

Bridging Digital Divide: A Study of Universal Service Obligation Fund in Meghalaya

A Dissertation submitted to the Indian Institute of Public Administration, New Delhi for
the award of Master's Diploma in Public Administration, in partial fulfilment of the
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(APPPA)

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NEW DELHI**

CERTIFICATE

I am pleased to certify that **Shri Rameshwar Dhariwal** worked under my guidance and supervision to complete his research and prepared the current dissertation titled “**Bridging Digital Divide: A Study of Universal Service Obligation Fund in Meghalaya** ". The dissertation is the outcome of his own research, and no part of it has appeared in any other monograph, dissertation, or book to my knowledge. This is being submitted to Indian Institute of Public Administration (IIPA), New Delhi for the aim of obtaining a Master’s Diploma in Public Administration in partial fulfilment of the requirements for the Advanced Professional Programme in Public Administration (APPPA).

I recommend that the dissertation of **Shri Rameshwar Dhariwal** is worthy of consideration for the award of Master’s Diploma in Public Administration of the Indian Institute of Public Administration, New Delhi.

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ABSTRACT

The term ‘digital divide’, introduced in the mid-1990s is defined as the gap separating those who have access to new forms of information technology from those who do not. It remains an important public policy debate that encompasses social, economic and political issues. In today's world, communication services such as voice, video, data, internet, and multimedia are essential and played a critical role in bridging the rural-urban divide in India's vast geography, and emerged as a crucial enabler of the country's economic and social progress. However, some remote places in India, including isolated villages, still remained without telecommunication services. The study of data on telephone subscribers, teledensity, internet subscribers and broadband subscribers in India established the fact that digital divide between rural and urban areas still exists.

The study focuses on India's digital divide and attempted to investigate the problem of digital divide in Meghalaya. It concentrated on the government's involvement especially Universal Service Obligation Fund (USOF) policies in bridging the digital gap.

In the 1970s, India made public phone availability a policy goal. Universal service was initially embodied in New Telecom Policy in India in 1994. It was defined in the policy paper as the provision to all residents of certain ‘basic telecom services at affordable and appropriate costs’. In NTP 1999, the government brought the next version of telecom policies which stipulate raising of resources to meet the universal service obligation through levy.

In 2013, ITU carried out study titled ‘Universal service funds and digital inclusion for all’ which gave a detailed overview and comparative analysis of sixty-nine Universal

Service Funds in world and highlighted the principal factors that contribute to the successful performance of a number of these USFs. As per findings, funds appear to have been established without conducting substantive analysis of the actual service funding/subsidy levels needed, and as a result, many funds appear to receive contributions far in excess of the actual universal service funding needs or capabilities. Further it reveals that the project allocation process is the main area where fund performance can be severely impacted.

The Indian parliament passed the Indian Telegraph (Amendment) Act, 2003, and gave the statutory status to USOF to provide financial support for telecom services in commercially unviable rural and remote areas of the country. The fund was established with the primary goal of enabling people in rural and isolated locations with inexpensive and appropriate access to basic telegraph services. Since then, the scope of the USOF has been steadily expanded to include subsidy support for all types of telecom services, including mobile services, broadband connectivity, and the creation of infrastructure such as Optical Fibre Cable (OFC) connectivity in rural and remote areas, including submarine OFC connectivity for islands. The USO funds are generated through a five percent levy on Adjusted Gross Revenue levied on all telecom service providers.

The study of annual report of TRAI for the year 2020-2021, established that digital divide exists between urban and rural areas of India. Therefore USOF can play a vital role in bridging this digital divide by utilizing available funds for development of telecom services in rural and remote areas of India. Further there is also a need to develop a realistic use of USOF funds, notably in Meghalaya which have both features in terms of rural and distant parts of India and are extremely important for development of North Eastern Region (NER).

This research looked into the role of the USOF in bridging the digital divide gap, with a particular focus on Meghalaya. USOF implemented programs that assisted the government in implementing different social sector reforms and improving service delivery to citizens throughout India. However the USOF's potential to bridging the digital divide gap has not been completely exploited. There is no academic literature on the role of the USOF in bridging the digital divide. As a result, exploratory research in developing countries like India is needed to examine the role of the USOF in bridging the digital divide, particularly in Meghalaya.

The ongoing activities of the USOF includes implementation of BharatNet project, Comprehensive telecom development plan for Islands, Provision of mobile services in all uncovered villages including North Eastern Region, Aspirational Districts, Left Wing Extremism affected areas and remaining parts of India.

As per telecom regulator's recommendations in 2014, DoT adopted, a comprehensive telecom development plan for NER. The plan included provision of mobile services in all north eastern states. The non-availability of infrastructure for mobile services was a major impediment to people of NER for receiving high-speed broadband and voice services and has resulted in huge digital divide in this region.

The goal of this research was to look into the role of the USOF in bridging India's digital divide in Meghalaya. The regulators' recommendations for improving the telecom network in NER including Meghalaya was also studied along with impediments in improving the telecom network in this region and ways to improve the role of the USOF in bridging the digital divide in India. Hence two distinct survey questionnaires were created, one for respondents of Meghalaya and the other for USOF officers who are dealing with implementation of USOF schemes in Meghalaya.

First set of survey tool was prepared to understand the ‘Role of USOF in bridging digital divide in Meghalaya. In order to improve Meghalaya’s telecom connectivity, in 2020, USOF funded and approved the 4G Mobile Services Project in rural and remote villages. 321 mobile towers have been installed in uncovered villages across all twelve districts of Meghalaya so far, catering 8345 Erlang Bouncing Busy Hour (BBH) voice traffic and 35310 GB consumption data by about one lakh mobile subscribers during the month of December, 2022. In today’s world, internet services through broadband connectivity are essential for various purposes to citizens. The questions were simple statements on whether the mobile project helped Meghalaya improve its broadband connectivity. The second survey, which focused on the issues and challenges of USOF schemes implementation, was distributed via email to senior USOF officials in charge of policy, planning, and implementation of USOF activities in Meghalaya. Simple statements were requested about USOF activities in Meghalaya and whether they are assisting in bridging the digital divide.

ABBREVIATIONS

Abbreviation	Definition
IIPA	Indian Institute of Public Administration
USOF	Universal Service Obligation Fund
ICT	Information and Communication Technologies
DoT	Department of Telecommunications
GoI	Government of India
OECD	Organisation for Economic Co-operation and Development
NTP	New Telecom Policy
USO	Universal Service Obligation
UAL	Universal Access Levy
TRAI	Telecom Regulatory Authority of India
USS	Universal Service Support
USL	Universal Service Levy
AGR	Adjusted Gross Revenue
CFI	Consolidated Fund of India
TSP	Telecom Service Providers
USP	Universal Service Providers
ITU	International Telecommunication Union
APT	Asia-Pacific Telecommunity
OFC	Optical Fibre Cable
ANI	Andaman and Nicobar Islands
CANI	Chennai Andaman and Nicobar Islands
VSNL	Videsh Sanchar Nigam Limited
MTNL	Mahanagar Telephone Nigam Limited
VSAT	Very Small Aperture Terminal
TDSAT	Telecommunications Dispute Settlement and Appellate Tribunal
NDCP	National Digital Communications Policy
FDI	Foreign Direct Investment
GSMA	Global System for Mobile Communications Association
GPs	Gram Panchayats
DBT	Direct Benefit Transfer
COAI	Cellular Operators Association of India
GNP	Gross National Income
NDGs	National Development Goals
MDGs	Millennium Development Goals
WSIS	World Summit on the Information Society
ICT4D	Information and Communication Technologies for Mass Development

USA	United States of America
AT&T	American Telephone and Telegraph Corporation
BBNL	Bharat Broadband Network Limited
BSNL	Bharat Sanchar Nigam Limited
USF	Universal Service Funds
ISP	Internet Service Providers
FTTH	Fibre to the Home
ITI	Indian Telephone Industries Limited
Gbps	Giga bytes per second
VPT	Village Panchayat Telephone
DHQ	District Headquarters
BHQ	Block Headquarters
RCP	Rural Community Phones
DEL	Direct Exchange Lines
SDCA	Short Distance Charging Areas
NOFN	National Optical Fibre Network
CPSU	Central Public Sector Undertakings
RailTel	RailTel Corporation Limited
PGCIL	Power Grid Corporation of India Limited
SPV	Special Purpose Vehicle
Wi-Fi	Wireless Fidelity
PPP	Public-Private Partnership
VGf	Viability Gap Funding
DEA	Department of Economic Affairs
RFP	Request for Proposal
CTDP	Comprehensive Telecom Development Plan
NER	North-Eastern Region
BSCCL	Bangladesh Submarine Cable Company Limited
KLI	Kochi Lakshadweep Islands
EIA/CRZ	Environmental Impact Assessment/Coastal Regulation Zone
IMA	Independent Monitoring Agency
NSIL	NewSpace India Limited
DSPT	Digital Satellite Phone Terminals
LAHDC	Ladakh Autonomous Hill Development Council
LWE	Left Wing Extremism
AP	Access Point
ROW	Right of Way
ISRO	Indian Space Research Organization
LSA	Licensed Service Area
PRI	Performance Indicator Report

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1. Introduction

1.1 Background

In the sphere of science and technology, India has made significant progress. Through information dissemination, Information and Communication Technologies (ICT) have made important contribution in the development of Indian society. Technology today is what industrial machines were to the industrial revolution. In today's world, they are engines of growth, power, and wealth, and critical for economic and social development. However, the benefits of ICT have not yet reached the lowest poor of the society, all demographic groups, or all genders equally.

1.2 Digital divide

The term "Digital Divide" refers to the disparity between individuals, households, businesses, and geographic areas of various socioeconomic levels in terms of both their access to ICT and their use of the internet for a number of purposes (OECD, 2002). It is divided into three categories: global, regional, and national. There is no single divide at the national level, but several divides: for example, within countries, there are differences between men and women, young and old, rich and poor, and, most crucially, rural and urban (Singh, 2010). The digital divide is the separation that exists between people who have access to new types of information technology and those who do not (Srinuan and Bohlin, 2011). Various organizations, notably the Department of Telecommunications (DoT), Government of India (GoI) have launched several projects to bridge the digital divide in India.

1.3 New telecom policy

The main goals of the DoT's New Telecom Policy (NTP'99) were to strike a balance between providing universal service to all uncovered areas, including rural areas, and providing high-level services capable of meeting the country's economic needs, as well as encouraging the development of telecommunication facilities in remote, hilly, and tribal areas of the country. The NTP'99 stipulated that the funds needed to meet the Universal Service Obligation (USO) would be raised through a Universal Access Levy (UAL), which would be calculated as a percentage of revenue earned by telecom licensees and determined in consultation with the Telecom Regulatory Authority of India (TRAI).

1.4 Universal Service Obligation Fund

1.4.1 Policy

The policy of Universal Service Support (USS) went into effect on April 1, 2002. On March 27, 2002, the DoT announced recommendations for USS policy. In December 2003, both houses of parliament passed the Indian Telegraph (Amendment) Act, 2003, which gave the statutory status to Universal Service Obligation Fund (USOF).

1.4.2 Rules

On March 26, 2004, the Indian Telegraph (Amendment) Rules, 2004 were notified as the rules for the fund's administration (Appendix A). The fund is to be used exclusively for meeting the USO, according to the Indian Telegraph Act 1885 [as revised in 2006 (Appendix B) and thereafter].

1.4.3 Levy

USO funds are now generated through a 5 percent Universal Service Levy (USL) levied on all telecom providers' Adjusted Gross Revenue (AGR). This levy is

deposited in the Consolidated Fund of India (CFI) and dispatch out after the Indian Parliament approves it. The fund does not lapse due to under-use on a yearly basis.

1.4.4 Objectives and functions.

In this context, USO can be characterised as delivering telecommunication services to all consumers in India at a lowest price, with a mandated minimum service of specified quality. A comprehensive examination of the fund's official website reveals its goals and functions, which are outlined below.

1.4.5 Objectives and functions

1.4.5.1 The objectives of USOF are as follows.

- i. Economic: Network extension and stimulate uptake of the ICT services.
- ii. Social: Mainstreaming the underserved and un-served areas/groups by bridging the access gap.
- iii. Political: To enable citizens exercise their political rights in an informed way and
- iv. Constitutional: Equitable distribution of the fruits of the telecom/digital revolution and fair allocation of national resource (pooled USO levy) via targeted subsidies.

1.4.5.2 The functions of USOF are as follows.

- i. Implementation of the guidelines laid down by government for providing USS.
- ii. Suggesting such changes in policy as may be deemed necessary for implementation of USS.
- iii. Formulating USOF projects/schemes under the various streams provided in the Indian Telegraph Rules, 1951, in consultation with Telecom Service Providers (TSPs) and various stakeholders.

- iv. Designing a rational subsidy support model underlying the scheme/project, for reducing/closing the viability gap in provisioning of telecommunication service.
- v. Determining desirable subsidy level, structure and disbursement schedule after undertaking a suitable costing and modeling/benchmarking exercise and competitive tendering process.
- vi. Designing the bidding process and carry out the tendering.
- vii. Entering into aptly drafted agreements with the Universal Service Providers (USPs) with incentives and disincentives to ensure the achievement of the deliverables.
- viii. Monitoring the implementation of USOF projects/schemes and to disburse subsidy in accordance with the terms and conditions of the respective USOF agreement.
- ix. Accurate and timely settlement of all claims of subsidy/financial support in respect of USOF schemes.
- x. Designing the format of various records and return to be maintained by the USPs.
- xi. Carrying out post-implementation review of USOF projects/schemes.
- xii. Budgeting and audit of USOF activities.
- xiii. Interfacing with international organizations such as International Telecommunication Union (ITU), Asia-Pacific Telecommunity (APT) and USOF of other nations.
- xiv. Forecasting the requirement of USOF for each financial year and obtaining approval of government through DoT.

- xv. Ensuring that the prescribed UAL is credited to the appropriate USOF on a regular basis.

Thus, USOF was founded with the primary goal of providing individuals in rural and distant locations with affordable and reasonable access to "basic" (wireline) telecom services. Since inception, the scope of the USOF has been steadily expanded to include subsidy support for all types of telecom services, including mobile services, broadband connectivity, and the creation of infrastructure such as Optical Fibre Cable (OFC) connectivity in rural and remote areas, including submarine OFC connectivity for islands. The "eligible operators," i.e. entities with a valid licence, registration, or authorization from the GoI / DoT for providing telecom services or infrastructure, or any other entities as specified by the central government from time to time, carry out the USO related activities.

1.5 Meghalaya

Meghalaya is one of the seven sister states of North Eastern region and has both features in terms of rural and distant parts of India. Due to its difficult terrains and geographical reach, implementation of telecom projects is very tough and therefore, there is a substantial digital divide in Meghalaya.

As per TRAI report, on November 30, 2022, Meghalaya's urban teledensity(149.21%) is more than India's urban teledensity (134.5%) but rural teledensity (55.84%) is lower than India's rural teledensity (57.67%).

As the major problem of telecom connectivity was observed in rural areas of Meghalaya and therefore, BharatNet and 4G Mobile services projects were launched in rural areas where 80% of the population resides in Meghalaya so the author chose Meghalaya as area of study to examine the digital divide and the efficacy of schemes implemented through USOF in bridging the digital divide.

North eastern region including Meghalaya is extremely important to India's overall national development. In 2014, DoT adopted TRAI recommendation on Comprehensive Telecom Development Plan (CTDP) for NER states. The non-availability of telecom connectivity in NER states was a major impediment to people of this region for receiving high-speed broadband and voice services and has resulted in huge digital divide in NER states including Meghalaya.

USOF is implementing BharatNet project across the country including North Eastern Region to connect all Gram Panchayats (GPs) through optical fiber for high speed broadband connectivity. Under CTDP, provision of 4G Mobile services in 1164 identified uncovered villages and along the National Highways in Meghalaya is under implementation. For making available high quality and high speed internet access to Meghalaya and other North Eastern States of the country, BSNL has commissioned 20 Gbps International Bandwidth for Internet Connectivity at Agartala through Cox's Bazar, Bangladesh on 21st April, 2022 which will also help in reduction of latency and congestion in Internet Traffic.

1.6 Telecom regulatory framework in India

The erstwhile Department of Posts and Telegraphs was split into two separate departments on December 31, 1984, with the Department of Telecommunications (DoT) and the Department of Posts (DoP). The DoT's Overseas Communications Service was renamed Videsh Sanchar Nigam Limited (VSNL) in 1986. At the same time, the DoT's two operational units, Delhi Telephones and Mumbai Telephones, were turned into Mahanagar Telephone Nigam Limited (MTNL). Following that, Indian telecom market was liberalised, and private sector participation was allowed.

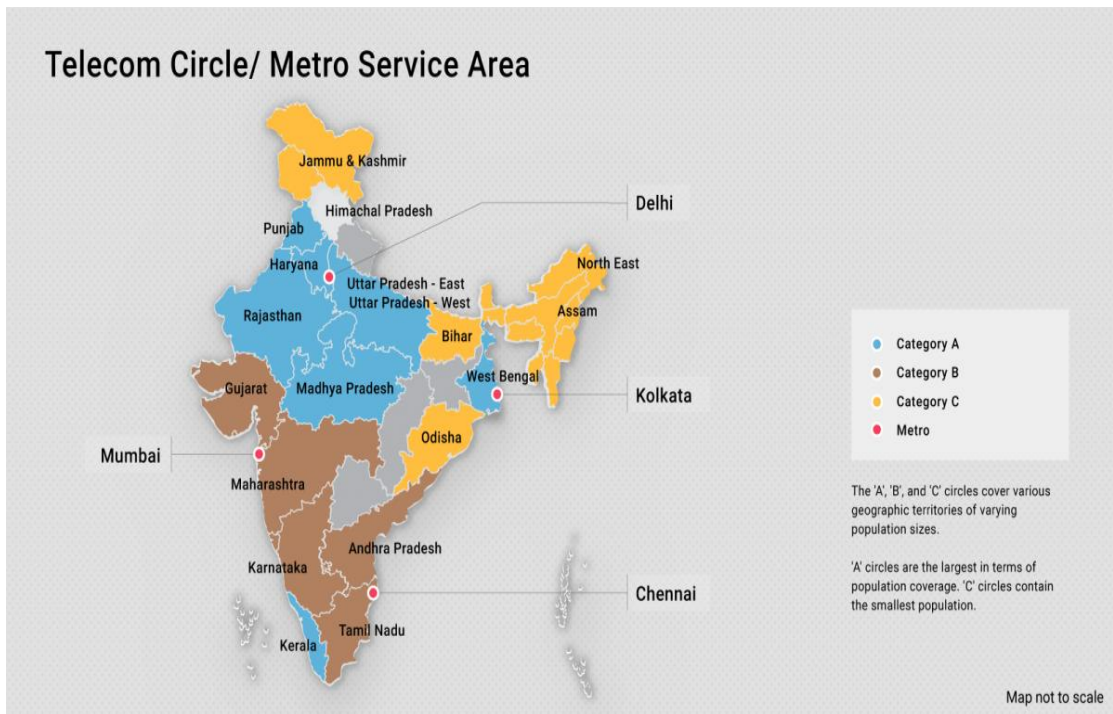


Figure 1.1: Telecom circle / Metro service area in India

Presently the Indian telecom sector is regulated by the following departments and authorities.

1. **DoT:** Telecom services area a significant instrument for a country's socioeconomic development, and as a result, telecom infrastructure is viewed as a critical component in achieving socioeconomic goals. The DoT in India has been developing policies to promote the rapid growth of telecommunications services. Department is also responsible for issuing licences for various telecom services such as Unified Access Service, Internet, and VSAT service, as well as frequency management in the realm of radio communication in collaboration with international authorities. It also regulates wireless sphere by monitoring wireless transmission of all users in the country.

2. **TRAI:** Emergence of private service providers necessitated the establishment of an independent regulator. The authority was established by an act of Parliament, the Telecom Regulatory Authority of India Act, 1997, with effect from February 20, 1997, to regulate the telecom services, including the fixation and revision of tariffs for telecom services that were previously vested with Central Government. One of TRAI's key goals is to create a fair and transparent policy environment that encourages a level playing field and fair competition. In order to achieve the above goal, TRAI has issued a large number of regulations, orders, and directives to address issues that have come before it, as well as providing the necessary direction for the evolution of the Indian telecom market from a government owned monopoly to a multi-operator, multi-service open competitive market.

3. **TDSAT:** The TRAI Act was amended by an ordinance that went into effect on January 24, 2000, and established the Telecommunications Dispute Settlement and Appellate Tribunal (TDSAT) to take over TRAI's adjudicatory and dispute resolution powers. TDSAT was established to resolve any disagreement between a licensor and a licensee, two or more service providers, or a service provider and a group of customers, as well as to hear and decide appeals against any TRAI direction, judgement, or order.

1.7 Various laws and regulations:

The following are the various laws and regulations that govern India's telecom sector.

- “Indian Telegraph Act 1885” (the Telegraph Act);
- “Indian Wireless Telegraphy Act 1933” (the Wireless Act),
- “National Telecom Policy 1994”,
- “Telecom Regulatory Authority of India (TRAI) Act 1997”,

- “New Telecom Policy 1999”,
- “Information Technology Act 2000” (the IT Act),
- “Broadband Policy 2004”,
- “National Telecom Policy 2012” (NTP’2012),
- “Prohibition of Discriminatory Tariffs for Data Services Regulations, 2016”, and
- “National Digital Communications Policy 2018” (the NDCP 2018).

Apart from the aforementioned regulations, most telecom services are eligible to receive up to 100 percent foreign direct investment under the Foreign Direct Investment (FDI) Policy.

1.8 About the study

1.8.1 Statement of the problem

The scrutiny of TRAI's latest Performance Indicator Report (July-Sept 2022) published on February 03,2023 revealed as follows:

1.8.2 **Teledensity:** The overall teledensity in India was 84.86 percent. However the urban teledensity was 134.62 percent and the rural was far behind at 58.01 percent.

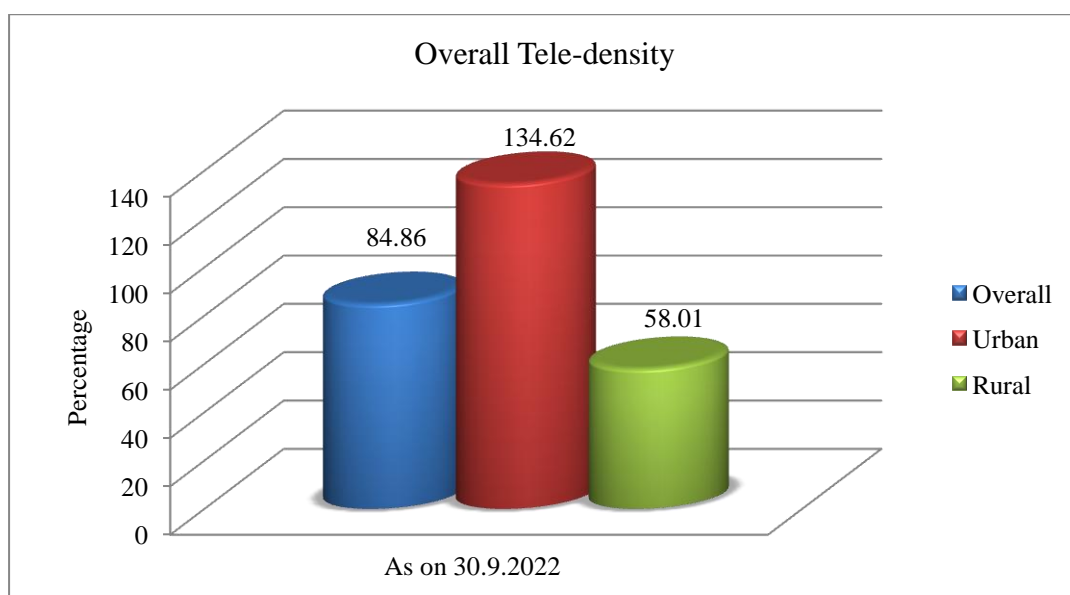


Figure 1.2: Overall teledensity in India

1.8.3 Internet users:

The TRAI report further revealed that there were total 85.095 crore internet users in India out of which 50.713 crore from urban area. The internet users in rural area were at 34.382 crore.

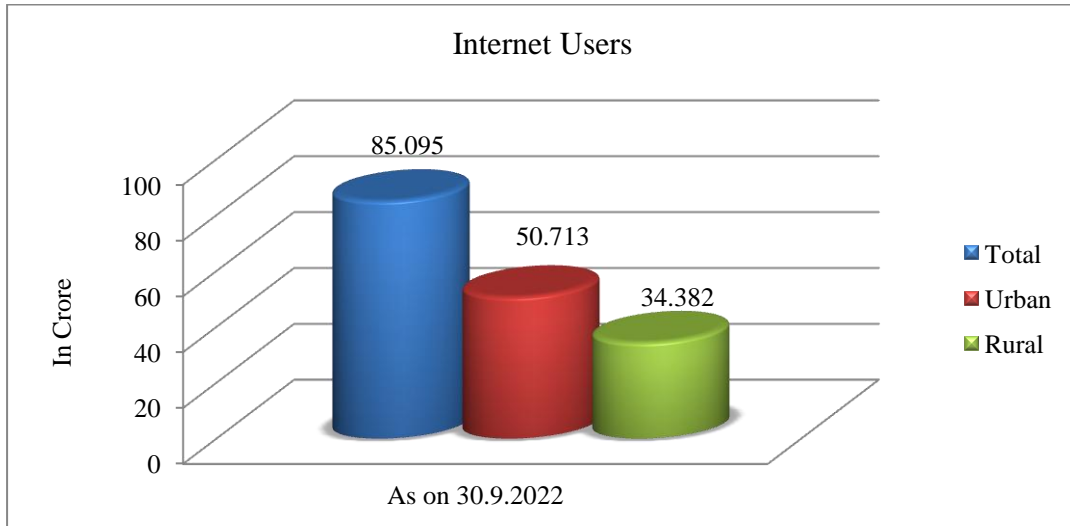


Figure 1.3: Internet users in India

1.8.4 Internet users per 100 people: Out of 100 people, overall 61.62 people were using internet in India. However in urban area 104.77 were using internet as compared to only 38.33 people in rural area out of 100 people.

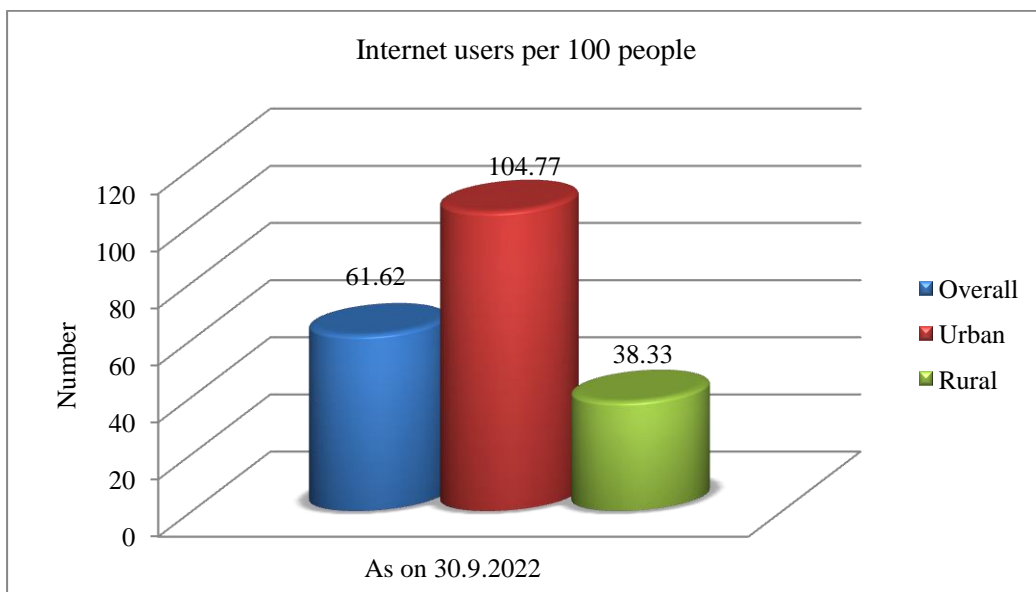
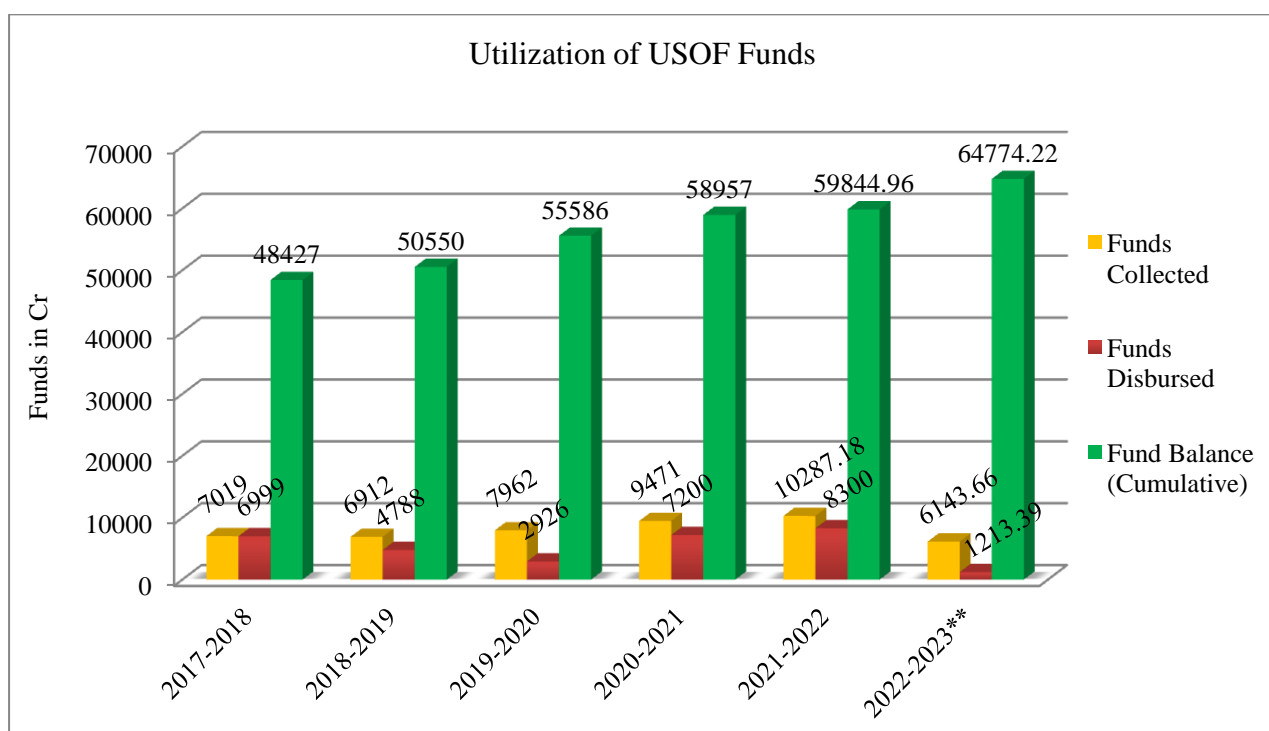


Figure 1.4: Internet users per 100 people in India

The study of above figures as per TRAI report, it is undeniable fact that India's digital divide is still wide.

As per USOF status report of funds as on October 31, 2022, the following is the current USOF corpus (in INR and crores): Total accretion: ₹133511.1 crore, Total disbursement: ₹68736.87 crore, Potentially available fund: ₹64774.22 crore.



** as on 31.10.2022

Figure 1.5: Utilization of USO funds in India

The USOF has implemented several schemes as per its mandate since creation. However a looking at above fund utilization chart, it is revealed that lot of USO fund is still lying un-utilized. USO fund has been formed to extend financial support for provision of telecom services in commercially unviable rural and remote areas of the country. From the study of TRAI's Performance Indicator Report (July-Sep 2022), it is established that digital divide exists between urban and rural areas of India.

Therefore USOF could play a vital role in bridging this digital divide by utilizing available funds for development of telecom services in rural and remote areas of India. As a result, research into the role of the USOF in bridging the digital divide, in Meghalaya, being remote and rural, was required. To bridge digital divide, there was also a need to develop a realistic use of USOF funds in Meghalaya.

1.9 Methodology

1.9.1 Research objectives

This research will look into the role of the USOF in bridging the digital divide gap, in Meghalaya. As a result, the research's objectives will be as follows:

1. To assess the impact of USOF in bridging digital divide in India, particularly in Meghalaya
2. To suggest policy inputs for bridging digital divide in India to strengthen achievement of wider reach of broad band for Meghalaya

1.9.2 Research strategy and Research design

The research is qualitative (explanatory) as well as quantitative (exploratory, descriptive).

1.9.3 Research methods/ Data sources

Under quantitative analysis, secondary data was gathered through a review of related articles in academic journals, periodicals, policy documents, academic reports, and annual reports published by the Government of India, the Department of Telecommunications, the International Telecommunication Union, and the GSM Association (GSMA), among other sources. This assisted me in comprehending the numerous indicators that are responsible for the implementation of the USOF.

Under qualitative analysis, primary data was collected by floating questionnaire to subscribers of Meghalaya, officials of USOF, Telecom Service Providers and State

Government of Meghalaya by using semi-structured tool on quality of broadband availability using both open ended and closed ended questions. Data hence captured was analyzed using appropriate tools.

1.9.4 Sample and Research tools

Two semi-structured research tools had been designed, one to understand the role of USOF in bridging digital divide in Meghalaya (Appendix C) and the second to identify the issues and challenges of USOF implementation in Meghalaya (Appendix D, Appendix E and Appendix F).

Understanding the role of USOF bridging digital divide in Meghalaya: The first tool was administered to a sample size of 150 respondents of Meghalaya.

Identify the issues and challenges of USOF implementation, particularly in Meghalaya: The Director, Dy. Director General and Administrator in USOF dealing with the implementation of schemes were requested to provide their experience/observations on the issues and challenges in implementation of USOF schemes in Meghalaya. Time given to submit response was one week.

In both the cases, since the target population is different, quota sampling method was employed to choose the sample.

1.9.5 Rationale / Justification

1.9.5.1 Due to the COVID-19 pandemic (first instance recorded in India in January 2020), many vital services are being pushed online, putting individuals without broadband internet connection in rural and distant locations further behind their peers in terms of digital inclusion.

1.9.5.2 The Government of India's NDCP-2018 aims to accomplish 'Broadband for All', a goal of digital empowerment and enhanced people's well-being. It also

emphasized the importance of using USO funds to include underserved communities and those who are digitally illiterate.

1.9.5.3 The GoI is rolling out the BharatNet project, which will connect 2.5 lakh Gram Panchayats (GPs) and all six lakh villages across the country with digital connectivity and high-speed broadband.

1.9.5.4 Digital India is the GoI's flagship programme, with the goal of transforming India into a digitally enabled society and knowledge economy.

1.9.5.5 The USOF's role in bridging India's digital divide is critical since it can assist different sectors in rural and remote areas, such as healthcare, education, automotive, retail, banking, energy, agriculture, service delivery, Direct Benefit Transfer (DBT), and others, in achieving "broadband for all."

1.9.5.6 On the August 10, 2020, while dedicating CANI project, the Hon'ble Prime Minister stated that all of India's islands would play an essential role in India's new Indo-Pacific trade policy.

1.9.5.7 USOF has implemented programmes that will assist the government in implementing different social sector reforms and improving service delivery to citizens throughout India.

1.9.5.8 The goal of the NDCP-2018 is to achieve "broadband provisioning for everyone by 2022." However, pandemic has pushed the deadline back, necessitating a new strategy.

1.9.5.9 The present study revealed

- i. In India, there is a significant digital divide including Meghalaya.
- ii. The USOF's potential to bridging the digital divide gap has not been completely exploited.

- iii. There is no academic literature on the role of the USOF in bridging the digital divide in Meghalaya.
- iv. As a result, exploratory research in developing countries like India is needed to examine the role of the USOF in bridging the digital divide.

1.9.6 Research questions

The following research questions have been designed with the study's goal in mind: to investigate the function of the USOF in bridging the digital divide in India, with a focus on Meghalaya.

1. What is the current status of digital divide in Meghalaya?
2. What are the implementation challenges and what could be the new avenues/ strategies to implement USOF schemes for optimum utilization of USOF help to bridge the digital divide particularly in Meghalaya?
3. How USOF is contributing in bridging digital divide in rural and remote parts of India, particularly in Meghalaya as compared to other schemes for bridging the digital divide?
4. What can be the possible policy inputs for USOF in bridging digital divide in India?

1.9.7 Scope/ Limitations/ Delimitations

Due to time and resource paucity, the research is severely constrained in the efforts towards this study. The study can be viewed as an introduction to the topic for those interested in learning more about the role of the USOF in bridging the digital divide gap in India. The research is focused on Meghalaya, which might be expanded to include a number of other missing components in India's broad digital divide scenario.

1.9.8 Chapterisation scheme

The broad chapterisation scheme for this research report is proposed as follows:

Chapter 1	INTRODUCTION
Chapter 2	LITERATURE REVIEW
Chapter 3	USOF: AN OVERVIEW
Chapter 4	DIGITAL DIVIDE IN MEGHALAYA
Chapter 5	FINDING AND OBSERVATIONS
Chapter 6	RECOMMENDATIONS

2 Literature Review

2.1 Background

The gap between individuals, households, businesses, and geographic areas at different socioeconomic levels in terms of both their access to ICT and their use of the internet for a wide variety of activities requires a review of various factors such as gap between individuals, households, businesses, and geographic areas at different socioeconomic levels in terms of their access to ICT and their use of the internet for a various activities. There is no single gap at the national level, but several: for example, between men and women, young and old, rich and poor, and, most crucially, rural and urban areas. The digital divide is the separation that exists between people who have access to new types of information technology and those who do not. Various agencies, notably the DoT, have taken steps to bridge the digital divide.

2.2 Digital divide and USOF

Telecommunication services have played a critical role in bridging the rural-urban divide in India's vast geography, and have emerged as a crucial enabler of the country's economic and social progress. However, some remote places in India, including isolated villages, still remain without telecommunication services. The factors for non-provision of telecom services in these areas includes challenging terrain, dispersed populations, low accessibility, and commercially unviable operations for telecom companies.

This chapter includes a literature review that shows how prior studies have looked at the digital divide.

1. Pandey, A. (2004) in study titled ‘Digital Divide in India and Strategies to Bridge it’ argued that ICT is not a magic wand that, when used, can eliminate all disparities in the globe. While universal access is a must, ICT based solutions must be holistically created after taking into account the users' goals and wants. The study focuses on India's digital divide.

2. Ramachandran, T. (2008), Director General, Cellular Operators Association of India (COAI); body representing Indian Telecom Industry, in a study on ‘Leveraging the potential of USOF to roll out to rural areas’ argued that communication networks assist to bring people together, allow them to be informed, integrate them, and be better citizens in a democracy. Many countries have set the objective of providing universal access to communications, at the very least on a community level, through a combination of private and public access infrastructures. He goes on to say that the USOF fund should be put to good use by establishing allied infrastructure such as shared backhaul, public telecom information centres, and encouraging the use of non-conventional energy sources such as solar, wind, and biogas fuels. He also advised that the USO fund and objectives be evaluated on a regular basis, say once a year, with the government/regulator determining the amount of funds required for USO objectives and deciding on an appropriate levy to recover the same. The research focuses solely on the role of TSPs.

3. India’s Telecom Regulator; TRAI (2008) in a study on ‘Measures to improve telecom penetration in rural India - The next 100 million subscribers’ stated that the significance of telecommunications in helping rural residents to efficiently integrate into the Indian economy, and ultimately into the emerging global economy, requires

special attention. It goes on to say that the USO Administrator is empowered effectively in administrative, budgetary, and ultimate decision making capabilities. It should be split from the DoT, and a framework similar to the National Highway Authority should be studied. The study focuses on the expansion of broadband.

4. According to Fong, M. (2009) in a study titled "Digital Divide: The Case of Developing Countries", an increase in mobile phone, PC, and telephone adoption by one percent will increase average income per person in lower-middle-income and low-income developing countries by approximately 2.8 percent, 4.1 percent, and 6.3 percent, respectively. This might be accelerated by deliberate policies and advice from these countries' governments, with international cooperation. Furthermore, governments in these nations must regularly review the impact of regulations and match them with societal goals in order to remain user-focused in the need to fast harness technology. The study examines the influence of ICTs (the Internet, mobile phones, computers, and telephones) on Gross National Income (GNI) per capita in developing nations in 2005.

5. The digital divide has various aspects and can be classified as global, regional, and national, according to Singh, S. (2010) 'Digital divide in India: Measurement, drivers, and strategy for addressing the issues in bridging the digital divide.' The study was mostly focused on India, and it attempted to investigate the problem of digital divide, particularly in rural-urban India. In the context of this study, digital gap refers to the disparity in teledensity, mobile phone use, and internet access between rural and urban areas. If India is to diminish the digital divide, hurdles such as illiteracy, a lack of skills, infrastructure, and investment in rural areas must be addressed,

according to the report. Connectivity provision, content production, capacity augmentation, core technology creation and exploitation, cost reduction, competency building, community participation, and commitment to the deprived and disadvantaged should all be prioritised by the government to assist in bridging the digital gap. It only looked at three indicators: teledensity, mobile, and the internet divide.

6. The impact of the digital divide has been studied extensively. In their work titled 'Understanding the Digital Divide: A Literature Survey and Ways Forward,' Srinuan, C., and Bohlin, E. (2011) presented a literature review and classification scheme for digital divide research. The evaluation includes publications from three types of journals published between 2001 and 2010: Information Technology and Information Systems, Economics and Business and Management, and Social Science. According to research, the term "digital divide" was coined in the mid-1990s. The digital gap is still a hot topic in public policy, affecting social, economic, and political challenges. The study makes no recommendations for government intervention programmes.

7. In a paper titled 'Information Technology for the Masses: Bridging the Digital Divide,' Malhotra, C. (2011) underlined that benefits enabled by ICT, such as rapid outreach and accurate information transmission, are projected to alleviate the situation of the marginalized and poor rural. As a result, the common thread running across all global initiatives like the National Development Goals (NDGs), Millennium Development Goals (MDGs), and World Summit on the Information Society (WSIS)

is to harness information and communication technologies for mass development (ICT4D). Data sources are not quantified in the study.

8. In a study titled 'Digital Discrepancy in India: Bridging the Gap,' Dixit, P. (2012) claimed that while India has made significant progress and many of the data are remarkable in absolute terms, there remains a significant divide between rural and urban areas. To improve the situation, a number of policy actions must be implemented. Infrastructure, limited internet accessibility, low bandwidth, unpredictable electric supply, literacy and skill, content, and other factors all contribute to India's digital divide, according to the report. Only secondary data is used in this study.

9. In a study titled 'Review of universal service support policy: formulation and implementation issues confronting rural telecom,' Bhagat, K. (2013) stated that the USOF should be treated as one of many tools for increasing rural teledensity/broadband penetration, and that efforts should be made to facilitate policy dissertation outcomes on a variety of dimensions. It's also crucial to monitor if the expected socioeconomic outcomes of ubiquitous connectivity are being realised. The research focuses solely on USOF policies. More study is needed to ensure that USO funds are used effectively to achieve all of the organization's stated goals.

10. In a research titled 'e-Inclusiveness: Bridging the Digital Divide with ICT,' Malhotra, C. (2014) examined how new digital divide gaps are being established across groups of people due to technologies such as global economics, people who choose not to be connected, and content based Internet obstacles. It went on to explain

the various types of digital divides, including those caused by technology, internet access, mobile access, human resources, social/community resources, education, and gender. The study focuses on India's digital gap, with a particular emphasis on the causes, classification, and policy trends in the country. If India is to diminish the digital divide, the researcher believes that difficulties such as illiteracy, a lack of skills, a lack of sufficient infrastructure, and issues connected to rural investment must be addressed. The government must make a big push toward achieving goals linked to connectivity, content development, capacity enhancement, core technology creation and exploitation, cost reduction, competency building, community engagement, and commitment to the poor and disadvantaged. The study concentrated on the government's involvement in bridging the digital gap.

11. TRAI (2016) recommended that in order to bridge the affordability gap for the persons residing in rural areas and to support governments efforts towards cashless economy by incentivizing digital means, a sufficient and reasonable amount of data per month may be provisioned to rural subscribers for free and the cost of implementation of the scheme may be supported by USOF. The study concentrates on encouraging data usage in rural areas through provisioning of free data.

12. In their study titled 'Bridging digital divide in India: some factors and initiatives,' Sipre, Y., and Malik, M. (2017) said that various attempts are being made in India to bridge the digital divide. All of these efforts may be seen in the different initiatives launched by the government, the corporate sector, and libraries. Apart from providing separate terminals in libraries, many libraries and information centres also provide training to users so that they may access information over the Internet. Many

libraries have created digital and institutional repositories so that users can access books for free. The study is solely focused on the role of libraries.

13. The power and transformational potential of internet access and use are not evenly spread, according to an ITU research (2018) on 'Bridging the gender divide.' The majority of the 3.7 billion unconnected people are women and girls. The survey also confirms that the digital gender gap is widening in many developing nations, necessitating additional support for digital gender equality. Women and girls use the internet 12.5 percent less than men and boys around the world. The research is confined to addressing the gender gap.

3. Universal Service Obligation Fund: An Overview

3.1 Background: Comparative global perspective

The concept of universal service was first brought out by United States of America (USA), about 100 years back by American Telephone and Telegraph Corporation (AT&T) and since then it has been followed by most of the countries as a policy objective.

In 2013, ITU carried out study titled “Universal service funds and digital inclusion for all” which provides a detailed overview and comparative analysis of sixty-nine Universal Service Funds (USFs) in world and highlighted important factors that helped the successful performance of a number of these USFs. The core notion of Universal Service, according to the study, is to ensure that telecommunication services are accessible to the broadest possible number of people (and communities) at affordable prices, and it is based on the following concepts:

- **Availability:** At all times and without geographical discrimination, the equal level of service should be available for all users in their place of work or at residence.
- **Affordability:** The cost of a service should not be a barrier to service access for any consumer.
- **Accessibility:** In all places, regardless of ethnicity, sex, religion, or other factors, all telephone subscribers should be treated equally in terms of pricing, service, and quality of service.

Various jurisdictions use a variety of techniques to meet universal service criteria, including the following:

- ‘Market based reforms’

- ‘Mandatory service obligations’
- ‘Cross subsidies’
- ‘Access deficit charges’
- ‘Private Public Partnerships (PPPs)’
- ‘Universal funds’.

Telecommunication administrations and regulatory agencies throughout the world have been progressively resorting to the concept of a dedicated universal service funding mechanism established as an incentive to help operators in achieving their universal service targets during the last two decades. A USF is the name given to this funding structure.

TSPs / operators often finance USFs through some type of contribution system. The operator contributions are almost always in the form of a charge based on a percentage of annual operating income like in India, South Africa, Mauritius, Ghana, Nigeria etc. The USF charge is not a separate fee in some countries, but rather a percentage of an overall annual regulatory fee. The portion of the annual regulatory fee allocated to the USF that is sometimes fixed, but in other situations is subject to annual review and calculation like in China, Egypt and Mexico. Other sources of fund, in addition to operator levies, include license fees, whole or partial proceeds from spectrum auctions, direct contributions from government budgets, and payments from international institutions such as the World Bank and Regional Development Banks, among others.

The manner in which levy’s are collected and then managed differs greatly from one jurisdiction to the next. The fees could, for example, be paid directly to the USF or the USF Administrator. Alternatively, they could be collected by the regulator and then

passed on to a fund management or Administrator. There are numerous variations in how a USF is administered and managed after that point.

3.2 Background: Indian perspective

In the 1970s, India made public phone availability a policy goal. It entailed providing Long Distance Public Telephones (LDPT) based on a village's population. The policy's scope was gradually expanded to include the provision of a Public Telephone within five kilometers of any dwelling. Following that, goal of the public phone policy was expanded to include the supply of a public telephone in every village having a Gram Panchayat (GP), and then a 'Village Public Telephone' (VPT) in every village. The DoT installed all of these public phones, which generally included incurring net expenditures, i.e., they were provisioned even if they were unprofitable. Universal service was initially embodied in a policy statement in India in 1994, when the government released the 'National Telecom Policy' (NTP'94). The goal of NTP'94 was to make telecom services accessible to all people of the country, including providing services in every community. Universal Service was defined in the policy paper as the provision to all residents of certain "basic telecom services at affordable and appropriate costs".

In 1999 the government introduced the 'New Telecom Policy' (NTP'99). This policy emphasized on universal access to basic telecommunications services, as well as making available these services at reasonable prices, ensuring that citizens have effective means of communication. One of the main aims of the universal service duty imposed on TSPs under 'NTP'99' was to provision telecom services in all low teledensity areas, including hilly, tribal, rural and far flung areas.

3.3 USOF in global context

ITU conducted a thorough study on USFs in 2013 (“Universal service funds and digital inclusion for all”) as mentioned in para 3.1 above, in order to give a detailed analysis of the success factors and the challenges/obstacles that a variety of existing USF models face.

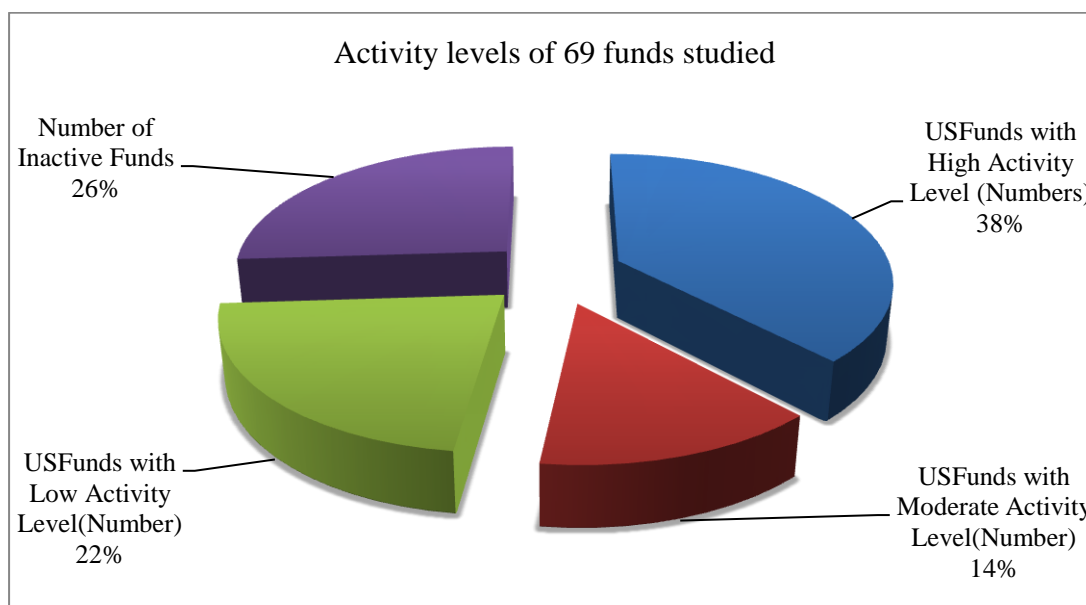


Figure 3.1: Activity levels of sixty-nine funds studied by ITU

3.3.1 Success factors in the management of the USF

According to the ITU study on USFs in 2013 (“Universal service funds and digital inclusion for all”), instances of best practices in USF management differ from region to region. There are certain components inside many different funds that, when merged in a unified framework and administrative package, would create in an efficient, effective, and well-governed USF. “The elements that make up success factors are listed below.

- (a) **Legal and regulatory framework:** A legal or regulatory framework that is flexible enough to allow for adaptation and modification as needed is essential to a USF's continued success.

(b) **Autonomy and independence:** Some funds have been established to operate in a fully independent manner.

(c) **Policy articulation:** One of the most important aspects of a successful USF is policy articulation. Although the telecommunications or ICT law directs the creation of a USF, it must be supplemented and supported by a clear statement of the USF's overarching vision and policy, as well as the actions required to carry out the goal. Some of the most important considerations to keep in mind are; what is the fund trying to achieve, and how should its resources be distributed to achieve these goals?

(d) **Consultation with stakeholders:** Stakeholder participation is acknowledged as particularly beneficial since operators and other telecom players frequently have in-depth knowledge and, as a result, can provide valuable suggestions and guidance on fund emphasis and execution. This contributes to the perception that USF management is open and transparent, with well-established consultative processes.

(e) **Delineation of responsibilities between USF and other government entities or external agencies:** This clarity is critical, especially when dealing with the frequently pressing demands of a USF project. As a result, standards and processes for collaborating with other government agencies aid the fund's administrative efficiency.

(f) **Defined and measurable objectives:** The formulation of specified and measurable targets must accompany the definition of USF policy. It is exceedingly difficult, if not impossible, to determine the extent to which the fund has been effective in carrying out the overall policy and vision on the funding of universal service requirements without clearly stated objectives.

(g) **Flexibility and neutrality in service deployment:** The underlying need for a technology neutral strategy in service deployment is one of the important success criteria that cannot be disregarded. Technology and services evolve at such a quick

pace in today's world that no one can precisely foresee how and when technology will evolve. As a result, the overarching concept should be that any technology can be used and deployed as long as it adheres to an internationally recognized standard and meets the service and/or coverage requirements. Given the vast and rising global demand for broadband, the flexibility of a technology neutral approach has been very useful in its deployment.

(h) **Fair and objective project allocation process:** An equitable project allocation process needs to be preceded by an equitable fund contribution process with the understanding that those who contribute to a USF can also, where feasible, have the potential to bid and/or apply for projects that will be financed via the USF mechanism. The fund administration must establish clear and understandable criteria for proposed projects and for evaluating project proposals. This should be followed by a formal proposal solicitation and evaluation process to approve selected bids and to distribute funds. In order to ensure the greatest possible participation in a USF project allocation process, one of the most successful approaches has been the use of a well-publicized, competitive and transparent bidding process.

(i) **Capacity building, sustainability and complementary services:** An equitable project allocation process must be preceded by an equitable fund contribution procedure, with the understanding that people who contribute to a USF can also bid and/or apply for projects that will be financed through the USF mechanism, if that is possible. The fund administration must provide clear and intelligible criteria for proposed projects and project evaluation. Following that, a formal proposal request and review process should be used to approve selected bids and disburse cash. One of the most successful techniques to ensuring the widest possible participation in a USF

project allocation process has been to adopt a well-publicized, competitive, and transparent bidding procedure.

(j) **Innovation and incentives:** Rather than providing direct and immediate compensation, some funds provide incentives for efficient deployment and/or innovation, as well as cost minimization when possible, in order to stimulate good project implementation. To guarantee that the incentives are justified, appropriate fund administration and project oversight are also required.

(k) **Visibility, transparency and accountability:** Given the size of most operators' contributions and the fact that the underlying regulations governing individual USFs typically necessitate regular reporting of financial performance, visibility and transparency are critical.

(l) **Digital inclusion responsiveness:** Several funds have attempted to address the unique situations or needs of specific population groups.”

3.3.2 Challenges in USF administration

“ITU study elaborated that when it comes to the administration of USFs, there are numerous obstacles and roadblocks to overcome. There are a variety of variables that could contribute to this predicament, including fundamental faults or flaws in the underlying legal and regulatory structure; social and political realities in the country where the fund operates; or the fund's core design's lack of economic sustainability.

(a) **Underlying legal and regulatory framework:** Many funds' underlying legal frameworks appear to have been poorly thought out or conceived from the start (e.g., not technology neutral or service flexible, excessively bureaucratic, insufficient oversight, etc.), resulting in a number of ineffective or severely constrained funds, as well as funds that are legally challenged. In other circumstances, for example, the architecture is designed to accommodate just fixed line service funding. However, in

certain situations, this might be attributable to the fact that many USFs did not anticipate the fast development of mobile technology, or other technologies, at the time they were established. These same concerns with underlying legal frameworks offer a big hurdle to the introduction of rural and non-commercially viable broadband through the USF funding mechanism, as many of the frameworks require revisions in many cases to accommodate broadband supply.

Given the age of many funds, it's understandable that little or no thought was given at the outset to the possibility of ancillary and complementary services or tools that would be required in conjunction with or in addition to the USF-funded project (e.g. equipment needed to complement basic telephony, the need to develop specific content and applications, etc.). This resulted in some frameworks that are so specific that they prevent the deployment of any new and innovative solutions that might be the best fit for the needs of population groups that are typically targeted by USFs (e.g., rural populations) or population groups or other entities that should be targeted by USFs (e.g., children). In other circumstances, the law or regulation is quite broad in scope, necessitating the issuing of a supporting decree or rule before the fund can be fully established and operational. There appears to be little or no subsequent effort in the majority of countries where such a scenario occurs to develop or issue the appropriate decree, rules, or instructions that will control the fund's functioning for reasons that are unknown. As a result, a number of funds have been established and collected, but no relevant fund activity has been begun, resulting in collected funds probably lying inactive and not being put to the intended use.

(b) **Difficulty to adapt to changing requirements and focus:** Many funds in their current state are unable to adapt to new conditions and requirements or evolve in accordance with technological or societal change due to the aforementioned

restrictions or oversights in the legal and regulatory framework, or due to a general lack of ability or, in some cases, will on the part of regulators and fund Administrators. As a result, such funds are less flexible than required, and these limitations can limit the fund's responsiveness and use in meeting the needs of the unserved and/or underserved. For several years, it has been evident that many funds, in their current configuration, are less effective than expected, based on the establishment of overall objectives and specified target areas, and that structural change is required. However, only a small number of countries confronted with these limits have attempted to overhaul or re-orient the fund's goal, structure, and administration, whether by legal, regulatory, or policy changes. This is expected to be a concern in the future, even for funds with a more future-oriented framework and strategy, because outlooks and what is considered forward thinking at one time can quickly become outmoded in the face of rapid societal change and technology evolution.

(c) **Correlation between USF levies and demand:** In general, even for the most effective funds, most USF contributions appear to have been established without conducting substantive analysis of the actual service funding/subsidy levels needed, and as a result, many funds appear to receive contributions far in excess of the actual universal service funding needs or capabilities. In other circumstances, the funds appear to be having trouble coming up with enough projects to fully utilize the levies collected. This is owing to the lack of access gap evaluations and reliable demographic surveys in many cases. In any event, the funds could end up with significant unspent surpluses.

(d) **Structural matters:** Many funds are restricted due to fundamental structural flaws that might show in a variety of ways. Defects in general could include things

like a clear delineation of duties and responsibilities or explicit recommendations for how levies should be computed, administered, and collected. Other instances could include vague or weak descriptions of what the fund can be used for, resulting in restrictive approaches to project identification and distribution.

(e) **Strategy and objectives:** To guarantee that USF funds are put to the appropriate use and to achieve desirable levels of supervision and governance, a clear explanation of the overall USF strategy and objectives is required. Many USFs, on the other hand, do not have a clear statement of either. The lack of a clear plan has resulted in a number of issues and hurdles with a number of funds, in addition to the difficulties described with regard to oversight and governance.

(f) **Managerial, operational and capacity issues:** Many funds have been hampered or even severely harmed by the selection of management employees that lack the necessary skills and experience to effectively administer a USF, resulting in inadequate overall administration. There appear to be multiple fundamental reasons for this scenario, including an incorrect definition of the various USF management responsibilities, as well as the skill set and expertise required to perform them. In addition to these flaws in fund management, similar issues arise at the project level, where project descriptions and definitions may not always account for all of the expertise, skill levels, or time commitments required for successful project execution. Additionally, in a lot of circumstances, the fund management team's resources are insufficient to closely monitor and/or oversee successful project execution.

(g) **Transparency, visibility and accountability:** Among the existing funds, there is a notable lack of financial reporting. Over half of the nations studied had no formal public reporting procedure in place for the use and management of fund, and many have not followed the specified reporting process, despite the fact that many of these

countries do issue ad hoc project reports. As a result, it is usually impossible to determine the state of ongoing initiatives, and in many situations, the linkages between funds collected, funds dispensed, and residual balance are ambiguous, inconsistent, or non-existent. The apparent lack of transparency is so serious that a number of funds have been linked to various allegations (not all of which have been proven) of financial mismanagement.

(h) **Oversight and governance:** Even in funds with some autonomy and independence, political influence or meddling from other government bodies might have an impact on the fund's performance. In other cases, the established governance process has failed to account for external factors that obstruct oversight and governance, such as delays in budget approvals when they are required from Parliament or the National Assembly (or similar bodies), or where multiple approvals are required from various committees and government organizations. In others, the supervisory procedure, particularly when it comes to the allocation of funds and project approval, has become so onerous and bureaucratic that fund operation has been severely hampered or halted entirely.

(i) **Project allocation process:** One of the main areas where fund performance can be severely impacted is the project allocation process. All of these factors can have an impact on USF projects, including a lack of competent and/or interested vendors to bid on projects, or a defective design of economic incentives for vendors to bid. Overall flaws or oversights in project structuring, allocation, administration, and monitoring will only result in subpar project inception and execution, or, in some situations, failed and abandoned projects. Even when many current funds appear to have transparent project allocation processes, project monitoring, tracking, and reporting often fall through the cracks.

(j) **Consideration of digital inclusion:** In general, the bulk of funders have disregarded the overall concept of digital inclusion until date. Once again, the basis of this exclusion often arises from an omission or exclusion in the basic USF legal and regulatory framework, and thus, digital inclusion cannot be addressed without revisions to the underlying legislation and/or framework. This is not always the case, and it's also worth noting that, while a number of funds have established policies on specific aspects of digital inclusion, such as services for people with disabilities, many of these funds have yet to translate those policies into precise targets and activities. The largest mistake in terms of digital inclusion right now is that almost all of the funds have failed to address the requirement to target and support programmes for rural and remote areas.

(k) **Constraints to broadband deployment:** With the expanding proof of the economic and social benefits provided by broadband implementation and the ever-increasing global demand for speedy and cheap access to information, many USFs' prohibitions on broadband financing are a major roadblock. Many governments have looked for alternate funding methods to support broadband growth and deployment for a variety of reasons, one of which is that the regulatory or legal changes required to expand the scope of the USF are either delayed or non-existent. Many funds exist with sufficient resources to assist in the funding of broadband deployment, but the funds are unused since they cannot be disbursed for this purpose.

(l) **Underlying infrastructure and facilities:** It's crucial to remember that the frequently rural and difficult-to-reach places that require USF assistance typically lack other fundamental necessities as well, not just adequate communications. In many cases, the programmes overlook the importance of power supplies, water availability, ongoing maintenance, security, and other long-term necessities.

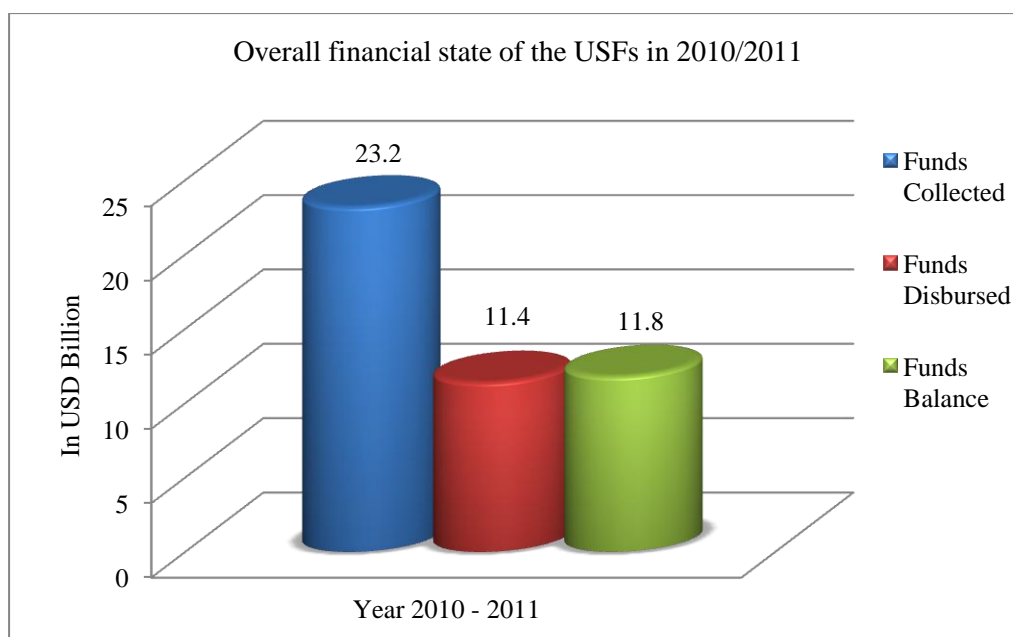
(m) **Availability of resources and knowledge:** Many of the programmes and targets established for the deployment of community information centres and cyber labs have failed to address issues related to training and education that must be addressed due to widespread illiteracy and general lack of knowledge among many segments of poor and disadvantaged populations. Examples of funds where the technology and services are not being used demonstrate that installing computers, data networks, and other services and then waiting for people to use them is insufficient. Access to sophisticated information technologies necessitates widespread education and awareness of their availability, as well as the development of the knowledge and skills required to properly use the services. The criteria for training and education are not limited to USF project recipients. The lack of sufficiently skilled people to maintain services has also hampered the successful completion of several USF projects.

(n) **Local conditions and related security:** Because of the remote and frequently challenging locations that USFs must cover, there will inevitably be conditions that stymie or completely prevent USF projects from progressing forward. These include inhospitable terrain, harsh climatic circumstances, and perilous political situations, to name a few. There is little that can be done in such instances except to 'wait it out' until the issue becomes less difficult.”

3.3.3 Although a number of USFs mention to or make policy declarations about some aspect of digital inclusion, it is crucial to emphasize that these references do not always translate into specific policies or project execution to meet these critical needs. Even if the intentions are excellent, the reference to services for the target group is often just that - a mention. Although provisions in the fund mission exist in some cases, the fund is not yet functioning; hence there is no visible evidence of any digital inclusion activities. It is clear that there is much to be done on a global level to either

encourage USFs that have a written policy to address target population segments or to promote the expansion of the USF mandate and policy to include target population segments in cases where the USFs do not currently have such a policy.

The ITU calculated the overall financial state of the USFs in 2010/2011 based on the fragmentary information collected:



Source: ITU study on USFs in 2013 (“Universal service funds and digital inclusion for all”)

Figure 3.2: Overall financial state of USFs studied by ITU

3.4 USOF in Indian context

3.4.1 Initiation: “The NTP’99 set the following particular goals for the country’s telecoms spread:

- (a) Provide voice and low speed data services to the balance (i.e. uncovered) villages in the country by the year 2002.
- (b) Provide Internet access to all district head quarters by the year 2000.
- (c) Make available telephone on demand by the year 2002, and sustain it thereafter so as to achieve a teledensity of 7 by the year 2005 and 15 by the year 2010.

- (d) Encourage development of telecom in rural areas, making it more affordable by suitable tariff structure and making rural communication mandatory for all fixed service providers.
- (e) Increase rural teledensity from the level to 0.4 to 4 by the year 2010 and provide reliable transmission media in all rural areas.
- (f) Provide reliable transmission media to all the exchanges by the year 2002.
- (g) Provide high-speed data and multimedia capability using technologies including Integrated Services Digital Network (ISDN) to all towns with a population greater than 2 lakh by the year 2002.

While the first two objectives concern public telecom services, such as Internet access, the third and fourth objectives concern the provision of individual household telephones in low-income rural areas by introducing appropriate tariff structures and other measures to make them more affordable. This entails low, and if necessary, even zero, rental and call prices, especially in rural regions, so that phones become more affordable to the general public and demand for basic services increases. Thus, public phones like as Village Panchayat Telephone (VPT) and residential phones were covered by the universal service policy objective's duty imposed on fixed service providers.”

3.4.2 Levy: The NTP'99 has also established the following recommendations for obtaining financial resources for the purpose, taking into consideration the affordability criterion and the need to subsidize loss-making phones:

"The resources for meeting the USO would be raised through a '**universal access levy**', which would be a percentage of the revenue earned by all the operators under various licenses. The percentage of revenue share towards universal access levy would be decided by the Government in consultation with TRAI. The implementation

of the USO obligation for rural/remote areas would be undertaken by all fixed service providers who shall be reimbursed from the funds from the universal access levy. Other service providers shall also be encouraged to participate in USO provision subject to technical feasibility and shall be reimbursed from the funds from the universal access levy".

3.4.3 Steps by DoT: “In order to meet the goals of NTP'99, the DoT solicited TRAI's advice vide their letters no. 5-2/99- Regln.-II dated 21.5.99 and 13.10.99 on the following issues:

- (a) Class of operators to fund the Universal Access levy (UAL).
- (b) Various possible cost models/approaches to determine:
 - (i) Percentage contribution from revenue of the operators and the mechanism for computing it;
 - (ii) Per unit subsidy for VPTs and rural DELs separately to cover capital and recurring expenditure;
 - (iii) Whether per unit subsidy will be the same or different in different geographical areas/tribal and non-tribal areas of the country.”

TRAI replied DoT letters mentioned above and recommended vide recommendation titled “Recommendations of TRAI on USO” dated 3rd October, 2001, regarding creation of Universal Service Obligation in India to cater to the telecommunication needs of rural and remote areas of the country.

3.4.4 Recommendations of TRAI: In accordance with the NTP'99 objectives and on the request of DoT, TRAI recommended in 2001 (TRAI recommendation titled “Recommendations of TRAI on USO” dated 3rd October, 2001) that the job of provisioning voice and low-speed data services in all villages be given top priority, as this would make telecommunications and information services available to the poorer

strata of our society within a reasonable distance of their dwellings. As a result, the regulator advised that the implementation of USO be split into two distinct streams.

Stream – I: Provision of Public Telecommunication and Information Services

Stream – II: Provision of Household Telephones in Net High Cost Areas.

The regulator believes that not just public phones, such as VPTs, but also their eventual up-gradation into Public Tele Infoservices Centres (PTICs) to provide information services in rural regions, will assist bridge the existing digital divide between urban and rural areas. It was also suggested that after accomplishing the goal of one VPT per village, a second phase of Rural Community Phones (RCPs), or the hamlet's second public phone, be installed in public venues such as schools, primary health centres, and so on. RCPs will be supported by USF in the same way that VPTs are. To make the Universal Service strategy more sustainable, the regulator suggested compensating all TSPs for the net cost of installing village public phones. TRAI further advised that operators be given support for all Direct Exchange Lines (DELs) in rural and remote Short Distance Charging Areas (SDCAs).

3.4.5 Quantum of Universal Service Levy: NTP'99 not only established explicit aims for public phones such as VPTs, but also established defined targets for Universal Service. The regulator calculated that five percent of all telecom operators' adjusted gross revenue would be sufficient to sustain the Universal Service Programme in its first phase, as well as VPTs/PTICs and DELs in rural and isolated locations.

3.4.6 USO Fund Administrator: The practice adopted by various countries in regards to USOF was as follows.

France: An autonomous financial entity overseen by the Ministry of Economy manages and administers the Universal Service Fund. The institution is paid a fee to

cover its administrative costs. Each operator contributes a portion of the cost, which is computed on a prorata basis based on traffic volume. The fund raised each year is given to France Telecom to help them satisfy their USO obligations. The fund is replenished three times a year by the operators. These figures are based on a best-guess estimation. The Ministry evaluates and fixes the final amounts to be paid by the operators based on the audited costs for the year in question. If the preliminary sums paid into the fund exceed the real amounts due from them, operators are refunded.

USA: The US government programme is administered by the National Exchange Carrier Association (NECA), an intra-industry group formed by the Federal Communications Commission (FCC). The NECA is governed by a Board of Directors made up of members from over 1000 local telephone companies in the United States. The FCC ordered NECA to form an autonomous non-profit subsidiary, the Universal Service Administrative Company, in 1997 (USAC). The Universal Service Support Mechanism is presently administered by the USAC.

As a result, in 2001, TRAI recommended the establishment of the USF Administrator's Office, which will deliberate and decide on the broad policies and guiding principles for the administration of USO, based on the experiences of other countries input from stakeholders, and its own deliberations and analysis. It may examine the scope of USO as well as the utilization of the universal service budget from time to time and, if required, make changes. The Authority also suggested that USL be implemented on April 1, 2002 and the position of USF Administrator be established on January 1, 2002.

3.5 Universal Service Obligation Fund in India

The latest Annual Report 2020-2021 published by DoT on February 24, 2021 gives information about telecom sector scenario in India. It also provides detailed

information about USOF along with its various schemes. The study of DoT's Annual Report 2020-2021 has revealed various facts about USOF in India as follows. In addition, the information provided by USOF officers was also examined.

3.6 Organizational structure, functions and objectives of USOF

3.6.1 Organizational structure

The Universal Service Obligation Fund is established by an Act of Parliament and is headed by the Administrator, who is deputed by the Central Government. It is an attached office of the Ministry of Communications' Department of Telecommunications.

3.6.2 Amendment to telegraph act for creation/ administration of USO Fund

From April 1, 2002, the Universal Service Support Policy for providing telecom facilities in rural and remote areas of the country came into effect. On March 27, 2002, the DoT announced guidelines for universal service support policy, which were posted on the department's website. Following that, in December 2003, the Indian Telegraph Act, 1885 was changed by the Indian Telegraph (Amendment) Act, 2003, resulting in the creation of the USOF. The fund was founded with the primary goal of enabling people in rural and isolated locations with inexpensive and appropriate access to 'Basic' telegraph services. Following that, on December 29, 2006, the Indian Telegraph (Amendment) Act 2006 was passed, repealing the term "basic" and expanding the scope of the USO Fund to provide access to new services including mobile, broadband connectivity, and infrastructure creation such as OFC in rural and remote areas.

3.6.3 Rules for administration of USOF

The Indian Telegraph (Amendment) Rules, which govern the administration of the fund, were first published on March 26, 2004 (Appendix A). The Rules were later revised as the Indian Telegraph (Amendment) Rules 2006 to provide for the support

of mobile services and broadband access in rural and remote areas of the country, and they were published in the Gazette on November 17, 2006 (Appendix B). The Rules have since been revised on a regular basis.

3.6.4 Functions and objectives

The USO Fund was founded with the primary goal of making available inexpensive and reasonable access to 'basic' telecom services to persons in rural and far-flung places. Following that, the scope was expanded to include financial support for all sorts of telecom services, including mobile services, broadband connectivity, and the development of infrastructure such as OFC in rural and remote locations.

The "eligible operators," i.e. entities with a valid licence, registration, or authorization from the Central Government/DoT for providing telecom services or infrastructure, or any other entities as specified by the Central Government from time to time, were to carry out the USO-related activities.

3.6.5 Services supported by USOF

As per the rules, presently the following services are supported by USOF, categorized in the form of streams, as under.

1. **Stream-I** - Provision of Public Telecom and Information Services
2. **Stream-II** - Provision of household telephones in rural and remote areas as determined by the Central Government from time to time
3. **Stream-III** - Creation of infrastructure for provision of Mobile Services in rural and remote areas
4. **Stream-IV** - Provision of Broadband connectivity to villages in a phased manner
5. **Stream-V** - Creation of general infrastructure in rural and remote areas for

development of telecommunication facilities

6. **Stream-VI** - Induction of new technological developments in the telecom sector
in rural and remote areas

3.6.6 Utilization of USO Funds

3.6.6.1 The utilization of USOF funds as on October 31, 2022 (in crores)

Table 3.1: Utilization of USO Funds in India

Year	Funds Collected	Funds Disbursed	Funds Balance
2002 - 2003	1654	300	1354
2003 - 2004	2143	200	3297
2004 - 2005	3458	1315	5440
2005 - 2006	3215	1767	6888
2006 - 2007	3941	1500	9239
2007 - 2008	5406	1290	13455
2008 - 2009	5515	8549	10411
2009 - 2010	5778	2400	13789
2010 - 2011	6115	3100	16804
2011 - 2012	6724	1688	21839
2012 - 2013	6735	625	27949
2013 - 2014	7896	2163	33683
2014 - 2015	7538	2087	39134
2015 - 2016	9836	3100	45868
2016 - 2017	9764	7227	48406
2017 - 2018	7019	6999	48427
2018 - 2019	6912	4788	50550
2019 - 2020	7962	2926	55585
2020 - 2021	9471	7200	57857
2021 - 2022	6238	3468	60631
2022 – 2023**	6143	1213	64774
Total	133511	68736	64774

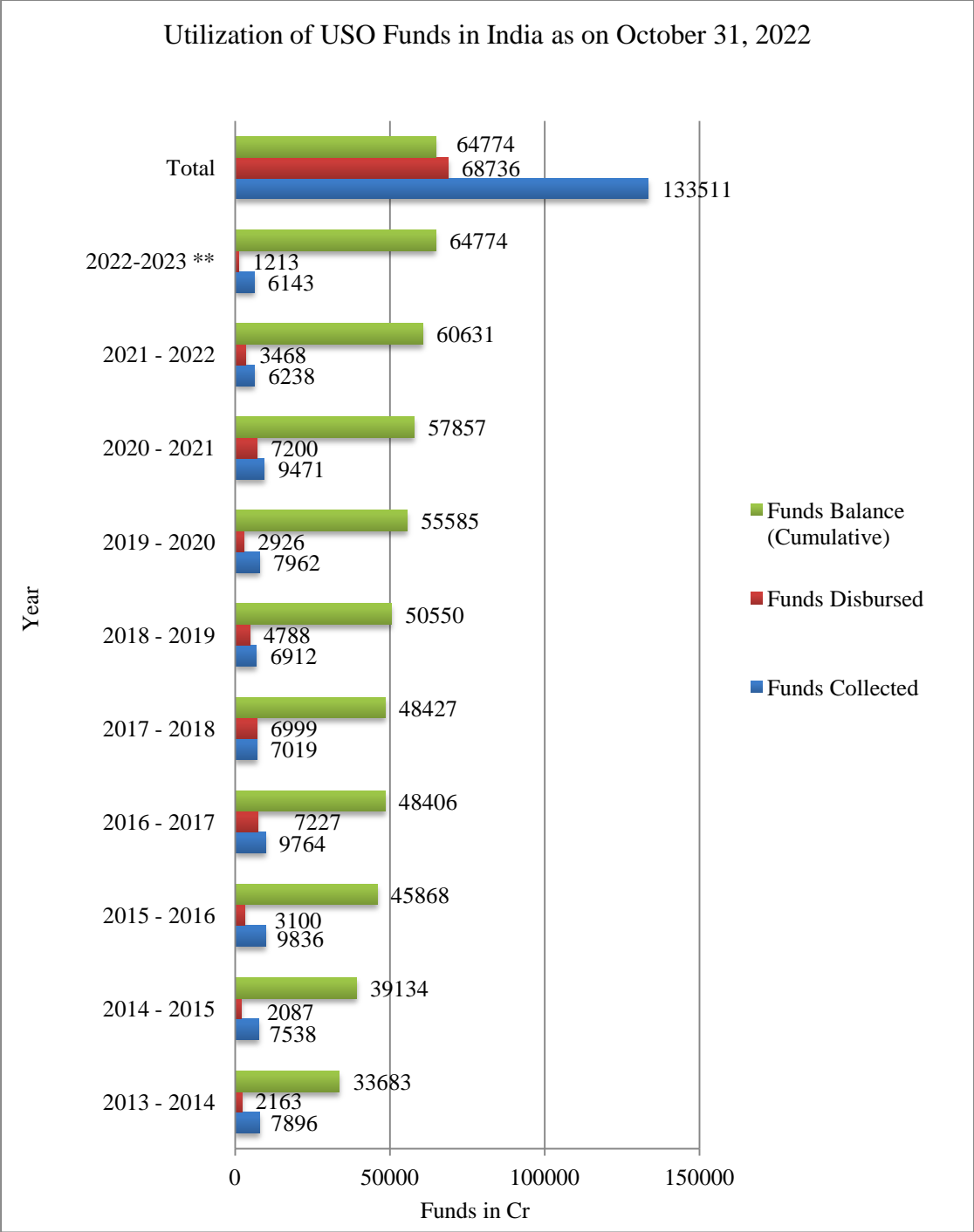


Figure 3.3: Utilization of USO funds in India

3.6.6.2 The scheme-wise share in the total subsidy disbursed by USOF is as follows.

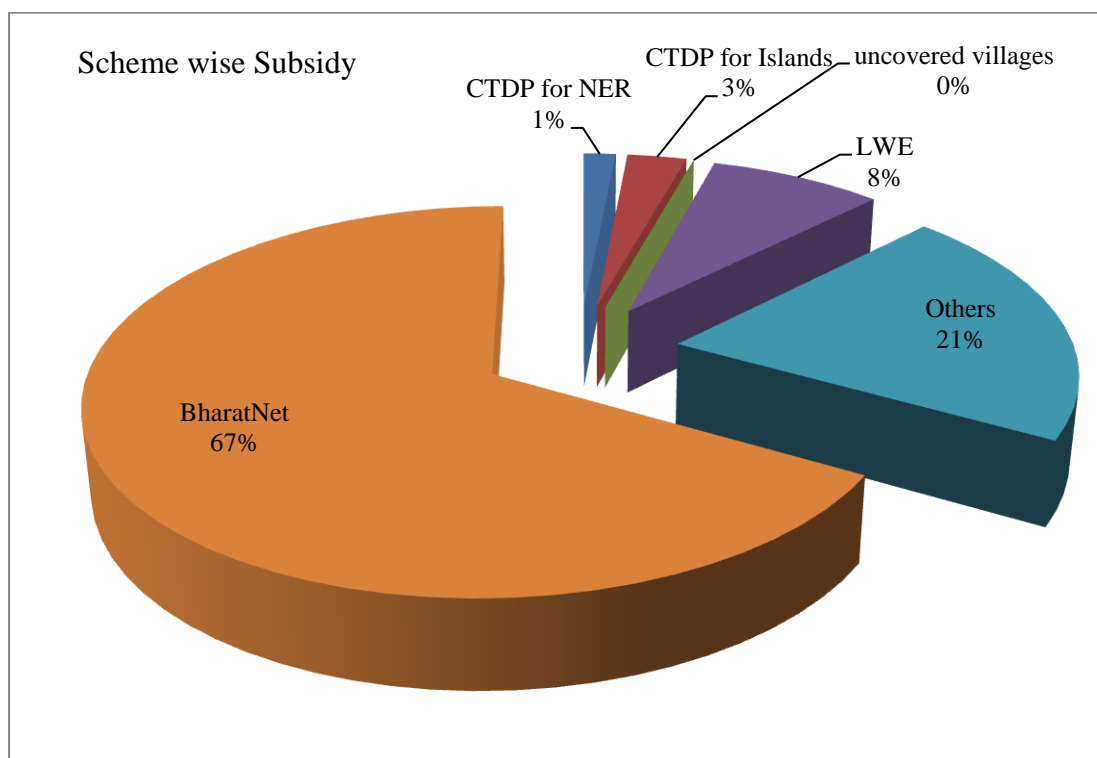


Figure 3.4: Scheme-wise share in the total subsidy disbursed by USOF

3.6.6.3 Activity-wise share in others category in the total subsidy disbursed by USOF (in crores) as on October 31, 2022 is as follows.

Table 3.2: Activity-wise share in others category in the total subsidy disbursed by USOF(Rs in Cr)

Activity	Funds Disbursed
RDEL- P	8750
RDEL-A	2098
RDEL-B	2032
RDEL-D	1191
RDEL-X	880
MARR-A	913
VPT-OPEX	859
WirelinE Broadband	504
Mobile-1	406
MARR-B	404
NEW VPT-1	228
NEW VPT-2	156
RCP	110
Wi-fi Chaupal	103

OFC NE-1	18
OFC NE-2	13
AMARNATH YATRA	6
SMCF	6
Wi-Fi BSNL	2
Sanchar Shakti	1

3.7 Status of implementation of the currently ongoing activities of the USO Fund

3.7.1 BharatNet:

“BharatNet, one of the world's largest rural telecom projects, is being phased in to bring broadband connectivity to all Gram Panchayats (about 2,50,000) across the country. On October 25, 2011, the Union Cabinet approved the creation of the National Optical Fibre Network (NOFN/now BharatNet) to provide Broadband connectivity for connecting Block Headquarters (BHQs) to Gram Panchayats (GPs) by utilising existing fibre from Central Public Sector Undertakings (CPSUs) such as Bharat Sanchar Nigam Limited (BSNL), RailTel Corporation Limited (RailTel), and Power Grid Corporation of India Limited (PGCIL) and the government would own the incremental OFC that was laid, while the existing fibre would remain in the hands of the current owners. Bharat Broadband Network Limited (BBNL) was established on February 25, 2012 as a Special Purpose Vehicle (SPV) for the creation, management, and operation and operations of broadband network in India.

Phase-I of BharatNet was completed in December 2017 with the deployment of over one lakh GPs, and the remaining GPs are being linked under BharatNet Phase-II using a variety of implementation strategies, including state-led model, CPSU-led model, and private-sector-led model for the establishment and administration.”

As per DoT Dashboard data for (updated upto December 31, 2022), a total of 1.91 lakh GPs have been connected by laying a total of 6.11 lakh kilometers OFC.

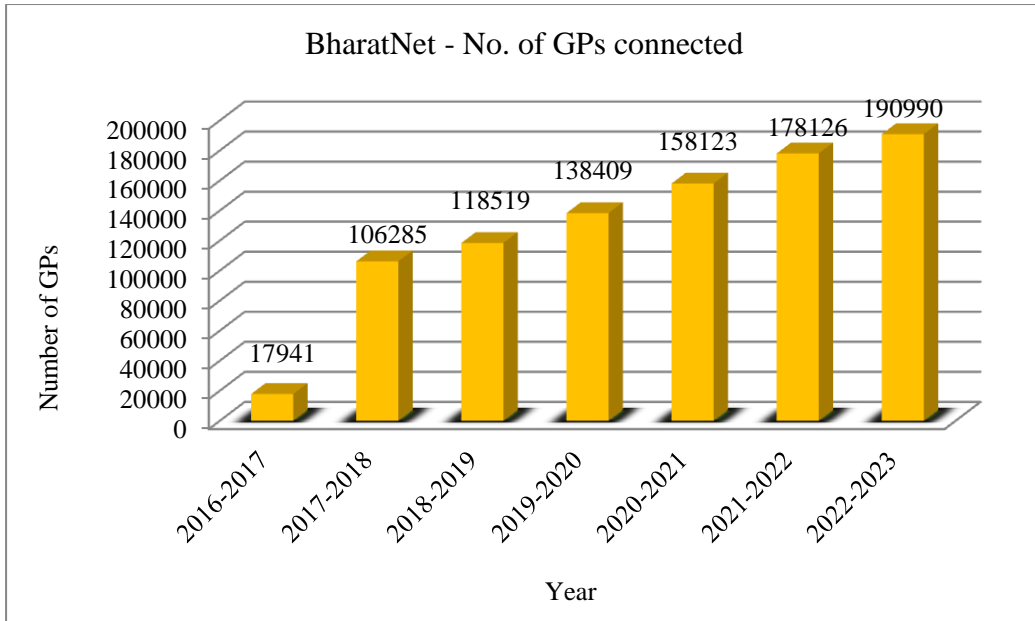


Figure 3.5: Number of GPs connected under BharatNet project

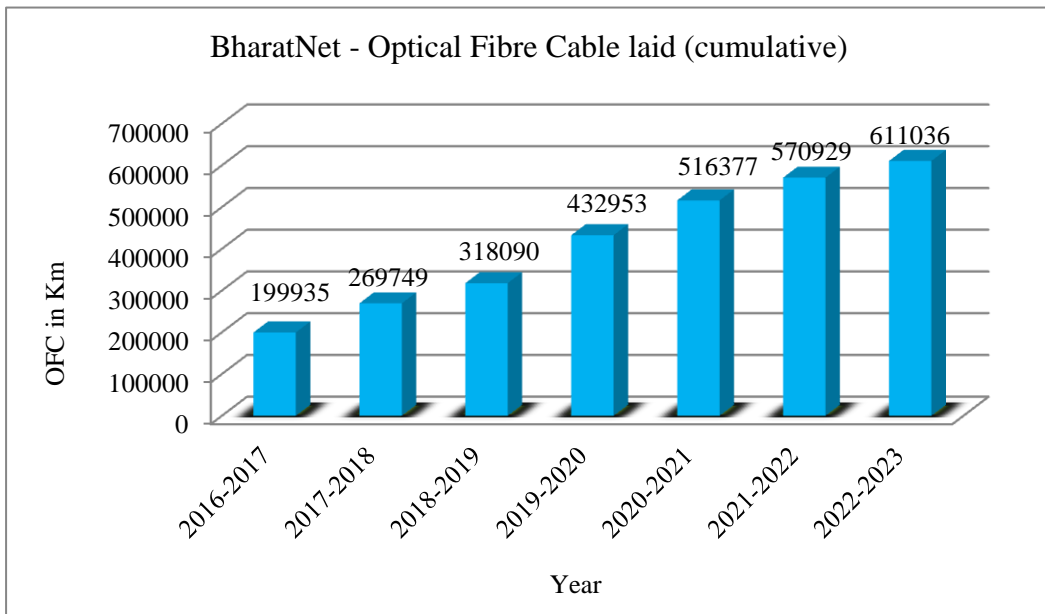


Figure 3.6: OFC laid under BharatNet project (cumulative)

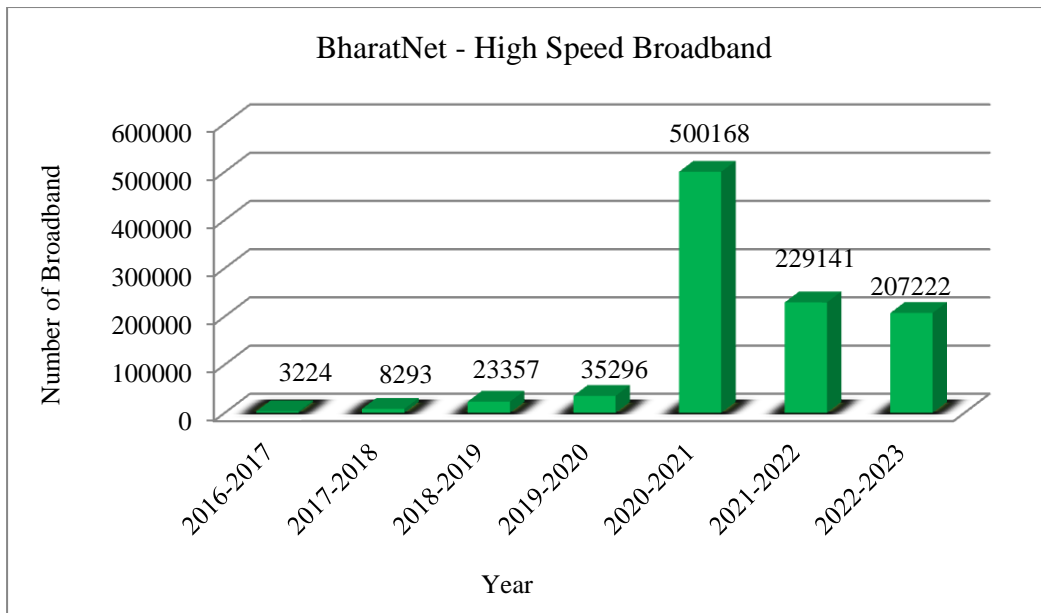


Figure 3.7: High speed broadband provided under BharatNet project

Wi-Fi or any other acceptable broadband technology, including FTTH, is used to deliver last mile connectivity to public locations and government institutions such as schools, aanganwadi, hospitals, customer service centres, police stations, post offices and so on. Wi-Fi hotspots have been established in 1,04,664 GPs, and 2,18,885 FTTH connections have been offered as of December 31, 2022. There is a spike in 2020 - 2021 in provisioning of high speed broadband connections as compared to earlier years due to “Har Ghar Tak Fiber” scheme launched in Bihar. The total data use each month is about 5301 TB.

“The BharatNet implementation strategy has been revised in accordance with NITI Aayog’s recommendation and the approval of the Digital Communications Commission (DCC) for a Public-Private Partnership (PPP) model using Viability Gap Funding (VGF) for effective network utilisation and induction of private sector efficiency in its operation and maintenance. BharatNet’s mandate has also been changed to connect more than 6 lakh inhabited villages across the country via fibre optics, up from 2.5 lakh Gram Panchayats previously. For implementation of the PPP

model in 16 States, the Request for Proposal (RFP) was floated on 20.07.2021 through global bidding for selection of the Private Sector Partner(s) and bid was opened on 27.01.2022, with last date of bid submission on 27.01.2022. No bid was received to PPP Model on 27.01.2022. Revised RFP and timelines being worked out with alternative models. As indicated in the Budget announcement for 2022-23, the project is envisaged to be completed in 2025.”

3.7.2 Comprehensive Telecom Development Plan (CTDP) for the North-Eastern Region (NER):

“On September 10, 2014, the Union Cabinet approved a proposal to implement the North-Eastern Region's Comprehensive Telecom Development Plan. In the states of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura, the project aimed to provide 2G mobile coverage to 8621 identified uncovered villages, as well as the installation of 321 mobile tower sites along National Highways and the strengthening of transmission networks.

Following that, due to advancements in technology and TSP coverage of villages, updated programmes were approved. The following are the details of the present schemes:

A. Mobile services in uncovered villages in rest of NER and seamless coverage along National Highway:

Mobile coverage will be provided under this programme by erecting 2004 towers in uncovered villages and along National Highways in Assam, Manipur, Mizoram, Nagaland, Tripura, Sikkim, and Arunachal Pradesh (National Highways only) in the North-East. On December 8, 2017, agreements were inked for the project's implementation. Though the implementation agencies are only responsible for providing 2G services, they have been providing 4G services alongside 2G services at

around 90 percent of tower sites on their own. A total of 1,358 sites have been installed and are providing services as of December, 2022. For locations that are feasible, the installation work is completed.

B. Mobile services in uncovered villages of Meghalaya and seamless coverage along National Highway:

As per the approval of Union Cabinet, the work was granted on September 4, 2020 for the deployment of 4G mobile services in 1,164 uncovered villages and 11 sites along National Highways in Meghalaya. 321 sites covering 480 villages have been commissioned. Further scope has been revised after addition/deletion of sites. As per the revised scope 1094 sites covering 1481 villages are to be commissioned by M/s BHL. Target for completion of the project is May, 2024.

C. Mobile services in uncovered villages of Arunachal Pradesh and two districts of Assam:

Provision of 4G mobile services in 2374 uncovered villages in Arunachal Pradesh and two Assam districts (Karbi Anglong and Dima Hasao) has been approved by the Cabinet on December 9, 2020. 137 sites covering 191 villages have been commissioned. By April 2023, the project will be completed.

D. Hiring of 20 Gbps International Bandwidth for Internet Connectivity to Agartala from BSCCL, Bangladesh via Cox Bazar:

For making available high quality and high speed internet access to the States of North Eastern Region of the country, Universal Service Obligation Fund (USOF) has signed an Agreement with Bharat Sanchar Nigam Limited (BSNL) on 18.08.2021 for hiring of 10 Gbps International Bandwidth for Internet Connectivity to Agartala from Bangladesh Submarine Cable Company Limited (BSCCL), Bangladesh via Cox Bazar/Kuakata. Under the Agreement, USOF shall provide financial support of Rs.

9.4 crore to BSNL over a period of three years for hiring the aforesaid International Bandwidth. The first 10 Gbps link was commissioned on 26.11.2021 and the second 10 Gbps link was commissioned on 21.04.2022. The project was completed with a cost of Rs. 17.15 Cr. to USOF.”

3.7.3 Implementation of Comprehensive Telecom Development Plan for Islands:

“In accordance with TRAI recommendations dated July 22, for 'Improving Telecom Services in Andaman and Nicobar Islands and Lakshadweep,' the Telecom Commission adopted, in principle, an Integrated and Comprehensive Telecom Development Plan for Islands of Andaman and Nicobar and Lakshadweep on November 7, 2014. The plan consists of the following projects:

(A) Andaman and Nicobar Islands:

(i) Submarine OFC connectivity between Chennai and Andaman and Nicobar Islands:

The Cabinet approved a dedicated undersea OFC link from Chennai to Port Blair and five other islands, namely Car Nicobar, Little Andaman, Havelock (Swaraj Dweep), Kamorta, and Great Nicobar Island, at its meeting on September 21, 2016. Subsequently, Rangat Island via Long Island from Havelock Island (Swaraj Dweep) was added to the submarine OFC link. A 2313-kilometer four-pair optical fibre cable has been laid, with one pair dedicated to the Ministry of Defense. On August 10, 2020, the Chennai-Andaman Nicobar Islands (CANI) project was inaugurated and dedicated to the country. Between Chennai and Port Blair, 200 Gbps bandwidth is available and 100 Gbps capacity available within the islands under CANI undersea cable project. On November 13, 2020, a tripartite agreement was signed for Operation and Maintenance of CANI. The current bandwidth consumption is 43.09 Gbps.



Source: Information provided by USOF officials

Figure 3.8: Submarine OFC connectivity under CANI project

(ii) Satellite bandwidth augmentation for Andaman and Nicobar Islands:

In compliance with DCC clearance, BSNL completed work to increase satellite bandwidth from 2 Gbps to 4 Gbps in the Andaman and Nicobar Islands on a nomination basis. The USOF will fund the CAPEX, while the MHA/UT Administration of the Andaman and Nicobar Islands would fund the OPEX charges. On September 9, 2021, satellite bandwidth was increased to 4 Gbps.

(iii) Provision of 4G mobile coverage in uncovered villages and seamless 4G mobile coverage of NH223 in Andaman and Nicobar Islands:

On March 15, 2021, an agreement has been inked for the construction of 82 towers to provide 4G mobile services in 85 uncovered villages (with a population of 10 or more) and 42 towers to bridge the gaps in mobile connectivity along uncovered NH-4 (earlier NH-223). USOF will fund the CAPEX and OPEX for the next five years using the VGF Model. The project is expected to be completed by 14.05.2023.

(B) Lakshadweep Islands:

(i) Submarine OFC connectivity between Kochi and Lakshadweep Islands:



Figure 3.9: Map of Lakshadweep Islands

The Cabinet approved a proposal for Provision of Submarine Optical Fibre Cable Connectivity between the Mainland (Kochi) and the Lakshadweep Islands (KLI project), which includes Kavarati and ten other islands, including Kalpeni, Agatti, Amini, Androth, Minicoy, Bangaram, Bitra, Chetlat, Kiltan, and Kadmat, at its meeting on December 9, 2020.

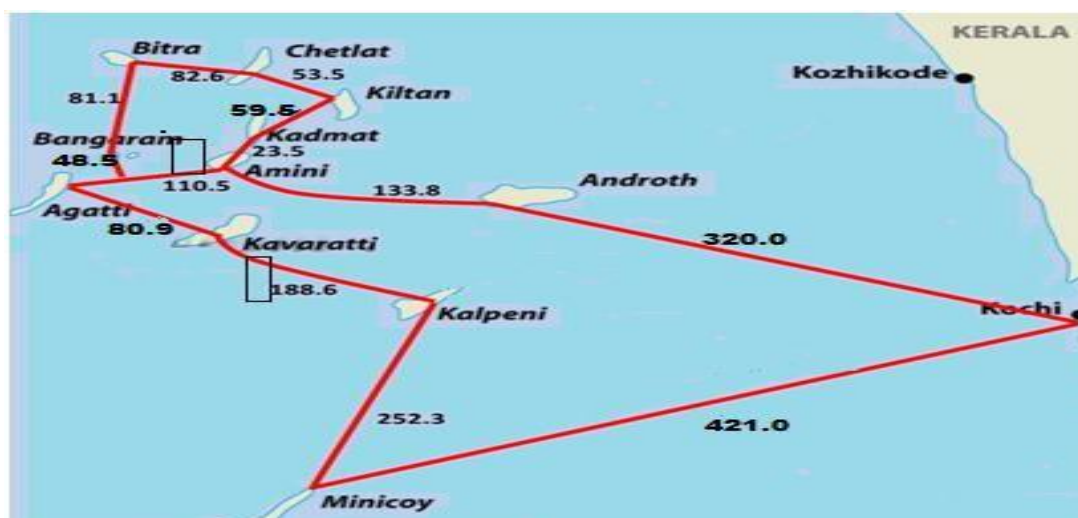


Figure 3.10: Submarine OFC connectivity under KLI project

The predicted total route length is 1,772 kilometers, with a total financial impact of Rs. 1,072 crore. The project is expected to be completed by May 2023. As a result of the global turnkey tender floated on March 10, 2021, a purchase order has been awarded on September 28, 2021 for the execution of the KLI project. On July 19, 2021 the work order for acquiring statutory permissions like Environmental Impact Assessment/Coastal Regulation Zone (EIA/CRZ), Forest, Wildlife clearance, and so on has been awarded. Further As a result of the tender, purchase order was issued on November 16, 2021 for appointment of Independent Monitoring Agency (IMA) for the project. The work on the marine survey, as well as the land cable survey and securing EIA/CRZ clearance, is now underway.

(ii) Satellite bandwidth augmentation for Lakshadweep Islands:

On August 31, 2018, DCC accepted a proposal to increase satellite bandwidth in the Lakshadweep Islands from 318 Mbps to 1.71 Gbps using GSAT-11 and 19 capacities at a cost of Rs 25.75 crore.

BSNL is working on a nomination basis in Lakshadweep Islands to increase satellite bandwidth from 318 Mbps to 1.71 Gbps using GSAT-11 and GSAT-19 capacity, in compliance with DCC approval. The USOF will fund the CAPEX while the MHA/UT Administration of the Lakshadweep Islands would fund the OPEX (Transponder charges). On August 14, 2021, satellite bandwidth has been increased to 1.71 Gbps.”

3.7.4 ‘Re-provisioning of Digital Satellite Phone Terminals (DSPTs) provided to MHA agencies (CAPFs), MoD agencies (Army, BRO) and other agencies using VSAT connectivity under BharatNet project’:

These DSPTs are offered in distant, rural, remote, and rugged terrain where no other

operator can provide coverage. INMARSAT terminals were provided to MHA agencies (CRPF, BSF, ITBP, and SSB) and MoD agencies (Indian Army and BRO) as a short-term remedy to satisfy their vital communication demands. The proposal for provisioning of Digital Satellite Phone Terminals (DSPT) to MHA/MoD agencies as well as Ladakh Autonomous Hill Development Council (LAHDC) using VSAT connectivity under the BharatNet project was approved by the DCC at its meeting on December 20, 2019. At present, 1382 sites had been operationalized out of a total of 1409 VSATs to be provided.

3.7.5 Mobile service in uncovered villages:

In the first phase, the government focused reaching out to remote sections of the country, such as the North-Eastern States, Islands, Himalayan States, Western Border States, and, most crucially, Left-Wing Extremism-affected areas.

3.7.5.1 Scheme for border areas and other priority areas:

On April 28, 2020, an agreement was signed with the implementing agency, for the provision of mobile service in 354 uncovered villages in Jammu and Kashmir, Ladakh, Himachal Pradesh, Uttar Pradesh, Bihar, Rajasthan, Gujarat, Uttarakhand, Border areas, and other priority areas. In addition, fifty-five more villages have been added to provide mobile services. As on December 31, 2022 278 sites have been commissioned covering 299 villages.

3.7.5.2 Aspirational districts scheme

(i) 502 aspirational district villages (MP, UP, Rajasthan, Bihar):

A scheme to provide 4G-based mobile services to 502 uncovered villages across 112 Aspirational Districts in four states (Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan) has been finalised. After a tendering process in March 2021, agreements

were signed and work was allocated. As on December 31, 2022, 76 mobile towers covering 99 villages have been commissioned.

(ii) **Remaining 7287 aspirational district villages (Andhra Pradesh, Chhattisgarh, Jharkhand, Maharashtra and Odisha):**

“On November 17, 2021, the Cabinet authorised a scheme for the provision of 4G based Mobile services in 44 Aspirational Districts of the five states of Andhra Pradesh, Chhattisgarh, Jharkhand, Maharashtra, and Odisha. On December 31, 2022, 19 mobile towers covering 37 villages have been commissioned.”

3.7.5.3 ‘Scheme for mobile communication services in Left Wing Extremism (LWE) affected areas’: -

(i) **LWE Phase-I:**

The Cabinet approved the execution of a project in LWE areas to deliver mobile services on 2G technologies in the ten impacted states of Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Maharashtra, Madhya Pradesh, Odisha, Telangana, Uttar Pradesh, and West Bengal on the August 20, 2014. Total 2343 sites in 106 districts are made functional. The proposal for upgrading current LWE-I sites to 4G is under implementation.

(ii) **LWE Phase-II:**

On May 23, 2018, the Cabinet approved a proposal for Phase II of the project in LWE-affected districts, with a subsidy of Rs. 7330 crore. The project was later approved for 2,542 towers to deliver 4G mobile services at an estimated cost of Rs. 2,211.17 crore due to revisions in the specifications. On December 1, 2020, the Digital Communications Commission (DCC) approved the project.

A tender has been issued and finalised for the project's implementation. In September/October 2021, the agreements were signed for implementation of the

project with 940 mobile towers in Andhra Pradesh, Bihar, Jharkhand, Telangana, Uttar Pradesh, West Bengal and 1603 towers in the states of Chhattisgarh, Madhya Pradesh, Maharashtra, and Odisha. As on December 31, 2022, 284 mobile towers have been installed and commissioned covering 294 villages.

3.7.6 ‘USOF scheme for setting up of 25,000 public Wi-Fi hotspots using the infrastructure of BSNL’s telephone exchanges in rural areas’:

BSNL is installing public Wi-Fi hotspots at its 25,000 telephone exchanges in rural areas, at a cost of Rs. 943 crore, with USOF funding. Each exchange will have one Access Point (AP) with a backhaul bandwidth of 2 Mbps. In 24,330 rural exchanges/BTS, Wi-Fi hotspots have been put up/installed and are now offering services.

3.7.7 Saturation of 4G Mobile Services:

“The Union Cabinet on 27.07.2022 approved a project for saturation of 4G mobile services in uncovered villages across the country at a total cost of Rs. 26,316 Cr. The project will provide 4G mobile services in 24,680 uncovered villages in remote and difficult areas. The project has a provision to include 20% additional villages on account of rehabilitation, new-settlements, withdrawal of services by existing operators etc.

In addition, 6,279 villages having only 2G/3G connectivity shall be upgraded to 4G. The project will be executed by BSNL using Atmanirbhar Bharat’s 4G technology stack and will be funded through Universal Service Obligation Fund. The target date of the completion of the project is Dec-2023.

Survey work of about 30779 villages have been completed and 14423 towers are proposed to be installed to cover all uncovered villages.”

4. Digital Divide in Meghalaya

4.1 Background

As a result of the COVID-19 pandemic, the government, private businesses, and the general people are increasingly relying on internet connectivity for interaction rather than physical connectivity such as rail, road, or air transportation networks. The ways we live, work, and interact will change in the post-pandemic age. We need to live in an environment that encourages socialising and economic activity, while limiting personal interaction. Internet's ubiquitous availability and use has both economic and social implications. Access to internet, like drinkable water and electricity, would become a requirement in the post-pandemic age. It's tough to picture a world without broadband access. Telecom and internet access will play a large role in daily life, and in some ways, broadband will become a basic human right.

Even before the COVID-19 epidemic, ICT has emerged as a crucial driver of economic and social development in an increasing knowledge-driven globalised world during the last two decades. In today's world, communication services such as voice, video, data, the internet, and wideband multimedia are essential.

4.2 Digital divide in India

4.2.1 In India telecommunications has progressed from being a state-owned public utility to a more liberalised, private-dominated industry. There's no doubt that telecommunications market liberalisation and privatisation resulted in large investments in telecom infrastructure and a spectacular spread of telecommunication networks around the world, not to mention the rise of the internet. Despite this progress, there is still a digital divide between rural and urban areas, as well as poor and wealthy ones. The urban teledensity is 134.62 percent, whereas the rural

teledensity is just 58.01 percent, according to the TRAI's latest Performance Indicator Report (July-Sept 2022) published on February 03,2023. In the same way, urban internet subscriber density (internet subscribers per 100 people) is 104.77 percent, while rural internet subscriber density is only 38.33 percent. Between rural and urban India, there is a noticeable digital gap.

With the rising importance of "being connected" and slowing expansion in impoverished and rural/remote areas, favourable conditions are needed to incentivize and minimise the cost of connectivity to the unserved and remote areas including islands.

4.2.2 DoT has developed performance dashboard which monitors and provides in-depth information/data on various parameters of Indian telecom sector. It monitors important parameters pertaining to Telephone subscribers, Teledensity, Internet subscribers, Broadband subscribers, Wireless data usage, Telecom usage, Telecom towers, BharatNet, Telecom licenses, Telecom Virtual Network Operator (VNO) licenses, Registration, Public Grievances etc. The dash board; which is being updated regularly, was accessed on February 06, 2023 to get updated information on Telephone subscribers, Teledensity, Internet subscribers and Broadband subscribers. The details are as follows.

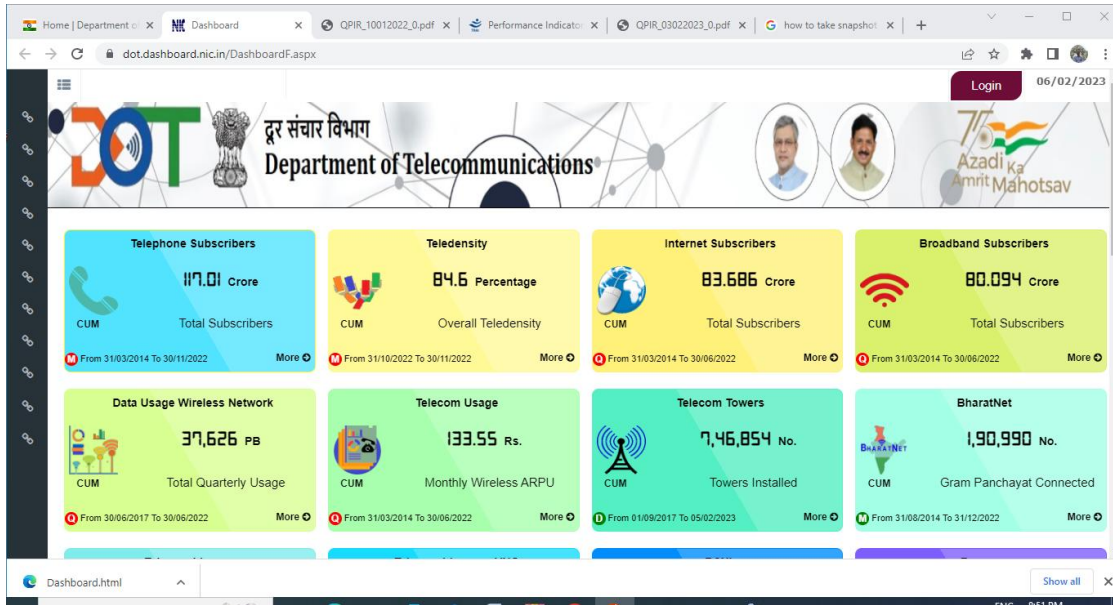


Figure 4.1: Performance dashboard of DoT accessed on February 06, 2023

4.2.2.1 The overall telephone subscribers as on November 30, 2022:

Table 4.1: Overall telephone subscribers in India (2013-2023) (In Cr.)

Year	Total Subscribers	Urban Subscribers	Rural Subscribers
2013-2014	93.302	55.523	37.778
2014-2015	99.613	58.005	41.608
2015-2016	105.933	61.156	44.777
2016-2017	119.499	69.593	50.181
2017-2018	121.18	68.593	52.587
2018-2019	118.341	66.914	51.427
2019-2020	117.679	65.554	52.125
2020-2021	120.088	66.376	53.711
2021-2022	117.782	65.498	52.284
2022-2023	117.010	65.182	51.828

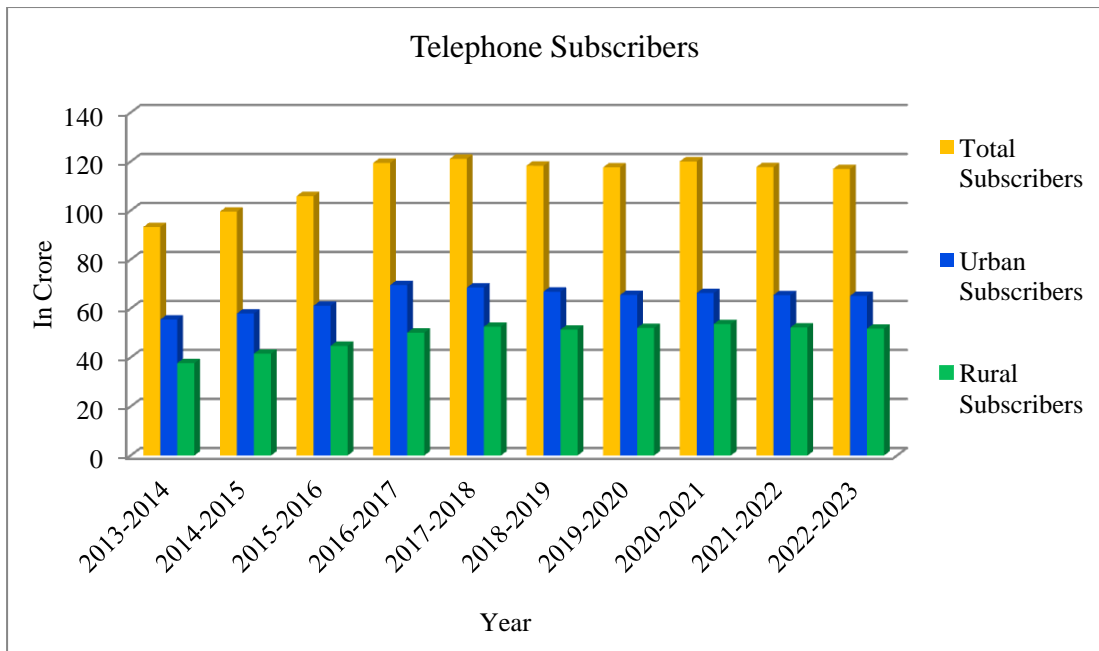


Figure 4.2: Overall telephone subscribers in India (2013-2023)

The data as reflected in DoT performance dashboard pertaining to 2022-2023 revealed that majority of telephone subscriber's pertains to urban areas.

4.2.2.2 The overall teledensity as on November 30, 2022:

Table 4.2: Overall teledensity in India (2013-2023)

Year	Overall Teledensity	Urban Teledensity	Rural Teledensity
2013-2014	75.23	145.46	44.01
2014-2015	79.36	149.04	48.04
2015-2016	83.4	154.18	51.26
2016-2017	93.01	171.52	56.98
2017-2018	93.27	166.64	59.25
2018-2019	90.1	159.66	57.5
2019-2020	88.66	153.68	57.87
2020-2021	88.15	141.29	60.17
2021-2022	85.87	137.48	58.4
2022-2023	84.60	134.56	57.67

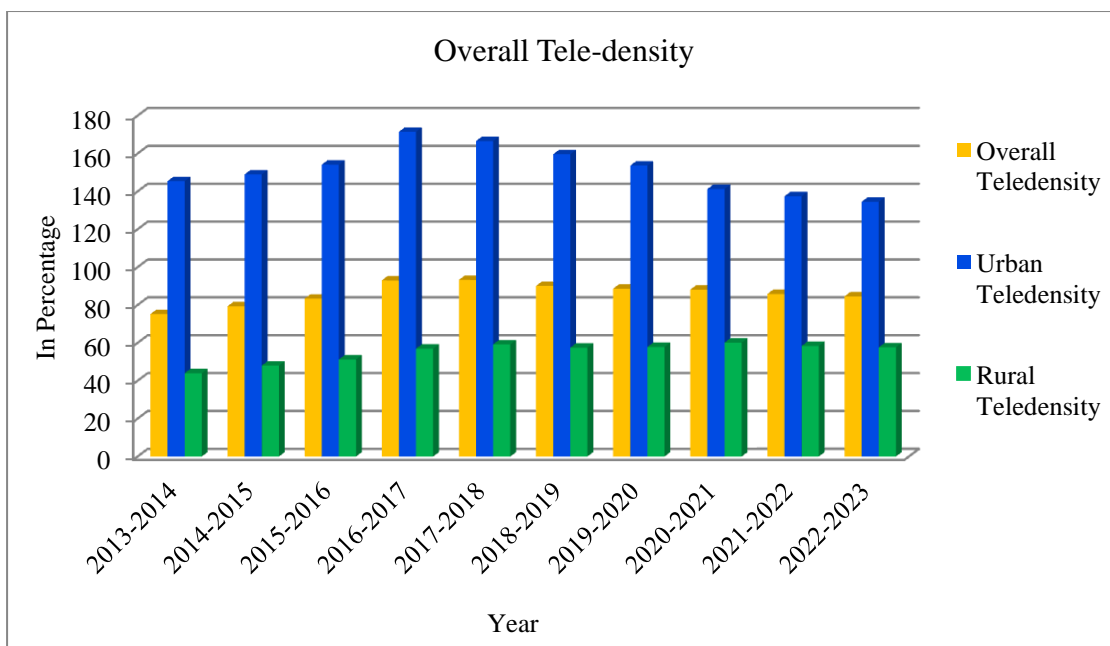


Figure 4.3: Overall teledensity in India (2013-2023)

The latest data pertaining to 2022-2023 shows rural teledensity at 57.67 percentages which is way behind as compared to urban.

4.2.2.3 Overall internet subscribers as on November 30, 2022:

Table 4.3: Overall internet subscribers (2017-2023)

Year	Total Subscribers	Urban Subscribers	Rural Subscribers
2017-18	49.395	34.813	14.583
2018-19	63.673	40.972	22.701
2019-20	74.322	45.724	28.598
2020-21	82.53	50.253	32.277
2021-22	83.429	49.769	33.66
2022-23	83.686	49.756	33.93

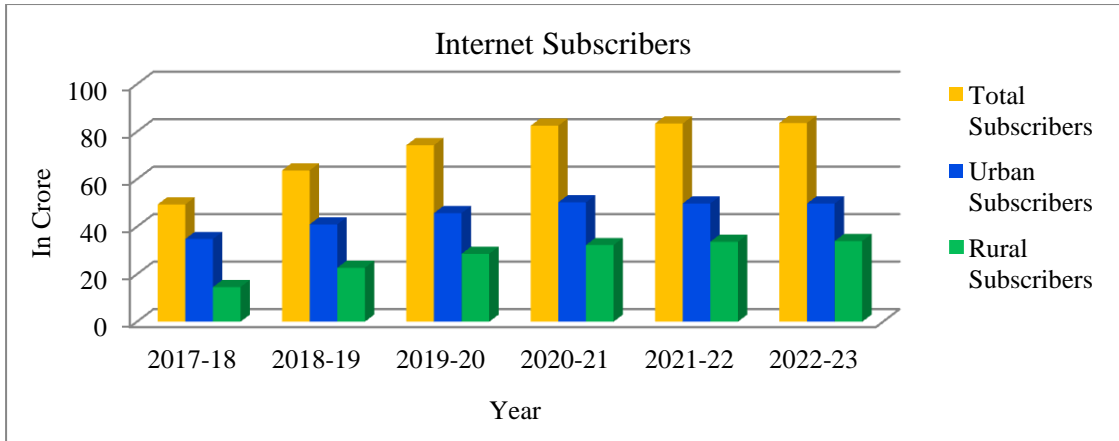


Figure 4.4: Overall internet subscribers in India (2017-2023)

The rural internet subscriber contributes 40 percentages of total subscribers.

4.2.2.4 Overall Broadband subscribers as on November 30, 2022:

Table 4.4: Overall Broadband subscribers (2019-2023)

Year	Total Subscribers	Wireless Subscribers	Wireline Subscribers
2019-20	68.744	66.826	1.918
2020-21	77.809	75.534	2.275
2021-22	78.83	76.105	2.725
2022-23	80.094	77.223	2.871

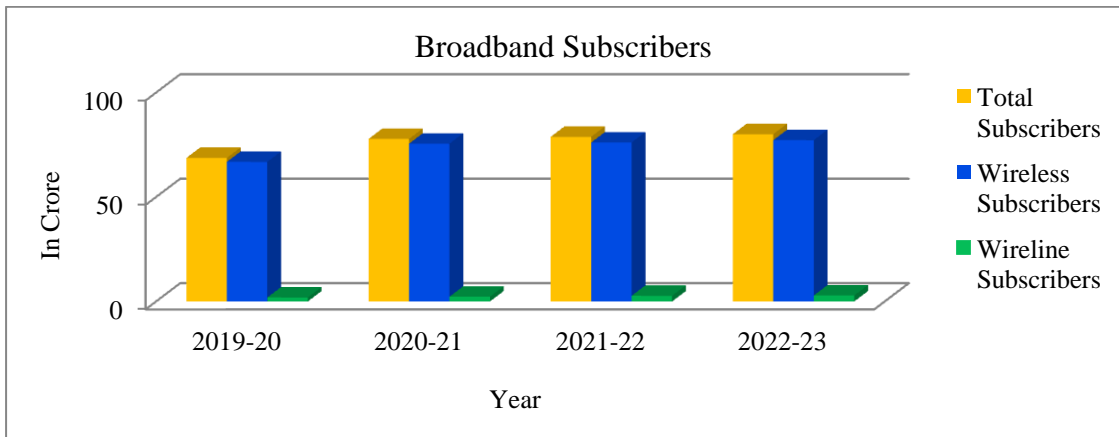


Figure 4.5: Overall broadband subscribers in India (four years)

The overall broadband subscribers in India are increasing steadily on year to year basis.

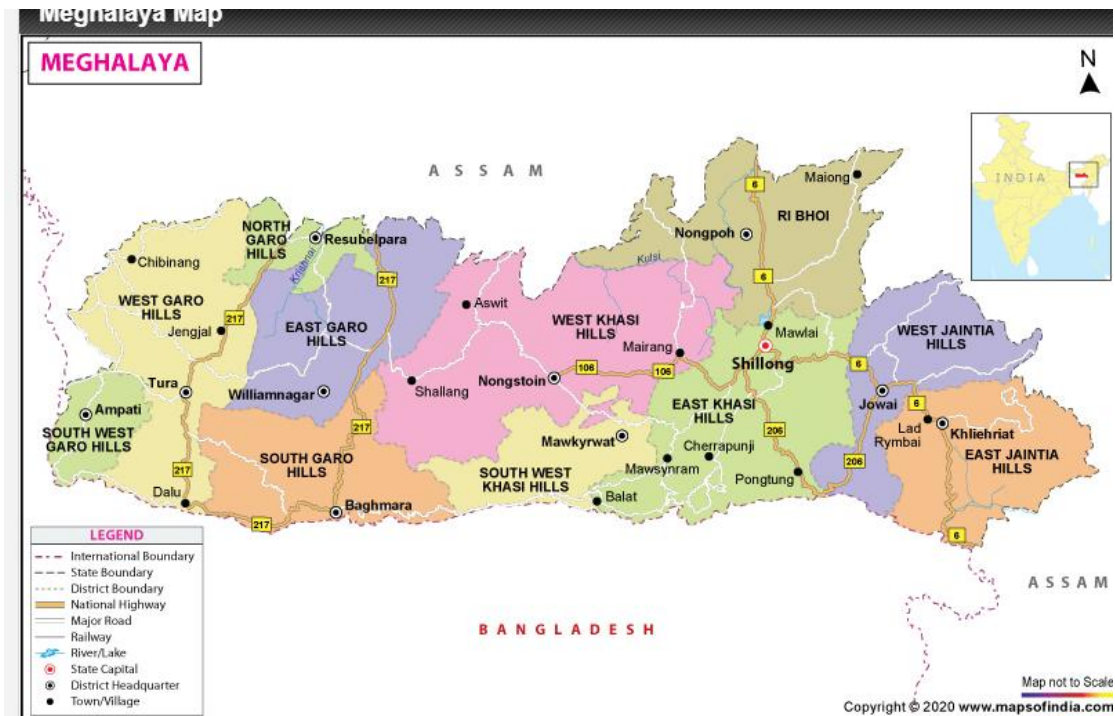
4.2.2.5 The study of above data on Telephone subscribers, Teledensity, Internet subscribers and Broadband subscribers established the fact that digital divide between rural and urban areas still exists.

4.3 About Meghalaya

4.3.1 Meghalaya came into existence on 21 January 1972. Meghalaya means ‘ The Adobe of Clouds’ is a state located in the North-Eastern part of India. Shillong is the capital and also the largest city in the state. It is a place where it rains the most among all Indian states. The state is also known as the ‘Scotland of East.’ The wettest place in India is Meghalaya which records highest rainfall. It has highly rich bio-diversity and home for many cultures.

For India, North Eastern States including Meghalaya are extremely crucial. It is the remote and far flung region of India. The provision of secure, dependable, resilient, and inexpensive telecom services in this region is critical for the people who live there, as well as from a strategic standpoint for the entire country.

4.3.2.1 Meghalaya extends between latitude 20°1'N - 26°5'N and longitude 85°49'E - 92°52'E. It extends for about 300 km in length and about 100 km in width. It is bounded on the north and east by the state of Assam and on the south and west by Bangladesh. Its population is about 30 lakh and there are twelve districts in the state.



Source: <https://www.mapsofindia.com/maps/meghalaya/>

Figure 4.6: Map of Meghalaya

4.3.2.2 Meghalaya is having total area of 22429 sq. kilometers. 69.5% of total geographical area is covered by forests. Meghalaya is subject to vagaries of the monsoon. The climate varies with altitude. The climate of Khasi and Jaintia Hills is uniquely pleasant and bracing. It is neither too warm in summer nor too cold in winter, but over the plains of Garo Hills, the climate is warm and humid, except in winter. The Meghalayan sky seldom remains free of clouds. It is one of the most beautiful states in North-East India offering a variety of sights, activities, food and festivals to the tourists. Well known for Cherapunji, the place which receives one of the maximum rainfall in the world, Meghalaya can mesmerise you with its hills, valleys, lakes, caves and waterfalls which when combined with the beautiful clouds, give it a very serene, beautiful look which makes it one of the most magnificent tourist destinations in the world.

Table 4.5: Profile of Meghalaya

Total Population	29,66,889 (as per 2011 census)
Total Area	22429 Sq. Km
Districts	12
Block	46
Towns	22
Villages	6839 (6471 Inhabited)
Gram Panchayats	1791

Table 4.6: Administrative set-up in Meghalaya

No of Districts	No of Sub-Districts	No of towns	No. of Villages	
			Total	Inhabited
12	46	22	6839	6471

4.3.2.3 The Shillong town serves as the state's capital. It is here in Shillong that all trade, commerce, administrative, and tourism activities are administered. Apart from a hill station, it serves as education hub for North Eastern States. The capital of the Meghalaya contains one airport. According to the 2011 census, the population of Shillong was 1,43,229.

4.3.2.4 The nearest railway station is Guwahati. It is 104 km from Shillong and very well connected with all major cities of India. Shillong is well connected by roads to cities nearby.

4.3.2.5 Furthermore, according to the 2011 census, Meghalaya has a total population of 29,66,889 with 50% male and 50% female populations with overall literacy rate of 75.4%. The following table provide urban and rural population in Meghalaya.

Table 4.7: Population profile of Meghalaya

Population		
Urban	Rural	Total
5,95,450	23,71,439	29,66,889

As per 2011 census, the overall number of people residing in urban areas was 5,95,450 people, which account for 20.07 percent of the overall population and rest of 79.93% population resides in rural area.

4.4 Digital divide in Meghalaya

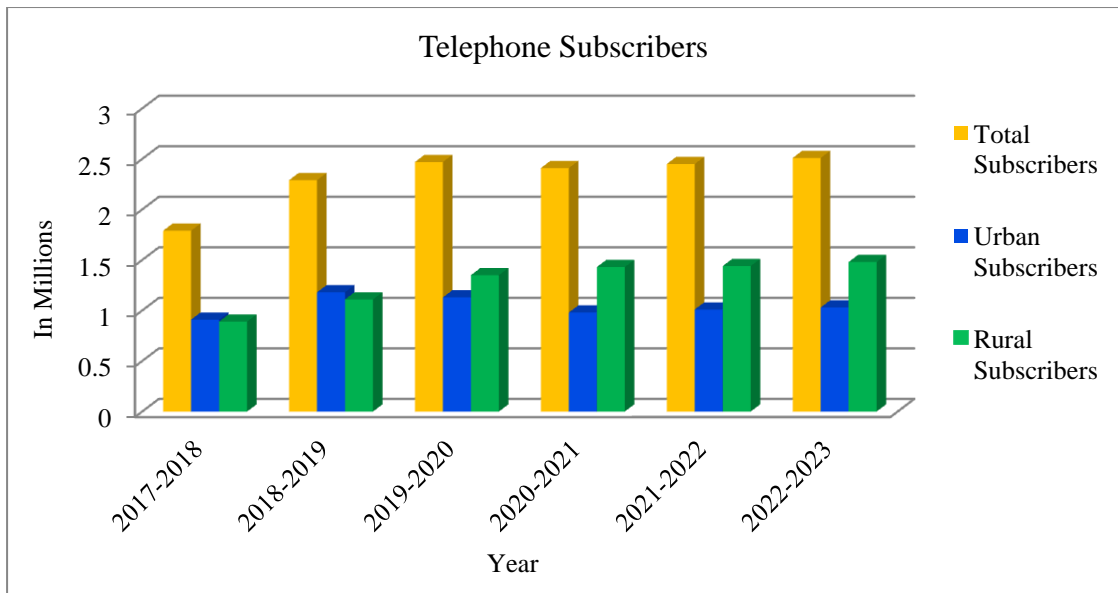
4.4.1 On a quarterly basis, TRAI monitors the Performance Indicator Report (PRI), which gives numerous indicators concerning the telecom sector in states and union territories. Since the 4G mobile services project began in September 2020, a comparison of PRI data on telephone subscribers and teledensity in Meghalaya before and after this project has been carried out.

4.4.2 The overall telephone subscribers in Meghalaya as on September 30, 2022:

Table 4.8: Overall telephone subscribers in Meghalaya (In Million)

Year	Total Subscribers	Urban Subscribers	Rural Subscribers
2017-2018	1.79	0.91	0.89
2018-2019	2.29	1.18	1.11
2019-2020	2.47	1.13	1.35
2020-2021	2.41	0.98	1.43
2021-2022	2.45	1.01	1.44
2022-2023	2.51	1.03	1.48

Source: TRAI “The Indian Telecom Services Performance Indicator Report July - September,2022”



Source: TRAI “The Indian Telecom Services Performance Indicator Report July - September,2022”

Figure 4.7: Overall telephone subscribers in Meghalaya

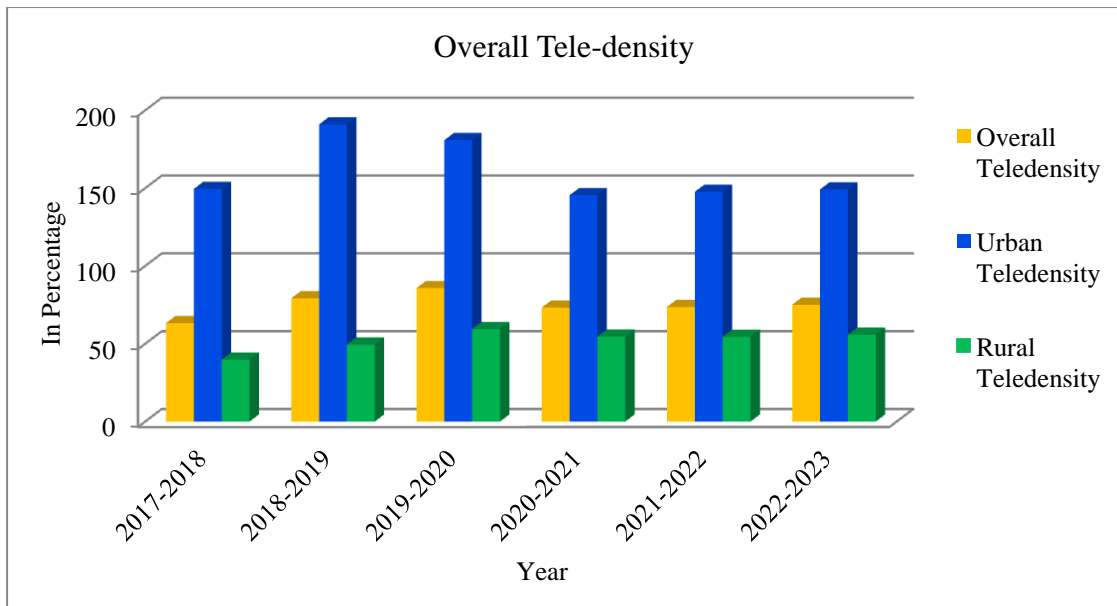
The above data revealed that rate of telephone subscription in Meghalaya has increased after launching of the 4G Mobile project in rural and remote areas.

4.4.3 The overall teledensity in Meghalaya as on September 30, 2022:

Table 4.9: Overall teledensity in Meghalaya(In %)

Quarter	Overall Teledensity	Urban Teledensity	Rural Teledensity
2017-2018	63.29	149.53	39.8
2018-2019	79.22	191.02	49.47
2019-2020	85.82	180.87	59.44
2020-2021	73.27	145.46	54.58
2021-2022	73.69	147.65	54.48
2022-2023	75.10	149.21	55.84

Source: TRAI “The Indian Telecom Services Performance Indicator Report July - September,2022”



Source: TRAI “The Indian Telecom Services Performance Indicator Report July - September,2022”

Figure 4.8: Overall teledensity in Meghalaya

The teledensity in Meghalaya is increasing steadily after launching of the 4G mobile project by USOF in Meghalaya.

4.5 Major challenges in the development of telecom infrastructure in Meghalaya

“On 22nd April 2013, the DoT wrote to TRAI on the subject ‘Augmentation/Revamping of Telecom Services in North Eastern States including the State of Sikkim-Study regarding gap and investment required for formulation of a telecom plan’. The DoT’s letter raised concerns about the low tele-density in the North Eastern States as compared to the other parts of the country and also on the poor Quality of Services (QoS) offered by various Telecom Service Providers (TSPs) in these States. The DoT requested TRAI to provide its recommendations on a comprehensive Telecom Plan for the NER after making a gap analysis and investment required for providing quality telecommunication services to the North East Region.”

The regulator on September, 26, 2013, presented its recommendations on 'Improving Telecom Services in the North-Eastern States: An Investment Plan ' to DoT. "As per the report, the regulator stated following primary challenges in the development of telecom infrastructure in NER states including Meghalaya:

a) **Terrain Difficulties** – Meghalaya has hilly terrain. As a result, wireless coverage in Base Trans-Receiver Station (BTS) shadow zones is a major concern (Shadow zones are those areas in which, despite being under coverage, signals from the BTS do not reach the subscriber). There are several remote hilly locations that do not have road connectivity (even at sub-divisional locations). Reaching these locations is time-consuming and arduous. This severely impedes establishing and maintaining telecom connectivity viz. setting up of telecom infrastructure and operating and maintaining it.

b) **Infrastructure issues** – In absence of a National Policy on telecom infrastructure for the country, State Governments and local bodies often take action regarding right of way issues that directly impinges on day-to-day operational issues which, in turn, impedes and delays setting up of telecom infrastructure. Numerous Government agencies and local bodies have to be approached for obtaining different permissions. At present, State Government do not facilitate the setting up of telecom infrastructure by TSPs, through a single-window clearance system. Some key infrastructure-related issues faced by the TSPs in these States are discussed below:

i. **BTS Towers:** TSPs face huge difficulties in locating new BTS sites. In some cases, the Village Headman's/Local body's permission is required to erect a telecom tower for installing BTSs, and, more often than not, such permissions are routinely denied. A few States have banned erection of Roof Top Towers (RTT) especially after the 2011 earthquake. Moreover, houses in hill States, especially in rural and remote

locations, do not have concrete roof on buildings; hence, erection of Ground Based Tower (GBT) is the only available option. However, land acquisition for erecting a GBT is beset with problems because of unclear land titles and commercial land usage clauses.

ii. **Right of Way (ROW) permissions:** In the absence of a clear mandate and the involvement of multiple agencies, getting ROW permission is very difficult. In addition, rates charged for reinstatements are very high, and TSPs simply cannot afford to pay the large sums involved as this would render the business unviable.

iii. **Power related:** Power supply in most of the districts of Meghalaya is both precarious and inadequate. To further exacerbate matters, most local communities do not permit running of Diesel Generators (DGs) between 6 pm to 6 am. In addition, high captive charges are levied for running DGs. The experience of some TSPs in using solar power for running a BTS has not been very encouraging as sufficient sunlight is not available due to climatic conditions.

iv. **Optical Fibre Cables(OFC) :** Due to hilly and difficult terrain, it is very difficult to lay OFC in the state. As a result, the number of OFC Points of Presence (POP) in the State is very limited. Though USOF is working for increasing the number of POPs between District headquarters (DHQs) and Block headquarters (BHQs), the pace of work is very slow and has almost halted. In the absence of reliable backhaul connectivity between the State Capital and District Head Quarters (DHQs), penetration of telecom services further to towns and villages is suffering. Moreover, fiber cuts due to landslides and road widening work are very frequent, causing prolonged disruption to services.

c) **VSAT related issues** In many places in the state, laying OFC is neither feasible nor economically viable. Hence, VSAT is the only available option. However, VSAT

connectivity approvals take a lot of time - almost upto two years in some cases having inter-departmental linkages for transfer of application and information for processing, for all the agencies involved in grant of various approvals/permissions/allocations, etc., like Department of Space (DoS), DOT, Wireless Planning & Coordination (WPC) and Network Operation & Control Center (NOCC). Further, the VSAT bandwidth connectivity charges are very high; this renders unviable any business case for the TSPs.

d) **Tribal & Forest Areas Issues** – Due to forest areas, there is inaccessibility of telecom installations and non-availability of diesel. In some areas, movement of personnel is restricted during night hours. This delays operations and maintenance essential for telecom services. Environmental clearance of mobile tower sites in the forest area and disputed inter-state border area is another hurdle being faced by TSPs in Meghalaya.

e) **Other issues** (i) Getting Standing Advisory Committee on Radio Frequency Allocation(SACFA) clearance for sites in the NER is a problem as many areas fall under the restricted area category for which auto clearance of SACFA is not being given. (ii) There are many BTSs in the state that were installed after getting USO fund support. The USOF support for these BTSs was for a period of 5 years and this ended in 2013. Some TSPs are of the view that without extension of USOF support for these sites, it will be difficult to continue to maintain them as these are non-viable.

On account of the above mentioned challenges, the development of telecom services in the Meghalaya has not been as extensive and as fast as in other parts of the country. This is borne out by the fact that of the total 6851 villages, about 2389 habitated villages do not have even basic voice coverage. Roll out of 4G coverage is also not very encouraging in the state. Moreover, due to the lack of sufficient transmission

media connectivity (OFC, Microwave, and Satellite), adequate bandwidth for high speed broadband is not available even at State capital. Thus, the gap in telecom infrastructure and service rollout in Meghalaya vis-à-vis that available in other parts of country is wide and glaring.

Ongoing projects in Meghalaya and issues related thereto:

Presently, two projects- one for connecting DHQs to BHQs funded by USOF and another for connecting BHQs to Gram Panchayats(GPs) implemented by Bharat Broadband Nigam limited (BBNL) - are under way. However, both projects are far behind schedule.”

4.6 Gap analysis and plan for improving telecom services and infrastructure

“Voice is no longer the exclusive mode of communication. The NTP’ 2012 has a vision of providing safe, dependable, cheap, and high-quality integrated communications services anytime, anywhere, for accelerated inclusive socio-economic growth. The regulator's goal, as stated in NTP’ 2012, was to construct a robust, secure, and cutting-edge telecommunication network with seamless coverage in Meghalaya. The first task was to assess the present status of telecom facilities in the NER States and then estimate the additional infrastructure required to bridge the gap.

The estimation includes investment required to provide:

- a) additional transmission media and bandwidth for backhaul;
- b) voice coverage (using 2G) for the presently uncovered population;
- c) data coverage (using 3G) at least for urban populations; and,
- d) seamless coverage along the National Highways.

The methodology adopted to assess the gaps in the telecom infrastructure and the investment required to cover the gaps is detailed below.

I. Transmission Media Plan: For a telecom network, transmission media plays a critical role in connecting one place to another. The investment proposed for the transmission media plan for the NER aims at strengthening the core network connectivity between State capitals and the respective District Headquarters (DHQs) within the State. This plan has been prepared to upgrade available telecom infrastructure so as to provide the required bandwidth in the future in the NER States and to provide the required diversity/redundancy (fallback) of media in the event of the failure of the connectivity of the main link.

A transmission media plan for any region essentially addresses three components viz. connectivity, capacity and redundancy/diversity. At the macro level, the methodology adopted for addressing the connectivity, capacity and diversity/reliability for the NER States was as follows:

a) Connectivity- This represents the transmission media used for connecting two habitations, say, city 'A' and city 'B'. The two cities can be connected on any of the telecom transmission media like Optical Fibre Cable (OFC) (under ground or OPGW), Microwave or Satellite. Various types of telecom transmission media connectivities In hilly areas laying OFC in the ground is difficult, time-consuming and prone to damage due to frequent landslides etc. Therefore, using the aerial route by employing OPGW technology is preferable. An OPGW cable contains a tubular structure with one or more optical fibers in it, surrounded by layers of steel and aluminum wire. The OPGW cable is run between the tops of high-voltage electricity pylons. The conductive part of the cable serves to bond adjacent towers to earth ground and shields the high-voltage conductors from lightning strikes. OPGW technique has many advantages. It has over 40 years life expectancy when installed and maintained properly. It is less susceptible to outages relative to other cable types

and Optical Ground Wire (OPGW) are ground wire cables that are installed on power transmission lines and have optical fibre running within the ground wire 19 eliminates clearance and ROW issues since it occupies the static wire position on a transmission line. While planning for connectivity in the NER, OFC (either underground or OPGW) has been preferred because of its higher bandwidth carrying capacity. Accordingly, in case any of the district headquarters (DHQs) in a State is not yet connected on OFC, connectivity through OFC or OPGW, wherever feasible, has been recommended.

b) Capacity – Once two habitations are connected, the next issue is the traffic carrying capacity of the connected transmission media. This is normally referred to as the bandwidth available between two points and is an indicator of the amount of voice and data traffic that can be carried by the transmission media between two points. For any two cities connected on OFC, the bandwidth carrying capacity between them will depend on the capacity of the transmission media

While assessing the gap and estimating the investment required, future bandwidth requirement at the State capitals and DHQs have been calculated

c) Redundancy/Diversity – The third important aspect that needs to be addressed while formulating a transmission media plan is to provide for alternate or fallback connectivity, in case the main connectivity between two habitations is disrupted. Redundancy of transmission media between two stations can be achieved by either providing the same type of media via two different routes or by providing connectivity through two different types of media systems (e.g. MW, OPGW etc). Accordingly, all DHQs within a State are proposed to be connected on an OFC / OPGW ring wherever feasible. Wherever an OFC ring is not feasible, DHQs have been planned to be connected on alternate media like microwave or satellite, apart

from OFC linear connectivity. Overall approach followed for transmission media planning Assessment of transmission media connectivity requirement in NER

USOF has taken the initiative to address the non-availability of sufficient back-haul capacity between DHQs and Block Head Quarters (BHQs) and between BHQs and the Gram Panchayats(GPs).

In the NER States, most private TSPs have OFC connectivity up to State capitals only. As far as DHQs are concerned, only a few of them have been connected on OFC by private TSPs. PGCIL has installed OPGW on its transmission lines but this too is restricted to a few locations. Most of the optical fibre connecting DHQs and beyond has been laid by BSNL. Therefore, while planning for additional connectivity or for media redundancy through rings, BSNL's existing transmission media network has been taken as datum.

Proposed bandwidth:

Regulator was of the view that adequate bandwidth be made available in NER for connectivity with the rest of the country in order to achieve the goal of 'Broadband on Demand' and ensure equitable and inclusive growth. In order to determine the future bandwidth requirements, the authority referred to its earlier recommendations on the "National Broadband Plan," published December 8, 2010. The authority calculated the amount of backhaul bandwidth required in these recommendations. In the National Broadband Policy, the authority recommended an internet target of 75 million broadband connections by 2012 and 160 million broadband connections by 2014. It predicted that by 2012 and 2014, broadband penetration will be 12 percent and 32 percent in villages, 39 percent and 80 percent in towns, and 64 percent and 130 percent in cities. It was also recommended that, in order to successfully fulfill broadband requirements for heavy bandwidth applications, a minimum of 2 Mbps

bandwidth per home would be required by 2012, and 4 Mbps per household would be necessary by 2014.

However broadband penetration was almost non-existent in NER. Broadband penetration was well below projections even in the rest of the country. As a result, projections for Meghalaya bandwidth requirements were based on the earlier recommendation, namely the availability of 2 Mbps bandwidth per household with projected penetration of 12 percent, 39 percent, and 64 percent in villages, towns, and cities, respectively. As a result, the anticipated additional backhaul requirement of 20 Gbps was calculated for Meghalaya.

2. Provision of 2G Mobile Services :

The telecom revolution in India was sparked by the liberalization of policy in 1994 when the sector was opened up for private service providers. Sadly, even after almost two decades, there are areas which do not have basic voice connectivity. It is imperative that telecom services must be made available in areas which do not have coverage. The present status of coverage of 2G and 3G services was assessed in the NER States so that planning for uncovered areas can be undertaken. It is observed that 2389 villages have been found uncovered out of total 6851 villages in Meghalaya.

3. Provision of data services through 3G Mobile Services:

3G coverage in the NER States is very limited. In some States, even some DHQs do not have 3G coverage. In Meghalaya 22 towns out of 46 towns and only 14 villages out of 6851 villages were found having 3G coverage.

To increase the penetration of internet in the NER for providing a host of e-applications, the roll-out of 3G network is the most cost-effective and fastest option. Accordingly, the Authority is of the opinion that the 3G coverage should be increased in both urban as well as in rural areas in the NER. However, as the present penetration

of 3G networks is very low, it is recommended that, in the first phase, all urban areas in the NER should be provided with 3G coverage. This will ensure that all the DHQs/Towns and most of the SDHQs/BHQs will have 3G services. In later phases, once OFC reaches up to Gram Panchayats through the NOFN project, further expansion of 3G coverage can be considered.

4. Coverage along National Highways: In Meghalaya, all the National Highways have been found covered by 2G or 3G Mobile services.

Given the foregoing, the telecom regulator was of the opinion that the government should intervene and use the USO funds to augment and improve telecom infrastructure and connectivity in the state of Meghalaya.”

4.7 Steps taken by USOF: The government implemented a two-pronged strategy advocated by TRAI in its 2014 recommendations, which includes projects for connecting DHQs to BHQs through OFC laying, funded by USOF and another for connecting BHQs to Gram Panchayats (GPs) implemented by Bharat Broadband Nigam limited (BBNL). However, both projects are far behind schedule.

Three projects have been undertaken by USOF in twelve districts of Meghalaya for telecom connectivity. According to the 2011 census, the population of these twelve districts is as follows:

Table 5.1: Population of Districts in Meghalaya

District	Population
East Khasi Hills	8,24,059
West Garo Hills	5,18,390
West Jaintia Hills	2,70,352
West Khasi Hills	
East Garo Hills	1,32,257
Ri Bhoi	2,58,840
South Garo Hills	1,42,574
South West Garo Hills	1,70,794
South West Khasi Hills	1,10,152
East Jaintia Hills	1,22,436
North Garo Hills	1,18,325

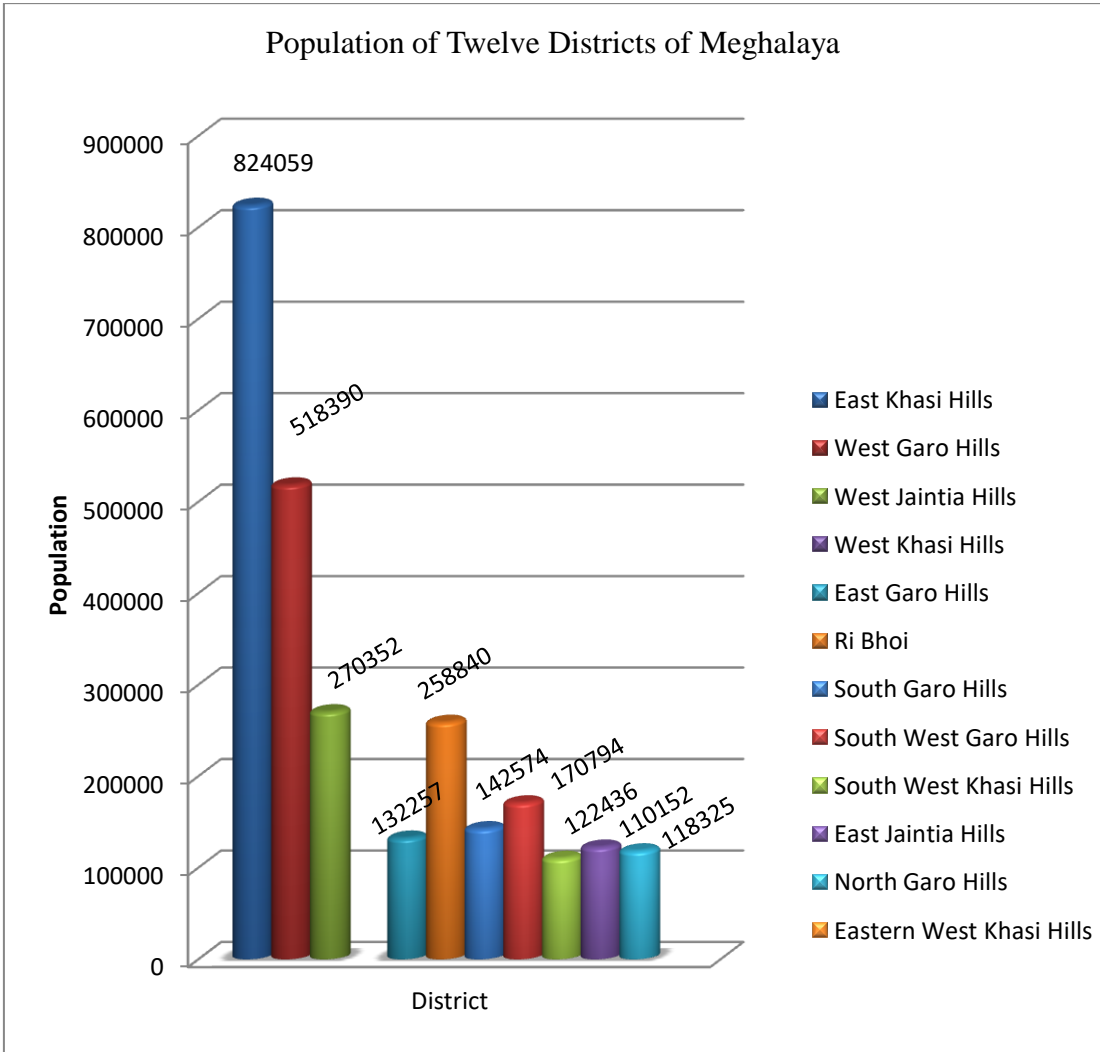


Figure 4.9: Population of twelve Districts in Meghalaya

As the major problem of telecom connectivity was observed in rural areas of Meghalaya and therefore, BharatNet and 4G Mobile services projects were launched in rural areas.

As on December, 31, 2022, 682 Gram Panchayats out of 1791 GPs have been connected through OFC/ Satellite media and wi-fi hotspots have also been installed on about 100 GPs. M/s RailTel was assigned the job for laying optical fiber to connect GPs in Meghalaya but due to various constraints like hilly and difficult terrain, RoW

issues, forest area issues, lack of power supply in remote areas, absence of good connecting roads etc. So far only Rs. 131.52 Cr has been spent in Meghalaya on BharatNet which is only 0.4% of total spending in BharatNet across the country.

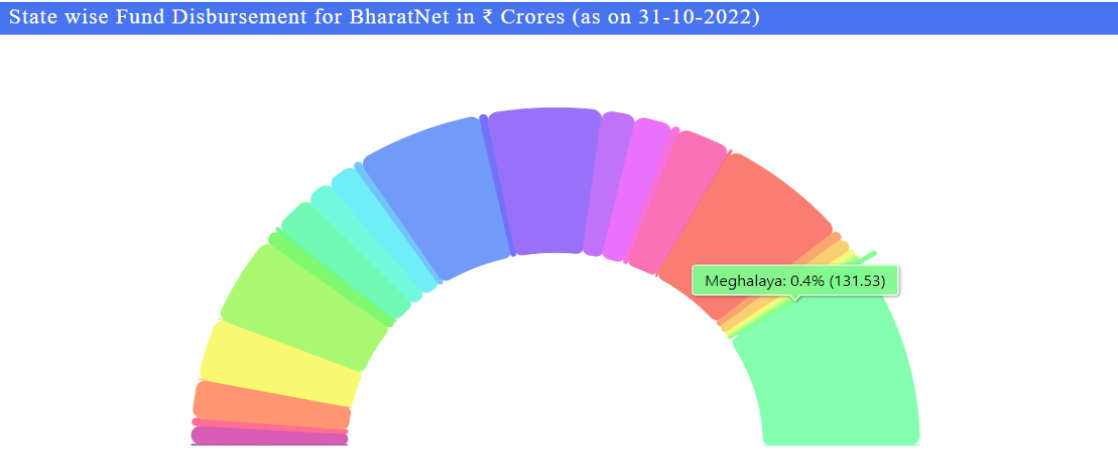


Figure 4.10: BharatNet Spending in Meghalaya

Progress of BharatNet in Meghalaya

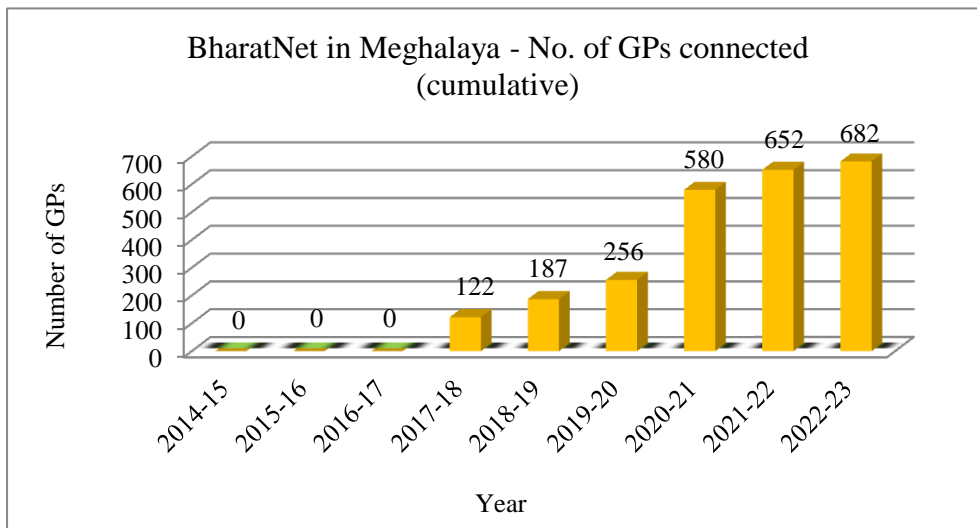


Figure 4.11: Number of GPs connected under BharatNet project in Meghalaya (cumulative)

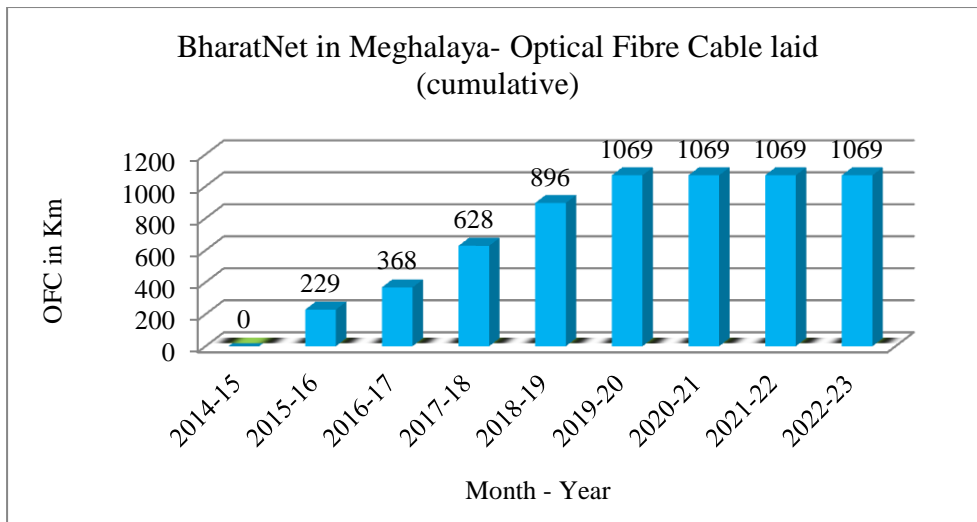


Figure 4.12: OFC laid under BharatNet project in Meghalaya (cumulative)

As per BBNL reports of BharatNet, 80 km dark fiber of 1450 Mbps bandwidth has been leased to various TSPs and ISPs and it carried 7 TB data during the month of December 2022 and further emphasis on utilization of Bharatnet spare bandwidth at GPs by installing Wi-Fi access points (Wi-Fi access points at 82 Gps already installed as on December 31, 2022) and further provision of FTTH connections is the main focus area of the government.

Another project was launched on September 4, 2020 for the deployment of 4G mobile services in 1,164 uncovered villages and 11 sites along National Highways in Meghalaya. 321 towers covering 480 villages have been commissioned as on December, 31, 2022. According to data provided by USOF, more than one lakh rural customers have been added due to commissioning of 321 mobile towers in rural and remote areas which carried 8345 Erlang BBH traffic and 35310 GB data for the month of December, 2022.

Scope as per Agreement						
District	Villages to be covered	Sites to be Deployed		BTS Type		
		Villages	NHW	Type-A	Type-B	Type-B NH
				(30 Mtr)	(40 Mtr)	(40 Mtr)
East Garo Hills	120	79	7	42	37	7
East Jaintia Hills	33	26	1	19	7	1
East Khasi Hills	88	64	1	40	24	1
Eastern West Khasi Hills	70	57		43	14	
North Garo Hills	89	61	2	38	23	2
Ribhoi	117	91		61	30	
South Garo Hills	220	162		112	50	
South West Garo Hills	17	15		13	2	
South West Khasi Hills	129	101		73	28	
West Garo Hills	88	72		58	14	
West Jaintia Hills	39	26		12	14	
West Khasi Hills	154	124		102	22	
Grand Total	1164	878	11	613	265	11

Figure 4.13: Original Scope of 4G Mobile Project in Meghalaya (as per USOF)

Further scope has been revised after addition/deletion of sites. As per the revised scope 1094 sites covering 1481 villages are to be commissioned by M/s Bharti Hexacom Limited. Target for completion of the project is May, 2024.

Hiring/restoration of 20 Gbps International Bandwidth for Internet connectivity to Agartala from BSCCL, Bangladesh via Cox Bazar/Kuakata has been undertaken for North Eastern States which has further boosted the internet connectivity in this region including Meghalaya.

5. Findings and Conclusions

5.1 Introduction

The role of the USOF in "Bridging the Digital Divide in Meghalaya" has been validated through primary survey and findings of the same have been presented in this chapter. It contains responses of respondents of Meghalaya in understanding the role played by USOF in bridging the digital divide in the state. Further it also contains the responses of officials in USOF who are solely responsible for implementation of schemes in Meghalaya in regards to difficulties and challenges. It goes on to make recommendations for improving the USOF's role in bridging the digital divide in Meghalaya.

The goal of this research was to look into the role of the USOF in bridging digital divide in Meghalaya. The regulators' recommendations for improving the telecom network in NER were also studied, as were the impediments in improving the telecom network in this region, as well as ways to improve the role of the USOF in bridging the digital divide in India.

5.2 Methodology

Two distinct survey tools were created, one for citizens of Meghalaya and the other for USOF officers who are dealing with implementation of USOF schemes in the Meghalaya.

First set of survey tool was prepared to understand the "Role of USOF in bridging digital divide in Meghalaya".

The questions were simple statements on whether the USOF schemes helped Meghalaya improve its broadband connectivity. Participants were asked to express

their opinion using a negative or affirmative response or a multiple choice response.

The second survey tool, which focused on the issues and challenges of USOF schemes implementation, was distributed using email to senior USOF officials in charge of policy, planning, and implementation of USOF activities, particularly in Meghalaya. Simple statements were requested about USOF activities in Meghalaya, and whether they are assisting in bridging the digital divide. Participants were asked to express their thoughts using negative or affirmative responses or multiple choice questions, as well as information about USOF plans.

5.3 Response analysis

5.3.1 Understand the role of USOF in bridging digital divide in Meghalaya

This section examines the reactions of respondents in order to better understand the function of the USOF in bridging the Meghalaya's digital divide.

A total of 150 identified respondents (30 Urban and 120 Rural mobile customers) of Meghalaya who use mobile services were asked to give their feedback. The online survey received 126 valid responses out of a total of 150 identified respondents. The study's primary data comes from these 126 valid responses (out of 150 total), or 84 percent of the total respondents who were asked to comment.

While analyzing replies data obtained through survey questionnaire, it was discovered that the majority of the respondents (84 percent) responded in a way that established the USOF's key role in bridging digital divides, both directly and indirectly (*Are you presently using internet/ mobile services?*). The data yielded simple descriptive statistics, which are detailed in the following paragraphs.

In an increasingly knowledge driven globalised society where voice, video, data, internet, and wideband multimedia services are necessary, telecommunication has emerged as a significant engine of economic and social progress over the last two

decades.

The COVID-19 epidemic has demonstrated that, as compared to actual travel, the government and private enterprises, including the general public, rely more on the use of broadband connectivity for engagement. It is expected to live in an environment that enables socializing and economic pursuits while minimizing human touch in the post-pandemic period. Broadband's ubiquitous availability and use has both economic and social implications. Indeed telecom and internet connectivity now plays an increasingly significant role in daily life of masses.

Further for successful implementation of the government of India's digital economy goals, a robust, dependable, low latency, and high-speed broadband infrastructure is required. Sensor networks, the Internet of Things, big data, machine learning, automation, Intelligent Transportation Systems, and artificial intelligence all rely heavily on cloud services and internet connectivity. A high-speed broadband infrastructure establishes an enabling environment and lays the groundwork for the development of new technologies, applications, services, and businesses.

The researcher framed questions covering the areas related to possible improvement in internet services after commissioning of 4G Mobile project and BharatNet. The survey tool, in the form of Google form was circulated to the respondents of Meghalaya is placed at Appendix C.

The findings of the survey are as follows.

5.3.1.1 Out of the 126 valid respondents, 62 disclosed their identities. Further it was found that 97.6 percent respondents are presently using the internet

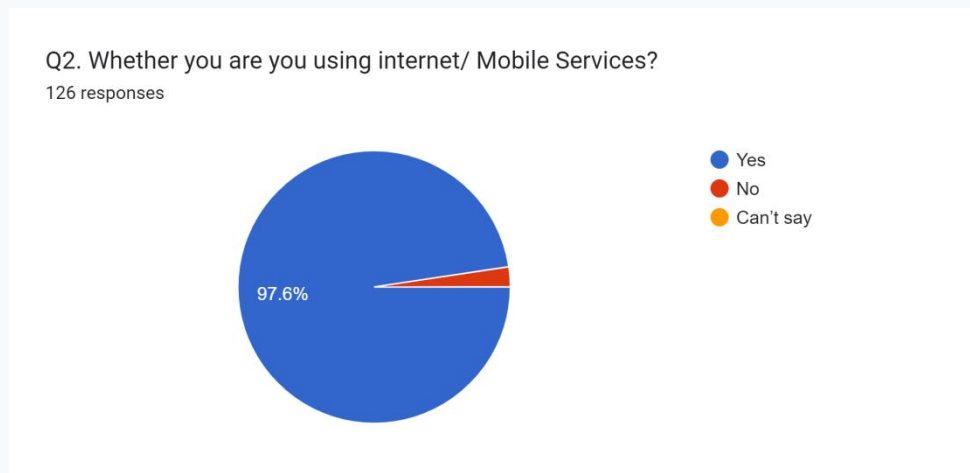


Figure 5.2: Response to whether presently using internet/mobile services

5.3.1.2 In response to the question since when you are using Internet/ Mobile Services, it was found that 28.7% are using internet since less than one year, 20.5% are using since 1-5 years and 50.8% are using since more than five years.

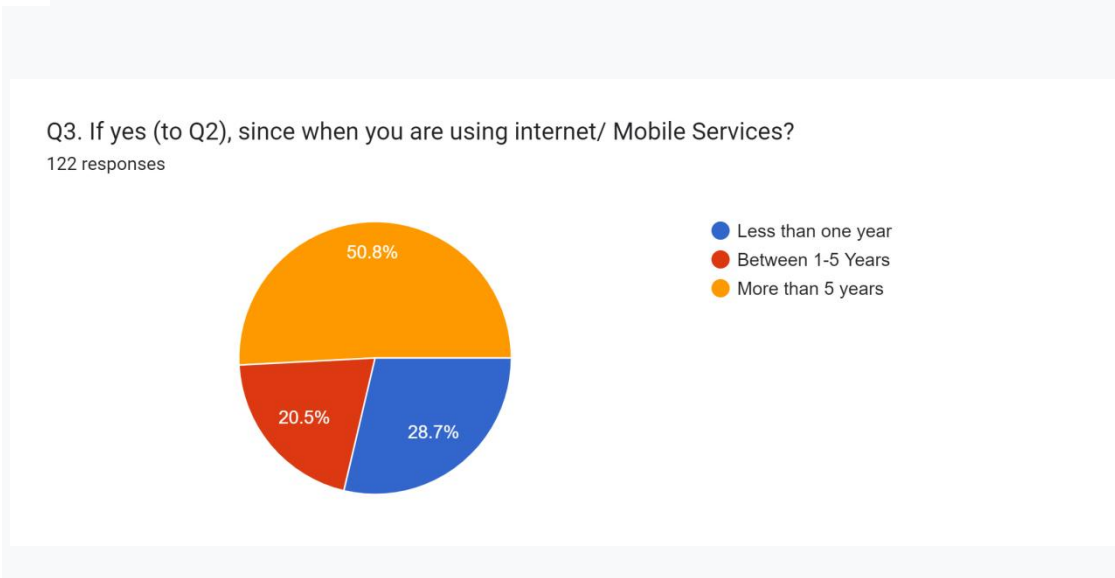


Figure 5.3: Response to since when you are using internet/ Mobile Services

5.3.1.3 Despite the fact that the USOF funds several projects which ultimately help to bridge the digital divide in India's remote and rural areas, it is usually presumed that most of the grass root beneficiaries are unaware of

this. However this primary study reveals to the contrary that majority of valid respondents 96% (122 out of 126) were aware that Internet and 4G mobile services projects have been funded by government as below:

Q4. Are you aware of the schemes for Internet/4G mobile Services, launched by Government, in rural and remote areas of Meghalaya?
126 responses

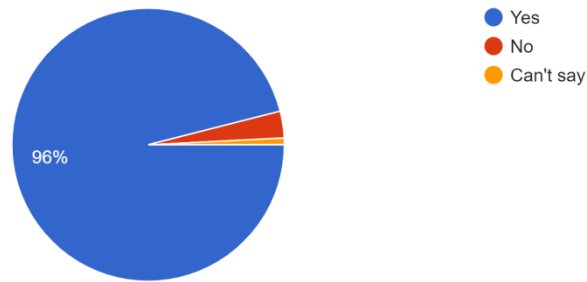


Figure 5.4: Awareness about funding of internet/mobile services project in Meghalaya by Government of India

5.3.1.4 In order to assess the impact of increased bandwidth, respondents have been asked about improvements in internet connectivity in Meghalaya. Majority of valid respondents 97.6% (123 out of 126) opined that current internet connectivity has improved.

Q 5. Whether the present mobile service/internet connectivity has improved in Meghalaya?
126 responses

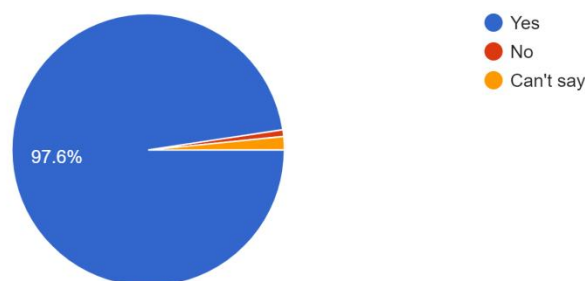


Figure 5.5: Improvement in the internet/ Mobile connectivity

5.3.1.5 The main aim of the BharatNet/ 4G Mobile services project is to provide sufficient bandwidth to users and TSPs/ISPs to improve their services. One of the aspects of primary survey has been to get the opinion of respondents' whether improved connectivity actually helped aided/assisted people of Meghalaya. It is evident from the response that majority of valid respondents 93.6% (117 out of 125) had asserted that that improved connectivity has helped them.

Q 6. If yes (to Q5), has this improved connectivity helped you to access online e-gov services, entertainment, e-learning or e-commerce services without physically going to market/ Govt. offices?
125 responses

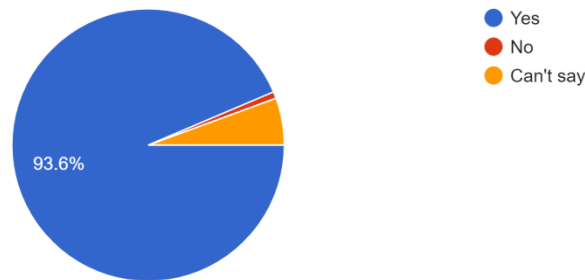


Figure 5.6: Response to whether improved connectivity helped the people of Meghalaya

5.3.1.6 In order to determine how improved internet / broadband connectivity has benefited the residents of Meghalaya, survey was carried out on whether it helped access to global information, local governance, education, health etc, social communication (VC, e-mail, social media) or otherwise. It is evident from the response that majority of valid respondents (119 out of 126) revealed that it has benefited them.

Q 7. If yes (to Q6), how has this improved connectivity helped you? (you can choose more than one option)

122 responses

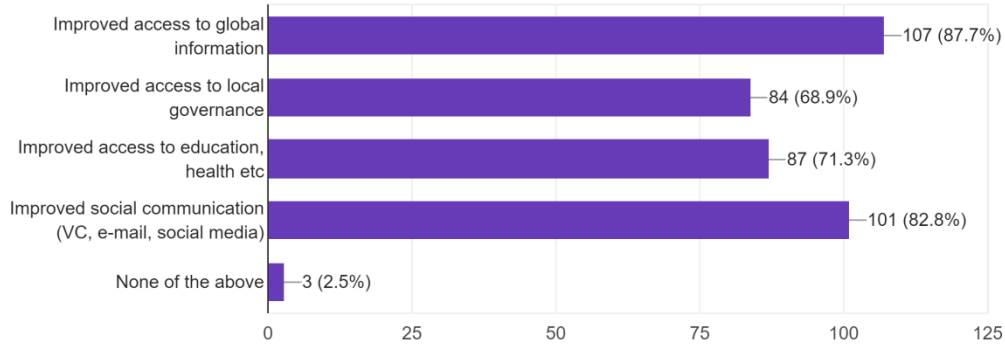


Figure 5.7: Response to benefit of improved broadband connectivity

5.3.1.7 However, to stay neutral in research, it was asked if the target group has any direct benefit from the increased connectivity. The summarised response along with remarks submitted by the respondents has been tabulated as below.

Table 5.2: Response analysis of ‘Whether the citizen of Meghalaya have any direct benefit from the increased connectivity’

Response	Number	Percentage
Yes	110	92.4 %
No	2	1.6 %
Can't say	7	5.88 %

Q 8. If no (to Q5), do you think broadband connectivity has any direct benefit for citizens of Meghalaya?

119 responses

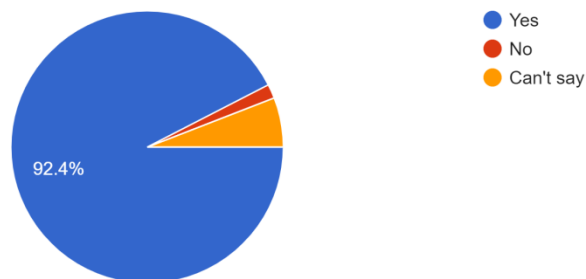


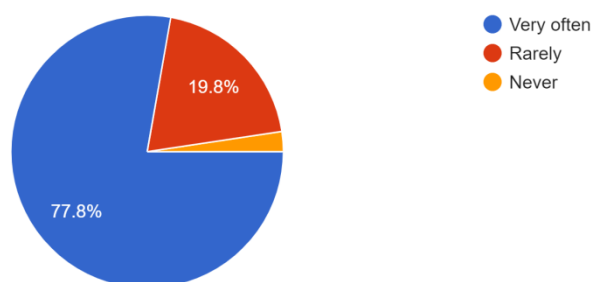
Figure 5.8: Response to whether benefitted from the increased connectivity

Hence it is evident from the response that majority of valid respondents 110 out of 119 are of opinion that they are benefited from the increased connectivity.

5.3.1.8 In order to determine how often the citizens use Internet/ Mobile services to know about the government schemes like Skill Development, employment schemes, social welfare schemes, MSME loans etc. Survey was carried out. It is evident from the response that majority of valid respondents 77.8% use it very often, 19.8% rarely and 1.4% never used, internet/ mobile services for accessing e- governance schemes

Q 9. How often do you use mobile services/ Internet to know about the government schemes like Skill development, employment schemes, social welfare schemes, MSME Loans etc.

126 responses



Apart from framed survey questionnaire, respondents were requested to give their comments, if any (optional).

5.3.1.9 The respondents have given varied remarks which have been broadly categorized below:

a. **Comments on Bridging Digital Divide:** There was no telecommunication facilities in 1164 villages in Meghalaya before commissioning of 4G Mobile Project. This move has sufficiently contributed to bridge the digital divide as is clear from the responses listed verbatim herewith:

i. *Now the internet services are at par with urban areas in Meghalaya .*

- ii. *Helped in bridging the digital divide.*
- iii. *4G mobile connectivity in remaining uncovered villages and Bharatnet connectivity in remaining villages/GPs may be made at the earliest. This will further reduce digital divide in Meghalaya.*

b. **Comments on effective delivery of e-services:** In today's world most of the customer interaction including governmental are through e-services which requires broadband connection with suitable speed. The availability of bandwidth through BharatNet/ 4G mobile projects have significantly improved internet and broadband services in Meghalaya. The remarks of respondents prove the same.

- i. *Citizens can now apply for any online e-services.*
- ii. *Due to 4G mobile services we get good speed and reliable communication.*
- iii. *4G mobile project has made a sea change in access to broadband internet and improved voice quality thereby enabled citizens to avail all the benefits of using internet at par with urban subscribers.*
- iv. *It is observed that it has contributed in ease of business, GST return filling, email correspondence, online payments, online shopping, conduct of online classes and enhanced entertainment and social interaction among general public.*
- v. *This connectivity has also helped Meghalaya administration to deal with Covid pandemic and vaccination drive effective. In summary, Bharatnet and 4G Mobile services in rural and remote areas have proven to be great fortune in the life of rural citizens.*

c. **Comments on improved accessibility / connectivity:** BharatNet and 4G Mobile services project along with international bandwidth through Cox Bazar, Bangladesh have provided connectivity of rural Meghalaya at par with urban subscribers. The respondents also commented on accessibility / connectivity as follows.

- i. *These projects have remarkably improved accessibility to internet.*
- ii. *Improved the connectivity.*
- iii. *Post 4G mobile services project, we are now digitally connected and accessed to internet at par with urban subscribers in Meghalaya.*
- iv. *The speed is quite appreciable and after this project, the connectivity has definitely improved and the rural Meghalaya are beneficial in all ways.*
- v. *Improved connectivity helping all.*
- vi. *Yes 4G mobile services project has improved the connectivity of rural areas at par with urban areas.*
- vii. *Happy with the mobile services project.*
- viii. *Overall good improvement in connectivity*

d. **Comments on improved lifestyle:** Broadband has major impact on economic and social development, including income growth and community resilience. Broadband is the enabling force for software development, disseminating e-agriculture and e-health information, distance learning and mobile money and establishing mechanisms to provide early warning of natural and man-made disasters. In nutshell it enhances lifestyle. Some comments of the respondents are listed below.

- i. *4G mobile services improved the life style of rural citizens.*

ii. *Mobile services have changed our life style in a positive direction.*

iii. *Children are able to attend uninterrupted Online Classes*

e. **Comments on accessibility to internet:** Internet accessibility have the power to accelerate greater inclusion by improving quality and efficiency of services and benefits reaching unto the target beneficiaries of remote villages, transforming communities, delivering healthcare in ways never imagined, opening doors to education, employment and income opportunities, creating smarter cities, empowering people with the tools they need to thrive and driving a more sustainable planet. The respondents also commented on internet after launch of mobile services.

i. *Now it is good to use internet.*

ii. *After commissioning of mobile services in rural areas, the internet bandwidth is improved.*

iii. *The internet has improved a lot as compared before the mobile project.*

iv. *Now the broadband connection has good speed.*

From the replies above, it is clear that the majority respondents (123 out of 126 valid respondents) believe that the commissioning of the BharatNet/ 4G Mobile services by USOF has helped in bridging improved connectivity, digital divide, internet accessibility, e-services, lifestyle and more significantly broadband services.

5.3.2 Identify the issues and challenges of USOF implementation in Meghalaya

This section examines the response to survey questionnaire emailed to senior USOF officials in charge of policy, planning, and implementation of USOF activities in Meghalaya. These experts from USOF were requested to express their thoughts using negative or affirmative responses or multiple choice questions, as well as information

about USOF plans. The survey questionnaire was emailed to Director, Dy. Director General and Administrator USOF dealing with the USOF implementation particularly in Meghalaya and placed at Appendix D, Appendix E and Appendix F respectively. Except Administrator, Director and Dy. Director General USOF responded to the survey questionnaire.

The author framed questions covering the areas related to USOF schemes initiated along with status of schemes implemented in Meghalaya and opinion whether these schemes improved broadband connectivity helped in bridging digital divide particularly in Meghalaya.

5.3.2.1 Analysis of responses of Director and DDG, USOF

Director, USOF intimated that in addition to existing projects, new projects such as 4G saturation of villages by BSNL, Revised scheme for implementation of BharatNet are under consideration or implementation in Meghalaya. Director and DDG USOF opined that above schemes have definitely helped in bridging digital divide in Meghalaya and improved internet connectivity has benefited the residents of Meghalaya to access to global information and social communication (VC, e-mail, social media). DDG USOF provided the detailed information of various projects of USOF as per Appendix G. Regarding implementation challenges DDG USOF responded that Accessibility, poor understanding about telecom benefits especially villagers, fear of EMF radiation, disturbing their ecology, digital literacy, non-availability of electricity, lack of proper roads, student unions protest against the rolling out of 4G network, protest on running of DG set due to its noise and environment pollution are the main issues being faced by project implementation agencies in Meghalaya.

5.4 Conclusions

The USOF has launched a number of initiatives in India's distant and rural areas that will undoubtedly help in bridging the digital divide. In Meghalaya, adequate bandwidth has been made available following the implementation of BharatNet and 4G mobile services project. In addition, a project of 4G saturation of villages, will provide 4G mobile service in underserved communities and seamless 4G mobile coverage along National Highways in Meghalaya and will aid in further bridging the digital gap. Other USOF initiatives in India's remote and rural areas are also in progress. The emergence of COVID-19 pandemic has impacted all corners of the globe, as well as all demographic groups and economic sectors. The poorest and most vulnerable people in the world are the ones who suffered the most. The pandemic has also hampered the completion of many USOF projects.

In this pandemic era, broadband connectivity has become a need and an equalizer for everyone. Individuals and businesses are becoming increasingly reliant on Work from Home (WFH), video conferencing, social networking, cloud services, and other technologies. From tele-education to tele-health, individuals, institutions, businesses, and governments are increasingly relying on broadband for a variety of services. For routine and 'mission-mode' initiatives, governments and businesses have become more reliant on and require high-quality broadband connections. To bring people together and close the digital divide, a strong internet infrastructure is essential across the country.

As a result of the primary and secondary data analysis, it can be determined that USOF is assisting in bridging the digital divide in India, notably in Meghalaya. The same has been established through a review of the literature. However, simply implementing USOF initiatives will not guarantee that the digital divide will be

bridged in its entirety, as there are other aspects in the ecosystem that must be streamlined as well.

5.5 Summary of findings:

Summarizing, primary survey had been administered using two distinct survey questionnaires; one for respondents of Meghalaya and the other for USOF officers dealing with implementation of schemes in Meghalaya. After analyzing the output, it could be affirmed that USOF has not just played a key role in providing telecom services in rural and remote parts of India which in turn has helped in bridging digital divide. These findings of primary survey were in resonance with secondary data.

6. Recommendations

6.1 Based on findings and observations gleaned from both primary and secondary survey, the key recommendations are presented in this section - categorized through a conceptual framework, abbreviated as TELOS framework. It is pertinent to mention here that one set of literature (How to Conduct a TELOS Feasibility Study) has expanded TELOS as Technical, Economical, Legal, Operational/ Organizational and Scheduling. However, there is another set of literature that has represented 'S' as Social'. The former refers to the adherence to project schedules whereas the second refers to the social aspect of the project/ phenomenon under consideration. Since, both have been found relevant in the present study, therefore the researcher is going ahead with both 'S' viz. referring to project schedules as well as the societal impact. Therefore, in this study the conventional TELOS gets represented as TELOSS, as detailed with attributes for each of these six factors.

- (i) Technical Factors - The study of technical aspects with attributes such as what technology is needed, whether necessary technology is available, and if it will work as expected.
- (ii) Economic Factors - The study of economic aspects includes study of existing funding models, financial governance, financial capabilities, expenditure incurred, cost benefits analysis etc.
- (iii) Legal Factors - The legal aspects of study encompass analysis of all the regulations/ compliances, policy frameworks, legal infrastructure to resolve the related issues etc.

(iv) Operational and Organisational Factors - These factors include the functioning of the ecosystem, methodology, organisational structure, right strategy etc.

(v) Scheduling Factors - This essentially includes timelines and whether the implementing team is aware of it.

(vi) Social Factors - This aspect that tries to analyse the socio-cultural context of technology implementation on the society.

6.2 There are various factors which contribute to digital divide which impede the growth of telecom services in rural and remote parts of India. Following recommendations, relating to role of USOF, role of TSPs and more importantly policy interventions, are made to address the impediments in bridging digital divide in India.

1. Technical factor

(i) In today's world, technology and services evolve at such a rapid pace that no one can accurately predict how and when new technology will evolve. Hence USOF must encourage technology neutral/ agnostic approach in service deployment for bridging digital divide.

(ii) Accordingly, the USOF must finalize most suitable technology for a particular scheme like utilization of BharatNet in rural and remote areas. Before choosing technology, it must ensure its working in similar ecosystem.

2. Economic factor

(i) The USOF must continue with its present Viability Gap Funding (VGF) funding model as same is working fine.

(ii) The USOF must regularly publish data on utilization of funds including collection, disbursal and balance.

(iii) Before preparing the project or scheme, USOF must carry out cost benefit analysis.

(iv) Meghalaya, being rural and distant parts of India need special attention in development of basic telecommunications infrastructure such as OFC for reliable connectivity, provision of mobile services in uncovered villages etc. As these are capital incentive but non-profitable projects, USO funds must be utilized for supporting these projects which in turn will help to bridge digital divide gap.

(v) In order to ensure efficient use of funds, periodic audit of the USOF projects/schemes must be carried out.

3. Legal factor

(i) The Universal Service Obligation Fund was established by an Act of Parliament and hence must follow all the rules and regulations including regulatory framework.

(ii) The USOF projects are generally implemented by TSPs who are bound by conditions of licenses issued by DoT to them. However USOF while entering agreement for implementation of specific projects must ensure that it covers all aspects related to timely completion of the project.

4. Organizational factor

(i) The USO fund founded primarily to connect unconnected need to be utilized to bridge digital divide gap in India

(ii) The Universal Service Obligation Fund is administered by the Administrator appointed by the Central Government. As USOF has undertaken several projects which in turn help in bridging digital divide. Hence these projects

must be monitored regularly by Administrator for completion as per timelines.

(iii) Administrator USOF must look into entire ecosystem to bridge digital divide in India.

(iv) USOF must carry out impact analysis of completed projects/schemes and incorporate recommendations in its future schemes.

(v) USOF must undertake project to connect the remaining left out inhabited villages in Meghalaya to bridge digital divide.

(vi) In BharatNet, OFC/ satellite connectivity has been laid in linear mode. Hence in order to provide the redundancy to the existing cable, satellite connectivity, USOF must fund project/scheme to establish the same on priority basis.

(vii) Projects/schemes need to be rolled out by USOF so as minimize digital divide gap.

(viii) Though 682 GPs out of 1791 GPs have been made service ready but their utilization is still far behind and TSPs/ISPs have still not augmented their network in these villages to extend benefits to customers. Therefore DoT must ask TSPs / ISPs to take undertake steps to augment their telecom network and services in Meghalaya.

5. Scheduling factor

(i) The USOF must monitor all the ongoing projects for its timely completion. This will definitely help in bridging digital divide.

(ii) The work of provision 4G mobile services in uncovered villages and

seamless 4G mobile coverage along NH in Meghalaya is under progress. This project is very important as it provides mobile in coverage in uncovered villages and along National Highway. Hence USOF must aim to finish this project as per timelines.

6. Social factor

- (i) The USOF must carry out social audit of the implemented schemes periodically to verify whether it has achieved its objective of connecting unconnected. This will definitely help in bridging digital divide in rural and remote parts of Meghalaya.
- (ii) USOF must encourage funding of pilot projects for efficient utilization of created infrastructure for benefit of society at large. The successful projects can be implemented on Pan India basis.
- (iii) The BharatNet project connecting 2.5 lakh Gram Panchayats and 6 lakh villages on optical fibre network connectivity is paving way for digital superhighway in rural and remote parts of country. Therefore USOF must complete the project in time bound manner which will eventually help to bridge digital divide.

6.3 Conclusive remarks

Access to the Internet and Broadband has become important, prompting the government and industry to prioritise the development of its infrastructure. To accelerate internet and broadband penetration in rural and remote parts of India, the Department of Telecom (DoT) envisions a state-of-the-art, future-proof fibre optic network in rural India by phasing in BharatNet, the national optical fibre network project that connects all 2,50,000 Gram Panchayats. This has now been expanded to

include 6 lakh villages around the country. Furthermore, the government is taking a number of steps to raise digital awareness, and it is digitising its service offerings to ensure fast, dependable, and effective service delivery, as well as to boost digital literacy to bridge the digital divide.

The USOF is playing a vital role in bridging the digital divide in India, notably in Meghalaya. North East region including Meghalaya is vital to India's national growth. As a result, providing secure, trustworthy, robust, and affordable communication services in this area is vital for the entire country.

The TELOSS learning's have highlighted a few important points. The USOF and TSPs have a significant role in bridging the digital divide in India, particularly in Meghalaya. The study also underlines the importance of the USOF in bridging the digital divide gap in Meghalaya. As a result, timely completion of USOF projects / schemes is critical for country.

6.4 Limitations of the study

Due to time and resource paucity, the researcher is severely constrained in his effort towards this study. The study, like the tip of an iceberg, can be viewed as an introduction to the topic for those interested in learning more about the role of the USOF in bridging the digital divide gap in Meghalaya. The research is focused on Meghalaya which might be expanded to include a number of other missing components in India's broad digital divide scenario.

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8. APPENDIX

Appendix A

DoT gazette notification regarding Indian Telegraph (Amendment) Rules, published on March 26, 2004

रजिस्ट्री सं० डी० एल्-33004/99

REGD. NO. D.L.-33004/99


सत्यमेव जयते

भारत का राजपत्र
The Gazette of India

असाधारण
EXTRAORDINARY
भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)
प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 153] नई दिल्ली, शुक्रवार, मार्च 26, 2004/चैत्र 6, 1926
No. 153] NEW DELHI, FRIDAY, MARCH 26, 2004/CHAITRA 6, 1926

संचार और सूचना प्रौद्योगिकी मंत्रालय
(दूरसंचार विभाग)
अधिसूचना
नई दिल्ली, 26 मार्च, 2004

सा.का.नि. 220(अ).—केन्द्रीय सरकार, भारतीय तार अधिनियम, 1885 (1885 का 13) की धारा 7 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, भारतीय तार नियम, 1951 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् :—

- (1) इन नियमों का संक्षिप्त नाम भारतीय तार (संशोधन) नियम, 2004 है।
(2) ये राजपत्र में प्रकाशन की तारीख को प्रवृत्त होंगे।
- भारतीय तार नियम, 1951 में, नियम 522 के पश्चात् निम्नलिखित अंतःस्थापित किया जाएगा, अर्थात् :—

“भाग 10
सार्वभौमिक सेवा बाध्यता निधि

523. परिभाषाएं.—इस भाग में—

(क) “प्रशासक” से, केन्द्रीय सरकार द्वारा निधि के प्रशासन के लिए नियुक्त निधि का प्रशासक अभिप्रेत है;

(ख) “करार” से, प्रशासक और सार्वभौमिक सेवा बाध्यता के कार्यान्वयन के प्रयोजन के लिए एक और उससे अधिक सार्वभौमिक सेवा प्रदाता के बीच किया गया कोई करार अभिप्रेत है;

(1)

1436 Comm. & IT/2004

MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

(Department of Telecommunications)

NOTIFICATION

New Delhi, the 26th March, 2004

G.S.R. 220(E).— In exercise of the powers conferred by section 7 of the Indian Telegraph Act, 1885 (13 of 1885), the Central Government hereby makes the following rules further to amend the Indian Telegraph Rules, 1951, namely:-

1. (1) These rules may be called the Indian Telegraph (Amendment) Rules, 2004.
(2) They shall come into force on the date of their publication in the Official Gazette.
2. In the Indian Telegraph Rules, 1951, after rule 522, the following shall be inserted, namely;

'PART-X**UNIVERSAL SERVICE OBLIGATION FUND**

523. Definitions.— In this part -

- (a) "Administrator" means the Administrator of the Fund appointed by the Central Government for the administration of the Fund;
- (b) "Agreement" means an agreement made between the Administrator and one and more of the Universal Service Provider for the purpose of implementation of Universal Service Obligation;
- (c) "Capital Cost" means the capital expenditure incurred on providing access as may be determined by the Administrator;
- (d) "Capital Recovery" means the aggregate of depreciation, interest on debt and return on equity on the capital cost annualized over a period of seven years;

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- (e) “Fund” means the Universal Service Obligation Fund established under sub section (1) of section 9A of the Indian Telegraph Act, 1885 (13 of 1885);
- (f) “High Speed Public Telecom and Information Centre” means a centre which offers additional facilities including tele-education and tele-medicine at a minimum data speed of 128 Kbps, for use by public;
- (g) “Multi Access Radio Relay Technology” means a technology used for providing telephone services;
- (h) “Public Telecom and Information Centre” means a centre which offers data applications including FAX, e-mail, internet besides voice telephony, for use by the Public;
- (i) “Net Cost” means Operating Expenses plus Capital Recovery minus Revenue;
- Explanation.- Where support is to be extended towards Operation and Maintenance only, Net Cost shall mean Operating Expenses minus Revenue;
- (j) “Operating Expenses” means the annual Operating Cost incurred on operation and maintenance of the specified facilities as may be determined by the Administrator;
- (k) “Revenue” means the annual charges including usage charge and applicable rental from the specified Service, without any deduction of any kind whatsoever except taxes relating to the specified Service, if any, paid to the Government;
- (l) “Secondary Switching Area” means the area in which the country is divided by the Telegraph Authority, and is co-terminus with a Long Distance Charging Area;
- (m) “Universal Service Obligation” means the obligation to provide access to basic telegraph services to people in the rural and remote areas at affordable and reasonable prices;
- (n) “Universal Service Provider” means the person who has entered into an Agreement with the Administrator for the purpose of implementation of Universal Service Obligation;

(o) "Village Public Telephone" means the first public telephone installed in a village.

524. Administration of the Universal Service Obligation Fund. – The Administrator shall have powers to, -

- (i) formulate bidding procedures including its terms and conditions for the purposes of implementation of Universal Service Obligation;
- (ii) evaluate the bids called for the purposes of implementation of Universal Service Obligation;
- (iii) enter into Agreement with the Universal Service Provider for the purposes of implementation of Universal Service Obligation;
- (iv) settle the claim of Universal Service Provider after due verification, and make disbursements accordingly from the Fund;
- (v) specify relevant formats, procedures and records to be maintained and furnished by the Universal Service Provider;
- (vi) monitor the performance of the Universal Service Provider as per the procedure specified by him from time to time.

525. Scope of support from Universal Service Obligation Fund. - (1) Financial Support from the Fund shall be provided to meet the Net Cost of providing the specified Universal Service Obligation as per the procedure specified by the Administrator from time to time, and the period for which such support shall be provided and the services covered shall be governed by an Agreement entered into with the Universal Service Provider.

(2) The following services shall be supported by the Fund, namely:-

- (i) **Stream-I: Provision of Public Telecom and Information Services -**

- (a) **Operation and Maintenance of Village Public Telephone in the revenue villages identified as per Census 1991 and Installation of Village Public Telephone in the additional revenue villages as per Census 2001.**- For installation of Village Public Telephone in the revenue villages, identified as per 1991 Census, only the Operating Expenses and Revenue shall be taken into account for determining the Net Cost. For the additional revenue villages identified as per 2001 Census, Capital Recovery in addition shall also be taken into account for determining the Net Cost:
- Provided that in the case of the Village Public Telephone which are still to be installed in the villages identified as per Census 1991, Capital Recovery shall also be taken into account while determining the Net Cost;
- (b) **Provision of additional rural community phones in areas after achieving the target of one Village Public Telephone in every revenue village.**- Where in a village the population is more than 2000 and no public call office is existing, a second public phone shall be installed and for the purposes of determining the Net Cost, Capital Recovery, Operating Expenses and Revenue shall be taken into account;
- (c) **Replacement of Multi Access Radio Relay Technology Village Public Telephone installed before 1st day of April 2002.**- Capital Recovery, Operating Expenses and Revenue shall be taken into account for determining the Net Cost.
- (d) **Up-gradation of a Public Telephone to Public Tele Information Centres.**- The data transmission facilities shall be provided within 5 Kms. of a village with a population exceeding 2000, preferably in those villages where post offices are

located and the Capital Recovery only towards provision of customer premises equipment; namely, Computer, Uninterrupted Power Supply and Modem, Operating Expenses and Revenue shall be taken into account to determine the Net Cost.

- (e) **Installation of High Speed Public Telecom Information Centres** in a public place at Block Headquarters and in villages with a population exceeding 2000 shall be made in a phased manner. Capital Recovery towards customer premises equipment as in the case of Public Telecom Information Centres, and required access as well as Operating Expenses and Revenue shall be taken into account to determine the Net Cost.

Note. - Unless otherwise specified by the Central Government, the Secondary Switching Area shall be taken as a unit for the purpose of arriving at the Net Cost for activities specified in items (a) to (e) of stream I.

- (ii) **Stream-II – Provision of household telephones in rural and remote areas as may be determined by the Central Government from time to time:**

- (a) For household Direct Exchange Lines installed prior to 1st day of April, 2002, the difference in rental actually charged from rural subscribers and rent prescribed by Telecom Regulatory Authority of India for such subscribers shall be reimbursed until such time the Access Deficit Charges prescribed by Telecom Regulatory Authority of India from time to time take into account such difference.
- (b) For household Direct Exchange Lines installed after 1st day of April, 2002, Capital Recovery, Operational Expenses and Revenue shall be taken into account to determine the Net Cost.

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Note. - Unless otherwise specified by the Central Government, the Short Distance Charging Area shall be taken as a unit for the purpose of arriving at the Net Cost for activities specified in item (b) of Stream II.

526. Criteria for selection of Universal Service Provider. - The selection of the Universal Service Provider shall be made by a bidding process from amongst the eligible operators, except for household Direct Exchange Lines referred to in item (a) of clause (ii) of sub-rule (2) of rule 525 and the Agreement signed as a result of the bidding process shall not be treated as grant of fresh license under the Indian Telegraph Act, 1885 (13 of 1885).

Explanation.- For the purposes of this rule, "eligible operators" means the Basic Service Operators, Cellular Mobile Service Providers and Unified Access Services Licencees or any other entities as may be specified in this behalf by the Central Government from time to time.

527. Release of Funds to Universal Service Providers. - Fund shall be released to the Universal Service Provider in a manner and at such intervals as may be specified in the Agreement.

[No. 30-1/2004-LF]

P. K. SINHA, Director, (LF)

~~Department of Telecommunications~~

FOOTNOTE:- The principal rules have been published in the Post & Telegraph Manual Volume I. Legislative Enactments, Part II, Edition. These have subsequently been amended as under:-

- | | |
|------------------------------|--------------------------------|
| 1. GSR 190 dt. 18-2-1984 | 28. GSR 606 dt. 14-7-1988 |
| 2. GSR 386(E) dt. 22-5-1984 | 29. GSR 812 (E) dt. 26-7-1988 |
| 3. GSR 387 (E) dt. 22-5-1984 | 30. GSR 888 (E) dt. 1-9-1988 |
| 4. GSR 679 dt. 30-6-1984 | 31. GSR 907 (E) dt. 7-9-1988 |
| 5. GSR 428 dt. 27-4-1985 | 32. GSR 916 (E) dt. 9-9-1988 |
| 6. GSR 729 dt. 3-8-1985 | 33. GSR 1054 (E) dt. 2-11-1988 |

7. GSR 982 dt. 19-10-1985
8. GSR 553 (E) dt. 27-3-1986
9. GSR 314 dt. 26-4-1986
10. GSR 566 dt. 26-7-1986
11. GSR 953 (E) dt. 23-7-1986
12. GSR 1121 (E) dt. 1-10-1986
13. GSR 1167 (E) dt. 28-10-1986
14. GSR 1237 (E) dt. 28-11-1986
15. GSR 49 dt. 17-1-1987
16. GSR 112(E) dt. 25-2-1987
17. GSR 377 (E) dt. 9-4-1987
18. GSR 674 (E) dt. 27-7-1987
19. GSR 719 (E) dt. 18-8-1987
20. GSR 837 (E) dt. 5-10-1987
21. GSR 989 (E) dt. 17-12-1987
22. GSR 337 (E) dt. 11-3-1988
23. GSR 361 (E) dt. 21-3-1988
24. GSR 626 (E) dt. 17-5-1988
25. GSR 660 (E) dt. 31-5-1988
26. GSR 693 (E) dt. 10-6-1988
27. GSR 734 (E) dt. 24-6-1988
34. GSR 179 dt. 18-3-1989
35. GSR 358 (E) dt. 15-3-1989
36. GSR 622 (E) dt. 15-6-1989
37. GSR 865 (E) dt. 29-9-1989
38. GSR 413 (E) dt. 29-3-1990
39. GSR 574 (E) dt. 15-6-1990
40. GSR 933 (E) dt. 3-12-1990
41. GSR 985 (E) dt. 20-12-1990
42. GSR 74 dt. 18-1-1991
43. GSR 237 (E) dt. 25-4-1991
44. GSR 251 (E) dt. 2-5-1991
45. GSR 543 (E) dt. 21-5-1992
46. GSR 560 (E) dt. 26-5-1992
47. GSR 587 (E) dt. 10-6-1992
48. GSR 730 (E) dt. 19-8-1992
49. GSR 830 (E) dt. 28-10-1992
50. GSR 62 (E) dt. 11-2-1993
51. GSR 80 dt. 6-2-1993
52. GSR 384 (E) dt. 27-4-1993
53. GSR 387 (E) dt. 28-4-1993

Appendix B

DoT gazette notification regarding Indian Telegraph (Amendment) Rules, published on November 17, 2006

रजिस्ट्री सं० डी० एल०-33004/99

REGD.NO.D.L.-33004/99


सत्यमेव जयते

भारत का राजपत्र

The Gazette of India

असाधारण
EXTRAORDINARY

भाग II—खण्ड 3—उप-खण्ड (i)
PART II—Section 3—Sub-section (i)

प्राधिकार से प्रकाशित
PUBLISHED BY AUTHORITY

सं. 560] नई दिल्ली, शुक्रवार, नवम्बर 17, 2006/कार्तिक 26, 1928
No. 560] NEW DELHI, FRIDAY, NOVEMBER 17, 2006/KARTIKA 26, 1928

संचार और सूचना प्रौद्योगिकी मंत्रालय

(दूर संचार विभाग)

अधिसूचना

नई दिल्ली, 17 नवम्बर, 2006

सा.का.नि. 713(अ).—केन्द्रीय सरकार, भारतीय तार अधिनियम, 1885 (1885 का 13) की धारा 7 द्वारा प्रदत्त शक्तियों का प्रयोग करते हुए, भारतीय तार नियम, 1951 का और संशोधन करने के लिए निम्नलिखित नियम बनाती है, अर्थात् :-

1. (1) इन नियमों का संक्षिप्त नाम भारतीय तार (संशोधन) नियम, 2006 है।
(2) ये राजपत्र में इनके प्रकाशन की तारीख को प्रवृत्त होंगे।
2. भारतीय तार नियम, 1951 (जिन्हें इसमें इसके पश्चात् उक्त नियम कहा गया है) के नियम 523 में, -

(क) खंड (क) के पश्चात् निम्नलिखित खंड अंतःस्थापित किया जाएगा, अर्थात् :-

‘ (ख) (ख) “ब्रॉड बैंड संयोजन” से ऑलवेज-ऑन डाटा संयोजन अभिप्रेत है जो इंटरनेट पहुंच सहित पारस्परिक प्रभाव रखने वाली सेवाओं की सहायता करने के लिए समर्थ है और केन्द्रीय सरकार द्वारा समय-समय पर यथाविहित न्यूनतम डाउनलोड गति की क्षमता रखता है ;’

(ख) खंड (घ) के स्थान पर निम्नलिखित खंड रखा जाएगा, अर्थात् :-

‘ (घ) “पूजी वसूली” से ऐसी अवधि में जिसके लिए निधि से सहायता उपलब्ध कराई

MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY

(Department of Telecommunications)

NOTIFICATION

New Delhi, the 17th November, 2006

G.S.R. 713(E).— In exercise of the powers conferred by section 7 of the Indian Telegraph Act, 1885 (13 of 1885), the Central Government hereby makes the following rules to further amend the Indian Telegraph Rules, 1951, namely:—

1. (1) These rules may be called the Indian Telegraph (Amendment) Rules, 2006.
- (2) They shall come into force on the date of their publication in the Official Gazette.

2. In the Indian Telegraph Rules, 1951 (hereinafter referred to as the 'said rules'), in rule 523, —

(a) after clause (a), the following clause shall be inserted, namely:—

' (b)(b) "Broadband Connectivity" means an always-on data connection that is able to support interactive services including internet access and has the capability of a minimum download speed as prescribed from time to time by the Central Government;';

(b) for clause (d), the following clause shall be substituted, namely:—

' (d) "Capital Recovery" means the aggregate of depreciation, interest on debt and return on equity on the capital cost as worked out proportionately and annualized over the period for which support is provided from the Fund;';

(c) after clause (d) as so substituted, the following new clause shall be inserted, namely:—

' (d)(a) "District" means the revenue district as identified in Census of India 2001;';

(d) for clause (f), the following clause shall be substituted, namely:—

' (f) "Infrastructure" means such assets as required for Telegraph Services as determined by the Central Government from time to time;';

(e) after clause (f) as so substituted, the following new clause shall be inserted, namely:—

' (f)(a) "Mobile Services" means telegraph services provided by means of wireless telecommunication system which ensures use while in motion anywhere in the Service Area;';

(f) clause (h) shall be omitted;

(g) in clause (i),—

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(i) the Explanation shall be numbered as *Explanation 1* thereof;

(ii) after the *Explanation 1* as so numbered, the following *Explanation* shall be inserted, namely:—

“*Explanation 2.*— Where support is extended towards general infrastructure, infrastructure for provision of mobile services and broadband connectivity, Net Cost shall mean a percentage of Capital Recovery, as determined by the Administrator from time to time.”;

(h) in clause (m), the word “basic” shall be omitted.

3. In rule 525 of the said rules, in sub-rule (2),—

(a) in clause (i), sub-clauses (d) and (e) shall be omitted;

(b) after clause (ii) the following clauses shall be inserted, namely:—

“(iii) Stream-III - Creation of infrastructure for provision of Mobile Services in rural and remote areas:

(a) The assets constituting the infrastructure for provision of mobile services shall be determined by the Central Government from time to time.

(b) A percentage of the Capital Recovery for the infrastructure for provision of mobile services shall be taken into account to determine the Net Cost.

(iv) Stream-IV - Provision of Broadband connectivity to villages in a phased manner: A percentage of the Capital Recovery for the infrastructure for broadband connectivity shall be taken into account to determine the Net Cost.

(v) Stream-V - Creation of general infrastructure in rural and remote areas for development of telecommunication facilities:

(a) The items of general infrastructure to be taken up for development shall be determined by the Central Government from time to time.

(b) A percentage of the Capital Recovery for the development of general infrastructure shall be taken into account to determine the Net Cost.

Note.— Unless otherwise specified by the Central Government, the revenue district/ group of revenue districts shall be taken as a unit for the purpose of arriving at the Net Cost for the activities specified in Streams III, IV and V.

(vi) Stream-VI - Induction of new technological developments in the telecom sector in rural and remote areas: Pilot projects to establish new technological developments in the telecom sector, which can be deployed in the rural and remote areas, may be supported with the approval of the Central Government.”

4. In rule 526 of the said rules, after the words, brackets and letters “Direct Exchange Lines referred in item (a) of clause (ii)”, the words, brackets and letters “and clause (vi)” shall be inserted.

5. In rule 526 of the said rules, for the *Explanation*, the following *Explanation* shall be substituted, Namely:—

“*Explanation*.— For the purposes of this rule, “eligible operators” means the Basic Service Operators, Cellular Mobile Service Providers, Unified Access Services Licensees and Infrastructure Providers (IP-I) or any other entities as may be specified in this behalf by the Central Government from time to time.”

[F. No. 30-1/2004-LF]

SHANTANU CONSUL, Addl. Secy.

FOOT NOTE:— The principal rules have been published in the Post & Telegraph Manual Volume I, Legislative Enactments, Part II, Edition. These have subsequently been amended as under:-

- | | |
|---------------------------------|--------------------------------|
| 1. GSR 190 dt. 18-2-1984 | 28. GSR 606 dt. 14-7-1988 |
| 2. GSR 386 (E) dt. 22-5-1984 | 29. GSR 812 (E) dt. 26-7-198 |
| 3. GSR 387 (E) dt. 22-5-1984 | 30. GSR 888 (E) dt. 1-9-1988 |
| 4. GSR 679 dt. 30-6-1984 | 31. GSR 907 (E) dt. 7-9-1988 |
| 5. GSR 428 dt. 27-4-1985 | 32. GSR 916 (E) dt. 9-9-1988 |
| 6. GSR 729 dt. 3-8-1985 | 33. GSR 1054 (E) dt. 2-11-1988 |
| 7. GSR 982 dt. 19-10-1986 | 34. GSR 179 dt. 18-3-1989 |
| 8. GSR 553 (E) dt. 27-3-1986 | 35. GSR 358 (E) dt. 15-3-1989 |
| 9. GSR 314 dt. 26-4-1986 | 36. GSR 622 (E) dt. 15-6-1989 |
| 10. GSR 566 dt. 26-7-1986 | 37. GSR 865 (E) dt. 29-9-1989 |
| 11. GSR 953 (E) dt. 23-7-1986 | 38. GSR 413 (E) dt. 29-3-1990 |
| 12. GSR 1121 (E) dt. 1-10-1986 | 39. GSR 574 (E) dt. 15-6-1990 |
| 13. GSR 1167 (E) dt. 28-10-1986 | 40. GSR 933 (E) dt. 3-12-1990 |
| 14. GSR 1237 (E) dt. 28-11-1986 | 41. GSR 985 (E) dt. 20-12-1990 |
| 15. GSR 49 dt. 17-1-1987 | 42. GSR 74 (E) dt. 18-1-1991 |
| 16. GSR 112 (E) dt. 25-2-1987 | 43. GSR 237 (E) dt. 25-4-1991 |
| 17. GSR 377 (E) dt. 9-4-1987 | 44. GSR 251 (E) dt. 2-5-1991 |
| 18. GSR 674 (E) dt. 27-7-1987 | 45. GSR 543 (E) dt. 21-5-1992 |
| 19. GSR 719 (E) dt. 18-8-1987 | 46. GSR 560 (E) dt. 26-5-1992 |
| 20. GSR 837 (E) dt. 5-10-1987 | 47. GSR 587 (E) dt. 10-6-1992 |
| 21. GSR 989 (E) dt. 17-12-1987 | 48. GSR 730 (E) dt. 19-8-1992 |
| 22. GSR 337 (E) dt. 11-3-1988 | 49. GSR 830 (E) dt. 28-10-1992 |
| 23. GSR 361 (E) dt. 21-3-1988 | 50. GSR 62 (E) dt. 11-2-1993 |
| 24. GSR 626 (E) dt. 17-5-1988 | 51. GSR 80 dt. 6-2-1993 |
| 25. GSR 660 (E) dt. 31-5-1988 | 52. GSR 384 (E) dt. 27-4-1993 |
| 26. GSR 693 (E) dt. 10-6-1988 | 53. GSR 387 (E) dt. 28-4-1993 |
| 27. GSR 734 (E) dt. 24-6-1988 | 54. GSR 220(E) dt. 26-3-2004. |

Appendix-C

Survey Questionnaire for citizens of Meghalaya on the "Role of the USOF in Bridging the Digital Divide"

Q1. Your Name (optional) _____

Q2. Whether you are you using internet/ Mobile Services?

Yes

No

Can't say

Q3. If yes, since when you are using internet/ Mobile Services?

less than 1 year

Between 1-5 yrs

More than 5 yrs

Q4. Are you aware of the schemes for Internet/4G mobile Services, launched by Government, in rural and remote areas of Meghalaya?

Yes

No

Can't say

Q5. If yes, whether the present mobile services/internet connectivity has improved in Meghalaya?

Yes

No

Can't say

Q6. If yes, has this improved connectivity helped you to **access online e-gov services, entertainment, e-learning or e-commerce services without physically going to market/ Govt. offices?**

Yes

No

Can't say

Q7. If yes, how has this improved connectivity helped you? (you can choose more than one option)

(i) **Improved access to global information**

(ii) **Improved access to local governance**

- (iii) **Improved access to education, health etc**
- (iv) **Improved social communication (VC, e-mail, social media)**
- (v) **None of the above**

Q8. If no, do you think improved connectivity has no direct benefit for citizens of Meghalaya?

- Yes
- No
- Can't say

Q9. **How often do you use mobile services/ Internet to know about the government schemes like Skill development, employment schemes, social welfare schemes, MSME Loans etc.**

- Very Often**
- Rarely**
- Never**

Q10. Any other remarks _____

Appendix D

Survey Questionnaire for Director, USOF to get feedback on the issues and challenges of USOF implementation, particularly in Meghalaya.

Q1. Your Name (optional)

Q2. Your Designation

Q3. How many schemes are initiated by USOF in Meghalaya? (request for the list and details)

Q4. What is the present status of schemes implemented by USOF in Meghalaya?

Sr.	Name of scheme	Status (write Yes / No in any one of the options)				
		Implemented	Under Implementation	Work yet to be started	Under Consideration	Can't say
1						
2						
3						
4						
5						

Q5. Whether these schemes have helped in bridging digital divide in Meghalaya?

- Yes
- No
- Can't say

Q6. If yes, how has this improved broadband connectivity helped Meghalaya? (you can choose more than one option)

- (i) Improved access to global information
- (ii) Improved access to local governance
- (iii) Improved access to education, health etc
- (iv) Improved social communication (VC, e-mail, social media)
- (v) None of the above

Q7. What are the implementation challenges and what could be the new avenues/
strategies to implement USOF schemes for optimum utilization of USOF help to
bridge the digital divide particularly in Meghalaya?

Q8. Any other remarks _____

Appendix E

Survey Questionnaire for Dy. Director General, USOF to get feedback on the issues and challenges of USOF implementation, particularly in Meghalaya

Q1. Your Name (optional)

Q2. Your Designation

Q3. What are various schemes initiated by USOF for improvements of telecom services in rural and remote parts of India? (**request for the list and details**)

Q4. How many schemes are initiated by USOF in Meghalaya? (**request for the list and details**)

Q5. What is the present status of schemes implemented by USOF in Meghalaya?

Sr.	Name of scheme	Status (write Yes / No in any one of the options)				
		Implemented	Under Implementation	Work yet to be started	Under Consideration	Can't say
1						
2						
3						
4						
5						

Q6. Whether these schemes have helped in bridging digital divide in Meghalaya?

- Yes
- No
- Can't say

Q7. If yes, how has this improved broadband connectivity helped Meghalaya? (you can choose more than one option)

- (vi) Improved access to global information
- (vii) Improved access to local governance
- (viii) Improved access to education, health etc
- (ix) Improved social communication (VC, e-mail, social media)
- (x) None of the above

Q8. How USOF is contributing in bridging digital divide in rural and remote parts of India, particularly in Meghalaya as compared to other schemes for bridging the digital divide?

Q9. What are the implementation challenges and what could be the new avenues/ strategies to implement USOF schemes for optimum utilization of USOF help to bridge the digital divide particularly in Meghalaya?

Q10. Any other remarks _____

Appendix F

Survey Questionnaire to Administrator, USOF to get opinion on whether USOF schemes helped in bridging digital divide particularly in Meghalaya

Q1. Your Name (optional)

Q2. Your Designation

Q3. Whether USOF schemes have helped in bridging digital divide in India, particularly in Meghalaya?

- | | |
|-----------|--------------------------|
| Yes | <input type="checkbox"/> |
| No | <input type="checkbox"/> |
| Can't say | <input type="checkbox"/> |

Q4. If yes, how has this improved broadband connectivity helped Meghalaya? (you can choose more than one option)

- | | |
|---|--------------------------|
| (i) Improved access to global information | <input type="checkbox"/> |
| (ii) Improved access to local governance | <input type="checkbox"/> |
| (iii) Improved access to education, health etc | <input type="checkbox"/> |
| (iv) Improved social communication (VC, e-mail, social media) | <input type="checkbox"/> |
| (v) None of the above | <input type="checkbox"/> |

Q5. What are the implementation challenges and what could be the new avenues/ strategies to implement USOF schemes for optimum utilization of USOF help to bridge the digital divide particularly in Meghalaya?

Q6. Any other remarks _____

Appendix G

Schemes initiated by USOF for improvements of telecom services in rural and remote parts of India (Status as on 31.12.2022)

A. BHARATNET:

1. BharatNet:

BharatNet, one of the biggest rural telecom projects of the world, is being implemented in a phased manner to connect all the Gram Panchayats (GPs) by Broadband. The Phase-I was completed in December 2017 with the implementation of over 1 lakh GPs, remaining GPs (except 41,978 GPs work proposed in Phase-III/Restructured model) are being connected under BharatNet Phase-II.

i. BharatNet Project Status at a Glance: -

Job items	Phase-I	Phase-II	Overall (Phase-I+Phase-II)
Total number of GPs undertaken (Excluding BHQ)	1,20,160 + 60 (Pilot GPs) = 1,20,220	1,39,249+ (5166 on satellite) =1,44,415	2,64,635
OFC laid (Route Km)	3,10,406	3,01,822	6,12,228
GPs made Service Ready(Excluding BHQ)	1,19,665 including Pilot GP)	63121+4503 (Satellite) = 67,624	1,87,289 [1,82,593 (Fibre) + 4503(Satellite)
OFC laid in GPs + Pilot GPs (Excluding Service Ready BHQ GPs)	1,21,468(Including Pilot GPs) (excl. 3022(BHQ)	71,866 excluding 861 BHQ)	1,93,334 (Excl. BHQ)

ii. Utilization status

Number of GPs in which Wi-Fi Access Points (APs) installed	1,04,664
FTTH connections	Commissioned: 2,18,885
Dark fibre lease (Km)	58,648
Leasing out BharatNet Bandwidth (Mbps)	36,19,254
SWAN Integration	17,014 GPs
Data Consumption/month December-2022	5301(TB)

iii. Status of State-Led-Model

State	Total number of GPs undertaken	OFC laid (km)	OFC (GPs) (Excluding BHQs)	Service ready GPs (Excluding BHQ)
AP	11254	29964	6521	3513
Maharashtra	12740	49193	10211	8659
Gujarat	7669	35,246	7669	7620
Telangana	10787	25299	7092	7021
Chhattisgarh	5964	29012	5534	5442
Jharkhand	1678	8,533	1672	1672

State	Total number of GPs undertaken	OFC laid (km)	OFC (GPs) (Excluding BHQs)	Service ready GPs (Excluding BHQ)
Odisha	2939	20,388	2932	2932
Tamil Nadu	12524	6813	1154	1112
Total	65,555	2,04,448	42,785	37,971

iv. BSNL NON EPC Model

State	Total number of GPs undertaken	OFC laid	OFC-GPs (Excluding BHQs)	Service ready GPs (excluding BHQ)
Madhya Pradesh	5286	28,174	5248	5237
Uttar Pradesh (East)	16807	40649	14709	12555
Uttar Pradesh (West)	2127	5,126	1751	0
Sikkim	114	595	15	0
Total	24,334	74,544	21,723	17,792

v. BBNL Led Model (Private Sector Led Model)

State	Total number of GPs undertaken	OFC laid (Km)	OFC GPs (Excluding BHQs)	Service ready GPs (Excluding BHQ)
Bihar	2669	10959	2645	2645
Punjab	4713	11871	4713	4713
TOTAL	7,382	22,830	7,358	7,358

vi. Satellite Model (Connecting far- flung GPs through Satellite)

Total GPs	Equipment installed (GPs)	Service Ready GPs
5166	5287 (BSNL: 1381 + BBNL: 3906)	4,503(BSNL:1201 +BBNL :3302)

vii. Revised Model for BharatNet

For implementation of the PPP model in 16 States, the Request for Proposal (RFP) was floated on 20.07.2021 through global bidding for selection of the Private Sector Partner(s) and bid was opened on 27.01.2022, with last date of bid submission on 27.01.2022. No bid was received to PPP Model on 27.01.2022. Revised RFP and timelines being worked out with alternative models. As indicated in the Budget announcement for 2022-23, the project is envisaged to be completed in 2025.

B. COMPREHENSIVE TELECOM DEVELOPMENT PLAN (CTDP) FOR THE NORTH-EASTERN

REGION:

The present status of CTDP NER is as under:

2. Provision of Mobile Services in Uncovered Villages and along National Highways (NHs) of Assam, Manipur, Mizoram, Tripura, Nagaland, Sikkim and Arunachal Pradesh

Agreements signed on 08.12.2017 with M/s BAL/BHL for installation of 2004 mobile towers in 2128 uncovered villages and along National Highways of Assam, Manipur, Mizoram, Nagaland, Sikkim, Tripura and National Highways of Arunachal Pradesh at a project Cost Rs 1655.66 Cr.

Status as on 09.01.2023.

- Tower constructed: 1358
- Mobile Towers radiating: 1358
- Total No. of villages covered with mobile services: 1246
- Total No. of NH sites providing mobile services: 283
- Project complete as all feasible sites have been installed

(i) **Note :** About 372 sites could not be installed due to pre-existence of mobile coverage, population migrated, etc. and remaining sites were not installed due to various reasons such as forest clearance, defence clearance, accessibility issues, land record issues, villages washed out, villages not found, State mismatch, etc.

3. Provision of Mobile Services in Uncovered Villages of Arunachal Pradesh and 2 Districts of Assam:

(a) The proposal for 4G mobile services in Arunachal Pradesh and 2 districts of Assam was approved by Cabinet on 09.12.2020. RFP was floated on 04.03.2021 for selection of implementing agency through open competitive bidding process. Applicable Rule Modification in ITR, 1951 was notified on 20.07.2021.

(b) LOIs have been issued on 31.08.2021 to M/s Bharti Hexacom Limited for Arunachal Pradesh and to M/s Reliance Jio Infocomm Limited for Two Districts of Assam (Karbi Anglong & Dima Hasao) and have been accepted by the bidders. Agreement has been signed on 29.10.2021 with M/s BHL for Arunachal Pradesh and on 1.11.2021 with M/s RJIL for Two Districts of Assam.

(c) Survey work of all villages have been completed. So far, in Arunachal Pradesh 61 sites have been installed and commissioned covering 97 villages. In two Districts of Assam, 76 sites have been installed and commissioned covering 94 villages. Target for completion of this project is April, 2023. As per the Agreement, the details are as follows.

Sl. No.	State Name	No. of districts	No. of villages to be covered	No. of towers to be installed	No. of towers Commissioned	No. of Villages Covered
1	Arunachal Pradesh	16	1683	980	61	97
2	Assam	2	691	531	76	94
Total		27	2374	1511	137	191

4. Provision of 4G based Mobile Services in Uncovered Villages and National Highways of Meghalaya:

(a) For Meghalaya, Tender process has been completed. Agreement has been signed with M/s Bharti Hexacom Limited (BHL) on 04.09.2020 for 889 sites (including 11 NH Sites) covering 1164 villages. Further scope has been revised after addition/deletion of sites. As per the revised scope 1094 sites covering 1481 villages are to be commissioned by M/s BHL. Target for completion of the project is May, 2024.

No. of Villages (as per Agreement)	No. of BTSs (as per Agreement)			Deletion of sites approved	Addition Approved village (sites)	Revised Scope - village (sites)	Towers - commissioned	Villages Covered
	For Villages	For Highways	Total					
1164	878	11	889	323	723 (528 sites)	1481 (1094 sites)	321	480

(b) Survey of all sites (except new additional sites) has been completed. Roll out period is Sep 2022 which has been further extended upto 02 March 2023 for remaining 63 sites. Further, roll out period is extended for 18 months for 528 additional sites for covering 723 villages i.e. upto 24.05.2024.

5. Hiring of 10 Gbps International Bandwidth for Internet Connectivity to Agartala from BSCCL, Bangladesh via Cox Bazar:

For making available high quality and high speed internet access to the States of North Eastern Region of the country, Universal Service Obligation Fund (USOF) has signed an Agreement with Bharat Sanchar Nigam Limited (BSNL) on 18.08.2021 for hiring of 10 Gbps International Bandwidth for Internet Connectivity to Agartala from Bangladesh Submarine Cable Company Limited (BSCCL), Bangladesh via Cox Bazar/Kuakata. Under the Agreement, USOF shall provide financial support of Rs. 9.4 crore to BSNL over a period of three years for hiring the aforesaid International Bandwidth. The first 10 Gbps link was commissioned on 26.11.2021 and the second 10 Gbps link was commissioned on 21.04.2022. The project was completed with a cost of Rs. 17.15Cr. to USOF.

C. IMPLEMENTATION OF COMPREHENSIVE TELECOM DEVELOPMENT PLAN (CTDP) FOR ISLANDS:

6. Submarine OFC connectivity between Mainland (Chennai) and A&N Islands (Total 8 Islands with 2312Kms of submarine OFC)

i. In accordance with the Cabinet approval dated 21.09.2016, submarine OFC connectivity of 2313 Km has been commissioned in August/ September 2020 between Chennai and Port Blair and seven other Islands namely Swaraj Deep (Havelock), Long Island, Rangat, Little Andaman (Hutbay), Kamorta, Car Nicobar & Great Nicobar (Campbell Bay).

ii. As per approval Telecom Commission dated 01.05.2018.

- Cost of Project-CAPEX = Rs. 947.283 Crore (including discovered cost of Rs 677.81 crore plus estimated Rs 60 crore for civil & electrical plus taxes & PMC Rs 77.673 crore) by USOF
- OPEX = Rs. 46.84 Crore per year for 5 years = Rs. 276.238 plus taxes by MHA/UT
- Total = Rs. 1224 Crore

iii. The present bandwidth utilization including inter island is 90 Gbps.

7. 4G Mobile connectivity to uncovered villages with population >= 10 (85 villages) & seamless coverage on NH-4 (Erstwhile NH-223) in A&N Islands (82+42 NH Towers):

- ✓ Agreement signed between USO Fund and M/s RJIL on 15.03.2021 for setting up of 82 towers to provide mobile services on 4G Technology in identified 85 uncovered villages with population >=10 and 42 towers for providing 4G mobile services to bridge the gaps in mobile connectivity along uncovered National Highway.
- ✓ As on date, 105 tower sites [Village: 58, Highway: 47] have been approved by USOF as against 124 tower sites survey reports submitted by M/s RJIL.
- ✓ Site acquisition under process in coordination with UT ANI & LSA.
- ✓ Satellite BW to RJIL for the project has been allocated by ISRO.
- ✓ Completion of the project - **14.05.2023**.

8. Status of Satellite bandwidth at ANI and Lakshadweep Islands:

a. Andaman & Nicobar Islands:

- ✓ Work awarded to BSNL on nomination basis for satellite bandwidth augmentation from 2 Gbps to 4 Gbps in Andaman & Nicobar Islands.
- ✓ Satellite Bandwidth Augmentation to 4 Gbps has been successfully implemented by BSNL on 09.09.2021.

b. Lakshadweep Islands:

- ✓ Work awarded to BSNL on nomination basis for satellite bandwidth augmentation from 318 Mbps to 1.71 Gbps in Lakshadweep Islands.

- ✓ Satellite Bandwidth Augmentation to 1.71 Gbps has been successfully implemented by BSNL on 14.08.2021.
 - ✓ DCC has approved another proposal on 13.04.2021 for further enhancement of satellite bandwidth from 1.71 Gbps to 3.46 Gbps utilizing GSAT-31 capacities through NSIL and BSNL on nomination basis. However, owing to request from Secretary (IT) Lakshadweep UT Administration for dropping the proposed satellite bandwidth augmentation under this scheme and subsequent approval/ concurrence by MHA dated 31.01.2022, NSIL and BSNL have been instructed vide letter dated 10.02.2022 for not pursuing/ proceeding further with the project of augmentation of satellite bandwidth for Lakshadweep Islands.
- 9. Submarine OFC connectivity between Mainland (Kochi) and LD Islands (1869 km) (Total 11 Islands; Kavaratti, Kalpeni, Agatti, Amini, Androth, Minicoy, Bangaram, Bitra, Chetlat, Kiltan and Kadmath.**
- ✓ As per cabinet approval dated 09.12.2020, Submarine Optical Fibre Cable Connectivity is to be provided between Kochi and Lakshadweep Islands (KLI Project) comprising of Kavaratti and ten other Islands, namely, Kalpeni, Agatti, Amini, Androth, Minicoy, Bangaram, Bitra, Chetlat, Kiltan and Kadmat.
 - ✓ The project is targeted to be implemented by May 2023 i.e. within 1000 days from the date of announcement by Hon'ble PM on 15th August 2020.
 - ✓ Total Financial Implication is about Rs. 1072 Crore (excluding taxes), which includes CAPEX of Rs. 837 Crore to be funded by USOF while OPEX of Rs. 235 Crore for 5 years is to be funded by MHA / UT Administration of Lakshadweep Islands.
 - ✓ As per Cabinet approval, letter issued on 18.12.2020 nominating BSNL as Project Execution Agency and appointing TCIL as Technical Consultant of the project.
 - ✓ Land has been allocated by Lakshadweep UT Administration for these Kavaratti, Kiltan, Bangaram and Bitra for construction of new Cable Landing Station (CLS) building to USOF/DoT.
 - ✓ BSNL has issued the purchase order to M/s NECCIPL, the successful bidder, on 28.09.2021 as an outcome of the global turnkey tender floated on 10.03.2021.
 - ✓ Work Order has been issued by TCIL to M/s EQMS India Private Limited, the successful bidder on 19.07.2021 for obtaining Statutory clearances including Environmental Impact Assessment/ Coastal Regulation Zone (EIA/CRZ), Forest, Wildlife clearance etc.
 - ✓ TCIL has issued the work order to M/s Tata Telecommunication & Transformation Services, the successful bidder, on 16.11.2021 for IMA.
 - ✓ Gazette Notification for amendments in Rule 525 & 526 of Indian Telegraph Rules (ITR) 1951 published on 27.07.2021 for nomination of BSNL as the Project Execution Agency.

- ✓ Marine survey commenced on 14.12.2021. Deep Water Marine Route Survey has been completed for all segments on 31.03.2022. In-shore Survey (Shallow Water Survey) on the Islands side has been completed.
- ✓ The survey and baseline data collection work for seeking EIA/ CRZ etc. clearance has been completed by M/s EQMS. EIA / CRZ applied for both Kochi & Lakshadweep. From Kerala CZMA, case has been forwarded to MoE&F New Delhi on 24th Mar'22.
- ✓ MoEF CRZ meeting held on 06.07.2022 and the project has been recommended for execution with certain conditions/actions.
- ✓ Land OFC - Pipe laying completed. Cable blowing done.
- ✓ Start of laying of submarine cable is proposed from 2nd week of Feb-2023.
- ✓ Civil and Electrical Infrastructure work is under progress by BSNL for installation of Cable Landing Stations.
- ✓ TSE for all stations received at Kochi warehouse. Supply of items related to Equipment installation is in progress.
- ✓ Target: May 2023.

D. SCHEME FOR MOBILE COMMUNICATION SERVICES IN LEFT WING EXTREMISM (LWE) AFFECTED AREAS: -

10. Mobile connectivity in Left Wing Extremism (LWE) affected areas: Phase-I (LWE-I):

- (a) The cabinet on 20.08.2014 has approved a project for provisioning of mobile services (**2G based**) in 2199 locations in LWE affected areas. The work was awarded to BSNL on nomination basis. Under the agreement (30.02.2014), USOF would fund CAPEX for 1836 sites and OPEX for 2199 (1836 + 363 towers already installed by BSNL in these areas) for five years. Subsequently MoC & IT in June 2016 approved the provision of mobile services for additional 156 sites under the LWE agreement. Thus, total 2355 sites were approved under LWE-I out of these 2355 sites, 2343 sites are radiating. The cost of the project was 4080.78 Cr and the Project has been completed.
- (b) State wise status of installed Mobile towers is as follows:

S. No.	State	Total MHA identified sites Under LWE Phase I	Sites providing services.
1.	Andhra Pradesh	62	62
2.	Bihar	250	250
3.	Chhattisgarh	532	525
4.	Jharkhand	816	816
5.	Maharashtra	65	65
6.	Madhya Pradesh	22	22

7.	Odisha	261	256
8.	Telangana	173	173
9.	Uttar Pradesh	78	78
10.	West Bengal	96	96
Total		2355	2343*

*7 sites in Chhattisgarh were burnt by Naxalites and *5 Sites in Odisha could not be installed due to non-permission by State Govt.

- (c) As per MHA direction, a proposal for upgradation from 2G to 4G technology at all LWE-I sites and Operation & Maintenance of existing sites till upgradation is under active consideration for the same a Cabinet Note has been submitted to Cabinet Secretariat vide dated 26.04.2022 with an estimated cost of Rs. 2,426 Crore. Cabinet Secretariat vide dated 02-05-2022 has approved the proposal for upgradation of existing 2G sites to 4G. Preparation of Agreement is under process.

11. Mobile connectivity in Left Wing Extremism (LWE) affected areas: Phase2 (LWE-II):

- (a) Cabinet approved on 23.05.2018 the proposal of installing 4072 mobile towers with 2G+4G technology at location identified by MHA in LWE affected areas with subsidy support of Rs. 7330 Crore (Excluding taxes) from USOF. The roll-out period is 18 months from the date of signing of contract with implementing agencies.
- (b) Tender was floated for revised 2217 MHA identified tower locations with estimated cost of Rs. 3214.65 Crore on 04.11.2019. Tender had to be cancelled due to poor response and was re-floated on 11.03.2021 with revised 2542 number of tower sites for "provision of 4G based mobile services at MHA identified tower locations in Left Wing Extremism (LWE-II) affected areas".
- (c) Tender has been approved and agreements have been signed with M/s Reliance Jio Infocomm Limited (RJIL) on 28-09-2021 for the states of Madhya Pradesh, Chhattisgarh, Odisha and Maharashtra and with M/s Bharti Airtel Limited (BAL) on 01-10-2021 for the states of Andhra Pradesh, Bihar, Jharkhand, Telangana, Uttar Pradesh and West Bengal. Target for completion of this project is March, 2023.
- (d) So far, 284 mobile towers and associated infrastructure have been installed and commissioned covering 294 locations in the State Maharashtra, Chhattisgarh, Madhya Pradesh and Odisha. The State-wise details of the LWE Phase-II tower location is as follows:-

S No.	State	No of Districts	No. of Mobile Towers	No. of tower commissioned	Total no. of villages covered
1	Andhra Pradesh	9	346		
2	Bihar	7	16		
3	Chhattisgarh	15	971	174	184
4	Jharkhand	21	450		
5	Madhya Pradesh	2	23	6	6
6	Maharashtra	3	125	6	6
7	Odisha	5	483	98	98
8	Telangana	12	53		

S No.	State	No of Districts	No. of Mobile Towers	No. of tower commissioned	Total no. of villages covered
9	Uttar Pradesh	1	42		
10	West Bengal	5	33		
Total		80	2542	284	294

E. ASPIRATIONAL DISTRICT SCHEMES:

12. 502 Aspirational District Scheme:

- (a) The scheme has been planned for provisioning of 4G based Mobile Service in 502 uncovered villages of Aspirational districts of four states -Uttar Pradesh, Bihar, Madhya Pradesh & Rajasthan with an estimated cost of Rs. 686.71 Crore.
- (b) Tender for selecting the implementing agencies was floated on 19.05.2020. Agreement has been signed with the Project Implementing Agencies i.e. M/s RJIL on 17.03.2021 for Madhya Pradesh and Uttar Pradesh Bidding Unit and on 22.03.2021 with M/s Bharati Airtel Ltd. for Bihar bidding unit and M/s Bharati Hexacom Ltd. for Rajasthan bidding unit. Target for completion of this project is 16.12.2022.
- (c) The installation work is under progress. So far, 146 villages have been covered by installing 119 Mobile towers under this project., details are as follows:

Sl. No.	Bidding Unit	State Name	No. of Aspirational districts	No. of villages to be covered	No. of towers to be installed	No. of Sites Commissioned	No. of Villages Covered
1	Bihar	Bihar	5	80	62	23	40
2	MP & UP	Madhya Pradesh	8	205	194	57	63
		Uttar Pradesh	6	22	20	19	19
3	Rajasthan	Rajasthan	5	195	186	20	24
Total			24	502	462	119	146

13. 7287 Aspirational District Scheme:

- (a) The scheme has been planned for provisioning of 4G based Mobile service in 7287 uncovered villages of 44 Aspirational Districts of 5 States - Andhra Pradesh, Chhattisgarh, Jharkhand, Maharashtra and Odisha with an estimated cost of Rs. 6466 Crore. The scheme was approved by Cabinet in its meeting on 17.11.2021. The RFP was floated on 07.12.2021 and the agreement with L-1 bidders (M/s RJIL for 3 States and M/s BAL for two States) have been signed on 20-05-2022. So far, 6522 villages' survey has been completed and 19 mobile sites have been commissioned covering 37 villages. Target for completion of this project is November, 2023.
- (b) State wise list of 7287 uncovered villages of 44 Aspirational Districts of 5 States is as follows: -

Sl. No.	State	No. of Aspirational districts	No. of Villages as per agreement	No. of sites as per agreement	No. of Sites Commissioned	No. of Villages Covered
1	Andhra Pradesh	3	1218	771	6	16
2	Chhattisgarh	8	699	546	11	11

Sl. No.	State	No. of Aspirational districts	No. of Villages as per agreement	No. of sites as per agreement	No. of Sites Commissioned	No. of Villages Covered
3	Odisha	10	3933	2379	2	10
4	Jharkhand	19	827	625		
5	Maharashtra	4	610	458		
Total		44	7287	4779	19	37

F. UNCOVERED VILLAGES SCHEMES

14. 354 Uncovered Villages Scheme:

- (a) Tender for provision of mobile service in 354 uncovered villages of border villages of J&K, Ladakh, Himachal Pradesh, Uttar Pradesh, Bihar, Rajasthan, Gujarat, Uttarakhand and other priority areas was floated on 17.10.2019. Agreement has been signed on 28.04.2020 with implementing agency i.e. M/s Reliance Jio Infocomm Ltd. The cost of the project is Rs. 336.9 Cr.

So far, 279 villages have been provided coverage by installing 258 mobile towers. Details are as under:

S. No.	State/ UT	Total no. of villages as per Agreement	No. of villages covered	No. of towers installed
1	Bihar	8	8	5
2	West Bengal	1	1	1
3	Gujarat	70	55	45
4	Himachal Pradesh	59	42	37
5	Jammu & Kashmir	87	63	61
6	Ladakh	57	49	49
7	Karnataka	3	3	3
8	MP	1	0	0
9	Rajasthan	31	28	28
10	Uttar Pradesh	9	8	7
11	Uttarakhand	28	22	22
	Total	354	279	258

- (b) Further an additional order for covering '55 uncovered villages' under this scheme has been issued to M/s RJIL vide letter dated 06-09-2021. The cost of the project is Rs. 22.82 Cr. So far, out of these 55 villages, 20 villages have been covered by installing 20 Mobile towers and associated infrastructure. Tower installation is under progress.

S. No.	State/ UT	Total no. of villages as per LOI	No. of villages covered	No. of towers installed
1	Gujarat	2	0	0
2	Jammu & Kashmir	11	1	1
3	Ladakh	10	8	8
4	Rajasthan	4	2	2
5	Uttarakhand	28	9	9
	Total	55	20	20

15. Saturation of 4G mobile services:

- (a) The Union Cabinet on 27.07.2022 approved a project for saturation of 4G mobile services in uncovered villages across the country at a total cost of Rs. 26,316 Cr. The project will provide 4G mobile services in 24,680 uncovered villages in remote and difficult areas. The project has a provision to include 20% additional villages on account of rehabilitation, new-settlements, withdrawal of services by existing operators etc.
- (b) In addition, 6,279 villages having only 2G/3G connectivity shall be upgraded to 4G. The project is being executed by BSNL. The project is targeted to be completed by Dec-2023.
- (c) Survey work of about 30,813 villages has been completed. Work of land allocation and infrastructure works for the towers is under progress. Weekly review meetings are held by DoT/USOF with BSNL, to expedite the.

G. OPERATIONALIZATION OF DSPTS:

- ✓ Agency: BBNL/ TCIL
- ✓ Target: 1409
- ✓ Till date, 1382 VSATs have been made operational out of total 1409 (including 124 Ladakh VSATs)