing agreement has been signed between BBNL and BSNL whereby BSNL can deliver its services like Wi-Fi hotspots, Mobile, Broadband/FTTH, leased lines, Internet leased lines etc. by using BharatNet seamlessly and the revenue will be shared between BBNL and BSNL. Further, as BharatNet OLT is installed at BSNL's premises in the Blocks and as BSNL OCLAN is connected to the OLTs, it is quite convenient for BSNL to deliver its services at GPs or to offer leased lines/ Internet leased lines to other service providers to make them reach from their POPs to BBNL OLTs. Further, all the BSNL Circles are instructed to nominate 2 officers (One GM EB) as SPOC at Circle and 2 officers (AGM/SDE) at each SSA for leveraging BharatNet and facilitating all TSPs/ISPs/MSOs/OSPs to utilize the OFC laid under BharatNet project. Circles have been given a target to provide atleast two FTTH connections in each GP in FY 2018-19.

XXII. Projected revenue from BharatNet

110. BBNL was initially conceptualized to provide 100 Mbps bandwidth at each GP. This has been increased to 1 Gbps on OFC in Phase-II along with provision of dark fibers to meet the specific needs of TSPs, ISPs, MSOs, etc. Apart from above, following important areas have been strengthened:

(a) BBNL has laid emphasis on operation and maintenance of the network to provide quality services.

(b) BBNL has also tied up with BSNL for the provision of services on revenue sharing basis.

(c) For marketing of services to State Governments, Central Government Departments, Department of Posts have been approached to utilization of the network.

(d) State Governments are being encouraged to take horizontal connectivity for institutions.

(e) Non-discriminatory access of BharatNet to all services providers.

(f) Wi-Fi hotspots on Viability Gap funding are proposed at each GP through open bidding, CSC and State Governments.

111. The Department have also stated that operation and maintenance cost of BharatNet Phase-II network (including few states of Phase-I) is being ascertained through tenders. Due to geographical dispersal of BharatNet assets, the O&M cost is expected to be substantial. The arrangement with USOF envisages funding of net OPEX (net of revenue) for first five years, which has been extended by another three years. As per the modified implementation strategy approved by the Cabinet, the project is expected to be revenue neutral in 5 years from March 2019, i.e. by March 2024. The net opex support is expected up to March 2024, however, this may have to be revisited after full O&M cost is ascertained. BharatNet is still under construction stage. The full network target is 31st March 2019. BBNL has received encouraging response from major TSPs which have provided Rs.18 crores advance.

112. On the projected revenue likely to be earned by the Government for successful implementation of BharatNet project, the Committee have been informed that the revenue streams from BharatNet are expected from Provision of Bandwidth and Provision of dark fibers. The precise calculation of projected revenue is not possible at this stage as it is a mix of demand, market rates of services and commercial model of the users. BBNL envisages that with a push to digitalization and move towards e-services there will be sufficient demand from various TSPs, ISPs, MSOs, State Governments, Central Government Departments, etc for middle mile services of BharatNet. BBNL envisages it to be revenue neutral by March 2024.

XXIII. Reorganization of Bharat Broadband Network Limited (BBNL)

113. BBNL is the Special Purpose Vehicle created for BharatNet for establishment, maintenance and operation of BharatNet as well as monitoring of implementation and operation of network with the implementing agencies. Direct implementation for certain States where the work has not been provided to States & CPSUs. Setting up and operation of centralized network facilities like NOC, NMS, Data Center, etc. BBNL's tasks also include the following:-

(a) Facilitation of implementation, operation and maintenance through agencies.

(b) Procurement of good and services wherever needed.

(c) Business Development (through TSPs, ISPs, Cable Networks, State Govt. Depts., Central Govt. Depts. etc.).

(d) Coordination for RoW permission.

(e) Review of project with the implementation agencies.

114. When the Committee desired to know the sanctioned and actual strength of BBNL, the Department furnished the following information:-

:Scale	Sanctioned Strength	Working Strength
E9	36	28
E7	81	70
E5	20	2
E3	64	8
E1	93	19
Total	294	127

115. The Department further informed that posts are lying vacant in various cadres in Level-II. Some of the reasons for posts laying unfilled at various levels are as follows:

a) Beside 4 recruitment drives launched by BBNL since 2015, candidates did not turn up to join in spite of a good footfall in the interviews.

b) BSNL/MTNL do not forward the application of the officers to join BBNL on deputation basis. Application of the officers, who are interested to join BBNL, are not forwarded by the BSNL/MTNL.

116. The Committee also enquired about the proposal for reorganization of BBNL. In this regard, the Department have replied that reorganization proposal is being worked out as per new requirement of O&M and implementation under different models *i.e.* State led model, CPSU led model and Private sector led model.

XXIV. Indian Telegraph Right of Way Rules, 2016

117. Indian Telegraph Right of Way Rules, 2016 have been framed to ensure the grant of RoW permissions in case of both underground infrastructure (optical fibre) and over ground infrastructure (mobile towers) in a simple, transparent and time-bound manner.

118. When asked about the status of implementation of Indian Telegraph Right of Way Rules, 2016, the Department have stated in a written reply that all States/UTs have been requested to align their RoW Policies with IT RoW Rules, 2016 and DoT Guidelines thereon. So far, 7 States namely Haryana, Rajasthan, Odisha, Assam, Maharashtra, Tripura and Jharkhand have aligned their policies/orders in line of IT RoW Rules, 2016. As per Rule 14(2) of IT RoW, the Central Government has notified District Resolution Officers in respect of 30 States/UTs in Gazette of India Extraordinary on 19th June, 2017.

119. Six States/UTs namely Telangana, Goa, Madhya Pradesh, Rajasthan, Daman & Diu Fort Area and Tamilnadu are yet to nominate their District Resolution Officers. As per Rule 14(2) of the IT RoW, so far 6 States have developed/ are in the process of developing online portal for IT RoW Rules applications. Once the IT RoW Rules, 2016 are implemented properly, the issues related to RoW for laying cables shall be addressed adequately.

120. When asked as to what extent implementation of the project is being held up due to RoW issues, the Department have stated that as on 1st May 2018, total 296 RoW

cases are pending which are affecting 1241 GPs. UP West (67 Cases/476 GPs) Bihar (64 Cases/84 GPs), AP (44 Cases/136 GPs) and Gujarat (35 Cases/276 GPs) States having maximum RoW issues. BBNL is coordinating with State and Central agencies to resolve the issues. . The pending cases with different agencies are as under:

	Cases	**GPs affected**
Railways	172	382
NHAI	32	155
Forest	39	502
Oil & Gas	50	167
Others	3	35
Total	**296**	**1241**

121. On the measures taken by the Department for getting speedy clearances from various Ministries/Departments/State Governments/Nodal bodies, etc., the Department stated that following mechanism have been put into place for better coordination and management of project resources:-

a) 4 experienced Senior Consultants have been appointed for speeding up the project.

b) Project review through Video Conferencing with all State Heads of BBNL, CPSUs is being held.

c) A control room has been set up in BBNL corporate office specifically for Project monitoring on real time basis.

d) A nodal officer, GM (PM-I) for RoW had been nominated specifically for coordination with all Agencies for getting RoW permissions.

e) PM Tool (Web based software) has been implemented by BBNL for better tracking of Project.

f) Steering Committee has been resolving project issues of BharatNet with all implementing agencies.

122. The Committee also enquired whether there is any proposal to have a mechanism of single window permission for RoW from Railways, Ports, NHAI etc. to ensure speedy clearance and if a single window clearance should be introduced for

BharatNet. To this, the Department have stated that recently, Ministry of Railway has streamlined the process of granting the RoW permissions for BharatNet Project wherein Railway Board has issued letter to their field units for expediting RoW process in a time-bound manner with minimal payment basis. No such mechanism exists in case of Forests, NHAI and Oil & Gas Agencies. There should be concept of single window system. At present BBNL field officers are pursuing the case at different levels in these Departments.

123. When asked about the mechanisms available to ensure compliance of the Rules, the Department have replied that the Indian Telegraph RoW Rules, 2016 were notified in the Gazette of India on 15th Nov, 2016 and IT RoW (Amendment) Rules, 2017 were notified on 21st April, 2017. As per Rule 14(1) of IT RoW, 2016, dispute between license and appropriate authority shall be referred to the Officer designated by the Central Government. Again, as per Rule 14(2) of IT RoW, 2016, the Central Government shall designate, by notification, Officers with such jurisdiction as may be mentioned in the notification, for the purpose to referring dispute under sub-rule(1). The officer designated by the Central Government shall determine the disputes referred to in sub-rule (1) with in a period not exceeding sixty days in such manner as may be specified by the Central Government from into time.

124. On the measures that have been taken for smooth or proper implementation of RoW Rules, 2016, especially relating to BharatNet, the Department stated that in addition to all the States/UTs, Central agencies such as Ministry of Railways, Ministry of Road Transport and Highways, National Highways Authority of India, Ministry of Environment, Forest and Climate Change, Ministry of Petroleum and Natural Gas, Ministry of Shipping were requested to align their RoW Policies with IT RoW Rules, 2016 and DoT guidelines thereon. Principal Secretary to Hon'ble Prime Minister had written letters to Chairman (Railway Board), Chairman (NHAI), Secretary (MoRTH), Secretary (EFCC) and Secretary (P&G) in December, 2017 requesting for compliance

with IT RoW Rules, 2016. So far only two Ministries have partially aligned their policies with IT RoW Rules, 2016; Ministry of Railways for BharatNet project only and Ministry of Shipping for BharatNet and Network for Spectrum (NFS) projects only.

XXV. National Common Duct Policy

125. When the Committee drew the attention of the Department to the need for having a common duct for laying of cables by different agencies, Secretary, DoT stated in evidence as under:-

> "The point is well taken. This duct kind of a system which is increasingly being used by some States like Andhra Pradesh and Telangana will be beneficial because the cost of reinstatement of the lines whether they are private or government will be reduced. So, we will work more closely with NHAI and others to dovetail our planning with the road planning and also request them for change of design. If they can have running ducts in which various kinds of cables, fibres and other utility connects can be added."

126. When the Committee desired to know the status of National Common Duct Policy, the Department stated that a Committee of Secretaries under the Chairmanship of Secretary (Telecom) has been constituted to draft Common Duct Policy for all Utilities and Uniform policy for RoW permission. So far, two meetings on 23.02.2018 & 05.04.2018 have taken place and minutes have been issued. Draft of the policy is under preparation.

XXVI. BharatNet Project Phase-III

127. The Department have informed that the third phase is of ring connectivity to the entire country, a state of the art, future proof network which could provide backhaul as well as would be a network suitable for 5G as well as internet of things era and that is being planned to be done from 2018 to 2023. The strategy for this includes public-private partnership, use of the resources of telecom service providers as well as USOF

fund to get the work done, as well as use the States, the power distribution companies and EPC contracts through various private sector partners.

Part-II

Observations/Recommendations

1. BharatNet Project (then called National Optical Fibre Network) was approved by the Government on 25th October, 2011 for providing connectivity to all the 2,50,000 Gram Panchayats in the country through optical fibre utilizing existing fibres of Public Sector Undertakings (PSUs) *viz.* BSNL, RailTel and PowerGrid and laying incremental fibre when necessary to bridge the connectivity gap between Gram Panchayats and Blocks. The Committee note that the project has been conceptualized and implemented by the Government mainly with an objective to improve the lives of the people. With the implementation of BharatNet, average broadband speed in rural India will also improve drastically. The access providers/service providers like mobile operators, Internet Service Providers (ISPs), cable operators, content providers can launch various services in rural areas and provide various applications for e-health, e-education, e-governance etc. Another objective is to provide necessary infrastructure to meet the future requirement of bandwidth. With the successful pan India launch of 4G and enormous growth in connectivity which is anticipated over the next 5 years with the advent of 5G wireless, enhanced cloud service, the Internet of things, smart cities, OFC connectivity would be a pre-requisite to support this future demand. Broad band infrastructure is a key for digital economy. The Government of India has also launched an ambitious 'Digital India' programme to bring knowledge economy and to transform the entire concept of governance by making it more transparent and accessible to the citizen. BharatNet is the backbone and important pillar of 'Digital India' and the success of Digital India programme squarely rests on the success of BharatNet project. Considering the fact that

broadband internet connectivity has a great potential for empowering rural masses by giving them access to information, public services including those of education, health and financial inclusion, the Committee selected the subject 'Progress of Implementation of BharatNet' for detailed examination. The comments of the Committee are in the succeeding paragraphs.

Implementation of Phase-I

2. The Committee note that optical fiber cable had predominantly reached State, Districts and Block Headquarters but does not extend to most of the Gram Panchayats. Around 12 lakh route kilometer of OFC network was available in the country and 5943 Block out of total of 6442 *i.e.* 92 per cent were having OFC connectivity provided by various TSPs. At present, around 395 Blocks of North Eastern States, Himachal Pradesh, Uttarakhand, Jammu and Kashmir and Jharkhand are not having OFC connectivity. Private Telecom Service Providers (TSPs) have also laid OFC primarily in Urban and semi-urban areas. BharatNet is a project to provide OFC from Blocks to Gram Panchayats, which involves laying of about 6.5 lakh kms of optical fibre and is by far the biggest project of this kind in the world, the next being the Broadband Network in Australia which is laying OFC of about 2 lakh kms in 10 years. Under Phase-I, the work for connecting 1,00,000 Gram Panchayats through OFC has been allocated to 3 CPSUs: BSNL, RailTel and PowerGrid. These three CPSUs were selected by High Level Committee as all three CPSUs have experience in laying OFC and have fiber in the field which could be leveraged for laying incremental fiber. However, inadequate planning and design coupled with the lack of preparedness to address the issues had affected the project badly from 2011 to 2014. Due to this, the initial target had to be revised and the project could take off only after July, 2014. The revised targets for completion of Phase-I was

deferred to March, 2017. The Government of India constituted a Committee in January, 2015 to review the strategy and approach towards speedy implementation of NOFN. Based on the issues identified by this Committee, a revised strategy was planned which *inter-alia* included decentralized decision making and decentralized procurement of equipment, strengthening of monitoring mechanism, optimal mix of OFC (underground and aerial), Radio and satellite to connect GPs, associating States in implementation of project, etc. The Committee express satisfaction that all the major problems that retarded the project in its initial phase have now been addressed and the target of completing 1 lakh GPs have been achieved on 28th December, 2017.

From the aforesaid observations, the Committee clearly note that the implementation had been done by the Department without seriousness and foresightedness, it deserves. Because of this, deficiencies have been noted on every aspect of the project like planning, design, procurement, timely availability of skilled labour and contractors, non-participation of the States, lack of evaluation of project feasibility, etc. It is, therefore, not surprising to note that the implementation could start only after 2014. When the project is proudly claimed to be the world's largest infrastructure its own kind, the Committee feel that the strategy of implementation should also have reflected the grandeur of the project which unfortunately has not been in this case. The Committee while hoping that work on additional work front in all States shall be completed at the earliest also desire that sincere efforts shall be made to ensure that the momentum and pace of implementation is sustained by timely intervention/resolution of issues which may come in way of implementation.

Wi-Fi Connectivity in Gram Panchayats

3. The Committee note that last mile connectivity through Wi-Fi or any other suitable broadband is to be provided to cover all the GPs (approx. 2.5 lakh) through Viability Gap Funding (VGF) in Public Private Partnership (PPP) mode by BBNL. The Committee have been informed that BBNL has floated a tender for selecting the implementing agencies. The Committee note that CSC-SPV has been awarded to set up Wi-Fi hotspots in 25,000 GPs in UP and 3243 GPs in Himachal Pradesh. Wi-Fi services of all 10,000 GPs in Rajasthan are being covered by State Government of Rajasthan. Further, at 5298 GPs which are planned to be covered on satellite media, Wi-Fi services will also be provided by the agency which is implementing satellite connectivity to the GPs. In addition to this, the Committee note that Public Wi-Fi hotspots are being set up by BSNL at its 25,000 Telephone Exchanges in rural areas. "Wi-Fi Choupals" are to be set up in 5,000 GPs by CSC-SPV under MeitY.

One of the glaring omissions which came to the notice of the Committee is that last mile connectivity was not in the scope of BharatNet in the initially approved Cabinet Note and the provision has been approved by the Cabinet recently in July, 2017 only. It may be noted from the above observations that various strategies have been adopted for providing last mile connectivity to all the 2,50,000 Gram Panchayats. Since 1,09,099 Gram Panchayats have been made service ready by 1st May, 2017, the Committee are of the considered view that the focus now should be on the utilization and provision of last mile connectivity in these service ready GPs. As BBNL has floated tender for selecting implementing agencies for last mile connectivity, the Committee would like to know the status of the tender floated and the corresponding action taken so far. The Committee desire that specific emphasis should be

given for setting up of Wi-Fi hotspots in those GPs under Saansad Adarsh Gram Yojana (SAGY) and the State/U.T. wise details of Wi-Fi hotspots set up under SAGY may be apprised to them. The Committee also recommend that while setting up Wi-Fi hotspots emphasis should also be given to participation of Village Level Entrepreneurs so as to generate employment and revenue for them in the rural areas. The Committee also recommend that the Department should also make an impact assessment study wherever connectivity has been provided and associate local MPs with this initiative.

4. The Department have informed the Committee that one of the main issues of the BharatNet architecture is that 24 fiber optical cable which is connected to a single fiber of BSNL at the Point of Interconnect (POI), leading to underutilization of 23 fiber strands. Further, a single cut of the fiber between Block and POI would disconnect services to number of GPs. From the information provided by the Department, the Committee note that the utilization of all 24 fiber may not be possible at present as only incremental cable is laid. However, in future, if the incremental cable is extended to block, full utilization of all 24 Cable would be possible.

The Committee desire that the Department should formulate a future action plan in this regard so that all fibres are fully utilized for giving benefit to the masses. The Committee also desire that adequate measures should be taken to ensure complete utilization of OFC in all the GPs completed under Phase-I. Since fresh OFC will be laid from Block to GPs instead of replacement of poor quality fiber under Phase-II, the Committee hope that the problem of non-utilization of OFC will no longer arise. The Committee may be apprised of the

steps taken to address this issue and ensure complete utilization of all the fibers.

Implementation of Phase-II and Status of Utilization of Funds

5. The Committee note that the Union Cabinet had approved a modified strategy for implementation of BharatNet on 19.07.2017 in order to address the shortcomings that had slowed down the pace of implementation of the project. As per the modified strategy, under Phase-II, the remaining 1,50,000 GPs (approx.) are targeted to be implemented by March, 2019. Some of the salient features of the modified strategy for Phase-II are implementation is to be done through States, private sector and CPSUs, optimal mix of media (OFC, Radio and satellite) to connect GPs, laying of fresh fiber from Block to GP, operation and maintenance of the network for the lifetime of the project, last mile connectivity through Wi-Fi or any other suitable broadband technology to 2,50,000 GPs in the country. The Committee note that Phase-II is an ambitious project and the work has already been commenced. Tenders have been floated in 8 States under State Led Model, 2 States under Private Sector Led Model and 10 States under CPSU Led Model. 6407 GPs are proposed to be provided connectivity through satellite for which BBNL had floated tenders for 5000 GPs. As regard to utilization of funds, the Committee have been informed that an amount Rs.30,920 crore allocated under Phase-II is an estimated cost and may increase during the tender process and approval of the Cabinet/TC for additional requirement of funds, if approved, would be sought in due course.

Considering the fact that the project had undergone several time and cost overrun and Phase-I of the project could be completed by December 2017 only after considerable delay, the Committee recommend that effort should be made for timely completion of the targets of the project by the given deadline *i.e.* by

March, 2019. The Committee desire that in phase II specific emphasis should be given to associate/engage local youths and generate employment particularly in the states like Jammu & Kashmir, Himachal Pradesh, Uttarakhand, North-eastern States and other such backward areas. The Committee also desire that the progress of the project in Phase-II along with all the deliverables achieved may be intimated to them. The Committee further desire that the Department should make every effort to ensure timely utilization of funds so that the progress of implementation of the project does not suffer due to lack of funds.

Alternate Method of Financing the Project

6. The Committee note that an assessment of the length of OFC in Ring Topology as well as the total cost of the project was made by the Committee constituted to review the strategy and approval of NOFN. As per Report of this Committee to connect GPs in Ring Topology the total length of 17,11,000 km. of OFC would have to be laid at a total investment of Rs.72,778 crore. The requirement of such a huge fund needs to be given serious attention. This Committee are of the view that the cost of the project will also surely rise and exceed the amount of Rs.72,778 crore. The Committee on innovative method of financing in their Report dated 14.10.2015 have suggested that USOF might provide substantial funding for the project. At the same time, some alternative financing for meeting the additional requirement of funds suggested by them are issue of bonds, vendor financing/deferred payments, and official Development Assistance/Assistance from External Agencies, etc. Taking note of the suggestions of both the above Committees, this Committee are of the view that even though the project may continue to be funded from USOF considering the requirement of huge amount of funds, the Department should consider that

all possible angles for finding adequate financing for the durability and sustenance of the project in the light of suggestions made by the Committee on innovative method of financing.

Participation of States in the Project

7. The Committee have been informed that non-involvement of States under Phase-I, an important collaborator in the project, in the planning and implementation of the project has led to distancing of the States from ownership of the project and resulted in slow progress besides the risk of the infrastructure not being utilized. Strong involvement and robust participation of the States in planning, implementation, maintenance and utilization was missing affecting the project at all stages. The Committee note that to address the above issue, under a modified strategy approved by Union Cabinet, 61523 GPs will be provided with connectivity in 8 States through State led Model *viz.* Maharashtra, Gujarat, Chhattisgarh, Jharkhand, Odisha, Andhra Pradesh, Telangana and Tamil Nadu. Under this Model, States will undertake the responsibility of execution of underground, overhead laying of OFC and radio. State plan also includes responsibility for network management, operations and maintenance by the State or agency selected by the State, preferably for the lifetime of the project. Regarding ownership, control and management of BharatNet Project and the extent of control of Centre on the project is such States, a quadripartite MoU has been signed among USOF, BBNL, States and State Implementing Agency covering all aspects in a comprehensive manner and, therefore, possibility of conflict of interest arising between the Centre and the State is not anticipated. The assets shall be national assets owned by BBNL/DoT. With regard to the progress made, the Committee note that Detailed Project Report of all the States have been approved by the Telecom

Commission. Mobilization of advance of Rs.877.57 crore which is 10 per cent of the Capex has been also provided to all the States. One of the special features of this Model is decentralization of decision making. All the operational decisions are to be taken by the State Level Implementation Committee (SLIC) headed by the Chief Secretary. Citing an example of Maharashtra, the Committee have been informed that the State Cabinet had approved a modality where for BharatNet no permission regarding RoW would be required.

The Committee hope that SLIC must have been formed in all the 8 States. The Committee also hope that active participation of the States in the implementation of the project will not only lead to speedier implementation but will also result in greater utilization of the infrastructure created under BharatNet. The Committee desire that they should be kept informed of all the progress made in this regard. The Committee also desire that a mechanism may be put in place where best practices adopted by one State e.g. Maharashtra in the implementation of the project shall be shared by all other states.

<u>CPSU Led Model in Phase-I&II</u>

8. The Committee note that Phase-I of the project has been allotted to 3 CPSUs *viz.* BSNL, RailTel and PGCIL. Reliance on limited agencies for network roll out had been cited as one of the reasons by the Committee appointed to review the strategy and approach on National Optical Fiber Network (NOFN) for impacting the speed and performance of the project. Under Phase-II, 10 States covering 56,105 GPs are being implemented under CPSU Led Model. The Committee note that BBNL had allocated 8 States to BSNL viz. Uttar Pradesh, Madhya Pradesh, Rajasthan, Haryana, West Bengal, Sikkim, Assam and Jammu & Kashmir for providing connectivity to 45454 GPs. BSNL have floated NIT for

41,403 GPs and work orders have been issued for 9717 GPs as on 1st May, 2018. BSNL will also connect 1407 GPs at remote locations by June, 2018 via satellite for which tender has been floated. PGCIL has been allocated 8700 GPs in the States of Himachal Pradesh and Uttarakhand for which Quadripartite MoU will be signed with the two States in which provision of sharing their infrastructure of electricity distribution lines is being made. The Department have assured the Committee that both the States have agreed for using their electricity distribution lines and the target will be achieved within the given deadline. The Committee note that RailTel has not been assigned any work in Phase-II based on its dismal performance in Phase-I.

From the above observations, the Committee note that in spite of having expertise and experience in optical fibre technology the performance of the 3 CPSUs in Phase-I has not been satisfactory. It is precisely because of this that implementation of the project only through 3 CPSUs has been cited as one of the main reasons for the delay in the execution of the project. The way the project had been implemented by the 3 CPSUs clearly indicated that they lacked competency and sufficient expertise to implement the project of this size. It simply gives an impression that the task could have been performed better by any other private agencies/global companies interested with the project. The Committee hope that performance of BSNL and PGCIL will improve under Phase-II in view of the modified strategy adopted for implementation of the project. The Committee at the same time would like to know the reasons on the basis of which BSNL and PGCIL have been selected again for implementation of Phase-II in some States. The Committee desire that stringent measures, such as 'penalty clause' for not achieving the targets should also be made with the CPSUs. The Department should administer a strict vigil over the performance of

the CPSUs on achievement of targets in subsequent Phases of the project and keep the Committee apprised of the progress made.

Performance of PowerGrid Corporation of India Limited

9. The Committee note that Power Grid's final scope of works comprise of 10,440 GPs involving 28,589 Km. route *viz.* Himachal Pradesh (252 GPs), Telangana (1942 GPs), Jharkhand (2713 GPs), Odisha (3860 GPs) and Andhra Pradesh (1673 GPs). With regard to the achievement of targets, the Committee note that PGCIL has provided end to end OFC connectivity at 7242 GPs *i.e.* 69 per cent of the target. The Committee have been informed that PGCIL will complete the Phase-I targets in Gujarat by June, 2018. The Committee hope that PGCIL must have achieved the targets in Gujarat. Under Phase-II, scope of works of PGCIL comprise of 8700 GPs, 2994 GPs in Himachal Pradesh and 5706 GPs in Uttarakhand. With regard to the status of implementation of Phase-II, the Committee note that in Uttarakhand survey of electricity poles has been awarded by PGCIL and the work is under progress. Detailed Project Report will be prepared after completion of survey. In case of Himachal Pradesh, DPR has been approved by Telecom Commission. In States where the project is being executed by PGCIL, the Committee note that it has been decided to go with aerial OFC to connect the GPs. From this, a quadripartite MoU will be signed with States of Himachal Pradesh and Uttarakhand in which provision of sharing of their infrastructure of electricity distribution lines is being made. The Committee note that draft quadripartite MoU has been prepared and sent to respective States for their comments. However, the comments from the State Governments are still awaited.

The performance of PGCIL in the implementation of Phase-I is far from satisfactory. The company has taken the plea that this was due to factors such as large developmental work in Andhra Pradesh and Telangana, delay in identification of FPOI by BSNL, Left Wing Extremism, severe RoW issues, etc. The factors cited above should have been cleared to PGCIL well before they undertook the project. Such an admission of difficulties in the midst of project implementation had given an impression that no adequate planning had been made in advance by the company for the execution of the project. The Committee are clearly aware of the fact that PGCIL is yet to complete the Phase-I targets. Even for Phase-II, numerous issues are yet to be resolved like finalization and approval of DPR for Uttarakhand, furnishing of comments by two State Governments on draft quadripartite MoU, signing of MoU with the two States for sharing of electricity distribution lines, etc. The Committee have been assured that both the States have agreed to give right of way on the overhead lines. The Committee feel that no excuses should be entertained in view of the assurance given to the Committee. In view of the assurance given, the Committee desire to know the steps taken and achievement made in the two States as also an updated status on the remaining work under phase I.

<u>Performance of RailTel</u>

10. The Committee note that under revised target of 1.25 lakh GPs, RailTel share is 10782 GPs in Gujarat, Dadar & Nagar Haveli, Daman and Diu, NE-I (Tripura, Meghalaya, Mizoram), NE-II (Arunachal Pradesh, Nagaland, Manipur) and Puducherry. The Committee have been informed that against the target of providing connectivity to 10782 GPs, OFC laying has been completed in 8203 GPs, 6459 GPs has been provided with end to end connectivity, 5493 GPs has been made service ready, service opened in 3157 GPs and work has been

completed in Puducherry. From the information provided by the Department, the Committee note that under Phase-I as on 1st May, 2018, while BSNL and PGCIL have achieved 96.56 per cent and 83.77 per cent of their targets respectively, the achievement made by RailTel during the same period is only 78.13 per cent of the targets. The Committee note that some of the reasons for delay in Gujarat are constraints in getting RoW permissions, non-feasible FPOIs by BSNL and delay in taking over of maintenance by BSNL.

The Committee note that under Phase-I, among all the CPSUs, the performance of RailTel was the poorest and in view of its poor performance, RailTel had not been allocated any work under Phase-II. The only solace for RailTel is that work in Puducherry has been completed. Since most of the issues have been resolved in Gujarat, the Committee hope that RailTel must have achieved the targets of connecting 6411 GPs by now as the targeted time was June, 2018. The Committee desire that earnest efforts must be made by RailTel to achieve all targets as per deadline and Committee be apprised of latest status.

<u>Performance of RailTel in North East</u>

11. The Committee note that the work for providing connectivity to 4273 GPs in NE-I (Tripura, Meghalaya and Mizoram) and NE-II (Arunachal Pradesh, Nagaland and Manipur) under Phase-I had been allocated to RailTel. The Committee note that some of the practical limitations of North East are massive damage to laid cables due to large scale road infrastructure work, frequent landslides, hilly terrain, less than 5 months of working season due to heavy rain, frequent blockades and bandhs, etc. Another major problem in North East is the weak OFC link between the Districts and Blocks and this needs to be

augmented and strengthened. The Committee note that as per the decision of Telecom Commission, TCIL has been entrusted to carry out the study and prepare a Project Report to address these inadequacies in the NE region so as to ensure building up reliable high speed network right up to the GPs. The project for augmentation of optical fiber between District Headquarter and Block Headquarter was also awarded to RailTel in January, 2012. However, the performance of RailTel in both the projects has been extremely poor. The Committee have now been informed that in North East, out of 4273 GPs, 1900 GPs will be connected by March, 2018 and the remaining will be connected in 12 working seasons.

It is ample clear that North East Region suffers from various practical limitations different from other regions of the country. One of the major limitations of the implementation strategy of Phase-I of the project was the allocation of NE States to RailTel where it has the least presence as compared to other States which has resulted in their dismal performance in the region . It is also a matter of concern that the Department and RailTel were grappling with implementation strategy and it was only as late as March, 2018, post Aizawl meeting that need for shifting of OPGW on SEB feasible power lines and remaining on ADSS and SEB was rightly realized. However, formal go ahead is still awaited from DoT. The Committee hope that a formal go ahead must have been given to RailTel by now. The Committee feel that there is an urgent need to change the implementation strategy so as to fast track the project in the North East. The Committee may be apprised about the specific steps taken to fast track the implementation strategy in NE, post Aizawl meeting. The Committee also recommend that TCIL should carry out the study and prepare a Project Report at the earliest to address the inadequacies in the NE Region and

periodic coordination meetings between the officials of RailTel, TCIL and BBNL should be held to address the challenges in time and if found feasible a core Committee of officials from these bodies may be constituted for the NE region.

Private Sector Participation in the Project

12. The Committee note that two States Bihar and Punjab will be implemented under Private Sector Led Model. The Committee have been informed that tender for selection of implementing agency in two States covering about 7500 GPs has been floated on 15th December, 2017 and financial bids have been opened and are under evaluation and Advance Purchase Orders are likely to be issued shortly. The Committee are given to understand that private sector is participating in a big way to implement BharatNet Phase-II on turnkey basis in all States under State Led Model except Tamilnadu, CPSUs Led Model and Private Sector Led Model. Private sector has participated in all these EPC tenders. The Committee have further been informed that delay in the project due to failure of one tender/vendor does not happen under EPC Model as survey of route, network design, procurement of materials, laying of fibre, installation of equipment and integration of all the elements are done by one turnkey contractor only.

The Committee hope that private sector participation in the project will bring efficiency and thus help in better achievement of targets and therefore, recommend that all out efforts should be made for achieving the targets in Bihar and Punjab under Private Sector Led Model. They however also sound a word of caution that there should not be any scope for laxity by the private players in timely execution of the project and suitable penalty clauses be

included in terms and conditions. The Committee may be apprised of the achievements and progress made in the implementation of the project through private sector participation.

Connectivity through Satellite

13. The Committee note that 6407 GPs in the country will be provided with satellite connectivity under Phase-II. 4938 GPs are in North Eastern Region, 885 GPs in Jammu & Kashmir and 584 GPs are in the rest of the country. 1407 GPs will be provided with broadband connectivity through satellite by June, 2018 by BSNL and the rest will be completed by December, 2018 through a bidding process. The Committee hope that BSNL must have provided satellite connectivity to all the 1407 GPs by now. The Committee note that BBNL had floated tender for 5000 GPs. Shortage of satellite bandwidth and huge operational cost charged by "Antriksh" are cited as the impediments associated with connectivity through satellite. The high operational cost is due to ISRO's monopoly and the Department have informed the Committee that with the availability of more bandwidth in 2-3 years, sufficient capacity shall be available. The Committee note that States like Jammu & Kashmir, Uttarakhand, Himachal Pradesh, North Eastern States face certain basic challenges which have impacted the timely implementation of the project. However, they required special attention of the Government and provision of a robust communication network that will ensure access to various information including programme and policies of the Government will go a long way in improving the lives of the people especially in far flung areas.

The Committee recommend that sincere efforts be made to achieve the target of providing connectivity through satellite to all the identified 6407 GPs covering above States. Considering that sufficient funds are available with USOF, the Committee are of the view that funds from USOF should be made available and huge satellite cost should not come in the way of providing connectivity in these GPs. The Committee may also be apprised of any specific issues which may come in the process of satellite connectivity.

Utilization of BharatNet by States/U.Ts

14. The Department have informed the Committee that focus is now on the utilization of the network. The Committee note that BharatNet have been successfully implemented in States/UTs like Kerala, Karnataka, Chandigarh, Puducherry, Haryana, Rajasthan, etc. However, the Committee are of the view that the status of utilization of BharatNet is still very low and more concrete efforts are still required to increase its utilization. It is disquieting to note that even if the project has been 100 per cent completed in Chandigarh, no FTTH connections has been provided. The Committee need not emphasize that BharatNet is the first pillar of Digital India in rural areas and the achievement of the objectives of Digital India requires active participation of all the stakeholders *viz.* the service providers, State Governments, end users, etc. Since the States also have been given the responsibility, utilization and implementation of last mile architecture, the Committee hope that utilization of the network by the States/UTs should increase substantially. The Committee feel that there is a need to chalk out clear cut strategy for better utilization of the network with active involvement and participation of States/UTs. The Committee desire that States/UTs should be approached so that horizontal connectivity to various GPs, institutions should also be provided at the earliest.

Utilization of BharatNet by TSPs

15. The Committee have been informed that TSPs have shown interest in utilisation of BharatNet Network and they are setting up their infrastructure at around 70,000 locations at GPs. They have committed to utilize around 63,000 locations at GPs viz. Airtel (30,500 GPs), Reliance Jio (30,000 GPs), Vodafone (2,000 GPs) and Idea (1,000 GPs) primarily for their 4G/LTE services. About 16000 locations have been shared with them where BBNL's dark fiber is available from Block to GPs in Phase-I itself. To trigger the ecosystem and promote utilization, the tariff for BharatNet connectivity has been kept way below the market price, besides field level surveys by TSPs are being facilitated with the help of BSNL. The Committee note that an amount of Rs. 9,07,98,296/- has been earned so far from the utilization of BharatNet infrastructure. An advance payment of Rs. 17,85,99,780/- has been made by TSPs viz. Reliance Jio, Airtel, Vodafone & Idea for utilization of BharatNet. The Committee have been informed that Airtel has applied for bandwidth connectivity at 295 GPs for which the annual revenue is Rs. 5,13,89,000/-. While appreciating the efforts made, the Committee are of the view that the status of utilization of BharatNet is still very low and more concrete efforts are still required to achieve full potential. The Committee recommend that necessary measures should be taken at the earliest to encourage the access providers/service providers including Internet Service Providers (ISPs), Cable TV Operators, Content Providers, etc. to launch their services in rural areas using the BharatNet.

Utilization of BharatNet by BSNL

16. The Committee note that approximately 1,15,504 users of BSNL are utilizing the services of BharatNet. BSNL is using BharatNet infrastructure for

providing 8558 FTTH connections, 1658 Wi-Fi connections and 146.83 fibre km in five States for delivering its services. The Committee have been informed that BSNL intends to utilize BharatNet by extending FTTH, Broadband, Wi-Fi Hotspots, Dark Fiber and bandwidth to customers, TSPs, ISPs, MSOs, OSPs. The Committee note that revenue earned by BSNL from FTTH connections using BharatNet is shared in 70:30 between BSNL and BBNL respectively. The Committee have also been informed that since BharatNet utilizes the existing fiber of BSNL, a revenue sharing agreement has been signed between BBNL and BSNL whereby BSNL can deliver its services like Wi-Fi Hotspots, Mobile, Broadband/FTTH, leased lines, Internet Leased Lines, etc. by using BharatNet seamlessly. BSNL has directed all SSA heads of the circles to contact their respective District Collectors/District Magistrate and apprise them about the provisioning of services over BharatNet for effective implementation of Digital India initiative. The Committee are of the view that there exists tremendous opportunity for BSNL to expand its business opportunities by participating in BharatNet project and utilizing its infrastructure. The Committee recommend that BSNL should make sincere efforts for optimum utilization of the BharatNet infrastructure. The Committee may be kept apprised of the progress made in this regard.

<u>Projected Revenue from BharatNet</u>

17. The Committee have been informed that BBNL was initially conceptualized to provide 100 Mbps bandwidth at each GP. This has been increased to 1 GP on OFC in Phase-II along with provision of dark fiber to meet the specific needs of TSPs, ISPs, MSOs, etc. To increase utilization of the network and increase revenue, BBNL have taken numerous measures, such as laying emphasis on operation and maintenance of the network to provide

quality service, tie up with BSNL for provision of service on revenue sharing basis, approaching State Governments, Central Government Departments, Department of Posts for utilization of network, encouraging State Governments to take horizontal connectivity for institutions, provision of non-discriminatory access to all service providers and setting up of Wi-Fi hotspots. As per the modified implementation strategy approved by the Cabinet, the project is expected to be revenue neutral by March, 2024 *i.e.* after 5 years of the completion of the project by March, 2019. The major revenue stream after providing connectivity to 2.50 lakh GPs are expected to be from provision of bandwidth and dark fibers. The Committee are of the view that substantial amount could be earned only when various service providers including the Government sectors actively utilize the network created. The Committee have been informed that precise calculation of expected revenue is not possible at this stage as it is a mix of demand, market rates of services and commercial model of the users. However, BBNL has envisaged that with a push to digitization and move towards e-services there will be sufficient demand from various TSPs, ISPs, MSOs, State Governments, Central Government Departments, etc.

Considering that BharatNet is being implemented at huge cost, it is expected that BharatNet should generate sufficient revenue so that it is sustainable and economically viable in the long run also. The Committee desire the Department to work out a proper business plan so that BharatNet will provide not only the infrastructure and bandwidth requirement in the rural areas, but will also generate revenue.

Reorganization of BBNL

18. The Committee note that BharatBroadband Network Limited (BBNL) is a Special Purpose Vehicle (SPV) for establishment, maintenance and operation of BharatNet as well as monitoring of implementation and operation of network with the implementing agencies. BBNL's tasks also include direct implementation in States where the work has not been provided to States and CPSUs, procurement of goods and services wherever needed, business development, coordination for RoW permission, etc. From the information provided by the Department, the Committee also note that against the total sanctioned strength of 294, the existing working strength at various level is only 127, which means that the existing working strength is just 43.19 per cent of the total sanctioned working strength. The Committee need not emphasize that existance of such a huge vacancy must have had its impact on the progress of implementation of the project. The Committee also note that reorganization of BBNL is on cards and the proposal is being worked out as per new requirement of O&M and implementation under different modes *i.e.* State Led Model, CPSU Led Model and Private Sector Led Model. The Committee also note that the role and function of BBNL has undergone changes with implementation of revised strategy such as, direct implementation in States where work has not been provided to States and CPSUs.

Keeping this in mind, the Committee feel that the existing vacancies at various levels need to be filled up at the earliest. The Committee also recommend that proposal for reorganization of BBNL which is being worked out should be completed at the earliest so that BBNL will be able to effectively carry out the mandated tasks under the revised strategy and till the time vacancies are filled , all necessary steps may be taken to place staff on

deputation from other Departments in BBNL so that the pace of work do not suffer any more for want of staff.

Right of Way Issues

19. The Committee note that Indian Telegraph Right of Way Rules, 2016 have been framed to ensure the grant of RoW permissions in case of both underground infrastructure (optical fiber) and over grounds infrastructure (mobile towers) in a simple, transparent and time bound manner. The Committee have been informed that Right of Way agreements had been concluded with all the States including Tamil Nadu which did not give RoW until very recently when they came in the State Model. The Department have stated that all States/UTs have been requested to align their RoW Policies with IT RoW Rules, 2016 and DoT guidelines thereon. So far, 7 States namely Haryana, Rajasthan, Odisha, Assam, Maharashtra, Tripura and Jharkhand have aligned their policies/orders in line of IT RoW Rules, 2016. Once the IT RoW Rules, 2016 are implemented properly, the issues related to RoW for laying cables shall be addressed adequately. So far only two Ministries have partially aligned their policies with IT RoW Rules, 2016; Ministry of Railways for BharatNet project only and Ministry of Shipping for BharatNet and Network for Spectrum (NFS) projects only. However, inspite of the above initiatives as on 1st May, 2018, 296 RoW cases are pending effecting 1241 GPs. To resolve the RoW issues, BBNL is coordinating with State and Central agencies. The Committee have also been informed that only the Railways which has streamlined the process for granting RoW permissions and no such mechanism exists in case of Forests, NHAI and Oil and Gas Agencies.

Considering that progress of implementation of the project has been impeded due to lack of coordination among the implementing agencies, the Committee are of the view that there should be a single window clearance system. It is only when such mechanism is put in place that smooth implementation of the project can be assured. The Committee also recommend that the Department/BBNL should continue to pursue the matter with other State Goverments/Ministries/Departments so that they will also streamline the process of granting RoW permissions as done by Railway. At the same time, BBNL should strive to resolve the pending 296 RoW issues with the State and Central agencies so that work can be completed at 1241 GPs.

National Common Duct Policy

20. A common duct for laying of cables by different agencies was pointed out by this Committee so as to avoid frequent cut and damage to cables and also to provide ease and reduce the reinstatement cost. The Committee have been informed that the duct system is increasingly being used by some States like Andhra Pradesh and Telangana. The Department have now informed the Committee that a Committee of Secretaries under the Chairmanship of Secretary (Telecom) has been constituted to draft common duct policy for all utilities and uniform policy for RoW permission. So far, two sittings have taken place on 23.02.2018 and 05.04.2018. Draft of the policy is under preparation.

The Committee are of the view that common duct policy for laying of cables by different agencies should be framed at the earliest. This will not only help in avoiding frequent cut and damage to cables due to frequent digging but will also help in overcoming long RoW issues and thus lead to speedier laying of

the cable. The Committee are of the view that this will involve cooperation and coordination with various Ministries, agencies as it requires common planning and implementation. The Committee, therefore, desire that draft common duct policy which is under preparation should be finalized at the earliest and some pilot projects in this regard may be started at the earliest to gauge the impact of this policy and the Committee apprise accordingly.

BharatNet Phase-III

21. The Committee have been informed that Phase-III of the project would be in the nature of upgrading the network to meet the future requirements. A provision is being made for laying of underground OFC in ring architecture which could provide backhaul as well as network suitable for 5G services, interest of things, etc. The Committee also have been informed that to connect GPs in Ring topology the total length of 17,11,000 kms of OFC would have to be laid and the total investment to implement the project according to the features proposed by the NOFN Committee would be around Rs.72,778 crore. This Committee are of the view that one of the basic challenges of the present architecture is that the existing design is based on linear topology from Block to GP which may not be able to provide the reliability acceptable to service providers and users of bandwidth. To address this issue NOFN Committee have suggested that fresh OFC should be laid in ring topology between District Headquarters and Block Headquarters. However, the Committee are dismayed to note that Phase-III is not covered in the Cabinet note approved on 19.07.2017 and it will be taken up at a later stage. The Committee are of the view that the Phase-III of the project is much bigger in size and volume when compared with Phase-I and II. When the Department are implementing the project of this size, there should be advance planning and implementation

strategy. The Committee recommend that all necessary work, such as survey, planning, design of the network, implementation strategy should be worked out well in advance and necessary steps should be taken by the Department for getting approval of the competent authority at the earliest.

New Delhi;
03 August, 2018
12 Shravana,1940 (Saka)

Shri Anurag Singh Thakur
Chairperson
Standing Committee on
Information Technology

Annexure-I

State/UT-wise Status of BharatNet (as on 11.03.2018)

Sr. No	State/UT	Total Number of GPs in the State/UT	No. of GPs covered in Phase-I (Revised work front)	Cable laid (km)	GPs for which Cable laid	Service Ready GPs
1	Andaman & Nicobar	69	69	0	0	0
2	Andhra Pradesh	12927	1673	1259	396	0
3	Arunachal Pradesh	1848	675	1278	470	14
4	Assam	2485	1533	4315	1450	1464
5	Bihar	8422	5754	14094	5396	4962
6	Chandigarh	12	12	19	12	13
7	Chhattisgarh	10038	4104	12528	4035	3559
8	Dadra & Nagar Haveli	20	20	22	11	0
9	Daman & Diu	15	15	20	14	0
10	Gujarat	13821	6376	12848	5557	4565
11	Haryana	6090	6020	11217	6009	5803
12	Himachal Pradesh	3246	252	635	215	162
13	Jammu & Kashmir	4076	388	509	260	169
14	Jharkhand	4328	2713	5745	2119	1504
15	Karnataka	6085	6092	13152	6071	6071
16	Kerala	987	977	830	1129	1129
17	Lakshadweep	10	10	0	0	0
18	Madhya Pradesh	22946	12655	37583	12231	11102
19	Maharashtra	28014	15301	31543	13903	13437
20	Manipur	2730	649	549	295	123
21	Meghalaya	3174	948	588	245	122
22	Mizoram	763	262	582	95	18
23	Nagaland	994	874	1877	597	61
24	Odisha	6229	3860	9618	3407	2402
25	Puducherry	98	98	92	98	101
26	Punjab	12654	8049	11587	7539	6761
27	Rajasthan	9875	8194	23524	8154	8150
28	Sikkim	203	52	82	12	4
29	Tamil Nadu	11562	0	0	0	0
30	Telangana	8898	1942	4489	2036	2042
31	Tripura	1021	865	1681	816	489
32	Uttar Pradesh	51581	27974	56336	27285	26940
33	Uttarakhand	7569	1863	3123	1522	1361
34	West Bengal	3350	2637	5669	2088	2020
Total		**246140**	**122906**	**267394**	**113467**	**104548**

Status of BharatNet Phase- II

Implementation Model	States	No. of GPs	Status
State Led	8 States – Maharashtra, Gujarat, Chhattisgarh, Jharkhand, Odisha, AP, Telangana and Tamilnadu	61523	• RFP floated by 7 States • Tamilnadu to float RFP by 31st March, 2018
BSNL	8 States – UP, MP, Rajasthan, Haryana, West Bengal, Sikkim, Assam, J&K	45454	• RFP floated for 39779 GPs • Tender Approved for 5640 GPs
PGCIL	2 States – HP and Uttarakhand	8700	Tendering process initiated
BBNL Tender	2 States – Punjab and Bihar	7522	Tender to be opened on 26th March, 2018
Satellite Connectivity	NER – 4938, J&K-885, Rest of the country-584	6407	• BSNL to provide connectivity in 1407 GPs in six months • BBNL floated tender for 5000 GPs
Total		**129606**	

Appendix-I

MINUTES OF THE FIRST SITTING OF THE SUB-COMMITTEE-II ON THE DEPARTMENT OF TELECOMMUNICATIONS OF THE STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2015-16) HELD ON 15TH DECEMBER, 2015

The Sub-Committee-II on the Department of Telecommunications sat on Tuesday, the 15th December, 2015, from 1500 hours to 1600 hours in Committee Room No. '139', First Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri Keshav Prasad Maurya – Convenor

MEMBERS

Lok Sabha

2. Dr. Sunil Baliram Gaikwad
3. Dr. K.C. Patel
4. Dr. (Smt.) Bhartiben Dhirubhai Shiyal

Secretariat

1.	Shri J.M. Baisakh	-	Director
2.	Dr. Sagarika Dash	-	Deputy Secretary
3.	Shri Shangreiso Zimik	-	Under Secretary

List of Witnesses

Ministry of Communications and Information Technology (Department of Telecommunications)

Sl. No.	Name	Designation
1.	Shri N. Sivasailam	Additional Secretary (T)
2.	Shri Shashi Ranjan Kumar	Joint Secretary (A)
3.	Shri Ashwani Salwan	DDG (BB) USOF
4.	Shri P.K. Agarwal	Director (Planning), BBNL

2. At the outset, the Convenor welcomed the Members and the representatives of Department of Telecommunications to the sitting of the Sub-Committee-II convened to have briefing on the subject, 'Progress of implementation of National Optical Fiber Network (NOFN)'. The Convenor, then, informed the Committee that he had acceded to a request of the Department to allow the Additional Secretary (T) to appear before the Sub-Committee as the Secretary was unable to attend the sitting of the Sub-Committee-II due to unavoidable official assignment.

3. The representatives of Department of Telecommunications then briefed the Committee on the subject through a power-point presentation highlighting the current architecture of NOFN, challenges and issues involved, comparison of NOFN architecture with broader architecture of BharatNet, targets set under NOFN/BharatNet, progress of implementation of NOFN during 2014-15 and 2015-16 (upto December, 2015), targets and achievements made under Phase-I, State-wise performance of BSNL, PGCIL and RailTel, status of finalization of tenders and work orders issued, RoW permission in Mizoram, increase in requirement of funds under BharatNet, current status of utilization of NOFN, monitoring of NOFN project, etc. The Department also informed the Sub-Committee about the follow-up action taken on the points raised about NOFN Project by the Study Group of the Committee during their visit to Guwahati, Shillong and

Kolkata in November, 2015. The Members, then, sought clarifications on the subject to which the representatives of the Department responded. With regard to certain points, to which the representatives could not provide the requisite information, the Convenor directed them to submit written replies.

4. The Convenor, then, thanked the representatives of the Department for deposing before the Sub-Committee.

The witnesses then withdrew

Verbatim proceedings of the sitting have been kept on record.

The Committee, then, adjourned.

Appendix-II

MINUTES OF THE ELEVENTH SITTING OF THE STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2015-16) HELD ON 27TH JULY, 2016

The Committee sat on Wednesday, the 27th July, 2016 from 1500 hours to 1650 hours in Committee Room 'D', Ground Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri Anurag Singh Thakur - Chairperson

MEMBERS

Lok Sabha

2. Shri L.K. Advani
3. Dr. Sunil Baliram Gaikwad
4. Dr. Anupam Hazra
5. Shri Virender Kashyap
6. Shri Harinder Singh Khalsa
7. Shri Keshav Prasad Maurya
8. Dr. K.C. Patel
9. Shri Raosaheb Danve Patil
10. Dr. (Smt.) Bhartiben Dhirubhai Shiyal
11. Shri Abhishek Singh
12. Shri. D.K.Suresh
13. Smt. R. Vanaroja

Rajya Sabha

14. Smt. Jaya Bachchan
15. Shri Suresh Gopi

SECRETARIAT

1. Shri R.S Kambo - Additional Secretary
2. Shri Y.M. Kandpal - Director
3. Dr. Sagarika Dash - Deputy Secretary
4. Shri Shangreiso Zimik - Under Secretary

List of Witnesses

Ministry of Communications and Information Technology (Department of Telecommunications)

Sl. No.	Name	Designation
1.	Shri J.S. Deepak	Secretary, Telecom
2.	Ms. Annie Moraes	Member (F), DoT
3.	Shri Narendra K. Yadav	Member (S), DoT
4.	Shri Sanjay Singh	Adminstrator (USOF)
5.	Shri Shashi Ranjan Kumar	Joint Secretary (T)
6.	Shri Mahmood Ahmed	Jt. Administrator (F) USOF
7.	Shri Ashwani Salwan	DDG(BB) USOF
8.	Shri Anupam Srivastava	CMD, BSNL
9.	Shri R.K. Bahuguna	CMD, Railtel
10.	Shri Vineet Kumar	Chief Manager, PGCIL
11.	Smt. Deepika Khosla	CGM (Plg.), BBNL

2. At the outset, the Chairperson welcomed the Members and the representatives of the Ministry of Communications and Information Technology (Department of Telecommunications) to the sitting of the Committee. The representatives of Department of Telecommunications then made a power-point presentation to brief the Committee on the subject 'Progress of implementation of National Optical Fiber Network (NOFN)'. The presentation, *inter-alia,* highlighted the broad features of BharatNet previously known as NOFN, details of Phase-I implementation strategy approved by Telecom Commission, current status of achievements and utilization of funds under Phase-I, recommendations made by the NOFN Committee, etc.

3. The representatives of DoT also informed the Committee regarding issues relating to execution of the project, decisions taken by Telecom Commission for implementation of the project, strategies adopted for Phase-I, II and III, steps taken to address issues relating to procurement of equipment, speeding up of work, strengthening of monitoring framework and planning of work, laying of aerial OFC, way forward for connecting 1,50,000 GPs in Phase-II, timelines for completion of project, etc.

4. The Members then sought clarifications on issues to which the representatives of DoT responded. The Chairperson requested DoT to furnish written replies to the points which remained unanswered and also officials of BBNL, BSNL, PGCIL and Railtel to furnish in writing the problems and challenges faced by them in implementing the project.

5. The Chairperson, then, thanked the representatives of DoT for briefing the Committee.

The witnesses then withdrew.

The Committee, then, adjourned.

Verbatim Proceedings of the sitting has been kept on record.

*****

Appendix-III

MINUTES OF THE TWELFTH SITTING OF THE STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2017-18) HELD ON 5TH MARCH, 2018

The Committee sat on Monday, the 5th March, 2018 from 1500 hours to 1615 hours in Committee Room 'B', Ground Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri Anurag Singh Thakur - Chairperson

MEMBERS

Lok Sabha

2. Shri Harish Dwivedi
3. Dr. Sunil Baliram Gaikwad
4. Dr. J. Jayavardhan
5. Shri Virender Kashyap
6. Shri Harinder Singh Khalsa
7. Dr. K. C. Patel
8. Dr. (Smt.) Bhartiben Dhiruvbhai Shyal
9. Shri D. K. Suresh

Rajya Sabha

10. Shri Santiuse Kujur
11. Dr. Vinay P. Sahasrabuddhe

SECRETARIAT

1.	Shri R. C. Tiwari	-	Joint Secretary
2.	Shri Y.M. Kandpal	-	Director
3.	Shri Shangreiso Zimik	-	Under Secretary

LIST OF WITNESSES
DEPARTMENT OF TELECOMMUNICATIONS

Sl. No.	Name of the Officer	Designation
1.	Smt. Aruna Sundararajan	Secretary (T), DoT
2.	Shri N. Sivasailam	Special Secretary (Telecom), DoT
3.	Shri Sanjay Singh	Administrator, USOF & CMD, BBNL
4.	Shri Amit Yadav	Joint Secretary (T)
5.	Shri N. K. Joshi	Joint Administrator (T), USOF and Director (HR), BBNL
6.	Shri Mahmood Ahmad	Joint Administrator (Fin.), USOF
7.	Shri Anupam Shrivastava	CMD, BSNL
8.	Shri A. K. Saxena	Director (Plg.), BBNL
9.	Shri Manoj Anand	Director (Fin.), BBNL
10.	Shri Sandeep Bhardwaj	Director (UBB), DoT

2. After the welcome address by the Chairperson, the representatives of the Department of Telecommunications made a power-point presentation highlighting the objective, implementation approach under Phase-I and Phase-II, State-wise progress of work under Phase-I, BharatNet Phase-II in partnership with States, funding to the States, progress of implementation of Phase-II, strategy to connect North- East Region, Last Mile Connectivity and setting up of Wi-Fi Hotspots, utilization of BharatNet infrastructure, utilization of funds under BharatNet, etc.

3. Members, then, sought clarifications on various issues viz. reasons for slow progress of work in States like Jammu & Kashmir, Himachal Pradesh, Uttarakhand and North-Eastern States, RoW issues and having a common National Duct Policy, providing connectivity through satellite, review of progress, State participation in the project, etc.

4. The Chairperson, then, thanked the representatives of the Department of Telecommunications for deposing before the Committee. The Chairperson requested them to furnish written replies to the points which remained unanswered.

The witnesses then withdrew.

Verbatim Proceedings of the sitting have been kept on record.

The Committee, then, adjourned.

Appendix-IV

MINUTES OF THE FOURTEENTH SITTING OF THE STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2017-18) HELD ON 22nd MARCH, 2018

The Committee sat on Thursday, the 22nd March, 2018 from 0930 hours to 1030 hours in Committee Room 'D', Ground Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri Anurag Singh Thakur - Chairperson

MEMBERS

Lok Sabha

2. Shri Lal Krishan Advani
3. Dr. Sunil Baliram Gaikwad
4. Shri Virender Kashyap
5. Dr. K. C. Patel
6. Shri Raosaheb Danve Patil
7. Dr. (Smt.) Bhartiben Dhiruvbhai Shyal

Rajya Sabha

8. Shri Suresh Gopi
9. Smt. Kahkashan Perween
10. Dr. Vinay P. Sahasrabuddhe

SECRETARIAT

1.	Shri R. C. Tiwari	-	Joint Secretary
2.	Dr. Sagarika Dash	-	Additional Director
3.	Shri Shangreiso Zimik	-	Under Secretary

LIST OF WITNESSES

DoT/BBNL/BSNL/PGCIL/RailTel

Sl. No.	Name	Designation
1.	Shri N. Sivasailam	Special Secretary (Telecom), DoT
2.	Shri Sanjay Singh,	Administrator, USOF & CMD, BBNL
3.	Shri Amit Yadav	Joint Secretary (T)
4.	Shri N. K. Joshi	Joint Administrator (T), USOF and Director (HR), BBNL
5.	Shri Mahmood Ahmad	Joint Administrator (Fin.), USOF
6.	Shri Anupam Shrivastava	CMD, BSNL
7.	Shri I.S. Jha	CMD, PGCIL
8.	Shri Ashutosh Vasant	CMD, RailTel

2. After the welcome address by the Chairperson, the representatives of the PowerGrid Corporation of India Limited (PGCIL) made a power-point presentation highlighting the areas of operation of PGCIL, revenue income of the Company from telecom business, total number of Gram Panchayats assigned and achievements made, work and responsibilities of PGCIL, Statewise status, major constraints faced by the Company under phase-I. The presentation also highlighted the scope and present status of implementation of BharatNet by the Company under Phase-II.

3. Thereafter, the representatives of RailTel Corporation of India Ltd. made a power-point presentation before the Committee highlighting the targets and responsibilities of RailTel, summary of progress of work, status of work in Gujarat and Union Territories including constraints, status of implementation in North-East and constraints, State-wise status of implementation and targets set, etc.

4. The representatives of BSNL also informed the Committee that 90 per cent of the work has been completed by BSNL under Phase-I. The Committee were also informed that there were many problems initially but with the decentralization of procurement, the progress has now become faster and the problems relating to coordination has been removed.

5. Members, then, sought clarifications on various issues viz. results of intervention from PMO, status of progress in hilly States like Himachal Pradesh, Uttarakhand, Sikkim and North-Eastern States, financing of the project other than USOF for the project, role of the State and status of private sector participation in the project, issues relating to RoW, status of providing connectivity to service ready GPs, issues raised by the State, non –feasibility of FPOIs, etc.

6. The Chairperson, then, thanked the representatives of the Department of Telecommunications/BBNL/BSNL/PGCIL/RailTel for deposing before the Committee. The Chairperson requested them to furnish written replies to the points which remained unanswered.

The witnesses then withdrew.

Verbatim Proceedings of the sitting have been kept on record.

The Committee, then, adjourned.

Appendix-V

STANDING COMMITTEE ON INFORMATION TECHNOLOGY (2017-18)

MINUTES OF THE TWENTIETH SITTING OF THE COMMITTEE

The Committee sat on Friday, 3 August, 2018 from 1600 hours to 1620 hours in Committee Room 'B', Ground Floor, Parliament House Annexe, New Delhi.

PRESENT

Shri Anurag Singh Thakur– Chairperson

MEMBERS

Lok Sabha

2. Shri Lal Krishna Advani
3. Shri Prasun Banerjee
4. Dr. Sunil Baliram Gaikwad
5. Dr. Anupam Hazra
6. Dr. J. Jayawardhan
7. Shri P. Karunakaran
8. Shri Virender Kashyap
9. Dr. Bharatiben D. Shyal

Rajya Sabha

10. Shri K.G. Kenye
11. Smt. Kahkashan Perween
12. Dr. K.V.P. Ramachandra Rao
13. Dr. Vinay P. Sahasrabuddhe

Secretariat

1.	Shri R.C. Tiwari	-	Joint Secretary
2.	Shri Y.M. Kandpal	-	Director
3.	Dr. Sagarika Dash	-	Additional Director
4.	Smt. Geeta Parmar	-	Deputy Secretary
5.	Shri Shangreiso Zimik	-	Under Secretary

2. At the outset, the Chairperson welcomed the Members to the sitting of the Committee convened to consider and adopt……xxxxx……and one original Report on 'Progress of Implementation of BharatNet' relating to the Department of Telecommunications.

3. The Committee, then, took up for consideration the following draft Reports and adopted the same without any modification.

(i) Fiftieth report on 'Progress of Implementation of BharatNet'

(ii) ……xxxxx……xxxxx……xxxxx……xxxxx……; and

(iii) ……xxxxx……xxxxx……xxxxx……xxxxx……;

4. The Committee, then, authorized the Chairperson to finalize the draft Report at ……xxxxx……in the light of the factual verifications received from Department of Telecommunications and present all the Reports in both the Houses of Parliament.

The Committee, then, adjourned.

*****

……xxxxx……Matters not related to Report